The Theory and Practice of Free Economic Zones: A Case Study of Tianjin, People's Republic of China

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To my Wife, my Son and my Mother

Preface

For several decades, Free Economic Zones (FEZs) have become a truly global economic phenomenon. As political tools and strategic measures FEZs have a great impact on the economic development and structural reform in both developed and developing countries, especially in China. Since 1986 I have been engaged in or been in charge of several studies on Tianjin's regional development policy, urban and regional planning as well as FEZ's planning. FEZ's theory and practice, especially, the successful development of Tianjin Economic and Technological Development Area (TEDA), was one of my research interests during this period.

As a visiting scholar I began my research work under the guidance of Prof. Dr. Jürgen G. Holnholz and Dr. Alfred Bittner at the Institute for Scientific Cooperation with Developing Countries / Tuebingen, and Prof. Dr. Hans Gebhardt, Prof. Dr. Gerd Kohlhepp, Prof. Dr. Dieter Eberle and Dr. Joachim Vogt at the Department of Geography, University of Tuebingen in 1994. I have participated in several seminars about "regional planning" in Germany, and made several field trips for the studies of urban and regional planning, industrial development and free ports in Europe. In 1995, I decided to continue my study on FEZs in Germany because it was easier here to have access to the abundant literature on FEZ's development and theory, and also to directly observe the development of FEZs in Europe, which would be beneficial for preparing an empirical study in TEDA. I am very glad to have the chance to write this dissertation under the guidance of Prof. Dr. Hans Gebhardt of the Department of Geography at the University of Heidelberg in 1996.

Although there were numerous difficulties, like, for example, the complex topic, no financial support, minding my baby, and the serious illness of my mother, I have finally finished my study at the end of 2002 with a lot of help. I am highly indebted to Prof. Dr. Hans Gebhardt for proposing the topic, for his ample support, guidance, and for his interest in this study. I am also grateful to Dr. Klaus Sachs for his many concrete constructive suggestions and amendments to this dissertation. I would like to acknowledge Dr. Markus Blumenschein for his help to draw four maps, Mr. Richard Szydlak for his amendments of six maps. Many thanks are also to Mr. James Kautt and Mr. Hans-Jörg Läpple for their help to improve the English of this dissertation based on my original stile, and to Dr. Hans-Joachim Rosner, Mr. Martin Samain (University Tuebingen), Mr. Holger Köppe and Ms. Christina Brueckner (University Heidelberg), Mr. Thomas Mietling for their technological support. Moreover, I would like to thank Prof. Dr. Zhang Junfang, and Prof. Jia Yangjie (Department of Geography, Tianjin Normal University); Dr. Zhang Hongru, Mr. Wei Yunjiu and Mr. Dong Weizhong (Tianjin Port Free Trade Zone); Dr. Ma Mei, Mr. Fang Dahai, Ms. Zhangying and Ms. Sun Xuchung (Tianjin Economic and Development Area - TEDA) as well as the Policy Research Bureau and the German Office of TEDA for their information and material support.

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Abbreviations

APEC	Asia-Pacific Economic Cooperation
b	billion
BNA	Binhai New Area
BWZ	bounded warehouse zone
CECZs	cross-border economic cooperative zones
CDZs	comprehensive development zones
CFEZs	cross-border free economic zones
CGTs	cross-border growth triangles
CIS	company image system
CM	common market
CU	customs union
DCs	developed countries
EC	European Community
ECPBs	export commodity production bases
ED	export dependence
EEC	European Economic Community
EFTA	European Free Trade Area
EG	economic globalization
EO	export-orientation
EPZs	export processing zones
EPU	economic and political union
ETDZs	economic and technological development zones
ETZ	entrepôt trade zone or free transit zone
FCs	free cities
FEZs	free economic zones
FFZs	free financial zones
FFTZ	free frontier trade zones
FGZs	free gambling zones
FPs	free ports
FTA	free trade area
FTZs	free trade zones
FYP	Five Years Plan
GATT	General Agreement on Tariffs and Trade
GIOV	gross industrial output value
GLF	Great Leap Forward
GTs	growth triangles
HIDA	Tianjin High-Tech Industrial Development Area
IS	import substitution
LDCs	less developed countries
LRs	law and regulations
m	million
MEU	monetary and economic union
NAFTA	North American Free Trade Area
NHIPs	new and high-tech industrial parks

NIZHR	New Industrial Zone in Lower Reaches of Haihe River
PCA	preferential customs area
PEU	political and economic union
PNA	Pudong New Area
REC	regional economic cooperation
RED	regional economic development
REI	regional economic integration
RI	regional integration
SAEAs	special administrative and economic zones
SEZs	special economic zones
SPs	science-based parks
SIPs	science-based industrial parks
SNA	Suzhou New Area
SOEs	state-owned enterprises
TCs	transnational corporations
TD	trade dependence
TEDA	Tianjin Economic and Technological Development Area
TFTZ	Tianjin Free Trade Zone
Three Combinations	combination of secondary and tertiary industry, national and international market, foreign and domestic capital
Three Orientations	industry-, export- and foreign capital-orientations
UNIDO	United Nations Industrial Development Organization
WTO	World Trade Organization

Introduction

Areas with special economic privileges – like the right to raise lower taxes – have been established in various kinds since the 16th century. Until the 1960s, however, these Free Economic Zones (FEZs) only played a minor role in the world economy. Since then, a variety of new models has developed, and their importance has risen on a global scale. This is especially true for the FEZs in both developing countries, especially in the People's Republic of China.

The establishment of FEZs is one of China's most important steps towards liberalization of its economy and is a milestone for China's integration into the world economy. It marks a deep structural reform because it put an end to the monopoly of planned economy and replaced it by a hybrid system which includes – mainly limited to the FEZs – a capitalist economy and socialist politics. The political system, however, has remained unchanged so far.

China's closed economic policy, which was based on import substitution (IS), has been replaced by a policy of openness. This transformation included reforms of the macro economic management and of the functions of the government. Large areas and numerous industrial sectors, especially near the coast, were opened to foreign investors. Numerous preferential policies have been formulated in order to attract them. The first four FEZs - in China called Special Economic Zones (SEZ) - were set up in the coastal region of South China as an experiment, and spread from there to the North in the 1980s and from the coast region to the interior in the 1990s. Besides numerous regional and local FEZs, there are about 125 FEZs on the national level today, including five SEZs, 35 Economic and Technological Development Zones (ETDZs), two Comprehensive Development Zones (CDZs), 53 New and High-Tech Industrial Parks (NHIPS), 15 Free Trade Zones (FTZs), 13 Free Frontier Trade Zones (FFTZs), two Cross-Border Growth Triangles (CTGs,) and 13 Export Processing Zones (EPZs).[1]

As a new generation of Chinese Export Commodity Production Bases (ECPBs) and world FEZs, China's FEZs have become the engines to promote economic development on a national and regional level. They have also become the base to provide necessary experiences to open policy, and structural reforms. FEZs are the keys to understand and explain China's rapid and sustained economic growth, outwardly-oriented economic strategy, unbalanced regional policy (i.e. not all Chinese regions are treated the same way) and growing integration into the global economy since the 1980s.

The worldwide development of FEZs is tending towards a general model, although there still is a rich structure of different kinds of FEZs. Chinese FEZs have benefited from this development and from the experiences of other FEZs as well as it has, at least in parts, the other way round, enriched the theory and practices of world FEZs.

There are numerous theoretical and empirical studies on FEZs. The classic studies discussed trade creation and trade transfer in a cross-national "Free Economic Area".[2] However, the most studies focus narrowly on the economic effects and roles of EPZs and SEZs in developing and socialist countries.[3] Several studies attempt to provide a theoretical

[1] For discussion, see Wolfgang Taubmann (2001), "Wirtschaftliches Wachstum und räumliche Disparitäten in der VR China", In: <<Geographische Rundschau>>, Heft 10

[2] Viner, Jacob (1950), <<Customs Union Issue>>, New York, Carnegie Endowment for International Peace

[3] Wall, D. (1976), "Export Processing Zones", In: <<Journal of World Trade Law>>, No. 10, pp. 478-498

framework to analyze these economic effects, i.e., its benefits and costs, based on the standard "2 x 2 x 2" Heck-Ohlin trade model for small countries.[4] Others present a general theory of FEZs[5] or they discuss their structural and spatial evolution.[6] Generally speaking, these studies discussed the theory and practice of FEZs from various angles and provide important cornerstones to further studies. However, several questions have not been answered yet. First, there still remains some notable linguistic and conceptual diffusion about the definition and typology of FEZs since a general typological classification has not advanced yet. Second, an indicators system to describe and analyze FEZs has not been developed. Third, most studies analyze the static economic effects, while only little consideration has been given to when, why, and how FEZs evolve under diverse economic, political, social-cultural and spatial conditions on different scales - international, national, regional and local.[7] Fourth, the inherent relation between FEZs and the concept of regional economic integration (REI) has not been wholly discussed so that REI and FEZs look like two separate economic phenomena without any linkages (which is, of course, not the case).

Therefore, this study analyses both the development and the structure of FEZs in China as well as on an international level. In a further step, it evaluates the impact of FEZs in Tianjin, which was chosen as a case study, and tries to propose the future economic development of China on the regional and local level. Furthermore, Chinese FEZs have provided several empirical evidences for the revolution of a FEZ in general. The arguments of this dissertation are based on previous studies and on the recent development of FEZs in China.

In Part A, the world economic integration and its relation with FEZs will be firstly discussed in order to explain FEZ's dominant role in the world economy and its development trend. A structural and spatial evolutionary model of FEZs on an international level will be developed based on a general definition, a factor system and a systematic typology of FEZs, which will improve the previous studies and provide a useful example for Chinese FEZs.

Besides numerous similarities with world FEZs, China's FEZs have also special characteristics. Part B, therefore, focuses on the national and regional level. The necessity to

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Spinanger, Dean (1984), "Objectives and Impact of Economic Activity Zones – Some Evidence from Asia", In: <<Weltwirtschafliches Archiv>>, No. 120, pp. 64-89

Rabani, F. A. (et. al) (1983), "Economic and Social Impacts of Export Processing Zones in Asia: an Evolution", In: <<Asian Productivity Organization>>, Tokyo

Warr, P. G. (1989), "Export Processing Zones: the Economic of Enclaves Manufacturing", In: <<The International Bank for Reconstruction and Development>>, No. 1, Washington DC, pp. 65-88

UNCTC (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe>>, United Nations

Bolz, Klaus, et al. (1990), <<Freihandels- und Sonderwirtschaftszone in Osteuropa und in der VR China>>, Verlage Weltarchiv GmbH, Hamburg

Busch, Berthold (1992), <<Sonderwirtschaftszonen als Instrument der System-Transformation>>, Deutscher Instituts-Verlage

[4] Hamada, Koichi (1974), "An Economic Analysis of the Duty-Free Zone", In: <<Journal of International Economics>>, No. 4, pp. 225-241

Hamilton, Carl and Svensson, Lars E.O. (1982), "On the Welfare Effects of A Duty-Free Zone", In: <<Journal of International Economics>>, No. 13, pp. 45-64

[5] Grubel, Herbert G. (1982), "Towards a Theory of Free Economic Zones>>, In: <<Review of World Economics>>, No. 118, pp. 39-61

Balasubramanyan, V. N. (1988), "Export Processing Zones in Developing Countries: Theory and Empirical Evidence", In: <<Economic Development and International Trade>>, London: Macmillan, pp. 157-195

Chen, Xiangming (1995), " The Evolution of Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, pp. 591-621

[6] McCalla, Robert J, (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press., Halifax, Canada

[7] Chen, Xiangming (1995), "The Evolution of Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, pp. 591-621

establish FEZs in China can be best visualized by looking back to China's economic and regional development policies since 1949/50, especially since 1978, when China's FEZs became the major instrument to open China – or, to be more precise, small parts of China - to the world market. There, the varied types of China's FEZs, their evolution and the disparities between them will be presented based on their roles in national open policy and structural reform, their dominant industrial sectors, preferential policies, governance structures, and location patterns. The general characteristics of China's FEZs will be realized by a comparison with world FEZs. As a result, Part B also summarizes and discussed China's FEZs with 20 years experiences and their development trend in the future.

There are only a few case studies that concentrate on the regional economic effects, problems and prospects of FEZs in China besides the publications that focus on SEZs in South China, which were the earliest FEZs of China. These SEZs have played, of course, a dominant role in China's economic development since the late 1970s. Here, the first capitalistic structures in a socialistic centrally planned economy could be experienced and tried out. Since 1978, many other types of FEZs have occurred, including a large number of ETDZs and two CDZs, most of them located in the coastal region, only few in the interior. The ETDZs of the coastal regions have increasingly contributed to expand open policy and recover old coastal economic centers. One of the very successfully operating ETDZs is the Tianjin Economic and Technological Development Area – TEDA – located in Tianjin, the third largest city of China.

Until the 1990s, Tianjin's economic position decreased due to the national balanced regional policy and to the open policy that started in South China. Following the success of TEDA and the comprehensive economic advantage, however, Tianjin has slowly grown out of the shadow of the close-by capital Beijing and gradually recovered its position as the third largest metropolis and economic center in North China since the 1990s. TEDA itself has become one of the leading ETDZs of China. There has been, however, no comprehensive empirical study so far, which has analyzed the successful model of TEDA, its economic and political impacts on Tianjin area and the national economy, and its theoretical significance for the evolution of FEZs in general. This shortcoming will be ended with the case study of TEDA presented in Part C of this dissertation. To do so, I will give a brief historical overview over Tianjin's urban and economic development as well as over the development of the coastal region of the last hundred years. This will provide a background to understand the economic and political situation of TEDA's establishment and evolution since 1984. Here TEDA's achievement and problems until 2000 will be evaluated. Some proposals will follow this evaluation - for one thing to outline the further prospects of the TEDA, Tianjin and the coastal area, for another to endorse the model of the evolution of FEZs, which might not only be helpful to improve or adjust the structure of FEZs in China, but also around the whole world.

In order to realize these objectives, previous studies and investigations were carried out and published by the author between 1986 and 1993, when he was in charge of and engaged in several projects concerning the coastal economic development, Tianjin port and FTZ as well as social and economic investigation in TEDA, Tianjin port, Tanggu, Dongli and Jinnan districts.[8] As a cornerstone, these studies provide basic information and an intimate

[8] Meng Guangwen (1989), "The Evolution and Characteristics of Tianjin's Town System and the Construction of Industrial Town at the Harbor on the Lower Reaches of the Haihe-River", In: <<Human Geographical Studies>>, No. 4, Xi' an, pp. 33-36
Meng Guangwen (1989), "Comprehensive Study on the Establishment of Tianjin Free Port" In: <<Tianjin Economy>>, Supplement, Tianjin, pp. 45-47 Meng Guangwen (1989), "Comprehensive Study on the Establishment of Tianjin Free Port" In: <<Tianjin Economy>>, Supplement, Tianjin, pp. 45-47
Meng Guangwen(1990), "Comprehensive Analysis of the present Situation of the Development in the Area of the lower Reaches of Tianjin Haihe-River", In: <<City**>>,** No. 2, Tianjin, pp. 45-48

understanding of the social and economic issues in Tianjin coastal region and TEDA as well as useful connections to various experts. Due to these contacts, substantial face-to-face interviews could be realized in 1999/2000, e.g. with several officers of the administrative committee of TEDA (such as the assistant director of TEDA's economic development bureau, the section chief of TEDA's policy research office, the chief engineering department), with senior staff members of foreign enterprises (e.g. Motorola) in TEDA, with the management of a German company in TEDA's sub-zone, with the chief of FTZ's trade development bureau in Tianjin FTZ and others more.

This first hand information was embedded in the analysis of a) officially published literature in English, German and Chinese about FEZs including solid and comprehensive theoretical and empirical studies as well as b) officially published information of statistical data concerning TEDA, Tianjin and China from 1984 to 2000 to analyze the structures and evolutionary stages of TEDA. Another main source of information used for this study are restricted publications, especially of TEDA (1995–2000), including numerous discussion papers and investigation results about TEDA's development and problems – information, which were especially useful to evaluate TEDA's achievement and problems.

Meng Guangwen (1990), "Study of the Effects of Human Activity on the Evolution of Tianjin's Regional Environment", In: <<Regional Conference on Asian Pacific Countries, International Geographical Union (IGU)>>, Beijin, Section 3-39

Meng Guangwen (1990), "Development of the Port Industrial Zone on the lower Reaches of Tianjin Haihe-River – a new Model of Development for the Port Industrial Zone", In: <<Urban Historical Studies>>, No. 2, Tianjin, pp. 125-140

Meng Guangwen (1992), "Grading of Land in Tianjin Municipality's Tanggu District – Calculation of the Proportional Effects of the Town's Basic Facilities", Manuscript, Tianjin Normal University

Sun Kaiyuan, Meng Guangwen (1990), "Review of China's Open Policy and Analysis of Future Prospects", In: <<Theory and Modernization>>, No. 7, Tianjin, 1990, pp. 8-11, and In: <<Regional Conference on Asian Pacific Countries, International Geographical Union (IGU)>>, Beijing, Section 14-54

Part A

The Evolution of Free Economic Zones in the World Economy – a Systematic Approach

In the last decades, world economic integration, including trade liberation, financial internationalization and production integration, has made a great progress. An increasing number of countries have become involved in the international division of labor. For many less developed countries (LDCs), this seems to be a possibility to develop and expand their national economy. The relocation of aging industries from developed countries (DCs) to LDCs is very often explained by theories like production life cycle and similar. The shift of labor-intensive industry (textiles, shoes etc.) at first, and capital-intensive industry (steel, ships, petrochemicals, electronics) later to LDCs let to the theory of "New Spatial Division of Labor".[9] The enormous growth of the industrial sector in many LDCs is based on their attractiveness for foreign capital and their export oriented industrial policies focusing on the world market.

But industrialization is much more than this view reflects. It is a comprehensive process of learning and adjusting to a given national business system. This, of course, is not possible without extensive changes in the political administrative system. Therefore, the national political features as well as the global conditions must be taken into consideration in order to explain the local processes of industrialization. The remodeling of internal social structures was and is an important precondition for successful industrialization in East and Southeast Asia as well as in other LDCs worldwide. But, still, industrialization in LDCs remains local, concentrating on a few regions only. This again results in a (strong) polarization of economic weak and strong regions in a country. They can be urban industrial poles and industrial districts as well as free economic zones (FEZs) that are found in LDCs all over the world.

FEZs have a long history and appear in various types. They are the results of free trade policy, export-oriented industrial policy and deregulation. The first export processing zones (EPZs) were established in Ireland and Taiwan in the 1960s as a result of the relocation of industrial production between DCs and from DCs into LDCs. Since then, EPZs can be found in many LDCs, especially in those countries that have focused on exports (see Fig. 1).

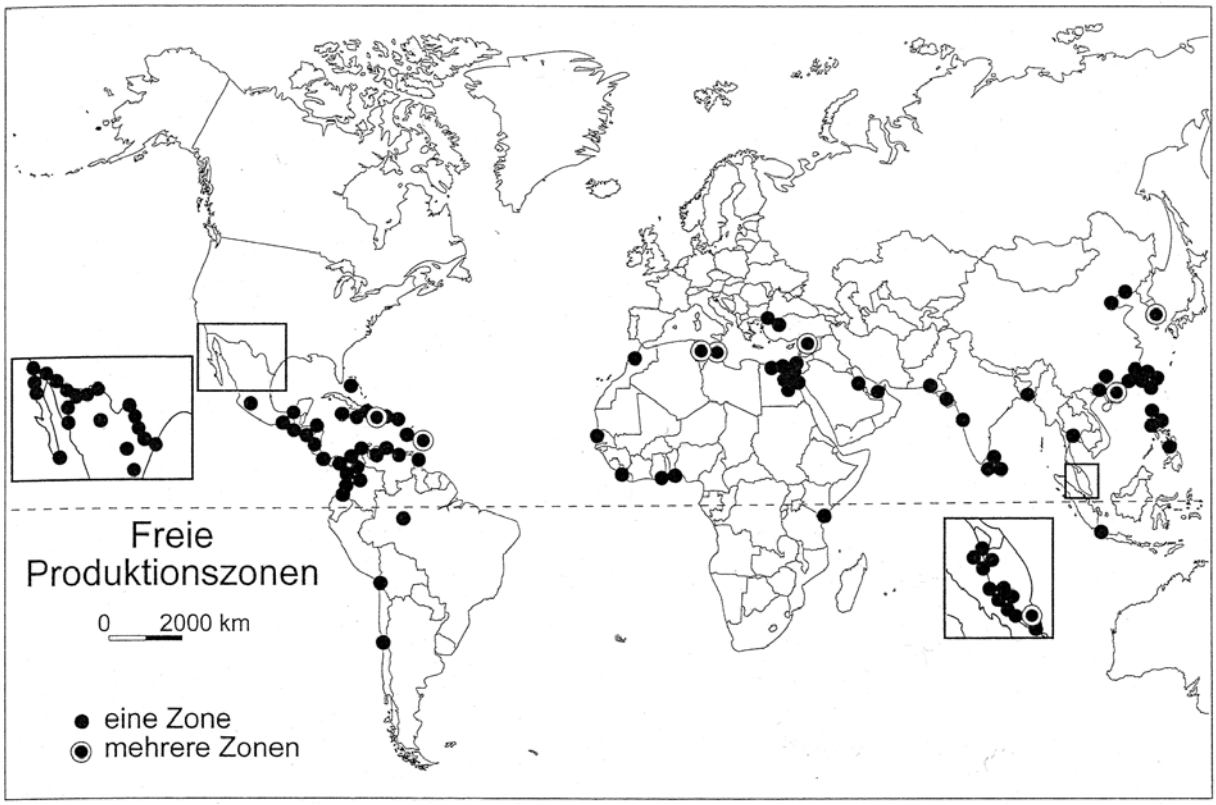
In general, EPZs can be defined as export enclaves, where a national (or local) government provides foreign industries an international accessibility (e.g. harbor, airport, etc.), gives up "ostensible" repressive national regulations (e.g. ban of trade unions) and offers economic incentives (financial and tax). The main advantage for the enterprises in EPZs is the low wages for the unskilled labor force. However, unless a country succeeds in establishing some sort of higher, i.e. more qualified forms of industrial production, its economy is threatened by other low wage countries.

Since the 1960's a broad variety of FEZs and aligned policies have originated worldwide. In order to estimate the significance of FEZs in the People's Republic of China – here first established in the late 1970's as so-called "special economic zones" (SEZs) – different generations of economic areas offering preferential policies throughout the world and

[9] Fröbel, P. Heinrich, J. Kreye, O. (1977), "Die neue Internationale Arbeitsteilung", In: <<Strukturelle Arbeitslosigkeit in den Industrieländern und die Industrialisierung der Entwicklungsländer>>, Reinbek bei Hamburg

throughout history will be presented. The variation and evolution of the function and structure of world FEZs will be analyzed in a systematic approach. Robert J. McCalla (1990)[10] focused his study on the structural and spatial evolution, and several examples of FEZs until 1986, such as FPs, FTZs, EPZs and free tourism zones. Xiangming Chen offered a model of the historical and contemporary evolution of FEZs in the mid 1990s, including EPZs, SEZs and eventual SIPs and cross-border GTs.[11] In part A, McCalla's and Chen's model will be extended and concretized offering a closer look at the interior structural revolution of FEZs. For this analysis, the consideration will be given not only to economic, but also to diverse political, social-cultural and spatial conditions that influence the evolution of FEZs. The close relation between world economic integration and FEZs, a general definition, a general typological classification and a structural and spatial evolutionary model of FEZs will be discussed.

Fig. 1: Export Processing Zones in Less Developed Countries



Source: Dicken, P. (1998): "Global Shift", In: <<Transforming the World Economy>>, London, p. 131; cited by Schamp, E. W. (2000) : <<Vernetzte Production: Industriegeographie aus Institutioneller Perspective>>, Damstadt, S. 175

[10] McCalla, Reobert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc.

[11] Xiangming Chen (1995), "The Evolution of the Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19

1. World Economic Integration and Free Economic Zones

In the development of the world economy, there has been a tendency towards world economic integration (WEI) and economic globalization (EG). Today, this means that most countries are the part of the global economic network, contrary to the time before World War II, when the so-called "world economy" included only some DCs. Even in the 1950s, it was limited to the market-oriented economy. Since then, some LDCs have become newly industrialized countries with market economic systems. Former socialist courtiers have also been included. The world economy established more close relations and is now spatially globalized.

As a part of WEI and EG, FEZs have played a mayor role in world economic development, especially in LDCs. Most prior studies, however, have separately discussed these two world economic phenomena, so that the relation between them has more or less been ignored. In this chapter, WEI and its relation with FEZs will be discussed in order to realize the FEZ's development background and the trend.

1.1. World Economic Integration

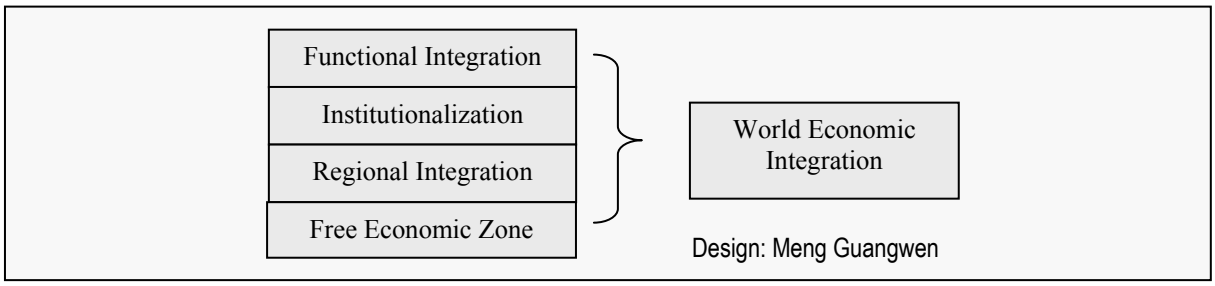
Up to now, there has not been a generally recognized definition because so-called WEI is just at its beginning stage. It has been defined and explained, though, according to some features of the integrative stage at this time. The typical definitions are: the complete elimination of man-made barriers to the worldwide free flow of capital and labor forces;[12] trade liberalization between all countries;[13] the elimination of barriers to the worldwide free flow of the essential factors of production and price equalization of the factors;[14] the elimination of barriers to the worldwide free flow of economic factors at all stages of reproduction.[15] The above-mentioned definitions describe the features of different integrative stages, but regional economic integration (REI) and institutionalization have not been paid enough attention. Based on these statements, WEI can be understood as an increasingly integrating process and the objective of world economic development. In other words, the various economic sectors worldwide and inside the designated regions increasingly merge into an economic system, and the various economic areas are increasingly integrated into an economic entirety. This progress is not only characterized by functional integration and REI, but also guaranteed by institutionalization.

Functional integration includes trade liberalization (TL), financial internationalization (FI) and production integration (PI). TL in commodity exchange, FI in distribution of essential factors of production, PI in production fields indicate separately the integration of the world economy from the grass roots to the higher levels. Institutionalization includes various international treaties and agreements, which is the organizational guarantee to realize the above-mentioned three integrative phases. REI has the different spatial dimensions and levels,[16] and is the spatial form or the regionalization of functional integration and

[12] Balassa, B. (1961), <<The Theory of Economic Integration>>, London
[13] Tinbergen, J. (1965), <<International Economic Integration>>, 2. Aufl. Amsterdam
[14] Kindelberg, C. P. (1973), <<Die Weltwirtschaftskrise>>, Bd. 4 der Reihe Geschichte der Weltwirtschaft im 20. Jahrhundert, Fischer, W., München
[15] Zhang Youwen (1997), "Some Theoretical Problems of World Economic Integration", (Guanyu Shijiejingji Yitihua De Jigewenti), In: <<Xinhuawenzhai>>, No. 12, Beijing, pp. 56
[16] For discussion, see: Pan Xiaomin (1997), "The Theoretical Evolution of Regional Integration", (Qiuyuyitihua De Lilungainian Jiqi Yianbian), In: <<Land and Regional Economy>>, (Guotu Yu Qiuyujingji), No. 2, Beijing, p. 23

institutionalization. The growing number of integrative regions can promote the worldwide development of functional integration and institutionalization, and expand WEI spatially. Today, world REI can be observed at varying development stages in different regions, following different regional models.

Fig. 2: Types and Logical Relation of World Economic Integration



Functional Integration and Institutionalization

Essentially, the development of functional integration is spontaneously furthered by the inherent demand of a market-oriented economy and guaranteed by institutionalization. Both interact as both cause and effect. When functional integration reaches a certain stage, it certainly requires legal, political, and institutional support, namely institutionalization. In return, the development of institutionalization can also promote and guarantee functional integration, and, furthermore, creates the motivation for its own evolution to a higher developmental stage. These are the two different parts of integration.

Trade liberalization (TL)

Just like international trade as the initial stage and the basic form of the world economy, TL is the primary stage and the basic characteristic of WEI. Trade development promotes the establishment of world markets so that most countries wish to eliminate trade barriers and gradually set up a global common market, which is developed from the regional reciprocity in trade to free trade agreements, customs unions, and a multi-trade system.

Since the establishment of the capitalist commodity economy, several powerful nations have gradually opened the world market through trade, military, and colonial expansion. After the postwar years, DCs promoted the development of global free trade and the establishment of a world market. Following the development of trade and the gradual integration of world markets, each individual country's dependence on foreign trade has being increased. Today, trade is still one of the key motives to advance world economic development. Besides, various trade groups have continually been established globally and have thus promoted worldwide and regional TL. In addition, worldwide TL calls for an organizational and an institutional guarantee. GATT (in 1947) and WTO (in 1995) marked the establishment of a standardized and legal world market. GATT desired to realize a global TL throughout multilateral trade negotiations. After eight rounds of negotiations, the reduction of tariff, anti-dumping, the elimination of tariff and non-tariff barriers, the liberalization of agricultural products trade and the protection of intellectual property rights were realized. WTO is to look after multilateral trade agreements and negotiations, resolve trade disputes, control national trade policies and cooperate with other organizations. Besides the functional extension, WTO also established the permanent organization, including "Council for Trade in Goods", "Council for Trade-Related Aspects of Intellectual Property Rights" and "Council for Service Trade". FEZs, especially trade-based and comprehensive FEZs, promoted TL between FEZs and world economy or in return.

Financial Internationalization (FI)
FI or capital internationalization is the process of eliminating barriers to capital free flow on a large-scale and of establishing international institutions.[17] The international monetary system underwent the "Gold Standard Time" (1870–1914), the "Chaos Time" of the 1st and 2nd World War (1915–1943) to the "Bretton Woods Time" (1944–1971) and the "Jamaica Time" (since 1976). Bretton Woods Time marked the setup of a world monetary system. Until today, the US dollar is still the leading international currency, covering 48% of international trade settlement, 42% of foreign exchange transaction and 66% of official foreign exchange reserve.

Following the establishment of the European Dollar Market in the 1950s, a lot of countries have gradually relaxed their financial control. Since the 1990s, the "Financial Service Agreement" of WTO has fixed financial opening as a main condition for new members. In 1995, all industrial countries eliminated their respective restrictions to capital flow. Until 1996, 57 countries eliminated restrictions to capital transaction. This step promoted the establishment and the rapid development of international financial markets and cross-national financial institutions. The volume of foreign exchange transaction in one day averaged 590b US$ in 1989, but reached 1500b US$ in 1998. The volume of stock exchange transaction increased from 150b US$ in 1992 to 3542b US$ in 1997. Recently, many big cross-national commercial and investment banks have been established. As financial globalization calls for global financial coordination and supervision, the corresponding international financial institutions have emerged as needed. The main international institutions include the "International Monetary Fund," "World Bank," and "International Settlement Bank." In addition, regional FI has made tremendous progress in Europe. The European Union (EU) has achieved monetary and economic union. Along with the launch of the Euro, financial market integration has been picking up the speed. The European Central Bank was established in 1999 in Frankfurt/Main, Germany. Recently, an integration of the European stock market has become noticeable. The establishment and development of service-, trade-based and comprehensive FEZs promoted FI between FEZs and world economy or in return.

Production Integration (PI)
TL, especially FI, have fostered foreign direct investment since the 1960s. Production distribution depends to a large degree on the efficient and optimized global use of essential factors of production. In order to reduce production costs and break down national trade barriers, transnational corporations (TCs) plan their worldwide production and remodel the use of world resources according to the world market. TCs also revise and optimize their industrial structures by transferring labor- and capital-intensive industries to LDCs. The industrial sector of a country or a FEZ becomes more and more a result of the global strategy of TCs instead of a result of national industrial policy. In East Asia, the "brother's model" of international division of industrial structure, led by Japan, has been established since the 1980s, namely, that Japan transfers labor-intensive industry to Asian LDCs. The emergence and development of manufacture-based and comprehensive FEZ in DCs, especially in LDCs, is the reflection of PI worldwide.

[17] Yang Zaiping (1999), "Financial Globalization: Advantages, Disadvantages and Management", (Jinrun Quanqiuhua: Libi Yu Guanli), In: << World Affairs>>, No. 6, Beijing, pp. 16-17

Regional Economic Integration [18]

WEI and REI are related entirely and in part, to the development objective and stages. Both promote, supplement and complement each other. First, WEI is the developmental motivation and background of REI because the evolution of the capitalist economy inherently necessitated breaking down the barriers and the restrictions to TL, FI, and PI, and furthering the responding institutional guarantee on the basis of market mechanisms. At the same time, WEI also enhances the opening of some established integrative regions to other areas, e.g. when regional integrative organizations enlarge the integrative and cooperative contingents or win members and cooperate with other regional integrative organizations. Second, REI can promote the development of WEI. Since there are huge regional divergences in economy, politics, culture, and religion, it is only possible to first develop REI in some economic areas and sectors offering favorable conditions. REI will promote the realization of WEI throughout its integrative degree, spatial expansion, and cooperation with other integrative regions. Thus, REI is a necessary step towards WEI and its regional reflection. Only when economic integration in several regions and at different stages was achieved first, WEI could finally be obtained.

According to the substantial evidence of integration in the "European Community" (EC), a general conception of REI was advanced from the 1950s to the 1960s. REI means an integration process of national economies of several member states into a great economic area, including the harmonization and the unification of economic policies and market regulation, the establishment of a common market and cross-national organizations (concluding and signing treaties and agreements).[19] REI calls for the elimination of all kinds of trade barriers between partner countries and other discriminative economic policies, so that the economic rights of member states will be partly transferred to the cross-national organization or the regional cooperation organization with a legally binding power and fulfilling administrative functions.

According to the degree of integration, natural conditions, geographical locations, economic power, political systems, cultures, and religions, REI can be differentiated from the "Model of EC", the "Model of NAFTA (North American Free Trade Zone)", and the "Model of APEC (Asia and Pacific Economic Cooperation) on a global level. The experience of EC shows that REI would evolve from preferential customs area (PCA), cross-national free trade area (FTA), customs union (CU), common market (CM), monetary and economic union (MEU), economic and political union (EPU), and eventually to political and economic union (PEU). Following this evolution, economic integration is transformed from reduction of customs duty, common customs duty, common market, and common economic and social policy to common diplomatic and military policy, and finally to the establishment of the standing cross-national political organizations (see Table 1).[20]

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[18] Note: regional integration (RI) is used to describe the regional and cross-national political and economic cooperation and fusion. It includes regional political integration (RPI) and REI. According to the classic theory, RI is usually understood as REI because REI is the core and the basis of the RI. REI stresses the economic integrative process, whereas RPI focuses on building the respective institutions and the form of regional integrative process. REI plays a fundamental role in the initial integrative phase, but it will lead to RPI when it develops to a higher integrative phase

[19] For discussion, see: Balassa, B.(1961), <<The Theory of Economic Integration>>, London
Qiu Yuanlun (1998), "The Eight Contradictions of Economic Globalization", (Jinji Quanqiuhua Nehan Badui Maodung), In: <<World Affairs>>, No. 6, Beijing, p. 22

[20] For discussion, see: 1) Blank/Clausen/Wacker (1998), <<Internationale Ökonomische Integration>>, Verlag Franz Vahlen München, S. 31-42; 2) Schrott, Jeffrey. J. (1989), <<More Free Trade Areas?>>, Institute for International Economics, Washington, DC, pp. 16-17; 3) Fu Meibing (1993), <<The World Regional Economic Cooperation>>, (Guoji Quyujingji Hezuo), People's Republic House, Beijing

Until today, REI has realized PCA, FTA, CU, CM and MEU. Further development of MEU demands corresponding political integration, which is more difficult and complicated than the economic integration. At stages of FTA, CU, and CM, the free flow of commodity, capital, service and personnel, harmonization, and formulation of common economic policy have been realized and the corresponding cross-national organization has been established in some regions such as EU, but trade protectionism against non-member states are perpetuated and even harmonized. This means that free trade is not yet a reality worldwide, but, amongst other forms of economic integration, it can be gradually realized between some countries and regions, and conceivably finally leads to WEI.

Tab. 1: The Structural Types and Symbols of World Regional Economic Integration

Types \ Symbol		Preferential trade between member states	Free trade between member states	Common customs against third countries	Free flow of production factors	Harmonization & integration of economic & social policy	Economic integration & political cooperation	Economic integration & political integration
REC	PCA	●	○	○	○	○	○	○
	FTA	●	●	○	○	○	○	○
REI	CU	●	●	●	○	○	○	○
	CM	●	●	●	●	○	○	○
	EU	●	●	●	●	●	○	○
REI-RPC	EPU	●	●	●	●	●	●	○
REI-RPI	PEU	●	●	●	●	●	●	○
								Design: Meng Guangwen

Note: The black points show the types of REI including the different integrative continents, and the circles mean the types of REI excluding relevant integration;
REC: regional economic cooperation; REI: regional economic integration; RPC: regional political cooperation; RPI: regional political integration; PCA: preferential customs area; EPU: economic and political union; PEU: political and economic union; FTA: free trade area; CU: customs union, CM: common market, EU: European Union

Besides EC, NAFTA (the United States, Canada and Mexico) was set up in 1994 based on the FTA between the United States and Canada. It will evolve from a FTA to a CM. APEC was established in 1984, and includes several types of REI, such as NAFTA, EAEC (East Asia Economic Cooperation), ASAN (Association of Southeast Asian Nations), planned FTAs between the East Asian Countries and between East Asia and Southeast Asia. APEC will evolve from an forum of REC to a FTA. The similarity and the disparity between them are presented in Table 2.

Tab. 2: Comparison of the Three Regional Economic Integrative Types

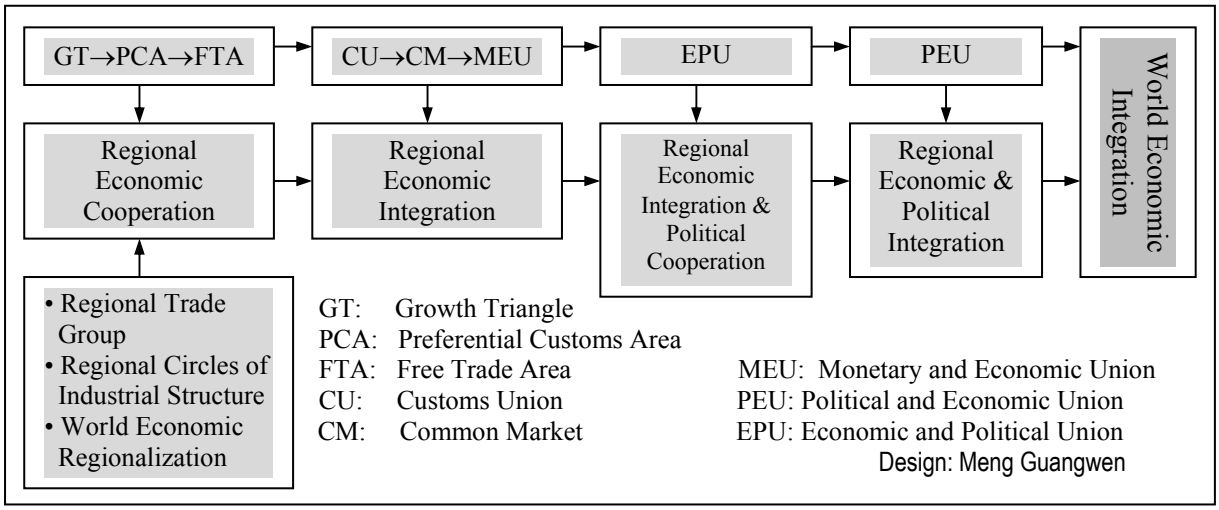
Models / Term	EU	NAFTA	APEC
Time	1957	1994	1989
Member States	15	3	18
Location	Europe	North America	Asia, North America and Oceania
Integrative Conditions	More member states and more similarities	Less member states and less similarities	Numerous member states and huge divergences
Objective	Economic and Political Union	Free trade area with some characteristics of a common market	Free trade area (FTA)
Realized Objectives	Monetary and economic union (MEU)	Free trade area	The prior stage of FTA
The integrative Process	From the low to the high level in a planned way, namely from CU over CM to MEU	From the low to the high level in a planned way, namely from initial FTA, full FTA to CM	From the low to the high level in a planned way, namely from the sectoral liberalization, FTA to full FTA
The integrative Mechanism	From the high levels to the grass roots, namely from treaty and agreement concluded and signed by governments to integrative action	Same as EU	From the grass roots to the high levels, namely from economic cooperation promoted by non-officials to economic and technological cooperation coordinated by the governments
Organization Structure	Cross-national standing institutions such as European Council and European Parliament	Only loose non-standing central institution without cross-national authority such as NAFTA Commission, and standing sectional institution for coordinating and arbitration	Only non-standing and loose institution without cross-national authority, e. i. a coordinating forum for regional economic cooperation such as APEC
Spatial Structure	The three concentric circles, including EC as the center, EFTA as middle circle, some countries in East- and south Europe as the outer circle	Radiating structural model, namely expanded from NAFTA lead by U.S.A. to Middle and South America; finally, building AFTA	Circles linked circles, such as NAFTA, EAEC, ASAN, SPEC and planned FTA between East Asia and Southeast Asia
			Design: Meng Guangwen

Note: developed from numerous readings; CU: customs union; CM: common market; EAEC: East Asia Economic Cooperation; ASAN: Association of Southeast Asian Nations; SPEC: South Pacific Economic Cooperation; AFTA: American FTA

Since the 1980s, some new developments of REI in LDCs or between LDCs and DCs have prompted a change of cross-national economic activities and the multiple objectives of partner countries, and changed the regional integrative premises based on EC experience, so that some new regional integrative types and new conceptions in mid-level have arisen, including "Regional Economic Cooperation" (REC), "Regional Trade Groups," "Regional Industrial Circles," and "World Economic Regionalization." These relevant conceptions are used to describe low level of world REI. REC and the stages pre CU are the primary stages of REI, but REC after CU, possessing a standing cross-national institution, can be considered as an advanced developmental stage of REI. EC has been developed from CU to MEU, but

economic integration in other regions is mostly at the stage of trade liberalization. They will evolve into the higher stages of REI via the classic integrative stages of EC (see Fig. 3).

Fig. 3: The Mutual Relation between Classic and New Structural Types of Regional Economic and Political Integration



Note: the arrows show the relation and evolution of all types of REI to world economic integration

1.2. FEZs: A Necessary Step and Primary Stage of WEI

WEI reflects the inherent law of world economic development, which consists of continuous enlargement of the spatial scope of economic activities, implementing worldwide free flow of commodities, production factors, and workforce and underpinning this process using a common mechanism – market mechanism. On the other hand, the development of world regional economy is so different that there is a long way to go to transform national economies into the world economy. It is necessary to take a transition stage or a smaller step and select a small area with favorable conditions to realize this process. The cross-national REI, REC, and intra-national and cross-border FEZs should be the necessary transition step. Free trade and economic integration between a FEZ and the world economy, and free trade and economic cooperation between the regions and between the member states will be a long and tortuous course to realize the final WEI. In fact, TL, FI, PI, institutionalization, REC and REI were firstly carried out in the FEZs. Herbert G. Grubel believes that FEZs, much like economic integration has done, will increase efficiency in the allocation of global resources and raise welfare.[21]

At first glance, FEZ is far different from World REI. Actually, there are some differences between them. First, FEZ is a geographically and politically defined zone inside the country's territory or cross border regions between more countries, but world REI generally crosses several nations and covers a larger area than FEZs. The coverage of REI is consistent with the external boundary line of the totality of the member states. Second, as an outwardly-oriented integration, FEZ initially carries out economic cooperation and integration with the world economy so that free trade, free economic policy, and administrative privilege activities just within the zone and between the zone and the world economy. On the contrary, as an inwardly-oriented integration, REI carries out economic integration at first between the member states so that the integrative process is first translated into action at the beginning

[21] Grubel, Herbert G. (1984), "Free Economic Zones: Good or Bad?", In: <<Außenwirtschaft>>, 39. Jahrgang (1984), Heft I/II, Diessenhofen, S. 53

within the member states. Third, the integration between FEZs and national economy is more locality, limitation, and indirection so that FEZ has only a narrower, limited and indirect impact on the national economy. The REI, on the contrary, has a wider, deeper, and more direct impact on the national economy.

There are also close inherent relations between them. FEZ is the initial stage, the basis, and part of world REI, and will promote its final realization. Likewise, REI is the developmental form and evolutionary motive power advancing FEZs. The relations are: 1) Like world REI, FEZ's integration with the world economy begin with trade liberalization and is transformed into financial internationalization and production integration, or trade-, manufacturing-, service-based FEZs are transformed into comprehensive FEZs. 2) FEZ has enabled a primary functional integration in a small area between FEZ and the world economy, or FEZ is the sub-regional form and variation of REI, namely, that trade-, manufacture-, service-based and comprehensive FEZs can be regarded as the sub-regional trade liberalization, production integration, financial internationalization, and comprehensive reflection of functional integration of world REI between the zone and the world economy. 3) Intra-national FEZ will evolve into cross-border FEZ, which is a transitional type between FEZ and world REI. Not only does it have FEZ's features such as preferential policy, but also some REI's features such as cross-national location and governance structure. 4) The preferential policy of FEZs such as free trade and free economic policy will be used in other regions, and finally transformed into the general principles of world REI, or in return, the general principle of world REI will become the special policy of FEZs. 5) The administrative privilege of governance structure of FEZs, especially, the governance structure of cross-border FEZ, is the primary form of institutionalization of world REI (see Table 3).

Tab. 3: The Differences and the Inherent Relations between FEZs and World REI

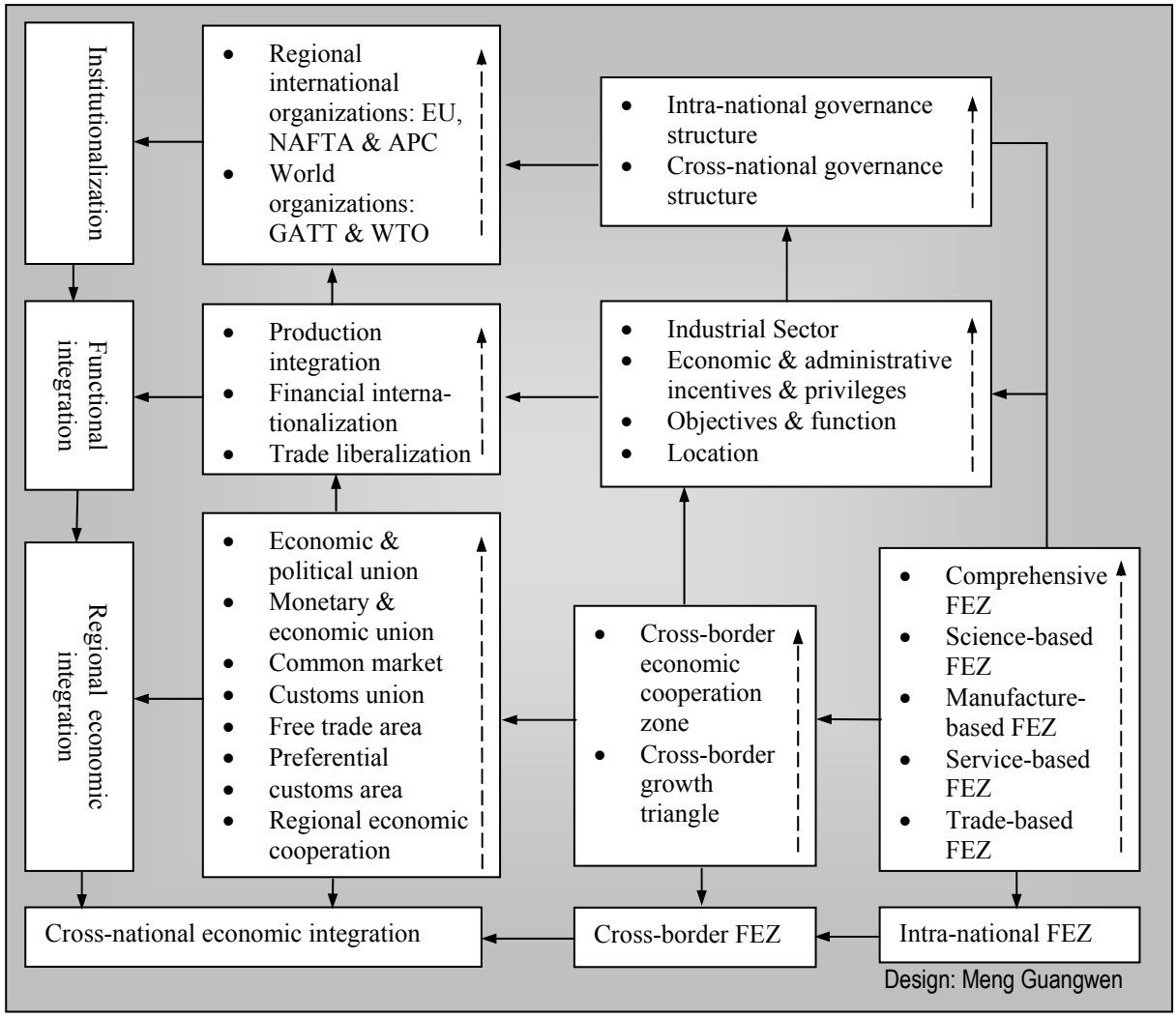
Intra-National and Cross border FEZs	Cross-National REI
• Intra- and cross-border national location; smaller area	• Cross-national location; larger area
• Outwardly-oriented integration between FEZs and the world economy	• Inwardly-oriented integration inside the member states
• Narrower, limited and indirect impact on the national economy	• Wider, deeper, and more direct impact on the national economy
• Primary stage and fundament of WEI	• High level integrative and development form, and final goal of FEZs
• Functional integration in a small area within one zone and between FEZs and the world economy, and evolution from trade liberalization to financial internationalization and production integration	• Functional integration in a large area inside the member states and evolution from trade liberation to financial internationalization and production integration
• Transformation of preferential policy to general principle of WEI	• Transformation of general principles to preferential policy
• Transformation of cross-border governance structures to institutionalization	• Cross-national institutionalization as the further development of FEZs

Design: Meng Guangwen

Summary

Fig. 4 illustrates the development of FEZs and their relation to world WEI. FEZs develop from intra-national FEZ into cross-border FEZ. This process is the first step for REI and eventually for WEI. The various types of FEZs and their factors (industrial sectors, financial incentives and privileges, objectives, and governance structure) are the initial forms, and functional integration and institutionalization of REI and WEI, or the latter is the evolutionary trend of the former. The development of FEZs in numbers and in integrative grade will promote the relevant development of WEI. Only when FEZs are fully developed can WEI eventually be achieved

Fig. 4: The Development of FEZs and their Relation to World Economic Integration



Note: the horizontal arrows show the evolution from intra-national and cross-border FEZ to cross-national REI; the vertical broken arrows show the evolution and relation inside intra-national, cross-border FEZ, and cross-national REI; the vertical solid arrows show the relations between the typologies and factors of intra-national, cross-border FEZs, and cross-national REI

2. The Various Types of Free Economic Zones

The history of FEZs can be traced back to the 15th century in Europe. After the Second World War, FEZs developed very quickly and spread throughout the world. They are at different development stages and have different political and economic backgrounds, so that FEZs possess numerous nomenclatures and different typologies. In the literatures, on this subject we can find numerous terminologies of FEZs. There are currently at least 66 different terms to describe what is generally known as FEZs (see Table 6). Different designations have been used to discuss the same type of FEZs even within a single paper and same designation has been used to discuss different types of FEZs in different papers. For example, free ports (FPs), such as Hong Kong and Singapore, and Chinese SEZs and ETDZs, FTZs and free frontier trade zones (FFTZs) were regarded as EPZs,[22] which are actually different from the typical EPZs in Taiwan and South Korea, or Shannon and Kaosiung EPZs were named as FTZs.[23] In some papers, EPZs were described as FTZs and SEZs.[24] This leads not only to linguistic uncertainty, but also conceptual and classificatory confusion. It reflects the fact that any major institutional, technological, economic innovation and functional evolution of FEZs requires corresponding linguistic and terminological adaptations. The varied nomenclature also results from the fact that the original innovation, as it matures and becomes more widely diffused, acquires entirely new features or evolves in unanticipated ways.[25] Today, it is necessary for a theoretical analysis and a case study to put forward a general definition and a general classification of FEZs. This is also possible by systemizing and summarizing the research results of former scholars and selecting some key criteria.

2.1. Definition of FEZs

Like some scholars and organizations, such as Grubel,[26] the United National Center on Transnational Corporations[27], Fan Sujie,[28] and Xiangming Chen,[29] I prefer to use "Free Economic Zone" as a general designation to cover all other types of FEZs, because FEZ can generalize the dominant characteristics of them.

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[22] Reardon, Lawrence C. (1996), "The Rise and Decline of China's Export Processing Zones", In: <<Journal of Contemporary China>>, No. 5(13)
Balasubramanyan, V. N. (1988), "Export Processing Zones in Developing Countries: Theory and Empirical Evidence", In: <<Economic Development and International Trade>>, edited by D. Greenway, ed., London, Macmillan, pp. 158-159

[23] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, 1990, Pergamon Press Plc. p. 133;

[24] United Nations Centre on Transnational Corporations (1991), <<The Challenge of Free Economic Zones in Central and Eastern Europe: International Perspectives>>, United Nations, New York, p. 3

[25] UNCTC Current Studies (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe, United Nations, New York, p. 1

[26] Grubel, Herbert G. (1982), "Towards a Theory of Free Economic Zones", In: <<Review of Word Economics>>, Vol. 118/1

[27] United Nations Center on Transnational Corporations (1991), <<The Challenge of Free Economic Zones in Central and Eastern Europe: International Perspectives>>, United Nations, New York

[28] Fan Sujie, Wang Guangzhong (1993), <<World Free Economic Zone>>, (Shijie Ziyou Jingjiqiu), People's Publishing House, Beijing

[29] Xiangming Chen (1995), "The Evolution of the Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, p. 593, explanation

The general characteristics of FEZs are that they are the instruments to realize economic and political goals by enjoying economic and administrative "freedom". FEZs are restricted geographically and administratively,[30] and concerning only the economic activities:

- FEZ is used as the instrument to realize micro-economic objectives, such as creating employment and foreign exchange, and macro-economic and political objectives, such as implementing regional economic development strategies and structural reform.
- "Freedom" means that the financial incentives and special economic and administrative privileges are applied to a "zone", which are not enjoyed by domestic economics, and the national tax system, other foreign trade restrictions, and some economic and administrative policy would not be active within this zone;[31] This freedom includes the free flow of commodities, capital, service and personnel between the zones and world economy as well as some administrative privileges. In other words, the zone enjoys economic incentives and privileges (preferential policy).
- The special and preferential economic policy and privilege are applied in a strictly defined geographical area or a "zones" with different sizes. The zone can be a small one, covering only several hectares, and it can also be a large one, covering over thousand square kilometers. It can be located inside a country or in a cross-border region between several countries. The zone will not only be used to carry out free trade, but also to protect and supervise the domestic economy in the rest of the country from the negative influence of the world economy.
- The zone bypasses the disputes about national sovereignty and ideology, and only economic activity takes place within the zone. Each FEZ has its leading sector: trade and transshipment, transport and storage, some simple processing industries are the leading sectors of FP, FTZ and custom-bonded warehouse; industry, new and high-tech industry and trade are the leading sectors of EPZ, free enterprise zone and SIP; finance, insurance, gambling and tourism are the leading sectors of free service zone (FSZ); the leading sectors of a large and comprehensive FEZ include almost the all sectors above. All of the industrial structures are "economic activity" in the different zones.

FEZ could be defined as follows: in order to realize certain economic and political objectives, FEZ is geographically defined in an area or zone inside a country or in a cross-border area between several countries where certain economic activities are especially allowed and where free trade and other preferential policies and privileges different from those in the rest of the country are granted. FEZ ranges from a small size to a large dimension, from a zone inside a country to a cross-border zone between more than two countries and from an economic zone to an economic and administrative zone and furthermore to an economic and political zone.

2.2. Typological Classification of Territorial FEZs

FEZs can be systematically classified by selecting various criteria. In order to clearly define the research objective of this dissertation, FEZs can be first classified into territorial and regime types according to their spatial structure. The territorial type of FEZs, as so-called

[30] For discussion, see: Grubel, Herbert G. (1983), "Free Enterprise Zones in Economic Development", In: <<New Opportunities for Entrepreneurship>>, Symposium 1983, Tuebingen: J. C. B. Mohr, p. 223
Balasubramanyan, V. N. (1988), "Export Processing Zones in Developing Countries: Theory and Empirical Evidence", In: <<Economic Development and International Trade>>, edited by D. Greenway, ed., London, Macmillan, pp. 158-159

[31] For discussion, see: Grubel, Herbert G. (1984), "Free Economic Zones: Good or Bad ?", Aussenwirtschaft, 39. Jahrgang, Heft I/II, Diessenhofen: Rueegger, S. 44

FEZ, has not only numerical superiority, but also plays a more dominant role in the world economy. In this study, FEZ indicates only the territorial type of FEZs – the typical FEZs.

Territorial and Regime Types of FEZs

Territorial-type FEZs have a specially defined territory with infrastructure of high quality and administrative facilities staffed with better-trained people than elsewhere in that country, which is cannot easily be granted with regime approach. On the other hand, this type avoids the enormous technical difficulty of organizing and distributing the various fiscal, monetary, and administrative privileges of the FEZ regime to a large number of enterprises. It will be more difficult if these enterprises are operated in very different locations and under very different conditions.[32]

There are two sub-types of this kind of FEZs: Depending on the linkages with the domestic economy and the policy of customs supervision one can distinguish an "open" and an "enclave type". The enclave type (FPs, FTZs and EPZs) is a strictly defined zone in which a policy of closed customs supervision is carried out so that it has less direct linkages with the domestic economy than the open type (SEZs, SIPs, free financial zones, and free tourism zone). The open type carries out a special policy of customs supervision (not closed customs supervision) and is not strictly defined or separated from the domestic economy. That is why it has more direct linkages with the domestic economy than the enclave type. Some types of FEZs, such as SEZs, have the feature of both open and enclave type of FEZs.

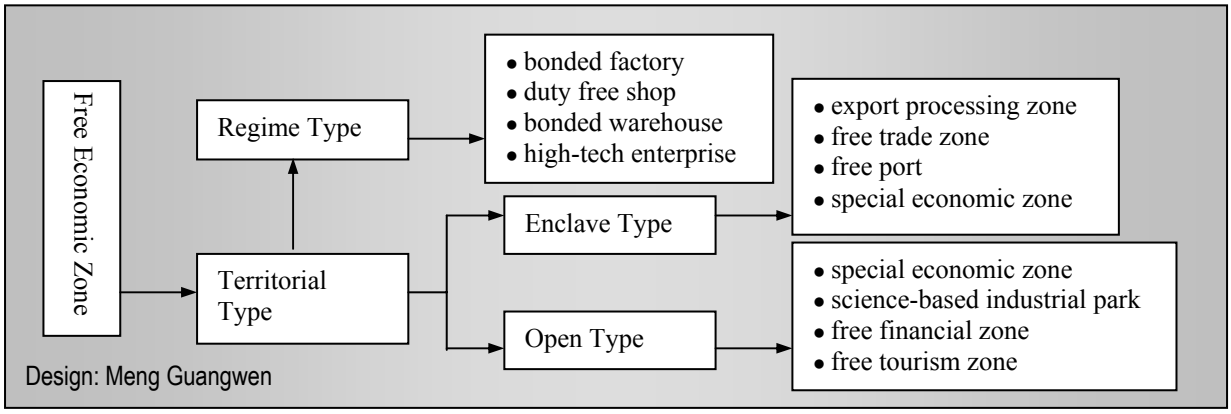
A regime type of FEZs grants certain benefits to firms located anywhere in the host country as long as they fulfil certain criteria. Strictly speaking, this type of FEZ is only a free economic "regime", not a free economic "zone" so that it is only a special case of a territorial type. In contrast to territorial type of FEZ, the regime type makes it possible to development a strong linkage with the local economy, and to let foreign firms freely choose the optimal location for their activities. Based on the industrial policy, regime types can be subdivided into "bonded export-oriented factory, bonded warehouse, and high-tech enterprise".

FEZs of the "territorial type", however, do not necessarily remain as an enclave without any linkage to the rest of the domestic economy. They just have fewer linkages than FEZs of the "regime type". Furthermore, the regime type can coexist with and evolve from the territory type or in return. For instance, in some LDCs, as the goals and roles of FEZs shifted, many of the incentives and privileges were applied to areas outside the zones. In Taiwan, for example, incentives for the EPZs, such as export benefits, have been granted to the bonded factories, which are geographically unrestricted, as long as they meet certain criteria, such as exporting a certain percentage of their production. The incentives of the SEZs in socialist economies, like those of EPZs in capitalist economies, also experience the similar spatial diffusion. In China, there were also, besides several Export Commodity Production Bases (ECPBs), numerous bounded factories before the establishment of the first FEZ in 1979. China has also extended its favorable policies for SEZs to other types of development zones and other industrial sectors since the 1980s.

[32] UNCTC Current Studies (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe, United Nations, New York, p. 13

United Nations Center on Transnational Corporations (1991), <<The Challenge of Free Economic Zones in Central and Eastern Europe: International Perspectives>>, United Nations, New York, pp. 14-16

Fig. 5: Territorial and Regime Types of FEZs and their Typical Zones



Note: the horizontal arrows show the relations between FEZs and their sub-types; the vertical arrows show the regime type as a special case of territorial type FEZs

The Typological Classification of Territorial FEZs

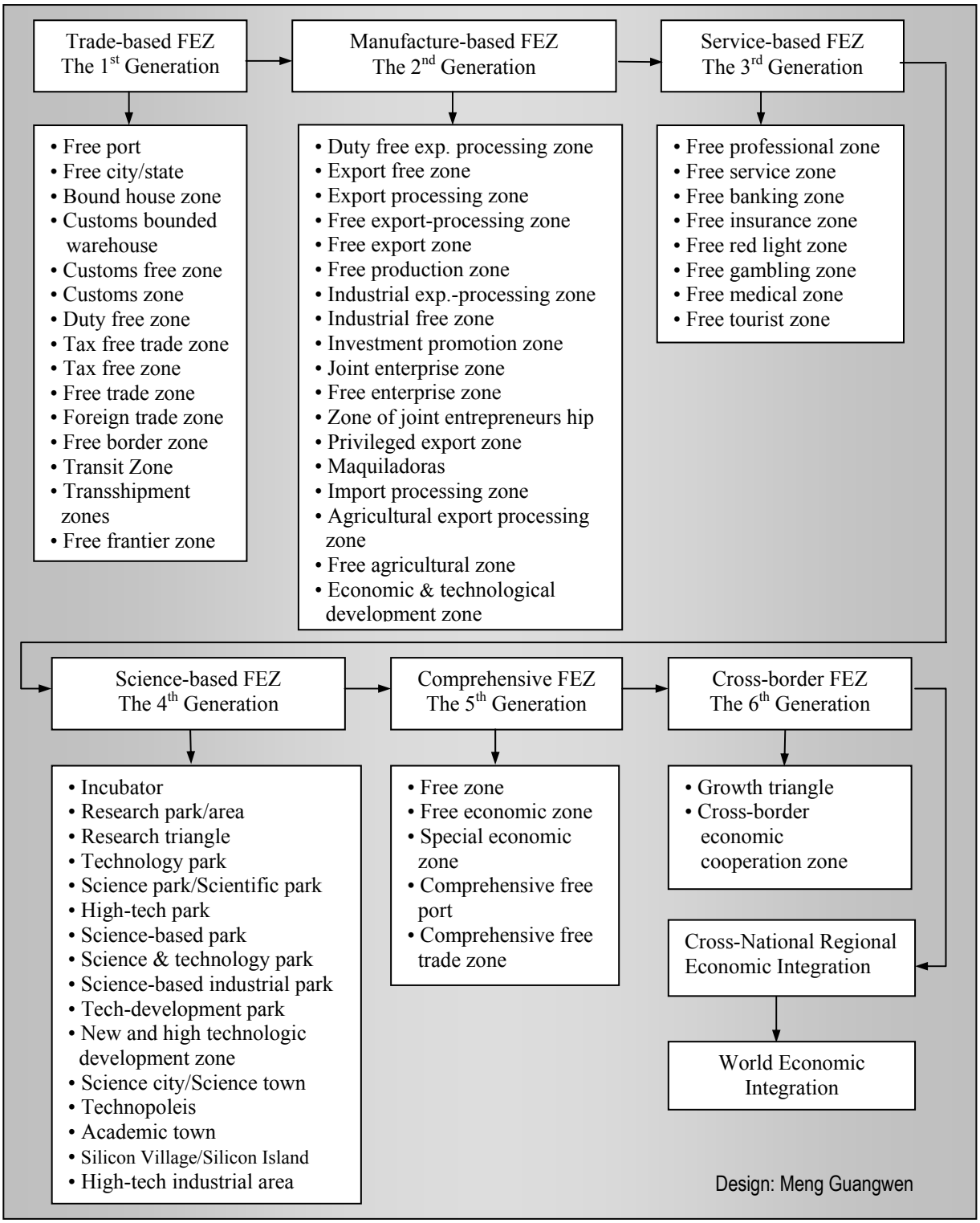
The territorial type of FEZs can be further classified into trade-, manufacture-, service-, science-based, comprehensive, and cross-border FEZs, depending on the importance of the "industrial sector", the "evolutionary stage" and the "location".

FEZs began to develop from FCs, FPs and FTZs. Later, they generated EPZs, SEZs and other types of FEZs. In 1979, Ping classified FEZs into two generations. He based his statements on the Asian experience and regarded the EPZs in the late 1960s as the 1st generation and the SEZs of China after the late 1980s as the 2nd generation of FEZs,[33] through he did not convincingly put forward a criterion for this classification. Wong and Chu classified five different generations of FEZs according to their spatial dimension and their economic sectors: "Customs Bonded Warehouses, EPZs, SEZs, FPs and Comprehensive FTZs".[34] Wong and Chu considered the economic sectors as the most important criteria to classify FEZs, but this model has three problems. First, the regime type of FEZs, such as customs bonded factories, was mixed with the territorial type of FEZs, such as EPZs and SEZs. Second, the chronological sequence was not considered as a criterion. FP and FTZ, for example, have a longer history than SEZs, but their positions in this model are beyond them, so that they look younger than SEZs. Third, this model excludes the new FEZs, such as science-oriented park and cross-border FEZs, which have been more popular since the late 1970s.

Based on above-mentioned studies and the numerous studies of Chinese scholars since the 1980s, economic sectors and chronological order are two useful criteria to classify FEZs. According to industrial sector and against the background of general features, such as economic freedom and geographically defined area, FEZs can include five main types, such as trade-, manufacture-, service-, science-based and comprehensive FEZ, and many subtypes. According to the evolution of FEZs (economic sectors), FEZs can be classified into six generations, including trade-based, manufacture-based, service-based, science-based, comprehensive FEZ, and cross-border FEZs. The linguistic description of this terminology is based upon the well-known nomenclature: "science-based park" (see Fig. 6).

[33] Ho Kwon Ping (1979), "Birth of the Second Generation", In: <<Business Affairs>>, May 18, 1979, pp. 76-79
[34] Kwan-Yiu Wong & David K. Y. Chu (1984), "Export Processing Zones and Special Economic Zones as Generators of Economic Development: the Asian Experience", In: <<Geografiska Annaler>>, 66B, I, pp. 13-14

Fig. 6: FEZ's Typological Diversity based on Industrial Structure and Evolutionary Stage

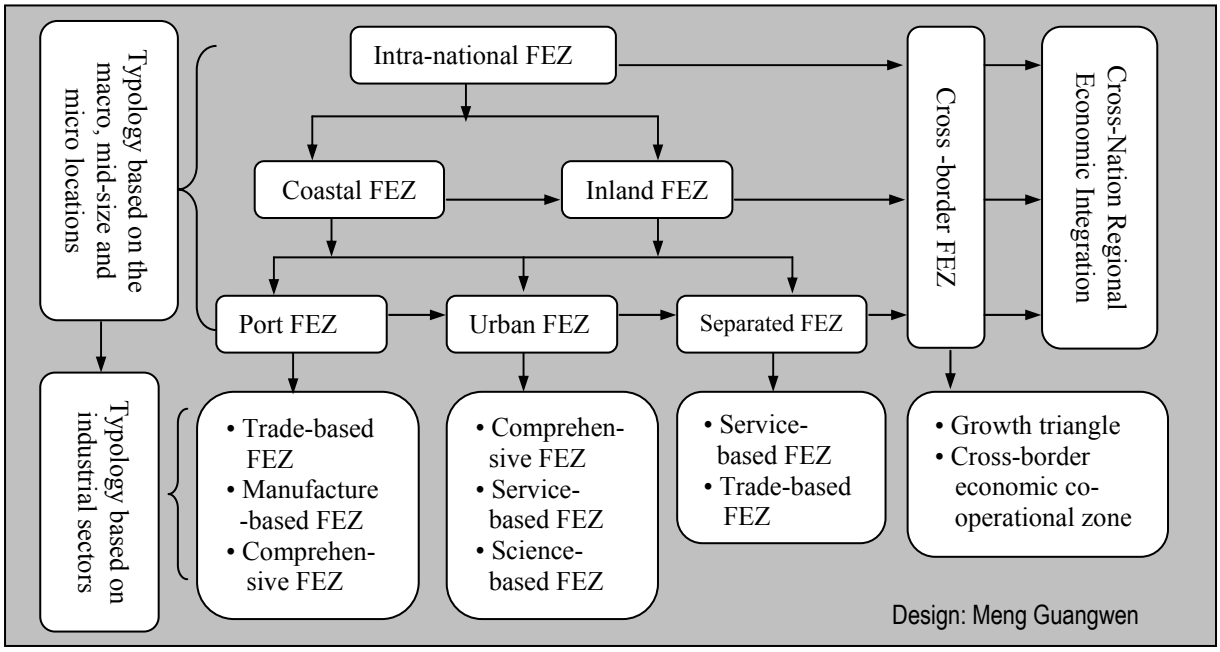


Source: development with other numerous sources from: 1) UNCTC Current Studies (1990): <<The Role of Free Economic Zones in the USSR and Eastern Europe>>, United Nations, New York, p. 2; 23; 2) Kreye, O., Heinrich, J., Fröbel, F. (1987), <<Export Processing Countries: Results of a New Survey>>, Working Paper No. 43, International Labor Office, Geneva, p. 7, 15

Note: the horizontal arrows show the evolution of the key types of FEZ; the vertical arrows show the relationship of subordination of FEZs; FEZs in the square frame are the sub-types.

At the first glance, FEZs have no common location pattern. They may be found in the coastal region or in the interior, in urban or rural (separate) locations, or in a cross-border region between two or more countries. However, there is one thing they all have in common: they have a high degree of accessibility. Furthermore, three location patterns of FEZs can be summarized. First, there are FEZs based on the criteria of macro location (coastal, inland, and cross-border FEZs). Secondly, there are FEZs based on the criteria of mid-size location. Thirdly, there are port, urban, and separate FEZs based on the criteria of micro-location. FEZs can evolve from intra-national to cross-border FEZ and later to cross-national REI.

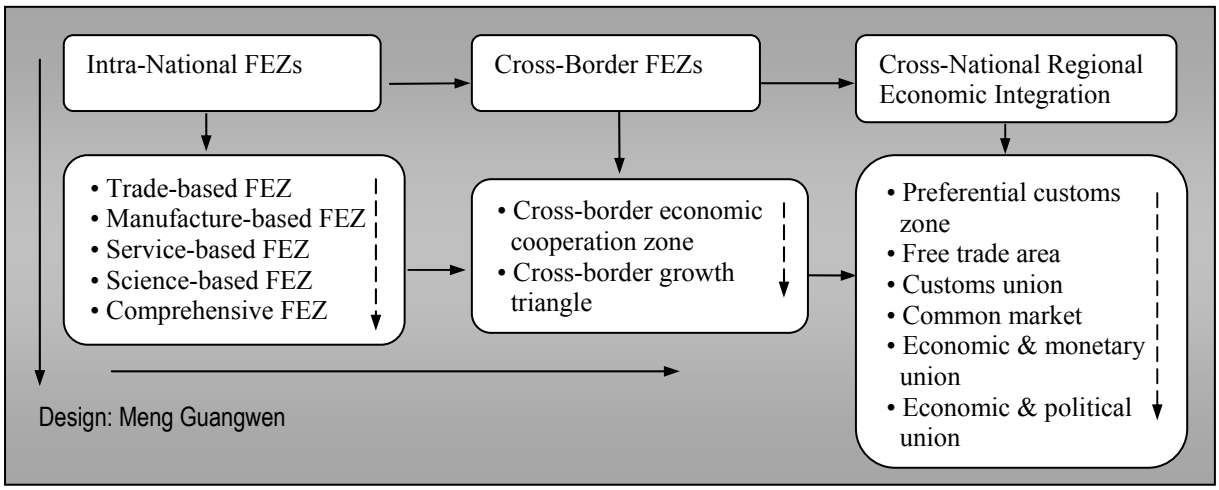
Fig. 7: FEZ's Typological Diversity and Evolution based on Locations and Industrial Structure



Note: the horizontal arrows show the ties and evolutionary direction of typologies based on the location and sectoral structure of FEZs; the vertical arrows show the typology of FEZs based on macro, middle, and micro location and the ties between the two systems based on the location and sectoral structure

The general typological system can be achieved by synthesizing the above-mentioned two classification systems of FEZs. First, the FEZs on the upper level are classified into three types in a large spatial dimension based on the macro-location (intra-national FEZs, cross-border FEZs and cross-national REI). Second, these three typologies are further classified into the three sub-typological systems in the lower level based on the industrial structure for the first two and the degree of REI for the last one. This study, of course, focuses on the first two types – the typical FEZs (see Fig. 8).

Fig. 8: The General Typologies and Evolution of FEZs



Note: the horizontal arrows point to the evolutionary direction of typologies based on the industrial structure and location of FEZs; the vertical arrows point to the ties of subordination between the two typological systems based on the industrial structure and location; the broken arrows point to the evolutionary direction of typology of FEZs inside a typological system

3. The Different Generations and the Structural Evolution of FEZs

The idea of free ports as oldest FEZs can be traced back to the Roman port of *Delos* (Greece), commonly cited as the first to have conceived of this possibility. It is equally said, however, that it originated in the ports (e.g. Venice) of the city-states along the eastern and southern rim of the Mediterranean in the early Middle Age, when the region was experiencing a commercial revival.[35] In 1228, a free trade port was set up in Marseilles in southern France. In the late 13th century, some cities along the North and Baltic Sea established "Free Trade Union", namely "Hanseatic League". Hamburg and Bremen as "free cities" (FCs) played a dominant role in the free trade inside the union. FP "Leyghorn" (1547) in the Italian coastal city of Genoa is generally acknowledged as the first FP.[36] Hamburg FC and Leyghorn FP symbolized the birth of FEZs. Following the political and technological progress after post-years, world economy has realized a rapid development and is being transformed from national economy to WEI. As a primary stage and necessary step of WEI, various types and generations of FEZs promoted the development of world trade liberalization, financial internationalization, production integration, institutionalization, and REI.

Most studies have focused on the theoretical analysis of benefit and cost and the economic role of FEZs in LDCs, only several scholars, such as Wong and Chu (1984), Xin Xin (1991), the United Nations Center on Transnational Corporations (1991),[37] especially McCalla (1990), and Chen (1996), discussed the structural and geographical evolution of FEZs. The following chapter will improve above-mentioned studies and finally put forward the structural and spatial evolutionary model of FEZs by analyzing the international economic, and political development and the evolution of industrial sectors, policy, objectives, governance structure, and location of FEZs.

3.1. Criteria of FEZ's Evolution

The evolution of varied generations of FEZs can be discussed based on several criteria. The external factors such as development stages and prominent events of world economy, politics, progress in science and technology are the background and the basis to classify the evolutionary stages of FEZs. For example, the Second World War and the Second Scientific and Technologic Revolution are the criteria to determine the two developmental stages of trade-based and manufacture-based FEZs.

The internal factors can be used to describe the structural and typological evolution of FEZs, including objective and functions, location, preferential policy and privilege, administrative model, spatial dimension of FEZs as well as their development and their combination during the different periods, especially, the industrial sector of FEZs. In other words, the development and the combination of external factors will change the internal factors, especially the leading economic sectors of FEZs; and the changed leading economic sector will once again promote the typological variation of FEZs, namely, that existing FEZs will

[35] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 122.

[36] Guo Xincang (1987), <<An Introduction to the World's Free Ports and Free Trade Zones>>, (Shijie Ziyougang He Ziyoumaoyiqiu Gailong), Publishing House of Beijing Aeronautical engineering Institute, (Beijing Hangkong Gongcheng Xueyuan), Beijing, p. 11

[37] UN Center on Transnations Corporations (1991), <<The Challenge of Free Economic Zones in Central and Eastern Europe: International Perspectives>>, United Nations, New York, pp. 3-5

either disappear or be transformed, or new types of FEZs will be created. When one or more types of FEZs are in the leading position, these types of FEZs would be the essential factors to classify the evolutionary stages of FEZs.

The principle of time continuity, namely, the evolutionary stages of FEZs, should not only be classified by the inherent evolutionary low of FEZs, but also by the continuity of time, namely, by the chronological sequence. Each evolutionary stage of FEZs is born out of the former stage so that there is always a transition period between the two stages, and the stages will be determined by the period during which one type of FEZs greatly developed and has a leading position, not by the time when one type of FEZ first arose.

FEZs have grown from a narrow geographical base in Europe to encompass all the populated continents and many nations of varying ideological and economic perspective. The spread of FEZs was a complex diffusion process, involving both neighborhood and hierarchical effects.[38] In the former, the FEZ concept was adopted by places geographically close to each other, which were able to see the benefits of the concept. In the latter, the adoption of the FEZ concept skipped continents as it passed from economically developed areas akin to undeveloped areas on other continents. That diffusion also passed up the hierarchy from LDCs to DCs,[39] such as the examples that USA and UK adopted the EPZ concept.

3.2. The 1st Generation of FEZs: Trade-Based FEZ from the late 16th Century to the 1940s

The oldest and best-known form of FEZs is the trade-based FEZ. Until the 1950s, most FEZs in the world belonged to this type of zone. In order to achieve direct and some indirect economic benefits, a trade-based FTZ is located in a geographically delineated area, usually with, in, or near a seaport, airport, and the hub of communications, but separated from the surrounding national territory by fences or other barriers, where free trade and free economic policy are permitted with the rest of the world, and the entrepôt trade, storage, processing, and manufacturing in the special case are its dominant economic activities. Trade-based FEZs can include FPs such as Hong Kong, Singapore, Grand Bahamas, Hamburg, Bremen, and Duisburg; FTZs such as Colón (Panama), Barcelona, Genoa, Iquique (Chile); bounded warehouse zone (BWZ) such as Bari and Rome, Buenos Aires; free transit zone or entrepôt trade zone such as Santos zone (Brazil), Calcutta zone (India).[40] This stage can be divided into two periods.

The 1st Series of Free Cities and Free Ports in Europe from the late 16th to the early 18th century

In the early 16th century, international trade was greatly promoted by the development of capitalist handicraft industry and navigation, especially by the "Discovery of the New

[38] Brown, L. A. (1981), <<Innovation Diffusion: A New Perspective>>, Methuen, London

[39] McCalla, Robert J. (1990),"The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc. p. 123

[40] For discussion, see: Grubel, 1) Herbert G. (1982), "Towards a Theory of Free Economic Zones", In: <<Review of Word Economics>>, Vol. 118/1, p. 40; 2) U.S. Agency for International Development, A.I.D (1983), <<Free Zones in Developing Countries: Expanding Opportunities for the Private Sector>>, Program Evolution Discussion Paper No. 18, Nov. p. 3; 3) Meng Guangwen (1990), "The Bonded Warehouse Zone and the Establishment of Tianjin Free Port", In: << Economic Geography>>, Vol. 10, No 2, China, p. 64; 4) Guo Xingchang (chief editor) (1987), <<An Introduction to World Free Port and Free Trade Zone>>, (Shijie Ziyougang He Ziyoumaoyiqiu Gailong), Publishing House of Beijing Aeronautical Engineering Institute, pp. 73, 352-397

Continent". FCs and FPs arose first on the Mediterranean shores and then spread to the North and the Baltic Sea. They were used as a tool to promote "free trade" inside the Mediterranean countries and between the Mediterranean region and other continents (e.g. Asia). Besides trade promotion, they were used to prevent pirating inside the Hanseatic League. The typical FCs and FPs in the 17th century were Naples, Venice, and Trieste in Italy, Porto in Portugal, Dunkerque in France,[41] Copenhagen in Denmark, Hamburg, Bremen, Luebeck and Rootstock, Gdansk (Danzig) and Koenigsberg in Germany of that time.[42] Until the early 18th century, there were two primary types of FEZs, namely FC and FP, while FP had evolved from FC, and they spread only in Europe, especially along the Mediterranean and the North and Baltic Seas.

The Transformation from FCs to FPs and FTZs from the mid 18th century to the 1940s

The "First Industrial Revolution" (1760–1840) helped to establish the mode of capitalist production and the development of the capitalist commodity economy. FCs, FPs and FTZs were the results of the development of the capitalist commodity economy, but, in return, it also promoted its development by breaking up feudal separatism and expanding trade. Great Britain, Holland, Spain, and France began their colonial expansion to seek new markets and find raw and semi-finished materials for their capitalist industry. From the 18th to the 19th centuries, numerous colonies and FPs were firstly established in Europe and the Caribbean islands, and then in Asia and Africa, for example, Gibraltar (in 1705) in Europe, Singapore (in 1819), Hong Kong (in 1841) and Aden (in 1853) in Asia, and Djibouti (in 1859) in Africa.[43] By 1900, the Caribbean zones disappeared, when direct trade between Europe and Latin America developed. Most Asian zones, however, prevailed.

"The Second Industrial Revolution" from the late 19th century to the 1920s promoted the transformation of FEZs from FC to FP and FTZ. Hamburg played a dominant role in this transformation. It had been a famous FC and FP of the Hanseatic League since the 14 century. In the 19th century, Hamburg's free status was challenged with the formation of the "German Customs Union" under the leadership of Prussia. In 1888, the city became part of the custom union. However, the interests of free trade and transshipment within Hamburg were so strong that the greater part of the port was fenced off from the city and declared a "FP" outside the German custom union. By an agreement reached between Hamburg and the new Germany, the FP "enjoyed essentially unrestricted freedom of import, export, transit, warehousing, ship's provision, sorting and even of assembling and manufacture (for re-export and transit purposes)".[44] Thus, Hamburg was transformed from FC to FP, namely, that approximately one-sixth of the area of the port still functions as FP. The FP status enabled Hamburg to continue as entrepôt among the Baltic countries, Russia, and the countries of Western Europe and beyond, but manufacturing was allowed in the FP outside of customs regulations. This activity gave rise to a new type of FEZ known as EPZs and FTZs. Today, manufacturing is still a major activity of the FP with shipbuilding, mechanical engineering and mineral oil processing. FPs with entrepôt trade and manufacturing can be called the "Hamburg Model".

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[41] Fan Sujie, Wang Guangzhong (1993), <<World Free Economic Zone>>, (Shijie Ziyou Jingji Qu), People's Publishing House, Beijing, pp. 7

[42] Hall, p. (1994), "International Urban System", In P. Roe (ed.), In: <<Emerging Regions in the Pacific Basin>>, the University of Texas at Austin, Austin, Texas

[43] Zhan Qicheng (1992), "The Special Economic Zones of Various Countries in the World", (Shijie Geguo De Jingji Tequ), In: <<Baike Zhishi>>, Beijing, p. 5

[44] Thoman, R. S. (1956), <<Free Ports and Foreign Trade Zones>>, Cornell Maritime Press, Cambridge, MD, p. 18

FPs and FTZs arose in America just after the First World War. In 1923, Uruguay set up FTZs in Colonnia, and Mexico set up "free border zones" in two northern border cities, Mexicali and Tijuana. In 1934, the United States Congress passed "The Foreign Trade Zone Act", permitting the creation of such zones in different parts of the country. In 1936, the first FTZ was established in New York.[45] These FPs and FTZs concentrated limited commercial activities such as transshipment, storage, packaging and re-export. In fact, by 1950, only four zones were operational in the United States: New York, New Orleans, San Francisco, and Seattle.[46]

To sum up, FC, FP and FTZ arose first in the Mediterranean, North and Baltic Seas, and then spread to Asia, Africa, and America until the Second World War. There were only 11 FPs and FTZs in the world (7 in Europe, 4 in Asia) by 1900,[47] about 75 FPs and FTZs in 26 countries had been set up by the 1940s. The FPs and FTZs in South America and Caribbean Island were established by Spain, Portugal, and Great Britain, and those in Asia and Africa were set up by Great Britain and France. The majority of them were trade-based or commerce-based FEZs such as FP and FTZ during this period, and only a few FCs as a special type of FPs have still kept their status until today, e.g. Hong Kong and Singapore. FEZs were transmitted from FC to FP, and from FP to FTZ – a typical example for this evolution is the Hamburg FC. FP and FTZ belong to the first generation of FEZs. Moreover, the cross-national REI was also set up – a typical example is the "Customs and Currency Union" between the Netherlands, Belgium, and Luxembourg in the 1930s.

Originally, a traditional trade-based FEZ itself might be a port or a part of the port near an international route. Following FEZ's development, however, the zones are located also in interior and border region with convenient communications (several FTZs of the United States). The traditional trade-based FEZs only concern direct commercial objectives, but the new FTZs in China possess some macro-economic goals such as experimental fields for open policy and structural reform.

Besides free financial policy (free exchange and operation of foreign currency), free flow of capital and funds, free investment (less-restricted investment in industrial sector) and relatively free flow of personnel between the zone and the foreign countries, trade-based FEZs enjoy the most freedoms of good import and export. For example, the free flow of goods of other types of FEZs is confined only to the field of production and trade such as raw and semi-finished materials and parts of machinery, but the finished products are restricted by the customs house (EPZs); on the contrary, the goods within trade-based FEZ can also flow freely into consumer field and only few goods are restricted, such as tobacco, alcohol, weapons, ammunition, and drugs.

The original leading economic activities of trade-based FEZ are entrepôt trade and services correlated with ports such as shipping supplying, and repairing. Merchandise can be stored, repacked, exhibited, assembled, sorted, and simply processed. Following the evolution of FPs, manufacturing and other service trade such as financial and the tourist industry have been promoted and established, such as in some FTZs in the USA and in the Colón FTZ in

[45] Wang Wenyang (1994), <<Special Economic Zones>>, China's Prospecting Publishing House>>, (Thongguo Zhanwang Chubanshe), p.113

[46] McCalla, Robert J. (1990),"The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 127

[47] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 123

Panama. Some comprehensive zones have a complete industrial sector, e.g. Hamburg, Hong Kong, and Singapore.

In fact, there is no essential difference between FP and FTZ. The former possesses more trade freedoms and less location flexibility. Some FTZs are similar to FPs, only having a different name, but some enjoy less free trade and economic policies than FPs. For example, FTZs enjoy less free flow of merchandise and personnel, and they are located not only at a port in the coastal region (like FP), but also in interior and border regions with convenient communications. BWZ and FTZ enjoy less free trade and free economic policy, have less economic activities and play a less prominent economic role in the national economy than FP and FTZ.

3.3. The 2nd and 3rd Generations of FEZs: Manufacture- and Service-Based FEZs from the late 1940s to the 1970s

Great changes in the world economy and world politics, and the development of world science and technology took place after the Second World War and had a crucial impact on the development of FEZs. FEZs reached their golden age. Numerous new types of FEZs were also created, while trade-based FEZs were redeveloped. This stage of FEZs can also be divided into two periods.

The Reconstruction of FPs / FTZs and the Birth of New Type of FEZs from 1945 to 1959
After the postwar years, many countries began rebuilding FPs and FTZs and establishing new ones. For example, Genoa, Hamburg, Rotterdam, Singapore, and Hong Kong were rebuilt and became international reshipment and trade centers again. The dominant characteristic of this period is that many LDCs in Latin America established FPs and FTZs. In 1950, Panama established an FTZ in Colón city, where both trade and some manufacturing / processing industry were allowed. Chile set up Alica free zone. FTZs and FPs were recovered in Caribbean Islands, such as Bahamas FP. In 1957, Brazil set up Manaus FTZ. Bermuda also established FPs during this period. [48]

While Hong Kong as a FC or a comprehensive FEZ has been an entrepôt of long standing, its entrepôt-only role changed during the 1950-1969 period. However, from the middle 1950s, Hong Kong recovered quickly to regain and expand its entrepôt function, although the Korean War had devastating effects on the trading relations between Hong Kong and China owing to the UN's embargoes on the export of strategic goods to China and by the United States on the import of goods from China. Just after the Second World War, some DCs shifted their labor-intensive industries to LDCs with lower labor cost. Apart from trade and service, Hong Kong also began to develop a manufacturing and processing industry. The textile and clothing industry had taken over as the premier industry by 1955, although shipbuilding and ship repair were the colony's most important industries. During the 1950s, the number of people employed in spinning, weaving, and finishing nearly doubled. The number of workers in the clothing industry itself multiplied 21 times from only 2000 in 1950. Domestically produced textiles and clothing comprised approximately 60% of the exports by value of Hong Kong products in 1955.[49] Since the 1970s, entrepôt trade, processing industry, finance, tourism and real estate have become the five leading industrial sectors.

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[48] Fan Sujie, Wang Guangzhong (1993), <<World Free Economic Zone>>, (Shijie Ziyou Jingji Qiu), People's Publishing House, Beijing, pp. 9-10

[49] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 128

The adaptation of the FEZ concept to orient import-dependent export industries offers a relatively easier way than alternative facilities to provide for duty-free importation. The first EPZ was established at Shannon Airport in Ireland in 1959 at a time when Ireland's industrialization policy underwent a change from IS to export-led expansion. The Shannon EPZ has been credited to have pioneered the successful development of the country's export-based industrial sector throughout the 1960s.

Shannon was established as the first world's customs-free airport in the world in 1947.[50] However, it was not until 1957 that "the Shannon Free Airport Development Authority" was created with its sole purpose being the promotion of the use of the airport, including the establishment of a free industrial zone within the customs-free zone in 1959 to process imported commodities into exportable products.[51] The promotion of Shannon as an industrial zone was seen as a means to increase airplane landing, revenues, and employment. Shannon Airport and its free zone have become a focus of activity for industry and services designed to serve primarily the European market. [52]

Development of Manufacture- and Service-based FEZs from the 1960s to the 1970s

The manufacture-based FEZ is a further-developed modification of the earlier trade-based FEZ. The zone possesses both functions of manufacturing and trade, i.e., that preferential policy and privilege and the effective administrative model are only applied to the zone in order to realize micro and macro economic objectives. This type of FEZ is the most common zone in LDCs, which possess favorable locations (ports), well-developed industrial bases, and low labor costs. Typical examples are EPZs and free industrial zones in East and Southeast Asia, manufacturing-oriented FTZs in the Unite States, Maquiladoras in Mexico as well as free enterprise zone in the UK.[53]

Since the late 1960s, a growing tendency to set up EPZs has been observed in LDCs and territories. The Shannon model, namely EPZs of the 1960s through the 1970s, represent a distinctive functional evolution from the traditional FTZs, with a predominant orientation toward export manufacturing.[54] LDCs increasingly view EPZs as an effective means of attracting foreign export-oriented industry, capital, and technology, and, thus, contributing to employment, foreign exchange, industrial and export-oriented development. Multinational corporations in DCs actively sought to shift mobile and surplus capital to low-cost production sites. This phenomenon has a political and economic background. After post-war years, a lot

[50] Soulsby, J.A.,(1965), "The Shannon Free Airport Scheme: a New Approach to Industrial Development", In: << Scott. Gergr. Mag.>>, 81, pp. 104-114

[51] Sklair, L. (1988), "Foreign Investment and Irish Development: a Study of the International Division of Labor in the Midwest Region of Ireland, In: <<Progress in Planning>>, 29. 3, pp. 147-216

[52] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., pp. 128-129

[53] For discussion, see: UNIDO (1980), <<Exporting Processing Zones in Developing Countries>>, UNIDO/ICIS. 176/Corrigendum. 1, p. 6

UNCTAD/Geneva (1985), <<Export Processing Free Zones in Developing Countries: Implications for Trade and Industrialization Policies>>, United Nations, New York, pp. 3-10

Warr, Peter G. (1989), "Export Processing Zones: The Economics of Enclave Manufacturing", In: <<The World Bank Research Observer 4>>, No. 1, pp. 65-69

Balasuramanyam, V. N. (1988), "Export Processing Zones in Developing Countries: Theory and Empirical Evidence", In: <<Economic Development and International Trade>>, edited by D. Greenway, ed., London, Macmillan, pp. 157-158

U.S. Agency for International Development (A.I.D) (1983), <<Free Zones in Developing Countries: Expanding Opportunities for the Private Sector>>, Program Evolution Discussion Paper No. 18, pp. 2-4

[54] Xiangming Chen (1995), "The Evolution of the Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, Apr. 1995, p. 600

of colonies declared their independence. Most of them carried out IS strategy in order to enable industrialization. This strategy, however, was not successfully implemented as these small LDCs had only poor resources and small domestic markets. Therefore, some of them tried an export-oriented strategy to realize industrialization by utilizing their rich labor forces. EPZ was regarded as the instrument to realize this strategy. At the same time, the "Third Science and Technology Revolution" boosted a revolution of the mode of production. DCs timely adjusted the industrial sectors and shifted labor-intensive sectors to LDCs. Both DCs and LDCs selected suitable locations to realize this transferring process. Relying on favorable geographical position and transport facilities, industrial basis, preferential policy and very efficient administrative systems, EPZs became the ideal location for this capital, fund, and trade transfer.[55]

Between the late 1950s and the mid-1960s, the first group of EPZs combining trade and manufacturing functions emerged. With the example of Hamburg, Hong Kong and Shannon to draw on, the EPZ concept was used by Puerto Rico and Latin America in 1962.[56] The first two EPZs in Asia were set up at India's Kandla port [57] and Taiwan's Kaohsiung port in 1965. Kaohsiung EPZ was at first named an EPZ and developed successfully the preferential policy and administrative model. Therefore, the Kaohsiung EPZ and the other Taiwanese EPZs at Nantze (1969) and Taichung (1971) were used as a model for other zones in South East Asia and beyond.[58] Kaohsiung EPZ not only served as a moral spur, it also rendered material help to other countries interested in the establishment of FTZs".[59] By the middle of 1977, the technical teams from other Asian countries, Latin America, and Africa were sent out to study the Taiwanese zones and the possibilities of establishing similar zones in their countries.[60] Thus, in a combination of contagious and hierarchical diffusion, FEZs spread from DCs to LDCs, and from Europe to Asia, America, and Africa and back again. The second half of the 1960s and the entire 1970s were a "golden period" for the proliferation of EPZs. By the end of 1979, 21 EPZs operated in Asia and 19 more were planned for the early 1980s.[61]

The development of EPZs in LDCs encouraged DCs to establish EPZs or to transfer the commerce-based FP and FTZ gradually to the manufacturing-oriented zone. The FTZs in the United States, which have traditionally played a commercial role, are increasingly being used for the manufacturing and assembly of goods most of which are ultimately imported into the domestic markets.[62] The UK established "free enterprise zones" in order to revive the old industrial bases, which are similar to EPZs.[63] In 1950 an amendment was made to "the

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[55] Cai Zhiqang, etc (1992), "The Emergence and Development of World Special Economic Zones", (Shijiegeguo Jingjitequ De Chansheng Fazhan), In: <<Enterprise Economy>>, (Qiyiejingji), Nanchang, Vol. 5, pp. 52-53

[56] UNCTAD/Geneva (1985), <<Export Processing Free zones in Developing Countries: Implications for Trade and Industrialization Policies>>, United Nations, New York, 1985, p. 1

[57] Kumar, R. (1987), "Performance of Foreign and Domestic Firms in Export Processing Zones, In:<< World Development>>, 15, 10/11, pp. 1309-19

[58] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 129

[59] Takeo, T. (1978), "Free Trade Zones in South East Asia, in: <<Mon. Rev. >>, 29, February, 1978, pp. 29-39

[60] Zenger, J. P. (1977), "Taiwan: Behind the Economic Miracle, in: <<AMPO: Japan-Asia q. Rev>>, Special issue entitled Free Trade Zones and Industrialization of Asia, pp. 79-91

Note: These countries included the Ivory Coast, Liberia, and Mauritania in Africa; Jordan in the Middle East; Colombia, the Dominican Republic, Panama, and Costa Rica in Latin America; South Korea, South Vietnam, the Philippines and Indonesia in Asia

[61] Rabbani, F. A.(ed) (1983), "Economic and Social Impacts of Export Processing Zone in Asia: an Evolution", Asian Productivity Organization, Tokyo, p. 11

[62] Clasen, T. F. (1981), " US Foreign Trade Zones Manufacturing and Assembly: Overview and Update", In: << Law and Policy in International Business>>; vol. 13

[63] Trespenberg, Uwe und Vooshol, Ulrich (1984), <<Unternehmenszonen: Ein Neues Instrument der

Foreign-Trade Zones Act of 1934" which allowed manufacturing to occur at FTZs. Manufacturing using raw and semi-processed goods to produce goods for foreign or domestic markets would have been more desirable, though this amendment didn't immediately make an impact on the establishment of US manufacture-oriented FTZs from the 1970s to the 1980s. Only three new FTZs, Mayaguez/Puerto Rico, Toledo/Ohio, and Honolulu, were established in the period of 1950–1969. The Mayaguez zone was like the EPZs in LDCs with orientation to export processing.[64] In order to encourage the development of manufacturing and processing of FTZs, the second amendment to "the Foreign-Trade Zones Act of 1950" was made in 1980, which allowed enterprises of FTZs to use American parts and foreign raw and semi-finished materials to assemble the finished products, and not to collect the value added tax.[65]

During this period, the FEZs were spread to the communist nations. The first such nation to adopt the FEZ concept was Yugoslavia. In 1953, a law was passed to allow for "customs-free zones",[66] but such zones were not seen to be the same type as Shannon or Kaohsiung EPZ. Rather, they were to allow transit traffic to pass through Yugoslavia using the Danube and its tributaries which link Yugoslavia to Austria and to the Romanian port on the Black Sea, or for transit trade in the western Mediterranean. The first zones were set up in 1963 at Belgrade, Koper and Rijeka. In 1967, new legislation was passed to allow for manufacturing and export processing in the zone. This marked Yugoslavia's zones to become the standard FTZs, similar to Shannon and Kaohsiung. Shortly afterwards, FTZs were established at Split and Novi Sad.[67]

Besides EPZs, both LDCs and DCs also established other types of FEZs. In 1967, Tanzania for example established four FTZs in its capital and Sri Lanka set up "investment promoting zones".[68] There are also FEZs devoted to special service industries. New York has a free banking and a free insurance zone. There are also free tourist zones in Eastern Europe and in Asia as well. In the red-light districts of Hamburg, Amsterdam, Paris, and other cities, the world's oldest "profession or service" plies its trade. Old European spas and many modern cities, especially in vacation areas, are free gambling zones.[69]

Service-based FEZ means that, in order to maintain the historic competitive edge or to promote the development of remote regions, and, furthermore, achieve economic benefits, the area with convenient communications in a regional economic center or in a remote region is selected, where special economic, administrative policy, and deregulation is applied, which is not granted elsewhere in the country, and where special economic activities such as finance, insurance, tourism, and other specific services are in operation. According to the zonal economic activities, the zone can be classified into free banking zones (Bahrain, Panama, Luxembourg, Cayman Islands, and the Bahamas), free insurance zones (FIZs) (New York and

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Stadterneuerung in Großbritannien und in den USA>>; "Städtebauliche Forschung" des Bundesminister für Raumorderung, Bauwesen und Städtebau, heft 03.105, S. 9-12

[64] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, 1990, Pergamon Press Plc., p. 130

[65] Guo Xincang(1987), <<An Introduction to the World's Free Ports and Free Trade Zones>>, (Shijieziyougang He Ziyoumaoyiqiu Gailong), Publishing House of Beijing Aeronautical engineering Institute, Beijing, pp. 18-19

[66] Diamond. W. and Diamond. D.(1986), <<Tax-Free Trade Zones of the World>>, Matthew Bender, New York

[67] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc, p. 130.

[68] Cai Zhiqang, etc.(1992) "The Emergence and Development of World Special Economic Zones", (Shijiegeguo Jingjitequ De Chansheng Fazhan), In: <<Enterprise Economy>>, (Qiyiejingji), Nanchang, Vol. 5, p.53

[69] Grubel, Herbert G. (1984), "Free Economic Zones: Good or Bad?," Außenwirtschaft, 39. Jahrgang, Heft I/II, Diessenhofen: Rueegger, S. 44

London), free tourism zone (Macao, Monaco, Amsterdam, Hamburg, Nevada, and Atlantic City).

Industries serving the banking and insurance sector have become heavily regulated because, supposedly, the public needs paternalistic protection from unscrupulous or incompetent operators. One result of this regulation for these industries has been to shift important parts of their operations into countries where accidentally, or for historic reasons, regulation is less severe. Consequently, at least part of the protection was lost for the public. In addition, employment and taxation opportunities were lost. Examples of these shifts of regulated industrial activities abroad are Euro-Currency Banking and LIoyd`s of London: Both grew much at the expense of business in the Unite States and some other countries.[70] In response to these shifts, the United States' government permitted the establishment of so-called "International Banking Facilities"[71] and of the "New York Free Insurance Zone".[72] In these service-based FEZs, domestic regulation is non-applicable to certain types of business that, at any rate, had already escaped domestic surveillance. Location advantages are expected to bring business back to its original location.

On the international political and economic scene, the institutionalization progress developed quickly as well. After the establishment of GATT in 1947, world free trade was greatly furthered by several rounds of trade negotiations, which promoted also the development of FEZs in the world and vice versa. "The United Nations Industrial Development Organization" (UNIDO) was established in 1966 as an autonomous body within the UN for the promotion of industrial development in LDCs. Export expansion was seen as one of the means to encourage this development. With the assistance of the Shannon Free Airport Development Co., UNIDO worked closely with interested parties to conduct preliminary surveys, feasibility studies and even operating the zones.[73] The impact of UNIDO's work was most palpable in the 1970s, but, like the amendment to the US Foreign-Trade Zone Act to allow manufacturing in the American FTZs, the work of UNIDO set the stage for subsequent developments.[74] In addition, world's free trade policies supplied a huge market for the products of EPZs

WEC and WEI were promoted by the development of FEZs. EEC set up customs union from 1957 to1965 between six countries (Belgium, France, Germany, Italy, Luxembourg, and the Netherlands). European FTA, including Iceland, Liechtenstein, Norway and Switzerland, Latin American Free Trade Association (LAFTA), and Central American Common Market (CACM) were separately set up FTAs in 1960. The Union Douanière et Economique de I'Afrique Centrale (UDEAC) founded a "common market" in Africa in 1964. In 1967, the Association of South East Asian Nations (ASEAN) followed as a regional economic and social cooperation organization, the Economic Community of West African States (ECOWAS) in 1975 as a regional FTA, South African Customs Union (SACU) in 1969, and

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[70] Grubel, Herbert G. (1983), "Free Enterprise Zones in Economic Development", In: <<New Opportunities for Entrepreneurship>>, Symposium 1983, Edited by Herbert Giersch, , J. C. Mohr Tuebingen, p. 224

[71] Key, Sydnex J. (1982), " Activities of International Banking Facilities: The Early Experience", In: <<Economic Perspectives>>, Vol. 2, pp. 37-45

Hodjera, Zoran (1978), "The Asian Currency Market: Singapore as a Regional Financial Center", In: <<IMF Staff Papers>>, Vol. 25, pp. 221-253

[72] Author unknown (1978), "New York's Insurance Industry", In: <<The Economist>>, Vol. 273, No. 7107, pp. 114-115

[73] Takeo, T., (1977), "Introduction", In: <<AMPO: Japan-Asia q. Rev.>>, special issue entitled Free Trade Zones and Industrialization of Asia, pp. 1-5

[74] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 130

the Latin American Free Trade Association (LAFTA) of 1960–1980 and the Caribbean Community and Common Market (CARICOM) were separately established in 1973.[75]

In summary, FEZs experienced a rapid development during this period. The total number of EPZs in LDCs soared from 11 in 1970 to 96 in 1981.[76] FEZ spread from Europe to Asia, the United States, Latin America and Africa, from DCs to LDCs, and from capitalist countries to communist countries. On the basis of FP and FTZ, EPZs as the 2nd generation of FEZs developed very successfully in the world, especially in Asia and America. Both DCs and LDCs established FEZs. South Koreas, Singapore, the UK and the United States are typical examples.

Trade-based FEZs continued development and new types of FEZs continuously arose. Besides manufacture- and service-based FEZs, some new types of FEZs emerged and developed during this period such as comprehensive FEZs, science-based FEZs and cross-national REI. Stanford Research Park, as the first science-based FEZ, was established in the United States. Manaus FTZ was established in Brazil in 1957 as a primary comprehensive FEZ. Several key FEZs, such as Hong Kong, EPZs of Shannon, Kaohsiung, FEZs of New York and London, and comprehensive FEZ of Manaus, played a dominant role in the evolution of FEZs during this period. Based on the successful experience of FEZs, REI made great progress. Two typical examples are the cross-national European Free Trade Area (EFTA) and the European Economic Community (EEC), which were established in Europe.

The EPZs of the 1960s through the 1980s represent a distinctive functional evolution from trade-based FEZs to manufacture-based FEZs. The establishment of trade-based FP and FTZ gradually gave way to the manufacturing-oriented zone. The transformation began because the manufacturing industry was promoted in Hong Kong, and "an amendment" was made to the Foreign-Trade Zones Act of 1934 in the USA in 1950. It allowed manufacturing to occur in FTZs, and was finished by the establishment of Shannon EPZ and Kaohsiung EPZ. The features of the zone are presented in box 1 (p. 35).

The second evolution is that FEZs were transformed into service-based FEZs. The first typical service-based FEZs, such as free gambling zone and red light zones arose early in the 1930s, but they reached their golden ages in the 1970s. Unlike trade-based FEZs, the service-based FEZ is not geographically strictly delineated or separated from the surrounding host country's territory by fences or other barriers. As the "open type of FEZ," it is spatially "open" to the rest of the national economy. The zone cannot be only located in regional economic centers such as a big city, but also in economically backward regions with a pleasant landscape and favorable communications, in coastal regions, or in the interior of a country. The zone enjoys not only special policy such as tax reduction and holiday, but also economic and administrative privileges for their special service trade, which the other regions and other sectors cannot enjoy. Unlike trade- and manufacture-based FEZs, the major economic sectors are service trade such as finance, insurance, tourist and other special services. The zone aims at recovering the vitality of some old economic centers or promoting the development of some economically backward regions.

[75] Blank/Clausen/Wacker (1998), <<Internationale Ökonomische Integration>>, Verlage Franz Vahlen München, S. 54-56

[76] Basile, A. and D. Germidis (1984), <<Investing in Free Export Processing Zones>>, Development Center of the OECD, Paris, p. 22

Box 1: The Key Features of Manufacture-based FEZs

- Like trade-based FEZ, it is located in a geographically defined area at or near ports, airports, in the urban area of the coastal region, interior and border region, offering convenient transport facilities and a good industrial basis. The most zones are "enclave model" such as EPZ, and some zones are "untypical enclave model" such as "economic and technological development zones" (ETDZs) in China.
- The zone enjoys preferential policy and supply favorable investment and trade conditions to foreign as compared with the remainder of the host country. The preferential policy is applied first to the manufacturing field and includes:
  a) Free trade policy: imports of raw materials, intermediate products, equipment and machinery required for export production are not subject to the payment of customs duty. They are also exempted from industrial regulations applying elsewhere in the country. In addition, firms established in these zones are accorded freedom from various restrictions and regulations related to statistical reporting requirements, and can realize the speed and simplicity of zonal import and export transaction. But, in contrast to FPs and FTZs, the zone enjoys less free trade treatment. It can only import means of production and some selected finished goods related to the export production duty-free.
  b) Financial incentives: tax holidays of up to five or even ten years, generous depreciation allowances, and exemption from wage and welfare legislation are characteristic features of EPZs in several East and southeast Asian countries. In addition, the government subsidizes the exports and infrastructure price.
  c) Physical incentives: the zone also supplies standard infrastructure at lower prices, e.g., water, land, communication, electricity, and factory building. Although they differ in scope, such fiscal and non-fiscal incentives are a feature of most EPZs in LDCs. In exceptional cases, the workforce of firms in the zone will be banned from unionizing.
- Unlike trade- and service-based FEZ, the main economic activities within the zone are manufacturing, processing industry, and international trade, but trade is only a subsidiary sector servicing the former. Most goods are labor-intensive products for export. The most imported intermediate goods are used within the zones or else re-exported. Most zones are distributed in LDCs, because these have rich labor force and low-labor costs, which are benefits of abstracting labor-intensive industries from DCs.
- The zone is used as a measure by LDCs to create employment and foreign exchange, abstract foreign capital and technology, and realize the economic development strategy and industrialization. In some DCs, the zone is only used to realize micro objectives, such as creating employment and recovering the vitality of an old industrial basis, for instance, free enterprise zone in the UK.

Design: Meng Guangwen

3.4. The 4th and 5th Generations of FEZs: Science-Based FEZ and Comprehensive FEZ from the late 1970s to the late 1980s

Following the world political and economic development and the technological revolution, FEZs have evolved further from the manufacturing- and service-based EPZ into the science-based FEZ such as SIPs and technopoleis as 4th generation FEZ, and the comprehensiveness SEZs as the 5th generation since the late 1970s.

Development of Science-based FEZs

High-tech industry is characterized by high benefit, high investment, high competition and high risk. Generally, it includes informational, biological, new material, and new energy, space and oceanic exploiting technology.[77] In order to promote high-tech industrialization and commercialization and to realize scientific, technological, and economic rapid development, some zones are selected in the city center or urban periphery with more research institutes and universities, a suitable living environment, and convenient communications. In these zones

[77] For discussion, see: Thompson, C. (1988), "High-Technology Development and Recession: The Local Experience in the United States 1980-1982", In: << Economic Development Quarterly>>, Vol. 2, pp. 153-167

Gehrke, B. et al. (1994), "Innovationspotential und Hochtechnologie", In: <<Technologische Position Deutschlands im Internationalen Wettbewerb>>, the 2nd Edition, Heidelberg

Gu Chaolin, Zhao Lingxun, etc.(1998), <<China's High Technologic Industrial Sector and Zones>>, (Zhongguo Gaojishu Changye Yu Yuangqiu), Zhongxin Publishing House, Beijing, pp. 52-53

preferential policy and privilege are given; research, education, production and residence are either integrated or one or two functions occupy a dominant position in the zone; the zone is a complex where knowledge, technology, qualified personnel, and capital are highly concentrated. Such a zone is called a science-based FEZ. [78] According to the functions and the economic activities, the zone can be classified into science-based park (SP) (Stanford Research Park), SIP (Hsinchu in Taiwan), science city (SC) or technopoleis (Tsukuba in Japan and Sophia-Antipolice in France) and high-tech industrial area (HIA) (Silicon Valley in the United States).

Since the 1950s, several DCs (USA, the ex-Soviet Union and Japan) have paid more attention to the new and high-tech industry and have established science-based parks and science cities as an instrument to preserve their scientific and technological superiority. FEZ was transformed to more advanced functional and spatial characteristics. The development of science-based FEZs experienced a spontaneous development in the 1950s, though most zones have been established in a planned way since the 1960s. Since the first science-based park – "Stanford Research Park" – arose in California in 1951 and the first "science city" in new Siberia in 1957, SIPs and science cities have grown rapidly in DCs. The United States established over 70 SIPs until the 1990s, including the "Research Triangle Park" between Highway 128, Boston, and North Carolina. Japan put the concept of "technopoleis" into practice in the late 1960s in order to spread innovative industry in pockets around the country. "Kyushu Silicon Island" and "Tsukuba" science city in 1965 and 1968[79] and 14 SIPs were established from 1983 to 1984.[80] Science-based FEZs were also encouraged in Europe. France established science city of Sophia-Antipolice in Nice in 1969.[81] The UK created the Cambridge Science-Based Park in Cambridge Shire County and along what is known as the M4 Corridor west of London in the mid-1970s. Germany established the Ulm Daimler-Benz Science Park in the 1980s.[82] Based on the EPZ model, SIPs also rose in LDCs during this period. The most important examples are Hsinchu SIP in Taiwan, SIPs in Singapore and in mainland China.

During this period, some existing EPZs evolved into the capital- and technology-intensive model, for example Shannon, Kaohsiung, Masan and Kentridge EPZ. On the one hand, they continued to be especially established in LDCs, such as ETDZs in China; on the other hand, the FP concept was recovered, as the UK, for example, created more than six FPs in 1982, and China set up the first custom-bounded warehouse (FTZ) in Shenzhen SEZ.

The science-based FEZ was used as the strategic measure to realize new economic development in the postwar years. The industrial sectors of DCs were gradually transformed from labor-intensive to capital- and technology-intensive sector. DCs formulated high-tech development plans in order to maintain their technological competitive superiority. Some new industrial nations (Singapore and South Korea) transformed their export-led policy to

[78] For discussion, see: Jung-Man Suh (1987), "Science-based Industrial Parks: The ROK Experience of Past Achievements and Future Prospects", In: <<Export Processing Zones and Science Parks in Asia>>, Asian Productivity Organization, Tokyo, pp. 85-120
Wu, Zhendong (1989), <<The Study on the Macro-Plan of Our Country's High-Tech Development Zones>>, (Master thesis), Architectural Department of Tianjin University, Tianjin, pp. 3-4

[79] Li Haijian (1991), "The Review of World Special Economic Zones, Part 1", (Shijie Jingjitequ Shuping), In: <<Coastal Economy and trade>>, (Yianhai Jingmao), Qingdao, Vol. 10, pp. 26

[80] Xin Xin (1992), "The Historic Development and Recent Variants of World Special Economic Zones", (Shijie Jingji Tequ De Fazhan Yu Qushi), In: <<Economy Information>>, (Jingjixiu Qingbao>>, Wuhan, Vol. 5, p. 88

[81] Andrien, Corbiere-Medecin (1987), "Sophia Antipolis Scientific and Industrial Park", In: <<Export Processing Zones and Science Parks in Asia>>, Asian Productivity Organization, Tokyo, pp. 147-151

[82] Gebhardt, H. and Abratis, J. (1991), "Large Research and Media Parks in the view of Information and Communication Enterprises", In: <<Netcom>>, Vol. 5, No. 2, pp. 401-122

technology-led policy. Some large LDCs (China and India) also advanced high-tech development plans with the aim of catching up with the science and technology of DCs. Both DCs and LDCs regarded the science-based FEZ as one of the instruments to promote economic development in the future. At the same time, urbanization resulted in social and environmental problems caused by the mixing of traditional industrial estate and residential zones so that industry had to be moved into the urban periphery. In addition, the motorization allowed urban industrial estate to be located in suburbs. In order to maintain the competition edge in science and technology, to upgrade the industrial sector and to reduce pollution at the same time, science-based FEZs – a combination of high-tech and industrial park – were created in the US, and developed in other DCs. From the 1970s, some LDCs imitated technologies previously developed by DCs and invented their own new and high-tech industry. Thus, the zone was considered as a tool to realize these objectives.

Development of Comprehensive FEZs

This type of FEZ is developed from and can also include trade-, manufacture-, service- and science-based FEZ. There are only a few such zones, but they possess all of the key features of FEZs and are at a high evolutionary stage. The zone is a geographically defined larger area, which enjoys comprehensive preferential policy and privilege, possesses the multifunction and comprehensive objectives, complete industrial sectors, and the spatial structure of the multi-zones.[83] The typical examples are the comprehensive FTZ (Manaus FTZ in Brazil), comprehensive ports (Hong Kong, Singapore, and the Bahamas), SEZ (Shenzhen in China) and the large free border zone (Tijuana and Moxicali in Mexico).

The modern EPZ concept found its real market in LDCs, notably in the newly industrialized countries of Asia. Probably far more important than the predictable growth of the zones in LDCs is the adoption and adaptation of the original concept by the centrally planned economies. This process began in 1979 with the creation of SEZs in China.[84] The establishment of four SEZs in Southeast China marked the emergence of a new type of FEZ relying on Hong Kong, Manaus FTZ, EPZs in Asia, Chinese traditional special zones, and Export Commodity Product Bases (ECPBs). These zones were set up as comprehensive zones, covering a large area and multi-economic activities, which are generally different from EPZs. In 1988 and 1990, China established another two large and comprehensive SEZs. They are now gaining new momentum with the current establishment of FEZs in Russia, Poland, Hungary, Bulgaria and Vietnam – among others – to several strategic economic locations. Some countries established such comprehensive FEZs as well. Japan, for example, set up the comprehensive "Ryukyu free port" in the Ryukyu Island in the 1980s. Indonesia, Malaysia and Iran separately introduced such FEZs on their islands.[85] The old comprehensive FEZs, including FPs (Hong Kong and Singapore) and Manaus FEZs, are still active.

Comprehensive FEZs can more successfully attract foreign capital and carry out structural reform. Since the 1980s, along with the technologic progress, LDCs had lost their labor advantage in the new industry. Worldwide direct investment in the 1980s was more than that

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[83] Guo Xingchang (chief edited) (1987), <<An Introduction to World Free Port and Free Trade Zone>>, (Shijie Ziyougang He Ziyoumaoyiqiu Gailong), Publishing House of Beijing Aeronautical Engineering Institute, p. 72

Bolz, K. Dieter Lösch and Petra Pissulla (1990), << Freihandels- und Sonderwirtschaftszonen in Osteuropa und in der VR China>>, Verlage Weltarchiv GmbH, Hamburg, S. 13-14

Busch, Berthold (1992), << Sonderwirtschaftszonen als Instrument der Systemtransformation>>, Deutscher Instituts-Verlage, 3/1992, S. 8

[84] UNCTC Current Studies (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe>>, United Nations, New York, March 1990, p. 1

[85] Zhan Qicheng (1992), "The Special Economic Zones in the World", (Shijie Geguo De Jingji Tequ), In: <<Baike Zhishi>>, Beijing, p. 7

in the 1970s, but its proportion in LDCs decreased. During the period of the early 1980s, only 20% of total world direct investment flowed into LDCs while this proportion had amounted to 26% in the 1970s. In particular, the lion's share of those 20% was won by Hong Kong, Singapore, and other new industrial nations and territories. There is keen competition between LDCs to attract foreign capital. Only comprehensive FEZs in LDCs can attract more foreign investment by supplying more possibilities. In addition, some new FEZs were also used as labor and instruments to carry out economic and political reform. The comprehensive FEZs with large coverage, complete industrial sectors, and governance structure, therefore, can carry out different economic and political reform. SEZs in China are examples.

Geographical Spread of FEZs from the 1970s to the 1980s

The most significant happenings in the evolution of FEZs since 1970 have been their spread in the United States and in East and Southeast Asia, including their development in China. The rapid increase evident in the United States during the 1970s and 1980s corresponds to the establishment of FEZs in LDCs. Like Kaoshiung in Taiwan, Bataan in the Philippines, Manaus in Brazil, Lomé in Togo, San Bartalo in EL Salvador, and Alexandria in the Suez Canal Zone, some American FTZs such as Miami, McAllen, Texas, Buffalo, and Kansas City as well as Missouri are cited as examples of FTZs, where storage, manufacturing, and manipulation, and re-export take place.[86] The spread of EPZs in East Asia was first from Taiwan to South Korea (1966), then to the Philippines (1969), Malaysia (1971) and Indonesia (1973). The FEZs were slower to establish in South Asia. Besides Kandla of India in the 1960s, a zone was opened until 1978 in Sri Lanka, and in 1980 in Bangladesh and Pakistan.[87] FEZs originated in Europe and spread to Asia, America, Africa, and even to Oceania. Australia established the first FEZ in the 1985. Canada also established FEZs in the 1980s. But, FEZs were diffused back from Asia and America to Europe, e.g. science-based FEZ spread from the U.S.A to Europe and the EPZ concept from Asia back to Europe (the UK).

Diffusion and development of FEZs also took place in communist nations. The typical example is the development of FEZs in Eastern Europe. Former Yugoslavia increased its FPs and FTZs from four in 1971 to 11 in the 1980s. Romania established a FP at Sulina in the Danube Delta on the Black Sea in 1978. Hungary set up FTZs in and around Budapest in 1982 and a SEZ in Györ-Sopron bordering Austria in the late 1980s. Bulgaria created a duty free zone in Vindi near the border of former Yugoslavia.[88] The former Soviet Union has established several SEZs in its various (subsequently independent) republics, including Vyborg (near Finland's border) in Russia, Nakhodka (by the Sea of Japan) in the Russian Far East, Brest (near the Polish border) in Belarus, Gur's Yer (Caspian Sea) in Kazakhstan, and Odessa (Black Sea) in Ukraine. Even the autarchic communist state of North Korea established a FEZ at its port city of Rajin-Sonbong near China's border in 1991, and was planning to set up a FP in the city of Nampo near its capital Pyongyang.[89] A large SEZ will be established in border region to China in 2002

To sum up, there has been significance growth in the number of EPZs since the 1970s. About 88 EPZs in some 30 LDCs and territories were in operation in 1980. Regarding the regional

[86] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 131

[87] McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc., p. 132

[88] Xin Xin (1992), "The Historic Development and Recent Variants of World Special Economic Zones", (Shijie Jingji Tequ De Fazhan Yu Qushi), In: <<Economy Information>>, (Jingjixiu Qingbao>>, Wuhan, Vol. 5, p. 88

[89] Xiangming Chen (1995), "The Evolution of the Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, Apr. 1995, pp. 600-601

distribution in 1980, 80% of EPZs were in operation in Asia, the Caribbean, and Latin America. About 20% of the zones had by then been created in Africa and in the Middle East.[90] By the 1980s, there were about 600 SIPs in the world.[91] There are also other types of FEZs such as comprehensive FEZs in China and Eastern Europe. The number of FTZs in the United States increased from 7 in 1970 to 118 by 1986 in a rapid diffusion process.

FEZs realized a transformation from trade-, service- and manufacture-based FEZs to science-based and comprehensive FEZs. The typical examples are the development of science-based FEZs in DCs and comprehensive FEZs in China and Eastern Europe. World REI reached a high level. Both EEC and EFTA continued to admit new members. In addition, EEC perfected the community market, and monetary and economic union became reality. In 1980, Asociacion Latino Americana de Integration was founded and established an FTA. In 1989, APEC was established and in the same year, the Canada US Free Trade Agreement (CUSTA) was signed and a FTA was built.

FEZs reached their golden ages in Asia and the United States and spread from these two continents to Europe and Australia. The policy of science-based FEZs in the United States promoted their development in Western Europe. The Chinese FEZs directly influenced the establishment of FEZs in Eastern Europe.

Science-based FEZs possess several characteristics. The zone has four location conditions. For example, since high-tech industry requires "quickness, punctuality, and certainty" in providing human and material resources, and the small quantity and diversification of high-tech products, the zonal market can extend across a large region, the entire country, and overseas, so that a high-speed transportation system, like an airport and an expressway, is one of the necessary location conditions. Such a zone is normally small (a population of under 50,000). Therefore, it is desirable to establish it in the neighborhood of a "mother city". The linkages between the central city and the zone will bring about a mutual supplementary effect to enable the zone to fully use cultural and traditional assets, available public facilities, the industrial potential, human and material resources of the "mother city". In addition, people employed in high-tech industries seek cultural and recreational facilities, besides just basic housing. Therefore, a pleasant living environment is also a location condition.[92] Finally, one of the targets of science-based FEZs could be to increase the efficient use of resources and to accelerate the commercialization and diffusion of new technologies developed in local research centers, so the zone should be set up in regions well endowed with research and development activities, and possessing a large pool of high-quality scientific and technical manpower.[93] Universities and other research institutes cannot only supply more research results and qualified manpower and form a scientific community for systematic, integrated research and development, but they also make possible the exchange of researchers and technical information and the use of common research facilities. Therefore, the zone is normally located near universities and research institutes.

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[90] UNCTAD/Geneva (1985), <<Export Processing Free zones in Developing Countries: Implications for Trade and Industrialization Policies>>, United Nations, New York, pp. 1-2

[91] Zhan Qicheng (1992), "The Special Economic Zones of Various Countries in the World", (Shijie Geguo De Jingji Tequ), In: <<Baike Zhishi>>, Beijing, p. 7

[92] Jung-Man Suh (1987), "Science-Based Industrial Parks: The ROK Experience of Past Achievements and Future Prospects", In: <<Export Processing Zones and Science Parks in Asia>>, Asian Productivity Organization, Tokyo, p. 87

[93] UNCTC Current Studies (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe>>, United Nations, New York, , p. 13

The first and second functions are the commercialization of the achievements in scientific research, high-tech innovation, and the re-education of high-quality manpower. The academic institutes and universities in the zone are not the conventional campus colleges that are mainly involved in academic education and research, they engage also in the industrialization of the achievements in their scientific research. Through this process, scientists, managers and students get a second education. The third function is production. High-tech industry creates highly value-added and pollution-free products at small- and mid-scale research, experimental and production plants, instead of conventional, smog-producing factory plants. The fourth function is habitation. The zone, especially science city, needs and can create a pleasant living environment and harmony between daily life, education, culture, and production. The fifth function is a tool to promote regional and national technological development, such as the zones in the United States, European Union, and China.

Science-based FEZs also enjoy high-tech-oriented preferential policy. Especially in LDCs, they profit from similar preferential policy and governance structures as EPZs. And major industrial sectors are high-tech research, education, production and trade. The zonal origin, objectives, background and location can be summarized as shown in Table 4.

Tab. 4: The Typologies and Features of Science-Based Free Economic Zones

Types	**Science-based Park**	**Science-based industrial Park**	**Science City /Technopolis**	**High-Tech Industrial Area**
Origin	Urban industrial park	Export processing zone	Rural city	Complex of integrating three or two origins
Function / Goals	Researching and developing high-tech production, promoting the industrialization of achievements in science and technology	Absorbing and developing high-tech products; promoting the upgrading of the industrial sector	Combination of research, production, education and living; Combination of high-tech, culture, and new city model	Combination of research, production, education and living; specialized high-tech research and production basis
Background	Urban industrialization • Mixing of industrial and living estates • Large area occupied by modern industry Motorization	Evolution of EPZ • Upgrading of the industrial sector • Transfer of the development strategy	1) Pursuing ideal city • Rural urbanization • Rural City 2) The measure for the realization of high-tech development plan; 3) Developing backward areas	The spontaneous or planned spatial and functional integration of three or two origins
Location	Urban area around or near the universities or research institutes	The areas near ports, highways and research institutes	Urban or remote area with beautiful natural environment	The areas with a nice natural environment, good communication, research institutes, industrial bases

Source: developed with numerous sources from Wang Ruiming, Xuzhizhan (1996), <<New and High-Technology and New and High-tech Industry>>, (Gaoxinjishu Yu Gaoxinjishu Chanye), The Publishing House of Economics, Beijing, p. 56

The comprehensive FEZ is a defined large area, politically separated from the national economy and blocked off by physical and natural barriers or relatively opens to other regions of the host economy. The zone can be situated in coastal regions, inland, and border regions having or constructing convenient transport facilities, and normally covers a large area such as Hainan SEZ in China with a surface of 3400 km². It enjoys comprehensive preferential policy and privilege, such as free trade policy, financial and physical incentives, economic and administrative privileges. The governance structure is mostly the combination of the

administrative area and FEZs. The zonal economic activities, including trade, industry, commerce, service and agriculture, can be labor-intensive or capital- and technology-intensive. Its output can be used for export or domestic market. It has also comprehensive functions, including trade, commerce, production, education, research and living; and can include other types of FEZs such as FTZs, FPs, EPZs, HIPs and FTZs. The zone has multi-objectives, too, which include abstracting investment, foreign capital and technology, creating employment, earning foreign exchange, realizing regional development strategy and industrialization, recovering the vitality of the old economic center, developing economically backward regions and translating economic and political reform into action.

3.5. The 6th Generation of FEZs: Cross-Border FEZ since the 1990s

The classic FEZs promoted step by step the development of WEI by increasing their numbers and thereby expanding and deepening the economic linkages between the domestic (FEZ) and the world economy. On the contrary, WEI has also made a notable impact on the evolution of the classic FEZs. For example, the FEZs have taken on the cross-border spatial and functional dimensions simultaneously since the late 1970s, namely the cross-border FEZ as a transitional type between the classic FEZs and cross-national REI. In addition, the Fourth Industrial Revolution has promoted both the further development of FEZs, including cross-border FEZs (CFEZs) and science-based FEZs worldwide.

CFEZs as a new conception for a new transition type of FEZs between FEZ and REI are gradually accepted by economists and geographers. CFEZ implies that two or more countries or territories select a special cross-border area within which high level governance structure supplies coordination and organizational mechanisms, the local government and large enterprises are mainly responsible for economic cooperation and economic development; on the basis of the market economy, the zone enjoys preferential economic policy and financial subsidies offered by different levels of government and organizations, and supplies a sophisticated infrastructure in order to realize long-term macro economic and political goals.[94]

Due to its short history and its only being at its primary stage, CFEZs have different names such as sub-regional economic zone, cross-border economic cooperative zone,[95] growth triangle[96] and cross-border growth zone.[97] Typical examples are "cross-border economic cooperation zones (CECZs)" (CECZ of Maas-Rhein in EU), and "cross-border growth triangle (CGT)" (CGT of Tumen River, Mekong River and Chinese Economic Triangle).

Cross-border cooperation sows the seeds for European integration, which can be traced back to the early 20th century. The border region is very sensitive to decisions and changes abroad. For the EU, the establishment of the CM and the "European Economic Zone" as well as the

[94] For discussion see: Europäische Kommission (1995), <<Europa 2000: Europäischen Zusammenarbeit bei der Raumentwicklung>>, Luxemburg: Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaften, S. 127-135

Reis, Heinz-Eckhard (1994), " Grenzüberschreitende Zusammenarbeit zwischen Deutschland, Belgien und den Niederlanden", In: <<R u R>>, No. 1, Deutschland, S. 36-42

Tang Min (1993), "Growth Triangle: Conception and Operation", (Zhengzhang Sanjiao: Gainian Yu Yunzuo Wenti), In: << Translation Collection of World Economic>>, (Shijiejingji Yicang), No. 7

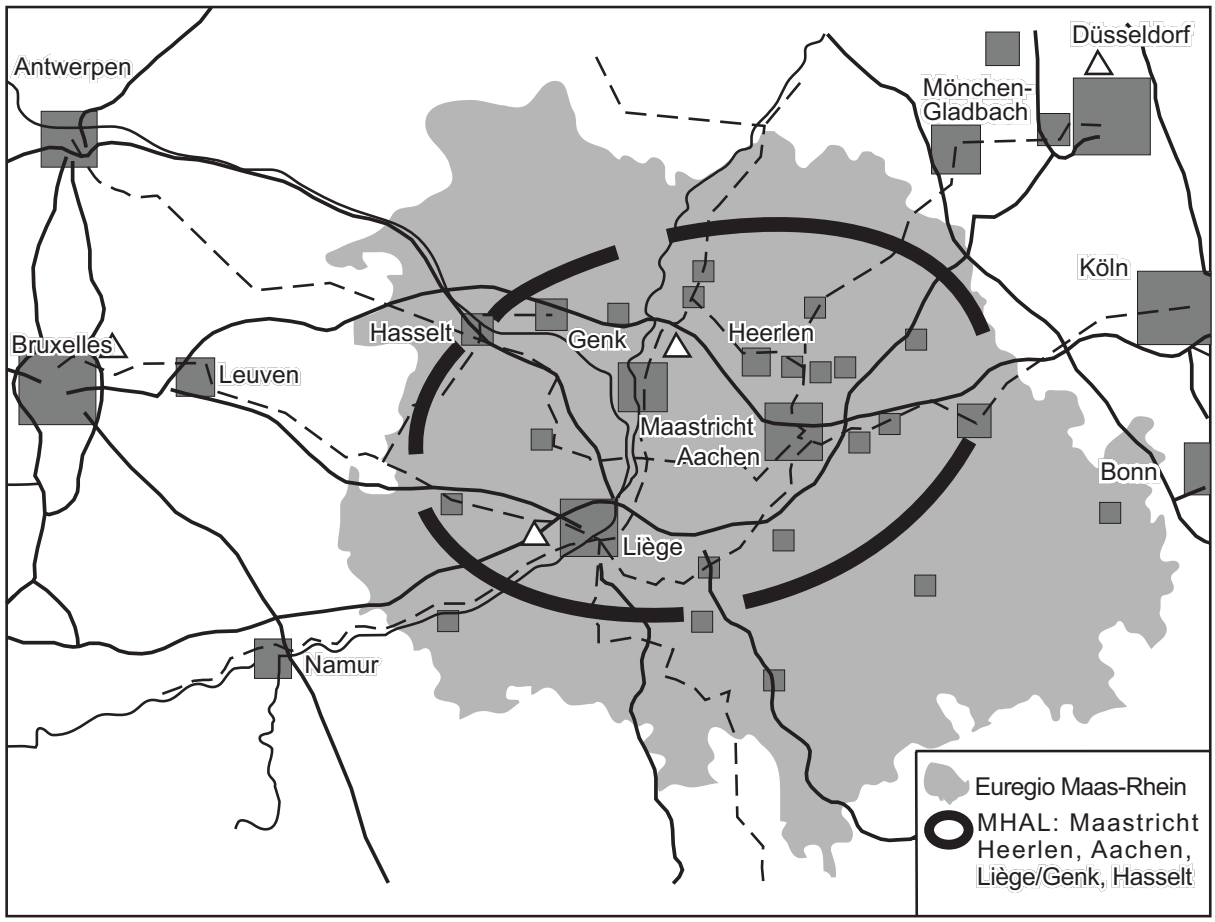
[95] Pang Xiaomin (1997), "The Theoretical Conception and its Evolution of Regional Integration", (Qiuyu Yitihua De Lilunggainian Jiqi Yianbian), In: <<Territory and Territorial Economy>>, (Guotu He Guotujingji), No. 2, Beijing, p. 24

[96] Li Qing (1997), "The Trade Theory of Growth Triangle", (Zhengzhang Sanjiao De Maoyifazhan Lilung), In: <<Social Science Front>>, (Shehuikexue Zhanxian), No. 5, p. 93

[97] Xiangming Chen (1995), "The Evolution of the Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, p. 593

new accessions can bring both chances and challenges for the border regions. Since the beginning of European integration based on the CM in 1958, some border regions have not adapted to this process. Varied kinds of contradictions and conflicts have arisen, largely in the border regions, including inner "soft barriers", such as language, culture, mentality, information exchange, and legal system, so that some border regions between the member states of the EU have even become an barrier against the further integration of the EU. Under these circumstances, cross-border economic cooperation has become both an economic and political necessarity of the EU. But then again, many border regions have seized the new development advantage such as favorable location and economic liberalization, which can be used to resolve economic, social, spatial, and environmental problems. Especially regions with similar cultures can easily cope with regional integration. For example, Luxembourg has three working languages: German, French and dialect. The construction of communication lines within the EU provides some regions with new location advantages, e.g., Lille and the Euroregion Rhein-Waal. The representative CECZ inside the EU is the "EUREGIO/Maas-Rhein", which was formulated in 1976. Maar-Rhein is located between Germany, the Netherlands and Belgium and includes the cities of Maastricht / Heerlen – Aachen – Liége – Genk (see Fig. 9). This area possesses a developed economy and advanced technology and education (Aachen), and there are also close cultural and economic relations between three countries. The development of this CECZ will promote the REI inside EU.

Fig. 9: The Cross-Border Economic Cooperative Zone of Euregio Maas–Rhein and MHAL Region



Source: International Koordinierungskommission (Hrsg.): MHAL: Raumordnernische Entwicklungsperspektive, Entwurf. Maastricht 1993 Design: Meng Guangwen

"The operational program 31 of European border regions cooperation" decided to apply financial assistance to "INTERREG 1". INTERREG includes several border regions that are

enthusiastic about and have developed a preliminary but concrete cooperation like a cross-border governance structure. "The cross-border regional cooperation frame-agreement of the European commission" was signed by 20 countries and was approved by 17 countries by 1993; for example, a cross-border regional cooperation agreement between the Netherlands, Belgium and Luxembourg was signed in 1986, approved in 1991 and became effective in 1993. The agreement desired to promot the cooperation in border regions in order to promote the REI inside EU. In addition to the national level, local and regional governments participated in the agreement.[98]

The development of CGTs is based on both subjective and objective reasons. The establishment of the CM in the EU and the NAFTA may exclude non-member states to take part in their REI. Under these circumstances, numerous LDCs planned to carry out varied kinds of cross-border REC according to the experience of FEZs in pursuit of regional mutual advantages and the challenge of trade protection. Because of the less-developed economy and the large economic and technological diversities between the member nations, LDCs can only carry out cross-border regional economic cooperation (REC) at a lower level than the REI of DCs. A CGT is a very effective way to utilize mutual economic advantages and stimulate regional economic development and REC.

CGTs are mostly distributed in Asia. The first one came into being in Southeast Asia from the close economic ties between Singapore, Malaysia's Johor state and Indonesia's Riau Islands in the late 1980s. They jointly created a cross-border growth zone – Southern GT, which had a "neighboring" effect in prompting the creation of two other nearby CGTs, which are still less developed. The Northern CGT, established in the early 1990s, ties together Thailand's southern provinces, the northern Malaysian states and western coast, the northeastern coast of Sumatra and the city of Medan. The Eastern CGT started to take shape in 1993. It includes the states of Sabah and Sarawak in East Malaysia, the islands of Kalimantan (Borneo) and Sulawesi, the cities of Manado and Bitung in northeastern Indonesia, and some islands in the Philippines. In addition, the Tumen River Regional Triangle including China, Russia, North and South Korea, Mongolia, and Japan, started in 1991. Furthermore, the Mekong River Regional Triangle was officially approved in 1993 (China, Thailand, Burma, Laos, Vietnam, and Cambodia) (see Fig. 10).[99]

Generally, CGTs have evolved from existing intra-national FEZs. For example, the Chinese economic triangle formed in the early 1990s modeled on the four existing SEZs in Guangdong and Fujian provinces and Hong Kong, Macao, and eventually Taiwan, because strongly interdependent ties of trade, investment, manufacturing, and marketing were established between the four Chinese economies. Southeast Asia's Southern GT was predated by the establishment of an EPZ on the Islands of Batam on the Riau Island. The EPZs in Penang of Malaysia provided favorable conditions for the formation of the Northern GT. The Eastern GT, Tumen River Regional Triangle are in a similar situation.[100]

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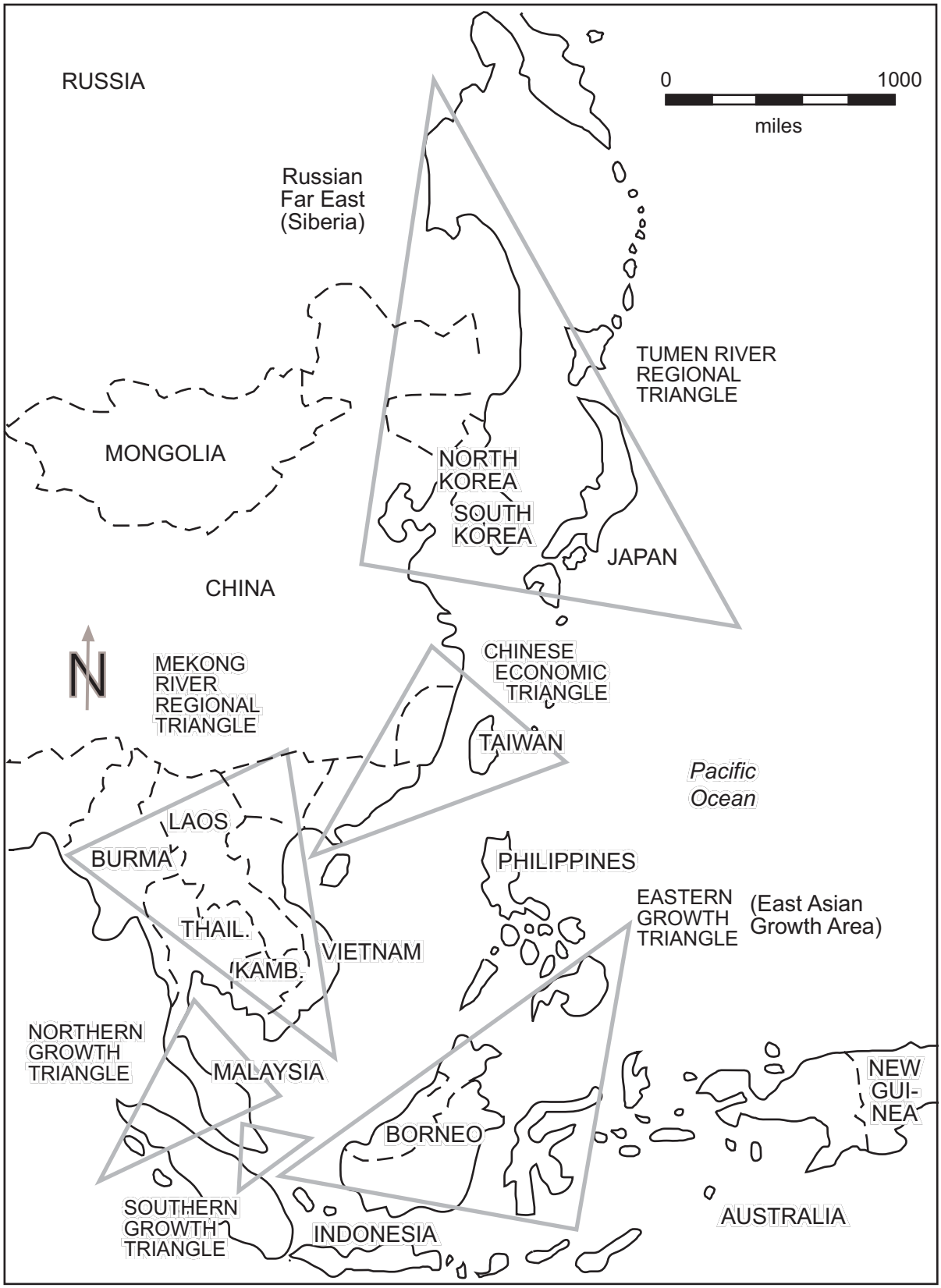
[98] Europäische Kommission (1995),<<Europa 2000:Europäischen Zusammenarbeit bei der Raumentwicklung>>, Luxemburg: Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaften, S. 135

[99] Xiangming Chen (1995), "The Evolution of the Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, pp. 607-609

[100] Xiangming Chen (1995), "The Evolution of the Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, p. 612

Fig. 10: The Geographical Locations of Several Cross-National Growth Triangles in the Asia-Pacific Area



Source: Jones, C. (1993), "Economic Cooperation Zones create new Asian Geometry", In : <<Christian Science Miotor>>, No. 1, December, pp. 12-13; Xiangming Chen (1995), "The Evolution of Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, p. 608 Design: Meng Guangweb

Since the first official cross-border FEZ arose in EEC in 1976, cross-border FEZs have developed towards the economic cooperation and integration inside the zone and between the FEZs and the regions around them and there has been an increase in numbers since the 1990s. Most cross-border regions, where CECZs in EU and CGTs in Asia were established, occupy potential and strategic advantages, but they are also regions with lower REI, REC and lower economic and technological level in reality. Therefore, their establishment is more a political than economic decision. However, CECZs and CGTs have made a great progress in promoting exchange of information, mutual understanding, transfer of technology and investment as well as improving the infrastructure. It is unrealistic for them to realize more microeconomic objectives in a short time. In fact, they play a strategic role in promoting cross-border REI, REC and finally national economic and technological development.

More recent studies suggest that, until the 1990s, there may be as many as 900 FEZs of various types in about 90 countries and regions of the world.[101] FEZs are continuing to be created in the world, especially in LDCs, but the new establishment of FEZs such as comprehensive FEZs and EPZs has decreased since the 1990s. China alone established two classic comprehensive FEZ (Puton New Area and Suzhou New Area), 53 science-based FEZs, 53 science-based FEZs and 13 EPZs inside science-based FEZs until the middle 1990s. After then, the establishment of FEZs was not encouraged in China. Beside the Lasa ETDZ of Tibet, the foundation of new FEZs was not planned in the "Strategy of Western Development of 2001". The FEZs in new industrial countries and China become the examples for other developing and socialist countries. For example, the former Soviet Union established several FEZs in the 1990s based on the Chinese experience. The Taiwanese government committed large financial resources to the Philippines to develop Subic Bay – the former US Naval Station – into a major special economic and free port zone in the early 1990s.[102] In place of classic FEZs, cross-border FEZ developed very quickly in Asia and Europe, Latin America and in South Africa. The typical examples are CECZs in the EU, CGTs in Asia, NAFTA, and planed FTA between China and EAEC.

CFEZ as a transition type of FEZs is the functional expansion and development of FEZs, and even shows some characteristics of REI. Its cross-border location between two or more countries and territories is a new development of FEZ's location model. Like comprehensive FEZs and REIs, it can include different types of FEZs, such as FTZs, EPZs and SIPs; and a complete range of economic activities, such as resource exploitation, trade, manufacturing and processing, tourism, and environment protection. Like FEZs, it enjoys preferential policy and privilege, and supplies well-developed infrastructure for absorbing investment; like REC and REI, it receives financial support from the national and cross-national governments and organizations. Based on the FEZ model, the national and transnational levels of governance structure possess some features of REC and REI. The national governance structure, including regional, local, and key enterprise, is responsible for its own infrastructure construction and economic development. The transnational cooperation organization is composed of the member states on the different levels, such as the transnational committee of the CFEZ and transnational organizations like the EU. The former is responsible for the operation and coordination of CFEZs and the latter formulates the frame-agreements and supplies financial support for the CFEZ. Its goals include two aspects: promoting economic development, which is similar to that of FEZs; strengthening cross-border administrative, political and legal cooperation, which are similar to those of REC and REI.

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[101] Li Haiyan (1992), "The Various Types of Free Economic Zones in the World Today", (Dangjin Shijie Jingji Tequ De Zhongzhong Xingtai), In: << Special Zone and Open City Economiy>>, (Tequ yu Kaifang Chengshi Jingji), No. 12, Beijing, p. 64

[102] IDIC (Industrial Development & Investment Center) <<Taiwan Industrial Panorama>>, 21/02/1993, pp. 1-5

3.6. The Structural and Spatial Evolutionary Model of FEZs

On the one hand, FEZs have been used as a tool or instrument to realize economic and political objectives; on the other hand, the development of the world economy, politics, and the progress in science and technology will influence or determine the evolution of FEZs during different periods. The evolution of FEZs is described and defined by varied factors such as location, spatial dimension, objective and function, economic sectors, preferential policy, and administrative model. According to the analysis of varied generations of FEZs in above section, the features of FEZ's revolution can be summarized in this section.

FEZs Objectives and Roles in the World Economy

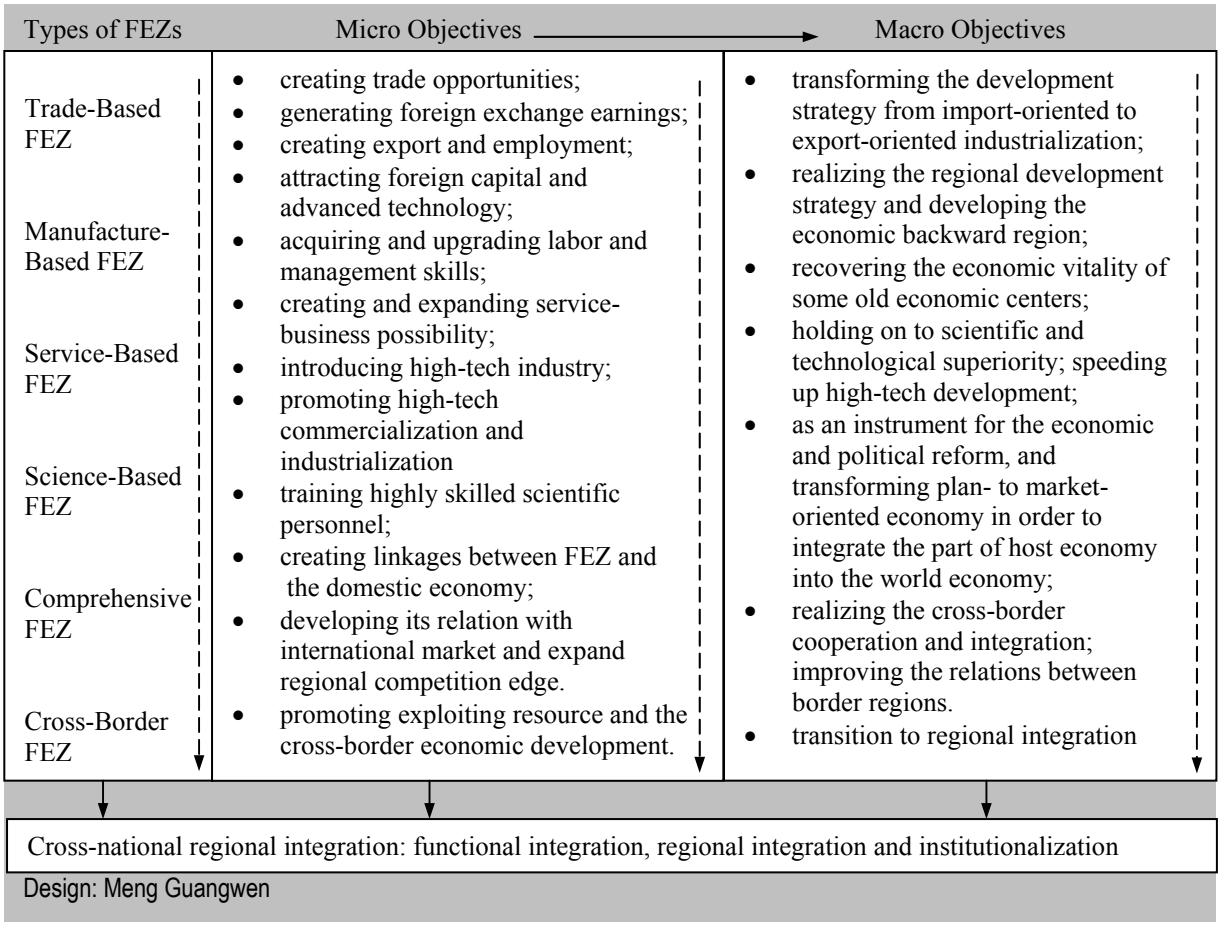
The number of various types of the FEZs in the world was continually on the increase according to different estimates. In 1900, there were only 11 FPs and they were only located in a few countries of Europe and Asia. In 1975, 25 LDCs ran 79 EPZs. By 1986, this number had risen to 47 countries with 176 EPZs.[103] Recent studies in the 1990s suggest that there may be more than 1000 FEZs of various types in about 90 countries and territories of the world. According to a recent estimate,[104] the share of the world's total trade accounted for by all the FEZs rose from 7.7% in 1979 to 20% in 1985 and around 30% in the early 1990s. In other words, FEZs have augmented in number and typology, and they play an increasingly important role in the world, national, and regional economy since the 1500s. This role has been transformed from micro to macro economy and from economical to political reform.

The FEZ is used as an instrument or tool to realize certain economic, and even social and political goals. The objective is one of the key features and motive power of FEZs. Further, one can distinguish micro and macro objectives, common and special objectives, and they evolved step by step from the economic to the social and political level. Generally, FEZs have more similar micro-economic objectives, but the macro-objectives are mostly different from each other. The objectives evolved from the direct micro-economic objectives to the indirect macro-economic objectives, or, in return, the micro- and macro-economic objectives evolved from the trade-based FEZ to the comprehensive and cross-border FEZ, namely, the comprehensive and cross-border FEZ have multi-objectives and more macro objectives. The micro objectives evolved from creating trade, export, employment, foreign exchange, and attracting foreign capital to absorbing advanced technology, investment, and training personnel, but the macro objectives evolved from promoting regional development to carrying out structural reform and regional economic cooperation and integration. The final goal of FEZs is REI. The evolution of FEZ's objectives in detail is summarized in Fig. 11.

[103] Otto Kreye, Jürgen Heinrichs, Folker Fröbel, Sternberg Institute, Sternberg in Germany, <<Export Processing Zones in Developing Countries: Results of a New Survey>>, Working Paper No. 43, International Labor Office, Geneva, 1987, pp. 6-7

[104] Liu, Yuchi (1994), "The Evolution of the world's Economic Special Zones and the development Choices Facing China's SEZs", (Shijie Jinjitequ De Yanjin Yu Wuoguo Jinjitequ Fazhan De Xuanze), In: <<Tequ Yu Kaifang Jinji>>, (Special Zones and Development Zone Economy), No. 5, pp. 77-80

Fig. 11: The Evolutionary Model of FEZ's Objectives



Note: the horizontal arrows point to the evolution of objectives from micro- to macro-objectives of FEZs; the vertical broken arrows point to the evolution of types, micro- and macro-objectives of FEZs.

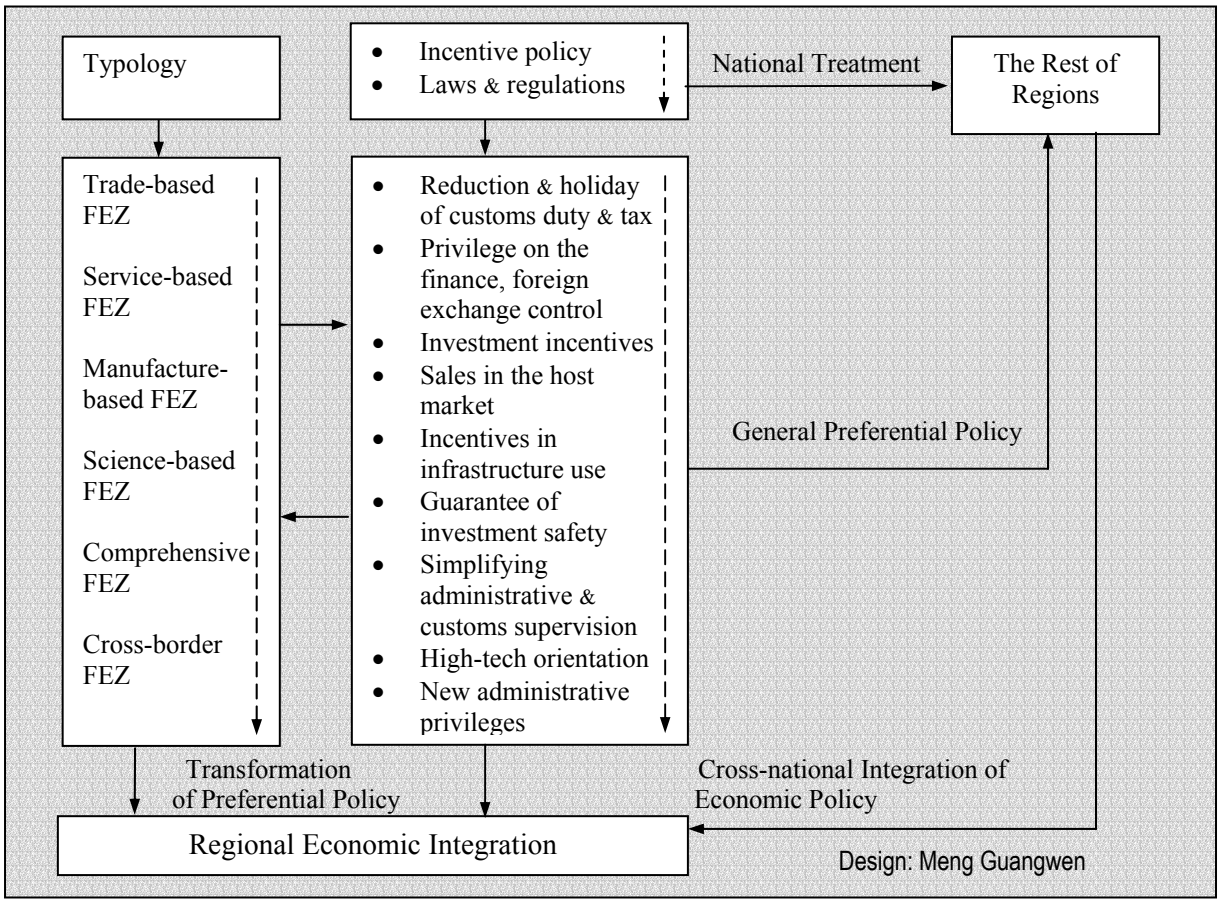
FEZ's Preferential Policy

In order to realize the certain objectives, FEZs are established in the selected zones and provide a stable and profitable investment environment, namely, they give well-developed infrastructure and the preferential policy or the law and regulations (LRs). Its evolution will be determined by national and international economic development, the FEZ's objectives and its development.

In the case of one FEZ, the preferential policy will be formulated, developed, and disappeared or will become LRs, or the policy will be transformed from regional-orientation to the combination of regional- and industry-orientation. A FEZ possesses administrative LRs, economic LRs (LRs of trade, commodity inspection, investment, finance, and trade dispute) and economic incentives and privileges (preferential policy). The economic LRs concretized the FEZ's preferential policy and privilege. In contrast to laws, the policy is abstract and follows general principles; therefore, it is more flexible and changeable. Following the FEZ's development, the policy will be transformed through practice to law, namely policy–practice–law. In other words, the newly established FEZs mostly carry out the preferential policy such as the EPZs and FTZs in LDCs, but the old ones carry out the LRs such as the FPs and FTZs in DCs, or a FEZ has both LRs and preferential policy. For example, many preferential policies of EPZs in Panama, Taiwan, and Korea exceeded the period of validity. Many FEZ' LRs can be found in some old FPs such as the first FP – Leyghorn. Some FEZs in China transformed their regional-oriented to the combination of regional- and industry-oriented

preferential policy. Generally speaking, the preferential policy can represent FEZ's LRs because it is the important part and primary stage of FEZ's LRs.

Fig. 12: The Evolutionary Model of FEZ's Preferential Policy



Note: the horizontal arrows show the evolution from the preferential policy and LRs of FEZs to the national treatment and general preferential policy in the rest of regions; the vertical broken arrows show the evolution of types and preferential policy of FEZs; the vertical solid arrows show the revolution or transformation of preferential policy from FEZs to REI

The preferential contents and degree are enriched and enlarged following the evolution of FEZs from the trade-based to the comprehensive and cross-border FEZ. It expanded from the trade to the service, production, administrative and social, even political field. In addition, preferential policy will be expanded to the regions outside the FEZs, namely, the national treatment for the foreign investors inside or outside FEZs. Moreover, in the well-integrated region, FEZs are united with some types of REI such as FTA, CU, and CM, and the preferential policy has been transformed into or replaced by the basic principle and common economic policy of REI, but some FEZs are still treated as an exception of the treaty of REI. For example, EU decided that FEZ is the part of common customs system of the EU, but goods within the FEZ, including goods from the third country, are seen as goods outside EU. Thus, FEZs in the well-integrated regions still play a role in promoting free trade development and REI.

FEZ's Governance Structure

A successful FEZ might have a governance structure with high responsible authority, high efficiency, high flexibility, and long-term interest, whose task is to plan, administer, coordinate, and develop economic and social activity within the zone in close cooperation

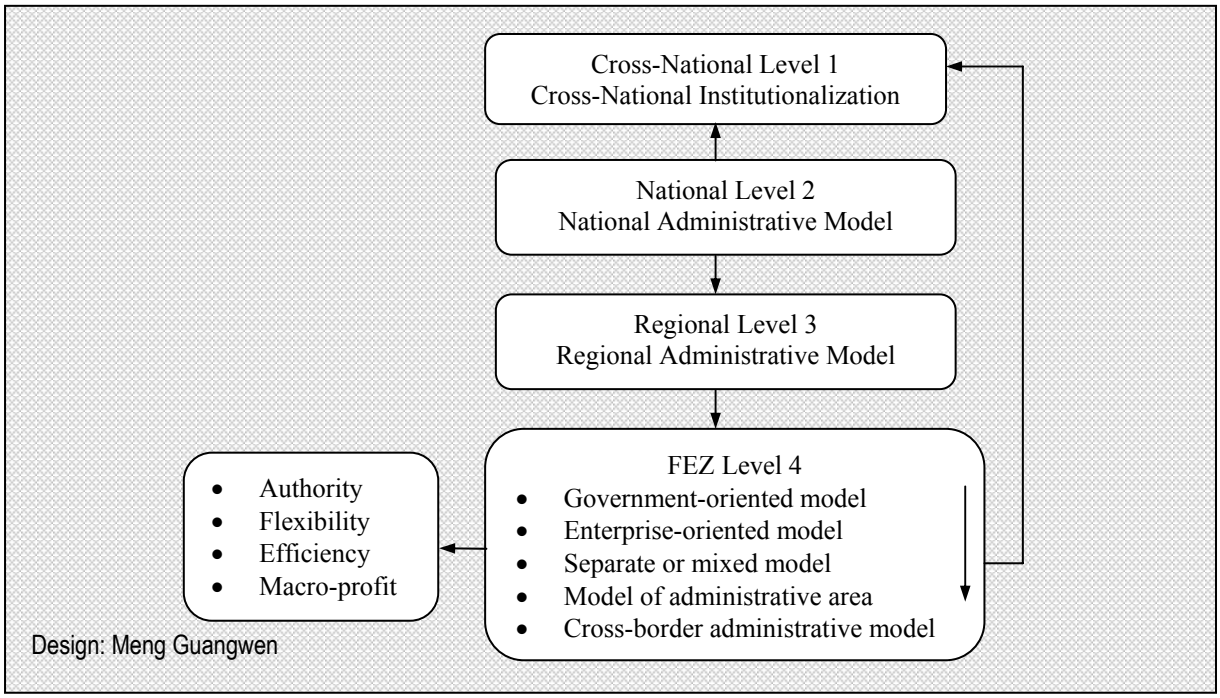
with the host country's authority. In a sense, creating and operating a FEZ authority might be seen as a zone's main institutional development task.

Although there is a general lack of government intervention and strong political control of economic activities in FEZs, the "zones are not completely "free" from state influence in that they all are subject to some form and degree of international, national, and regional administrative governance. Most FEZs can be classified into four administrative levels: a cross-national level institution is responsible for the cross-national economic, social and political cooperation of FEZs; the national administrative system is responsible for the macro-decision making of FEZs such as legislation and supervision; the regional administrative system means that state and province govern and supervises the economic and social affairs of FEZs.[105] and the FEZ's authority itself is responsible for its own economic and social activity. The FEZ's authority includes the government- and enterprise-oriented model, the mixed or separated model, the model of administrative area, and the cross-border administrative model.

The revolutions of FEZ's administrative model of cause relates to the various types of FEZs and regional, national, and international economic development and policies. First, FEZ's administrative model is evolved from national to regional and FEZ level because FEZ's establishment is the country's matter first and then the matter of local governmental. Second, FEZ authority evolves from the government-oriented, the enterprise-oriented and the mixed model to the model of administrative area. The FEZ establishment is a government decision, therefore, mandated by the central government, local government, local port, and local customs authorities. For example, mandated by the UK from 1842 to 1977 and by Chinese central government since 1977, the Hong Kong local government manages the Hong Kong special administrative area. Along with the establishment and development of market-oriented economy, a lot of FEZs were transformed from the government-oriented to the enterprise-oriented and mixed model, or numerous new FEZs selected the enterprise-oriented and mixed model. At the beginning, LDCs selected and used the government-oriented model, but following the FEZ's development and the success of the political and economic reform, these countries now pay more attention to the enterprise-oriented and mixed model in order to conform to the development of the market-oriented economy. Moreover, more and more FEZs (comprehensive FEZs) possess the vertical combination model of an administrative area and FEZs. Third, following the birth of cross-border FEZ, the cross-border administrative model has taken place. Because one country cannot govern a cross-border FEZ along, the compromise between the two or more countries led to the cross-border administrative model with both characteristics of FEZs and REI. Finally, the evolution of the national administrative system and the cross-border administrative model led to the cross-national institutionalization of world REI (see Fig. 13).

[105] Li Li (chief editor) (1996), <<Study on the World Free Trade Zone>>, (Shijie Ziyoumaoyiqu Yanjiu), China Reform Publishing House, (Zhongguo Gaige Chubanshe), Beijing, p. 95

Fig. 13: The Evolutionary Model of FEZ's Administration



Note: the horizontal arrows show the features of governance structure of FEZs; the vertical arrows point to the evolution of administrative system of FEZs from level 1 to level 4 and inside level 4

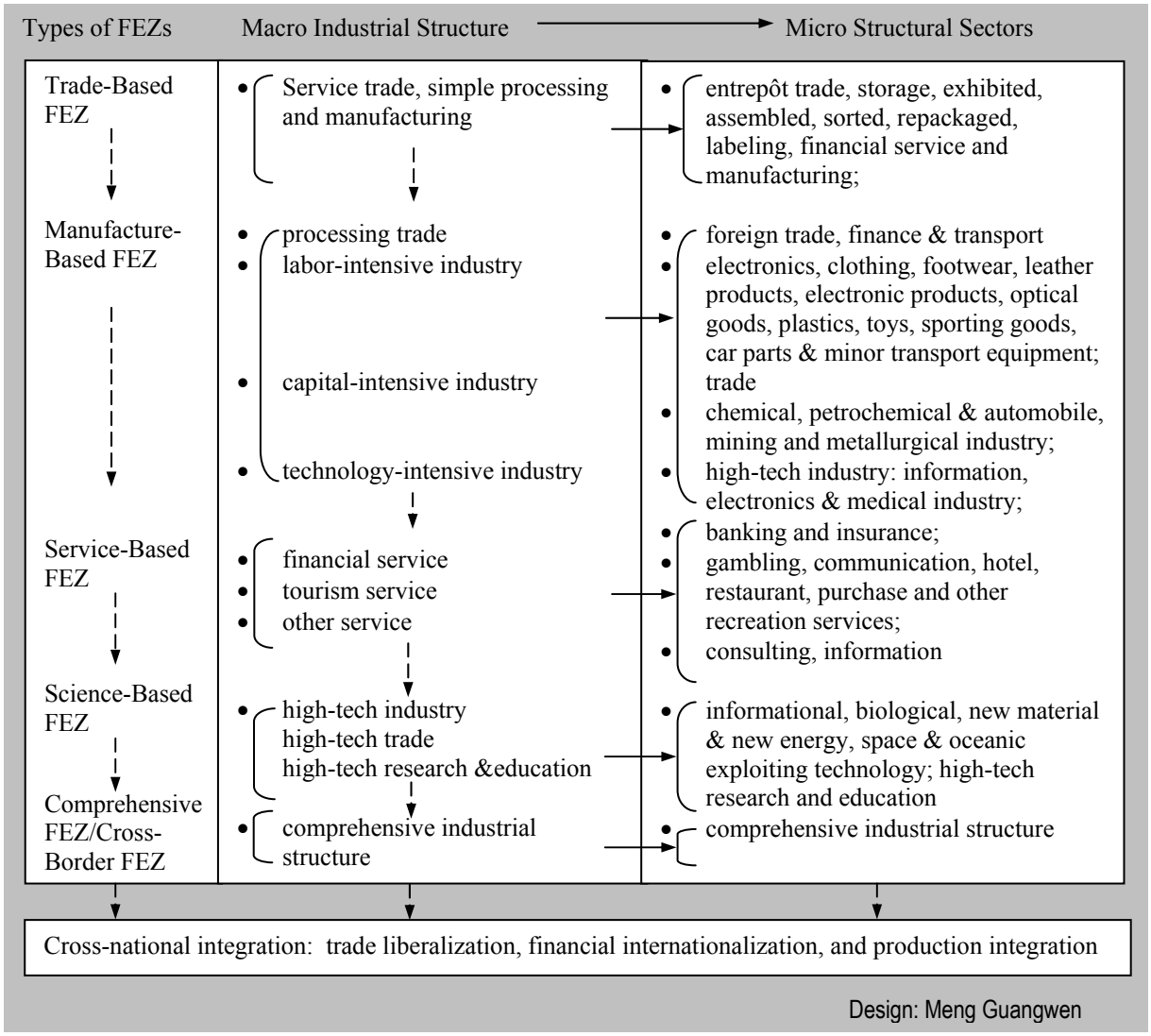
FEZ's Industrial Sectors

The industrial structure consists of the key factors indicating FEZ economic development. Its evolution occurs both in total FEZs and in each FEZ. They have developed more comprehensive sectors with a stronger orientation toward capital- and technology-intensive manufacturing and services.

Generally speaking, FEZ's industrial structure was evolved from the trade, financial and tourism industries to the manufacturing industry and agriculture, namely from tertiary industry to secondary and primary industry, which turns out contrary to the evolutionary order of a normal regional industrial structure. Moreover, like the normal economic zone, secondary industry is transformed from labor- and capital-intensive to technology-intensive industry or high-tech industry. The industrial sectors of FEZs will evolve from single sectors to multi-sectors. In addition, "the inlaid industrial structure" of FEZs is determined by the FEZ's planning, the first investment group, several large transnational corporations, the industry-oriented preferential policy and its own evolutionary law. At the primary stage of FEZs, the industrial structure is determined and established by the planner and the first group of investors, such as EPZs in LDCs. In the 1960s Mauritius was a typical case.[106] But, following the development of FEZs, the sectoral structure and pillar industry would be newly rebuilt based on the investment of several transnational corporations and the evolution of industrial structure. The experience of Chinese FEZs, such as TEDA, has proven this fact. Finally, the evolution of industrial structure of FEZs promoted world production integration because FEZs will be integrated into the production systems of the world or transnational companies.

[106] UNCTC Current Studies (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe>>, United Nations, New York, p. 4

Fig. 14: The Evolutionary Model of FEZ's Industrial Structure



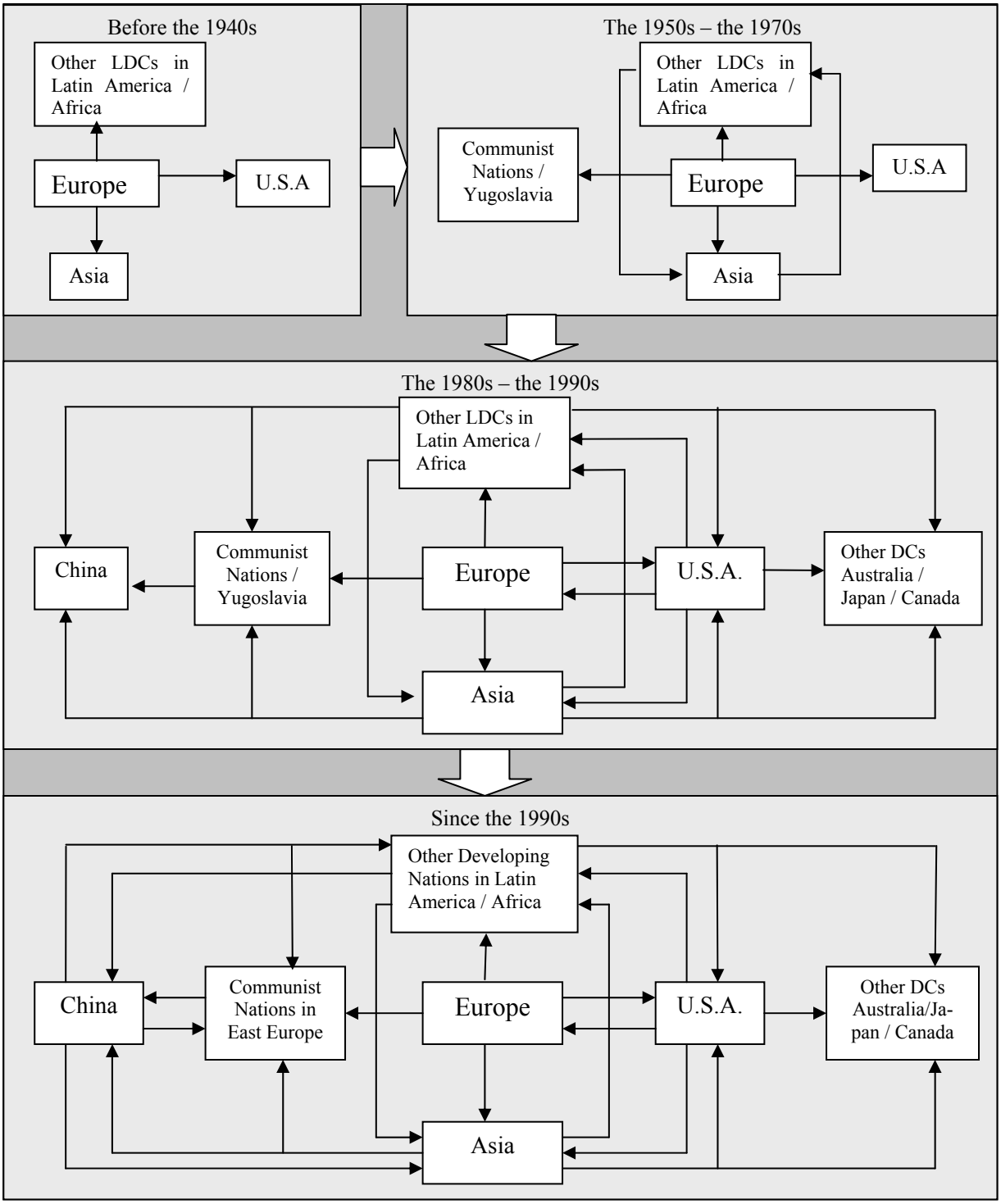
Note: the horizontal arrows point to the evolution of industrial structure from macro industrial structure to micro industrial sectors of FEZs; the vertical broken arrows point to the evolution of FEZ's types from trade-based to cross-border FEZ and world REI, and the industrial structure from trade, industry, high-tech industry, and comprehensive structure.

FEZ's Geographical Spread

FEZs are now flexibly located: from the ports in the coastal regions to the interior and to the cross-border region with favorable communications. They tend to expand spatially. Whereas the historical FPs comprised only small adjacent areas, some SEZs in China and Russia today cover hundreds, even over 1000 km².

FEZs spread from Europe to other continents and then return. FEZs originally arose in Europe in the 1500s, and then spread to Asia and Africa in the 19th century, to America in the 1930s and to Oceania in the 1980s. In return, they influenced and promoted each other. For example, the science-based FEZs emerged in the United States and spread to Europe, Asia and other continents. The EPZ concept spread from Asia to North America and the UK. FEZs have not only spread from DCs to LDCs, but also from capitalist countries to communist countries since the 1960s (see fig. 15) and then returned.

Fig. 15: The Spatial Evolutionary Model of FEZs by Selected Periods, Geographical Areas and Nations



Source: Developed from McCalla, Robert J. (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc. p. 124

Note: The arrow points show the direction of influence or diffusion of FEZs; the bold, short arrows point to the diffusion in four stages; the continent and nations transliterated by the bold and big letters in the rectangles play a dominant role in the spread of FEZs; on the contrary, the continent and nations play a limited role in the diffusion of FEZs; the science-based and service-based FEZs of U.S.A spread to other countries and continents.

Five Evolutionary Stages, Six Generations of FEZs

The evolution of FEZs can be classified into five stages. The first stage is symbolized by primitive FEZs such as FC and FP pre-1500s and successively by trade-based FEZs such as FP and FTZ since the 1500s; the second stage has manifested itself in manufacture-based FEZs such as EPZ, and service-based FEZs such as FFZ since the 1960s; the third stage is symbolized by comprehensive FEZs such as SEZ and science-based FEZs such as SIP and technolpolis since the 1980s; the fourth stage is incarnated by cross-border FEZs such as CECZ and CGT since the 1990s; the fifth stage is symbolized by cross-national REI since the establishment of the MEU of the Netherlands, Belgium and Luxembourg in the 1930s and was optimized by the establishment of EU. Two other typical examples are NAFTA and APEC, which REI has been discussed in the first section. The evolution of FEZs has accelerated over time. While several centuries elapsed between the first and second stages, it took only some 20 years for the FEZs to have evolved from the second to the third stage, and about 10 years from the third to the fourth stages.

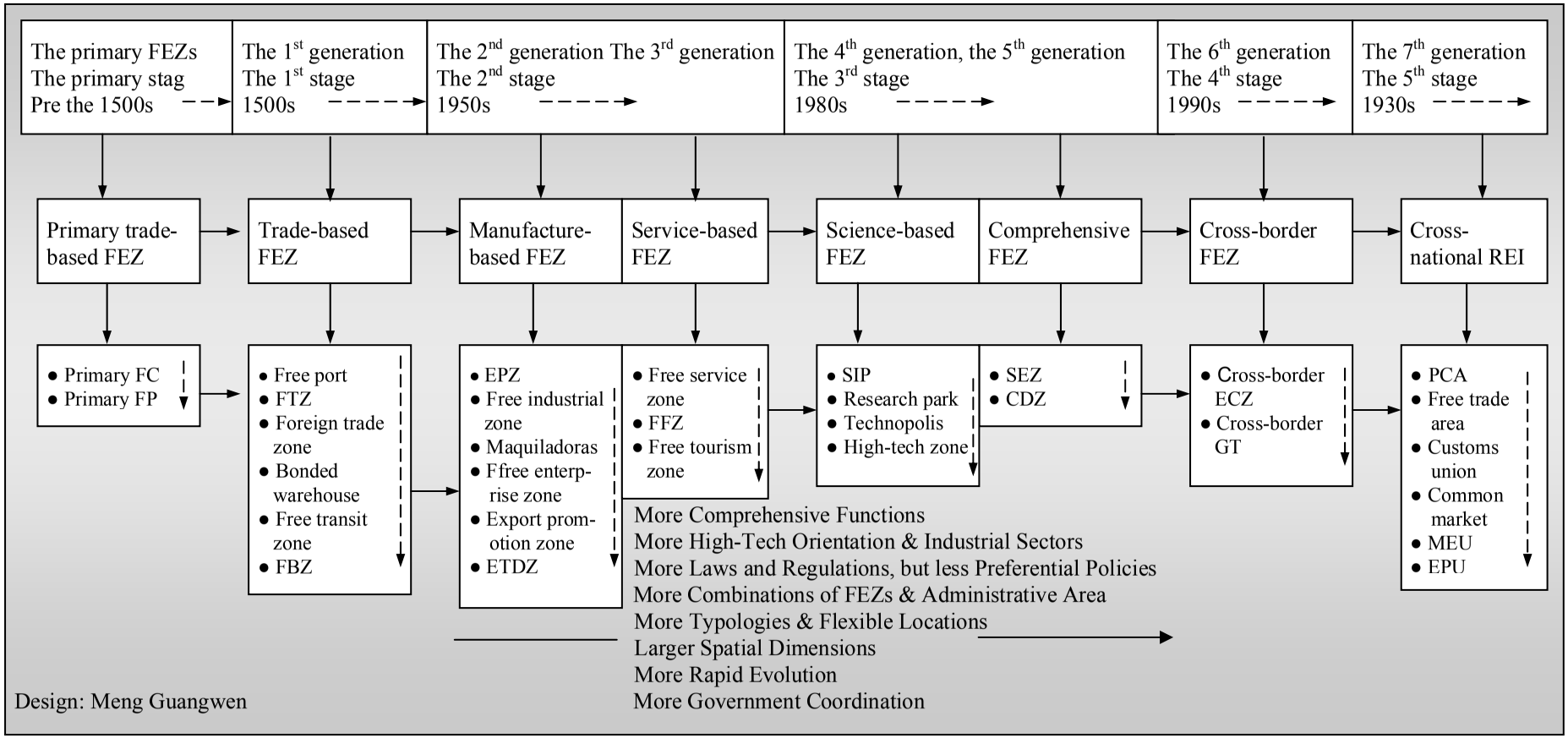
FEZs have evolved from the first to the sixth and even seventh generations according to the evolution of the economic sectors of FEZs. The total seven generations of FEZs include trade-based FEZ as the first; manufacture-based FEZ as the second; service-based FEZ as the third; science-based FEZ as the fourth; comprehensive FEZ as the fifth, and cross-border FEZ as the sixth, and even cross-national REI as the seventh generation. Some FEZs played an outstanding role in the evolution of FEZs. For example, Hamburg FP at the first stage; Hong Kong free city, Shannon and Kaohsiung EPZ at the second stage; Shenzhen SEZ and Silicon Village at the third stage; and GT between Singapore, Indonesia and Malaysia, and the CECZ in the border regions of Germany, the Netherlands and Belgium at the fourth stage.

Following this typological transformation, FEZs have transformed from micro to macro objectives, and the contents and degree of their preferential policy have been enriched. FEZs have also transformed their administrative model from regional, national to cross-national level, and they have more technology-intensive industries, more flexible locations, more large spatial dimensions, more rapid evolution and more economic integrations. This evolutionary model of FEZs improves and develops the previous studies such McCalla and Chen Xiangming.

It is unlikely that FEZs have reached their limit. As long as trading barriers exist, there will be the need for FEZs beyond these barriers. If the barriers were eliminated, that is, if there were free access to the markets of all nations by all nations, they would be so defined. However, the possibility of such a situation is remote. Consequently, it seems likely that FEZs will continue to expand.[107] FEZs are the form and basis of world REI, but REI is the development of FEZs. It can be said that intra-national FEZs will develop into cross-border FEZs and finally to cross-national REI. Until world REI one day becomes a reality, FEZs will continue to exist (see Fig. 16).

[107] McCalla, Robert J. (1990),"The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press Plc. pp. 123

Fig. 16: The Evolutionary Model of Free Economic Zone since the 1500s



Source: developed with numerous additions and modifications from the simple sketch in: 1) Wong, K.Y. and D.K.Chu (1984), "EPZs and SEZs as generators of Economic Development: the Asian Experience", In: <<Geografisca Annaler>>, 66B, 1,pp 1-16; 2) Gu, Yuanyang, Yanzhen Wei and Yaohua Wang (1993), " A Panoramic View of the World 's FEZs, In: <<World Knowledge Press>>, Beijing; and the general modification in: 3) Xiangming Chen (1995), "The Evolution of the FEZs and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, p. 599

Note: a) the horizontal solid arrows show the direction of evolution of FEZs in typology and function; the broken arrows show the time; the vertical solid arrows show the relation between the evolutionary stages And types; the vertical broken arrows show the evolution inside sub-typology; b) FC: free city; FP: free port; FTZ: free trade zone; FBZ: free border zone; EPZ: export processing zone; ETDZ: economic and technological development zone; FFZ: free financial zone; SIP: science-based industrial park; SEZ: special economic zone; CDZ: comprehensive development zone; ECZ: economic cooperation zone; GT: growth triangle; FPC: preferential customs area; MEU: monetary and economic union; EPU: economic and political union

Part B

Free Economic Zones in China – Policy and Practice

On establishing the first SEZ in 1979, the Chinese government tried to avoid an unbalanced orientation towards exports and aimed for import substitution (IS) instead. Only later did it change its policy and switch to the promotion of a more export-oriented industrialization. In the meaning, the production in Chinese SEZs is included into the world economy,[215] especially in the production of labor-intensive products.[216] In low wages production (clothing, toys, plastics, and electronic parts) China has replaced some other countries in the mass market of the USA and Europe. This, of course, makes the production in the SEZs vulnerable to changing situations of the world market.

The success of the Chinese SEZs is mainly due to the specific relations between the foreign capitalistic enterprises and the governmental authorities. Culturally specific forms of networks are used to set up and run the industrial production: personal relations between enterprises (inter-firm networks), to authorities (extra-firm networks) and within (multi-national) enterprises (intra-firm). The "intra-" and "inter-firm" networks are based on kinship and/or friendship ties; the "extra-firm" networks are based on the "guanxi" system - the balance between give and take. Thus, "… in Chinese culture, business behavior emphasizes social networks and personal relations. Customers prefer doing business with firms with which they have a close relationship. Strong networks therefore secure supply and sale…state-owned enterprises (SOEs) have dominated China's economy for several decades. Under the tight control of ministerial and provincial authorities, they have developed extensive networks with other SOEs controlled by the same authority. After SOEs become local partners of transnational corporations, the pre-existing networks continue to affect the local embeddedness of joint ventures."[217] Yeung and Li show how for Shanghai, strong local partners, together with other factors, have markedly affected the local embeddedness of equity joint ventures regarding management, industrial linkage, and technology transfer. "Company case studies in Shanghai confirm the important role of local transnational corporations embeddedness in regional development against the background of a global economy. Along with increasing local involvement in production linkages and management and technology transfer, growth has been diffused to many local enterprises… Local management skills have been greatly improved."[218] But the local embeddedness can also bring problems as the example of Shanghai shows: "Bargaining and competition between transnational corporations and the local players are quite tense … in some cases, local involvement brings losses to the local side."[219]

The example of Shanghai shows vividly that industrialization can generate spillover effects if it refers to the local (regional) economic and political situation. These recent studies therefore

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[108] Leung, C. K. (1996): "Foreign Manufacturing Investment and Regional Industrial Growth in Guandong Province, China". In: <<Environment and Planning A 28>>, pp. 513-536.
[216] Chen, X. (1994): "The New Spatial Division of Labor and Commodity Chains in the Greater South China Economic Region". In: GEREFFI, G. & KORZENIEWICZ, M. (EDS): <<Commodity Chains and Global Capitalism>>. Westport, Conn. pp. 165-186.
[217] Yeung, Y. & Li, X. (2000): "Transnational Corporations and Local Embeddedness: Company Studies from Shanghai, China". In: <<Professional Geographer>>, 52 (4), pp. 624-635.
[218] Yeung, Y & Li. X, (2000), pp. 633-634
[219] Yeung, Y & Li. X, (2000), pp. 634

contradict the conclusions Bolz et al drew in 1990 that EPZs have no or only very little impact on backward or forward linkages in the regional "hinterland" as well as on technology transfer and that the technology used in the FEZs is of no or little importance for the production needs of the local markets.[220] To what extent these observations have become reality in other FEZs of China as well will be discussed in the following chapters. The evolution of the Chinese types of FEZs must be seen against the background of the political and economic changes that have occurred in China in the last 50 years. Therefore, a short historical review will outline the circumstances under which FEZs in China were established and continuously improved. To emphasize the characteristics of Chinese FEZs, again a typology of FEZs and a comparison between Chinese and world FEZs will be presented before an evaluation of the experiences and prospects of FEZs in China will be given.

[220] Bolz, K., Dieter Lösch and Petra Pissulla (1990), <<Freihandels- und Sonderwirtschaftszonen in Osteuropa und in der VR China>>, Verlage Weltarchiv GmbH, Hamburg, S. 211

4. China's Economic Development in Review

There was a long period in history when China was open to other countries. In the Tang-Dynasty (AD 618–907), China established economic and political relations with many countries in Asia, Europe, and Africa through the "Land and Sea Silk Road." In the Ming-Dynasty (AD 1368–1644), Zheng He and his fleet sailed the Pacific and Indian Oceans seven times. However, after the end of the Ming-Dynasty, China carried out a closed-door policy.

After the Opium Wars (1840–1842), a lot of concessions were set up in the coastal cities of China, especially in Shanghai and Tianjin. China changed to a semi-colonial and semi-feudal society and economy. The coastal region developed modern trade and industry with colonial character, but the interior continued to maintain its self-sufficiency and small-scale peasant economy. The coastal areas imported industrial products from the West and exported the raw materials (agricultural production) to the West. The trade was unfair, but it introduced modern industry into the coastal area of China. China took back some concessions from the West when the Republic of China was founded in 1911. During the period of the First World War, China took its chance to develop a modern national industry concentrated in the coastal areas.

After the eight-year War of Resistance against Japan (1937–1945) and the three-year Civil War (1946–1949), the People's Republic of China was founded on October 1, 1949. The young republic carried out the so-called socialist transformation, including land reform, agricultural cooperative, and the people's communal movement (communization) throughout the countryside and the socialization of the privately owned industrial and commercial enterprises throughout the cities and towns. In the early 1950s, China formulated the policy of "relying mainly on one's own efforts while making external assistance subsidiary," but this policy was not successful.

China's economic situation since the 1949/50 provides the background for the establishment and the evolution of Chinese FEZs, because these zones were used as a tool to promote the economic development. Li Hongjian (1996) reviewed the economic development of China based on the transformation of economic policies. Reardon (1996) discussed the setup and development of "export commodity production bases" (ECPBs), FEZs and their impact on Chinese macroeconomic policy. Yang Kaizhong (1989) analyzed the transformation of regional policy of China since 1949/50.[221] The Chinese economic development since the 1950s can be divided into two stages based on the two major changes of the Chinese political and economic situation: the closed and inwardly-oriented development policies from 1949 to 1978 and the transformation to an open and (coastal) outwardly-oriented economy since 1978. Parallel to these contradicting overall economy policies were the regional economic development policies. Here you can distinguish between a regional-balanced development and regional comprehensive economic system from 1949/50 to 1978 on the one hand and a regional-unbalanced development and regional division of production since 1978 on the other hand. The main features of these two stages of Chinese economic policies will be discussed in this chapter.

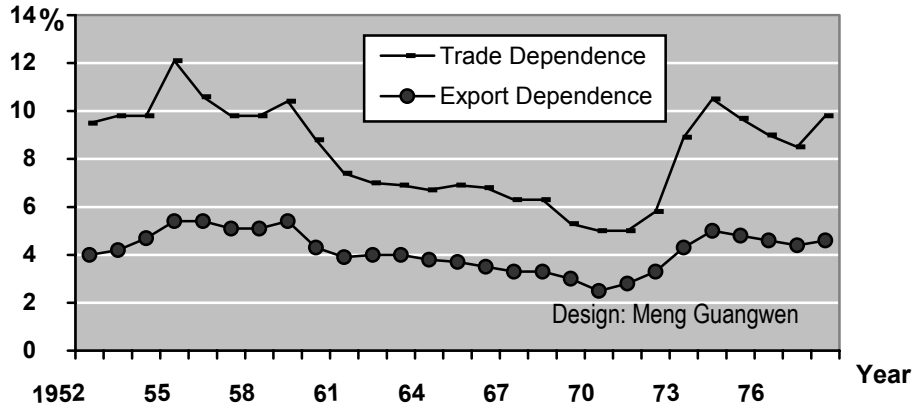
[221] Yang Kaizhong (1989), <<The Study of Regional Development of China>>, (Zhonggou Quyufazhan Yanjiu), the Sea Publishing Hours, Beijing, p. 18-27

4.1. China's Economic Policies from 1949/50 to 1977

Closed and Inwardly-Oriented Development
Generally, China carried out a closed and inwardly-oriented development policy based on IS from 1949 to 1978. During this period there were only three relatively open times and the so called "Export Commodity Production Bases" (ECPBs) were established to finance the IS policy.

Chinese economy before 1978 was "closed" and posed the character of "inwardly-oriented" development based on IS as can be shown by two examples: trade dependence (TD) (total foreign trade / GDP)[222] and export dependence (ED) (total export / GDP). The average TD from 1952 to 1978 reached a low level (only 8.2%). Its change from 1952 to 1978 can be described as a "U" (Fig. 17). In the 1950s, only loans from Soviet Union were used and four joint ventures of Sino-Soviet and one of Sino-Poland were set up. Although the readjustment and upgrade of the world's industrial structure began in the 1950s, China only used a small amount of foreign capital from the West.

Fig. 17: Trade and Export Dependence of China (1952-1978)



Source: Submitted from <<Statistical Yearbook of China, 1993>>, Statistical Publishing House of China, p. 633
<<Statistical Yearbook of China, 1998>>, Statistical Publishing House of China, pp. 55, 620

The volume of export also was so small that ED reached a low level and changed from 5.4% in 1955/56 to 2.5% in 1970. Export was not even used to rationalize the consumption of resources, upgrade the industrial structure, or take part in the international industrial division. It was only used to finance the import of foreign equipment and technology. The export products were mainly primary products such as agricultural and light industrial products.[223] In addition, "investment in other countries" was practically free economic aids to other countries.

The young republic had taken over a wrecked and backward economy in 1949. After the Second World War, the world was divided into two political blocks: the capitalist West and the socialist East. The political struggle between the West and the East during the time of "Cold War" strongly influenced China's economic development policy. Particularly, after the Korean War (1950–1953), the Western block obstructed the few Chinese economical relations with the West. For recovering and developing the wrecked and backward economy and

[222] When trade dependence reaches 20% and export dependence reaches 10%, they will be regarded as indicates to classify the closed and open economic system and one inwardly- or outwardly-oriented economic system
[223] The ten export products in 1978 were oil, cotton cloth, rice, cloth, natural silk, cotton yarn, cotton textiles, refined oil, traditional Chinese medicinal materials, and silks

breaking down the economic blockade, China formulated a new economic development policy – "full use of the old coastal industrial bases and active economic development cooperation with the Soviet Union and Eastern Europe as well as with some Western and Asian countries". In 1950, Mao Zedong visited the Soviet Union and negotiated for loan and technical support, and in 1952 China signed a long-term trade agreement of "exchanging rice for rubber" with Sri Lanka.

During the period of the "First Five Years Plan" (FYP, 1953–1957), large-scale economic construction was carried out and rapid economic development was realized with the support of the former Soviet Union.[224] The volume of trade with the Ex-Soviet Union in 1953 reached 1.13b rubles, making up 56.3% of total foreign trade for the whole year. At the same time, China also developed trade with the capitalist countries. For example, China opened trade with Japan by the policy of "official trade promoted by non-governmental trade" and intensified trade with Western Europe.[225]

Due to the Sino-Soviet schism in 1960, China could not rely on technology and equipment from the Soviet Union any longer. The Soviet Union began to tear up contracts, cancel the cooperative projects and to press for the repayment of loans.[226] The policy of "self-reliance" had been overemphasized and resulted in the implementation of the "Great Leap Forward" (GLF) strategy in 1958. The Sino-Soviet schism, the pressure of repaying debts, and the catastrophe caused by GLF not only broke off trade between China and Eastern Europe, it also limited trade with the capitalist countries during the 2nd FYP (1958–1962).

Following the economic crisis of GLF, the post-GLF policy after 1959 resurrected the IS strategy of inwardly-oriented development and turned from large-scale imports of Soviet technology and turnkey plants to small-scale importation from the West. Twenty complete technology and turnkey plants were imported from 1963 to 1966, including iron and steel, chemical, electrical industry, and precision machine building.

In the early 1950s, China agreed to establish a strong, self-reliant economy by adopting an inwardly-oriented development regime based on IS and a regional-balanced policy. To repay the Soviets for debts incurred during the Korean War as well as during the 1st and 2nd FYP, to finance a new IS strategy, and to carry out the regional-balanced development policy, several export promotion initiatives were approved, including China's predecessor of the FEZ – the ECPBs. On 30 June 1960, the Central Committee approved the ECPBs to promote self-sufficiency, increase production, encourage economizing of resources, and to establish processing bases in areas of raw material production. [227]

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[224] The Ex-Soviet Union provided China with 11 loans to the sum of 1.27b new rubles (5.36b Yuan at current prices). China imported 304 large scale complete plants and equipment and 64 series of special equipment, which were used in the parts of 156 national key projects

[225] Li Hongjiang (chief editor) (1996), << Theory and Essentials of Economics in Contemporary China – Study on Socialist Economy with Chinese Characteristics>>, Publishing House of Academy of Shanghai Social Sciences, Edition 1, p. 238

[226] For example, 149 projects among 304 projects were completed with the support of the Soviet Union, and 66 projects continued to be completed by China, but 86 projects were cancelled. China had paid off all of its loans by 1964, the principal and interest of those loans amounted to 1.4b new rubles (5.74b Yuan). Refer to Li Hongjiang (chief editor) (1996), << Theory and Essentials of Economics in Contemporary China – Study on Socialist Economy with Chinese Characteristics>>, Publishing House of Academy of Shanghai Social Sciences, Edition 1, p. 238

[227] Lawrence C. Reardon (1996), "The Rise and Decline of China's Export Processing Zones", In: <<Journal of Contemporary China>>, No. 5(13), pp. 287-290

The first ECPB was established by 1963. The single-item export base of agricultural and sideline commodities was the most common type of ECPBs revived by the State Council. Besides that, the re-establishment of specialized factories, workshops and mine operations solely dedicated to export production was approved and the "Comprehensive Base for Export Commodity Production", as the most innovative "ECPBs", was established in the early 1970s. The most famous comprehensive bases were established in Foshan City near Guangzhou in 1973.

The ECPBs were located both in coastal area and in the interior regions. They were granted a higher priority status in or preferential access to development capital, transportation, raw materials, electricity, and reduction of import duty for export production input accounting to their ability to meet contractual obligation. These characteristics of ECPBs are similar to the FEZs, so ECPBs can be seen as the predecessors of Chinese FEZs. They were the first instrument to participate in the international market, earn foreign exchange, and protect the Chinese economy from harmful influences of the international market by maintaining high foreign trade and currency barriers as well as foreign investment restrictions. They were completely regulated by the State Plan so that they enjoyed less preferential policies and privileges than the later FEZs - the role they played in national economic development was only limited.

A closed economic policy in its most literal sense was basically carried out during the period of the "Cultural Revolution" (1966–1972). The open economic policy based on IS after GLF was fully denied. Economic isolationism reached great heights: the importation of technology and equipment was regarded as national betrayal; the earning of foreign exchange through export was regarded as the betraying of resources; the importation of foreign capital was regarded as "inviting a wolf into the house." Foreign trade (with the West) was nearly broken up except for the economic aid to several LDCs.

Mao advanced the "Theory of the Three Worlds" in 1973. The theory promoted the development of both political and economic cooperation with America, Japan, and Western Europe. Zhou Enlai revived the large-scale IS strategies of the 1950s by approving new massive importation of plants from Western Europe and Japan. Two hundred twenty complete factory equipment pierces were imported from 1974 to 1975, including 13 chemical fertilizer plants, four petrol-chemical plants, one rolling mill, coal mine facilities, and power generation plants whose actual value exceeded 5b US$.

In 1975, Deng Xiaoping resumed control of the civilian bureaucracy and continued Zhou's large-scale IS strategy, but he again fell out of power in 1975. Yet, Jiang Qing was unable to achieve elite consensus and was replaced by a new coalition headed by Hua Guofeng in October. Though Hua formulated an IS program with a much larger scope than that of the early 1970s, but his coalition was short-lived. Deng reassumed power by the Third Plenum of the 11th Party Congress of November/December 1978. Since then China began to be transformed to a new era of economic development. Table 5 summarizes the major economic phases in China from 1950 to 1978.

Tab. 5: China's Economic Development and Policies of 1950–1978

Time	Economic Development Policy
1950-1952	Three years of economic recovery.
1953-1957	First large-scale importation of equipment and technology, loans from the Soviet Union; TD changed from 9.8% to 12.1%.
1958-1962	Trade crisis between China and Eastern Europe since the Sino-Soviet Schism; repaying loans to the Soviet Union; the Great Leap Forward in 1958; overemphasizing the policy of "self-reliance"; decrease of trade with the West; TD changed from 10.4% to 7.0%.
1963-1966	The 2nd small-scale of importation of 20 complete equipment and technology from Western countries; repaying loans to the Soviet Union; Establishment of the 1st ECPB; TD changed from 6.9% to 6.3%.
1967-1972	The Cultural Revolution; closed economic policy; decrease of foreign trade with Western countries except economic aid to LDCs; ECPBs concept was negated; TD from 6.3% to 5.8%.
1973-1975	Third large-scale importation of 220 complete equipment and technology from Western countries accounted up to 5 Billion US$; Establishment of the Most ECPBs; TD changed from 8.9% to 9.7%.
1976-1978	Replacement of political power towards to an open economy; still active of the ECPBs; TD changed from 9.0% to 9.8%.

Source: submitted from 1) "Li Hongjiang (chief editor) (1996), <<Theory and Essentials of Economics in Contemporary China –Study on Socialist Economy with Chinese Characteristics>>, Publishing House of Academy of Shanghai Social Sciences, Edition 1, pp. 237-9, 2) <<Statistical Yearbook of China, 1993>>, Statistical Publishing House of China, p. 633

Note: TD (trade dependence) = total foreign trade / GDP

Regional-Balanced Development

A main feature of the Chinese economy from 1949/50 to 1977 was the regional-balanced development policy. It stated that the regional development must be balanced and the regional production must be comprehensive in order to avoid the social evils inherent to capitalism. Therefore, the regional-balanced distribution of production forces and the regional comprehensive development became the basic principles of Chinese planned economy.

Until 1949, economic distribution in China was very unbalanced. Seventy percent of the industry, the network of communication lines and service industries were concentrated in the coastal region, which makes up only 12% of the country's area. The 1st FYP aimed at a more equally distributed pattern of the Chinese economy, especially the reduction of the big economic difference between the coastal region and the interior. The 1st FYP (1953–1957) stated that the new industrial basis should be established in order to balance the "non-rational" industrial distribution. Of 694 key projects, 472 (i.e. 68%), including 156 projects supported by the Soviet Union, were distributed in the interior and in northern China. Due to these politically forced measures, the proportion of gross industrial output value (GIOV) of the interior to the national economy in 1957 increased by 3.4% over 1952. During the period of "the 2nd FYP" (1958–1962), the capital construction investment in the interior made up 56% of total investment. The proportion of GIOV of the interior to the national economy in 1962 increased by 2% over 1957, although GLF resulted in a great economic loss. Because of the Sino-Soviet schism, the strategy of constructing the strategic rear-area was formulated. The investment in the "Three Fronts"[228] made up 38.2% of country's capital construction investment during the period of three years of readjustment (1963-1965) and 52.7% during "the 3rd FYP" (1966–1970). During the period of "the 4th FYP" (1971–1975) and "the 5th

[228] The "Three Fronts" were preferred to that in order to guard against the military aggression of the Soviet Union, the industries were diverted and distributed in the three zones of the interior of China from the East to the West according to the distance from the coast

FYP" (1976–1980), the capital construction investment in the interior made up 54.4% and 50% of total investment. Until 1978, the proportion of GIOV of the interior in the nation's economy made up 39.1%, which increased by 9% over 1952.[229]

The balanced development strategy promoted the rapid economic development and industrialization of the backward interior. The proportion of GIOV of the East to total gross output value of industry and agriculture increased from 46.5% in 1949 to 80.6% in 1978, for the Center it increased from 20.5% to 67.6% and for the West from 16.7% to 67.3%.[230] The grade of industrialization also showed a tendency to a more balanced development. From 1949 to 1978 the proportion of GIOV of the East to the national GIOV decreased from 67.3% to 59.2%, while that of the Center increased from 20.6% to 25.9%, and that of the West increased from 12.1% to 14.9%.

But the regional-balanced distribution and development suffered from two problems. First, the favorable economic, technological, and qualified personnel basis in the coastal region was not fully utilized so that the investment returns and the economic growth rate were limited. Second, the economic system in the interior showed a "dualistic structure". Traditional farming, livestock farming and modern industry, backward rural areas, livestock areas, and modern cities existed side by side, and there were no close economic linkages between them, which resulted in little investment returns. Also, the establishment of the complete and repetitious industrial systems in each large administrative area[231] and in each province was encouraged. Previous to the reform and open policy in 1978, the economy of the regions in China was self-contained; the national regional division was not implemented. The leading industrial sectors were not fully developed, and the linkages between the regions and between the industrial sectors, especially the linkage between the national and international markets were undeveloped.

4.2. China's Economic Policies since 1978

Opening and Outwardly-Oriented Development

Chinese economic development policy has been gradually transformed to an open and outwardly-oriented policy since 1978. The early open policy and the establishment of the first four SEZs can be seen as a continuation of inwardly-oriented development strategy based on the IS first implemented in the 1950s. A limited open, but still inwardly-oriented economic policy based IS was formulated and carried out during the period of 1978-1982 due to the influence of the old economic system at its initial stage. TD changed from 9.8% to 16.7% of 1978–1982 in contrast to 9.5%–12.1% of 1952–1959. The economic system during this period was opened mainly to the West and was based on larger economic and foreign trade scales, which were different from the open policy with Easter Europe in the 1950s. In addition, with the exception of 1982, import was higher than export. The major import goods were raw and processed materials, equipment and production technology. ED changed from 4.6% to 8.0%, which was a little more than the change from 2.5% to 5.4% before 1978. The major export industry was the processing industry.

[229] Submitted from Xu Guodi, Liu Yuan, Qiu Tianchao (1996), "The Study on the Development Tendency and Countermoves of Regional Economy of China ", (Zhongguo Quyujingji Fazhanqushi He Duice Yianjiu), In: <<China Gold Coast Yearbook 1996>>, Qunyan Publishing House, Beijing, p. 92

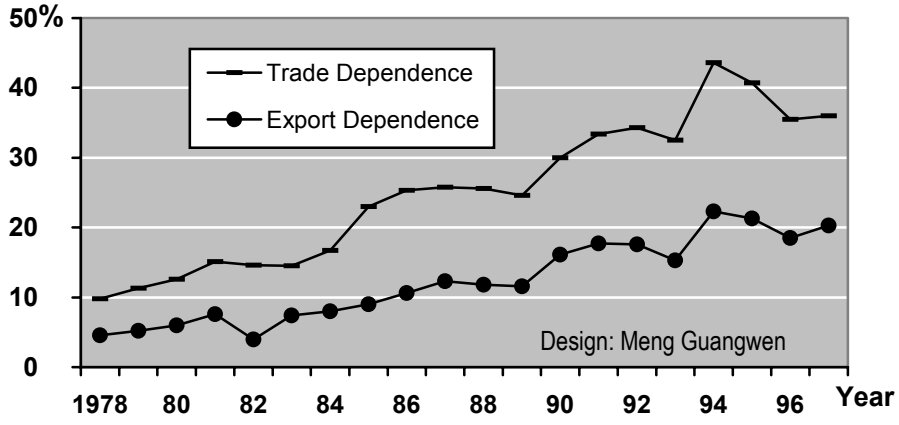
[230] Yang Kaizhong (1989), <<The Study of Regional Development of China>>, (Zhongguo Quyufazhan Yanjiu), the Sea Publishing Hours, Beijing, p. 69

[231] Note: the large administrative areas in China were classified from the 1950s to the 1960s and included several provinces.

After 1982, China carried out a coastal outwardly-oriented development policy based on the national inwardly-oriented development. Based on their own experiences with SEZs and the economic achievements of the Asian Four Dragons, China began a systematic process of integrating itself into the international economy and treating foreign trade and investments as "engines" for domestic development. The experiences of SEZs were expanded to the coastal regions since the "coastal development strategy" was carried out in the 7th FYP (1986–1990). An open economy took shape, but an inwardly-oriented development still had not been changed during the period of 1983–1989. By 1985, foreign trade increased more quickly (by 72% over 1984) than GDP (20%). TD reached 24.6%, but ED reached only 11.6% in 1989. Import was much more than export from 1985 to 1989. A lot of equipment, technology and foreign capital were imported. Exported manufactured goods have increased quickly since 1986, including light and textile industrial products, rubber products and mineral metallurgical products.

An expanded open policy and outwardly-oriented development policy was carried out during the period of 1990–1997. The student movement on Tiananmen Square in 1989 profoundly influenced China's economic development. The new coalition with the support of Deng prevented a full-scale retrenchment of China's development strategy and the coastal economy continued their gradual integration with the world economy. On June 2, 1990, the Central Committee and the State Council approved the vast Pudong project, which is propelling Shanghai into the 21st Century by investing billions of dollars to develop its eastern half. After Deng's "Southern Tour" of 1992, the open policy and the coastal outwardly-oriented development strategy were developed, expanded and fully established. The open policy was finally expanded from the coastal regions to the interior and border regions. Numerous FEZs were established and China attracted more and more foreign investment. TD reached 30% in 1990 and 43.6% in 1994, which was the highest TD since 1978; export developed very quickly. With the exception of 1993, export was higher than import by a big margin; ED changed from 16.1% to 22.3% (ref. to Fig.18). The export of manufactured goods increased from 74.4% to 87.0%. The most important exported goods were labor-intensive products, but export of capital and technology-intensive goods increased. For example, the export of machinery and electronic products increased by 9.32b US$ in 1997 (1.41b US$ in 1980) and made up 32.5% of whole export, which became the first export products instead of light and textile industrial products.[232]

Fig. 18: Trade and Export Dependence of China (1978 -1998)



Source: <<Statistical Yearbook of China, 1993>>, Statistical Publishing House of China, p. 633
<<Statistical Yearbook of China, 1998>>, Statistical Publishing House of China, pp. 55, 620

[232] "Brilliant 20 Years, (8)" In: <<People's Daily>>, Beijing, Edition 1, 10/07/1998

The financial crisis of Asia and Brazil in 1997 had a negative impact on Chinese economic development and exports. Economic and export growth decreased in 1998. China readjusted its economic development policy with various strategic goals: the open policy as a long-term national policy will continue to be carried out in order to attract more foreign capital, and transfer advanced technology, business experience, and modern types of production. Also, the long-term economic development of China should rest on self-reliance and domestic demand because China is a big country with a large population. On this basis, national and international resources, as well as national and international markets should be fully utilized.[233] The coastal region still plays the key role in China's open policy and carries out the policy of combining export-oriented development with IS, but the interior and border regions will rise in their position in Chinese economic development.

Mainly due to FEZs China was able to realize a successful economic development. Since 1997 the major economic indicators of China, such as total GDP, total foreign trade value, total foreign exchange reserve, and total attracted foreign capital, have been ranked among the ten leading nations.

Regional-Unbalanced Development Policy

After 1978, essential changes took place in China's regional development policies. The regional-unbalanced development and regional division became China's new development policy. It states: the regions should "maximize favorable factors and minimize unfavorable ones," and promote regional cooperation so that the regions can fully use their own favorable natural, economic, and social resources, eliminate unnecessary duplicate construction and realize their rapid development and higher economic returns. For these goals, regional development had to be transformed to an unbalanced model based on the regional economic competition and cooperation.

In fact, China has carried out a regional-unbalanced development policy since 1978. Based on regional economic performance, production forces should be distributed step by step in the three regions - the Coast (East), the Center and the West - in order to realize rapid economic development and finally regional–balanced development. In the 6th FYP (1981–1985), the coastal regions were given political priority for the economic development based on their favorable economic and technological bases. Since the 6th FYP, the coastal region has been the key region for China's investment. For example, the investment for capital construction in the coastal region made up 47.7% of the whole country, which increased by 5.5% over the 5th FYP. The 7th FYP reached even 51.7%, and they were 54% in the 8th FYP (1991–1995) and 53% from 1996 to 1998. But, during the 9th FYP (1996–2000), the investment for capital construction in the interior gradually increased. In particular, the West again has become the key investment region since the implementation of "Great Western Development Act" in the 10th FYP (2001–2005).

After 1978, economic performance was given the first priority in the new regional development strategy. International experience states clearly that regional development is unbalanced because regional disparity will be enlarged at the primary stage of the country's economic development. The domestic capital and funds should be invested in the regions with the favorable conditions in order to achieve a higher economic performance. A relatively balanced development can be realized only later at higher regional development stages. According to this principle, different regional-unbalanced development models have

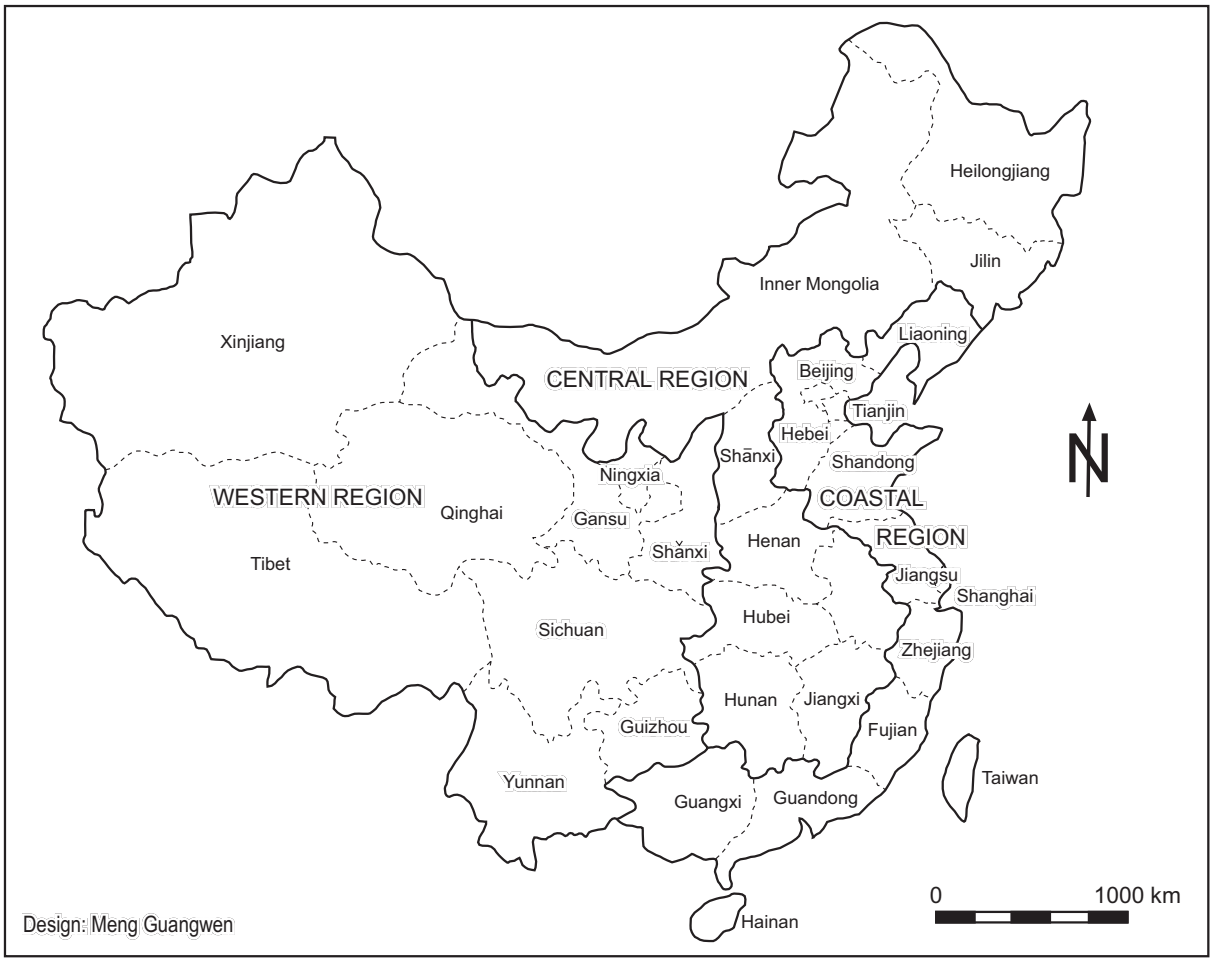
[233] Submitted from Jiang Zemin (1998), "Speech in the Commemorative Meeting for the 20th Anniversary of the Third Plenum of the 11th Party Congress", "(Zei Jinian Shiyijie Sanzhongquanhui 20 Zhounian Dahuishang De Jianghua), In: <<People's Daily>>, Overseas Edition, Edition 1-2 , on 18.12.1998

been used in China. The "Gradient Development Model" in the 1980s, the development model of the "Growth Axes" in the 1990s and the "Great Western Development" are three examples.

Gradient Development Model in the 1980s

Because of its vast territory, varied natural and social conditions, and different development histories, there is a large regional economic and technological disparity in China. From the East to the West, the country can be divided into three economic regions based on the economic strength and technical competence, which change in a gradient way from the East (Coast) to the Center and the West. Only the East possess a well-developed economy and high technical competence (see Fig. 19, Table 6,7)

Fig. 19: Three Economic Regions of China (since 1986)



Tab. 6: Population and Areas of the Three Economic Regions of China in 1990

Term Areas	Province, Municipality, Autonomous region	Area %, mio. km²	Population, mio. & %
Country	30	9,6	1143
The East	11 Beijing, Tianjin, Shanghai, Hebei, Liaoning, Jiangsu, Zhejiang, Fujian, Shangdong, Guangdong, Hainan	12 %	429 38 %
The Center	9 Shāngxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan, Sichung	25 %	494 43 %
The West	10 Inner Mongolia, Guangxi, Guizhou, Yunnan, Tibet, Shănxi, Gansu, Qinghai, Ningxia, Xinjiang	63 %	217 19 %
Autonomous Regions; among them:	5 Nemenggu, Guangxi, Tibet, Ningxia, Xinjiang Design: Meng Guangwen	42 %	86 7.5 %

Source: developed from Cheng Gongyan (1994), <<Comparative Study on China's Regional Economic Development: the East, the Center and the West>>, Beijing Industry University Publishing House, pp. 57,59

Note: because the country's population until the end of 1990 included a number of armed forces in active service, the population of the three economic regions is not equal to the population of the entire country; m: million

Tab. 7: The Comparative Difference of Per Capita National Income between the Coast and the Interior, Unit: Yuan

Time	1952	1957	1965	1970	1975	1978	1985	1990	1991	1992
The Coast	118	169	213	258	325	404	897	1650	1848	2322
The Interior	85	126	165	187	211	251	552	1016	1076	1268
Comparative Difference	28.0	25.4	22.5	27.5	35.1	37.9	38.5	38.4	41.6	45.4

Source: Li Jingwen (Chief editor) (1995), << Towards the 21 Century's Chinese Economy >>, (Zouxiang 21 Shiji De Zhongguo Jingji), Publishing House of Beijing Economic Management, Beijing, p. 278

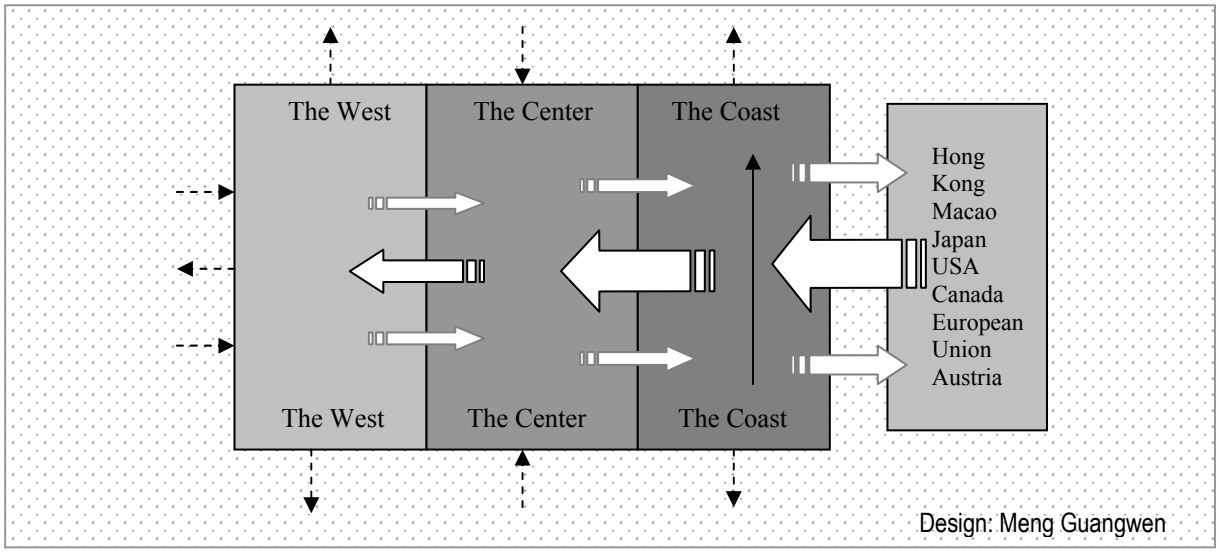
Note: the data in the table are calculated at current prices; comparative difference = (the greater number - the smaller number / the greater number) x 100%

In order to fully use the economic potential energy created by the gradient difference and the limited capital, and to achieve higher investment returns, the regional distribution of the domestic capital and funds should first be invested in the East where a well developed economy and higher technical competence can be found. The coastal areas, especially large and mid-size cities, have been gradually integrated into the international market by absorbing foreign capital, advanced technology, management experience, and developing labor-intensive export industry.

In the 7th FYP (1986-1990), the gradient development strategy was carried out, symbolized by the implementation of the coastal development strategy in the 1980s. This strategy promoted the national resources distribution and economic development of the "three regions", but it did not suit the economic development and the expanded open policy in the 1990s.[234] First, this strategy expanded the economic disparity between the "three regions". Second, the "three regions" enjoyed different economic policies. Various kinds of FEZs were mostly established in the coastal region, which enjoyed most preferential policies and privileges, and these economic and political gradients together expanded the economic disparity between the "three regions".

[234] li Jingwen (Chef editor) (1995), <<Towards the 21st Century's Chinese economy >> , (Zouxiang 21 Shiji De Zhonggou Jingji), Publishing House of Beijing Economic Management, Beijing, p. 295

Fig. 20: The Gradient Development Model of China in the 1980s



Note: the solid and broken, thick and thin arrows show the direction and strength of economic relations between the three economic regions and between China and foreign countries.

Development Models of Growth-Poles and Growth-Axes in the 1990s

The theory of the regional growth pole, axis and network were used in solving the regional development problem worldwide. More than two growth poles consist of a growth axis, and more than two growth axes build a growth work. DCs have used this model for three aims: readjusting the industrial structure in the old industrial basis, for example, FEZs in northern England and in the eastern United States; promoting the modernization of less-developed regions, for example, in southern Italy and eastern Germany; limiting the over-expansion of the big cities, for example, in Paris. LDCs used this model for two aims: establishing growth poles in the less developed regions, for example, the establishment of the Manaus FTZ and Brasilia in Brazil; establishing FEZs in the regions based on favorable conditions for the implementation of the export-oriented strategy, such as EPZs in Taiwan, South Korea, and Singapore.[235] Since 1978, the model of the growth pole has been used in China.

The gradient development model has promoted coastal economic development. For reducing the economic disparity and the conflict between the coast and the interior, supplying the energy, the raw and semi-finished materials for the coast's furthermore development and using the capital and technological advantage as well as the experience of open policy and reform, the development of the interior should also be accelerated. On the basis of a less developed economy, unfavorable investment environment, and limited capital, the key region and the leading industrial sectors between the coastal region and the interior were selected both as growth poles and growth axes (see Fig. 21). Besides the coastal axis, the three other key development axes are: the "Changjiang River (Yangtze River) Valley", the "Region along the Longhai-Lanxin Railway"and the "Regions along the Border".[236] The coastal axis as the first key axis has been developed since the 1980s; the Changjiang valley as the second one has been developed since the 1990s; the region along the Longhai-Lanxin Railway and the regions along the border will be developed as the third and fourth auxiliary axis in the early 21st Century. These development axes build a development network in China.

[235] Wu Ang, Zhang Jianxi (1995), <<Analysis of the Local Economical Development of China>>, (Zhongguo Difangjingji Fazhanfenxi), Publishing House of China Economy, Beijing, p. 33

[236] Chang Xiuze etc. (1994),<<China's Economic Revolution>>, (Zhongguo De Huanti Geming), Tianjin People's Publishing Hous, Tianjin, p. 235

Fig. 21: The Four Growth Poles-Axes of China since the 1980s

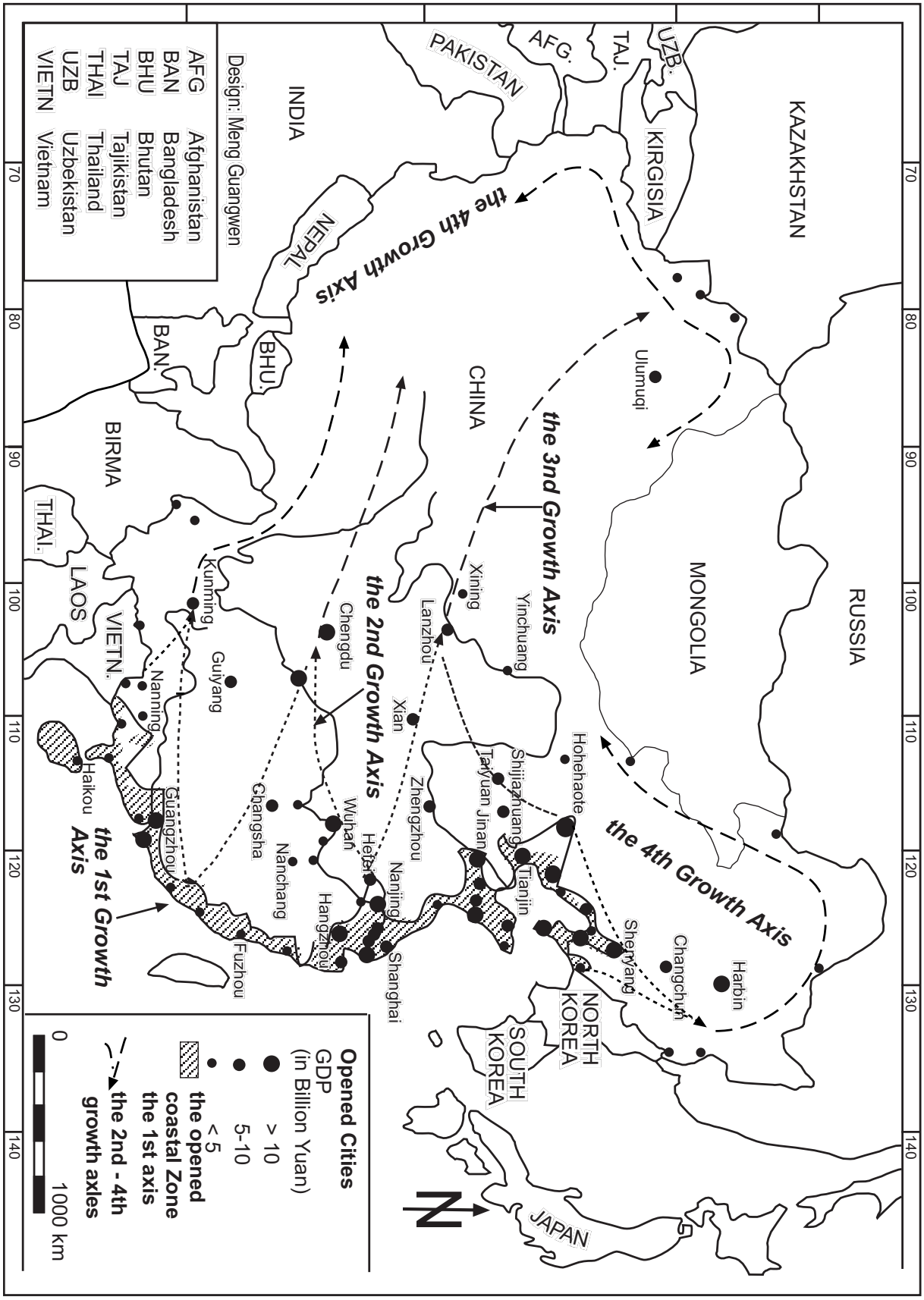
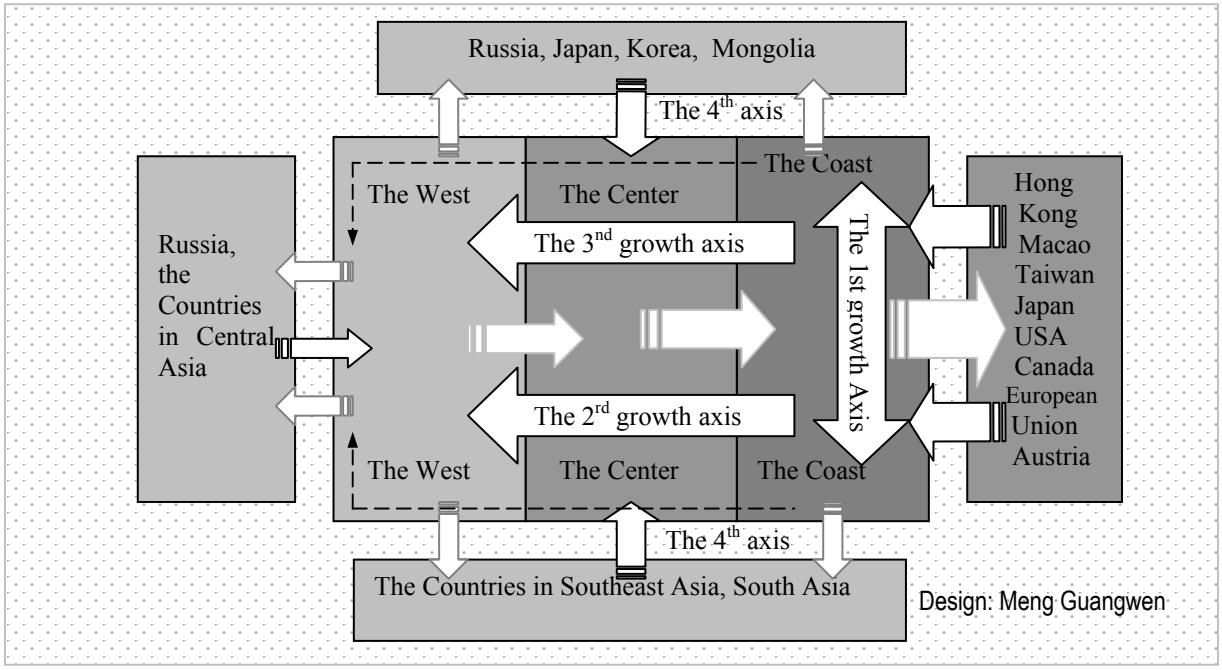


Fig. 22: The Development Model of Growth Poles-Axes of China since the1990s



Note: the solid and broken, thick and thin arrows show the direction and strength of economic relations between the three economic regions and between China and foreign countries; the two thinnest broken arrows refer to the 4th axis

The Growing Regional Disparity and the Strategy of Great Western Development

The implementation of the regional-unbalanced development policy promoted and sped up economic development of China, especially that of the coastal regions. This strategy, however, has also resulted in several problems since 1978. For example, along with the rapid economic development, the coastal region is being faced with relocation of some labor-intensive industries due to the increase of the cost of labor forces. The coastal region needs more and more resources, energy, raw and semi-finished materials, etc. from the interior, while the interior development in return needs investments, technology, personnel resources and the experience of economic reforms from the coastal region.

In order to reduce the regional disparity essentially and to maintain a sustainable economic development, China started to carry out the strategy of Great Western Development in 2000. The strategy states that some economic departments in the western region will be selected as the key sectors, including energy industry, row and semi-finished material industrial, high-tech industry (electricity, computer, aviation and space industry), infrastructure, agriculture and livestock husbandry, and environmental protection. The labor-intensive industry in the coastal region will be shifted into the western region. Besides the established FEZs and planed Lasa ETDZ in Tibet, new FEZs will not be established in the Great Western Development. The existing FEZs, the regional economic centers (such as the provincial capitals), the key industrial and commercial cities along the main lines of communication, the military industrial bases in the "Third Fronts", and the industrial and mining cities in the remote locations as well as the trading ports along the boundary line will be fully used as economic growth poles and growth axes. The cross-border FEZs such as CGT of Lancanjiang-Mekong River will be promoted. In addition, environment protection will be paid as much attention as economic development. The western region also enjoys industry-oriented preferential policies and privileges in order to attract foreign and domestic investment, and advanced technology, including national and foreign financial support, tax

and duty reduction and holiday as well as administrative privileges such as landing visas in Chungqing Airport.

FEZs – the Key Strategic Measures of China's Economic Policy since 1978

In order to develop an open and outwardly-oriented economy and realize the regional-unbalanced development, China has carried out the open policy since 1978 with several strategic measures, including foreign-oriented preferential policy, opening of industrial sectors, regional opening, and the establishment of FEZs. Actually, the core of the measure is the establishment of varied types of FEZs because China's FEZs first enjoyed the preferential policy and privilege and carried out the opening of the industrial structure, the regional opening, and the structural reforms.

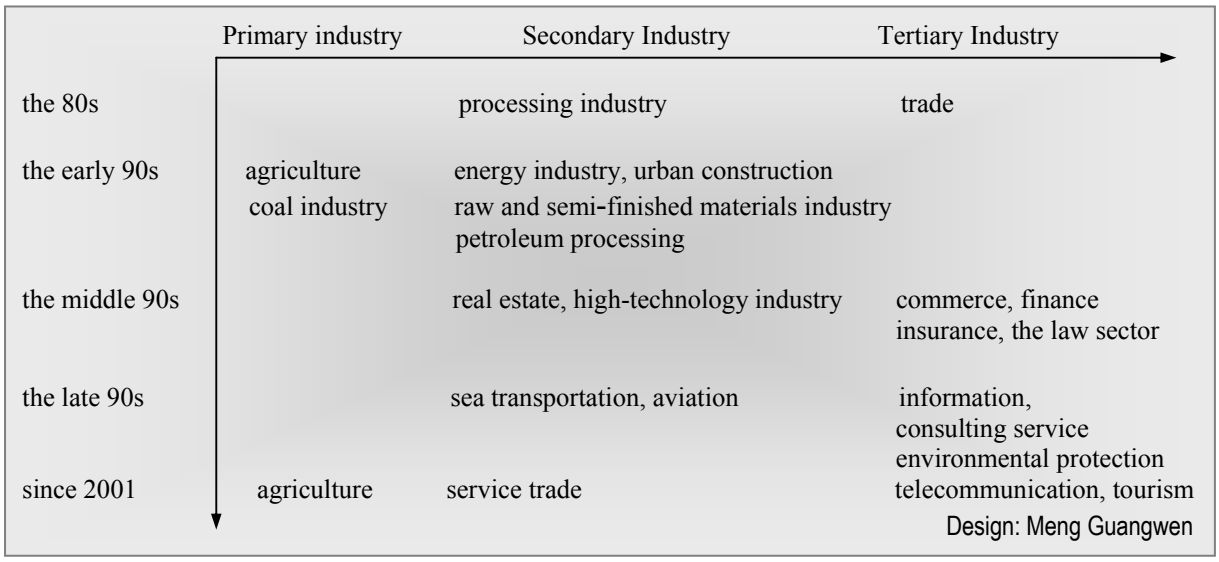
The Economic Incentives and the Opening of the Industrial Sectors

For encouraging foreign investment in the coastal region, China has formulated numerous preferential policies since 1978 and the core of these policies includes tax and duty reduction and holiday, cheap infrastructure supply, and some administrative privileges. Since the 90s, the special policies have been transferred from the coastal area to the interior and from regional- to the industry-oriented preference. For instance, the financial incentive and administrative privilege were transferred from the export processing industry and trade to various basic and high-tech industries. Some industries in the interior have enjoyed more preferential policies than the coastal area since 1996. Although China in general reduced its general tariff rates of 5,000 kinds of commodities from 35.9% to 23% in 1996 and 15% in 2001, FEZs still enjoy the most preferential policies in China due to their dominant position and the establishment of some "enclave" types of FEZs.

At the beginning of the open policy, only industrial and trade sectors were opened to foreign investors. Further economic development calls for the continued opening of the industrial sectors. The Third Plenum of the 14th Party Congress of 1993 decided to open more industrial sectors, especially the service trades.[237] For example, agriculture, energy, the raw and semi-finished materials industry, petroleum processing, communications and urban construction since the early 1990s, and commerce, finance, insurance, real estate, law and high-tech sector since the mid 1990s, sea transportation, aviation, information and consulting service, and environmental protection since the late 1990s to foreign investors step by step have been opened. China is devoting itself to providing foreign investors "national treatment". Some long protected industrial sectors have been gradually opened to foreign investors. For example, foreign banks can operate more "Renminbi" (Chinese money) than before and gradually eliminate the "Foreign Exchange Center". Since joining the WTO, China has enlarged the opening of agriculture and service trades such as telecommunication and tourism industry. Almost all of the economic sectors will be gradually opened to foreign investors through the end of this century, but they were first and mostly opened to the foreign investors in FEZs (see Fig. 23).

[237] Li Hongjiang (chief editor) (1996), <<Theory and Essentials of Economics in Contemporary China – Study on Socialist Economy with Chinese Characteristics>>, Publishing House of Academy of Shanghai Social Sciences, Edition 1, pp. 237-239

Fig. 23: The Opening of Industrial Sectors of China since the 1980s



Regional Opening and the Establishment of FEZs

The general regional opening of China is a continuous process of spatial expansion of open policy from the South to the North in the coastal region since the 1980s, from the coastal region to the interior and border region since the 1990s and the "Great Western Development" since the 2001. Generally, this opening process can be divided into eight phases which all are followed by the establishment of FEZs.

Phase 1 – Special Economic Zones (SEZs) (1979–1981)

Relying on the hometown of numerous overseas Chinese peoples and the geographical positions near Hong Kong, Macao, and Taiwan, the first four SEZs were established in the provinces of Guangdong and Fujian, carrying out preferential policy in order to import technology and equipment, capital, and business experience, and to become the "windows" and the "basis" for the Chinese open policy and reform.

Phase 2 – Open Coastal Cities (1984)

Based on the experiences of SEZs, 14 coastal cities were opened in order to utilize fully the old industrial basis with the favorable communication lines and the advanced technology and to absorb more foreign capital. The 14 cities from the North to the South are Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Nantong, Shanghai, Ningbe, Wenzhou, Guangzhou, Zhenjiang, and Beihai. Four SEZs and 14 coastal open cities formed the first open economic axis of China.

Phase 3 – Open Coastal Zone (1985–1987)

The Changjiang River, the Zhujiang River Delta, and the triangle area between three cities of Xiamen, Zhangzhou, and Quanzhou became open areas in 1985 and the peninsulas of Liaodong and Shandong in 1987. At this stage, a coastal open zone had taken shape, which indicated that open regions had expanded from cities to countryside.

Phase 4 – Large Open Coastal Zones (1988)

The open coastal zone was further expanded in 1988. the 140 cities and counties, including three provincial cities of Hangzhou, Nanjing, and Shengyang, were dedicated to the open coastal zone. Hainan became a province and the largest SEZ of China. The large open

coastal zone was formed by 1988, comprising nine provinces, 288 cities and counties with an area of 0.32m km² and 0.16b in population.[238]

Phase 5 – Pudong New Area (1990)
The goal of developing Pudong is to vigorously develop Shanghai and promote the development of the Changjiang River valley. Pudong showed that the regional open policy had expanded from the South to the North in the coastal area and from the coastal area to the interior in the 90s.

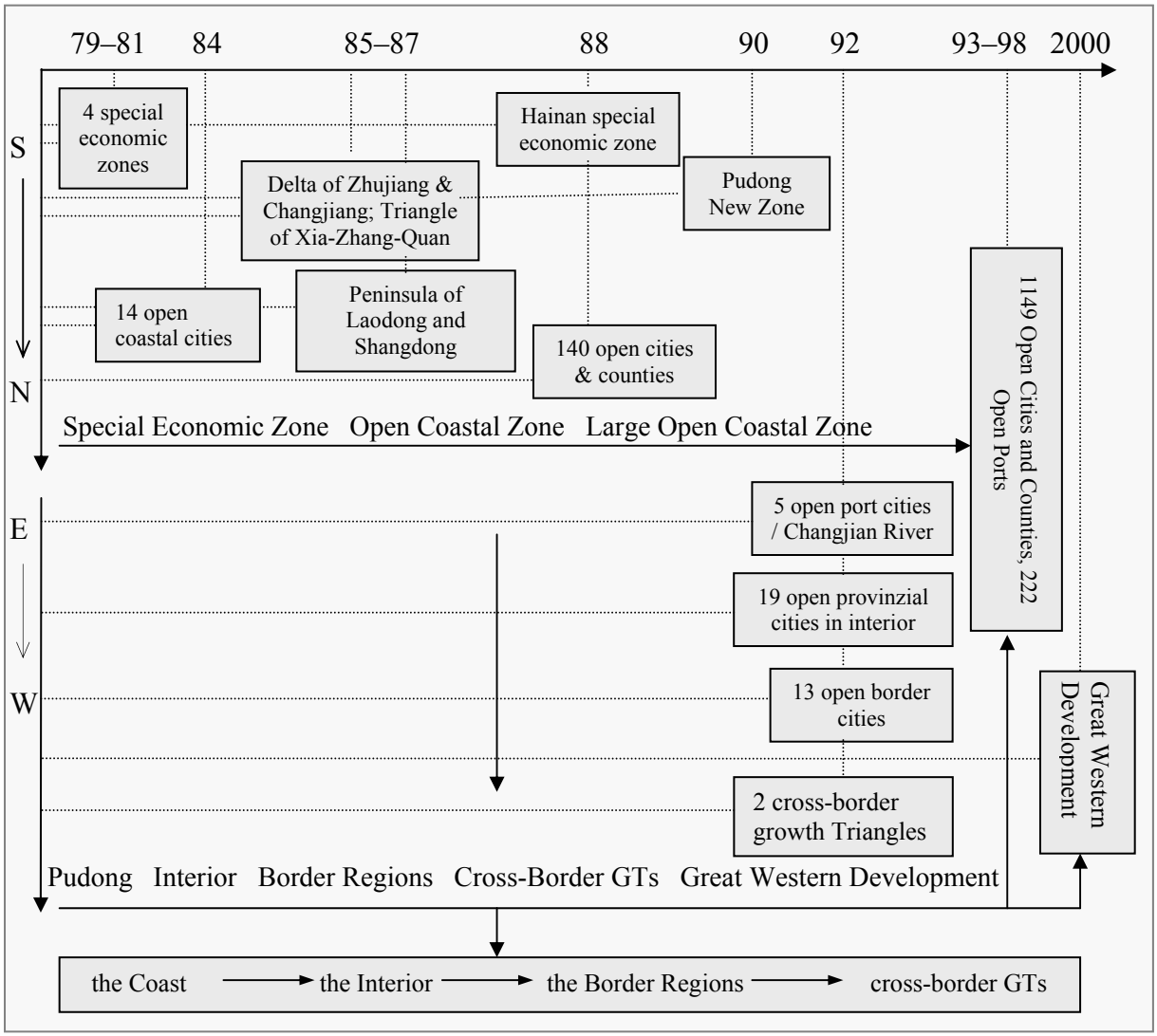
Phase 6 – Open Interior and Border Regions (1992)
After Den's "Southern Tour" in 1992, the open regions were expanded to the interior and the border regions. The 19 provincial cities in the interior, 5 harbor cities along the Changjiang River and 13 border cities were opened to international investors.[239] They enjoy the preferential policy and can be engaged in international trade, absorb foreign capital, and establish joint venture. Most of them established ETDZs and NHIPs. The 13 border cities from the South, the West to the North are distributed over the border of 22,000 km, which are desired to develop trade and economic and technological cooperation and have become 13 FFTZs. By 1992, the open pattern from the coastal area to the Changjiang valley, the region along trunk railway of Longhai-Lanxin and the border region came into being, covering 339 cities and counties and more than 0.3b people.[240] Numerous FEZs (ETDZs, FTZs, FFTZs and NHIPs) were established in this phase.

Phase 7 – Cross-border Growth Triangles and the Great Open Area (1993–1998)
After 1992, the open zones were gradually expanded, especially the interior open zones and cross-border GTs. In 1992 and 1993, China and other neighboring countries officially approved the GTs of Tumen River and Langcang-Mekong River. The Chinese GT between Hainan and Shenzhen SEZ, Zhujiang River Delta, Hong Kong, Macao, and Taiwan was discussed.

Phase 8 – Great Western Development (2000)
China has begun to develop the Western region since 2000 to reduce the regional disparity, exploit the energy and other resources and to maintain a sustainable economic development. Lasa ETDZ in Tibet was planned (see Fig. 21, p. 68 and Fig. 24 on the following page).

[238] Cheng Gaolin, Lai Xiangnun, Tang Hong, Li Xiaopeng (1995): "Ten Economic Hot Spots of China in the Future", (Zhongguo Weilei Shida Jingji Redian), China Economical Publishing House, Beijing, p. 180
[239] The 19 provincial cities in interior from the North to the South are Harbin, Changchun, Hohhot (Huhehaot), Shijiazhuang, Taiyuan, Zhengzhou, Xi'an, Langzhou, Xining, Yinchuang, Ulumuqi, Chengdu, Kunming, Guiyang, Changsha, Nanchang, Hefei, Wuhan and Nanning; the 5 harbor cities along Changjiang River from the East to the West are Wuhu, Jiujiang, Huangshi, Yueyang and Chongqing
[240] Xiao Siru, Zhang Yu (1994), <<Towards the Prosperous Road – The Transforming China: Contradiction, Puzzle and Choice>>, (Tongxiang Fanrun Zhilu: Biangezhong De Zhongguo: Maodun, Kunhue, Xuanze), Shanxi People's Publishing House, p. 169

Fig. 24: The Regional Opening Process of China since 1978



Source: developed with numerous references from: Ernst Giese and Gang Zeng (1993), "Regionale Aspekte der Öffnungspolitik der VR China", In: <<Geographische Zeitschrift>>, 81. Jahrgang, H. 3, S. 186

5. Evolution and Characteristics of China's FEZs

Chinese FEZs have many similarities to FEZs in other countries of the world. There are, however, some special characteristics such as new typology and more dominant role in national economic development and structural reform, which are to be discussed in this chapter. Starting with a typological classification of Chinese FEZs, the discussion will continue with a review of their development and a comparative analysis of the different existing shapes. Special focus will be on the location patterns. Finally, a comparison to FEZs in other countries will summarize all general characteristics of Chinese FEZs.

5.1. Typologies of China's FEZs

FEZs can be classified into several typologies and sub-types, depending on their location, their relationship with the economic and political system, their industrial sector, or their governance structure. The industrial sector is, similar to the world FEZs in other countries, the major indicator to classify Chinese FEZs because this indicator can distinguish various typologies from the general character of FEZs. Due to different characteristics from the FEZs in other countries, several special indicators will be used here in the classification of Chinese FEZs. These indicators are:

- The governmental level or rank is a specific indicator to classify Chinese FEZs because several levels of authorities can approve the establishment of different levels of FEZs in China, since these FEZs play different roles and have different positions in national economic development and structural reform.
- The administrative model is also an indicator because some Chinese FEZs possess special administrative position such as "special administrative and economic zones", and several special forms of governance structure.
- The micro location model is the third indicator. It is import for the classification of Chinese FEZs, and unlike macro-location pattern, it is not paid more attention in the literatures.

FEZ's Classification based on Governmental Levels and the Position in National Development Strategy and Structural Reform

According to the governmental levels and the position in national development strategy and structural reform, Chinese FEZs can be classified into four typologies, namely, "national", "cross-border", "provincial (regional)", and "county (local) FEZ" (ref. to Fig. 25, p. 76).[241] The cross-border and national FEZs with limit numbers and clearly defined objectives play a dominant role in national and regional development and in the open policy. On the contrary, the regional FEZs, especially the local FEZs, which have been established since 1992, are numerous, yet they have played only a limited role in national development and the open policy. Especially, the decentralization of the right to examine and approve FEZs in 1992 led to the confusion of the objectives, definition, and administration of FEZs. Since only national FEZs have a large impact on the China's economy and open policy, this thesis focuses on the national FEZs.

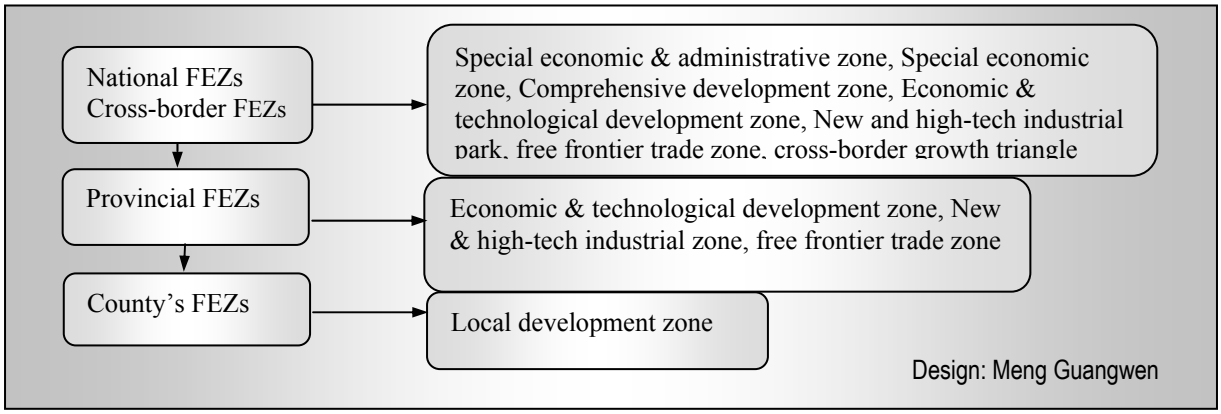
[241] For discussion, see Hou Jingxin, Li Mingxiao (1995), "Conception of Rationalizing the Construction of China's FEZs", (Zhongguo Kaifaqiujiangshe De Youhua Gousi), In: <<Economic Forum>>, (Jingji Lungtan), Shijiazhuang, No. 21, pp. 6-10

National FEZs were first established in China in the 1980s. They are examined and approved by the State Council, including special economic and administrative zones (SEAZs), SEZs, national ETDZs, CDZs, FTZs, NHIPs and free frontier trade zones (FFTZs). While FEZs do not numerical superiority, they still play a dominant role in national economic development, structural reform, and in unifying the country. The authorities of national FEZs can be at the level of a provincial government and the municipality under the jurisdiction of the provincial government or the municipality directly under the central government. For example, Hainan SEZ is just Hainan Province; other four SEZs, namely Shenzhen, Xiamen, Shangtou, and Zhuhai, are four municipalities under the jurisdiction of the provincial government; Pudong New Area (PNA), Suzhou New Area (SNA), Tianjin Binhai New Area (BNA), all FTZs, most ETDZs such as TEDA, and NHIPs possess economic and administrative rights analogous to provinces. Hong Kong and Macao are two SEAZs. The cross-border FEZs, such as CGTs, are approved by national governments of partner countries and play a more macro and strategic, economic and political role. The governance structure consists of both a loose cross-national organization and a FEZ's administrative committee.

The second series of FEZs to be established in China from the middle 1980s to the middle 1990s are the provincial or regional FEZs. They are approved by province and municipality directly under the central government and play a dominant role in regional development strategy and structural reform. They include provincial ETDZs and NHIPs. Their authorities are the agency of the provincial authorities and they possess economic and administrative rights analogous to ministry of province.

Numerous local or county FEZs were established in the early 1990s. They are examined and approved by county or the government department analogous to the county and play a role in local economic development and structural reform. Their authorities are the agencies of the district's and county's authorities. They include local development zones and possess economic and administrative rights analogous to government department of country and district.

Fig. 25: Typologies of Chinese FEZs based on Governmental Levels and the Position in National Economic Development Strategy and Structural Reform



Note: horizontal arrows show the representative types of Chinese FEZs under each administrative level; vertical arrows point to the change from high to low administrative levels and positions in national economy and reform

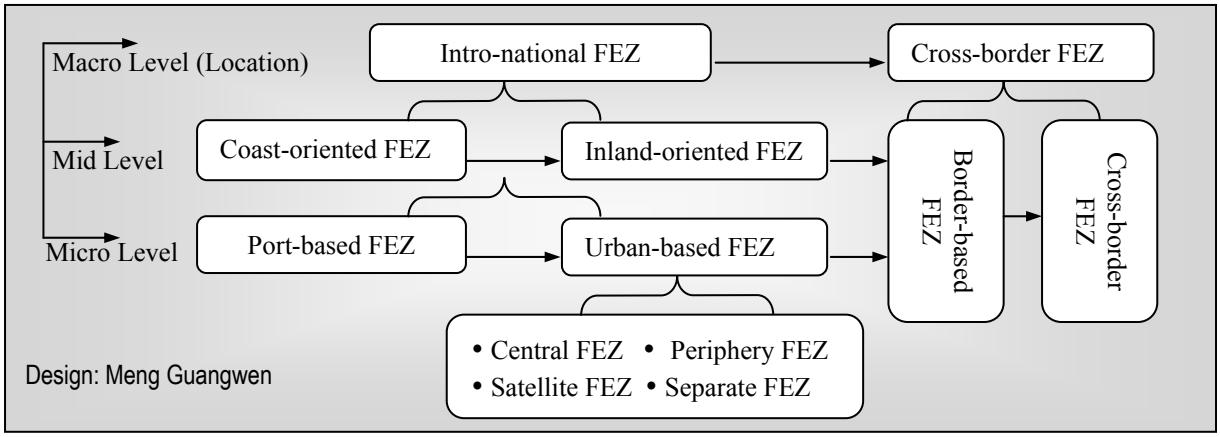
Chinese FEZs based on Location Criteria

A FEZ's location is normally influenced by several factors so that a FEZ can belong to several typologies according to the location criteria. For example, Shenzhen SEZ is a separate and border-based FEZ. TEDA is a separate and a port-based FEZ.

FEZs based on the Macro and Mid Location Criteria

The locations of Chinese FEZs show no differences to coast-oriented regional policy. Like world FEZs, Chinese FEZs can be classified into intra-national FEZs and cross-border FEZs based on macro location criteria and the coast-, inland-, border-oriented and cross-border FEZs based on the mid-location criteria. Most SEZs, ETDZs, FTZs, CDZs, and NHIPs belong to intro-national and coast-oriented FEZs. The inland- and border-oriented FEZs include ETDZs, NHIPs and FFTZs. Cross-border FEZs include only the cross-border GTs in Tumen and Mekong River. TEDA is an intro-national and cost-oriented FEZ in China.

Fig. 26: Chinese FEZs based on Macro-, Mid- and Micro-location Criteria



Note: the arrows point to the evolution of Chinese FEZs inside the micro-, mid- and macro-location criteria; the brackets point to the vertical subordination of Chinese FEZs between micro-, mid- & macro-location criteria

FEZs based on the Micro Location Criteria

According to micro-location indicators, Chinese FEZs can be classified into port-based FEZs such as SEZs, ETDZs, FTZs and CDZs; urban-based FEZs such as SEZs, CDZs, ETDZs and NHIPs. The urban-based FEZs can be further classified into urban central, urban periphery, satellite and separate FEZ based on their association with city center (see next page, Table 8).

Tab. 8: China's FEZs based on the Micro Location Criteria and the Typical Zones

Types	Features and Representative Zones
Central FEZ	The zone is located in a small and a mid-size city, which possesses normally an underdeveloped economy and infrastructure, yet space for new investment, or in the urban center of a large city with universities and research institutes. Central FEZ can use fully public facilities, original infrastructure, and the rich intellect resources, and recover the vitality of the old city center, but the development space will limited. The typical FEZs are ETDZs and NHIPs, including Zhenjiang, Beihai and Anshan ETDZs and Tianjin NHIP.
Periphery FEZ (Suburbs)	The zones include ETDZs, NHIPs and SEZs, and CDZs. Large and mid-size cities occupy a good economic and technological base, but the underdeveloped infrastructure, narrow land use area, and adverse environment limit the development of FEZs. FEZs in urban periphery can use the larger space, original infrastructure, public facilities, and human resources and can improve urban function and reduce the starting investment. Most Chinese FEZs belong to these types of FEZs such as Qinhuangdao, Yantai, Shantou, Hongqiao, Caohejing and Changchung ETDZ, PNA and SNA.
Satellite FEZ (Outer-suburbs)	The advantages of the zones are to promote not only the development of satellite towns, but also to refrain from aggravating environmental pollution and shortage of land use area in the city center and urban periphery. The disadvantage is that the original infrastructure and public facilities in the city center cannot be fully used so that the land development cost is very high and cannot attract more residents into the zone at its initial stage. These typical FEZs include some ETDZs such as Guangzhou, Dalian, Fuzhou, Minhang, Nanjing, Xiaoshang, and SEZ Xiamen.
Remote or Separate FEZ	FEZs in remote and separate locations have two reasons: first, the urban problems in the old city proper; second, to avoid and reduce the risk of establishing FEZs. The secondary reason played a dominant role in the location-choice of the first series of Chinese FEZs because policy-makers were worried about the negative capitalist impact on the national economic and political development. The problems are the large starting investment and commute caused by the underdeveloped urban function (education and health care) in FEZs. If these types of FEZs are located in the border region, they are called border-based FEZs. They include SEZs such as Shenzhen, Zhuhai, Hainan and Tianjin BNA, some ETDZs such as TEDA (Tianjin), Qingdao, Ningbao, Lianyungang, and Wenzhou, and some FFTZs such as Hunchun, Heihe, Tachen, Jiegao

Design: Meng Guangwen

Chinese FEZs based on Governance Structure

The classification of world FEZs based on this criteria is also suitable for Chinese FEZs, but Chinese FEZs possess several new characteristics as follows: [242]

Government-Oriented Model: The feature of this model is the high concentration and unification of governance structure. That means that the administrative committee of FEZs is responsible for both macro-administration and the business management of a FEZ. This model with authority and efficiency promoted FEZ's initial development, but following the FEZ's development, the unclear division of labor between administration and business management will easily result in a bureaucracy and an enterprise's failure. Many Chinese FEZs such as TEDA and Nantong ETDZ used this government structure at their initial stage. Today, Lianyungang ETDZ still uses this model.

Mixed Model: This is a popular administration model of Chinese FEZs. By the 1990s, eleven Chinese ETDZs used this model. It means that the administrative committee exercises administrative functions and powers, but the general development company and the specialized company carry out independent operations and management. The government administration and the operation of the company are separated. This model can be classified into three sub-typologies:

[242] Tthe first three models were submitted and developed by: Lin Hanchuan, Je Yuangsheng (chief editor) (1993), <<A large Open Policy: China is moving towards World>>, (Dakaifang: Zhongguo Zouxiang Shijie), Wuhan Publishing House, pp. 181-185

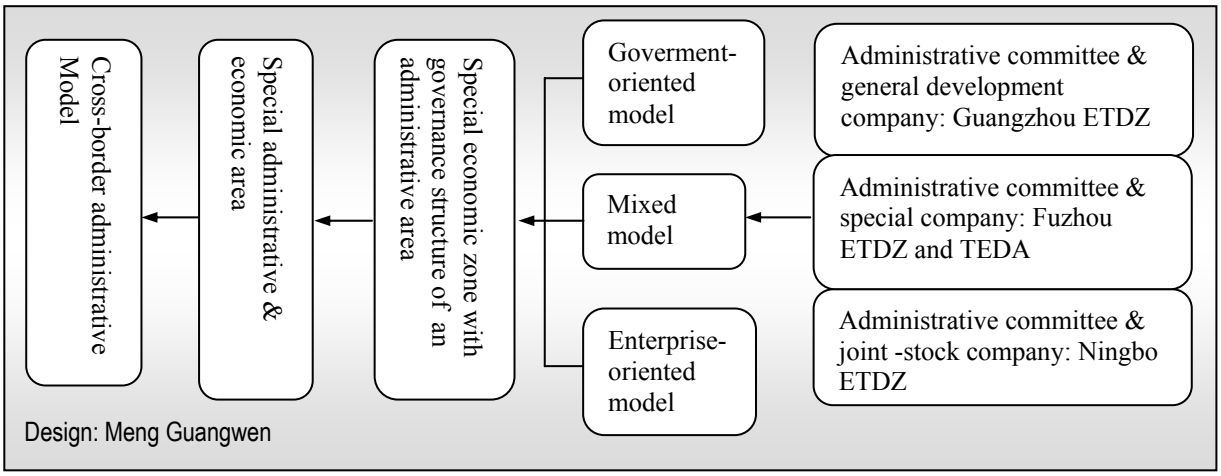
- Administrative committee and general company (side by side standing): the administrative committee is in charge of decision- making on the macro level of surprising and coordinating economic activities, examining and approving projects; the general company is in charge of attracting projects and operating infrastructure and public facilities. Guangzhou and TEDA are two examples.
- Administrative committee and specialized company: FEZs set up administrative committees and several specialized companies. Their functions are the same as the first one. Fuzhou ETDZ is an example.
- Administrative committee and joint-stock company: the development company is actually a stock company, which is built by an administrative committee and other state-owned or private company. The joint-stock company is responsible for FEZ's planning, construction, operation, and management. Ningbo ETDZ is an example. Its development company consists of an administrative committee, China National Metals and Minerals Import and Export Corporation and China National Machinery Import and Export Corporation.

Enterprise-Oriented Model: The model is also called the model without an administrative committee. A development joint-stock company is responsible for FEZ's planning, operation and management and carries out some government function and powers. Some relevant local government departments are in charge of coordinating the relations between FEZ and locality, examining and approving projects and offering social services and administration. The typical examples are Minhang, Hongqiao, and Caohejing ETDZ. The development company of Minhang and Hongqiao ETDZ and a company from Hong Kong established together a joint-stock company. The company was responsible for infrastructure construction, attracting foreign investment, managing economic activity within the zone and possesses some government functions and powers. The advantages are to strengthen an enterprise's vitality by reducing administrative interference. Along with the economic development, however, the joint-stock development company, as an economic entity, cannot continue to be responsible for FEZ's planning and macro administration. This function was taken by the "Committee for Foreign Investment Affair of Shanghai". The disadvantage is the over-decentralization of government administration and the influence from the old administrative system at the initial stage.

Model of Administrative Area: This type of FEZ is a special administrative area, and its governance structure is similar to an administrative area with some additional functions for the FEZ's special needs. The large comprehensive FEZs usually belong to this typology. The typical examples are China's SEZs. Hong Kong and Macao are not only two SEZs, but also two special administrative areas.

Cross-border Administrative Model: The two Chinese CGTs of Tumen River and Liancang-Mekong River occupied a cross-national administrative model, namely, that they are a loose cross-national committee for coordinating the macro cross-border economic cooperation. And each country sets up also a relevant department for exchange information and coordination and FEZ's administrative committee for running a zone.

Fig. 27: Chinese FEZs based on Governance Structure



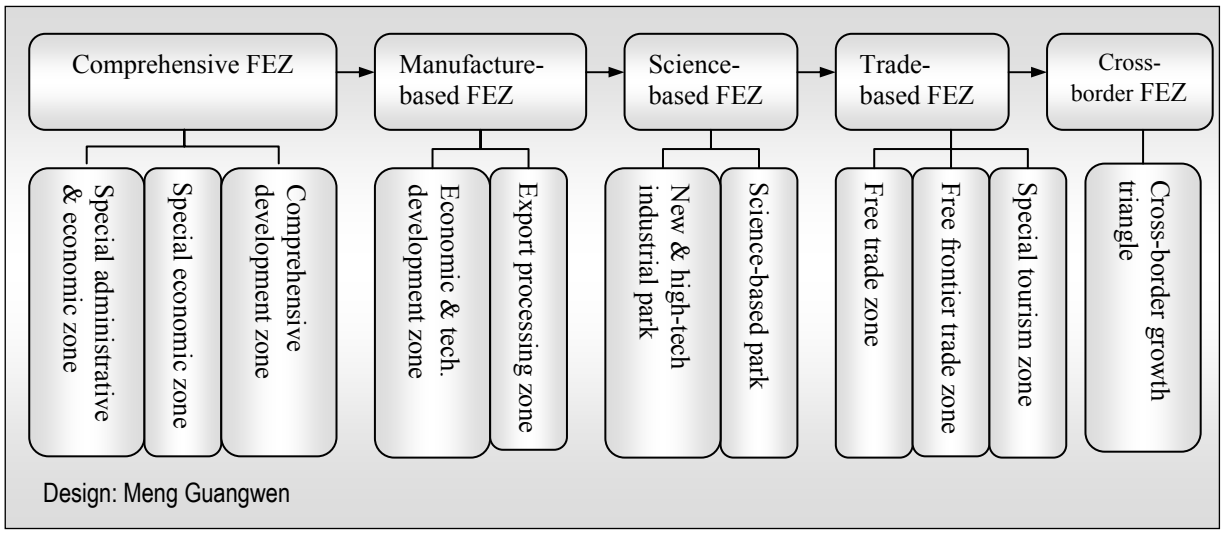
Note: the arrows point to the subordinate relationship based on the governance structures of Chinese FEZs

Chinese FEZs based on Industrial Sector and the Comprehensive Factors

If the common features of Chinese FEZs are the special economic policy and special objectives in a defined area, the essential distinction is their different industrial sector. Chinese FEZs can be classified into four typologies, including comprehensive, manufacture-based, science-based and trade-based FEZ based on their industrial sectors and the sub-typologies under the four typologies based on FEZ's location, governance structure, position, and their development.

The comprehensive FEZ possesses not only a large area, but also complete industrial sectors, namely secondary, tertiary, and primary industry. Chinese comprehensive FEZs include Hong Kong and Macao SAEZs, five SEZs, PNA, SNA and Tianjin BNA. Export processing and trade are the major economic activities of manufacture-based FEZs. The typical examples are ETDZs and EPZs. Yet, some ETDZs such as Dailian ETDZ are evolving into comprehensive FEZs. The science-based FEZ possesses new and high-tech research, development, manufacture and trade. The typical zones are NHIPs and SIPs such as the zones in Beijing, Tianjin and Shanghai. International trade, export processing, transportation and warehouse are the major industrial sectors of trade-based FEZ such as FTZs and FFTZs.

Fig. 28: Chinese FEZs and the typical Zones based on Industrial Structure and Macro–Location



Note: the arrows point to the establishment order of Chinese FEZs

5.2. Evolution of Varied Types of China's FEZs

As a strategic measure, China's FEZs have been gradually established and evolved in a special sequence since 1978. A major difference to the evolution of world FEZ are that SEZs were first established, then, Chinese FEZs evolved from SEZs to ETDZs, CDZs, NHIPs, FTZs, FFTZs, CGTs, SAEZ and EPZs. This evolution is determined by Chinese economic history, political system, the objectives of open policy and structural reform. In this section, the evolution and characteristics of each type of Chinese FEZs will be discussed.

Special Economic Zones (1979–1988)
The Chinese economy was seriously destroyed when Deng took control again of the bureaucracy in 1978. China had to carry out an "open policy" and a "structural reform". The goal of the structural reform is to transform the closed policy of China to an "open policy". The open policy in the 1980s stated: Overseas Chinese and foreign enterprises would be allowed to carry out international trade and economic cooperation with China or to invest in China. As a concrete measure, four SEZs were set up in the coastal region of South China. Chinese SEZs, as the new generation of ECPBs and world FEZs, are a reflection of China's open policy and its growing integration with the global economy.

Based on the favorable location approach to Hong Kong and Macao, many ECPBs were established in Guangdong province before 1978. With these experiences, Chinese open policy encouraged Guangdong province to undertake some new economic projects. In June 1978, Guangdong province expanded its old ECPBs and established new ones. Furthermore, "Economic Development Bureau (Hong Kong) of Ministry of Communications", operating as an enterprise, established "Shekou Industrial Zone" (1 km²) in "Shekao Community of Baoan County" in January 1979, where facing Hong Kong across a sea. It firstly carried out the "open policy" by utilizing its own and foreign capital. "Shekao Industrial Zone" lately has become the element of Shenzhen SEZ. In April, Guangdong province put forward a proposal of establishing "Economic and Trade Cooperative Zone" in order to give a full play to its own advantage, making economic reform and carrying out "open policy". This proposition met with Deng's and central government's approval, but there was the dispute at that time for Guangdong province to establish economic and trade cooperative zone, FTZ or EPZ. Deng preferred to the "Special Zone" and stated that a zone could be defined and called as "special zone" because the border region between provinces of Shǎngxi-Gansu-Ninxia was just a "special zone" during the period of the 1930s and 1940s.[243] Thereafter, a working group leaded by Gumu was sent to Guangdong and Fujian province to investigate the possibility of establishing such a zone. The Central Committee had first officially approved the concept of special zone on 15 July, 1979 and first mandated the transfer of economic decision making from Beijing to Guangdong and Fujian Provinces. The two provinces were given overall planning responsibility in the domestic and foreign trade sectors, allowed to retain domestic and foreign exchange revenue through the contract system, controlled material pricing and implemented a variety of other economic reforms. And "Special Export Zone" could be first established in both Shenzhen and Zhuhai city. If they are to be successful, the zone could also be established in both Shantou and Xiamen city. In May 1980, the special export zone was replaced by "Special Economic Zone" according to the suggestion of Guangdong province. The four SEZs, Shenzhen on the basis of Shekao industrial zone in 1979, Zhuhai in 1980, Shantou in 1981 and Xiameng based on Huli special zone in 1980 were separately set up. In July 1987, Hainan province was established in the second large Chinese island, and

[243] Lu Di (1999), "On Deng Xiaoping's Thinking of Constructing Special Economic Zone", (Lung Deng Xiaoping De Jingjiteqiu Jianshe Sixiang), In: <<Economy of Special Economic Zone>>, No. 4, Shenzhen, pp. 16-18

Hainan as a largest SEZ of China with 34,000 km² and a population of more than 6 million was established in 1988 (see Fig. 29).

Fig. 29: Geographical Locations of Special Economic Zones, Economic and Technological Development Zones and Comprehensive Development Zones in China

Nevertheless, the concept of SEZ would be gradually understood by Chinese and foreign investors. Before August 1980, the definition and the spatial range of SEZs had not been clearly determined. The whole areas of four cities (Shengzhen, Zhuhai, Shangtou and Xiamen) were recognized as SEZs. Some people and foreign investors also regarded the two provinces of Guangdong and Fujian as SEZs. [244]

On August 26, 1980, the "Regulation of Guangdong Province's Special Economic Zone" approved by the "Fifth Standing Committee of the National People's Congress" clarified the definition of SEZs. The Regulation stated: "for developing the international economic cooperation and technical transfer and promoting the socialist modernization, SEZs would be set up in the separately designated parts of three cities (Shengzhen, Zhuhai and Shangtou) in Guangdong province. The foreign citizen, overseas Chinese, compatriots in Hong Kong and Macao as well as their companies and enterprises will be encouraged to invest or build joint-ventures and other kinds of enterprises with Chinese partners in SEZs. SEZs protect their capital funds, profits and other legitimate rights and interests." That means that SEZs will set up only in the partial areas or special locations of three cities. Shenhzhen SEZ near Hong Kong is situated to the south of Shengzhen city and covers an area of 327.5 km² (total 2020 km²). Zhuhai SEZ near Macao covers an area of 6.8 km². Shangtou SEZ in Shangtou city refers only to Longhu Processing Zone, covering an area of 1.6 km². Xiamen SEZ in Fujian Province refers to Huli Processing Zone, covering an area of 2.5 km². Following the economic development, SEZs were expanded early or lately. For instance, Zhuhai covers today an area of 121 km², Shangtou covers an area of 52 km², Xiamen covers an area of 131 km².

On May 1981, the "State Council's Working Conference about SEZs" differentiated two types from the four SEZs: Shenzhen and Zhuhai as the synthetical SEZs; Shangtou and Xiamen as the SEZs with the function of export processing. Today, they have become comprehensive SEZs. The foreign investors not only inside but also outside SEZs, can enjoy SEZ's preferential policies if their products are exported. This is the first time that the SEZ's preferential policies were allowed to be used outside SEZs.

SEZ concept was a unique combination of previous Chinese special zones in the 1930s, the ECPBs from the 1950s to the 1970s as well as the concept of world EPZs and FTZs in the 1970s. SEZ is a comprehensive, outwardly-oriented, foreign capital-oriented, and multi-functional large economic area, which is located in the area near Hong Kong, Macao, and Taiwan, and it enjoys economic incentives and privileges, and shoulders special economic and political missions. In the future, SEZs will continue to carry out structural reform, improve the market-oriented economy and establish the modern enterprise system; to upgrade the industrial structure and give priority to the development of new and high-tech industry; to carry out REI with Hong Kong, Macao, Taiwan and other regions around them, and to become modern, open and multi-functional economic center and international municipalities.

[244] Submitted from Xu Zice, Cai Renqun (1990), <<Chinese Special Economic Zones>>, (Zhongguo Jingjiteqiu), Guangdong Science and Technology Publishing House, Guangzuou, pp. 14-15

Box 2: The Characteristics of Chinese SEZs in Detail

- They are located near Hong Kong, Macao and Taiwan in the coastal region of the South China, but kept a suitable distance to China's economic centers and large municipalities.
- They are a large geographically defined zones and are faced by physical or natural barriers.
- Except SAEZs, they enjoy the earliest and most preferential policies and privileges and they are the basis of the establishment of other types of FEZs.
- They have a complete and outwardly-oriented industrial structure, including export-oriented secondary industry added by agriculture, service trade, as well as foreign capital-oriented economy and joint venture-oriented enterprise structure.
- They are multi-function zones including EPZs, FFZs, SIPs and free tourism zones.
- They are used as the instrument and tool to promote the national economic development, structural reform, open policy and unifying country; to attract foreign capital, transfer foreign technology and management experience, and earn foreign exchange.
- Their effective governance structure is a special administrative area based on EPZ experience and a complete administrative area, which is either analogous to provinces or to a municipality under the jurisdiction of the provincial government. Shenzhen SEZ (Municipality) and Hainan SEZ (Province) have their own "Committee of the National People's Congress", and enjoy some legislative power.

Design: Meng Guangwen

Economic and Technical Development Zones (1984–1994)

The four SEZs achieved successful experiences and became a window of China's open policy, advanced technology and management experience as well as structural reform by using favorable location, preferential policy and well-developed infrastructure. In February 1984, Deng visited Shenzhen, Zhuhai and Xiamen SEZs and suggested several coastal areas to be opened to the foreign investors. These areas should be not called as SEZs, but they could enjoy some of SEZ's preferential policies. The State Council permitted the opening of 14 coastal cities and Hainan Island in Mar-April 1984, and established the 1st ETDZ of Dalian, and other 10 ETDZs in 1985, including Tianjin, Qinhuangdao, Ningbo, Qingdao, Yantai, Zhenjiang, Guangzhou, Nantong, Liangyungang and Fuzhou. Three ETDZs were established in Shanghai, including Hongqiao and Minhang ETDZs in August 1986 and Caohejing Development Zone for Advanced Technology in June 1988.[245]

After the economic adjustment from 1989 to 1990, China's open policy has been expanded from the coast to the hinterland since 1991. The 2nd series of 6 ETDZs were established in Wunzhou, Kunshan, Weihai, Yingkou, Dongshan and Rongqiao by 1992. In May 1993, the 3rd series of 7 ETDAs were established in other 7 cities, such as Shenyang, Hangzhou, Wuhan, Haerbin, Chungqing, Changsha, and Wuhu.[246] In 1994, Suzhou industrial park, Beijing and Ulumuqi ETDZs were established. Since 1994, another 5 ETDZs have been established, including Xiaoshang, Dayawan, Nansha, Daxie and Haicang. The State Council permitted altogether 35 national-level ETDZs.[247] After Deng's Southern Tour in 1992, the regional authorities established numerous regional development zones. Until October 1992 there were 1874 varied kinds of development zones with the land area of 675 km² at the first stage in China and over 300 province-level development zones. In 2001, China planned to set up an ETDZ in Lasa, the capital of Tibet autonomous region (see Fig. 29).

[245] Lin Hanchuan, Je Yuangsheng (chief editor) (1993), <<A large Open Policy: China is moving towards World>>, (Dakaifang: Zhongguo Zouxiang Shijie), Wuhan Publishing House, pp. 131-132

[246] He Xinggang (1995), <<The Practice and Theory of Urban Development Zone>>, (Chengshi Kaifaqiu De Lilung Yu Shijian), Shanxi People's Publishing House, p. 61

[247] See <<Guangming Daily>>, Edition 4, Beijing, on 05.05.1992

Tab. 9: Establishment and Distribution of 35 Chinese National-Level ETDZs

Location	Number	%	Time	ETDZs
The Coast	11		1984	Dalian, Tianjin, Qinhuangdao, Ningbo, Qingdao, Yantai, Zhanjiang, Nantong, Liangyungang, Fuzhou, Guangzhou
	2		1986	Hongqiao, Minhang
	1		1988	Caohejing
	6		1992	Wenzhou, Kunshan, Yingko, Weihai, Rongqiao, Dongshan
	2		1993	Shenyang, Hangzhou
	2		1994	Suzhou, Beijing
	5		1994 –	Xiaoshan, Dayawan, Nansha, Daxie Haicang
	total 29	**82.85**		
The Center	4		1993	Changchung, Wuhan, Haribin, Wuhu
	total 4	**11.43**		
The West	1		1993	Chungqing
	1		1994	Ulumuqi
	total 2	**5.71**		

Note: 1) There were Xiaoshan, Dayawang and Nansha in: Gu Chaolin, Zhao Lingxun, etc. (1998), <<China's New and High-Tech Industrial Parks>>, (Zhongguo Gaoxinjishu Zhanye Yu Yuanqiu), Zhongxin Publishing House, Beijing, p. 2-4; 2) There are 3 new ETDZs such as Nanshia, Daxie and Haicang besides 32 national-level ETDZs in <<Yearbook of China's Special Economic Zone and Economic and Technological Development Zone 1998>>, pp. 135-222,

ETDZ, as a manufacture-based FEZ, is located near or separated with the large city, enjoys some preferential policies and privileges of SEZs, develops export processing industry and foreign trade in order to recover the vigor of the old industrial base, and it expands open policy and carries out structural reform. In the future, ETDZ will be transformed from industry-, foreign capital- and export-orientation to a combination of secondary and tertiary industry, foreign and domestic capital; from an industrial zone to a modern and multi-functional urban proper; from a model of "one-zone" to a model of "multi-zones"; from using the central city to servicing the central city. Dalian and TEDA are two examples.

Box 3: Similarities and Differences between ETDZs and other Types of Chinese FEZs

- Like CDZ but unlike SEZ, ETDZ is located in the mid-size and large city with a well-developed economy, advanced technology and transport facilities (port).
- ETDZ belongs to manufacture FEZ, and is smaller and less complicated than their SEZ and CDZ cousins. Its economic activities are export-oriented industry and international and entrepôt trade; Its labor-intensive industry is being transformed to capital- and technology-intensive industry.
- Like CDZ but unlike SEZ, its governance structure is an agency of the provincial and municipality's authority based on EPZ experience.
- ETDZ enjoys some preferential policies and privileges of SEZ and CDZ. For example, only foreign-funded, manufacture- and export-oriented enterprises enjoy 15% of income taxation, but the tertiary industry and Chinese enterprises enjoys less preferential treatment. Allowed to retain fiscal revenues and to import machinery and equipment without duty during the first five years of operation, they still enjoyed less financial support and administrative authority than SEZs and CDZs.
- ETDZ has more specialized and narrow objectives than SEZs and CDZs, including attracting foreign capital, technology and management experience, promoting export, improving urban function, technological level, upgrading industrial structure of the old economic center, and promoting regional economic development, open policy, and structural reform.
- ETDZ and CDZ are both two relatively independent areas and a part of the central city. SEZ is a combination of a FEZ and a completely independent administrative area.
- Unlike SEZ and CDZ, ETDZ has fewer permanent residents and foreign residents.

Design: Meng Guangwen

New and High-Tech Industrial Parks (1988–1992)

Besides ETDZs, the State Council approved in the late 1980s another new type of FEZs-NHIPs. In October 1983, China decided to cultivate and develop gradually the technology-intensive industry in the selected area with favorable conditions in order to upgrade industrial structure and remake the traditional industry. The State Council approved "the Report Outline for the Study on the New Technological Revolution and our Country's Countermeasure" in June 1984 and "Central Government's decision about the reform of the scientific and technological system" in March 1985, and put forward a suggestion that the varied kinds of NHIPs should be gradually established and the preferential policy would be enjoyed by these intelligence-intensive areas. In April 1985, the State Science and Technology Commission advanced four principles for selecting and establishing NHIPs:

- well-developed infrastructure invested mainly by local government
- intelligence-intensive area
- establishment of NHIPs based on small, specialized and advanced projects
- the projects selected and subsidized by country.

Based on the above-mentioned principles, the first four locations and several projects in Beijing, Shanghai, Wuhan and Guangzhou were selected. In July 1985, the China Science Academy and Shenzhen SEZ established the first Chinese NHIP: Shenzhen science-based park. The State Council permitted in 1986 and carried out in 1988 "the Research and Development Plan of High and New Technology (863 Plan)" and "the Development Plan of High-Tech industry (Torch Plan)." After that, an experimental basis in Zhongguancun areas in Beijing was officially approved in May 1988. In March 1991, besides Beijing, the State Council approved 26 national-level NHIPs, including Wuhan, Nanjing, Shenyang, Tianjin, Xi'an, Chengdu, Weihai, Zhongshan, Changchun, Haerbin, Changsha, Fuzhou, Guangzhou, Hefei, Chongqing, Hangzhou, Guilin, Zhengzhou, Lanzhou, Shijiazhuang, Jinan, Shanghai, Dalian, Shenzhen, Xiamen, Hainan.[248] At the end of 1992, the State Council approved the 2nd series of 26 national-level NHIPs including Suzhou, Wuxi, Changzhou, Foshang, Huizhou, Zhouhai, Qingdao, Weifang, Zibo, Kunming, Guiyan, Nancang, Taiyuang, Nanning, Ulumuqi, Baotou, Xiangfan, Zhuzhou, Luoyan, Daqing, Baoji, Jilin, Mianyang, Baoding Anshan [249] and Wugong. There were a total of 53 national-level NHIPs and 61 provincial-level NHIPs (see Table 10 and Fig. 30 on the following page).

Chinese NHIPs (or National Industrial Development Zones for New Advanced Technology) are special zones, which are located in the intelligence-intensive area of large or mid-size city and which carry out preferential policy and special governance structure based on the ETDZs, whose major economic activities are high-tech research, development, commercialization, and industrialization, and their objectives are to optimize regional industrial structure and promote regional economic sustained development as well as the reform of the scientific and technological system.

[248] Lin Hanchuan, Je Yuangsheng (chief editor) (1993), <<A large Open Policy: China is moving towards World>>, (Dakaifang: Zhongguo Zouxiang Shijie), Wuhan Publishing House, pp. 242-244

[249] Zeng Gang (1997), "The Present Situation and Development of Our Country's New and High-Tech Industrual Development Zone", (Woguo Gaoxinjishu Chanye Kaifaqiu De Xianzhuang Ji Fazhan", In: <<Regional Study and Development>>, (Diyu Yanjiu Yu Kaifa), Zhengzhou, pp. 48-52

Fig. 30: Geographical Locations of New and High-Tech Industrial Parks in China

Tab. 10: Establishment and Distribution of 53 Chinese National-Level NHIPs until 2001

Location	Number	%	Time	NHIPs
The Coast	1		1988	Beijing
	16		1991	Shenyang, Tianjin, Weihai, Nanjing, Zhongshan, Fuzhou, Guangzhou, Hangzhou, Guilin, Shijiazhuang, Jinan, Shanghai, Dalian, Shenzhen, Xiamen, Hainan
	12		1992	Suzhou, Wuxi, Changzhou, Foshan, Huizhou, Zhuhai, Qingdao, Weifang, Zibo, Nanning, Baoding, Anshan
	total 29	**55.77**		
The Center	6		1991	Wuhan, Changchung, Haerbin, Changsha, Hefei, Zhengzhou
	8		1992	Nanchang, Taiyuan, Xiangfan, Zhuzhou, Luoyang, Daqing, Jilin, Baotou
	total 14	**26.92**		
The West	4		1991	Xi'an, Chengdu, Chunqing, Lanzhou
	5		1992	Kunming, Guiyang, Ulumuqi, Baoji, Mianyang, (Wugong)
	total 9	**17.31**		

Source: the 52 national NHIPs are submitted from: 1) Gu Chaolin, Zhao Lingxun, etc. (1998), <<China's New and High-Tech Industrial Parks>>, (Zhongguo Gaoxinjishu Chanye Yu Yuanqiu), Zhongxin Publishing House, Beijing, pp. 5-6; 2) Zeng Gang (1997), "The Present Situation and Development of Our Country's New and High-Tech Industrial Development Zone", (Woguo Gaoxinjishu Chanye Kaifaqiu De Xianzhuang Ji Fazhan", In: <<Regional Study and Development>>, (Diyu Yanjiu Yu Kaifa), Zhengzhou, pp. 48-52; 3) He Yuqing, Qian Yuanxi (1995), "The Thinking to Strengthen Mechanism of Technological Innovation", (Goaxinjishu Chanye Yuanqiu Qianghua Jishuchuangxin Jizhi De Sikao), In: <<Economic Lookout around Bohai Sea>>, (Huanbahai Jingji Liaowang), pp. 14-17

Note: 53 NHIPs with Wugong NHIP is submitted from: Chen Hanxin (1999), "Study on the Typology and Distribution of High-tech Development Zone in China", (Zhongguo Gaojishu Kaifaqiu De Leixing Yu Bujiu Yanjiu), In: <<Economic Geography>>, Vol. 19, No. 1, Changsha, p. 9

New and high technology is a relative and dynamic conception. It means actually the advanced technology of the present age. Based on actual situation of Chinese science and technology, the high technology, as a general conception at the world, was added a "new". That means that China shall develop not only the high-tech industry in world level, but also some new technologies at the national level, which can improve enterprise's economic performance only by less investment. The State Science and Technology Commission determined in the 1990s that Chinese new and high-technology include eleven typologies such as micro-electronics and electronic informational technology, aeronautical and space technology, photoelectron and the integration of photoelectron and machinery, life science and new biological energy, material science and new material technology, ecology and environment technology, technology of saving energy, applied nuclear technology, pharmaceutical science and biological medicine engineering, and other applied new technology based on traditional industry. In September 2000, software and agricultural technology were added in the list.[250] An effective way to promote new and high-technology is to establish NHIPs. According to the new and high-tech source and their development, Chinese 53 national NHIPs can be classified into four sub-types, such as import-, university- and large enterprise-based NHIPs and comprehensive NHIPs. By comparison with other FEZs, Chinese NHIPs have the following features: [251]

[250] Li Bin (2000), "Our Country issued the Catalogue for the mainly developed New and High-tech Products", (Woguo Fabu Zhongdian Fazhan Gaoxin Jishu Chanpin Mulu), In: <<People's Daily>>, Overseas Edition, on 29.09.2000, edition 1

[251] For discussion, see: Hu Miniuan, Zhangliang, Cao Zhidong (1999), "On the Operational Environment and Demonstrative Effect of Our Country's Industrial Park", (Lung Woguo Gongyeyuanqiu De Jingying Huanjing Yu Shifang Xiaoying), In: <<China's Tertiary Industry>>, (Zhongguo Disan Chanye), Beijing, No. 5, pp. 9-10

Box 4: Similarities and Differences between NHIPs and other Types of Chinese FEZs

- NHIP is located in the intelligence-intensive and economic and technological well-developed area of a large- or a mid-size city. Because a lot of universities, institutes and large military enterprises distributed in interior, so that there are also numerous NHIPs in interior.
- Its spatial scale is normally smaller than other FEZs, and it can be a part of a SEZ, a CDZ or a ETDZ.
- It enjoys a similar preferential policies and privileges as ETDZ but narrow use limits. For example, only the enterprises with new and high-tech can enjoy these policies and privileges, but it will be selected and reselected based on certain criteria and standards during certain period. Its major economic activities are new and high-tech research, development and trade, industrialization and commercialization.
- It occupies a important position in national development strategy. It optimizes not only industrial and product structure, but also promote the reform of scientific research, education, and production.
- Its development are to be transformed from policy advantage to structural advantage; from government-oriented to market-oriented promotion; from technological import-orientation to combination of import and development and further to own development; from a FEZ to a modern urban proper or to be integrated with SEZ, ETDZ or CDZ.

Design: Meng Guangwen

Comprehensive Development Zones (1990)

With the success of the coastal outwardly-oriented development strategy, the focal point of Chinese open policy in the coastal region was moved from the Guangdong und Fujian provinces to the northern China in the lately 1980s. Shanghai, based on the well-developed economy and advanced technology, becomes the new hot spot and the new symbol of Chinese open policy in the 1990s. On June 2, 1990, the Central Committee and the State Council approved the vast project of PNA. Its key objectives are to recover Shanghai economic virginity as an old economic center, improve its urban function and China's market-oriented economy, expand China's open policy, and promote the economic development of Changjiang valley and whole country in the 21st century.

PNA is located in the opposite site of old Shanghai proper. They are separated just by Huangpujiang River. PNA was expanded from 350 km² in 1990 to 518 km² in 1992. It was planed to a large outwardly-oriented, multi-functional FEZ. Not only the policies of SEZs and ETDAs, but also some new policies were carried out in PNA. For example, PNA partly permit foreign investor to operate and manage the service industry in the early 1990s.

After PNA, the Suzhou New Area was established as a new model of FEZ's construction in China. SNA is established by Chinese and Singaporean governments. Singapore is responsible for planning, attracting investment, governing and constructing, and the Suzhou local government for the cooperation. At the end of the 1990s, the Suzhou municipality was responsible for the 2nd stage of construction (see Fig. 29, p. 82). In addition, some ETDZs are being transformed to CDZs, including BNA in Tianjin and Jinwan New Area in Dalian.

The CDZ is the new generation of SEZs and ETDZs. Like the SEZ, the CDZ is also a comprehensive FEZ with a multi-industrial structure and multi-functional zones, but unlike SEZ, CDZ is located in the periphery of the large municipality and traditional economic center. It enjoys the most preferential policies and privileges of SEZs and some new ones. SEZ is mostly an independence administrative area, but the CDZ authority is only an agency of the province or municipality under the jurisdiction of the province government or municipality directly under the Central Government. Besides similar roles in national open policy and national economic development to SEZs, the CDZ desired improvement of the center municipality's or old city's function, adjust and upgrade its industrial structure and seeks to improve the market-oriented economy. CDZs will be the new urban proper or new economic center).

Chinese Free Trade Zones (1990–1992)

Chinese FTZs were established based on the successful experiences of SEZs, ETDZs, world FTZs and EPZs from the lately 1980s to the early 1990s. The first FTZ was established in Shenzhen SEZ in 1986. At that time, SEZs faced the challenges of national and international economic changes. The special policy and privilege were expanded from SEZs and ETDZs to the other vast regions. Shenzhen SEZ faced competition with the coastal regions in attracting foreign capital. It had to probe into a new development model, and tried to establish a "SEZ inside SEZ". "Shatoujiao Bonded-Industrial Zone" and "Futian International Industrial Zone" are two examples. Moreover, DCs, especially, new industrial countries have undergone a new upgrading of industrial sector since the 1980s. In addition, Japanese Yen and Taiwan Yuan were revalued so that there were a large amount of idle funds to seek the new investment market. Since 1987, along with Thailand and Malaysia, who have become the two up-and-coming youngsters to attracting foreign investment, Shenzhen SEZ has also faced competition from these countries. Besides SEZs and ETDZs, FTZs enable China to attract more foreign investment and develop export processing industry and foreign trade. Meanwhile, the structural reform should be improved and depended by establishing FTZs. The establishment of FTZs in Shenzhen desired keeping the leading position in Chinese open policy and structural reform.[252]

Shatoujiao as the first FTZ (EPZ) was established in the Shenzhen SEZ in October 1988. The State Council permitted to establish Waigaoqiao FTZ in PNA in September 1990 and other 5 FTZs in Tianjin, Shenzhen (Futian and Yiantian), Guangzhou and Dalian in April 1991, and then 6 FTZs in Qingdao, Fuzhou, Xiamen, Haikou, Ningbo, Zhangjiagang and Shantou after 1992. Unlike other FEZs, there were only 15 national-level FEZs in China (see Table 11).

Tab. 11: Establishment and Distribution of 15 Chinese National-level FTZs until 2001

Location	Number	%	Time	Free Trade Zones
The Coast	1		1990	Weigaoqiao in Shanghai
	6		1991	Shatoujiao, Tianjin, Futian, Yiantian, Guangzhou, Dalian
	8		after 1992	Zhangjiagang, Haiko, Qingdao, Ningbo, Mawei in Fuzhou, Xiangyu in Xiamen, Zhuhai, Shantou
	total 15	**100%**		
The Center	0			
The West	0			

Source: 15 NHIPs are submitted from: 1) Chen Ligao, Zhang Hongrou, Yang Chuang (1998), " Combination of Point and Area- the Problems and Tentative Idea of China's Free Trade Zone", (Dianmian Jiehe-Zhongguo Baoshuiqiu Fazhan De Wenti Jiqi Shexiang), In: <<International Trade>>, (Guoji Maoyi>>; Beijing, No. 12, p. 17; 2) He Chengying (1996), "Comparison and Choice among the Models of China's Special Economic Zones", (Woguo Teqiumeshi De Biyiao Jiqi Xuanze), In: <<Economy of Special Economic Zone>>, Shengzhen, No.11, p.62

Note: there were only 13 FTZs in: 1) Gu Chaolin, Zhao Lingxun, etc. (1998), <<China's New and High-Tech Industrial Parks>>, (Zhongguo Gaoxinjishu Chanye Yu Yuanqiu), Zhongxin Publishing House, Beijing, p. 7; 2) Zhang Chijian, Xie Lihu (1996), "Free Trade Zone with Bright Prospects", (Baoshuiqiu Dayoukewei), In: <<Newspaper of Economic Reference>>, (Jingji Cankao Bao), 20-04-1996

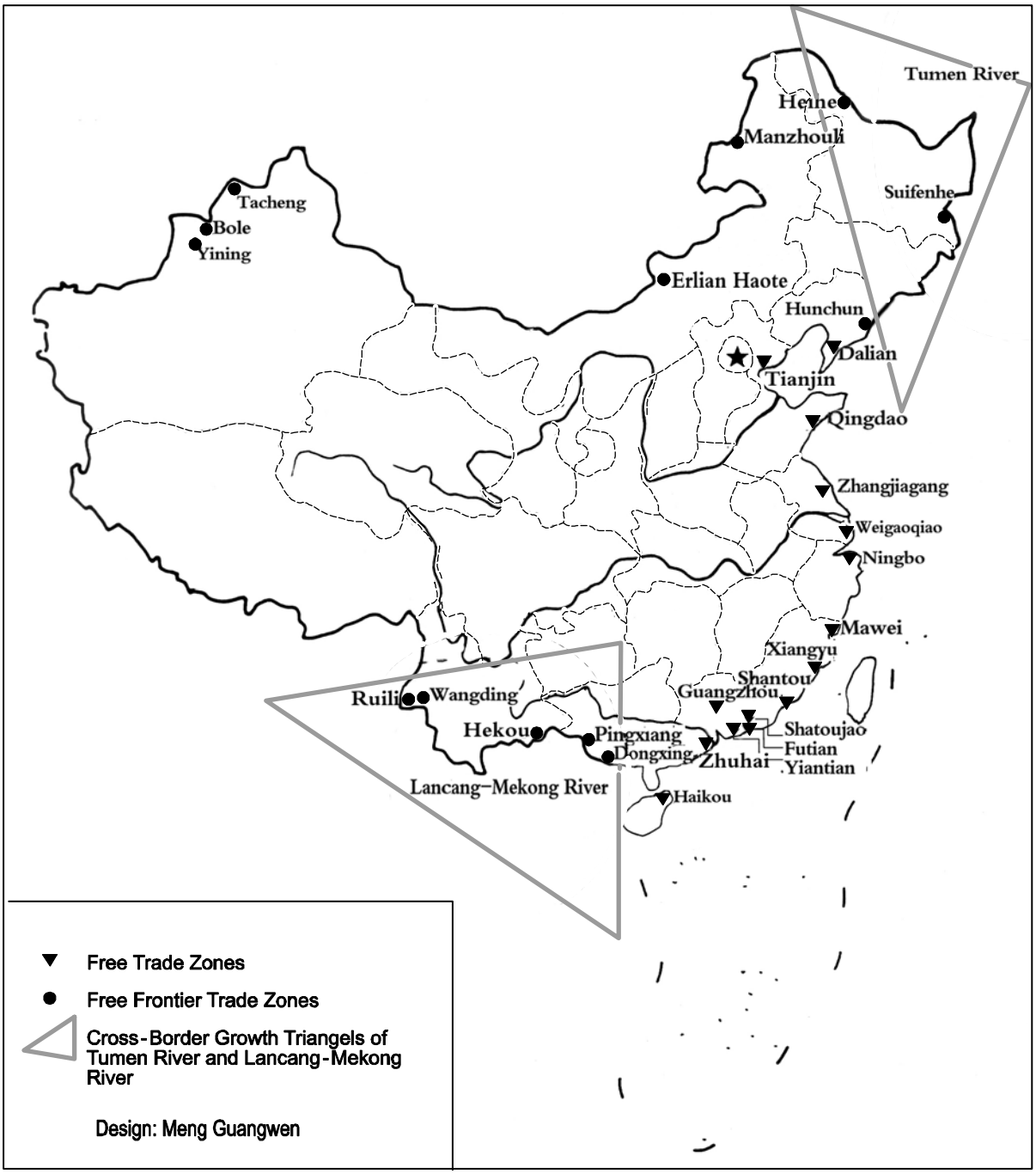
The location pattern of FTZs is the same as the SEZs, CDZs and coastal ETDZs, but different from the ETDZs in the interior and NHIPs. Thirteen FTZs are located in the coastal area near to the seaport (port-based FTZs). Only Zhangjiagang FTZ is a river-port-based FTZ (Changjiang River) and Shatoujiao FTZ is a border-based FTZ to Hong Kong. Generally, FTZs cover a smaller area than other FEZs. Now, Chongqing state city in the hinterland

[252] Meng Guangwen (1993), <<Study on the Coordination between the Establishment of Tianjin Free Port and the Development of Tianjin Coastal Region>>, (Tianjin Ziyougang Jianshe Yu Binhaidiqiu Xietiaofazhan Yianjiu), Research Report, Manuscrip, Tianjin

planned to establish one river-port-based FTZ, and Tianjin planned to establish one airport-based FTZ in 2001 (see Fig. 31).

Except some similar goals, the FTZ is used to open a new source of utilizing international economic resources, establish a practical base for managing economic activity accounting to international practice, improving market-oriented economy and promoting REI. In order to realize these objectives, they enjoy special and closed customs supervision policy or quasi-free trade policy, namely, capital, commodity, service, and personnel can flow more freely than other Chinese FEZs. In addition, there are not permanent residents, which is also different from other Chinese FEZs.

Fig. 31: Geographical Locations of Free Trade Zones, Cross-border Growth Triangles and Free Frontier Trade Zones in China



The major industrial sectors are the export processing industry, international trade and warehouse, and transportation. According to industrial sectors, Chinese FTZs can be classified to trade-based FTZs such as Qingdao FTZ in Shangdong province and Futian FTZ in Shenzhen SEZ; processing-based FTZs such as Shantoujiao FTZ in Shenzhen SEZ; comprehensive FTZs such as Dalian FEZ, Tianjin FEZ, Waigaoqiao (Shanghai).

Chinese FTZs have a longer life than other FEZs. The continual decrease of Chinese customs duty signifies the continual open and expansion of Chinese domestic market. For example, the average Chinese customs duty grade in 1992 was 43% and it was decreased by 15% in 2001, though there is still customs duty. Chinese FTZs will exist, as long as customs duty is still active. It is the result and catalyst of world REI. FTZs will exist as long as world REI is not finished. That is the reason why there are numerous FTZs in Europe and the United States, and in the mean time, the REI was also well-developed.

Free Frontier Trade Zones (1992)

In the 1990s, Chinese leaders strengthened economic development in the impoverished border regions mostly dominated by ethnic minorities. In 1992, the State Council opened 13 border cities and approved the establishment of 13 FFTZs. The 13 border cities and towns occupy an area of 370,000 km², include a population of 1.58m, and have borders of 1700 km long. Some zones of total 13 FFTZs have become a part of two cross-border GTs (see Fig. 31).

Tab. 12: Distribution of 13 Chinese Free Frontier Trade Zones in 1992

Location	Term	Number & %	Border Cities & Towns	Free Frontier Trade Zones	Major Economic Activities
The Center	The Northeast Boundary Line	5 38.5	Suifenhe, Hunchun, Heihe in Heilongjiang province, Manzhouli, Erlianhaote in Inner Mongolia autonomous region	Suifenhe, Heihe, Hunchun, Manzhouli, Erlianhaote	Resource & technological exchange
The West	The Northwest Boundary Line	3 23.1	Tacheng, Bole, Yining in Xinjiang autonomous region	Tacheng, Bole, Yining	Frontier trade, processing industry
	The Southwest Boundary Line	5 38.4	Ruili, Wanding in Yunan province, Hekou, Dongxing, Pingxiang in Guangxi province	Wanding, Hekou, Ruili, Dongxing, Pingxiang	Frontier trade, tourism

Source: developed from 1) Jing Xueqing (1998), "The Macro Regional Classification and Model-Choice of Chinese Open Policy and Development in the Border Region", (Zhongguo Yanbiandiqiu Kaifangkaifa De Hongguan Qiuyuhuafen Ji Meshi Xuangze), In: <<Economic Geography>>; No. 4, p. 52; 2) <<Yearbook of China's Special Economic Zone and Development Zone (1998, 1999)>>, Reform Publishing House, Beijing

The FFTZ has a similar preferential policy, function, and the governance structure as FTZs and ETDZs. Like FTZ, its major economic activities are frontier trade, processing industry, resource exploiting, tourism and other service trades, but, the zone is only located at trading ports in the land border regions with convenient communication, and it occupies a small area, and has a short development history, and a less developed economy than ETDZs and FTZs. The thirteen FFTZs were designed to expand open policy; foster cross-border economic development in the northeastern, northwestern, and southwestern border regions of China; reduce the economic gaps between the coastal and interior areas, stabilize the border regions and promote the economic cooperation with neighboring countries. The border economic cooperation between FFTZs and neighboring countries will be evolved from resource exchange to exchange of capital, technology, natural resources, personnel, and technology.

Cross-border Growth Triangles (1992)

There are two cross-border growth triangles (CGTs) in China. Tumen River Regional Triangle was originally proposed by the United Nations Development Program (UNDP) in 1988. In 1991, six countries agreed to set up a multilateral commission to oversee the development of the Tumen River region. These expensive zones cover the northern cities of Jilin province of China, the two Russian coastal cities, and two northern cities of North Korea as well as some cities of Japan and South Korea.

On August 20–21, 1991, an expert group of the UN investigated the Tumen River Region among China, Russia and Korea. The conclusion stated that Tumen River Delta had a huge dynamic development potentialities based on the global REI. This region not only backed on the industrial base of Heilongjiang and Jilin province, but also easily utilizes Russian, North Korean and Mongolian resources. The region was linked to Europe and North America through Seaway. Tumen River delta will be an international trade center in the future. On October 09–11, 1992, the international conference of "Development and Planing in Tomen-River Region" was convened in Beijing. The agreement stated:

- 4.50m US$ for research work
- each country offer the land for the development
- China, North Korea and Russia should establish a commission to coordinate common economic development
- establishing stock company to raise funds
- establishment of ports in the place where China, Russia and Korea meet.
- Investment of 30b US$ during the period of 20 years.

Since the conference, China opened five border cities and began to construct infrastructure of the sub-zones.[253] For example, railway of Hunchun city to Russia side in 1996 and international cable from Hunchun city to a border city of North Korea in 1997 were finished.[254] Hunchun city and its FFTZ enjoy preferential policy and privilege.

The Lancang–Mekong River CGT was also started under the suggestion of Asia Bank in the early of the 1990s and was officially approved by all governments in 1993. This CGT includes 6 countries (China, Vietnam, Lao, Thailand, Cambodia and Burma), and occupies an area of 2.33m km², a population of 243m and rich natural resources. The cross-border cooperation includes transportation, energy, communication, tourism, investment, trade, environment protection, exchange of science and technology. Chinese sub-zone has begun to construct infrastructure, and FFTZ has been regarded as the first concrete measure. Chinese Yunan province invested yearly over 100m Yuan in construction of highway from 1999 to 2000. Other five countries planed to invest total 30b US$ in transportation construction (see Fig. 31).[255] On September 3, 2000, Mongolia decided to establish FEZs in the largest border city to China in order to attract Chinese investment. China has become its largest trade partner. Other CGTs maybe emerge in the cross-border area between China and Mongolia and between China and central Asia in the future.

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[253] Shanwaishan Business Group: <<The Strategy and Business Opportunity of Opened Border Cities in the Mainland>>, (Dalu Yanbian Kaifang Chengshi De Zhanlue Yu Shangji), Taiwan, pp. 17-19

[254] Ye Ying (1998), "The General Situation and the Characteristics of Our country's Open Policy in the Border Region", (Woguo Yanbian Duiweikaifang Jibenqingkuang Jiqi Tedian), In: <<Yearbook of China's Special Economic Zone and Economic and Technological Development Zone 1998>>, Reform Publishing House, Beijing, pp. 85-88

[255] Author unknown (2000), "Shanghai and Yunnan exploited together sub-zone of Liancang River-Mekong River", /Shanghai Yu Yunan Lianshou Kaifa Liancang Jiang Meigonghe Ciqiuyu), In: <<People's Daily>>, on July 26, 2000

As cross-border FEZs, CGT has the features of both intro-national SEZs and FTZs and cross-national REI. Its location is cross-border regions between China and one or several neighboring countries or territories. The major economic activities are resource exploiting, frontier trade, export processing and tourism. The preferential policy and privilege come mostly from other intro-national FEZs and the agreements between China and other neighboring countries. There are two levels of governance structure, namely, national level and cross-national level. The national governance structure is similar to that of intro-national FEZs, but cross-national one is just a loose organization, whose function is only to coordinate the macro economic cooperation among the partner countries. The objectives include promoting cross-border economic development, exchanging resource, technology and capital and exploiting the new market; a tool and instrument to cross-border expansion of the Chinese economy and REI in the 21st century. Following economic development, CGTs will become Chinese major FEZs in the future. They will play both an economic and political role in Chinese open policy.

Special Administrative and Economic Zones (1997–1999)

Hong Kong and Macao became two concession areas and free ports in the 19th century. In 1984, China and the UK and lately China and Portugal, began to negotiate the problem of Hong Kong and Macao. In 1997, first Hong Kong and then, in 1999, Macao were returned to China. They became two Special Administrative and Economic Zones (SAEZs). SAEZ is an evolutionary form of the comprehensive FEZ, which enjoys a special political and economic status in China. Hong Kong and Macao, but especially Hong Kong as a FP city carry out typical free trade and free economic policy in the world. First, they are comprehensive FEZs because they enjoy special policy and privilege, occupy the comprehensive industrial structure including international trade, finance and banking, industry and tourism, and they are the multi-functional zones including FP, free financial zone, export industrial zone, the planned SIP and free tourism zone. Second, they are also special administrative areas and occupy a special political and administrative status in China, especially since they were returned to China in 1997 and in 1999. Besides the common features as FEZs, there are also numerous distinctions between SAEZs and SEZs as shown in box 5, next page.

Box 5: Distinctions between SAEAs and SEZs

Different Economic Policies	*Different Jurisdiction of Administration, Legislation and Objectives*
• unlike SEZs, Hong Kong and Macao have no taxation payment to the central government. • they carry out free financial policy, including no foreign exchange control, free exchange of the Hong Kong dollar, open market of golden, negotiable securities and futures, free flow of capital; but SEZs carry out the foreign exchange control and a limited open financial market. • they are independent customs zones, carry out free trade policy, including duty free import of the most commodities, without discrimination against import commodity and without subsidy to export commodity; except FTZs and EPZs, SEZs are part of the national customs system, and enjoy only the duty free import of some commodities during a certain period and export subsidy. • the free economic policy and privilege are permanent, but such policies of SEZs are active only during a certain period.	• unlike SEZs, Hong Kong and Macao enjoy the all administrative privileges except national defense and diplomats. • unlike SEZs, they enjoy the power of final adjudication. • they can make laws by themselves based on the "Basic Law of Hong Kong and Macao Special Administrative Area", and the new laws shall be reported to Committee of the National People's Congress (NPC) for the record; the NPC can veto the laws, but shall not amend them. Some SEZs can only make some local laws and regulations according to constitution; • SAEZ should maintain economic flourishing and the positions as international financial, trade, shipping and tourism center and promote the unifying of mainland and Taiwan; SEZs seek to develop an outwardly-oriented economy, carry out structure reform and promote returning of Hong Kong and Macao.

Source: submitted from: Lin Cangyuan, etc. (1997), "The Distinction and Relation between Special Economic Zone and Hong Kong Special Administrative Zone", (Jingjiteqiu Yu Xianggang Tebie Xingzhenqiu De Qiubie Yu Guansi), In: <<Newspaper of Shenzhen Special Zone>>, No. 3, (Shenzhen Teqiu Bao), Shenzhen, p. 28

Chinese Export Processing Zones since 2000

In order to concentrate and standardize existing processing industries, attract new processing industries, guard against smuggling and continue export processing industries after China admitted to the WTO, the State Council approved the first 15 EPZs within 15 ETDZs in June 2000, including Dalian, Tianjin, Tianzhu (Beijing), Yantai, Weihai, Kunshan, Suzhou, Songjiang (Shanghai), Hangzhou, Xingli (Xiamen), Shenzhen, Guangzhou, Chengdo and Hunchun. The export processing industries that distributed outside ETDZ and the newly planned one will be attracted into EPZs. Kunshan and Songjiang EPZs since November 2000, and the Chengdu EPZ since June 2001, have been in operation.[256]

There are some distinctions between ETDZs and EPZs. Unlike ETDZ, China's EPZ is a defined zone or an enclave within an ETDZ and carries out free trade policy inside national territory but outside national customs system. Like ETDZ, EPZ is also a manufacture-based FEZ, but its area is much smaller and the major economic activities are the simple export processing industry, processing trade and international trade. EPZ has narrower micro and macro objectives than the ETDZ. Foreign enterprise's investment in the EPZ is to utilize the EPZ's cheap labor forces and free trade policy, but besides cheap labor, their investment in ETDZ is to enter into local market and enjoy preferential policy. The differences between EPZ and FTZ are just the major economic activities. The later has just more industrial sectors. China's EPZs, as a part of ETDZs, will exist for a long time.

[256] Qin Xuewu (2000), "China will set up Export Processing Zone", (Zhongguo Jiangshe Zhukou Jiangongqiu), In: <<People's Daily>>, Overseas Edition, edition 2, 23-06-2000
Li Rong (2000), "Songjiang EPZ is being in Operation", (Songjiang Chukou Jiagongqiu Fengguang Yunxing), In: <<People's Daily>>, Overseas Edition, edition 2, 13-11-2000, 19-06-2001

Similarities and Differences of the various Types of Chinese FEZs

In the above section the typological classification, the establishment of Chinese FEZs and the characteristics of each type of Chinese FEZs, especially the location pattern, have been discussed. By comparing the major factors of Chinese FEZs such as location, objectives, preferential policy, governance structure, industrial sectors and development trend, the similarities and differences of varied types of Chinese FEZs are summarized in Table 13.

Tab. 13: The Comparison of Major Factors of China's FEZs

Term FEZ	Location	Major Objectives	Preferential Policy & Privilege
ECPB	The city & the countryside in the coastal area & the interior	Creating foreign exchange; changing domestic unit attitudes; recovering production abilities; increasing the quality of products; financing IS strategy	Priority in the foreign exchange funding & production input; reduced or exempted import duties for production inputs
SAEZ	Closed & separate location in South China	Keeping economic flashing; special status as free port & special administrative area; promoting country's unifying	Independent administrative & legal status; free trade policy; free economic policy
SEZ	Remote, coastal location and proximity to Hong Kong, Macao & hometown of overseas Chinese	Windows of attracting foreign capital, technology, management experience & open policy; export promotion, creating employment & foreign exchange, comprehensive structure reform; promoting return of Hong Kong & Macao	Tax & duty reduction & holiday, economic & administrative privilege, high-tech industry orientation, structural experiment in advance
CDZ	Location in suburbs & periphery of large municipality in coastal region	Similar micro objectives to SEZ; recovering economic development of old economic center; expanding open policy; measure of regional development strategy; comprehensive experiment of structural reform in economic metropolis; regional growth pole	Similar to SEZ and new preferential financial policy
ETDZ	Coastal, interior location; city-, port-based and separate location	Similar micro goals to SEZ & CDC; recovering economic development and upgrading industrial structure of old economic center, measure of regional development strategy; special experiment of structural reform; regional growth pole	Parts of preferential policy and privileges of SEZ and CDZ in the field of production and trade
EPZ	Within ETDZs	Similar micro objectives like SEZ, CDZ & ETDZ; reduce smuggling and continue export processing after jointed WTO	Typical free trade & free economic policy
NHIP	City-, enterprise-based location in the coast and interior areas	Upgrading industrial structure; promoting the industrialization & commercialization & development of scientific & technological results; scientific structure reform	Similar to ETDZ, but serve only high-tech industry
FTZ	Port-based location in coastal region (inland)	Promotion of international trade; experiment of market-oriented economy; regional economic integration (REI)	Similar free trade & free economic policies to EPZs, but not as typical as EPZs
FFTZ	Small- & mid-size land border cities	Promoting economic development & cooperation in border region; expanding open policy; stabilizing border region	Some preferential policy & privileges of ETDZ and FTZ
CGT	Cross-border region in northeast & southwest Chinese boundary lines	Cross-border economic cooperation & development; exchange of resource, technology & market, world REI	Preferential policy & governmental subsidy from SEZ, ETDZ & REI

Note: the 2nd part of this table is presented on the following page

	Governance Structure	Industrial Structure	Development Trend
ECPB	Model of local government department	Agriculture, handicraft & processing industry	disappeared
SAEZ	Special administrative area with more independent legislation right & judicature under <<Basic Law >>	Complete industrial structure including processing industry, trade, finance & tourism	REI with region of Zhujiang-River delta of Guangdong province
SEZ	Special administrative area with some independent legislation rights	Complete industrial structure including processing industry, trade, service trade, agriculture & tourism	An open international city & economic center, REI with Hong Kong, Macao & delta of Zhujiang River
CDZ	Combination of FEZ & administrative area	Similar to the industrial structure of SEZs	A new, modern, open, international city and regional economic center
ETDZ	Model of FEZ-an agency of the provincial authority	Industry, trade & some service trade	Modern comprehensive FEZ & new urban proper
EPZ	Same as ETDZ or part of ETDZ	Export processing & international trade	FTZs or existing for a long time
NHIP	Same as ETDZ	Development, production & trade of new & high-tech industry	A modern industrial city or new city proper
FTZ	Same as ETDZ, NHIP	Export processing, warehouse & transportation & international trade	Standard FTZ and a new city proper
FFTZ	Same as ETDZ, NHIP & FTZ	Frontier trade, processing industry, resource exploiting, tourism	Free trade zone, a new city proper
CGT	Mixed model of cross-national organization & intra-national FEZ	Complete industrial structure: resource exploiting, frontier trade, industry, tourism	Cross-national economic area & REI

Design: Meng Guangwen

Note: ECPBs: export commodity production bases; SAEZs: special administrative zones SEZs: SEZs: special economic zones; CDZs: comprehensive development zones; ETDZs: economic and technological development zones; EPZs: export processing zones; NHIPs: new and high-tech industrial parks; FTZs: free trade zones; FFTZs: free frontier trade zones; CGTs: cross-border growth zones

5.3. Location Patterns of Chinese FEZs

Since the establishment of the first SEZ in 1979, Chinese FEZs have been gradually developed from four SEZs to numerous FEZs, from unitary to diversified typologies and from the coast to the interior location. A macro distribution pattern of FEZs from Bohai Bay in North China to the North Bay in South China and from the coast, to the interior and then to the border region has shaped up. Several factors influenced the location of Chinese FEZs and a single zone, including coast-oriented regional policy, political-economic factors, social and cultural factors, economic, and geographical factors (see Table 14).

Tab. 14: Location Factors and Principles of Chinese FEZs

Location Factors	Principles	Typologies of FEZs
Regional development strategy	Distribution from the south to the north, from the coast to the interior & the border region	All types of FEZs
Political and economic factor	• Proximity to Hong Kong, Macao and Taiwan • Keeping a suitable distance with large city	• Shenzhen, Zhuhai, Xiamen SEZs; Fuzhou ETDZs; Shatoujiao FTZ • The most of 35 national ETDZs and total 5 SEZs
Social & cultural factor	Hometown of the oversea Chinese and the returned oversea Chinese	Shenzhen, Zhuhai, Shantou, Xiamen SEZs; Ningbo, Fuzhou, Guangzhou and Yantai ETDZs
Economic factor	Located in medium-size and large city with developed economy, advanced technology & education & high quality of personnel	All of the ETDZs, NHIPs, FTZs and Pudong, Suzhou New Area
Geographical & communication factor	• Located at a port and at the hub of communication • Frontier trade port	• SEZs, ETDZs, FTZs and NHIPs • Free frontier trade zone • Cross-border growth triangle

Design: Meng Guangwen

Based on the Regional Development Strategy of "Three Regions"

Since 1978, the balanced regional policy was replaced by unbalanced regional development policy. China carried out separately the development strategy of "three regions" in the 1980s, the "development axes in the 1990s and "the strategy of the great western development" since 2001. As the strategic measure, FEZ's locations in China accorded with the regional development strategy (see Table 15).

China's FEZs were established step-by-step and developed from one point to a large area, from the South to the North and from the coastal region to the interior, the border region and the cross-border region. The different types of FEZs have different distances from the coastline to the western region: FTZ – SEZ – ETDZ – NHIP – FFTZ – CGT. Most FEZs distributed in the coastal region. In the interior, there are only ETDZs, NHIPs and CGTs. FTZ is being established in province state Chungqing. Some ETDZs, HTIPs, FFTZs and CGTs are located in the western region.

Tab. 15: Distribution of National-Level FEZs in the "Three Regions" of China

Typology / Locations		The Coast		The Center		The West	
		Number	%	Number	%	Number	%
Special Economic Zones (SEZs)	5	5	100	0	0	0	0
Economic and Technological Development Zones (ETDZs)	35	29	82.8	4	11.4	2	5.7
Comprehensive Develop. Zones (ETDs)	2	2	100%	0	0	0	0
New & High-tech Industrial Parks	53	29	54.7	15	28.3	9	9.4
Free Trade Zones (FTZs)	15	15	100	0	0	0	0
Free Frontier Trade Zones (FFTZs)	13	0	0	5	38.4	8	61.5
Coss-border Growth Triangles (CGTs)	2	0	0	2	100%	0	0
Total	**125**	**80**	**64**	**26**	**20.8**	**19**	**15.2**

Design: Meng Guangwen

Proximity to Hong Kong, Macao and Taiwan

Following this economic and political principle, the earlier SEZs were established close to Hong Kong, Macao and Taiwan in order to use directly their own and another country's capital, trade channels throughout the world, sensitive commercial information, advanced technology, and management experience, but also to supply an ideal investment place for their processing and tourism industry and trade. In particular, Hong Kong was China's sole passageway with foreign countries before 1978 and it is not only one of the world's trade, financial and tourism centers, but also has a well-developed processing industry. Second, SEZs can show directly the Chinese open policy and reform to Hong Kong, Macao and Taiwan, realize gradually economic integration with them, and promote their return to the motherland. Shenzhen and Zhuhai SEZs have played this demonstration role. This principle has enabled Chinese FEZs to still play a non-substitute role even until today. In fact, besides four SEZs, numerous ETDZs in Guangdong and Fujian provinces are also examples.

Using the Affinity Advantage of the Hometown of Overseas and Returned Overseas Chinese

China has over 10m overseas Chinese and foreign citizens of Chinese origin, and the most of them are from the coastal region. For example, there are numerous regions inhabited by relatives of overseas and returned overseas Chinese, such as Guangzhou, Shenzhen, Zhuhai, Shantou, Chaozhou, Meizhou in Guangdong province; Hainan province; Xiamen, Fuzhou in Fujian province; Ningbo in Zhejiang province and Yantai in Shangdong province. Most oversea Chinese have accumulated richer capital and have the tradition of contributing to hometowns. Chinese open policy offers them an attractive macro investment possibility. In fact, over 50% of the foreign capital in China is invested by overseas Chinese and foreign citizens of overseas Chinese. Based on these social relations, overseas Chinese will first invest in their hometowns so that their hometown is able to become the first location-choice of FEZs in China. The five SEZs, and the ETDZs in provinces of Guangdong, Fujian, Zhejiang, and Shandong are examples. In the 1990s, numerous Taiwanese Investment Zones (TIZs) were established, such as TIZs in TEDA and Mawei, Haicang, Xinglin and Jimei in Fujian.

Keeping a Suitable Distance to the Large City and Economic Center

This is a special principle with Chinese characteristics. Most Chinese FEZs, especially in the 1980s, kept a suitable distance to large cities. This principle presented the compromise of the dispute about FEZs in China. China wanted not only to use the FEZs to attract foreign capital, technology and management experience and carry out structure reform, but also worried about the experiment failure, which would produce a negative impact on the original system because it had little experiences establishing FEZs in the socialist system. Naturally, avoiding the negative influence of the old system and the underdeveloped economy are also a factor. So, as a compromise, FEZs could be established, but would be separated from large cities. If reform was successful, the successful experience could be spread to the whole country; if reform failed, the costs would be limited to a small area. Like the four SEZs, the Hainan SEZ is also a typical example. Besides rich land area and sea resources and safeguarding the islands in the South Chinese Sea, it is also a key factor to establish Hainan SEZ in 1988 because Hainan is far away and separated from the mainland and its economy was underdeveloped. If unsuccessful, it could not produce a great impact on the Chinese economy. Today, this principle has resulted in some problems. For example, some ETDZs have developed slowly because they needed either a large investment or occupy only an undeveloped regional market.

All earlier Chinese FEZs were either established in the small border town, or kept a suitable distance (1–50 km) from large and mid-size cities. Based on the distances from city proper, FEZs in China are the following: NHIP – ETDZ – SEZ – FTZ – FFTZ – CGT.

Tab. 16: The Distance from the Central City to the 1st series of 14 National-Level ETDZs in the 1980s

ETDZ	Distance from large City (km)	Planed area in the 1980s (km²)	ETDZ	Distance from large City (km)	Planned area in the 1980s (km²)
Dalian	33	20	Hongqiao	6.5	0.65
Qinhuangdao	<1	1.9	Minhang	30	3.43
Tianjin	50	33	Caohejing	11	5
Yantai	10	10	Ningbo	23	3.9
Qingdao	4.2 (sea) 110 (land)	15	Fuzhou	24	23
Lianyungang	22	10	Guangzhou	35	9.6
Nantong	11	4.6	Zhanjiang	center	9.2

Source: He Xinggang (1995), <<The Practice and Theory of Urban Development Zone>>, (Chengshi Kaifaqiu De Lilung Yu Shijian), Shanxi People's Publishing House, p. 158

Located in the Large and Mid-Size City

Following the successful experiences of the SEZs and the first 14 ETDZs in the separated locations of the coastal region in the 1980s, China has expanded the open policy since the 1990s. The large and mid-size cities with developed economies, advanced technology and high quality personnel have become the location choices of ETDZs, NHIPs, CDZs and FTZs. Some types of FEZs were located at the city proper. In other words, FEZs were established in the remote or separated places at their primary stage, and then, were gradually established in outer suburbs, in the suburbs, and finally in the city center. In the 1980s and the 1990s, 37.50% of 32 national ETDZs were located in large cities (more than 1 million inhabitant, and 46.90% of these zones in mid-size cities (200,000 – 1 million inhabitants). Only 15.60% of the zones were located in the smaller towns (of less than 200,000 inhabitants). For example, Shenzhen is far away from Guangzhou. PNA and Puxi urban proper of Shanghai are just separated by the Huangpujiang River. Most NHIPs were located in the urban center.

Located at the Port and at the Hub of Communication

The port, the hub of communication and the border trade port can guarantee a large amount of exchange of commodity, capital, personnel and information between national and international market of FEZs. The first 14 ETDZs, four SEZs and 13 FTZs were located at or near to ports, such as seaports, river ports, airports and land trade ports. The seaport attracted the most FEZs. Thirteen of the total 68 border trade ports in China were selected as the locations for 13 FFTZs. Some FEZs approached the railway and expressway or established new ones. NHIPs depend normally on the expressway and airport. Accounting to the association with a port, FEZs in China are: FTZ – ETDZ – SEZ – NHIP – FFTZ – CGT. Twelve of 13 FTZs were established at or near ports, but they have not their own docks. The separation between the zone and the port led to a fact that FTZs cannot carry out typical closed customs supervision, namely the enclave of the national customs system.

To sum up, the macro location pattern of Chinese FEZs are: FEZs decreased from the coast to the interior, the border and cross-border region; in the coastal region, FEZs were firstly distributed in the southern China and expanded to the northern China in the 1980s; in the interior, FEZs were distributed along the Changjiang River, the Lan-xin Railway and Borders in the 1990s; cross-border FEZs arose in the lately 1990s. The micro location patterns of

Chinese FEZs are: they were located in small towns and kept a suitable distance from large and mid-size cities in the 1980s, and they have been gradually located in the large and mid-size cities since the 1990s in the concentric circles. The rank is: NHIP – ETDZ – SEZ – FTZ – FFTZ – CGT; based on the port, FEZs were distributed in a rational way with a rank: FTZ – ETDZ – SEZ – NHIP – FFTZ – CGT.

5.4. General Characteristics of Chinese FEZs

Chinese FEZs have both some features of world FEZs and their own specific characteristics. The features of world FEZs include spatial separation (enclave nature); outwardly-oriented or open economic sectors; free economic and trade policy; special objectives; evolution from trade-based FEZ to service-, science-based, comprehensive and cross-border FEZ. Basically, Chinese FEZs, as a part of world FEZs, possess these essential features, but, due to the large area and population, the specific political and economic system and the short development history, Chinese FEZs have some specific characteristics, which are different from world FEZs or have enriched the general characteristics of world FEZs.

The similarities and differences between Chinese FEZs and world FEZs can be analyzed at two levels, namely the comparison between FEZs in DCs and LDCs and between Chinese FEZs and FEZs in LDCs. The major FEZ's factors, such as typology, objectives and functions, policy, industrial structure, investment environment and location as well as their evolution, will be used in this analysis.[257]

Typology and Industrial Sectors
Based on a long history of FEZs and REI as well as on a developed science and technology, trade-, service-, science-based and cross-border FEZ arose first and developed rapid in DCs, such as FEZs in the EU and the United States. On the contrary, manufacture- and trade-based FEZs have taken a dominant position in LDCs, such as FEZs in Southeast Asia and South America. Like most LDCs, most Chinese FEZs are manufacture-, trade- and service-based FEZs, and the cross-border FEZs are not in leading positions. Unlike most LDCs, China, as a large country, has a large number and varied types of FEZs, especially many comprehensive and science-based FEZs. Unlike world FEZs, Chinese FEZs include three levels, such as national, provincial and local FEZs based on the FEZ's administrative level and government level, which approve FEZ's establishment. And China has the SEAZs of Hong Kong and Macao. Except free trade policy, they also enjoy certain special political and legal privileges. The special status was determined by colonial history, free ports, economical development and China's open policy.

Moreover, FEZs in DCs such as European FEZs generally evolved from trade-, service-, science-based to cross-border FEZ, but FEZs in LDCs such FEZs in South America and Asia were transformed from trade-, manufacture-, comprehensive, science-based FEZ to cross-border FEZ. Chinese FEZs are different from other two evolutionary models, which were evolved from comprehensive-, manufacture-, trade-based to border-based and cross-border FEZ. There are three reasons for this:

- Historical influences: Chinese Communist Party had the experience of establishing a large special, political and economic zone in Jiangxi Province in the 1930s and in Shănxi, Gangsu and Ningxia provinces in the 1940s so that Deng called the first Chinese FEZ in

[257] For discussion, see Gao Hong, Huang Yuxiang (1996), "The Comparison between China's Development Zones and World Economic and Trade Zones", (Woguo Kaifaqiu He Shijie Jingjimaoyiqiu Bijiao), In: <<Study to World Economy>>, No. 5, (Shijie Jingji Yianjiu), Shanghai, pp. 14-18

Shenzhen as "Special Zone". At the early stage of open policy, the experience of ECPBs from the 1960s to the 1970s still played a role in financing the policy of IS. Along with the success of the Chinese open policy, China paid more attention to the experience of EPZs in LDCs and territories such as Taiwan, South Korea, and Singapore in the 1980s. That led to the establishment of the new generation of FEZs – SEZs and ETDZs.

- Special objectives of structural reform and open policy: For reducing the cost and risk, FEZ was first used as an experiment base to carry out open policy and reform in the 1980s, which is a essential distinction between China's FEZs and world FEZs, and secondly as the economic growth pole and engine of Chinese industrialization. Comprehensive FEZs with large areas can carry out comprehensive reform experiments, fully reveal open policy and successfully attract varied kinds of foreign capital, technology, and management experience.[258]
- Step by step development and opening to the world: From 1979 to 1988, five SEZs were established, each with a large area and population. In order to expand open policy and reform, spread SEZ's experience, and balance the regional development, China needed other types of FEZs. Meanwhile, it is not possible and necessary to set up more large comprehensive FEZs. After SEZs, ETDZs were established for promoting the economic and technological development of coastal old industrial bases. The FTZ was used to enlarge open policy, deepen the structural reform and carry out REI. The NHIP was seen as a tool to give full play to scientific and technological potential and to measure up to the world advanced scientific and technological level. As a large country, and based on rich and higher technology, China has more science-based FEZs than many other LDCs. Finally, border-based and cross-border FEZs were used to promote the economic development and cooperation in border and cross-border regions.

FEZ's development trends in DCs are to establish more science-based FEZs and cross-border FEZs and cross-national REI, which are determined by their long development history, advanced technological level, and high REI. FEZs in LDCs and in China evolved to science-based and cross-border FEZs, because they are based on only low developed REI, science and technology as well as on a short history of FEZs.

Because trade-, service- and science-based FEZ are major FEZ's types in DCs, their FEZ's industrial sectors are mostly foreign trade, finance, service trade, simple processing and the assembling industry as well as high-tech industry. For example, foreign trade, and the assembling and processing industry are major economic activities in FTZs of the United States. Foreign trade, transportation, storage, and manufacture are pillar industries of Hamburg free port. High-tech industry is the leading industry of science-based FEZs in the United States and Europe. FEZs in LDCs, however, occupy foreign trade, processing industry and service trade because manufacture-, trade-based FEZs are the major types of FEZs in these countries.

Compared to LDCs, China has almost all types of FEZs, but comprehensive FEZ, manufacture-, trade- and science-based FEZ are the major types so that the major economic activities include foreign trade, manufacturing, processing industry, service trade, tourism and agriculture. SEZs and CDZs occupy a complete industrial structure including primary, secondary and tertiary industry; ETDZs possess industry, foreign trade and service; NHIPs engage mainly in research, manufacturing and commercialization of new and high-tech

[258] He Chengying (1996), "Comparison and Choice among the Models of China's Special Economic Zones", (Woguo Teqiumeshi De Biyiao Jiqi Xuanze), in:<<Economy of Special Economic Zone>>, (Teqiu Jingji), Shengzhen, No. 11, pp. 21-23

products; FTZs develop mainly export processing industry, storage and transportation, and foreign trade.

In short, China's FEZs established a complete industrial structure, yet labor-intensive industry and foreign trade are the leading industrial sectors, on the one hand; capital- and technology-intensive industry or new and high-tech industry as well as modern financial industry, on the other hand, have being paid more and more attention since the 1990s. They will be the pillar industries in the future.

Location Pattern

Based on FEZ's characteristics, the macro location pattern of FEZs in DCs shows a succession from coastal area, hinterland, and border region to cross-border region. The micro model is that FEZs are located first near ports (seaport-river port-airport), and secondly, near the hub of communications in hinterland. There are also numerous cross-border FEZs in DCs such as CECZs in EU. Many science-based FEZs are located in large and mid-size cities both on coast and in the interior, for example, SIPs in the United States.

Like DCs, FEZs in LDCs are located mostly in coastal regions, and decreased from coast to hinterland, border region and cross-border regions, but FEZs in hinterland, border and cross-border region are much less than FEZs in DCs. The reasons are that FEZs in LDCs exist at the initial stage and possess more manufacture- and trade-based FEZs, and these FEZs rely on ports for their large-scale production and transportation. Moreover, the economic development in LDs is more unbalanced than DCs. Finally, LDCs have also less science-based FEZs.

Chinese FEZs decreased from the coast to the hinterland, border, and cross-border regions, but FEZs in the hinterland are more than those in LDCs because China has more science-based FEZs, and some large and mid-size cities in China's hinterland with rich scientific and technological resources provided an idea location to them. Moreover, border and cross-border FEZs in China are more than those of LDCs because China possesses a long border, and FEZs are a successful tool to promote the open policy and economic cooperation in border and cross-border regions. The micro location model of Chinese FEZs is similar to FEZs in both DCs and LDCs, which are near ports, cities and the hubs of communications, but some of them are kept a suitable distance from the city and economic center.

Objectives and Roles

Based on a long history of FEZs and a well-developed market-oriented economy, FEZs in DCs play a limited, more micro and direct economic role in the national economy, namely creating employment, promoting economic prosperity, recovering vitality of old industrial bases, maintaining the high-tech advantage and promoting cross-border economic cooperation. The typical examples are FPs and FTZs in Europe, and FTZs and SIPs in the United States. On the contrary, FEZs in the most LDCs, especially in the new industrial countries, play a more important, more macro and strategic role in their national economy. They are not only used as a generator to realize micro and direct economic objectives, but also as special instruments to realize some macro and indirect economic and political objectives, including increasing employment, earning foreign exchange, attracting foreign capital, technology and management experience, realizing industrialization and transformation of industrial structure, exported-oriented strategy and structural reform**.** The following reasons can be given for this:

- Based on the unbalanced development and backward economy, it is more necessary for LDCs to use FEZs as the growth pole to promote the regional economic development.
- LDCs used FEZs as a regulator for the national macro-foreign trade policy, namely that FEZs can be used to carry out double foreign trade policies: while DCs carry out trade protection policy in order to protect some industrial sectors, the FEZs can supply a possibility in which the free trade and free investment policy can be carried out within the zone; and these policies, hereafter, can be expanded to the host economy.
- The FEZ is the ideal location for some LDCs to carry out export-oriented and high-tech development strategy. Export processing industry encouraged LDCs to produce the products that are originally not produced, namely that FEZs can import some machines and semi-finished production materials without duty payment. The preferential policy for technology-intensive industry and well-developed infrastructure make FEZs an ideal location for new and high-tech industry.
- The FEZ is also a laboratory for testing economic and structural changes. If the experiment is a success, the experience might be introduced into the host countries. If it is not successful, it cannot result in a strong negative impact on the host country.

China's large population and area, unbalanced regional economy, poor resources per capita, especially, its 30 year planned economy and public ownership and 30 year heavy industry-orientation, IS and regional balanced development strategy, almost led to a national economic collapse by the end of the 1970s. China had to carry out economic reform, open policy, and unbalanced regional development in order to promote economic development. Chinese FEZs were used as the tool to realize the open policy and structural reform so that they held the special historic mission and objectives. Besides micro and direct economic objectives, China's FEZs have more macro and indirect economic, social, and political objectives, and the latter go so far as to be more important than the formers at the initial stage. Besides similar micro objectives as FEZs in DCs and LDCs, the macro objectives of Chinese FEZs can be summarized as follows: stabilizing border regions, promoting national industrialization, promoting the implementation of unbalanced regional development strategy and regional outwardly-oriented development strategy, becoming the window of open policy, the bridge of linking national and international market, the experiment base of economic reform and establishment of market-oriented economy, and promoting the unify of country and the return to the motherland of Hong Kong, Macao, and Taiwan. The variety of FEZ's objectives determined why the comprehensive FEZs have a dominant position in China's FEZs, both in quantity and in effect.

Investment Environment

The investment environment of FEZs includes preferential policy and infrastructure. Generally, FEZ's preferential policy includes economic incentives, administrative privileges and their use limits. According to a well-developed, market-oriented economy, DCs offer generally the national treatment or limited preferential treatments to foreign enterprises outside and inside FEZs, and normally they have not the "law and regulation governing business relations with foreigners". In other words, DCs carry out usually a special policy with fewer preferences and less restrictions. The preferential policy enjoyed by FEZs is usually tax reduction, holiday, and special financial subsidy. The typical examples are FPs, FTZs, and cross-border FEZs in Europe. The restrictions to the foreign investors are mainly to protect some special industrial sectors that are associated with national safety, environment protection, and high-technology.

LDCs offer the foreign enterprises within FEZs more incentives and more restrictions. In order to attract foreign capital and technology, LDCs offer normally different preferential

policies to domestic and foreign enterprises within the FEZs, and they have also the laws and regulations governing business relations with foreigners. The preferential policy includes tax reduction and holiday, financial subsidy, and the preferential infrastructure use fee. The restrictions are to protect the young, but strategic industrial sectors, to determine the investment time limit, investment level, share proportion, export and import ratio, profit remittance control, and sectors for foreign investment.

The preferential policy of Chinese FEZs includes both the features of FEZs in LDCs and their own specificity. That means that Chinese FEZs, based on a similar economic level, absorbed not only the experiences of LDCs, but also took the aspects of Chinese special conditions such as the socialist economic system, a large area and population, and a higher technological level. Summarily, the preferential policy of Chinese FEZs has following features:

Like FEZs in LDCs, the preferential policy of Chinese FEZs includes tax reduction and holiday, financial incentives and administrative privilege; foreign capital-orientation (namely, only foreign-funded enterprises enjoy more preferential policies, and domestic enterprises enjoy less or do not enjoy any preferential policy); industry-orientation (namely, manufacture, processing, basic industry, export industry and new and high-tech industry enjoy more preferential policies); and foreign enterprises with export-orientation and investment expansion enjoy more preferential policies. Unlike FEZs in LDCs, there are more preferential policies and more preferences because of sharp competition between the numerous FEZs in China, including more tax reduction and holiday, lower land use fees or zero land use fee; the different FEZs enjoy different preferential policies, and the preferential level gradually decreased from the trade-based FEZ, comprehensive FEZ, manufacture-based, science-based FEZ to the cross-border FEZ.

Naturally, except tax reduction and holiday, the free flow of capital, goods, service and people were not successfully carried out. In addition, in order to protect the national economy, the restrictive policy was also advanced such as restricting exchange and remittance of foreign currency, restricting foreign investment in some industrial sectors, demanding export and import ratio and homemade proportion.

Chinese FEZs occupied some specific preferential policies. These policies mainly belong to operative and administrative privileges, but these privileges are general principles in the market-oriented economy. They include:

- allowing state-owned, collective-owned, and private economy to invest in FEZ;
- allowing domestic enterprises to operate, work out operation plans, make purchases, employ and dismiss persons by their own;
- allowing FEZs to manage manufacture and circulation based on market-oriented principles;
- allowing administrative committees of SEZs to enjoy larger administrative privilege by attracting foreign capital, export and import commodity and approving foreign investment project.

Generally speaking, there are no large differences of the investment environments between FEZs and the rest regions in DCs, namely that DCs possess usually good infrastructure, well-developed market-oriented economy and law systems as well as less preferential and less restrictive policies so that they do not carry our a large-scale infrastructure construction. On the contrary, in most LDCs, including China, FEZs have to build up the infrastructure on a large scale accounting to the standard of modern production. They also have to formulate a

preferential policy and laws governing business relations with foreigners in order to attract foreign investment.

Governance Structure

Based on a well-developed market-oriented economy, DCs have normally selected the "enterprise-oriented administrative model, which is very popular in European and North American FEZs. On the contrary, because most LDCs have law redeveloped market-oriented economies, the FEZs are so important that the government constructs and operates them by itself or with enterprises together. These government-oriented and mixed modes have been popularly used by Asian countries and territories such as Taiwan and Korea. Like these Asian countries, FEZ's administrative models in China used mostly the government-oriented model and mixed form of government- and enterprise-oriented model, and some FEZs were transformed to the independent administrative area including varied kinds of FEZs, e.g. Hainan and Shenzhen SEZs. Generally, Chinese FEZs are being transformed to the enterprise-oriented model and the administrative area.

In general, most FEZs in LDCs, especially in DCs, are geographically located inside national territory, but outside national customs territory. Hamburg free port, FTZs in the United States, EPZs and FTZs in Eastern Asia and South America are typical examples.[259] However, except EPZs, Chinese FEZs were not clearly and strictly separated from the domestic economy and carried out only special customs supervision policy instead of "enclave" model. For example, in principle, while the customs house and economic and financial departments regard the FTZ as an enclave outside the national customs system, the taxation department, commodity inspection, health quarantine, animals and plants quarantine regard it as a zone inside both national territory and national customs system. Generally, the customs house carried out a policy of "opening the first boundary line to the international economy, but closed the second boundary line to the national economy" in FTZs. Only commodity inspection, health quarantine, animals and plants quarantine and taxation department supervise the import and export in the first boundary line to the international economy, while the enterprises within zone will be regarded as the enterprises outside national customs system. If a commodity enters into the zone, it will be regarded as an export, and the export duty shall be exempted accounting to FEZ's preferential policy. In fact, in order to avoid the false drawback, the taxation bureau insisted that export duty will be returned only when the commodity is exported from FTZ to the international market.[260] That means that Chinese FEZs have not carried out the standard customs supervision policy of FTZs. Since 2001, several EPZs within ETDZs and Jiegao FFTZ in Yunnan province carried out typical free trade policy.

Chinese FTZs are not typical FEZs. They are called "Bonded Warehouse Zones" in Chinese, but literally translated to FTZ in English. In fact, they possess some characteristics of both bonded warehouse zones (BWZs) and typical FTZs. There are similar features between BWZs and Chinese FTZs. For example, they are located within national customs territory on the one hand, because they don't enjoy completely a free trade policy. And they are located outside national territory on the other hand, because they carry out closed and special customs supervision policy and enjoy many privileges. In addition, commodities can be reserved only 2–5 years. Like standard FTZs, Chinese FTZs can carry out the export processing industry, trade, warehouse and other trade services; the commodity from domestic market can be

[259] Note: they are mainly trade-, service- and manufacture-based FEZs

[260] Chen Ligao, Zhang Hongrou, Yang Chuang (1998), "Combination of Point and Area- the Problems and Tentative Idea of China's Free Trade Zone", (Dianmian Jiehe-Zhongguo Baoshuiqiu Fazhan De Wenti Jiqi Shexiang), In: <<International Trade>>, (GuojiMaoyi>>; Beijing, No. 12, pp. 17-19

exported to the zone; the commodity can be imported duty free and will be only put on record. The essential distinction between Chinese FTZs and standard FTZs is its customs supervision policy. Unlike Chinese FTZs, the standard FTZ is a free trade "enclave".[261] In addition, foreign exchange control and protection of some service trades of Chinese FTZs lead to conflicts with free trade policy.

Box 6: Comparison between Bonded Warehouse Zone and Free Trade Zone [262]

- BWZ is located within customs territory so that a commodity shall be registered by the customs house, before it is imported. The FTZ is located outside national customs territory so that the commodity shall be registered only when it is exported to the domestic market from the zone.
- Customs supervision of BWZ is "supervision of accounting books", because the commodity is in outstanding accounts. FTZ carries out "supervision of registration", the commodity is only registered when it is imported duty free from the international market but is not exported to the domestic market.
- BWZ doesn't allow the inflow of domestic commodities, but FTZ allows not only the inflow of domestic commodities, but also can mix it with foreign commodities.
- BWZ can reserve commodities from 2 to 5 years, but the FTZ can reserve them for a long time.
- BWZ allowed only bonded storage and simple processing under customs supervision, but FTZ has multi -functions, e.g. trade, export processing industry, assembling, storage, tourism and other service trade.
- BWZ covers only a small area, but FTZ possesses a larger area.

Design: Meng Guangwen

The general characteristics of Chinese FEZs will be summarized by comparing the major factors of world FEZs with Chinese FEZs, including typology, industrial sector, location, objectives and role, investment environment, customs supervision policy and administration, as shown in Table 17:

[261] For discussion, see Zhou Shuwei (1998), "Free Trade Zone: A New Growth Point of Open Economy", (Baoshuiqiu: Kaifangxing Jingji De Xin Chengzhangdian), In: <<Guidance Newspaper of Reform>>, (Gaige Daobao), Guangzhou, on July 11.1998

[262] For discussion, see Li Li (1999), "Evolution from Bonded Warehouse Zone to Free Trade Zone", (Zong Baoshuiqiu Dao Ziyoumaoyiqiu), In: <<Theory and Practice of Special Economic Zone>>, (Teqiu Lilung Yu Shijian), No. 2, pp. 23-25

Tab. 17: The Characteristics of Chinese FEZs in Comparison with the FEZs in DCs and LDCs

Term Factors	FEZs in Developed Countries	FEZs in Developing Countries	FEZs in China
Typology	Trade-, service-, science-based and cross-border FEZ	Manufacture-, trade-based FEZ	Comprehensive, manufacture-, trade- and science-based FEZ
Industrial Sector	Tertiary, secondary industry; trade, service and high-tech industry; more service trade than LDCs	Secondary, tertiary and primary industry; export processing industry, trade, service, high-tech industry	Similar to industrial structure of LDCs, but more industrial sectors
Location	Coast-, interior-, cross-border FEZ, cross-national REI; proximity to port, a hub of communications, city and remote area	Coast-, interior-, border-, cross-border FEZ; less FEZs in interior than DCs; micro location is similar to FEZs in DCs	Coast-, interior-, border-, cross-border FEZ; more FEZs in interior than LDCs; micro location like FEZs in DCs & LDCs, but FEZs keep a suitable distance from large cities and economic centers
Objectives and role	More micro and direct but less macro and indirect economic objectives	More micro, direct and macro indirect economic objectives	Same micro economic objectives as world FEZs; the most macro indirect economic and political objectives
Investment environment	Less preferences and less restrictions; less large infrastructure construction	More preferences and more restrictions; more large-scale infrastructure construction & legislation	More preferences and more restrictions; some specific policies; More large-scale infrastructure construction and legislation
Customs Supervision	Free trade policy or enclave model (inside territory but outside customs territory)	Most FEZs with free trade policy	Most FEZs with untypical free trade policy
Administra-tion	Enterprise-oriented, cross-border & cross-national model	Government- and enterprise-oriented, cross-border model	Government- and enterprise-oriented, cross-border model and model of administrative area

Design: Meng Guangwen

6. Experiences and Prospects after over 20 Years of FEZs in China

Based on the socialist political system and plan-oriented economy as well as the experiences of world FEZs, varied kinds of FEZs have been established in China since the late 1970s. General speaking, FEZs in China are successful. A new generation and variation of FEZs was gradually created and they play a dominant role in China's rapid economic development and the establishment of a market-oriented economy. It is true that no FEZs in the world, especially in DCs, have had such strong impact on national economic development and transformation, which is new development of world FEZs. Following its development and the environment change, Chinese FEZs, however, have also experienced numerous problems, and have had to face new challenges since the late 1990s. In this chapter, the role and the position of Chinese FEZs in the national economy and structural reform will be analyzed, and their major problems will be discussed. Finally, the prospects for their future development will be obtained on the background of actual economic and political conditions in China and the world.

6.1. FEZ's Roles in Chinese Economic Development and Structural Reform

Micro Economic Achievements

China's FEZs have achieved a great success since the 1980s. For example, GDP of five SEZs with 35% of average annual growth rate in 1997 reached 252b Yuan, and DIOV reached 299b Yuan, an increased by 100 times compared to 1980. GDP per capita in Shenzhen and Zhuhai SEZ were over 3000 US$ in 1997, which ranked first and second place in the whole country at that time. Actually utilized foreign capital was 33.4b US$, making up about 15% of the whole country.[263] GDP and total export of five SEZs and PNA in 1999 reached 366.73b Yuan and 36b US$, and the latter made up over 20% of the whole country. Especially, the average annual growth rate of Shenzhen SEZ from 1979 to 1999 reached 31.25%, which occupied the first position of the large and mid-size cities in China.

If ETDZs, FTZs and NHIPs are added, FEZs in China play an even more important role in national economy. For example, 32 national ETDZs, accounting for almost one quarters of total 140 varied types of national FEZs, realized a rapid development. By 1998, their GIOV added up to 293.86b Yuan, a rise of 27.10% over 1997. The tax revenue reached 17.85b Yuan, an increase of 20% over 1997. Total export and total import reached 10.65b US$ and 8.13b US$, which increased separately by 4.8% and 7.8% over 1997. Their growth rates of major indicators were higher than the national average level. There were 12 enterprises whose GIOV exceeded 10b Yuan in 1998.[264]

By 1998, the 32 national ETDZs approved 13,454 foreign-funded enterprises over the years, which amounted to 4.10% of the whole country. Their contracted foreign capital and the foreign capital actually utilized reached 50.81 and 28.04b US$, which made up 8.90% and 10.50% of whole country' total value. The average foreign capital level and average foreign

[263] Ge Hongsheng (1998), "SEZ's Economy in the 21 Century", (21 Shiji De Teqiu Jingji), in: <<Yearbook of China's Special Economic Zone and Economic and Technological Development Zone 1998>>, Reform Publishing House, Beijing, pp. 1-2

[264] Ai Chenglong, Ning Wei (1999), "The Current Situation and the Development of Economic and Technological Development Zones", In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 178, TEDA, pp. 57-58

capital actually utilized were 3.77 and 2.08m US$, which were much higher than the country's average level of 1.76 and 0.82m US$. There were 1730 enterprises, whose investment exceeded 10m US$. Among the global top 500 companies listed in the magazine of "Fortune" in 1998, 113 transnational companies invested in 32 national ETDZs.[265]

Following the economic development, FEZs transformed from attracting foreign and domestic capital to turning over taxation revenue, investing in the interior and promoting the economic development of economically backward regions. For example, Shenzhen SEZ realized 13.1b Yuan of local budgetary financial revenue in 1996, and 10.1b Yuan was turned back over to the central government. Shenzhen SEZ aided the economic development of the western region with 2% of financial revenue, which has been budgeted by itself. Most FEZs become the growth poles to develop the national economy and to recover the vitality of the traditional but outdated economic centers, such as PNA to Shanghai and TEDA to Tianjin.

Macro Economic-Political Achievement
Chinese FEZs are not only the windows of China's open policy, foreign capital, advanced technology and management experience, but also the experiment bases and the economic growth poles. FEZs, especially SEZs, provided useful experiences for China's structural reform. The general objective of China's structural reform is to establish a socialist market-oriented economy. The experiments were first carried out in SEZs and other FEZs, and then, the successful experiences were spread to the whole country. These successful experiences included the inviting-tenders system in the reform of basic construction, the transformation from two-prices system to a market-oriented price system in the reform of the price system; the advertising and contract system in human resources management; the establishment of the stock market in the financial system; the reform of state-owned enterprises based on the stock system and the modern enterprise system; the regal transformation of state-owned land in the land use system; the social insurance system; the transformation of government function and ecology-oriented urban construction.[266] Chinese FEZs presented the achievements of China's open policy and structural reform and promoted the implementation of China's regional development and the return to the motherland of Hong Kong and Macao.

6.2. The Environment Changes of Chinese FEZs

Internal Environmental Change
Based on the coast- and FEZ-oriented preferential policy, FEZs become either modern cities or urban and economic centers. The regional disparity between the coast and inland and between FEZs and the rest regions has been enlarged. If this model continues, the regional gap will be continually enlarged. That will go against China's own final objective, namely that the balanced development shall be realized by the unbalanced development, and will probably result in serious social and political problems.

As experiment bases for the market-oriented economy, FEZs shall enjoy preferential policy and privilege in order to achieve experiences for the whole country. But, along with the preliminary establishment of the socialist market-oriented economy, the remaining regions demand also preferential policy and privilege. In addition, due to the time limit, the FEZ's

[265] Ai Chenglong, Ning Wei (1999), "The Current Situation and the Development of Economic and Technological Development Zones", In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 178, TEDA, pp. 57-58
[266] For discussion, see: Li Nanling, Chen Yani (2000), "The Great Project – SEZ's Historic Contribution to China's Open Policy and Reform), (Weida De Gongcheng – Jingjiteqiu Dui Woguo Gaigekaifang De Lishi Gongxian), In: <<People's Daily>>, Overseas Edition, 14-11-2000

preferential policy and privilege were either reduced or changed. The tax reduction and holiday, financial subsidy and administrative privilege were gradually replaced by reducing national customs duty, reduction of tax preference and financial subsidy as well as high-tech and industry-oriented preferential policy. Except EPZs, the duty free import of equipment, raw and semi-finished material has been gradually canceled.

The establishment of FEZs in China and their development were unbalanced. The time difference of the establishment of FEZs reached 14 years, and there were also 10-year time differences among the same type of FEZs. The different typologies and establishment times led to the different development levels of FEZs. For instance, the early established SEZs and ETDZs reached the growing stage and are beginning to be transformed to the flourishing stage. Their challenges are how to avoid economic recession and to realize the flourishing stage. Some other FEZs, however, such as FTZs, EHIPs and CDZs, are in the transformation from the starting to the growing stage, and their challenge is how to realize economic growth. In addition, because of the different establishment time, FEZs in the same typology are also in different development stages. Some early established, national and provincial FEZs, possessing a favorable location and a rational development model, have become well-developed economic areas, modern cities or urban centers though some national FEZs, especially some provincial and local FEZs with unfavorable location conditions have faced a lot of problems, and are still in a dilemma.

External Environment Change

External environmental change means that treaty obligations and rights will influence FEZ's preferential policy and privilege, as China became a full member of WTO in 2001. Besides the principles of most-favored-national treatment, national treatment, equality and mutual benefit, reduction of custom duty, WTO has also other principles of anti-dumping, anti-subsidy, anti-quota, transparency, unity of economic policy and low within national customs system. Some FEZ preferential policies and privileges, however, are in conflict with these principles, which will influence FEZ development in the future:

- Dumping and subsidy suspicion: based on export-oriented strategy, the varied kinds of preferential policies and privileges enjoyed by the investors within FEZs were combined with some quantity limits such as export quantity, balance of foreign exchange and domestic market quota. It is easy for this to result in dumping and subsidy suspicion.
- Non-unity and non-transparency: transparency and unity have a close linkage. Non-transparency means non-unity. FEZs carried out regional-oriented preferential policy and privilege. Because there are so many types of Chinese FEZs and so many different preferential policies and privileges of FEZs that the non-unity and non-transparency will easily take place. For example, the same imported goods have different custom duties collected in different FEZs.
- FEZs were mostly located in the coastal region with well-development economy and advanced technology, there were fewer FEZs in inland, but the WTO encouraged the establishment of FEZs in underdeveloped regions.

6.3. Transformation of China's FEZs: Models, Problems and Prospects

Transformation from a Window-Base-Bridge to a Growth Pole

The model of "window-base-bridge" is a condensation of the FEZ's role in China's open policy and structural reform in the 1980s. This model stated that FEZs were the windows to present open policy and to absorb foreign capital, technology and management experience; an experimental base to carry out economic structural reform and establish a socialist market-oriented economy; a bridge to linking national and international markets. Following the economic development since the 1990s, FEZs have been transformed from more indirect economic and political roles to a more direct economic role in regional economic development. That is both the central governmental wish and the inner demand of FEZs itself. There are four models how FEZs promote the regional economic development.[267]

Indirectly Promoting Role based on Model of "Window and Bridge"

At the initial stage, the promoting role is regional economic cooperation. For example, the interior regions attracted foreign investment, expanded export and created employment by establishing "window-office" and "window-enterprises", supplying labor services and participating in trade conversation in FEZs. Almost each province opened such "window-offices" in Shenzhen SEZ. Shenzhen SEZ offered inland employment to about two million in the 1980s. It is a successful model for regional economic cooperation.

Aid to the Interior

The undeveloped interior needs the financial support of the developed coastal region for its economic development. FEZs also have the responsibility to give help to the interior because they enjoyed first preferential policy and privilege, and their final objective is to realize common prosperous life in the whole country. Some FEZs have established "Funds of Economic Cooperation". There are three models of this aid: 1) counterpart regions based on the national arrangement, e.g. Shenzhen SEZ and Guizhou province, Xiamen SEZ, Ningxia, and Tibet autonomous region; 2) counterpart regions based on the provincial arrangement, e.g. Xiamen SEZ and Sanming and Longyan region; 3) special counterpart regions, namely, that FEZs and some government departments together give aid to certain special regions or units. This model, however, plays only a limited role because the funds are limited.

Economic and Technological Cooperation

The main cooperation form between SEZs and inland is that some military and state-owned large and mid-size enterprises established "Chinese-Chinese" and "Chinese-Foreign" joint ventures in order to utilize FEZ's preferential policy and market mechanism in the 1980s. And this model promoted not only FEZ's development, but also encouraged open policy and the economic development in inland. Following the increase of labor costs, some FEZ's labor-intensive industries moved to inland, or FEZs established joint ventures with inland enterprises, or prophase and operate some inland-enterprises. For example, enterprises in Shenzhen SEZ invested total 14b Yuan in the interior in 1995.

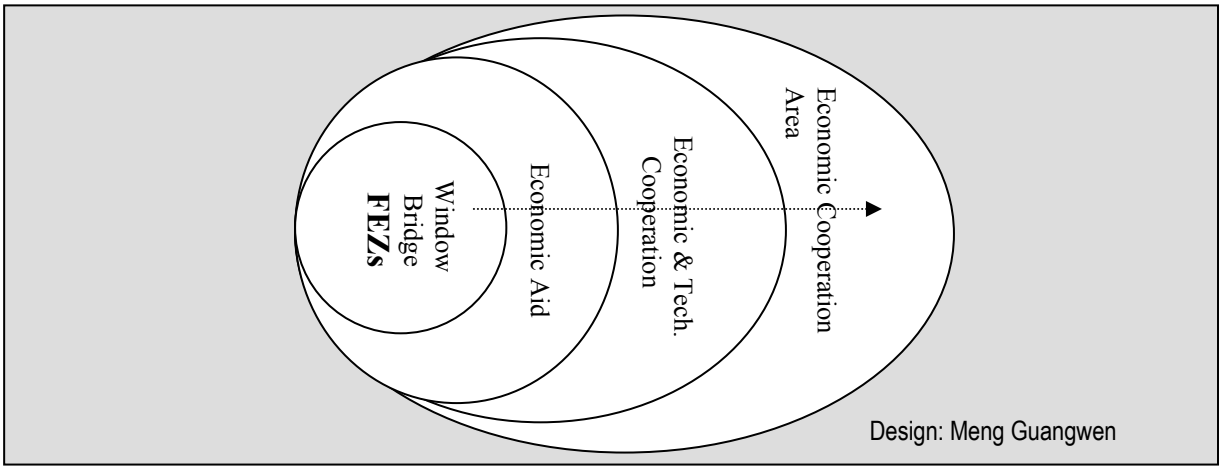
Establishment of Economic Cooperation Area (ECA)

It is a higher level of economic cooperation between FEZs and its adjacent regions to establish ECA, in which FEZs are regarded as the growth poles. With the support of the central government, the ECA of Yuedong-Gandongnan based on Shangtou SEZ, and the ECA

[267] For discussion, see: Guo Zhemin (1997), "Giving full Play to Promotional Role of Special Economic Zone, Promoting Economic Development in Interior", (Fahui Teqiu De Daidong Zuoyun, Zujin Neidi Jingji Fazhan), In: <<Theory and Practice of Special Economic Zone>>, (Teqiu Lilong Yu Shijian), No. 10, pp. 34-37

of Minxinan based on Xiamen SEZ, were approved in 1995. However, the FEZ's success determined whether such ECAs were successful or not (see Fig. 32).

Fig. 32: The Models of FEZ's Promotion to the Regional Economic Development



Transformation of Regional-Oriented Preferential Policy

Since 1996, FEZ's original preferential policy has been gradually reduced, but FEZ's advantages of capital, technology, qualified personnel and market-oriented economy have been gradually strengthened. FEZ's development power has been transformed from the "preferential policy" to the "comprehensive economic and structural advantage". Secondly, in order to deepen reform, improve the socialist market-oriented economy and face the challenge of WTO and world REI, FEZs should be continually used as the experimental base of REI,[268] and provide the experience in the above-mentioned field for the whole country. Thirdly, the regional-oriented model made FEZs to be an outstanding "beneficiary". It led not only to the FEZ's rapid development, but also to the enlargement of the economic gaps between FEZs and the remaining regions and between the coast and the interior. This model also led to a lot of importation of industries with low technology and limited technological transfer.

In view of the above-mentioned facts, regional-oriented preferential policy should be transformed to the combination of regional-oriented and industry-oriented referential policy. The preferential policy shall be transformed from FEZs to the remaining regions and from the coast to the interior, from all industrial sectors within the FEZs to some key industrial sectors within FEZs and in the rest regions. The strategy of the "great western development" in 2000 is an example. The new FEZs will be not established, but the industry-oriented preferential policy will enjoy by the western region.[269] The preferential policy and privilege will be reduced gradually in a proper order from pillar industry to general industry and limited industry.

[268] Xinhua (2000), "Special Economic Zones should Pilot Path to Globalization", In: http:// www. chinatopnews. com, 2000-10-12

[269] Xinhua (2000), "No Special Economic Zone in Developing West China: Official", In: http://www.chinatopnews. com, 2000-10-20

The Combination of the Policy of Inside and Outside National Customs System

The most trade-based and manufacture-based FEZs in the world carried out the "model of customs enclave" in order to realize their "pure economic objectives" by reducing and exempting from customs duty, but Chinese FEZs carried out the "model of inside national customs system" in order to realize their multi-economic and political objectives. Yet, this model has been challenged by the national well-developed market-oriented economy and the WTO's principles. According to the international practice, the regions outside national customs system can carry out special economic policy that can be different from national economic policy. So, Chinese FEZs could carry out a new model in order to be not only in line with current Chinese law and policy and optimize the preferential policy and privilege, but also to show no difference with the WTO's general principles and international practices. This model should be the combination of the policy of both the inside and outside national customs system. In detail, some independent FTZs, EPZs and FFTZs carry out the policy of the customs system of enclave. FTZs, EPZs and FFTZs within SEZs, ETDZs, CDZs and CGTs also carry out this enclave policy, but NHIPs and the remaining regions of SEZs, ETDZs, CDZs and CGTs should enjoy only the policy of special customs supervision. Shenzhen SEZ, TEDA and Tianjin NHIP are three examples.

Transformation of FEZ's Governance Structure

The Chinese FEZ's governance structure was a horizontal combination of the integration and separation between FEZs and the administrative areas in the 1980s. That means that SEZ is the integrative model, but other typological FEZs are the separating model. Generally, the Chinese FEZ's governance structure was transformed to the integrative model from the 1980s to the 1990s. As a window, base, and bridge, SEZ's integrative administrative model can successfully supply "general experiences" for the open policy and reform of the whole country. For example, Shenzhen SEZ separately established municipal government in the 1980s and the Municipal People's Congress in the early 1990s. At this stage, Shenzhen SEZ possessed an independent administrative system. In the lately 1990s, Shenzhen SEZ set up two districts of Nantou and Longgang by canceling Baoan county. Shenzhen SEZ finally became a city, which is subordinate to Guangdong province. Xiamen SEZ also is a city subordinated to Fujian province. Hainan SEZ is a complete provincial administrative system. Besides SEZs, some CDZs and some large ETDZs are developing towards the integration of FEZ and the administrative area. For example, Dalian municipality established "Jinwan New Area", in which Dalian ETDZ is regarded as the center and includes FTZ, Dayaowan port, Dalian NHIP and Jinshitan national tourist zone. The administrative committee of Jiwan New Area was established and developed into an integration of the FEZ and administrative area.[270]

But, due to the changes of FEZ's environment, the integration model is challenged: First, the increase of preferential policy and privilege will be contrary to the final objectives of Chinese reform and open policy and some WTO's principles. Second, if FEZs exist in name only, their accumulated economic resources will not be fully utilized. A possible way to avoid this is to transform the horizontal combination to the vertical combination of the integration and separation between FEZ and administrative area. For example, SEZs, CDZs and some large ETDZs should not only develop to a standard administrative area, but also maintain some FEZs such as ETDZ, FTZ, EPZ and NHIP. Shanghai PNA, SNA should become a combination of FEZ and an administrative area.[271]

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[270] Chen Zhilong (1999), "The Developments of Development Zone in Our Country's Coastal Region and the Inspiration to the Development of Pudong New Area", (Woguo Yanhai Kaifaqiu Dongtai yiqi Dui Pudong Xinqiu Fazhan De Qishi), In: <<Shanghai Synthetical Economy>>, (Shanghai Zonghe Jingji), pp. 27-29

[271] Zhu Congshi, Weng Junyi (1997), "On the New Standardization of Special Economic Zone", (Long Jingji Teqiu De Chongxin Guifan), In: <<Economic Study>>, (Jingji Yianjiu), Beijing, pp. 61-65

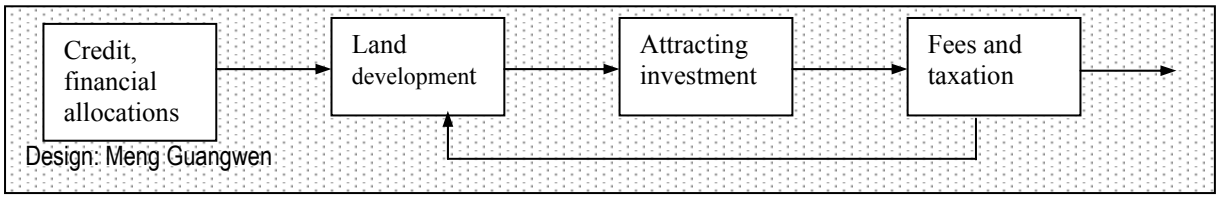
Transformation of Development Model

The investment environment consists of preferential policy and well-developed infrastructure. The latter is the first step of the FEZ's establishment and development because most Chinese FEZs are located in the urban periphery or in a remote area. Based on a suitable distance to urban center, these areas have only an low developed infrastructure. The land development, including leveling land (earth fill), road, drainage, water supply, electric power, co-generation of power and heat, communications, fuel gas and greenery, is just to supply the international standard infrastructure for the investors. For achieving capital and funds, Chinese FEZs have experienced three models: small-scale circulatory land development, large-scale circulatory land development and industrial development, and finally capital operation.

Small-Scale Circulatory Land Development

FEZs use credit, governmental financial allocation or foreign capital to develop land and infrastructure, and then, the developed land will be sold or leased to the foreign or domestic enterprises at attractive price. The land charge and taxation will be used again for further land development. A continuing circle will finally be established. At this stage, many foreign enterprises will invest in FEZs. Land development begins to be transformed into industrial development. Nearly all of Chinese FEZs used this model to create infrastructure, especially at their initial stages.

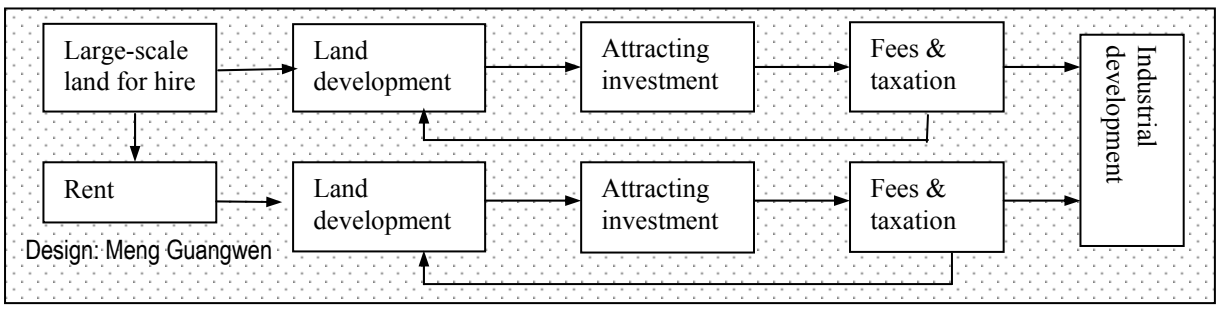
Fig. 33: The Model of Small-Scale Circulatory Land Development of Chinese FEZs



Large-Scale Circulatory Land and Industrial Development

FEZs transfer the right to foreign or domestic contractors to develop a large stretch of land area. There are two possibilities. First, the foreign or domestic contractors construct the infrastructure of a large stretch of land area, attract or invite the investors, pay the rent and taxes, and FEZs use them to develop the rest of the zone. Second, foreign or domestic contractors will be entrusted by FEZs with full responsibility for the whole zone's infrastructure and industrial development. This model was used to the FEZs with the large area or they are at higher development stage, for example, Yangpu development zone in Hainan SEZ, Taiwanese investment zone in Xiamen SEZ, SNA and in some large ETDZs such as TEDA. At this stage, numerous foreign enterprises will invest in FEZs. Tax revenue and service income are more than the land charge. This means that the motive power of FEZs has been transformed from land development to industrial development.

Fig. 34: The Model of Large-Scale Land and Industrial Development of Chinese FEZs



The Capital Operation as the New Trends of Development Model

There were two new trends of Chinese FEZ's land development in the 1990s. First, Chinese FEZs carried out new large-scale infrastructure construction, especially, the large transport and communication projects in the 1990s in order to optimize the investment environment, urban function, and to absorb transnational companies. The airport and seaport in Shenzhen SEZ and in PNA are examples. Second, the capital operation includes land development in other regions and the establishment of own enterprises. FEZs use own well-known brands and surplus funds to establish sub-zones in other regions or in foreign countries, as they do not enough space, but accumulated abundant funds. FEZs can also use their funds accumulated by land and industrial development to invest in industrial sectors in order to increase the capital in value. For example, TEDA purchase enterprises and shares/stocks or established their own stock companies.

Transformation from an Outwardly-Oriented Economy to an Open Economy

The outwardly-oriented economy based on the labor-intensive industry was the one of the FEZ's key objectives from the 1980s to the 1990s and it has already been established or is being established in the most Chinese FEZs. Since the lately 1990s, FEZ's development strategy has been transformed to an open economy, and has paid more attention to the domestic market. That means that FEZs should use part of the domestic market to exchange foreign advanced technology of transnational companies. Transnational companies have a worldwide market system and advanced technology. They invested in FEZs not only for the cheap labor force, but also for the new market. The exchange of market and technology should meet the needs of both sides so that the FEZ policy of promoting export and limiting the sales inside domestic market has been weakened since the lately 1990s. Hereafter, the transnational companies have become the FEZ's key investors and motive power. Based on the industrial linkage and market strategy of transformational company, FEZs established gradually a closer economic linkage with national economy, and the domestic market has become their second development driving force. Motorola's large investment in TEDA, and IBM's investment in Shenzhen SEZ are just two examples. Several successful FEZs have transformed from exporting commodities to exporting capital.

Transformation from Labor-Intensive to Technology-Intensive Industry

Most FEZs were established in the areas with agriculture or backward industry, while today they have established their own industrial structure characterized by the labor-intensive pillar industries. Since the late 1990s, the FEZ industrial structure has been transformed. The capital-intensive, high-tech, and the tertiary industries has increased. For example, Shenzhen SEZ has encouraged the high-tech industry since 1995, and its output made up over 35% of total GDP in 1998.

The Chinese FEZs have transformed from the growth in quantity in the 1980s has been transformed into the growth in quality in the late 1990s. The upgrading of industrial structure is the driving force of this transformation so that FEZs paid more attention to develop their own new and high-tech industries or to absorb high-tech industry based on original industrial base. The preferential policy has been oriented to the new and high-tech industries.

Transformation from Intra-National to Cross-border and Cross-National Regional Cooperation

Most FEZs had planned a small area at their starting stages, but some of them were already fully developed in the 1990s. The successful FEZs used their well-known brand, capital, and personnel advantage to expand their areas and established sub-zones in domestic and foreign countries so that the FEZ's spatial structure has been changed from the small zone to the large

zone and from the single zone to the multi-zones. For example, Shenzhen SEZ not only expanded its area to the whole Baoan county, but also established 37 km² of "Longgang Industrial Development Zone" and "Wutongshan Tourism Zone" in its eastern part. Dalian and TEDA also expanded their areas and transformed from the single zone to the multi-zones. In 2002, Kunming NHIP in Yunnan province and Thailand government planned to establish a FTZ in northern Thailand.

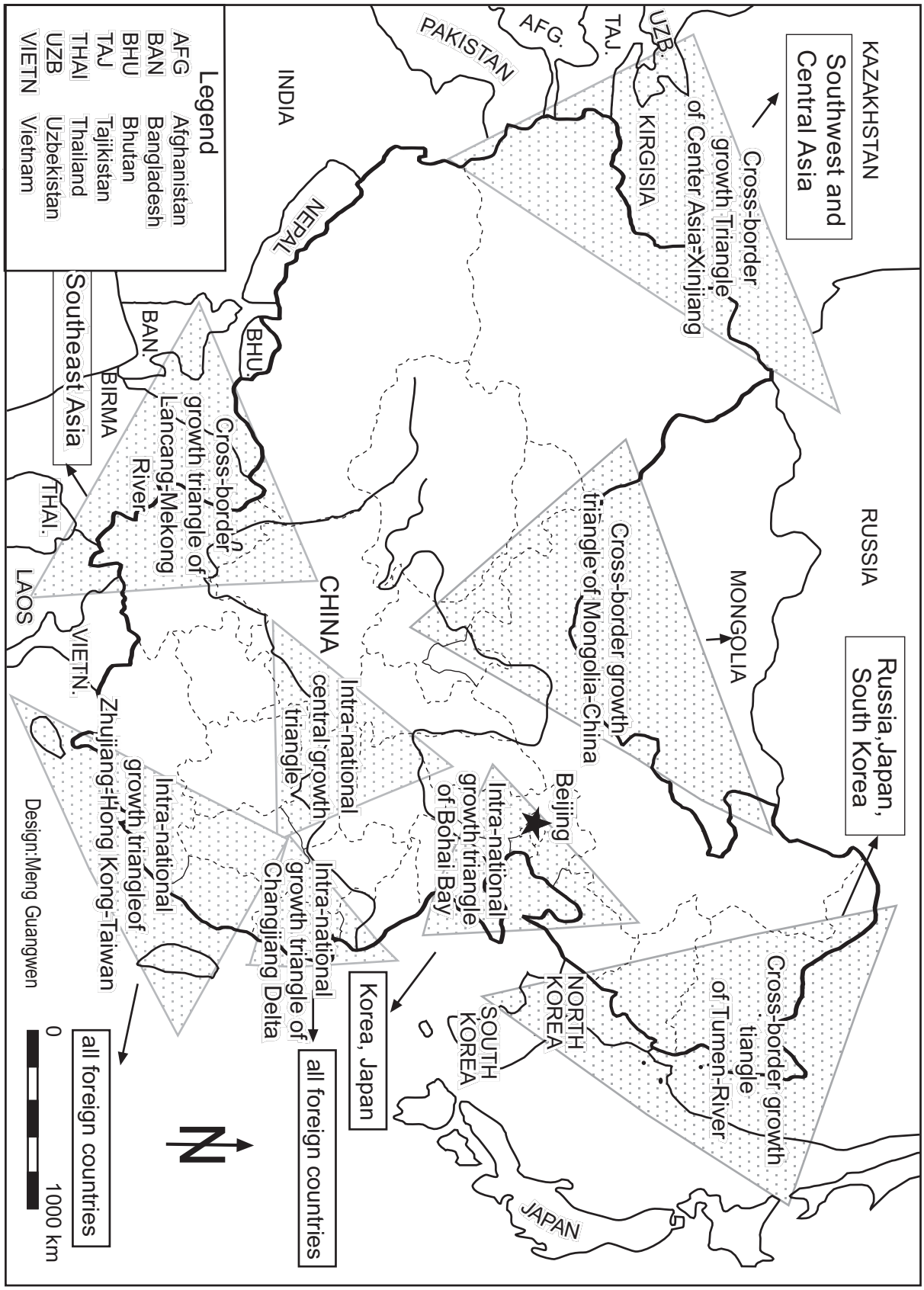
FEZs became the regional growth poles to promote regional development. The horizontal economic cooperation inside FEZs and between FEZs and the remaining regions promoted the establishment of several intra-national GTs, such as the regional GT of Bohai Bay headed by Beijing, Tianjin and Dalian, the regional GT of Changjiang Delta headed by Shanghai and the central regional GT headed by Wuhan and Chungqing as well as GT of Zhujiang Delta-Hong Kong-Macao-Taiwan. In addition to accelerating national and regional development and acting as "experimental hot houses" and foreign exchange generators, the FEZs continued to promote the "United Front" goals of integrating the mainland with Hong Kong/Macao and Taiwan. As early as 1981, the Central Committee stated that the SEZs would "reassure the Hong Kong and Macao peoples and achieve the return of Taiwan to the Motherland". Guangdong, and Shenzhen SEZ authorities as well as private Hong Kong entrepreneurs have: a) financed railroad, electrification and the construction of superhighways linking Hong Kong/Macao with the SEZs and the interior; b) simplified border crossing procedures; c) increased cross-border policy coordination. Since the return of Hong Kong to China in 1997 and Macao in 1999, the cooperation and coordination in economic development and urban construction between the Mainland and Hong Kong and Macao have been strengthened. The railway from Beijing to Hong Kong was opened to traffic in 2000. In 2002, a FTA between the mainland, Hong Kong and Macao was planned. Although there are grave divergences of unification between the Mainland and Taiwan, the "Three Openings", namely, the opening of navigation, air traffic, and postal route, are being discussed, and the "Small Three Openings" were partly realized in early 2001. REI would be the first step and the basis of the unification of the Mainland and Taiwan. FEZs would play a dominant role in this process.

Since the Taiwanese government first allowed military veterans to visit the mainland relatives in 1987, over 5m Taiwanese have visited the mainland, and invested over US$ 20b in the coastal economy until the 1990s, including US$ 2.4b in the Xiamen SEZ. To accommodate Taiwanese investors in Fujian Province, the State Council already approved the establishment of "Taiwanese Investment Zones" (TIZs) in May 1989. Located in the Xiamen SEZ and the Fuzhou Mawei ETDZ, these zones offered Taiwanese special privileges to establish "foreign-invested enterprises". TIZs have been also established inside other ETDAs or in other coastal open cities since the 1990s. Since the late 1990s, Shanghai has become the new center of Taiwanese investments.

Following rapid economic development, China will become a new regional economic center in the 21st century and will make notable impact on the world and Asian economic development. In addition, world REI and the WTO will promote China to use FEZs and other well-developed economic centers with favorable locations to carry out cross-border and cross-national economic cooperation. China will play a leading role in this economic cooperation and integration, and will establish its own regional markets. The economic relative underdeveloped neighboring countries might have misgivings, but the prospective economic benefit will encourage their economic and technological cooperation with China. Intra-national economic cooperation, cross-border and cross-nation economic and political cooperation will be the development trend of the Chinese FEZs in the 21st century. Besides CGTs of Tumen River and Mekong-Lancang River, the possible cross-border and cross-

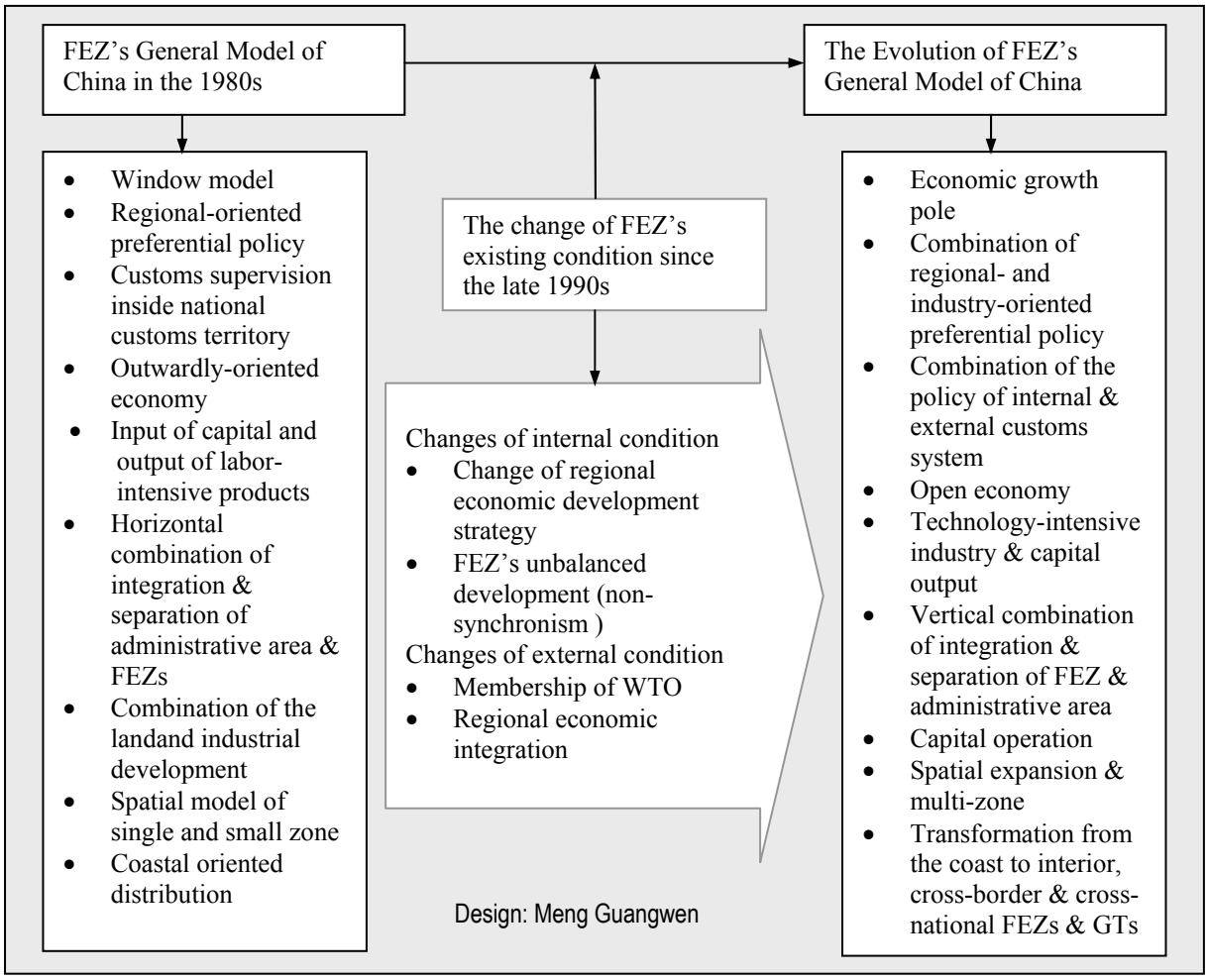
national economic and political GTs should be China-Mongolia and China-Central Asian, FTA of China-ASEAN, China-Korea-Japan (see Fig. 35).

Fig. 35: The Intra-National and Cross-Border Growth Triangles of China since the 1990s



In general, several indicators such as the role, policy, industrial sectors, administration, development model, spatial structure, and location, show that the development of Chinese FEZs has been successful for more than the past 20 years. Their existing condition, however, has been changed since the middle 1990s. Chinese FEZs have to face the new challenges and problems. The evolution of Chinese FEZs in the 21st century will be discussed in this section (see Fig. 36).

Fig. 36: Chinese FEZ's Development in Review and Prospect



Part C

Free Economic Zones in Tianjin: Empirical Evidences

Tianjin, situated approximately 110 kilometers southeast of Beijing on the coast, was established due to its military significance and served as the entry port for the grain transport to Beijing in its history. This favorable location close to Beijing especially prompted Tianjin's urban and economic development in the late 19th century. In the middle of the 20th century Tianjin became China's 2nd most important economic center after Shanghai and the "trade gateway to northern China". The complementary pattern between economic Tianjin and the political Beijing, however, was broken after 1949 with the policy of transforming Beijing from a "consumer city" to a "comprehensive industrial city" after 1958. From then on, Tianjin was under the shadow of a Beijing-centered policy. That is why its economic position declined.[329]

The situation had been slowly improved since the open policy in 1978, while the economic development of other coastal provinces and cities was more successful. Due to the close location to Beijing, "the city had to adopt a political regime that was acceptable to the central government and flexible enough to deal with its close proximity by avoiding any form of political turmoil."[330] Li Ruihuan, as the mayor from 1983 to 1989, carried out a successful, but conservative policy. He paid more attention on the urban infrastructure and the improvement of the living conditions in order to rebuild Tianjin, which had been almost destroyed by a strong earthquake in 1976. A further aim of Li Ruihuan was to realize social and political stability.

Besides the establishment of TEDA in 1984, Tianjin made only limited progress in the 1980s so that Deng Xiaoping criticized in 1986 that Tianjin did not fully utilize the position as an opened coastal city to make new probes, especially promoting economic development by using foreign capital.[331] In particular, when other provinces experienced phenomenal growth in their collective and private sectors of the economy, Tianjin not only tried to maintain a large number of loss-making state-owned enterprises, but even drained them of funds for its urban infrastructure development. Most technology and equipment of these state-owned enterprises remains at the level of the 1950s because they had not enough capital to renew and improve them. The industrial investment in Tianjin from 1950 to 1980 was only 58% of that for Beijing, and it was also below the national average.[332] Moreover, most of the enterprises were small and mid-size ones and there were no close linkages between them. So, the traditional pillar sectors (chemical, textile, iron and steel) reduced their position in national economy.

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[329] Qi, L., Ash, R. F. (1998): "Economic Development". In: Hook, Brian (ed.): <<Beijing and Tianjin. Towards a Millennial Megalopolis>>. Hong Kong. (Regional Development in China), pp. 134-168

[330] Hendrischke, H. (1999): "Tianjin - Quiet Achiever?" In: Hendrischke.H.; Chongyi. F. (eds): <<The Political Economy of China's Provinces. Comparative and Competitive Advantage>>. London; New York. p. 201

[331] Tianjin Daily, 21/08/1994 (*Tianjin Ribao)*

[332] Edmonds, R. L. (1998): "Geography and Natural Resources". In: Hook, Brian (ed.): <<Beijing and Tianjin. Towards a Millennial Megalopolis>>. Hong Kong. (Regional Development in China), P. 91

The conservative economic, social, environmental, and regional policy of Li Ruihuan was carried on by his successor in keeping a stable political and socialist system after 1989,[333] namely lower income and social disparity, higher social stability and good infrastructure. This so-called socialist system means that private and collective sectors play a narrow role in Tianjin's economy in contrast to state-owned enterprises. That is one of the reasons why Tianjin economic development and open policy has been challenged by some coastal provinces (Guangdong, Beijing, Shanghai, Jiangsu, Zhejiang and Shandong) since 1992.

The political conservatism and the social stability have also positive significance for attracting foreign investment in Tianjin, especially in TEDA. Following large amounts of foreign investment, especially the investment of several large transnational corporations (Motorola and Daihatsu), four new pillar sectors, including the automobile industry, electronics, the chemical industry and metallurgy, have gradually been established. Since 1993, TEDA has been the top performer among total 32 China's ETDZs in terms of nine key indicators, including GVIO and profit taxes. In addition, the external environment began to favor Tianjin, which was noted for its stable social order, low costs, good infrastructure, and favorable human resources.[334]. In fact, the urban function of Beijing is being gradually transformed from a comprehensive industrial city to a center of politics, administration, trade, service and culture. Tianjin has a good chance to become again a trade and industrial center in northern China. A harmonic regional cooperation between Beijing and Tianjin will be expected.

The most case studies focused on the SEZs in southern China in the 1980s and FEZs of Shanghai in the 1990s, which are regarded as the "engine" of economic development and structure reform of China. Yet, though few studies were done to discuss the locations of FEZs in Tianjin and other coastal cities of northern China,[335] they were gradually completed with some comprehensive studies.[336] Since the late 1990s, this situation has changed. Tianjin has been brought gradually to researchers' closer attention due to its position as the 3rd largest state city (9.5m inhabitants) of China after Shanghai and Beijing, especially, due to the successes of TEDA, which has gradually recovered and enhanced Tianjin's position in the national economy and open policy since the 1990s.

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[333] Li Ruihan was promoted to the Politburo Standing Committee that makes all major national decisions in October 1989 as a result of his judicious handling of the protest movement in Tianjin earlier that year. He is also the chairman of the Chinese Political Consultative Conference, which is only a less influential position

[334] Cheung, P. T. Y. (1999): "Guangzhou and Tianjin: the Struggle for Development in two Chinese Cities". In: CHUNG, J. H. (ED.): <<Cities in China. Recipes for Economic Development in the Reform Era>>. London; New York (Routledge Studies on China in Transition), pp. 18-53

[335] Ostasiatischen Verein e.V. (OAV) (1995): "TEDA. Deutscher Industriepark auf dem Gelände der TEDA bei Tianjin", Deutschen Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH

Staeudner, R. (1995): „Das Joint Venture eines Hochspezialisieren Mittelständischen Unternahmens: Tianjin VEGA", In: Gruenebaum, Bertold (Hrsg): <<Marktchance China: Vom ersten Kontakt zum Joint Venture>>; Frankfurt am Main, New York, pp. 132-142

Chang, S.-D., Xu, W.-H., Sun.J.-J. (1992), "Tianjin: North China's Reviving Metropolis", In: Yeung, Y.-M.; Hu, X.-W. (eds): << China's Coastal Cities – Catalysts for Modernisation in two Chinese Cities>>, Honolulu.

[336] Hook, B. (1998): <<Beijing and Tianjin. Towards a Millennial Megalopolis>>. Hong Kong. (=Regional Development in China)

Duckett, J. (1998a): "Government and Politics". In: HOOK, B. (ED.): <<Beijing and Tianjin. Towards a Millennial Megalopolis. Hong Kong>>. (= Regional Development in China), pp. 31-55

Duckett, J. (1998b): <<The Entrepreneurial State in China: Real Estate and Commerce Departments in Reform Era>>, Tianjin. London; New York. (= Routledge Studies on China in Transition)

Hendrischke, H. (1999): "Tianjin - Quiet Achiever?" In: Hendrischke.H.; Chongyi. F. (eds): <<The Political Economy of China's Provinces. Comparative and Competitive Advantage>>. London; New York. pp. 183-206

TEDA is regarded as a typical example for this case study because of its successful development and its dominant role in promoting the local and national economic development. In order to highlight its background, Part C reviews the general development of Tianjin's economy, urban geography, and dominant policy in chapter 7. In chapter 8, the specific development of TEDA is described by analyzing its major economic indicators. Thereafter, chapter 9 evaluates and discusses TEDA's achievements and problems as well as the conceptions for resolving these problems. As an overview, chapter 10 summarizes TEDA's development in three stages, and prospects its development in the future. Finally, TEDA's significance for the evolution of world FEZs is discussed in chapter 11.

7. The Economic and Urban Development of Tianjin and the Setup of TEDA

Based on its favorable location, Tianjin became a dominant economic center in northern China for over one hundred years. This position, however, was gradually lost during the regional balanced policy from 1949 to 1978 and the conservative policy until the 1990s. This issue was analyzed by Ma Mei in her study (1997). Since the middle 1990s, Tianjin has gradually recovered its dominant position in northern China. TEDA played a dominant role in this transformation. This chapter discusses Tianjin's economic and urban development and explains why several FEZs were established in Tianjin. It focuses especially on the Tianjin Economic and Development Area (TEDA), which is a prominent example for the country's recent economic transformation to a dual system of both planned and market economy and for Tianjin economic development since 1978.

7.1. Evolution of Tianjin's Economic and Urban Structure

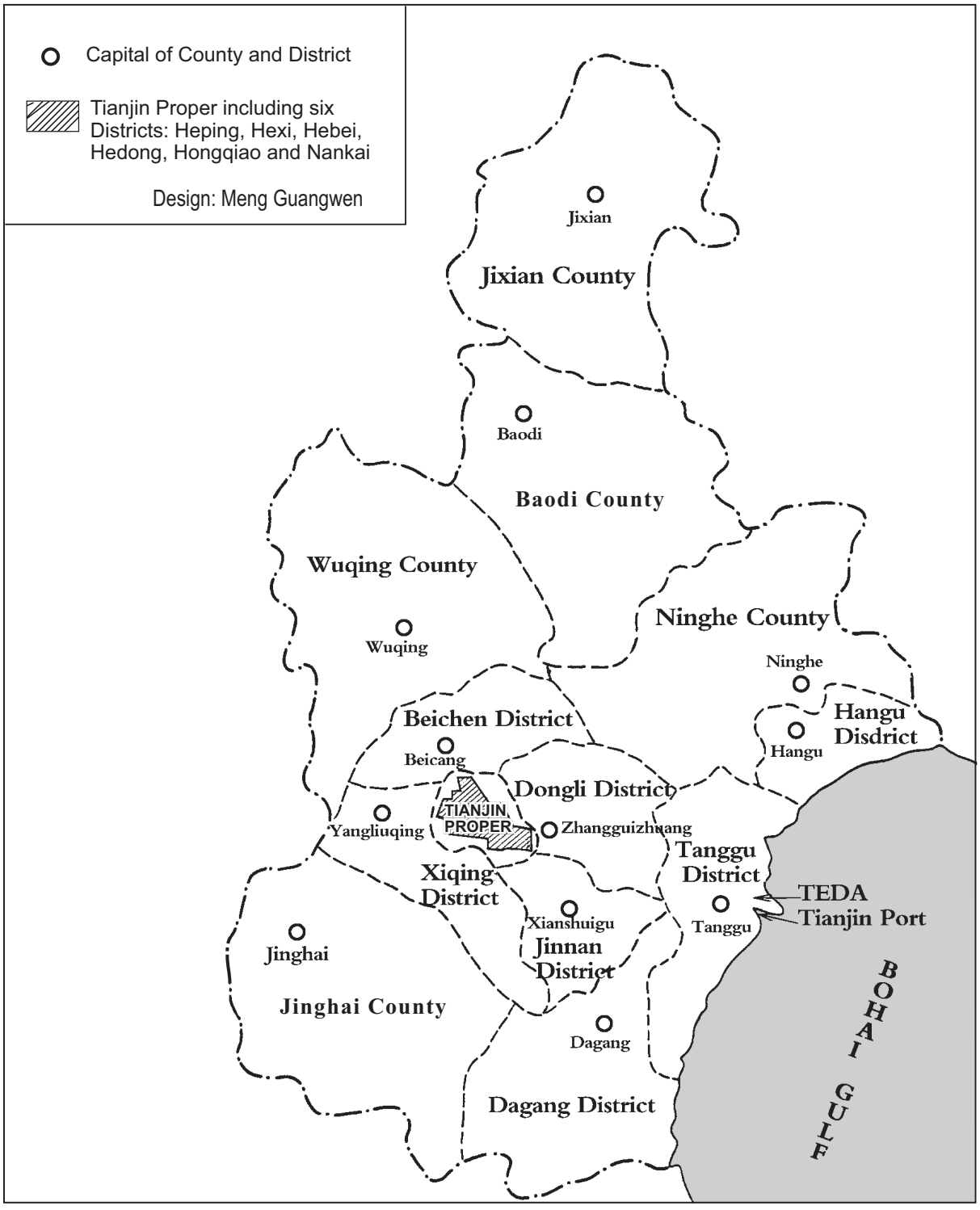
Administrative Divisions
Tianjin is bordered by the provinces of Beijing and Hebei. To the east is the Bohai Bay. The municipality stretches 189 km from north to south and 117 km from east to west. As one of four municipalities governed directly by the central government (besides Beijing, Shanghai, and Chongqing), Tianjin is the third largest metropolis in China. It occupies a land area of 113,000 km² and has a permanent population of 9.53m people (800 persons/ km²), of which 3.69m live in the central metropolitan areas.

There are 13 districts and five counties in Tianjin. The urban center of Tianjin consists of six districts: Hedong, Hebei, Hexi, Heping, Nankai and Hongqiao. The four districts around them are Donli, Beichen, Xiqing, and Jinnan. The districts of Tanggu, Hangu and Dagang are located in the coastal regions. The rest of the province is covered by five counties, including Jinghai, Wuqing, Ninghe, Baodi and Jixian counties (Fig. 37).

Situated on a low plain adjacent to Bohai Bay, Tianjin serves as a hub of communication. It has an international port and airport. There are two railway lines: Beijing–Harebin from west to east and Beijing–Shanghai from north to south. Beijing–Tianjin–Tanggu highway connects Beijin, Tianjin proper and Tianjin port.

A National Trade Center until the Middle of the 19th Century (until 1859)
Until a few thousand years ago, most of Tianjin was underwater. People have lived in Tianjin at least since the "Warring States Period" (415–221 BC), when most of Tianjin became regression land. Tianjin depended on fishery and the salt industry, but it was not until the completion of the "Grand Canal" during the "Reign of the Sui Dynasty Emperor Yangdi" (reign dates AD 605–618) that Tianjin attained any economic significance. During the Yuan dynasty (AD 1280–1368), the development of both the sea and the Grand Canal for shipping grain from the south further enhanced the importance of Tianjin, where a number of warehouses for storage of grain were established. The village named "Zhiguzhai Village" was the earliest official name given to the territory of Tianjin. It was replaced by the name "Haijinzhen Town" in 1316.

Fig. 37: Administrative Division of Tianjin Municipality



Tianjin's significance in China began to increase when "Emperor Yongle of the Ming Dynasty" (1368–1644) moved the capital from Nangjing to Beijing. He then changed the name of "Haijinzhen Town" to "Tianjin", which literally translated means "the spot where the sun of heaven once forded the river". Tianjin became a walled city in 1404 – a strong military base for protecting the capital city. Table 20 summarized the development of Tianjin's area and the population since 1404.

Tab. 18: The Population and Urban Area of Tianjin Proper since the Min Dynasty (1404)

Time	1404	1840	1846	1910	1948	1978	1990	1999
Population (1000)	17	200	-	601.4	1860	7240	8000	9590
Area (km²)	1.5	-	5.4	16.2 (1911)	53	160.9 (1977)	231	350

Meng Guangwen

Apart from its importance as a strategic gateway from the sea to Beijing, a major factor for the rise of Tianijn was the vast quantity of rice from the southern part of the country, which was transported through the Grand Canal. The city, only 120 km from Beijing, developed into a commercial and trade center as a result of its favorable geographic position until the middle period of the Ming Dynasty. In the 18th century, Tianjin emerged as the extraction and distribution center for salt. By 1840, Tianjin had become a bustling city with a population of approximately 200,000.[337] Due to the closed-door policy during the period of the Ming and Qing Dynasty (1644–1911), Tianjin was only a national commercial and trade center with agricultural goods, handcraft, the salt industry and other service industries such as transformation, warehouse, finance, and pawn.

An Open Trade City during the mid-19th and early 20th Century (1860–1914)

The "Treaty of Tianjin", which ended the Anglo-French War (1856–1858) against China, authorized the establishment of British and French concessions in Tianjin in 1858. Two Years later, as a result of the "Treaty of Beijing", which ended the 2nd Opium War (1857–1860), Tianjin was designated as an open port for foreign trade. The national and international trade developed very quickly. The total export and import in 1914 had increased by 22.56 times compared to 1861, but there were more imports than exports.[338] The rapid development of trade promoted the development of Tianjin's modern commerce and finance, the number of banks for example increased from eight Chinese banks in 1911 to 20 Chinese and foreign banks in 1913,[339] and the number of foreign companies engaged in export and import rose from seven in 1866 to 232 in 1906. At the same time, a Chinese-foreign stock company opened in Tianjin.

The inflow of a lot of national and foreign capital made Tianjin one of the birthplaces of modern Chinese industry. Food, tobacco, iron industries and machine building were established and replaced the original handicraft industry. Tianjin kept its role as a commercial and trade city, while the agricultural sector became less important.

The economic development as well as the establishment of concession areas strongly influenced Tianjin's urban structure. In about 50 years, Tianjin proper grew from 5.4 km² in 1846 to 6.1 km² in 1860 and 16.20 km² in 1911.[340] For two reasons, the city mainly expanded along the Haihe River. First, the "Eight-Power Allied Forces" tore down Tianjin's old city

[337] He Huanzhen (executive editor): <<Tianjin Tourism>>, Tianjin Tourism Bureau, Tianjin, pp. 6-7

[338] Ma Mei (1997), <<The Study on the Urban Development of Tianjin: Industry, Spatial Structure and Population >>, (Tianjin Chenshi Fazhan Yanjiu: Chanye, Diyu, Renkou), Tianjin People's Republishing House, Tianjin, p.12

[339] Luo Shuwei (1993), <<Tianjin Modern History>>, (Tianjin Jindaishi), Publishing House of Chinese Academy of Social Science, Beijing, pp. 195-196

[340] Editorial Board (1994), <<A Survey of Tianjin's City Planning>>, (Tianjin Chengshi Guihuazhi), Publishing House of Tianjin Science and Technology, p. 370

Wang Suokung, Lu Wei, Wang Baoming (Chief Editor) (1993), <<Land – Market – Operation>>, (Tudi. Shichang. Jingying), Publishing House of Tianjin Science and Technology, p. 35

wall in 1900, and Tianjin opened up Hebei New District in 1903 and established a new political center. Second, the foreign concession areas were distributed along the two sides of the Haihe River from the northwest to the southeast, and gradually developed service trade. In 1860, British, French and American concession areas were established. Between 1895 and 1902, Germany, Japan, Czarist Russia, Austria–Hungary, Italy, and Belgium also established their concessions in Tianjin. In 1902, the American concession area was incorporated into the British one. Until the end of 1912, there were eight concession areas in Tianjin, which covered about 15 km² (see Fig. 38). In 1910, there were about 601,000 persons who lived in Tianjin proper and about 285,100 persons who lived in the adjoining countryside.[341]

A Growing Industrial and Commercial City in Pre-Mao Times (1915–1948)

In 1948, the industrial production in Tianjin included the textile, food, and chemical industries (established before 1920) as well as the machinery and the metallurgical industries (started in the 1940s). Textiles and light industry had a leading position. For example, they made up 81.47% of total GIOV until 1947.[342] At the same time, Tianjin strengthened its role as an important financial and commercial center in Northern China. By 1948 Tianjin had become the 2nd economic center in China after Shanghai. Total import and export continued to grow, and the export of industrial finished products began to increase as well. Total foreign trade volume in the early 1930s accounted for more than 20% of the nation's total trade volume. Tianjin's export volume in cotton amounted to 47% of the nation's total and leather and woolen goods amounted to 60%.[343] Besides having 150 foreign and Chinese banks by 1949,[344] insurance and trust companies and the stock exchange all arose in Tianjin.

Parallel to the economic evolution, the city of Tianjin experienced its second expansion. In 1948, Tianjin proper stretched across an area of 53 km², more than three times the territory of 1911[345] (see Fig. 38). Following the establishment of shipbuilding, marine, and chemical industries, the coastal railway and the Tanggu New Port in the late 1930s, Tianjin changed its status from a river port to a seaport, and furthermore, the port and the city were first separated. Tianjin's industry and economy began to move away from the urban core to the coastal region for the first time. The change from river port to seaport led to the city proper's expansion to the lower reaches of the Haihe River and the southwestern parts of the city. Tianjin's commercial and financial center as well as its population shifted to the southern concession areas, today's Heping District. In 1948, Tianjin had a population of 1.86m, three times as much as in 1910. British, French, Austrian and Italian concession areas became the high end residential neighborhoods with Western style architecture. Generally, the large enterprises of Tianjin's industries were located in the regions along the Haihe River and railway based on the lower transportation cost.[346]

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[341] Li Jingneng (1990), <<History of Tianjin's Population>>, (Tianjin Renkoushi>>, Publishing House of Tianjin Nankai University, p. 287

[342] Futao, Zhou Zuchang (1985), <<Tianjin's Industry during 35 Years>>, (Tianjin Gongyi Sanshiwunian), Editorial Department of Tianjin Social Science, Tianjin, p. 19

[343] Tianjin, <<Tianjin Economic Yearbook (1986)>>, Tianjin People's Publication, p. 6

[344] Shen Danian (1988), <<Tianjin's Financial Brief History >>, (Tianjin Jinrong Jianshi), Publishing House of Tianjin Nankei University, Tianjin, pp. 9, 39, 107

[345] Editorial Board (1994), <<A Survey of Tianjin's City Planning>>, (Tianjin Chengshi Guihuazhi), Publishing House of Tianjin Science and Technology, p. 42. But, Tianjin proper was 61 km² by Wang Zuokung, Lu Wei, Wang Baoming (Chief Editor) (1993), <<Land. Market. Operation>>, (Tudi. Shichang. Jingying), Publishing House of Tianjin Science and Technology, p. 35

[346] Ma Mei (1997), <<The Study on the Urban Development of Tianjin: Industry, Spatial Structure and Population>>, (Tianjin Chenshi Fazhan Yanjiu: Chanye, Diyu, Renkou), Tianjin People's Republishing House, Tianjin, p. 12

Fig. 38: Urban Evolution of Tianjin Proper since the Ming-Dynasty (1404)

Source: developed with numerous references from Wang Zuokung etc. (1993), <<Land – Market – Operation>>, Tianjin Science Technological Publishing House, p. 38

A City with a Diversified Industrial Structure during Mao Times (1949–1978)

After the "Communist Revolution" in 1949, the industrial development showed mainly four features: a) the industrial structure became more diversified; b) the five pillar industries (mechanical engineering, iron and steel, chemical, textile, and food industry) strengthened their position; c) other areas of industry were established (94% of the country's 163 industrial sectors); d) the secondary industry became the most important in the national economy, while the development of the tertiary industry came to a standstill and shrank.[347] All in all, Tianjin's economic status decreased in comparison to other Chinese provinces.

Tab. 19: Proportion (in %) of Pillar Industries in Tianjin's GDP (1947–1978)

Term Time	Machinery	Chemistry	Textile	Iron & Steel	Food	Secondary Industry	Tertiary Industry
1947		2.28	67.74	0.39	14.01	36.36	40.54
1978	28.45	16.35	14.89	11.05	-	69.61	24.31

Note: 36.36 % is GDP's proportion of secondary industry in 1949

During this period, Tianjin experienced another expansion in territory and population. In 1977, Tianjin covered an area of 160.89 km²,[348] an increase of 300% in comparison to 1948. The city expanded radically from the center to the urban periphery. Seven new residential zones and ten other new industrial and residential zones outside the center were established (see Fig. 38: Tianjin proper from 1949 to the 1990s). From 1963 to 1966, four satellite towns such as Junliangcheng, Yangliuqing, Xianshuigu and Dananhe were set up in order to stop urban sprawl. In the 1970s, the Dagang petrochemical base located on Dagang-oilfield was established. At the same time, the marine chemical bases of Tanggu and Hangu were continually developed (see Fig. 39).

The city and the port were now definitely separated because the Haihe River was silted up. By the 1970s, Haihe waterway had been dismissed as useless. Tianjin New Port became the main part of Tianjin port. Tianjin's urban spatial expansion along the Haihe River or radically from the city center to the urban periphery was replaced by a rapid expansion, namely the creation of satellite towns and the development of Tanggu, Dagang and Hangu Districts. In 1978, Tianjin had a population of about 7.24m, an increase of 150% to that of 1949. Of this number, 2.71m (1976) lived in the city center.

An Open Metropolis since China's Open Policy in 1978

China's open policy since 1978 and Tianjin's status as an open harbor city since 1982 have promoted the development and transformation of Tianjin's economy and urban structure. The secondary industry has continued to play a leading role, but the tertiary industry has had even stronger growth rates. The proportions of the secondary and tertiary industry changed from 69.61% and 24.31% in 1978 to 49.10% and 46.00% in 1999. Finance, commerce and stock exchange have developed. In addition, heavy industry has grown more important than light industry. The proportion of light industry to heavy industry changed from 1.07 in 1979, 1.47 in 1981 and 0.68 in 1994 to 0.54 in 1999.[349] Moreover, Tianjin has been able to gain a

[347] Ma Mei (1997), <<The Study on the Urban Development of Tianjin: Industry, Spatial Structure and Population >>, (Tianjin Chenshi Fazhan Yanjiu: Chanye, Diyu, Renkou), Tianjin People's Republishing House, Tianjin, p. 38

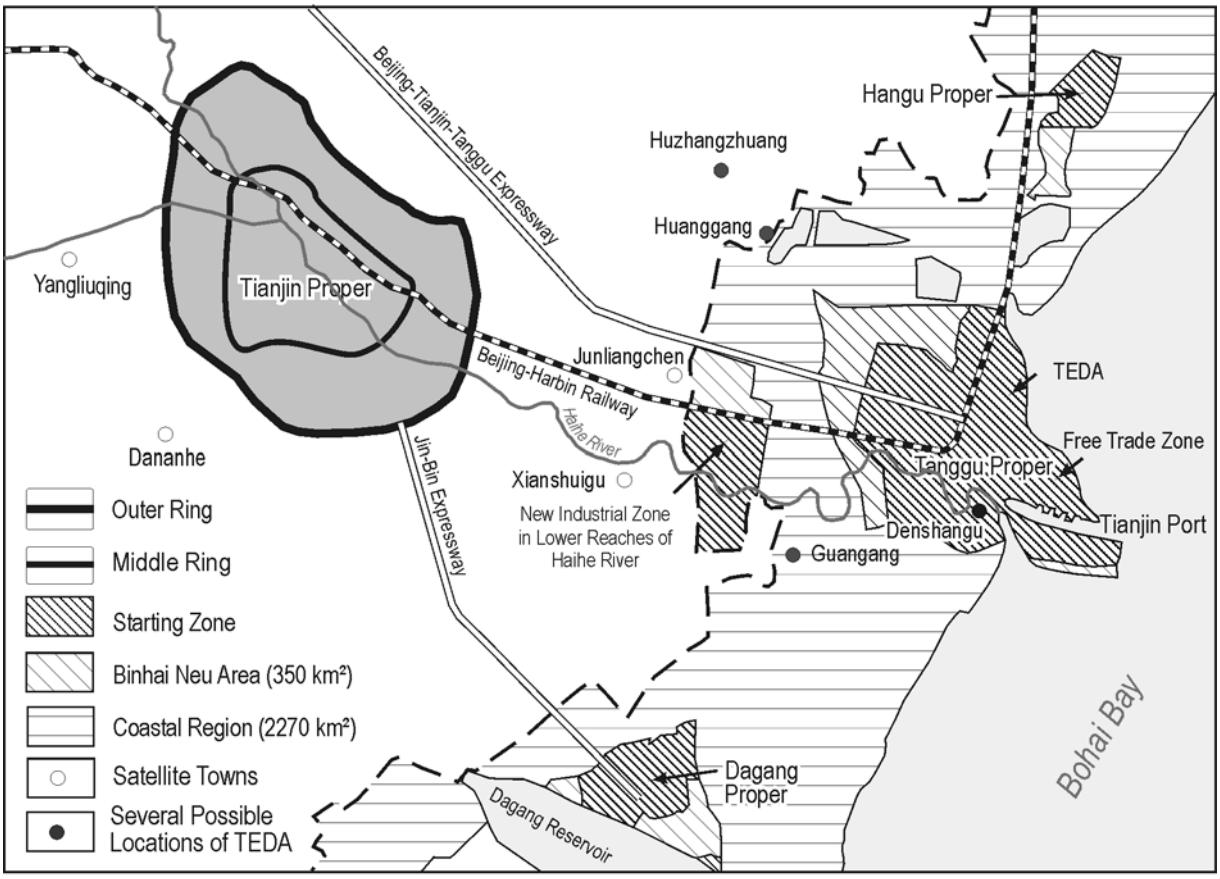
[348] Editorial Board (1994), <<A Survey of Tianjin's City Planning>>, (Tianjin Chengshi Guihuazhi), Publishing House of Tianjin Science and Technology, p. 42

[349] Tianjin Statistic Bureau (2000), " Annual Report on the National Economic and Social Development of 1999", (Tianjinshi Guominjingjie He Shehuifazhan Tongjiegongbao of 1999), 22-01-2000, Tianjin, http://www.stats-tj.gov.cn

growing share of Chinese foreign trade. The city's importance as a center of the national economy has increased.

Tianjin's two-pole structure, namely Tianjin city and the coastal town system, has been strengthened. The major pole takes Tianjin central proper as its center and main body, including satellites and county towns. The sub-pole regards Tanggu, TEDA and Tianjin FTZ as its center, including Hanggu and Dagang District (see Fig. 39).

Fig. 39: Tianjin Urban Structure and the Overall Planning of Tianjin Binhai New Area



Source: developed from: 1) Wang Zuokung, etc (1993), <<Land – Market – Operation>>, (Tudi-Shichang-Jingying>>, Publishing House of Tianjin Science and Technology, p. 219; 2) Kung Xiangri: (1995), "Study on the Opening Strategy and Development of Tianjin Coastal Region, Tianjin People's Republic Housing. Design: Meng Guangwen

The economic development promoted the urban development of Tianjin as well. By 1990, the whole of the Tianjin proper area had doubled to 326 km², an increase of 103% from 1977 (see Fig. 38, p. 129). The central city proper has reached a size of 231 km², the city proper in the coastal region covers 95.5 km² (63 km² in Tanggu, 12 km² in Hanggu and 20.5 km² in Dagang District).[350] Since 1991, the proper area in the central city has expanded slowly, while the proper area in the coastal region has grown quickly. The establishment of TEDA and the New Industrial Zone in Lower Reaches of the Haihe River (NIZHR) for example contributed to the growth of the proper area and residences in the urban periphery and the coastal region.

[350] Wang Zuokung, Lu Wei, Wang Baoming (Chief Editor) (1993), <<Land. Market. Operation>>, (Tudi. Shichang. Jingying), Publishing House of Tianjin Science and Technology, pp. 36-39

The spatial structure of Tianjin central proper is characterized by three concentric circles. Since the 1980s, the residential and industrial areas have quickly moved from central locations to the urban periphery, but, in return, Tianjin city center has remained a commercial and catering center (see Table 19). Tianjin New Port is a modern and the biggest international port in northern China with more than 140 berths. Forty eight of them are over 10,000 ton berths and four are container berths. The new port promoted Tanggu's economic success and urban expansion. Tanggu's proper area reached about 70 km² in the 1990s and had a population of more than 400,000. In addition, the port also helped to prompt the industrial transformation from central proper to the coastal area. TEDA, FTZ, Marine NHIP, Tanggu Development Zone and NIZHR were established around the port and along the transportation facilities.

Tab. 20: Land Use Structure of Tianjin (1986)

Land use Three zones	Total Area (hectare)	Resident Area (%)	Industrial Area (%)	Commerce & Catering (%)
Central zone	1346.47	47.85	10.20	4.85
Middle zone	5896.20	34.10	16.54	2.35
Outside zone	10324.17	18.05	24.22	1.34

Source: sorted out from Ma Mei (1997), <<The Study on the Urban Development of Tianjin: Industry, Spatial Structure and Population >>, (Tianjin Chenshi Fazhan Yanjiu: Chanye, Diyu, Renkou), Tianjin People's Republishing House, Tianjin, p. 57

7.2. Tianjin's Regional Economic Development Strategy

Tianjin's Regional Development Strategy and its Problems since the 1950s

As shown, Tianjin was transformed from a military castle in the early 15th century into the 2nd largest industrial and commercial city of China in the middle of 20th century, but then its relative economic status declined due to the national policy of balanced development. Beijing was transformed from a consumer city into an industrial city and it superceded Tianjin as the 2nd largest municipality by the end of the 1970s. For the past 20 years, however, Tianjin has shown considerable growth, but competition with other cities remained fierce.

Secondary Industry- and Center-Oriented Development from the 1950s to the 1980s

Between the 1950s and 1980s, Tianjin's urban economy was characterized by heavy state investment in "productive" sectors (manufacturing) with little input in "unproductive" sectors (urban infrastructure). Moreover, Tianjin paid more attention to develop the city center, secondary industry, and agriculture, while the coastal region and tertiary industry were more or less ignored. Tianjin stood in the shadow of Beijing in competition for investment in urban infrastructure construction and economic development, reflecting the inclination toward the capital. From 1950 to 1980, the central government invested a total of 30b Yuan in the construction of infrastructure in Beijin-Tianjin-Tangshan region. Of this amount, 52.2% was allocated to Beijing and only 30.5% to Tianjin.[351] This strategy led to numerous urban and economic problems.

Due to the secondary industry-oriented policy, Tianjin lost its position as the largest commercial and financial center in northern China. Hence, the proportion of Tianjin's products in local, domestic and international markets strongly decreased, especially in the

[351] Yue-man Yeung and Xu-wei Hu (Editors) (1992), <<China's Coastal Cities>>, University of Hawii Press, Honolulu, p. 44

1970s and 1980s. Tianjin' s economic development stayed behind that of some other coastal provinces, such as Guangdong, Fujian, Shangdong, Zhejiang and Jiangsu.

In the 1980s, Tianjin's industry was still mostly concentrated in the city's crowded central districts (65.75% of all industrial production). This caused several problems, including limited development space, heavy traffic, and heavy environmental pollution. These problems limited Tianjin's prosperity.

Coast-Oriented Development since the late 1980s
To solve the problems mentioned above and realize sustained development, the coast-oriented development strategy was drawn up in the 1980s. The city center is not only the political and cultural center of the whole city, but also the focus of new and high-tech industry, commerce and service trade. The coastal region headed by Tanggu area was designed to develop outwardly-oriented economy, communication and high-tech industry (electronic and pharmaceutical industry) and traditional heavy industry (energy and chemical industry). Its land resources and transport facilities were favorable to relocate the industries which caused heavy pollution and were to be moved out of the central proper, and some new industries, which were to be funded by foreign investors and Tianjin itself. The development axis along the Haihe River and the traffic line between Tianjin proper and Tanggu area were taken as the key zone for these plans.

Because of the enormous size, different economic structure, and the separated administrative responsibilities among the various parts of the coastal area, it will be developed step by step (Fig. 39):[352] a) the Starting Zone makes up about 50 km², including Tianjin port, TEDA, TFTZ and parts of Tanggu proper; b) the Core Zone makes up about 188 km², including Tianjin port, TEDA, TFTZ, Tanggu development Zone, Tanggu marine NHIP, the urban proper of Tanggu, Hanggu, Dagang and NIZHR, and mainly consists of the two sub-development axes of Tanggu-Hangu and Tanggu-Dagang; c) the Planning Area makes up 350 km² including the kernel zone and the area surrounding it; d) the Coastal Region encompasses about 2203 km² including the BNA, the remaining areas of Tanggu, Hangu, Dagang district and small parts of Dongli and Jinnan district.

Development Corridors of Beijing – Tianjin and Tianjin – Coastal Region
The actual development strategy of Tianjin is based on theoretical considerations about development corridors or axis. According to the study of Smith and Johnson[353], the economic perspectives of a region are better if this area constitutes a corridor between two important cities. Usually they are linked by highways, railways and waterways, and so the area between them enjoys the privilege of an easy access to traffic infrastructure.

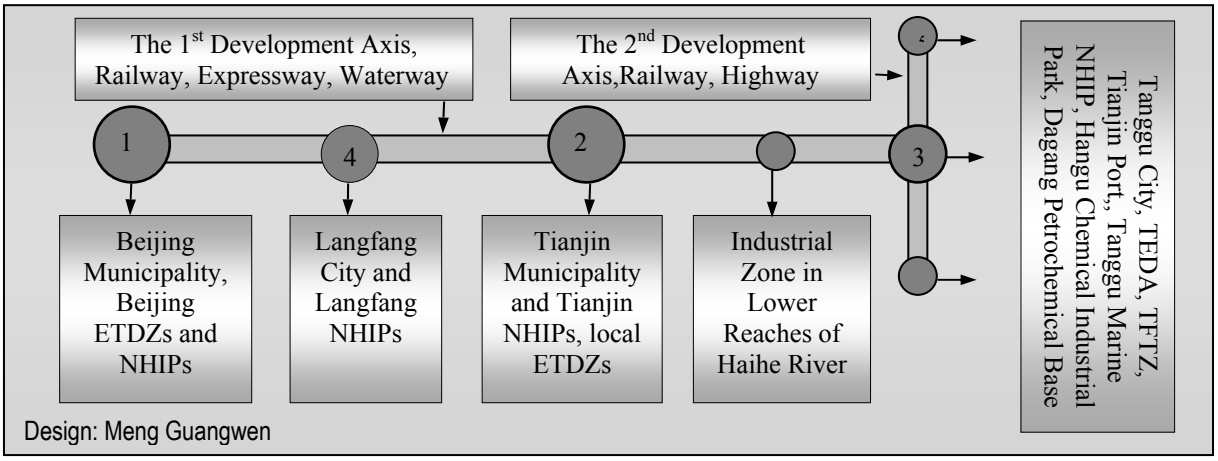
There are development axes between Tianjin and Beijing and inside Tianjin. The first development axis is the zone along the traffic lines between Beijing and Tianjin (110 km apart). The corridor between Tianjin and Tanggu (50 km apart) can be seen as an extension of this corridor. The traffic lines consist of highway, railway, and waterway connecting numerous mid- and small-size cities and towns. The second development axis in Tianjin coastal region is the zones along the traffic lines between Tanggu and Hangu and between

[352] Kong Xiangri, Hu Jianxin (1995), <<Study on the Opening Strategy and Development of Tianjin Coastal Region>>, (Tianjin Binhaidiqu Kaifakaifang Zhanlue Yanjiu), Tianjin People's Republic Housing, Tianjin
Kong Xiangri, Hu Jianxin (1995), "Study on the Opening and Development of Tianjin Coastal Region", (Tianjin Binhaidiqu Kaifakaifang Yanjiu), In: <<City>>, No. 4, Tianjin, pp. 33-37
[353] Smith, P. J and Johnson, D.B. (1978), "The Edmonton – Calgary Corridor", Canada, The University of Alberta, pp. 42-47

Tanggu and Dagang. Tianjin proper is still the center of the whole municipality, while Tanggu, TEDA, Tianjin port, TFTZ and NIZHR are the heart of the coastal region (see Fig. 39 and Fig. 40).

The necessity and possibility of these two development axes have been discussed by the researchers since the 1980s.[354] The axis between Beijing and Tianjin is a key development axis with great potential for economic cooperation in northern China and Bohai Bay Rim because it links two national economic centers. In particular, Beijing is both a political and cultural center. In history, both cities established close political and economic links. But, due to similar urban functions and to the policy of balanced development since the 1970s, the economic competition between two cities surmounts their cooperation. Even today, Tianjin still stands more or less in the shadow of Beijing. Langfang city has a closer relationship to Beijing than Tianjin. Only since the late 1990s, the economic cooperation has been gradually promoted. Especially the axis between Tianjin proper and Tanggu area has become a corridor that is able to promote Tianjin's development. The axes between Tanngu and Hangu and between Tanggu and Dagang are still rather weak because Hangu and Dagang are only industrially structured. The tertiary sector is still underdeveloped so that these two cities could develop only narrow economic links with Tanggu area. But these two axes will play a more important role in Tianjin Coastal Region following the development of Tanggu area.

Fig. 40: The First Development Axis of Beijing–Tianjin–Tanggu and the Second Development Axes of Tanggu–Hangu and Tanggu–Dagang



Source: Meng Guangwen (1987), "Periphery Theory and China's Regional Development Strategy", Manuscript, Tianjin Normal University; Ma Mei (1997), <<The Study on the Urban Development of Tianjin: Industry, Spatial Structure and Population >>, (Tianjin Chengshi Fazhan Yanjiu: Chanye, Diyu, Renkou), Tianjin People's Republishing House, Tianjin, p.157

Note: the size and numbers of circles shows the urban scale and the economic strength of the cities between the first and second development corridors / axes

[354] Meng Guangwen (1987), "Periphery Theory and China's Regional Development Strategy", Manuscript, Tianjin Normal University

7.3. The Establishment of Free Economic Zones in Tianjin

Several types of FEZs were established in Tianjin as the tool to carry out open policy and coast-oriented development policy. This section will review the motivation, the process, and the locations of establishing FEZs, especially TEDA and Tianjin Port Free Trade Zone (TFTZ) in order to explain Tianjin and especially TEDA's development.

TEDA in 1984

In April 1984 the government of Tianjin discussed the State Council's decision to establish ETDZs and set up a group of 36 experts and officials. Its tasks were to survey and study the feasibility of establishing an ETDZ, and to draft the overall planning. In May 1984, the group put forward two preliminary plans: "Report on the Further Open Policy based on the Spirit of the Conference of Some Coastal Cities" and "Plan for Tianjin Economic and Technological Development Area". Tianjin Municipal Party Community approved the two plans in general in July 1984, and reported the plan to the State Council in September. In October 1984, the State Council officially approved the plan of TEDA.[355]

Location is one of the major factors to determine TEDA's success or failure. In 1984, the expert group selected five possible locations in Huzhangzhuang (Dongli), Huanggang and Dengshangu (Tanggu), Guangang village (Jinnan) and the area of the third sub-saltwork of Tianjin Salt-works (see Fig. 39, p. 131). Finally, the third sub-saltwork was selected as the location of TEDA according to the following criteria:

- Clearly defined geographical boundaries. The third sub-saltworks is 50 km away from Tianjin proper. The area is useless for agricultural purpose and is clearly defined by Bohai Bay in the east, Beijing-Shanhaiguan railway in the west, Beitang town in the north and Tianjin port and Tanggu proper in the south. It is easy for the government to administer the economic activities involving foreign countries and overseas Chinese in the zone, and to guard the rest of Tianjin against harmful economic and cultural influences from the capitalist countries, which was paid more attention to at that time.
- Usefulness for the implementation of the industrial coast-oriented strategy. Since 1980s the coastal region in Tianjin has been the focus of regional development. The location of TEDA is close to Tanggu proper and Tianjin port, the core of the coastal region so that it can benefit the implementation of the coast-oriented policy.
- Favorable backing conditions. Tanggu is not only an independent satellite city of Tianjin with a population of over 400,000, but also an industrial base with marine chemical, shipbuilding, salt and machinery industry. Tanggu can carry out production and technological cooperation with TEDA and provide infrastructure, public facilities and labor forces to TEDA. Furthermore, TEDA has a large hinterland including Tianjin proper, Beijing, the two provinces of Hebei and Shanxi, and the two autonomous regions of Ningxia and Inner Mongolia, which can also supply TEDA with finance, technology, resources, labor forces and market
- Transport facilities. TEDA is located at about 140 km from Beijing and 50 km from Tianjin proper. To the east lies Tianjin harbor, the biggest international port in Northern China, with China's second largest container terminal which obtained a handling capacity of 100m tons by 2001. Tianjin port established contact with over 300 ports of 160 countries. To the northwest, 38 km away, is Tianjin international Airport, the largest

[355] Wang Qi (1999), "Creating the Hopes, Supporting the Future: Celebrating the 15th Anniversary of the Founding of Tianjin Economic and Technological Area", (Chuangzaoxiwang, Tuojiuweilai: Qingzhu Tianjin Jingjijishu Kaifaqiu Chengli Shiwuzhounian), People's Daily, Overseas Edition, on November 19, 1999, edition: 9,12.

airfreight center in China. To the west runs Jingshan railway (Beijing-Shanhaiguang), part of the country's railway network, which carries cargo to Europe and is linked with one of the rapidly developing Eurasian continental bridges. In addition, the canal diverting water from the "Luan River" into Tanggu passes through TEDA and Beijing-Tianjin-Tangshan high-voltage power grid is only 2 km away, assuring a steady water and power supply.

- Stable geological conditions. TEDA's geological conditions (engineering geological and hydro-geological conditions) are relatively stable, so that they generally can meet the requirements of buildings, although the geological structure in the northwest part of Bohai Bay is complicated.

Generally, the location of TEDA was very favorable, especially at that time, but following TEDA's development, several location problems occurred. For example, the low developed infrastructure and public possibility, very few qualified personnel in Tanggu area limited TEDA's further development and led to several problems, which will be discussed in the following sections.

Tianjin Port Free Trade Zone in 1991

On the basis of the experience of TEDA and expanded open policy, Tianjin tested the feasibility of establishing a FTZ in Tianjin port. In October 1987, Tianjin port and a Dutch company founded a joint-venture: Tianjin Port Customs-bonded Warehouse. After that, an expert group of Tianjin port came to the conclusion that Tianjin FTZ should be established based on Tianjin port customs-bonded warehouse.

In May 1988, the Research and Development Center of the State Council carried out a special investigation and research. The research report indicated that a FTZ or a FP should be established based on Tianjin port and TEDA.[356] In April 1990, the Center of the State Council ran a conference about bonded-warehouse zone. The experts at this conference decided that the establishment of a bonded-warehouse zone based on Tianjin port was feasible. That helped not only to develop Tianjin's outward-oriented economy and optimize the function of Tianjin port, but also to support the open policy and economic development of northern China. In addition, the concept and experience of world FPs and FTZs as well as location were discussed. Hereafter, the plan of Tianjin Port Free Trade Zone was finished (see Fig. 41). Tianjin municipality accepted this plan and reported it to the State Council. The application was approved by the State Council in May 1991.[357] Since 2000, TFTZ has prepared to establish a sub-zone in Tianjin Airport. TFTZ is located in the northern part of Tianjin port, to the border of TEDA in the west and the planned northern port in the east. TFTZ covers an area of 7.1 km² in the first plan, and has expanded to 15 km² in the second plan.

Other FEZs from 1990 to 1992

Tianjin High-tech Industry Development Area (HIDA) was approved by the State Council in 1991. It covered an area of 21.85 km² in the southern part of Tianjin proper that consists of Huayuan Industry, park, high-tech policy park and high-tech industry park. Huayuan Industry Park is the core zone covering an area of 10 km², and is located at the border to Nankai and Xiqing district. The high-tech policy park (high-tech trade zone and incubator) based on

[356] The term of "free port" was late changed to "bonded-warehouse zone" in Chinese in order to avoid any association with "the bourgeois liberalization", which was a sensitive political problem at that time, but it is translated into "Tianjin Port Free Trade Zone" in English, although there are some differences between them

[357] Wang Haiping (1998), <<Study on the Port Development>>, (Gangkou Fazhan Yanju), Tianjin Publishing House of Science and Technology, Tianjin, pp. 95-96

Nankai and Tianjin University is located in the southern part of Nankai district. High-tech Industry Parks along Beijin-Tianjin-Tanggu highway consist of Wuqing development zone, Beichen high-tech park and Tanggu marine NHIP.[358]

Due to the encouragement of "Deng' s South Tour", Tianjin's 13 districts and five counties established 18 local development zones in 1992 in order to promote local economic development and local open policy. Seven zones of them are located in Dongli, Jinnan, Xiqing, Beichen, Dagang, Hanggu and Tanggu district and five zones in Baodi, Jinghai, Wuqing, Ninghe and Jixian county. Xiqing, Wuqing and Hanggu development zones became TEDA's three sub-zones in 1994. Beichen and another Wuqing development zone became the sub-zones of Tianjin HIDA (see Fig. 41).

Fig. 41: Geographical Locations of Economic and Technological Development Area and High-Tech Industrial Parks in Tianjin

[358] http://www.thip.ac.cn

8. Analysis of TEDA's Development

The aims of TEDA are, similar to those of other FEZs, to promote Tianjin's economic and urban development, and open policy. TEDA is, however, an alien capitalist element in the country's planned economy. Therefore, it is likely that the development of FEZs was implemented because the country's economical problems were too severe to be solved only by Communist methods. So TEDA is a part in the Chinese struggle for economic success, which might be necessary for the Chinese regime to survive. Since the 1990s, TEDA realized more rapid development than other Chinese ETDZs. In order to explain how TEDA was developed and how the success was implemented, this section describes and analyses TEDA's development, including its objectives, the investment environment (infrastructure, preferential policy, and governance structure) and the economic development (foreign capital-, industry- and exported-oriented development).

8.1. TEDA's Development Policy and Objectives

Like other Chinese FEZs, TEDA was built up according to the "window model" at its initial stage from 1984 to 1987, i.e. TEDA was declared to be an "open window" in order to attract foreign technological know-how, investment, management experience and improve its own industrial sector and technological level. The minimizing of trade barriers was crucial for that kind of policy.

It was, however, not specified what the "window model" practically meant. Therefore, TEDA advanced the "Model of Three Orientations" in 1988, which consists of "industry-orientation", "foreign capital-orientation", and "export-orientation". "Industry-orientation" means that secondary industry is to be the key industrial sector of the zone, which is different from SEZ's industrial structure including primary, secondary, and tertiary industry. "Foreign capital-orientation" means that foreign capital should be the major development power, which was different from the dominant role of domestic capital in SEZ's development at that time. "Export-orientation" means that the zone is supposed to promote the export, which is also different from SEZs in that the domestic and international markets are paid equal attention. This model was successful and became a common development model of other ETDZs in China.

Due to the changes of external conditions, TEDA's goal-oriented model has been transformed from "three orientations" to "three combinations" and "high-tech orientation", namely the combination of secondary and tertiary industry; the combination of foreign and domestic capital; the combination of international and domestic markets and the promotion of high-tech industry. In other words, by attracting foreign capital and by gaining high-tech and modern management experience, especially the investment of large transnational companies, TEDA will not only bring up numerous national high-tech enterprises and modern tertiary industry, but it also becomes a growth pole in promoting Tianjin's economic development and an example of high-tech industry and modern enterprises systems. TEDA is being transformed from an EPZ to a comprehensive FEZ including EPZ, SIP, sub-zones and living estate. Following secondary industry, tertiary industry and urban construction are greatly promoted. For instance, university or college, schools, soccer clubs, radio/TV stations, newspapers, commercial facilities, residential and public building as well as transport and communication measures inside TEDA and between TEDA, Tanggu area and Tianjin proper are either newly established or further developed. TEDA is becoming a new city proper, and regards

international trade as the guiding factor, modern industry as the basis. Tertiary industry is being promoted.[359]

8.2. Planning and Developing TEDA

Spatial Development of TEDA from 1984 to 1995
The first step towards TEDA was the land development (infrastructure construction). However, TEDA didn't have any direct financial support from the central government (unlike Shenzhen SEZ) and Tianjin municipality at the first stage. So they had to allocate 320m Yuan of low-interest loan from national banks and 30.51m Yuan of other funds raised by various channels for the land development. In 1988, the first 4.2 km² of the starting zone were established, including 3 km² of industrial estate and 1.2 km² of living estate.

From 1985 to 1988 a total of 123 projects were started by foreign, Hong Kong, and Macao investors. The contracted foreign contribution reached 32.84m US$. TEDA realized 32.84m Yuan of financial revenue during this period, and began to repay the part of capital with interest. During this period the total investment in fixed assets increased by 1.9 times, but the annual growth rate was negative.

The success of land development with loans enabled TEDA to carry out circularly land development. TEDA used its annual financial revenue and land fees to pay the credit with low interest rates and to carry out the new land development. In 1989, TEDA was able to develop 1 km² of land every year, but due to the economic blockade of Western countries since 1989, the investment in fixed assets and the infrastructure investment decreased until 1991.

Since 1991, more and more foreign capital has been invested in TEDA. Inspired by "Deng's South Tour", the foreign investment reached a high tide in 1992 due to the large investment of Motorola. TEDA began the stage of industrial development. The foreign investment from 1992 to 1994 was so high that more land had to be opened up. Under these circumstances, TEDA had to change its policy of using only its annual financial revenue and land fees to finance the development of land in favor of lending land to investors who agreed to open it up. That means that TEDA gave investors the rights to develop several stretches of land. They had to pay the land use rights, develop the land with their own funds and invite the investors. By the end of 1993, TEDA officially signed four contracts, including 1.16 km² of Korean Industrial Estate, 3.45 km² of Taifeng Industrial Estate with 19.88m US$ of total investment, 2.7 km² of Haijing Industrial Estate with 400m Yuan of total investment, 1.28 km² of Jintai Living Estate with 200m Yuan of total investment. TEDA obtained 16.00m US$ by transferring the right to develop 1.16 km of Korean industrial estate.[360] According to this new model, TEDA's investment in fixed assets and infrastructure investment during this period realized continual growth (see Table 21).

According to the new investment and re-investment of some large enterprises, TEDA's investment in fixed assets and infrastructure investment have increased continually since 1996. However, the former has shown negative growth since 1999 and the latter since 1998.

[359] For discussion, see: Zhu Xijuang (1999), "Great Promise for the Future in Development Zones – Report from TEDA", (Kaifaqiu Dayou Xiwang – Laizi Tianjin Kaifaqiu De Qishi), In: <<Guangmin Daily>>, Beijing, in May 14, 1999. Edition 8
[360] Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Tianjin People's Republic House, Tianjin p. 53

Tab. 21: Area of TEDA's Land Development, Land Charge and Investment in Fixed Assets and Infrastructure Investment (1985–2000)

Term	Land develop-ment area, km²	Industrial estate km²	Living estate km²	Land charge 10.000 Yuan	Investment in fixed assets		Infrastructure investment	
Time					Million Yuan	Growth %	Million Yuan	Growth %
1985	2	0	0	-	265.80	-	142.16	-
86	2.2	3	1.2	140	318.28	19.74	95.00	-33.17
87	0	0	0	542	534.93	68.07	58.85	-38.05
88	0	0	0	1054	774.45	44.78	54.50	-7.39
89	3.3	2	1.3	1542	1156.31	49.31	40.50	-25.69
90	0	0	0	2378	807.41	-30.17	32.06	-20.84
91	2	2	0	6764	783.89	-2.91	103.34	222.33
92	1	0	1	16449	1600.21	104.14	163.94	58.64
93	2.1	1.1	1	26551	2085.11	30.30	449.84	174.39
94	4.2	4.2	0	19155	3572.91	71.35	904.59	101.09
95	2.2	2.2	0	-	5270.00	47.60	1150.00	27.13
96	1	1	0	-	5854.64	11.1	1194.11	38.61
97	2	1.5	0.5	-	7501.62	28.1	1655.12	38.60
98	2	2	0	-	7535.21	0.40	1530.81	-7.50
99	2	2	0	-	5027.70	-33.28	1038.15	-32.18
2000	2	2	0	-	5046.00	0.28	811.00	-21.87
Total	**28**	**23**	**5**	**-**	**53139.00**	**-**	**9423.00**	**-**

Source: Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984–1994)", Statistical & Planning Bureau of TEDA, p.64 , Annual Report on the Development of TEDA (1987–2000)

Note: " – " means that the data is not counted in the annual statistical reports

Transformation of the Development Strategy since 1996

Following the success from 1984 to 1995, TEDA faced new challenges since 1996 because the central government canceled most of its preferential policy for FEZ. TEDA also experienced some changes in its economic and investment development: it started cooperation with other development zones, established own enterprises and started doing business at the stock market, which is a useful attempt in its development.

In 1996, TEDA cooperated with Xiqing, Wuqing, and Hanggu development zones and with TFTZ to set up Xiqing Microelectronics Industrial Park, Wuqing Yat-Sen Scientific and Industrial Park, Hangu Chemical Industrial Park and Baotai Industrial Estate.[361] TEDA and the local development zones separately bought funds and land and then set up a joint-stock company together. The administration bureaus for all sub-zones are the agencies of TEDA.

In 1997, China and Egypt signed a memorandum book to the effect that China would help Egypt to establish the Northwest SEZ at the Gulf of Suez. The State Council decided that TEDA should carry out this project, but it supported TEDA only with seven million US$ of low interest rates for the development of the first 2 km², which barely made up 10% of the total investment. TEDA and Egypt established a cooperatively managed enterprise, which is responsible for infrastructure construction, overall planning, and investment promotion of the starting zone.[362] This project started in 1998 and the first factory building was completed in

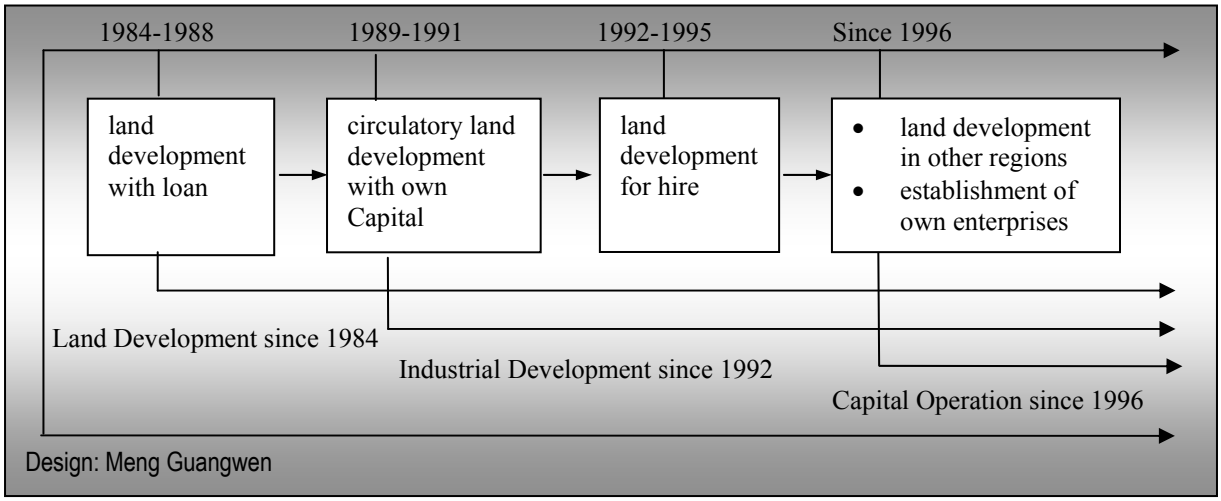
[361] Statistical & Planning Bureau of TEDA (1996): <<Annual Report on the Development of TEDA (1996)>>, www.teda.gov.cn

[362] Wang Xin (1998), "Analysis of Development Prospect of Northwest Special Economic Zone by the Suez Gulf established by China and Egypt", (Zhongai Gongjian Suyishixibei Jingjiteqiu De Fazhanqianjing Fenxi), In: <<Study on Development – Reference for Decision>>, 1996 bound volume, No. 150, TEDA, pp. 176-185

2001. Besides, TEDA provided Sudan with the consulting service about the overall development planning of a FEZ.[363]

In 1995, it was suggested that the planning strategy should be transformed from land and industrial development to capital operation.[364] Based on the land development, TEDA actively studied new models of capital operation by forming enterprise groups, holding shares, and reforming share's cooperation. TEDA also encouraged the fusion, reformation, and stock-share of enterprises, developed financial industries, took the measure to attract projects, activated the state-owned capital, and widened financial channels. In 1997, TEDA Group succeeded in reforming Tianjin Mei Lun Co., Ltd. by optimizing its capital. That made TEDA have its first public A-stock which was renamed "TEDA Stock" at the Shenzhen Stock Exchange Center. Besides that, TEDA Group purchased shares of Huaxin Commercial Mansion for 290m Yuan.[365] After "TEDA Stock" went public in 1997, another cooperation structured by modern management principles – Jin Bin Development Co., Ltd. – distributed and commercialized its A-shares in 1998. With that the TEDA Corporation has moved into a new stage in getting itself listed overseas.[366] New progress was also made in the reform of its state-owned enterprises. In 1999, based on the modern enterprise system and through capital re-construction, TEDA's first authorized state-owned enterprises group – TEDA Construction Group Co., Ltd. was set up. The listed companies of TEDA Co., Ltd. and Jin Bin Development Co.,Ltd. achieved good profits.[367] TEDA created a new development possibility.

Fig. 42: Evolution of TEDA's Development Models since 1984



Note: the solid arrows show the evolution of TEDA's land development; the broken lines show the relevant times of each stage.

[363] Pi Qiansheng (1998), "On the International Cooperation among Export Processing Zones and its Development Trend", (Lun Zhukaojiangongqiu Jiande Guojiehezuo Ji Fazhantaishi), In: : <<Reference for Decision>>, 1998, No. Supplement 1, TEDA, pp. 121-124

[364] Chang Xuze (1996), "How can Tianjin Economic and Technological Development Area fourthly Develops under the New Conditions", (Tianjin Jingjijishu Kaifaqiu Zai Xinxingshixia Ruhe Genhaodi Fazhan), In: <<Study on Development – Reference for Decision>>, 1996 bound volume, No. 107, TEDA, pp. 35-40

[365] Statistical & Planning Bureau of TEDA (1997): <<Annual Report on the Development of TEDA (1997)>>, www.teda.gov.cn

[366] Statistical & Planning Bureau of TEDA (1998): <<Annual Report on the Development of TEDA (1998)>>, www.teda.gov.cn

[367] Statistical & Planning Bureau of TEDA (1999): <<Annual Report on the Development of TEDA (1999)>>, www.teda.gov.cn

8.3. TEDA's Preferential Policy

In order to attract foreign investors, FEZs promise to give them different kinds of financial incentive and privileges, including tax and duty reduction and holiday, financial subsides, and some economic and administrative privileges. This behavior is called as preferential policy, and it is the key motive power of TEDA's development, especially at its growing stage.

TEDA's Preferential Policy from 1984 to 1996
The evolution of TEDA's preferential policy can be divided into two stages parallel to its economic development. Like other national FEZs, TEDA transplanted the parts of the preferential policy of SEZs until 1996. Then, the preferential policy, including financial subsidies for facility use and tax reduction, reached a climax.[368]

TEDA's preferential policy was intended for the manufacturing-oriented enterprises founded by foreign countries, Hong Kong, Macao, Taiwan and other oversea Chinese. Domestic enterprises didn't enjoy or enjoyed less preferential policies.

Production-oriented foreign-funded enterprises in TEDA pay enterprise income tax at an post-reduction rate of 15%. The enterprise of which the operation over 10 years is granted an exemption from income tax for the 1st and 2nd year and a reduction by half from the 3rd to 5th year (7.5%), commencing in the year in which the enterprise begins to make profits. In case the enterprise is advanced-technology- or export-oriented a reduction in income tax by half is granted for 3 more years as long as it remains advanced-technology-orientation, or it pays income tax at the rate of 10% after reduction as long as its export value of the year equals or exceeds 70% of its output value of the same year after the exemption-reduction period is over. A production-oriented enterprise within TEDA is exempted from local income tax.

Foreign enterprise is exempted from value-added tax and consumption tax, as long as it imports the indispensable machine, equipment, raw and semi-finished materials and parts. It is granted a reduction in these two taxes by half as long as it imports various kinds of mineral, grain and vegetable cooking oil, cigarettes, and alcoholic beverages.

An enterprise in TEDA and TEDA itself are exempted from import duties when it imports machine, equipment, building materials, parts, fuel, and vehicles essential for its production and capital construction. An enterprise is exempted from export duties when it exports the products made in TEDA, with the exception of those under state restrictions. The products processed from domestic materials, pads, or semi-finished goods in TEDA may be exempted from export duties by the customs as long as their value increases by over 20% due to substantial processing and they are documented by the competent authorities concerned.

An investor from a foreign country or Hong Kong, Macao and Taiwan in TEDA may, with examination and approval of the taxation authorities, obtain a 40% refund of the income tax he has paid on the part of the profits as long as he reinvests that part of the profits gained in a TEDA. The same enterprises or a new enterprise are required to cover an operation period of at less than five years. In the case an export-oriented or an advanced-technology-oriented

[368] Pan Jianpeng (1991), "The Policy Difference among Our Country's Special Economic Zone, Economic and Technological Development Zone and High-Tech Industrial Development Zone", (Woguo Jingjiteqiu, Jingjijishukaifaqiu Yu Gaoxinjishuchanye Kaifaqiu Zhengce Zhi Qiube), In: <<Shanghai Science of Law>>, (Shanghai Fayueyanjiu), No. 5, Shanghai, pp. 40-41
http://www.teda.gov.cn/law

enterprise, he may obtain a full refund of the income tax as long as he reinvests that part of the profits (not less than 5 year of operation period).

A foreign-funded enterprise in TEDA may, in case the depreciable life of its fired assets needs shorting for some special reasons, file an application and enable accelerated depreciation to take place, with examination and approval of the taxation authorities. A foreign-funded enterprise in TEDA may cover its possible annual losses with its gains of the following tax year; it may, in case its gains of following year are insufficient, continue doing so year in succession within a period of no more than five year (carry forward annual losses). The foreign employees enjoy preferential treatment in personal income tax. The foreign investors enjoy preferential land use price, facility supply (energy, water) and some financial subsidies.

TEDA also enjoys economic and administrative privileges. An enterprise in TEDA can open an account with a foreign or domestic bank within TEDA in order to handle foreign exchange. The foreign employees, accounting to state regulation, can remit personal legal income to foreign country after payment of personal income tax. The products of foreign-funded enterprises made in TEDA can be sold in domestic market under the following conditions: a) the enterprise is advanced-technology- or advanced-management-oriented; b) the products supplied by enterprise shall be imported in a great quantity; c) a vast amount of domestic or local raw and semi-finished material and parts are used to the products made by these enterprise. Moreover, TEDA shall submit the investment with over 30m US$ to the higher level for examination and approval, but it can approve the foreign investment until 30m US$;[369] TEDA may examine and approve residence foreigners in TEDA or the application submitted by Chinese officers, businessmen, and technologist; an production-oriented foreign enterprise can choose by himself the industrial sector for the investment, determine the operation formation, employ and discharge persons as well as formulate a wage system.

New Developments of TEDA's Preferential Policy since 1997

In April 1996, China canceled some financial incentives such as customs duty reduction and holiday by reducing national average customs duty, and the financial subsidy that FEZs do not have to turn the most of their tax revenue over to the country. In addition, TEDA's objective model has been transmitted to a comprehensive ETDZ and a urban proper. TEDA's preferential policy has been partly changed and renewed.

The new policy for attracting new and high-tech industry was formulated, including "TEDA Regulations to Attract Investment in Advanced Technology", "TEDA Procedures for Application for Venture Capital", "Provisional Provisions of TEDA on Encouraging Senior Specialists Move In", "Provisional Provisions of TEDA on Promoting Development of New and High-tech Industries", "Preferential Regulation for TEDA Business Enterprises".[370] According to these regulations, the foreign-funded or domestic enterprises, which are new and high-tech oriented, enjoy three year's exemption from and seven year's reduction of income tax. In addition, business tax, value-added tax and local tax will be reduced. The land can be freely used by such enterprises. The enterprises can achieve TEDA venture capital, as long as they are engaging in exporting, developing and industrializing new and high-tech products and establishing research and development center. The institution of venture capital and senior specialists for new and high-tech development can enjoy the financial subsidy and varied kinds of convenience, as long as they establishing companies or apply for patent.

[369] Zhang Zhongdong, Hou Xiaolu (1997), "The Comparison of the Preferential Policies between TEDA and other kinds of Special Economic Zones", (TEDA Yu Qita Teshujingjiqiuyu Youhuizhengce Bijiao), In: <<Study on Development – Reference for Decision>>, 1997 Bound Volume, No. 125, TEDA, p. 125

[370] http://www.teda.gov.cn/law

Some original policies were partly renewed. Except EPZ within TEDA, the policy of duty free import was canceled. And the export duty-refund has an elaborate division: export duty drawback is at a rate of 9%; Exemption from, reduction and repaying of export duty will be used to the different enterprises in TEDA.

There are new tax categories, tax items and tax rates. The new tax category includes urban house tax, vehicle and vessel plate-use tax, stamp tax. There is an elaborate division of tax items in value-added tax such as different tax rates (17% and 13%) for different merchandise (besides of mineral, books, agricultural film and so on) that will be sold, processed, repaired, or assembled and imported by an enterprises within TEDA.[371]

Foreign-funded enterprise that invested in infrastructure and public facility can also enjoy 15% of income tax as long as the tax bureau approves it. And the total business tax will be year after year returned to the enterprise during the period of investment recovery. In case a foreign-funded enterprise of which the operational period is over 15 years, accounting to the approval of fiscal organ, is granted a refund of total income tax for first 5 years, commencing in the year in which the enterprise begin to make profits. It is granted a reduction in income tax by half for five more years.[372] This policy was transplanted from PNA in Shanghai.

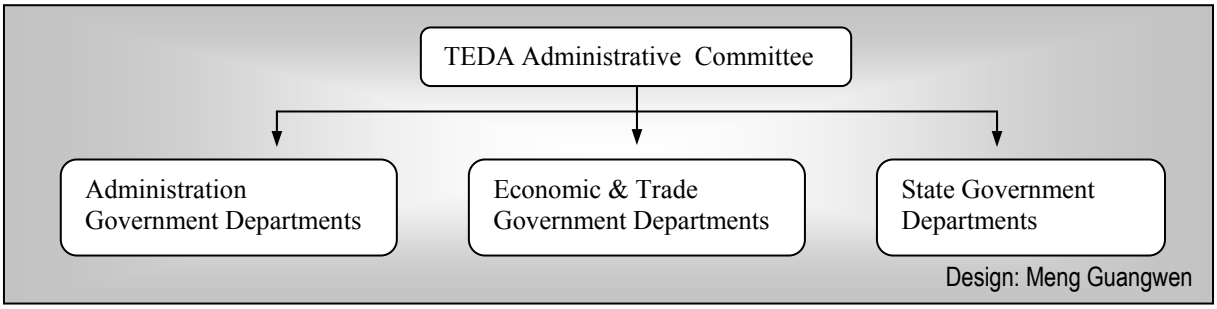
The quota and limit for the domestic market of goods made in TEDA increased and then relaxed. A foreign-funded enterprise which invested in the industrial sectors of "The Guidance Catalogue of Industrial Policy for the Investment of Foreign-Funded Enterprises" can determine the quota for the domestic market by itself.

TEDA's administrative and economic privileges were enlarged. TEDA established three sub-zones and three relevant administration bureaus. Tianjin EPZ was also set up in TEDA in 2000. TEDA enjoy the special customs policy and EPZ inside TEDA enjoys, however, "enclave" policy, namely EPZ is located within TEDA, but outside of Chinese customs system. Besides production-oriented enterprise (wholly-owned enterprise, equity joint venture and contracted joint venture), the processing trade, compensating trade, foreign-funded investment company, and foreign-funded banking institution are allowed to be set up.

8.4. TEDA's Administration

TEDA is administered by the TEDA Administrative Committee and was established based on EPZs from 1984 to 1996. The zonal authority is responsible for both economic development and administration. Its general features are efficiency, simplicity, and authority. Its structure is shown in Fig. 43.

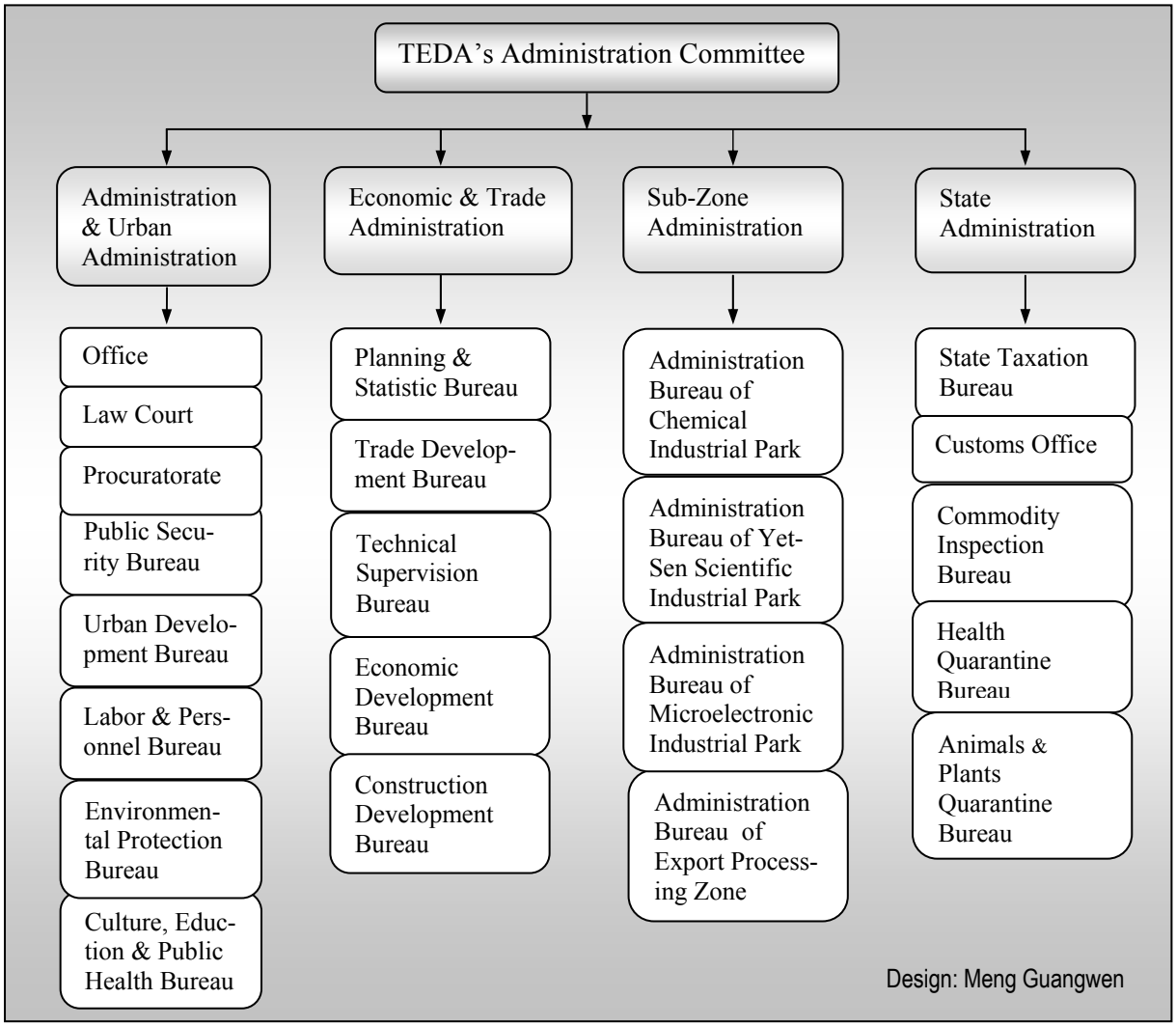
Fig. 43: The Structure of TEDA's Administration (1984–the early 1990s)



[371] http://www.teda.gov.cn/law
[372] http://www.teda.gov.cn/law

Since the middle of the 1990s, TEDA has being transmitted to a comprehensive ETDZ. Besides secondary industry, tertiary industry, urban and community construction were promoted, and more attention has been paid to tertiary industry and urban construction. By the end of 2000, TEDA had 191,100 employees and a residential population of 33,600 for the year of 2000.[373] That means that TEDA has become a small city based on its economic size and the residential population. If the growth rate of employment and residential population remains 5% like before, TEDA will be a mid-size city in the early 21st century. Its economic and urban development promoted the transformation of its governance structure to a combination of economic and urban governance structure during this period, and some new departments were established, including culture, education and public health bureau, urban development bureau and law court and so on (Fig. 44).

Fig. 44: The Structure of TEDA's Administration since the middle 1990s



Source: submitted and developed from Government Divisions: http://www.teda.gov.cn

[373] Statistical & Planning Bureau of TEDA (2000), "Annual Report on the Development of TEDA of 2000"

8.5. Foreign Capital–Oriented Development

The policy of TEDA's investment promotion can be divided into two stages. From 1984 to 1988, its development was financed mainly by domestic funds. Starting in 1989, foreign investment became the motive power for its development, and it will keep this position for a long time.

From 1984 to 1988, TEDA had to collect funds and establish its own domestic enterprises in order to construct infrastructure and build an attractive investment environment for foreign investors. During the build-up of the infrastructure, TEDA had to pay back the loans with land use fees and tax revenue. The tax revenue was mostly paid by domestic enterprises because they didn't enjoy or enjoyed less financial incentives i.e. tax reduction and holiday. In particular, foreign investors didn't fully understand China's open policy in the early 1980s so that they made only small investment during this stage and preferred to build the equity joint venture with Chinese partners. Under this situation, TEDA had to establish its own domestic enterprises to construct the infrastructure and build the equity joint venture with foreign investors, which included the industrial investment company, import and export cooperation, and commercial company. Along with the development of foreign-funded enterprises, their demands for productive cooperation attracted some domestic enterprises to supply raw and semi-finished material, spares, packing and transportation. During the period of 1985–1988, TEDA attracted total 183m US$ of foreign capital, but 777m US$ of domestic capital, making up 80% of total investment. When the Chinese capital of equity joint venture was added, TEDA's total domestic capital reached 872m US$. In other words, domestic capital promoted TEDA's initial economic development (see Table 22).

Tab. 22: The Development and the Balance of Total Capital from Foreign Countries, Hong Kong, Macao, Taiwan and Total Domestic Registered Capital (1985–2000)

Term	**Total investment of foreign enterprises**		**Total registered capital of domestic enterprises**		**% of Foreign Capital**
Time	10,000 US$	Growth %	10,000 US$	Growth %	
1985-88	18296	41.43	77747	299.03	**19.05**
1989-94	387446	223.47	179508	146.38	**68.34**
1995	181100	-	41912	-13.60	**81.21**
1996	191604	5.8	45426	8.38	**80.84**
1997	149576	-21.90	60798	33.80	**71.70**
1998	148208	-0.91	85322	40.30	**63.43**
1999	142884	-3.60	57382	-32.70	**71.35**
2000	**277902**	**94.47**	**28412**	**-101.95**	**90.72**

Source: Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, p. 37; "Annual Report on the Development of TEDA (1995-2000)", Statistical & Planning Bureau of TEDA

Note: exchange rate of US$ to RMB Yuan was 1:1.80 (1985-1988), 1:6.41 (1989-1994), and 1:80 (1995-2000)

Foreign capital has exceeded domestic capital and has become the motive power of TEDA's further development since 1989. For example, foreign capital during the period of 1989–1994 increased to 68.34% of total investment, which first exceeded TEDA's domestic capital. After that, besides exception of 1998, foreign capital made up over 70% of TEDA's total investment. Since 1997, more attention has been paid to domestic capital and large domestic enterprises than before. Domestic capital made up higher percentage than before, which reached 28.30% in 1997, 36.57% in 1998 and 28.65% in 1999. But, foreign investment still holds a leading position in TEDA's total investment due to the investments of numerous large

transnational companies since the 1990s, especially in 2000. For instance, in 1999, BBA Group from the UK invested 68m US$ in the first phase to establish a production base of paper products; Lafarge Co., a world famous building materials group from France decided to invested 29.9m US$ to set up an acuminate plant. In 2000, Toyota established a joint-venture with Tianjin Auto Industry Group, and invested 96.98m US$ in the first phase.

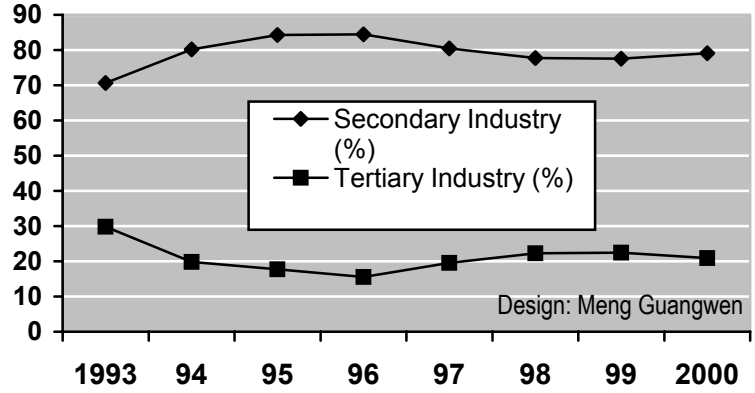
8.6. Industry-Oriented Development

The Evolution of TEDA's Industrial Structure

Although there was no statistical data of the composition of GDP from 1985 to 1992 in "10 Year's Statistical Report of TEDA (1984–1994)", one can come to the conclusion by looking at the investment composition that secondary industry held a leading position in TEDA's economy during this period. During the initial years (1984–1987), the tertiary industry attracted more investment, but the secondary industry has developed more quickly since 1988, and this non-synchronism growth has been enlarged since the Motorola investment in 1992. For example, the accumulative total investment of foreign, Hong Kong, Macao and Taiwan-funded enterprises in secondary industry and tertiary industry over the years (1985–1994) were 31.53b US$ and 7.91b US$, a proportion of 4:1.[374]

Since 1993, TEDA has established a stable industrial structure. Secondary industry was given first place and tertiary industry the second. From 1993 to 1997, the secondary industry increased from 70.60% to 84.46% of the total GDP, and held the leading position in TEDA's national economy. Moreover, manufacturing industry was its main part, and several large transnational corporations built the main body of the industry. But, following the transformation from a manufacturing-based FEZ to a modern, comprehensive ETDZ and a urban proper as well since 1996, tertiary industry, especially, banking, insurance, commerce, catering and social service were gained more attention, and its proportion in TEDA's GDP gradually increased. For example, in 1997, TEDA attracted about 700m US$ of foreign investment, but 43.8% of total investment was invested in tertiary industry. Total capital of Tianjin Renchuan Development Co. Ltd, a joint-venture of China and Korea, reached 0.19b US$, which was invested in tertiary industry (see appendix 1).[375]

Fig. 45: Evolution of TEDA's Secondary and Tertiary Industry (GDP) (1993-2000)



Source: sorted out from: Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 46-47, but the data of 1985-1992 was not counted; Annual Report on the Development of TEDA (1987–2000)

[374] Statistical & Planning Bureau of TEDA (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Tianjin People's Republic House, Tianjin, p. 28

[375] Statistical & Planning Bureau of TEDA (1997), "Annual Report on the Development of TEDA of 1997"

The Evolution of TEDA's Pillar Industries since 1984

The industrial groups consist of pillar industries, auxiliary industries and basic industries. GIOV and investment proportion can be used to analyze the evolution of TEDA's industrial groups or pillar industries.

Pillar Industry based on GIOV

Due to the undeveloped investment environment and the large investment risk at the initial stage, TEDA had not many possibilities to select the industrial sectors. Except several sectors prohibited by the country's industrial policy, almost all sectors were welcome by TEDA during the period of 1984–1989. In spite of that, seven industrial groups became dominant: pharmaceutics and chemical, machine, building material, textile and garment, electronic, metal product manufacture, food and beverage.

Since 1990, TEDA's investment environment has been gradually improved and attracted a large-scale investment. TEDA has paid more attention to technology- and export-oriented large projects. Numerous large enterprise's investment in TEDA have promoted the rapid development of electronics and electric, food and beverage, which have made up 27% and 21% of total GIOV and hold the first and second place. They are followed by textile and garment, machine, metal product manufacture, pharmaceutics and chemical and building material. Motorola invested 120m US$ in 1992 and 280m US$ in 1994, and was the largest foreign company in China at that time. Its GIOV in 1994 reached 2.82b US$, which made up 18.89% of TEDA's total GIOV.

The statistic data of GIOV for the pillar industries in detail were not provided in the "Annual Report on the Development of TEDA (1995–2000)", but the proportion of four pillar industries, including electronics and electric, food and beverage, machinery, chemical and pharmaceutics, made an increase from 83.20% in 1997 to 88.80% in 2000 of TEDA's total GIOV. The conclusion seems quite reasonable that these four pillar industries have become relevant since 1995. The position of textile and garment, metal product manufacture and building material in TEDA's industrial structure were no longer listed. As the data from 2000 showed, these industries held altogether only about 11% of the GIOV, about half the amount of the period from 1987 to 1994.

Electronics and electric have the absolute predominance in the four pillar industries, whose proportion in TEDA's industry constantly increased from 51.85% in 1995 to 70.40% in 2000. The main element of four pillar industries was several large transnational companies. For example, the GIOV of seven enterprises exceeded 1b Yuan for each one and made up for 56.00% of TEDA's GIOV in 1999. The companies such as Motorola (China) Electronics Ltd., Tianjin Samsung Elec-Mechanics Co., Ltd., Tianjin Merlin Gerin Co., Ltd. and General Semiconductor (China) Co., Ltd. continued to maintain their rapid development and thus strengthened their competitiveness further (see Table 23–24).

Tab. 23: TEDA's Pillar Industries Based on the Gross Output Value of Industry (1987–1994), Unit: 10,000 Yuan

Term/Time		**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**
Total		17373	33500	41630	68859	163370	294137	675260	1469665
1.Electronics & electric	total	2010	3310	3958	12944	28355	73009	255416	524344
	growth %		64.67	19.56	227.03	119.06	157.48	249.84	105.29
	proportion %	11.57	9.88	9.51	18.80	17.36	24.82	37.82	35.68
	rank	4	5	5	1	2	1	1	1
2 Food & Beverage	total	470	587	1977	4077	42988	53718	151272	499447
	growth %		24.81	239.80	106.22	954.40	24.96	181.60	230.16
	proportion %	2.7	1.75	4.75	5.92	26.31	18.26	22.40	33.98
	rank	7	7	7	7	1	2	2	2
3. Machinery	total	4189	5017	6533	11283	13359	34067	50050	85788
	growth %		19.75	30.23	72.70	18.39	155.01	46.92	71.40
	proportion %	24.12	14.98	15.69	18.64	8.18	11.85	7.41	5.84
	rank	2	3	2	2	6	4	4	4
4 Chemical & pharmaceutics	total	4496	7868	9989	10017	18574	41097	36386	78041
	growth %		75.01	26.96	0.28	85.42	121.26	-11.46	114.48
	proportion %	25.88	23.49	23.99	14.55	11.37	13.97	5.39	5.31
	rank	1	1	1	3	3	3	5	6
Total (1+4)		**29258**	**16750**	**22457**	**38321**	**103276**	**201891**	**493124**	**1187620**
% of (1+4)		**64.27**	**50.40**	**53.94**	**55.65**	**63.22**	**68.64**	**73.03**	**80.80**
5. Textile & garment	total	540	5573	5469	8575	15318	22854	59577	90203
	growth %		931.73	-1.86	56.78	78.63	49.20	160.69	51.47
	proportion %	3.11	16.64	13.14	12.45	9.38	7.77	8.82	6.14
	rank	6	2	4	4	4	6	3	3
6 .Metal products	total	1289	2487	3232	5134	15111	26475	37692	85506
	growth %		92.99	29.95	58.84	194.35	75.20	42.37	126.85
	proportion %	7.41	7.42	7.76	7.46	9.25	9.00	5.58	5.82
	rank	5	6	6	6	5	5	6	5
7. Building material	total	2966	4996	5517	6728	12745	18694	23515	28902
	growth %		68.43	10.44	21.96	89.42	46.68	25.79	22.91
	proportion %	17.07	14.91	13.25	9.77	7.80	6.36	3.48	1.79
	rank	3	4	3	5	7	7	7	7
8. Others	total	1412	3662	4961	10101	16920	24223	61352	77398
	growth %		159.29	35.48	103.61	67.51	43.16	153.28	26.15
	proportion %	8.13	10.93	11.92	14.67	10.36	8.24	9.09	5.27

Source: sorted out from Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 44-45

Note: The data in value terms in the table are calculated at current prices and the growth rates are based on comparable prices; the data of pharmaceutical and chemical in 1996 exclude chemical

Tab. 24: TEDA's Pillar Industries Based on the Gross Industrial Output Value (1995–2000), Unit: 10,000 Yuan

Term/Time		**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Total		2379900	3620063	4702422	5402180	6085483	7318200
Electronics & electric	Total	1309800	2034000	2679600	-	4016400	5152000
	Growth %	160.35	81.70	-	-	20.60	23.50
	Proportion %	51.85	56.20	57.00	-	66.90	70.40
	Rank	1	1	1	1	1	1
Food & Beverage	Total	689500	765800	820700	-	-	-
	Growth %	48.66	11.07	-	-	-	-
	Proportion %	27.30	21.20	17.50	-	-	-
	Rank	2	2	2	-	-	-
Machinery	Total	-	185400	263000	-	-	-
	Growth %	-	-	-	-	-	-
	Proportion %	-	5.10	5.60	-	-	-
	Rank	-	3	3	-	-	-
Chemical, pharmaceutics	Total	-	97600	145800	-	-	-
	Growth %	-	-	-	-	-	-
	Proportion %	-	2.70	3.10	-	-	-
	Rank	-	4	4	-	-	-
Total (1+4)		**-**	**3082800**	**3909100**	**462000**	**5252200**	**6500700**
Proportion % (1+4)		**-**	**85.16**	**83.12**	**85.50**	**86.30**	**88.80**

Source: "Annual Report on the Development of TEDA (1995-2000)", Statistical & Planning Bureau of TEDA
Note: the data of pharmaceutical and chemical in 1996 exclude chemical data; the data of 1995 and 1996 are the sales income of industrial products, not GIOV, but there is not large difference between the both

Pillar Industry based on Investment Proportion

Before 1996, the policy of "three orientations" and production-oriented preferential policy encouraged foreign investors to invest in secondary industry, while tertiary industry only was open to the foreign investors to a certain amount. For example, 78% of foreign capital was invested in secondary industry from 1984 to 1994, and only 22% was invested in tertiary industry. Since 1996, the foreign investors, who invested in tertiary industry, can also enjoy more preferential policy, but secondary industry has still attracted more investments.

The rank order of industrial sectors based on the investment proportion are electronics and electric, real estate, food and beverage, machinery, chemical, bio-pharmaceutics, textile and garment, metal product manufacture, but pillar industries such as electronics and electric, food and beverage, machinery, chemical, bio-pharmaceutics attracted the most foreign investment, which changed from 56.96% to 62.60% of the total investment during the period of 1984-1999. Only real estate in the tertiary industry attracted more foreign capitals, though its proportion changed from 10.29% to 18.80% during the period of 1984–1999. Several large transnational corporations have the absolute predominance in TEDA's total foreign investment, such as Motorola's and Samsung in TEDA. Besides real estate, TEDA's pillar industries based on GIOV and the investment structure show no difference. Four pillar industries attracted not only the most foreign investments, but also created the most GIOVs.

Tab. 25: Investment Structure of Enterprises Funded by Foreigners and Investors from Hong Kong, Macao and Taiwan over the Years by Industry (1984–1999), Unit: 10000 US$

Term / Time		1984-94	1996	1997	1998	1999
Total		394884	753056	879866	975257	1062732
Electronics, Electric	Value	80951	238400	243515	268147	292083
	Proportion %	20.50	30.60	27.68	27.50	27.48
	Rank	1	1	1	1	1
Real estate	Value	62476	77475	120964	119844	125842
	Proportion %	15.80	10.29	13.80	12.30	11.80
	Rank	2	3	2	2	2
Food, Beverage	Value	47179	97700	104858	110611	120671
	Proportion %	11.95	12.50	11.93	11.34	11.35
	Rank	3	2	3	3	3
Machinery	Value	32791	58700	89198	83564	81480
	Proportion %	8.30	7.50	10.14	8.57	7.67
	Rank	5	4	4	4	4
Chemical	Value	39843	57100	60312	70880	71831
	Proportion %	10.09	7.30	6.85	7.27	6.76
	Rank	4	5	5	5	5
Bio-Pharmaceutics	Value	32783	36400	36305	37980	40065
	Proportion %	8.3	4.70	4.13	3.89	3.77
	Rank	5	6	6	6	6
Proportion 1-6,% 1-6 without 2		74.94 59.14	72.89 62.60	74.53 60.73	70.87 58.57	68.76 56.96
Textile, Garment	Value	20600	30200	30554	29626	30079
	Proportion %	5.12	3.90	3.47	3.04	2.83
	Rank	6	7	7	7	7
Metal product	Value	18200	17700	18255	19281	19953
	Proportion %	4.52	2.30	2.07	1.98	1.88
	Rank	7	8	8	8	8
Others	Value	67424	165599	249336	287856	330658
	Proportion %	17.07	21.99	28.34	29.52	31.11

Source: sorted out from: 1) Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, p. 28, 44; 2) Annual Report on the development of TEDA (1995-2000), Statistical & Planning Bureau of TEDA

8.7. Foreign Trade Development

TEDA's total import and export in 2000 was 7.59b US$, an increase by 65 times over 1990 when TEDA's international trade was hardly developed. Two development stages of TEDA's foreign trade can be identified by 1993 as a turning point. Before 1993, total import and export reached a small value, but had a higher annual growth rate. On the country, total export and import have reached a higher level since 1993, but the annual growth rate has been gradually and continually decreased. Especially, a sudden drop of the annual growth rate taken place in 1997 (28%) and in 1998 (6%) after the Asian Financial Crisis.

Following the investment of several large transnational companies, TEDA's total exports did a great increase since 1991. Its total exports in 1991 and 2000 increased by 55 and 1538 times over 1987. Meanwhile, TEDA's export growth rate has being tended to slow down since 1993, which changed from 82.50% in 1993 to 3.85% in 1998 and 21.7% in 2000. Since 1993 TEDA's export and import are not balance. The export proportion in total value was lower than import (see Table 26).

TEDA's exports were transformed from labor-intensive to technology-intensive products. Plastic products, metal products, clothes, foods and articles for daily use were the main export products until 1988. Clothes, food, building materials, bicycles, and other labor-intensive products were mostly exported from 1989 to 1993. Electronic and electric products have had the leading position in export products since 1994, and they were followed by food, mechanic products, pharmaceutics and chemical products. The export products featuring advanced technology and high value-added such as cellular phones, mobile phones, integrated circuits, electronic displays, decelerators and automobile parts remained to form the primary category of commodities exported from TEDA since the middle 1990s, which made up 86.50% of the total export value of TEDA in 2000.

Foreign-funded enterprises did not play a dominant role in TEDA's economy and foreign trade until the large foreign enterprises invested in TEDA in 1992. Since 1993, their export made up over 93%, and this proportion has continually increased. It reached 99.17 % in 2000. In other words, foreign enterprises created almost all exports so that their export ratio corresponds to the export ratio of the whole zone today. Especially, several large foreign enterprises in total exports of foreign-funded enterprises hit a leading position. For example, Motorola's export value from 1994 to 1996 accounted for 21.09% (113m US$), 37.22% (332m US$) and 47.96% (691 US$) of total export of foreign-funded enterprises. In 2000, 397 enterprises exported their products, and the 30 of them exported over 10m US$ each, and their total export value reached 2778m US$, accounting for 89.40% of the export value of TEDA. Meanwhile five export enterprises, each topped the 100m US$ each, amounting to 1861m US$, making up 59.90% of the total figure of TEDA's export value (see Table 26).[376]

[376] TEDA , "Annual Report on the Development of TEDA of 1994-2000"

Tab. 26: TEDA's Export and Import (1986–2000), Unit: 10.000 US$

Term / Time	Total Im- & Export		Total Export			Export of Foreign Enterprises			Total Import	
	Total Value	Growth %	Total Value	Growth %	Proport-ion %	Total value	Growth %	Proport-ion %	Total Value	Growth %
1986	-	-	202	-	-	202	-	100	-	-
87	-	-	1666	700	-	415	105.40	25.68	-	-
88	-	-	3780	133.90	-	1700	309.60	44.97	-	-
89	-	-	4604	21.80	-	4024	77.90	87.40	-	-
90	11563	-	6370	38.40	**55.09**	4592	51.90	72.09	5193	-
91	19552	69.06	11348	78.10	**58.04**	10228	122.70	90.13	8204	54.50
92	28242	44.45	16022	41.20	**56.73**	12192	19.20	76.03	12220	48.90
93	59241	109.76	29235	82.50	**49.35**	27307	124.00	93.41	30006	145.50
94	121652	105.35	54426	86.20	**44.74**	53684	96.60	98.64	67226	124.00
95	236800	94.65	90100	65.55	**38.05**	89200	66.11	99.00	146700	118.21
96	352888	49.02	145020	60.95	**41.10**	144069	61.51	99.34	207868	41.69
97	450755	27.73	200415	38.20	**44.46**	199368	38.40	99.48	250340	20.40
98	478054	6.05	208135	3.85	**43.54**	204361	2.50	98.19	26619	7.82
99	592861	24.02	255380	22.70	**43.08**	252884	23.70	99.02	337481	25.03
2000	758900	28.00	310792	21.70	**40.95**	308231	21.40	99.18	448100	32.80

Source: sorted out from: 1) "Annual Report on the Development of TEDA (1995-2000)", TEDA; 2) Pi Qiansheng, Li Yung, Chief Editors (1995), "10 Year's Statistical Report of TEDA (1984–1994)", TEDA, p. 68

Note: Total import and export, total import from 1986 to 1989 exclude in: "10 Year's Statistical Report of TEDA (1984-1994)", p. 68; total import and export of 1998 was different in the <<Annual Report on the Development of TEDA, 1998-1999>>, the data of annual report 1999 was used by this table

9. Evaluation and Prospect of TEDA's Development – Achievement, Problems and Conceptions

The background of TEDA's establishment and its rapid development since 1984 have been represented in the former chapter by analyzing its objective model, special policy, investment promotion, and development of its industry and exports. In following its development, though, some problems were uncovered. This chapter evaluates if TEDA's development is successful and discusses which achievements, problems and challenges TEDA has to face. By analyzing the major factors, this chapter also discusses why and how TEDA played a dominant role in the national and regional economic development and open policy, why and how TEDA has problems such as an underdeveloped urban construction and low local high-tech development, and, furthermore, puts forward some ideas to resolve these problems.

9.1. TEDA's General Economic Development

Together with factors of foreign trade and investment, GDP, GIOV, financial revenue, employee, per capita GDP, and their growth rate since 1984 can fully show TEDA's comprehensive economic development. TEDA's development showed two stages with a turning point in 1993 during the period of 1984–2000. Moreover, the Western country's economic sanctions in 1989–1990 and Asia's financial crisis in 1997 made a negative impact on TEDA's development.

Based on the 33 km² of a salt pan with 4m Yuan of GIOV in 1984, TEDA has created a economic mythology. For instance, GDP in 1986 hit only 90m Yuan, but it reached 25.64b Yuan in 2000, which is about equal to that of a mid-size city in China. TEDA has kept a rapid development. The average annual rate reached 117% during the period from 1987 to 2000. Based on a small base, the average growth rate of GDP from 1986 to 1994 reached 179.77%. A minus growth of TEDA's GDP (-4.38%) in 1989 taken place. Based on a large base, the growth rate has gone down since 1995. It was only 34.09% during the period of 1995–2000.

As a manufacturing-based FEZ, secondary industry as the key economic sector was specially promoted in TEDA and developed very quickly. For example, TEDA's GIOV reached 73.18b Yuan in 2000, a rise of 1890 times over that of 1987. The average growth rate reached 85% during the period of 1987–2000. Except the lower growth in 1989 and 1990, TEDA's GIOV kept a higher average growth rate from 1986 to 1994, which reached 127.30%. Since 1994, the average growth rate has gradually increased, which was only 30.52(1994–2000).

TEDA's financial revenue in 1986 was only 4.69m Yuan, but it reached 49.53b Yuan in 2000, an increase of 1056 times over 1986. Both total value and its annual growth rate during the period of 1986–2000 realized a rapid increase. TEDA's financial revenue reached a small sum based on a small base from 1986 to 1993, and a large value based on a large base from 1994 to 2000. The annual growth rate, on the contrary, reached a higher level from 1986 to 1993, but it gradually decreased from 1994 to 2000. As a exception, the annual growth rates of 1990 and 1991 were relatively lower.

In 1986, there were only 1504 employees in TEDA, but the number hit 191,100 persons in 2000, an increase of 127 times over that of 1986. TEDA has the highest employment density in Tianjin, being 5790 persons/km² in 2000. The employment from 1986 to 1993 reached

only a small level, but it largely increased from 1994 to 2000. The annual growth rate in the country reached a higher level from 1986 to 1994 and a lower one from 1995 to 2000. The general trend of employment's growth is to gradually slow down since 1995. There was an exception in 1989.

TEDA has a higher productivity than Tianjin whole city. It reached per capital 6200 Yuan in 1986, and increased by per capita 134,600 Yuan in 2000, an increase to 21.71 times than that of 1986. It gradually decreased from 1986 to 2000. There are three wave crests and three troughs.

Tab. 27: TEDA's Major Economic Indicators and Their Annual Growth Rates (1986-2000)

Term	GDP		Gross Industrial Output Value		Financial Revenue		Employee		Par Capital GDP	
Time	10000 Yuan	growth %	10000 Yuan	growth %	10000 Yuanl	growth %	person	growth %	10000 Y/Per.	growth %
1986	935	-	3872	-	469	-	1504	-	0.62	-
87	8765	837.43	18872	387.42	1136	142.20	6397	325.33	1.37	179.00
88	19282	119.99	36500	93.40	3284	189.10	8635	34.99	2.23	62.77
89	18473	-4.38	46158	27.45	5801	76.64	8014	-7.19	2.30	3.14
90	25011	35.66	78060	67.81	7377	27.17	14462	80.46	1.73	-24.78
91	67129	168.40	187019	139.58	11209	51.94	21419	48.11	3.13	80.92
92	128274	91.09	32076	71.51	20283	80.95	37914	77.01	3.38	7.99
93	254591	98.48	702517	119.02	43207	113.02	55189	45.56	4.61	36.39
94	487618	91.55	1490806	112.21	80054	85.28	84218	52.60	5.79	25.60
95	801102	52.35	2664600	59.34	141100	76.26	112830	39.97	7.10	22.62
96	1310135	61.90	3701106	38.89	241026	9.00	140150	24.21	10.10	42.25
97	1536270	30.40	4702422	27.90	262719	9.00	157934	12.70	10.17	0.69
98	1801056	19.80	5402180	20.00	289010	10.00	171604	8.70	10.75	5.70
99	2084516	19.10	6085483	17.00	326616	13.01	180500	5.20	11.58	7.72
2000	2564258	21.00	7318248	20.00	495344	51.70	191100	5.87	13.46	14.30
Aver.		117.00		85.00		66.77		53.00		33.17

Source: 1) Pi Qiansheng, Li Yung, Chief Editor (1995): "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 64-66, 2) "Annual Report on the Development of TEDA (1995-2000)", Statistical & Planning Bureau of TEDA

Note: the data in value terms in the table are calculated at current prices and the growth rates are based on comparable prices. Aver.: average; Indicators such as foreign investment and foreign trade were represented in chapter 7

9.2. TEDA's Promoting Role on the National and Regional Level

TEDA as an Example of all 32 National ETDZs[377]

TEDA's major economic indicators have held the first position in China since 1993. Although some SEZs such as Hainan, Shenzhen, and Beihai were fond of real estates in the 1980s, TEDA still insisted on the model of "three orientations". This model yielded a remarkable benefit: Yamaha and Motorola, two big transnational corporations, decided to invest in TEDA in 1990 and 1992. In 1993, TEDA's industry and its growth rate began to be in the lead of other national ETDZs. In 1994, TEDA's GIOV made up 20.50% of the first 14 ETDZs in the coastal region, and the foreign capital was 22.70% more than the sum of the second and third development zone.[378] By 1998, TEDA's accumulative total approved

[377] Note: there are 35 national ETDZs in China by my estimates until 2001, but only 32 national ETDZs were used to this comparison

[378] Wang Qi (1999), "Creating the Hopes, Supporting the Future: Celebrating the 15th Anniversary of the

foreign-funded enterprises, contracted foreign capital, foreign capital actually utilized, the projects with the foreign investment over 10m US$, accumulative total GIOV and tax revenue still held the first place in the 32 national ETDZs.

Tab. 28: Proportion of the Major Economic Indicators of all 32 National ETDZs in Country-wide and Proportion of TEDA's Major Economic Indicators in all 32 National ETDZs in 1998

Term	Total 32 ETDZs	% of whole country	TEDA	% of total 32 ETDZs
Numbers of foreign-funded Enterprises	13454	4.10	3110	23.00
Contracted foreign capital, 100m	508.10	8.90	58.62	16.85
Average level, 10,000 US$	377.70	214.60	275	72.81
Numbers of foreign capital actually utilized	280.40	10.50	47.23	16.84
Average level, 10,000 US$	208.40	254.15	151	72.46
Gross industrial output value, 100m Yuan	2938.58	2.47	540	18.38
Total tax revenue, 100m Yuan	178.50	1.93	28.90	16.19
Total import & export, 100m US$	187.80	5.79	45.60	21.23
Numbers of foreign-funded enterprises with over 10m US$	1730	-	186	10.75

Source: sorted out from: 1) Pi Qiansheng, Li Yung, Chief Editor (1995): "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 64-66; 2) "Annual Report on the Development of TEDA (1998)", Statistical & Planning Bureau of TEDA; 3) Ai Chenglong, Ning Wei (1999), "The Current Situation and the Development of Economic and Technological Development Zones", In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 178, TEDA, pp. 57-60; 4) <<China Statistical Yearbook 2000>>, China Statistics Press, pp. 409, 258, 588

TEDA promoted the regional economic development by division of labor. For example, in the 1990s, Yamaha had total 78 domestic cooperative enterprises, 44 of them located outside Tianjin. Motorola fostered 176 domestic enterprises in the whole country and promoted the development of the Chinese electronics industry through purchasing accumulative total 67b US$ of semi-finished materials and parts from these cooperative enterprises.[379]

TEDA's experiences played a demonstrating role for other FEZs. In 1988, TEDA firstly advanced the model of "three orientations", as most of ETDZs were still puzzled by the models of SEZ and EPZ. This model became a common development model for other national ETDZs. From then on, Chinese ETDZs found their own development model, which is different from SEZs. For example, Beihai ETDZ transformed its major economic activity from the land development based on the real estates to the industry-oriented development. TEDA created a successful development model, including land development (land development with loan / credit, circulatory land development with own capital, land development for hire and land development in other region), industrial development and capital operation, as well as the so called 1–2–3 model, namely 1 US$ input shall attract 2 US$ investment and yield 3 US$ output. The model of 1–2–3 was regarded as a standard by other ETDZs to evaluate if the land development and the investment promotion of a zone are successful. TEDA fostered consciously industrial groups and pillar industries by attracting the investment of large transnational corporations for a stable development and technological transfer. TEDA paid also more attention to the domestic investors and provided them a window to carry out open policy and utilize international market. By 1999, besides Tianjin, 25 provinces, autonomous regions and the organizations and departments under the Central

Founding of Tianjin Economic and Technological Area", (Chuangzaoxiwang, Tuojiuweilai: Qingzhu Tianjin Jingjijishu Kaifaqiu Chengli Shiwuzhounian), People's Daily, Overseas Edition, 19/11/1999, edition: 9,12

[379] Cong Wenzi (2001), "Motorola's Investment in China are Beneficial to Both Sides", (Motorola Touzi Zhongguo Hulishuangying), In: <<People's Daily>>, Overseas Edition, Jan. 31, 2001, Edition 2

Government and 704 domestic enterprises registered 45.91b Yuan. The model of establishing sub-zones and capital operation was TEDA's first attempt in China.

TEDA's economic and administration reform supplied a useful experience for other ETDZs. Its social insurance system has been established and continually improved, which is the best one in 32 national ETDZs. In 1989, TEDA established the first economic judicial organ in ETDZs. More than 40 laws and regulations were also formulated and carried out, which supply the useful experiences to TEDA itself and other FEZs to govern economic and social activity within the zone.

The "Company Image System (CIS)" has been accepted by more and more enterprises. The example of transnational corporations shows that CIS can be used to promote the success of a star enterprise or a well-known trade market. TEDA firstly introduced "CIS" into a large ETDZ in 1993 and gradually improved it. Today, TEDA, as "a starting point of modern industry", an image, a mark and a English abbreviation of Tianjin Economic and Technological Development Area, has gradually become well-known in the world. TEDA's "CIS" determined not only a standard for regional planning, enterprise's operation, and living environment, but also supplied a standard for economic activity, human behavior, and other social activity.[380] Other Chinese ETDZs have also used CIS to define their "image".

TEDA's Promoting Role for Tianjin's Economic Development

Based on the successful development, TEDA's major economic indicators have gradually held a more and more important position in Tianjin and BNA since 1984. TEDA has become a new large economic growth pole of Tianjin. TEDA's GIOV in 1989 amounted only to 1% of the whole city, but its proportion in the national economy of Tianjin and BNA quickly increased, as the large transnational companies invested in the 1990s. For example, the proportion of TEDA's GDP in Tianjin increased 2.00% and 14.40% from 1991 to 2000 and 22.66% and 44.89% in BNA from 1993 to 1999; proportion of GIOV in Tianjin increased 2.40% and 27.20% from 1991 to 1999 and 33.30% and 61.72% in BNA from 1993 to 1999. The same situation can be seen in other economic indicators such as export value and financial revenue. As an exception, while the proportion of TEDA's export value in BNA gradually decreased from 92.20% in 1994 to 85.10% in 1999, this proportion was still very high (see Table 29).

TEDA has made a great contribution to Tianjin's ability to attract foreign capital. It has kept a high proportion and a stable increase since 1993. For example, TEDA's total foreign investment made up over 33.20% of the whole city in 1994, but this proportion increased by 36.37 in 2000. TEDA became a window and a base of attracting foreign capital for the whole city in the real sense of this term (see Table 30).

[380] Man Xuejie, Mu Futian (1996), "TEDA: not only the Largest One, but also the Best One", (Tianjin Kaifaqiu: Bugan Zuode Zuida, Reqie Zuode Zuihao), In: <<Lookout>>, (Liaowang), Beijing, pp. 26-28

Tab. 29: Proportion of TEDA's Major Economic Indicators in Tianjin and Binhai New Area (1991–2000), Unit: 100m Yuan; Export Value: 100m US$; TEDA/Tianjin & TEDA/BNA: %

Item / Time		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GDP	TEDA	6.70	12.80	25.50	48.80	80.10	131.00	153.60	180.11	208.45	256.44
	Tianjin	342.80	382.50	503.00	721.20	920.10	1102.1	1240.3	1344-1	1450.1	1639.4
	TEDA/ Tianjin	**2.00**	**2.35**	**5.06**	**6.76**	**8.70**	**11.89**	**13.72**	**13.40**	**14.40**	**15.64**
	BNA	-	-	112.40	168.70	241.60	320.30	382.10	404.84	464.35	-
	TEDA/ BNA	-	-	22.66	28.92	33.15	40.90	44.50	44.49	44.89	-
Gross Industrial Output Value	TEDA	18.70	32.10	70.30	149.10	266.50	370.10	470.20	540.20	608.55	731.82
	Tianjin	786.60	708.00	804.40	1271	1651	1630.6	1772.9	1941.8	2236.9	-
	TEDA/ Tianjin	**2.40**	**4.53**	**8.73**	**11.73**	**16.50**	**22.70**	**26.50**	**27.82**	**27.20**	**-**
	BNA	-	-	212.90	346.30	510.30	701.40	864.10	856.65	986.00	-
	TEDA/ BNA	-	-	33.00	43.05	52.21	52.76	54.42	63.06	61.72	-
Export Value	TEDA	1.13	1.60	2.92	5.44	9.01	14.50	20.04	22.61	25.54	31.08
	Tianjin	16.10	17.40	19.28	23.82	29.00	40.49	50.18	54.97	63.32	83.00
	TEDA/ Tianjin	**7.00**	**9.20**	**15.15**	**22.84**	**31.07**	**35.81**	**39.94**	**41.13**	**40.30**	**37.45**
	BNA	-	-	-	5.90	10.10	17.46	24.33	26.21	30.01	-
	TEDA/ BNA	-	-	-	92.20	89.20	83.20	82.37	86.26	85.10	-
Financial Revenue	TEDA	1.10	2.03	4.32	8.01	16.56	21.61	26.27	28.90	32.66	49.53
	Tianjin	63.10	60.10	73.20	95.60	117.30	137.30	169.10	186.56	206,90	244.80
	TEDA/ Tianjin	**1.78**	**3.38**	**5.91**	**8.38**	**14.11**	**15.72**	**15.53**	**15.49**	**15.79**	**20.23**
	BNA	-	-	-	-	-	-	34.80	-	-	-
	TEDA/ BNA	-	-	-	-	-	-	75.50	-	-	-

Source: Sorted from: 1) "Statistic Report of Tianjin National Economy and Social Development 1999", In: http://www.stats-tj.gov.cn; 2) Authorship unknown (1999), "Bringing TEDA's Demonstration, Radiation and promotion to Tianjin Economy into full Play", In: <<Study on Development– Reference for Decision>>, 1998 Bound Vol., No. 152, TEDA, p. 196; 3) "Annual Report on the Development of TEDA (1998-2000)", TEDA; 4) Tianjin's data of 2000 from http://www.stats-tj.gov.cn

Tab. 30: TEDA' Foreign Capital and its Proportion in Tianjin (1991–2000), Unit: 100M US$; TEDA/Tianjin: %

Item / Time		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Foreign Investment	TEDA	1.85	7.03	12.35	15.23	18.11	19.16	14.96	14.82	14.29	27.79
	Tianjin	-	-	-	45.89	48.80	50.10	48.81	42.43	39.29	-
	TEDA/ Tianjin	**-**	**-**	**-**	**33.20**	**37.10**	**38.20**	**30.60**	**34.93**	**36.37**	**-**
Contracted Foreign Investment	TEDA	1.27	5.07	7.59	11.99	15.90	15.88	11.31	12.28	12.80	-
	Tianjin	-	-	22.56	35.02	38.51	39.24	38.51	36.38	36.20	-
	TEDA/ Tianjin	**-**	**-**	**33.60**	**34.20**	**41.30**	**40.50**	**34.00**	**33.75**	**35.35**	**-**

Source: sorted from: 1) "Statistic Report of Tianjin National Economy and Social Development 1999", In: http://www.stats-tj.gov.cn; 2) Authorship unknown (1999), "Bringing TEDA's Demonstration, Radiation and Promotion to Tianjin Economy into full Play", In: <<Study on Development – Reference for Decision>>, 1998 Bound Vol. No. 152, TEDA, p. 197; 3) "Annual Report on the Development of TEDA (1998-2000)", TEDA

TEDA is offering more and more employment to the whole city. The proportion of TEDA's employment in the whole city gradually increased from 0.40% in 1991 to 8.69% in 1999. Even more important is that TEDA made a great contribution to the growth of indirect employment of the whole city by purchasing raw and semi-finished materials and service. According to an authoritative research result, Coca-Cola will create six indirect employments by supplying one direct employment. If the foreign-funded enterprises can create three indirect employments by supplying one employment, TEDA's distribution to Tianjin's employment will increase three times. Motorola in TEDA supplied over 10,000 position for Tianjin and 40m US$ for the employees training. 75% of employees of Motorola are from Tianjin.[381]

Tab. 31: TEDA's Employment and Its Proportion in Tianjin (1991–2000), Unit: 10,000 Persons, TEDA/Tianjin: %

Item / Time		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Employment	TEDA	2.14	3.79	5.52	8.42	11.29	14.02	15.79	17.16	18.05	19.11
	Tianjin	291.60	294.00	293.50	291.90	289.60	284.00	-	218.51	207.71	-
	TEDA/ Tianjin	0.40	0.80	1.10	1.60	2.20	2.70	-	7.85	8.69	-

Source: sorted from: 1) Tianjin Statistic Bureau (1999), "Statistic Report of Tianjin National Economy and Social Development (1999)", In: http://www.stats-tj.gov.cn; 2) Authorship unknown (1998), "Bringing TEDA's Demonstration, Spread and Promotion to Tianjin Economy into full Play", In: <<Study on Development – Reference for Decision>>, 1998 Bound Vol, No. 152, TEDA, p. 198; 3) "Annual Report on the Development of TEDA (1998-2000)", Statistical & Planning Bureau of TEDA

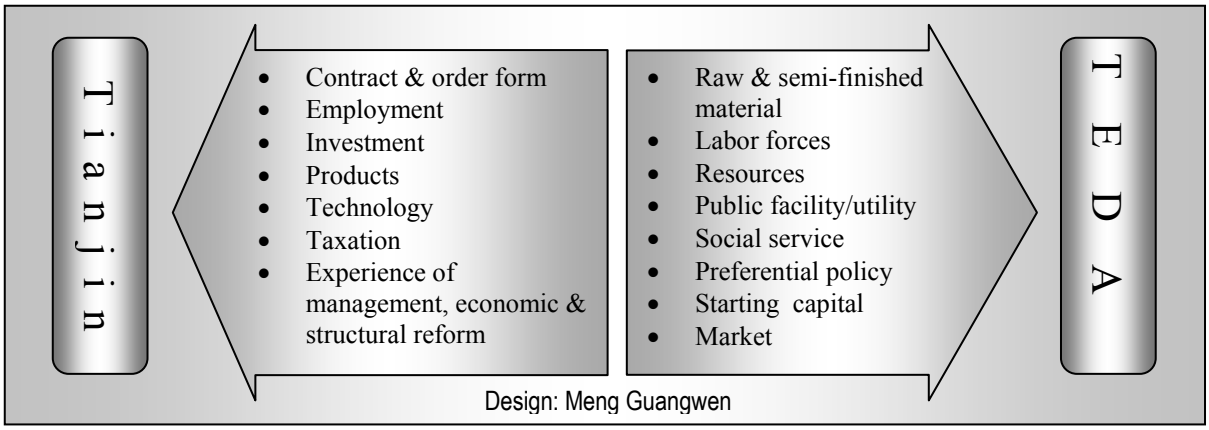
By the year of 1999, TEDA had attracted the accumulative total of 11,800 domestic enterprises and 290.14b Yuan of registered domestic capital. Many enterprises set up a closed relation with the international market, learned and transferred advanced technology and management experience and tried to establish a modern enterprises system by establishing wholly-owned enterprise, equity joint venture and contractual joint venture, and fully utilizing preferential policy and well-developed micro-economic operational environment. TEDA spread foreign advanced technology and management experience to the whole city. Its development policy and objectives, development model, experience of economic and structural reform (management system) have provided a useful experience to the whole city of Tianjin and other development zones in Tianjin. For instance, TEDA formulated about 40 local laws and regulations involving tax, economic management, environment protection, employment, urban management, social insurance system, and economic law. Some of these useful experiences were spread to the whole city. TEDA's "CIS" played an important role in building the image of BNA. BNA will use this experience to formulate and construct its own development plan and try to create a new worldwide well-known brand.

The Economic Links between TEDA and Tianjin (Benefit/Cost)

Instead of the "enclave model of EPZs", there were more and close economic links between TEDA and Tianjin since its establishment. To sum up, the input from Tianjin to TEDA included raw and semi-finished material, labor forces, resources, public utilities / facility, social service, starting capital, preferential policy and privilege as well as local market. The input from TEDA to Tianjin included contract and order form, taxation, goods, employment, investment, advanced technology, and the external effects such as experience of management, economic and structural reform. Generally, TEDA's benefit is more than its cost.

[381] Cong Wenzi (2001), "Motorola's Investment in China are Beneficial to Both Sides", (Motorola Touzi Zhongguo Hulishuangying), In: <<People's Daily>>, Overseas Edition, Jan. 31, 2001, Edition 2

Fig. 46: The Model of Mutual Economic Links between TEDA and Tianjin since TEDA's Establishment



TEDA roles played in Tianjin's economic development and reform can be summarized as follows:

- Economic Aid: TEDA provided parts of financial revenue to some government departments or established special funds to support some enterprises with financial problems. Since the 1990s, TEDA provided several 10m Yuan to these enterprises.
- Base for Economic and Structural reform: TEDA not only used domestic capital as starting funds to promote own economic development, but also helped the domestic enterprises to enter the international market, carry out economic and structural reform and to absorb advanced technology and management experience from the foreign partners.
- Capital Operation: TEDA rebuilt the enterprises with financial and technological difficulty by establishing joint ventures with these enterprises or annexing them.
- Production and Technological Cooperation: TEDA guided the foreign-funded enterprises to cooperate with domestic enterprises, purchasing the local raw and semi-finished materials and increasing the homemade ratio of products.
- Establishment of Sub-Zones: TEDA established sub-zones and carried out economic cooperation by using own financial and technological advantage and other zones land and location advantage.

Attracting domestic investment, industrialization, capital operation, production and technological cooperation as well as establishing sub-zones can represent TEDA's demonstrative, transforming and promoting roles in whole Tianjin. TEDA's economic aid has a limited meaning for the rebuilding of the enterprises outside TEDA. The domestic enterprises in TEDA cannot only use its preferential policy, but it also absorbs easily the advanced technology and management experience from foreign partners or foreign-funded enterprises. TEDA's capital operation began its first but significant step, for example, establishment of three sub-zones and its own companies. The production and technological cooperation between domestic and foreign-funded enterprises made progress. Besides Motorola and Yamaha, Coca-Cola has also gradually developed economic links with Tianjin economy. For example, Tianjin Alkaline Factory supplied Coca-Cola about 80% of liquid CO_2 in the 1990s. In addition, in order to gradually realize the technological localization, Coca-Cola in 1997 had freely transferred the ownership of a beverage trademark to Tianjin Jinmei Beverage Co., Ltd.[382]

[382] Authorship unknown, "Bringing TEDA's Demonstration, Spread and Promotion to Tianjin Economy into full Play", In: <<Study on Development–Reference for Decision>>, 1998 Bound Vol., No. 152, TEDA, pp. 198-199

Fig. 47: TEDA's Model of Demonstration, Transformation and Promotion to Tianjin

9.3. Discussion of TEDA's Development Policy and Objectives

The aims of TEDA have been described above. Often restructured, they can be described best by the "Model of Three Combinations," which has been in place since 1997.

Transformation from "Three Orientations" to "Three Combinations"
TEDA's development is based on the model of "three orientations". Being an ETDZ, TEDA covers (unlike SEZs) only a small area so that its function should be a unitary industrial zone; its undeveloped investment environment in the 1980s cannot be used to attract foreign advanced technology, but they can utilize fully the good industrial base to develop labor-intensive industry. Following the changes of external conditions and TEDA's development, "three orientations" could not meet the needs of TEDA's further development in the 1990s. TEDA realized the transformation from "three orientations" to "three combinations" and "high-tech-orientation" in time. The following section will explain why this transformation was successful.

In fact, the "model of three orientations" derives from EPZ, and is an amendment of the window model. TEDA at its initial development stage is similar to an EPZ (more foreign capital, more labor-intensive industry, more small and mid-size enterprises and preferential policy), but, following its economic development and the changes of economic environment in the 1990s, TEDA is transforming to a comprehensive ETDZ or becoming a new generation of EPZ. TEDA's export ratio was lower than typical EPZs in East Asia and Southeast Asia, and it carried out only a special customs policy instead of a "customs enclave". In addition, TEDA's technology-intensive industry and large transnational enterprises have held a dominant position in its industrial structure. Therefore, the model of three orientations" cannot suit TEDA's further development.

TEDA began its growth stage in the early 1990s. Foreign capital is the key or sole motive power for its development so that TEDA continually improved its investment environment in order to attract more foreign capital. A few large transnational companies became not only responsible for the main part of TEDA foreign investment, but also for the main part of its export, GIOV, tax revenue, and technology transfer. The input of a large amount of foreign capital promoted TEDA's economic sustainable and reasonably development, but its over-dependence on the foreign capital hides also the risk or unstable factors in its further development. For instance, the economic sanction of the West in 1989 and the financial crisis in Southeast Asia in 1997 led to the large reduction of TEDA's foreign capital input and export. The combination of foreign and domestic capital can guarantee TEDA's sustainable and stable development.

Besides modern industry, TEDA also calls for a relevant development of tertiary industry and urban construction. Especially, TEDA's location is far away from Tianjin proper, and Tanggu proper does not have a well-developed public facility so that development model of EPZ does not suit TEDA's further development. Therefore, besides secondary industry, the further development of tertiary industry will be the common objectives of TEDA and Tanggu proper.

Unlike "industry-orientation" and "foreign capital-orientation," "export-orientation" was not successfully carried out in TEDA. This is also different from typical EPZs. Normally, foreign investors in a FEZ have three targets: using resources, using labor forces, and exploring a new market. The small- and mid-size enterprises paid more attention to the cheap labor forces of EPZs so that EPZs attracted only mid- and small-size enterprises. The large transnational corporations, however, invested in TEDA not only to take the advantage of the labor force and the given resources, but also for the large Chinese market. They used TEDA as a springboard to avoid Chinese tariff barriers and to enter Chinese market by direct investment. China's continuing and expanding open policy and TEDA's rapid development encouraged transnational companies to invest in China and in TEDA. China and TEDA should "exchange some new and high-tech industries of the transnational companies with the part of domestic market." In addition, it is uncertain if the increase of export can bring TEDA much profit. Some foreign-funded companies, especially small- and mid-size enterprises, misused the policy of export duty drawback by settling accounts overseas. They declared the loss on the one hand, but expanded the investment, on the other. It is very difficult for TEDA to stop this dodge of taxes. If they sale their products on the domestic market (combination of international and domestic market), it would be easy for TEDA to control them and to levy taxes. So, like other ETDZs, TEDA has not strongly stressed the export ratio since 1997.

Technological transfer has begun to take place in TEDA. The theoretical and empirical studies in the 1980s state that a typical EPZ based on the "enclave model" has only limited technological transfer.[383] At the beginning, TEDA attracted mostly labor-intensive industries, but more and more technology- and capital-intensive industries have been established in TEDA along with the investment of many large transnational companies since 1992. Their advanced technology, including some high-tech, modern equipment, technological training of Chinese employees and management cooperation (by equity joint venture and constructed joint venture), have promoted the technological transfer at a certain degree, although their R/D centers were not established in TEDA. The Window-Model was realized at this stage. To realize a stable and sustained development, TEDA should develop its own domestic new and high-tech enterprises and promote the high-tech localization of transnational corporations.

A New Open and Modern Port City

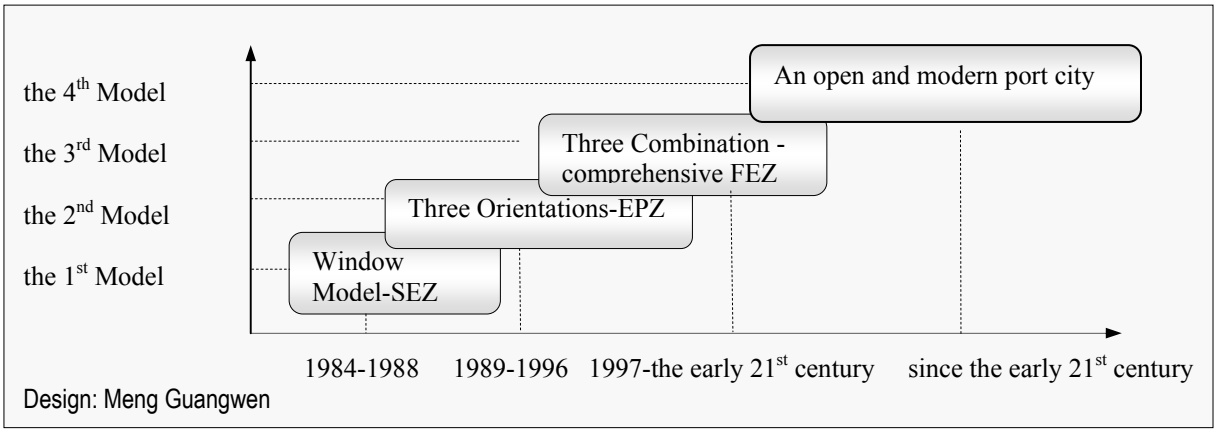
TEDA's further development trend and the master plan of Tianjin BNA will promote the transformation from "three combinations" to "a new open and comprehensive port city" in the early 21st century. The new development trends should be:

- Technology- and service-oriented industry will play a leading role in TEDA's industrial structure, namely the tertiary industry will approach or surpass the secondary industry; high-tech industry will have a leading position in TEDA's industry; banking and insurance, transportation and storage, telecommunication and tourism should have a dominant position in TEDA's tertiary industry.

[383] Warr, Peter G. (1989), "Export Processing Zones: The Economics of Enclave Manufacturing", In: <<The World Bank Research Observer 4>>, No. 1, Washington, DC, pp. 65-88

- Input of foreign capital and output of commodities will be transformed to the output of capital. TEDA will invest in new industrial sectors and in new regions.
- TEDA will become the core of BNA, and will be spatially integrated with Tanggu proper, port, other FEZs and other regions. TEDA will be a complete administrative area and a part of an open and modern port city. Its administrative model shall be transformed from a ETDZ to a comprehensive FEZ and, further to the core of a middle-size port city.
- TEDA will be a growth pole to promote regional economic development in Tianjin and the Economic Area of Bohai Bay Rim in northern China.
- TEDA will be one of the windows of world REI in China. Free trade policy will be enjoyed by some sub-zones of TEDA and BNA.

Fig. 48: TEDA's Development Policy, Objectives and their Evolutions



9.4. Discussion of TEDA's Development Model

Transformation of TEDA's Land Development

TEDA has developed and transformed successfully its land development model. Its land development promoted an increase of investment and economic development, especially at its initial stage, and realized a high investment return. For example, TEDA's investment density reached 400 US$/m², which is at a higher level compared to other FEZs in China and in the world.

The land development model with loans is the basic stage of land development because there is almost no industrial investment at this stage. It promoted the circulatory land development with own capital, the main part of the land development model. The land development for hire is the further developments of TEDA's land development. This model attracted a lot of foreign capital, which alleviated the fund shortage, invited outside investments by foreign contractors, and created a good investment atmosphere. But, after several year in practice, this model also revealed some problems, including the high cost necessary to coordinate the numerous interest groups, complicated legal relations, and long time negotiations. Only one zone (Taifeng Industrial Estate) among the four such zones developed rapidly.[384]

Following the industrial development, the limitations of original land development gradually arose. TEDA's land development and industrial development had to be transformed to the stage of capital operation, including the land development in other regions and the

[384] Wang Xin, Ye Wang, Hu Baochun, Sun Quan (1996), "Study on the Problems of TEDA's Sub-Zone", In: <<Study on Development – Reference for Decision>>, 1996 bound volume, No. 118, TEDA, p. 150

establishment of own enterprises. This transformation is successful because it accorded with TEDA's and regional economic development. There are two reasons:

- As only limited development space remained in TEDA, the new spatial expansion or investment in other development zones was its logic choice. By 1996, an area of 20 km² was developed, which makes up about 2/3 of total 33 km². The rest 1/3 area would be fully developed until 2001 based on the planning. On the contrary, each county and district established its own local development zone since 1992, but these zones were still at the starting stage and therefore short of capital. At same time, these zones competed with TEDA for foreign investment. TEDA's cooperation with these zones can use the advantages of both sides such as TEDA's well-known brand name and funds and other zonal favorable location and land resources. In addition, TFTZ was still at its early growing stage so that international trade, transportation and storage could not fully start, though export processing developed quickly, especially when the preferential policies such as customs duty reduction and holiday in other FEZs were canceled. The cooperation between TEDA and TFTZ was also able to bring the advantages of both sides into full play.

- Establishment of its own enterprise is also TEDA's strategic choice. Only industrial capital with high-tech industry can actually determine TEDA's stable economic development. TEDA used only the land, one of the essential factors of production, to develop the economy, but the industrial capital did not belong to TEDA. Foreign investment, especially several large transnational companies holds a dominant position in TEDA's total industrial capital and has determined TEDA's economic development and the establishment of pillar industries. TEDA's domestic capital, on the contrary, has played only a limited role in its development. TEDA, therefore, does not have the initiative of economic development in its own hands. Moreover, the success of the land development confined TEDA' role as a land developer only because accumulation and development of the industrial capital with more economic vitality was frequently ignored. Finally, TEDA's land development faced a great challenge along with the reduction of the disposable land resources, the decentralization of land's monopoly managerial authority, and the reduction of the preferential policies.

Only the combination of land development, industrial development, and capital operation can overcome these problems. Land development can be used to seek the survival, but the industrial development and capital operation should be used to promote the zonal and the regional economic development. With the capital operation, TEDA can raise the funds to invest in other regions and build own enterprise groups, improve the industrial structure in the urban center and the coastal region, build up close links between the zone and the region, and strength its own position as a regional growth pole.

Problems of TEDA's Development Model

There are also some problems in TEDA's development model. The key problem is that TEDA overstressed infrastructure construction for industrial development, but ignored the construction of public facility, which resulted in several problems.

Industrial Estate with Undeveloped Urban Function

Based on the EPZ model, secondary industry was greatly promoted and attracted the most foreign capital so that TEDA's industrial estate covers 23 km², making up 69% of total area, but the financial, trade and living estate covers only 10 km², making up only 31% of total

area.[385] In addition, most investments in fixed assets focused on the industrial estate. For example, the factory buildings are overwhelmingly superior to the residential and public building in the accumulated floor space of houses completed. This situation was changed just only in 1999. In this year, residential and public building first exceeded factory building (see Table. 32).

In order to promote economic development, one can understand that TEDA gave the priority to the construction of industrial estate and factory building at the initial stage, but undeveloped urban function has limited TEDA's further development since the middle 1990s. Since 1997, TEDA has gradually improved its public facility. For instance, TEDA TV University (1998), TEDA College of Tianjin Nankai University (1999,) TEDA international school, the first primary school, the first middle school and Hospital (1998), were established. On November 1, 1999, the railway between TEDA and Beijing was open to traffic, and TEDA become the first ETDZ with train transport connection in China. There is also free bus service for 19.80 km within TEDA. In addition, the living quarters for stalls and workers, sports cultural and recreational facilities and activities were newly established or further developed.[386] But, compared to Tianjin proper, TEDA's and Tanggu's public facility and their comprehensive living quality are relatively undeveloped so that there are few qualified human resources living there. For example, only few qualified students are allowed to study at the universities in China. If young pupils visited a good school, they would have more chances to study at the university. Unfortunately, there are few such schools in TEDA and Tanggu. In addition, there are also few good cinemas, shopping centers, restaurants, hotel and universities. This had led to several problems.

Tab. 32: TEDA's Urban Construction (1991–2001), unit: 10000 square meter

Term		1991	1992	1993	1994	1995	1996	1997	1998	1999	2001
ASHC		65.70	87.10	119.40	166.00	199.30	232.50	292.40	357.56	427.85	545.81
FB	total	49.60	64.20	78.20	109.20	135.70	157.20	189.90	206.23	204.72	253.27
	%	75.50	73.70	65.50	65.80	68.10	67.60	64.90	57.70	47.80	46.40
RPB		16.10	22.90	41.20	56.80	61.60	75.30	102.50	151.33	223.13	292.54

Source: sorted from: 1) Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, p. 71; 2) "Annual Report on the Development of TEDA (1995-2001)", Statistical & Planning Bureau of TEDA

Note: ASHC: accumulated floor space of house completed; FB: factory buildings; RPB: residential and public buildings

Problem of Commuters

TEDA is located in Tanggu District, 50 km far from Tianjin proper. The population educated in Tanggu District is under the average level of Tianjin proper so that many foreign-funded enterprises in TEDA employ skilled workers and technical staffs from Tianjin proper. For enjoying the well-developed public facilities in Tianjin proper, these peoples prefer to travel to and from TEDA and Tianjin proper. This results not only in environment pollution and traffic jams, but also in an increase of production cost for the enterprises. According to the investigation of 1998, if 1/3 of enterprises, whose employees work by turns, is taken into account, there are 31,000 commuters between TEDA and Tianjin proper with 520 buses, and 20,000 commuters between TEDA and Tanggu proper with 330 buses. Total commuter cost of the whole year accounted for 8.35% of the average labor cost and 1.78% of the average

[385] TEDA (1996), << Master Plan of Tianjin Economic & Technological Development Area >>, TEDA, p. 9

[386] Wang Qi (1999), "Creating the Hopes, Supporting the Future: Celebrating the 15th Anniversary of the Founding of Tianjin Economic and Technological Development Area", (Chuangzaoxiwang, Tuojiuweilai: Qingzhu Tianjin Jingjijishu Kaifaqiu Chengli Shiwuzhounian), People's Daily, Overseas Edition, on 19 November, 1999, edition: 9,12

enterprise's operation cost.[387] Therefore, there is a less permanent consumer population in TEDA, and most of them come from other provinces and Tanggu district. Several large enterprises established living estate in Tianjin proper.

TEDA's Enterprises outside TEDA

According to the investigation of TEDA's investment environment, the foreign-funded enterprises were mainly unsatisfied with undeveloped public facility, such as insufficient trading establishments, fewer banking institutions, undeveloped transport facilities inside TEDA and between TEDA, Tianjin proper and Tanggu, and undeveloped culture, education, public hearth care and recreation facilities.[388] Some foreign investors complained that the investment cost in TEDA is higher than the urban periphery due to higher commuter cost. Due to this problem, about 41% of large projects with over 10m US$ of registered capital in 1996 registered in TEDA in order to enjoy the preferential policy, but they were located in other development zones, which are close to Tianjin proper or in Tianjin proper and even in other cities in order to reduce commuter cost and production cost.[389] In order to attract these investments, TEDA has to allow them to be located in other regions.

It is very difficult for TEDA to govern these enterprises outside the zone. Due to the favorable location near Tianjin proper, Dongli, Xiqing, Beichen and Jinnan made great progress by attracting investments. In addition, Motorola invested $720m in Xiqing Development Zone to establish its new microelectronics Company (semiconductor), and Samsung Group invested 30b US$ in Wuqing Development Zone to establish its new electronics company (color electron). TEDA had to cooperate with both development zones and finally transformed them into two sub-zones. But, the locations of the two large projects outside TEDA mean that its comprehensive investment environment cannot meet the needs of these high-tech enterprises such as high quality personnel and living environment. For instance, Samsung's color electron project needs 50,000–70,000 skilled workers and technical staff, but only Tianjin proper can supply so much high quality personnel. If the project is located in TEDA, the 50,000–70,000 commuters would not only cause traffic problem, but also increase production cost.

Conflict with Coast-Oriented Development Strategy

Little attention was paid by TEDA to improve its regional infrastructure and public facilities in Tanggu proper. The establishment of four sub-zones in the area around Tianjin proper can bring full play of the advantages of both TEDA and other local development zones, but it has also made negative impact on the development of TEDA and BNA. TEDA was a strategic measure to realize Tianjin coast-oriented strategy. TEDA and coastal region have made great progress in attracting foreign investment and promoting industrialization. It is hard to understand why TEDA did not improve the infrastructure and some public facilities in Tanggu area, although regional public facilities will influence TEDA's further development.

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[387] Wei Hongmei (1999), "Findings Report on Commuter Cost of Employees in TEDA's Enterprises", (TEDA Zhuqiuqiye Zhigong Tongqinchengben Wenti Diaozhabaogao), In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 177, TEDA, pp. 53-54

[388] Wang Xin (1999), "Study on the Development Strategy of TEDA's Urbanization", (TEDA Dushihua Fazhanyianjiu), In: <<Study on Development – Reference for Decision>>, 1999 Bound Vol. No. 133, TEDA, p. 202

Hu Yonghui (1999), "The Summary about TEDA's Investment Environment in <<Report of 'Zero' Investigation>>", ("Lingdiandiaocha Baogao" Zhong Youguan Kaifaqiu Taozi Huanjing De Zhaiyao), In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 184, TEDA, pp. 98-102

[389] Wang Xin, Ye Wang, Hu Baochun, Sun Quan (1996), "Study on the Problems of TEDA's Sub-Zone", In: <<Study on Development – Reference for Decision>>, 1996 bound volume, No. 118, TEDA, p. 136, 138

Conceptions to Improve TEDA's Urban Construction

TEDA's development model of "three orientations" promoted its economic development. By 2000, TEDA's GDP and GIOV reached 25.64b Yuan and 73.18b Yuan, which are so much as a mid-size industrial city. And yet, according to the law of industrialization, tertiary industry will finally exceed secondary industry. TEDA, at the middle stage of industrialization, will demand the relevant development of tertiary industry and the improvement of urban function.

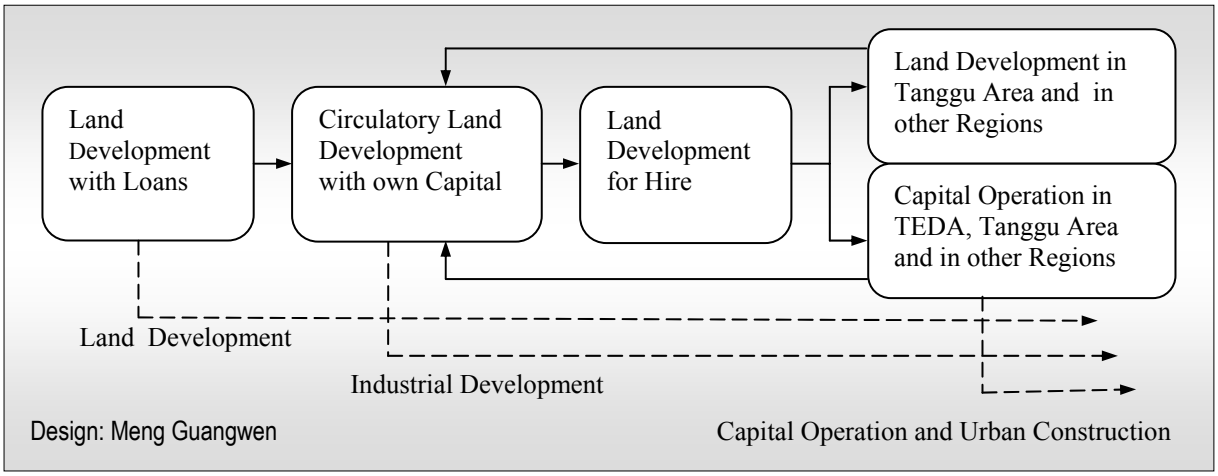
Tianjin regional development strategy includes "industrial coast-orientation" and "construction of BNA". There is a mutual relation between them. BNA can be completed only when more industries are shifted to or established in the coastal region on the one hand; the industrial coast-orientation can be completely realized only when BNA is just beginning to take shape. Tianjin regional development strategy demands the economic and urban development of TEDA and Tanggu proper.

In order to realize sustainable economic development and create attractive investment and living environment, TEDA should not only promote industrial development and capital operation, but also urban construction. With 49.53b Yuan of financial revenue in 2000, TEDA was able to carry out urban construction. The large enterprises within TEDA were also ability to participate in urban construction. For instance, several transnational companies established their own living estates, including "Motorola Village" in Tinajin proper and the "Living Quart" of Tianjin Tinyi International Food, Co., Ltd. from Taiwan in TEDA.

New and high-tech industry will be encouraged in TEDA, but senior high-tech specialists need a high quality of living environment, including graceful natural environment, and rich recreational and cultural activities. TEDA's urban construction shall be carried out based on a high standard. It should be in correspondence with its developed economy and the leading position in BNA. The large capacity of public facilities and high-tech standards will create an attractive investment and living environment and promote TEDA's further economic development in the future.

TEDA possesses not only a developed economy, but also a modern urban infrastructure and public facilities, and is becoming an economic and urban center of Tianjin and BNA. In order to maintain this status, more capital should be invested in TEDA's financial-trade-living estate, namely expanding and establishing a high quality of resident quarters and public facilities such as business, financial, education, cultural, sports and public health facilities. On the other hand, spatially and functionally, TEDA is a part of Tanggu area. So, TEDA's economic development and urban construction should be integrated with Tianjin BNA in a planned way, especially with Tanggu proper. In addition, TEDA should be step by step integrated with BNA, namely with TFTZ and other development zones around it, with Tanggu District, Tianjin Port, Hanggu, Dagang District and NIZHR. In a word, it is necessary for TEDA to invest in the regional infrastructure and social facilities and to establish sub-zones in coastal region and Tanggu area because that will not only expand TEDA's development space and coordinate economic and urban development between TEDA and the coastal region, but also can promote the implementation of Tianjin coast-oriented strategy and establish the central port city of Tianjin BNA.

Fig. 49: TEDA's Development Model and its Evolution since 1984



Note: the solid arrows show the linkages between TEDA's different land development models; the broken arrows show the three evolutionary stages of TEDA's land development

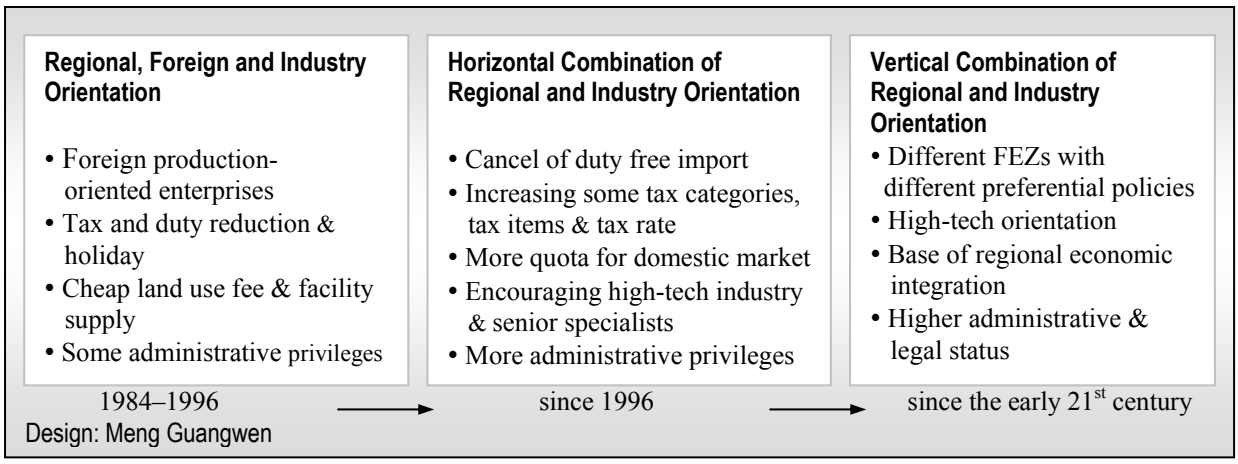
9.5. Discussion of TEDA's Preferential Policy and the Structure of its Administration

Preferential Policy

TEDA carried out a regional-oriented preferential policy from 1984 to 1996. All of foreign-funded manufacturing enterprises inside TEDA can enjoy tax reductions, holiday and duty free import and export, but domestic and non-manufacture enterprises enjoyed less preferential policy. That accorded with TEDA's actual situation at that time, namely that TEDA had to attract more foreign industrial investment in order to build an active investment atmosphere, start industrial development, and import advanced equipment and technology. The domestic enterprises can supply the tax revenue to TEDA' starting development. Following TEDA's economic development and the elimination of the duty free import, TEDA's preferential policy has been transformed to the combination of foreign and domestic enterprises-, secondary and tertiary industry- as well as high-tech-orientation since 1997, which adapted to the transformation from the policy of "three orientations" to the policy of "three combinations". Both large foreign-funded transnational companies and small but high-tech- and service-oriented enterprises were encouraged. Today, TEDA faces the challenge of China's entry into the WTO in 2001 and TEDA's transformation from a comprehensive ETDZ to a modern and open port city in the 21st century. It still needs the preferential policy as the measure to promote this transformation, but the policy will be changed in the future.

TEDA should maintain the preferential policy of the vertical combination of regional- and industry-orientation. Like SEZ, TEDA will spatially consist of several sub-zones, and each sub-zone enjoys different preferential policies. The sub-zones as FTZ or free port and EPZ will enjoy standard free trade policy. New and high-tech industry will always enjoy the preferential policy and privilege in each zone. Some zone will become the normal economic zones. TEDA will be a new city or new special administrative area and should enjoy the relevant administrative authority. In addition, TEDA should be given priority to carry REI (see Fig. 50).

Fig. 50: The Features and Transformation of TEDA's Preferential Policy and Privilege since 1984



Governance Structure

TEDA's government-oriented model in the 1980s and the mixed model of government- and enterprises-orientation in the 1990s have promoted and guaranteed its economic development. TEDA is in an effort to turn itself into a FEZ with the lowest cost, the highest service level and the best investment environment in China. The general function of TEDA's governance structure is service. "One Stop Shopping", "One Window Service" and "System and All-Side Service" was carried out in TEDA. The new slogans in 1999 was "service is also a productive force". TEDA officials claimed that an enlightened, open, efficient, incorruptible and initiative image of TEDA's authority had been established. For example, TEDA helped Motorola to obtain domestic market quota of five million mobile phones. TEDA continued to clear up administrative and undertaking charges to cement its achievement as "an administrative-charge-free zone".

But, following TEDA's development and regional linkage with Tanggu area, the old governance structure revealed a key problem. TEDA is located in Tanggu area and there are also economic and functional relations between TEDA and Tanggu area, but they occupy their own independence governance structures and developed only limited cooperation. This results numerous problems and limited their further development in the 21st century.

- Regional Environmental Pollution. By 2000, city's environment was greatly improved and was taken as a useful and operable resource by TEDA. Total greenery patches reached 3.54m m² by 2000, and per capital greenery patches reached over 20 m². The greenery cover rate reached 31.30%. More attention is paid to environment protection. The industrial sectors with pollution are restricted. For example, TEDA established Hanggu sub-zone to locate chemical industry. TEDA seems to be a pleasant, clean and green urban proper, but there is serious environment pollution in Tianjin New Port and in the Tanggu area, which has influenced TEDA. For example, TEDA is polluted by a coal dust from coal yard in Tianjin New port. It is necessary for TEDA and Tianjin Port to have cooperation if TEDA wants to resolve this problem. Besides TEDA, the investors and residents in TEDA need a pleasant regional living environment, including TEDA itself and Tanggu area.

- Regional Public Facilities. Although TEDA is trying to establish more modern public facilities, its general public facilities are behind Tianjin proper. TEDA's living estate makes up only 30% of total 33 km². In addition, there are little modern public facilities in the Tanggu area. It is more important for investors and residents in TEDA to have more

modern public facilities and a larger living space in the Tanggu area, not only in TEDA. TEDA alone cannot provide enough public facilities for its residents.

- Limited Regional Education and Personnel Training. There are few educational and training chances in Tanggu area because there are few good schools and universities. If one wants to have a good education and training, one should go to Tianjin proper or other cities. That is why Tanggu cannot provide enough qualified personnel to TEDA. Qualified personnel are also in short supply in the sub-zones of TEDA, such as Xinqin sub-zone, but their problems are different from TEDA. Unlike TEDA, Xiqing sub-zone was established on farm land. This led to the unemployment of the land owners. To resolve these problems, the local government formulated a policy that the enterprises inside the zone should give priority to employ these jobless. Unfortunately, most of these peasants have almost no job training besides agricultural skill. Little training chances are a regional problem. It is necessary for TEDA to cooperate with local government and enterprises to resolve this problem.

- Regional Competition. TEDA is located in the Tanggu area. Normally, following economic development, they should carry out economic cooperation in order to give full play to the advantages of both sides, however, there is intense competition in attracting foreign investment between them. The stiff competition between TEDA and Tanggu Marine NHIP is a example, which face each other across a road. It is hard to understand why TEDA established several sub-zones in other local zones but not in the Tanggu area.

In order to resolve these problems and provide a modern and pleasant regional public facility to investors and residents, TEDA should improve its own public facilities and regard it as an integrative part of Tanggu area. TEDA should cooperate with the Tanggu area to construct public facilities in Tanggu area by attracting foreign investment, using its own capital and experience. In addition, TEDA should not only construct a beautiful and non-polluted urban proper, but also engage in a regional environmental pollution harness in the Tanggu area.

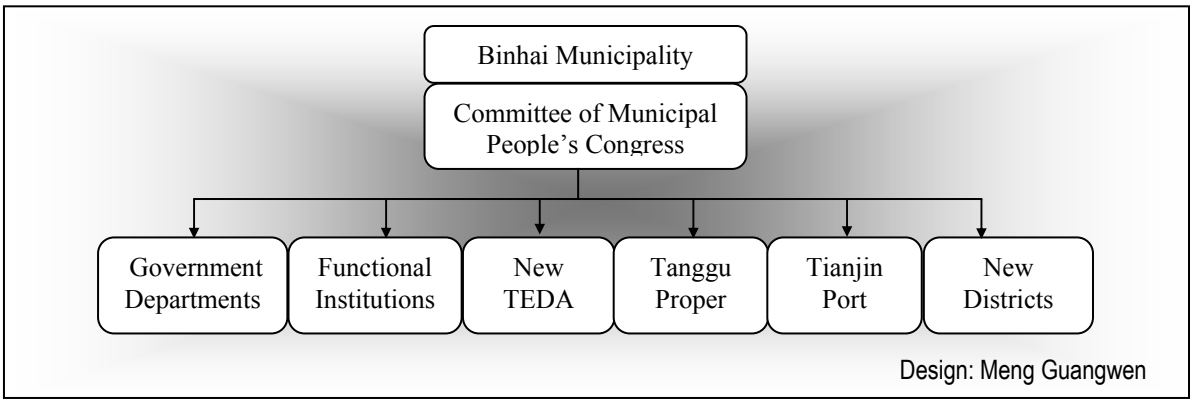
TEDA should first carry out economic and administrative cooperation with the TFTZ. The TEDA is being transformed into a comprehensive ETDZ, but manufacturing industry is still its major economic sector. This transformation could quickly realize by absorbing TFTZ's manufacturing industry and use the free trade policy of TFTZ. TFTZ should pay more attention to international trade, service trade and storage. Economic cooperation should be carried out between TEDA and the Tanggu area. The unnecessary competition in attracting investment between them could be reduced, if Tanggu marine NHIP were be a cooperative zone of TEDA. TEDA could expand its development space and Tanggu marine NHIP could use TEDA's famous market brand, capital, and experience.

Because regional human resource market cannot offer a lot of high-ranking personnel, TEDA, local government, and enterprises should together offer personnel training by providing both basic and special personnel training. There are numerous examples in Shannon FEZ of Ireland and Bataan EPZ of Philippines. TEDA, local government, and enterprises should share the costs of this training.

A new municipality in coastal region should be established by economic and administrative cooperation between TEDA and Tanggu area. TEDA should regard the Tanggu area as the background for its urban and economic development. Following the development of this cooperation, TEDA should be integrated not only spatially and economically, but also administratively with the Tanggu area, including FTZ, Tanggu Marine NHIP, Tianjin port,

and Tanggu district. This would be the best way to resolve the above-mentioned problems and promote the economic and urban development of TEDA and the Tanggu area in the 21st century. A special administrative area should be established. TEDA would become a heart of this new port city.

Fig. 51: A Special Administrative Area as TEDA's Governance Structure in the early 21st Century



9.6. Discussion of TEDA's Investment Promotion

Promotion of Foreign Investments

TEDA successfully carried out the policy of "foreign capital-orientation, and held on to its persistent principles: "Investors are Emperors", "Projects are Lifeline" and "Provide Investors with Convenience", "Let Investors make Profits", and engaged itself in building an even higher level of an international standard investment environment and attracted more and more foreign investment. Foreign capital cannot only make up for TEDA's insufficient found, still, it also is the carrier to transfer technology and management experience. The foreign investments, especially the investments of numerous famous transnational corporations, therefore, become the key motive force of TEDA's development. The successes include three aspects:

TEDA has a large amount and rapid increase of foreign investment. By the end of 2000, TEDA had approved, in accumulation, 3315 foreign-funded enterprises from 64 countries and Hong Kong, Macao, and Taiwan with total investment (including added investment) of US$ 27.79, the contracted foreign capital of US$ 26.40 and the actually utilized foreign capital of US$ 10.10b, which increased by 87.44, 182 and 66 times over 1985. Their average annual growth rates in 2000 were 77.35%, 88.01% and 56.49%. Total registered capital of domestic capital in 2000 reached 22.73b Yuan (45.91b Yuan in 1999), an increase of 5 times over 1985. The average annual growth rate from 1985 to 2000 was 13.76%. The investment is a rigid input from the outside and is influenced by the national and international economic and political situation so that TEDA's foreign and domestic investment shows an unstable increase.

Foreign investment (over 70%), especially several large transnational corporations, have held a leading position in TEDA's total investment since 1995. There were 216 enterprises with over 10m US$ each, and 11 companies of them invested more than 1b US$ each. Among the global top 500 companies listed in the magazine "Fortune" in 2000, thirty transnational corporations from seven countries and territories invested in 51 enterprises registered in TEDA. A handful group of world famous transnational corporations have become major investors in TEDA, including Motorola, Coca-Cola, Pepsi, lucent Technologies, Emerson Electronic Co., Honeywell, American Standards and Caterpillar from the U.S.A.; Yamaha,

Itochu, Marubeni, Sumitomo, Panasonic, Canon and Toyota from Japan; Volkswagen from Germany, Nestle from Switzerland, Alcaltel, Lafarge, Schnerder and Rhoene-Poulenc from France, Samsung, Hyundai and LG from Korea, Chia Tai from Thailand, and Uni-President from Taiwan.

Tab. 33: TEDA's Foreign and Domestic Investment (1985–2000), Unit: 10,000 US$ and Yuan (Y)

Term / Time	Total invest. of foreign enterprises, $		Contracted foreign contribution, $		Foreign capital actually utilized, $		Registered capital of domestic enterprise, Y	
	Total Value	Growth %	Total Value	Growth %	Total value	Growth %	Total value	Growth %
1985	3192	-	1436	-	1534	-	58109	-
86	4342	36.03	1693	17.90	2634	71.71	5694	-90.20
87	2280	-47.49	844	-50.15	1817	-31.02	66806	1073.27
88	8482	272.02	4835	472.87	3158	73.80	9335	-86.03
89	10569	24.61	6764	39.90	7876	149.40	6448	-30.93
90	12237	15.78	10034	48.34	6153	-21.88	19465	201.88
91	18565	51.71	12653	26.10	8560	39.12	47342	143.22
92	70761	278.46	50685	300.58	19422	126.89	300574	534.90
93	123536	75.82	75853	49.66	49732	156.06	389324	29.53
94	152278	23.27	119908	58.08	52055	4.67	388108	-0.34
95	181100	18.92	158959	31.76	71523	37.40	335300	-13.60
96	191604	5.80	158846	-0.09	78746	14.31	363410	8.38
97	149576	-21.90	130815	-17.60	90021	14.30	486385	33.80
98	148208	-0.90	122845	-6.10	101318	24.40	682575	40.30
99	142884	-3.60	127997	4.20	100071	-1.2	459053	-32.70
2000	277902	94.47	264034	106.25	101000	0.92	227300	-101.95

Source: sorted from: 1) "Annual Report on the Development of TEDA (1995-2000)", Statistical & Planning Bureau of TEDA; 2) Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 26-32

Due to the improvement of investment environment, numerous foreign companies either expanded their investment or established new ones in TEDA. The investment realized a strong and sustained increase. At the initial stage, few foreign enterprises invested or expanded their investment in TEDA. From 1988 to 1993 many companies gradually expanded their investment in TEDA, but their total added capital accounted for less than 12% of the total foreign investment at that time, and the average added capital level was less than two million US$. More and more foreign companies, especially, the transnational companies, have expanded their investment since 1993. Their added capital increased from 20% of total foreign investment for the whole year in 1994 to 80% in 2000. In addition, the average added capital level also hit a high level during this time, an increase from 5.33m US$ to 41.96m US$. From 1994 to 2000, about 60 companies increased their capital, exceeding 10m US$ each. Several large transnational companies made up the most added capital in TEDA (see appendix 1). For instance, Motorola added the investment of 19b US$ in 2000, which still is the largest foreign enterprise in China.[390]

Problems and Countermeasures

Generally, TEDA's investment promotion is successful, but several problems were also revealed following its development. TEDA's development based on the foreign investment, especially several transnational corporations, is unstable because the unstable international

[390] Statistical & Planning Bureau of TEDA: "Annual Report on the Development of TEDA of 2000"

economic development will make a great impact on the investment strategy of the large transnational corporations. Especially, because China was admitted to the WTO at the end of 2001, the preferential policy and investment environment of TEDA will be not attractive like before. The unstable development of world economy and the strategic change of transnational corporations will influence or determine TEDA's economic development in the future.

Compared to other ETDZs of China, TEDA led in the most major national indicators, but export ratio and average investment level were behind several ETDZs such as Dalian and Guangzhou because TEDA had attracted more small projects. For instance, the average investment level over the years of 1986–1994 was only 1.85m US$, much lower than some ETDZs such as Ninbo (7.02m US$), Guangzhou (5.29m US$) and Caohejing (5.50m US$).

Tab. 34: Average Investment Level of Foreign-Funded Enterprises in 10 Chinese Major ETDZs over the Years (1985–1994). Unit: Billion US$ for Total Investment; Million US$ for Average Level

Zones Term	Numbers of projects	Total Investment	Average Investment
Dalian	1142	4.97	4.35
Qinhuangdao	191	0.73	3.82
Tianjin	2196	4.06	1.85
Qingdao	514	1.13	2.20
Lianyungang	187	0.37	2.00
Nanton	174	0.64	3.72
Caohejing	149	0.82	5.50
Qinhuangdao	323	2.27	7.02
Fuzhou	337	1.45	4.30
Guangzhou	357	1.89	5.29

Source: Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, p. 30

TEDA has had an increase in both average annual investment level and average investment level over the years since 1995. For example, the former increased from 2.28m US$ in 1985 to 4.75m US$ in 2000, and the latter increased from 2.84 US$ in 1996 to 4.51m US$ in 2000. In the year of 2000, there were 16 newly approved large projects whose investment exceeded 10m US$ each. But, TEDA's foreign investment level in 1998 was only 70% of the average level of 32 national ETDZs.[391] Its total foreign investment, the numbers of foreign-fund enterprises and large transnational companies held the first place in 1998 on the one hand, its average investment level was lower than the average level of 32 national ETDZs, on the other. That means that TEDA is short of mid-size enterprises (see Table 35).

TEDA depends seriously on the investment of the USA, Hong Kong, Korea, Japan and the British Virgin Islands, but only the investment from the EU and Taiwan is little important than they should be (see appendix 1). More and more countries and regions invested in TEDA, which, in accumulation, increased from 13 countries and territories in 1987 to 64 in 2000, but several countries and territories among them have the most investments in TEDA. The first 10 countries and regions of them amounted to over 88% and the first five made up about 70% of TEDA's total foreign investment during the period of 1985-2000 over the years.

[391] Ai Chenglong, Ning Wei (1999), "The Current Situation and the Development of Economic and Technological Development Zones", In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 178, TEDA, pp. 57-60

Hong Kong from 1984 to 1994, was the first investor in TEDA. After that, the United States since 1995, Hong Kong since 1995, Korea since 1996 and Japan since 1995 have repeatedly occupied the first three and the fifth places. The fourth place was alternately taken by the UK and the British Virgin Islands.

Tab. 35: TEDA's Average Investment Level (1985–2000), Unit: 10,000 US$

Term/Time	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**
Numbers of foreign-funded Enterprises	14	27	34	48	40	54	121	462
Annual average investment level	228	161	67	177	264	227	153	152
Term/Time	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Numbers of foreign-funded Enterprises	909	487	361	187	172	194	106	128
Annual average investment level	136	185	230	561	672	495	644	475
Average investment level over the years	-	-	-	284	318	346	379	451

Source: sorted out from: 1) "Annual Report on the Development of TEDA (1995–2000)", TEDA; 2) "10 Year's Statistical Report of TEDA (1984–1994)", Statistical & Planning Bureau of TEDA, p.30

Note: besides of the annual average investment level from 1996 to 2000, there is also the average investment level over the years (1996–2000). It was calculated that the total investment of foreign enterprises minus the added capital is the investment of newly approved enterprises, and this result which is divided by the numbers of newly approved enterprises is the annual average investment level, which is larger than that of other years. But, the added capital was ignored from 1985 to 1995

TEDA should maintain a sustainable and stable development and avoid a large risk caused by investment over-centralization in the future. The foreign investment, especially the investment of the large transnational companies should continue to be promoted, because they are still the key motive power for TEDA's further development. The domestic investments should also be encouraged because they play a strategic role in TEDA's further development. The establishments of mid-size enterprises and small but high-tech enterprises should be encouraged, because they will balance and guarantee TEDA's further development. In addition, besides the USA, Hong Kong, Korea and Japan, TEDA should attract more investments from EU countries and Taiwan. EU countries, such as Germany, France, UK, Italy, and Sweden, possess rich capital and advanced technology. Taiwan relaxed its policy of restricting investment of large Taiwanese enterprises on the mainland. Finally, TEDA should cooperate with other FEZs and development zones in Tianjin coastal region in order to refrain from over-competition.

9.7. Discussion of TEDA's Industrial Development

Industrial Development

TEDA's industrialization is successful. Unlike Shenzhen SEZ, Tianjin and TEDA do not have a large area and a geographical advantage to be close to a huge overseas high-consumption market and rich tourist resources, but Tianjin possesses a complete industrial system, a killed labor force, a higher technological level and a huge regional market, which can be utilized by TEDA. Based on the policy of "three orientations" in 1988, the secondary industry was promoted, as long as they could be beneficial to attract foreign capital, to earn foreign exchange by export, to develop foreign trade, to obtain the advance technology and to carry out export-oriented strategy.

Following economic development, TEDA gradually established its own pillar industries, and the labor-intensive industry has being transformed to capital and technology-intensive industry. At the beginning, TEDA welcomed almost all industrial sectors in order to build an active and attractive investment environment. Since 1990, especially since 1992, TEDA's key objective has been to attractive more large transnational companies with advanced

technology. The high-tech industry has been promoted based on the policy of "three combinations" and "high-tech orientation" since 1997. Today, the four pillar industries, including electronics and electric, food and beverage, machinery, chemical and pharmaceutics, support TEDA's stable economic development, higher economic returns and technological transfer.

The foreign investor's, especially the large investor's objectives, determined TEDA's industrial structure. At the beginning, only small-size enterprises invested in TEDA for using the cheap labor forces and the preferential policy, but since 1990, several transnational corporations have invested large-scale capital in TEDA with a strategic goal of operating TEDA's regional market. These large companies do not have numerical superiority, but they are absolutely superior in TEDA's investment, GDP, tax revenue, export, financial revenue, employment, and technological transfer.

Several Problems in TEDA's Industrial Structure

Following TEDA's development, several problems have arisen in TEDA's industrial structure. For example, the tertiary industry and urban construction are still at a low standard and have limited TEDA's further development. In particular, close economic and technological links between the industrial groups and between the pillar industries have not been established. TEDA's industrial structure has been characterized by transnational corporations. Their investment in TEDA can attract and has attracted cooperative enterprises as well. Coca-Cola and Motorola in TEDA attracted several cooperative companies to invest in the zone, but these links are not as well-developed as they should be. The transnational companies already have worldwide economic and technological relation, they can choose their best cooperative partners worldwide. In addition, they have invested in TEDA only for several years. It is difficult to establish close links among enterprises in a short time. Moreover, numerous small enterprises are export processing enterprises, which do not have close links with the large transnational corporations and regional economy.

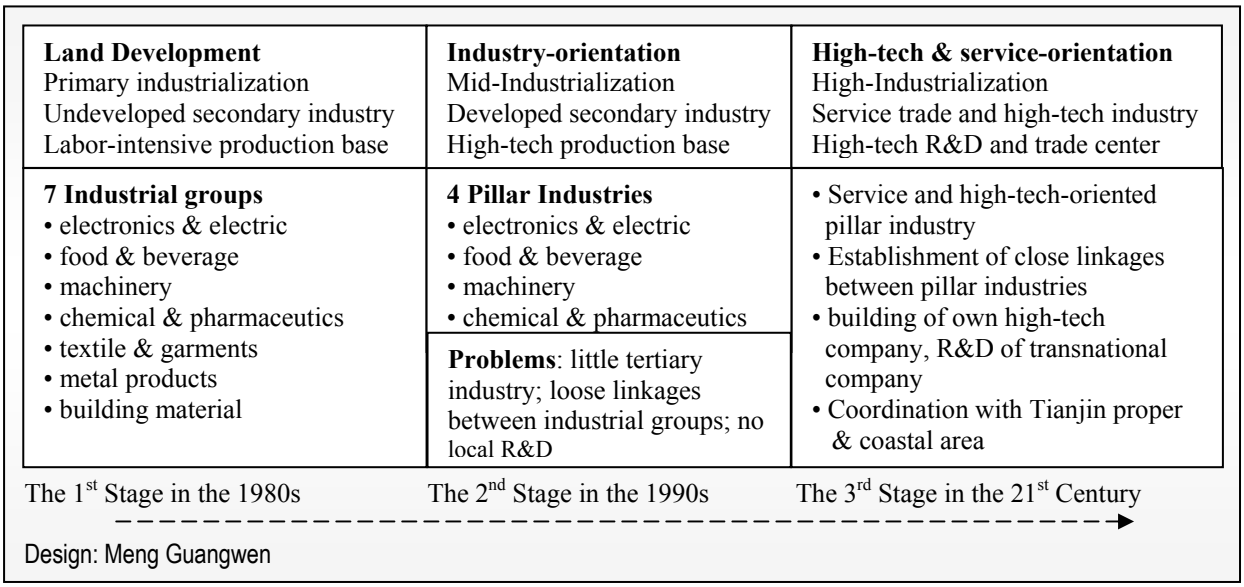
Furthermore, the investment of several transnational corporations during a short time promoted the establishment of four pillar industries, but they have not yet set up the divisions of their technology and R&D in TEDA. They have only supplied the production equipment with some high and advanced technology, excluding the key technology and the key "software". TEDA has not brought up its own large enterprises with technological know-how and innovation. This means that TEDA is more likely a production base for some high-tech industries. A stable and sustainable economic development has not yet been finally realized. In other words, transnational corporations have thus determined the TEDA's future and economic life-span.

The Prospect of the Further Development of TEDA's Industrial Structure

The theory of industrial structure states that the regional economic system would evolve from primary industry (agriculture) and secondary industry (industrialization) to tertiary industry (service) and intelligent economy. A industrial group can be classified into pillar industry, auxiliary industry and basic industry. The economic growth is unbalanced. The pillar industry as leading sectors play the dominant role in regional economic growth by developing economic and technological links with auxiliary and basic industry. These links include forward-, backward- and sideward-links. For examples, the products of an industrial sector will be used as the raw materials or semi-finished products for the other sectors. The links between the industrial groups would be strengthened following the evolution of industrial groups (see appendix 2).

According to the theory and actual situation of industrial structure, TEDA is at a mid-stage of industrialization and will be transformed to the stage of high-manufacture industrialization. Secondary industry will still hold the leading position for a long time, but tertiary industry will gradually replace the secondary industry to hold a leading position in the future. Therefore, TEDA's industrial structure should be transmitted from the industry-orientation to the combination of industry and service trade and to the service trade- and high-tech-orientation. The pillar industries and the economic and technological linkages among them should be gradually improved and strengthened. TEDA should exchange the high-tech industry of foreign-funded companies with the domestic market and promote the establishment of their local R&D on the one hand, and should established its own companies and high-tech industries with high-tech-oriented preferential policy on the other. The labor-intensive industry will be continually transmitted to the capital and technology-intensive industry. TEDA should be not only a national high-tech production base, but also a national high-tech R&D center. In addition, the development of TEDA's industrial structure should be coordinated with Tianjin proper, especially with coastal area such as Tianjin FTZ, Tanggu proper, and other development zones in order to realize a rational industrial division and cooperation.

Fig. 52: The Transformation of TEDA's Industrial Structure since 1984



9.8. Discussion of TEDA's Exports

Success and Problems

TEDA's foreign trade is one of the factors to promote TEDA's economic development. Total export and import has realized a continual growth since the 1980s. Total export in 2000 increased by 1538 times over 1986, and the average annual growth rate of export reached 100% during the period of 1986-2000. TEDA's foreign trade promoted its technological transfer by imported advanced and high-tech industry and equipment, and created foreign exchange and employment by export of products. In addition, TEDA's export products transformed from labor-intensive to higher value-added technology-intensive products. But, this policy was not as successfully carried out as TEDA's foreign capital-oriented and industry-oriented development. There are the following problems:

TEDA's export and import are not balanced. Import was more than export before 1988 and since the 1993. Generally, TEDA export ratio gradually increased from 1986 to 2000. Except the highest ratio (45%) in 1990 and the lowest ratio (26%) in 1993, TEDA's export ratio changed from 31% to 37% in the 1990s (38.6% in 2001), which is lower than other EPZs in East Asia and some ETDZs in China. For example, the export ratio of 1982 in Massan EPZ of Korea and Bataan EPZ of Philippines were 86.70% and 96.90%, and the export ratio of Dalian ETDZ was over 50% in the 1990s.

As a manufacture-based FEZ, TEDA has a lower export ratio and its export depends unduly on the foreign enterprises, especially on several large transnational companies. At the same time, foreign enterprises, especially large transnational companies increased their investment and GIOV more quickly than their export. This phenomenon presented their investment strategy. Except preferential policy and labor forces, their key investment in TEDA aims to bypass tariff barriers and to realize market localization. So, export is not especially promoted by them. The export ratio of most transnational companies are lower that 30%. Yamaha Electronic Musical Instrument Inc is a exception. Its export ratio reached 50%, but it occupied a higher Chinese market portion at same time. For example, Yamaha held 72% of Chinese market of electronic musical instrument in the 1990s. And Motorola (China) Electronic. Co., Ltd. held 40% of Chinese mobile telephone market.

Tab. 36: TEDA's Export Ratios of Industrial Products (1986–2000), Unit: %

Term / Time	**1986**	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
Export Ratio	17.55	27.65	20.60	36.29	45.08	39.14	31.92	25.95
Foreign Enterprises	17.55	7.83	9.96	27.01	39.59	39.69	26.49	25.37
Term / Time	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Export Ratio	33.38	-	33.30	35.90	35.90	35.10	35.40	-
Foreign Enterprise	33.62	-	33.60	36.60	35.20	-	-	-

Source: sorted out from: "Annual Report on the Development of TEDA (1995-2000)", Statistical & Planning Bureau of TEDA

TEDA export market is being enlarged, but it has over-concentrated upon several countries. Its products exported to only 33 countries and regions in 1992, but to 107 countries and regions in five continents in 2000. Hong Kong, Japan, USA and Korea were always the TEDA's first four export markets from 1987 to 2000. Until 1988, Hong Kong and Japan held continually the first and second places, and the USA and Korea alternately maintained the third and fourth positions. Since 1999, USA has held the first position. The proportion of the first five countries and regions changed from to 65.88% to 91.59% of TEDA's total export. The average value reached 80%. That means that TEDA's export market centralized in several countries and regions such as the USA, Hong Kong, Japan and Korea, or TEDA' export depends strongly on several countries and regions in North America and Asia.

Some Suggestions to TEDA's Foreign Trade

For TEDA's sustainable and stable economic development, TEDA should realize the balance of import and export and increase its export ratio. TEDA, as a successful FEZ with advanced industries and well-developed investment environment and the core of Tianjin coastal area, should promote its export and create foreign exchange in order to promote regional economic development. Its export ratio should be higher than the most regions and development zones in Tianjin, even in China. Second, unlike EPZs, TEDA has the objectives to transfer advanced technology. It should carry out the policy of exchanging high-tech industry with the domestic market and not seek an unrealistic higher export ratio. Third, TEDA should continually attract the investments of the large transnational companies and encourage their

export. At the same time, in order to maintain a sustainable and stable development and to change export market over-depending on several large enterprises and several countries, TEDA should not only promote the export of small and mid-size foreign and domestic enterprises, maintain and expand its traditional export market, but also open the new export market in the EU, East Europe, West and Middle Asia.

Tab. 37: TEDA's Export Market (1987–2000), Unit: 10.000 US$ and %

Term / Time	Export Market–Countries and Regions						TEDA's total im-export	First 5 countries (%)
	Total	The first 5 countries & their proportion of import (%)						
		1	2	3	4	5		
1987	-	Hong Kong 68.44	Japan 7.30	Korea 3.84	USA 2.54	UK 0.34	1616	82.43
1988	-	Japan 38.25	Hong Kong 37.96	USA 4.46	UK 3.23	Korea 2.97	3780	87.07
1989	-	Hong Kong 42.55	Japan 21.74	USA 6.35	UK 4.02	Korea 2.41	4604	77.27
1990	-	Hong Kong 31.30	Japan 24.43	USA 10.60	UK 2.54	Korea 1.73	6370	70.57
1991	-	Hong Kong 25.10	Japan 23.10	Korea 9.30	USA 7.53	UK 1.28	11348	66.31
1992	33	Hong Kong 27.85	Japan 24.39	USA 6.72	Korea 5.42	Taiwan 1.50	16022	65.88
1993	48	Hong Kong 30.00	Japan 27.79	USA 20.53	Korea 3.27	Taiwan 1.49	29235	83.03
1994	46	Hong Kong 38.90	Japan 23.31	USA 13.81	Korea 10.20	Taiwan 2.07	54426	88.28
1995	48	Hong Kong 35.62	Japan 20.31	USA 16.56	Korea 12.87	Singapore 2.75	90100	88.11
1996	58	Hong Kong 37.10	Japan 21.20	Korea 15.40	USA 10.60	Russia 4.20	145020	88.50
1997	63	Hong Kong 34.40	Japan 18.60	Korea 14.60	USA 11.90	UK 3.80	200415	83.30
1998	72	Hong Kong 30.60	Japan 27.78	USA 16.05	Korea 12.80	Singapore 4.36	208135	91.59
1999	106	USA 27.80	Hong Kong 18.30	Japan 12.50	Korea 8.90	Germany 6.50	255380	74.00
2000	107	USA 23.10	Hong Kong 17.10	Japan 12.90	Germany 12.80	Korea 10.10	310792	76.00

Source: sorted out from: 1) "Annual Report on the Development of TEDA (1995-2000)", Statistical & Planning Bureau of TEDA; 2) Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 48-49

10. TEDA's Evolution in Review and Prospect

Chapters 9 and 10 discussed TEDA's development, achievements, rules, and problems by separately analyzing the key factors. These issues are discussed in three evolutionary stages of TEDA in this chapter. Based on the experience of world FEZs and the theories of urban growth, city life-cycle and industrialization in LDCs, this chapter discusses firstly the factors of TEDA's evolution and its classification of three evolutionary stages (starting, growing and flourishing stages). It also discusses their features and problems as well as its development trend. Finally, TEDA's general evolutionary model is summarized as TEDA's experience, including TEDA's objective model, evolutionary mechanism and structural model, which is different from Chinese SEZs and classic EPZs in the world to a certain degree.

10.1. Factors of TEDA's Evolution

Several factors, including development policy, investment environment, foreign investment level, regional economic base, national and international economic and political situation, influenced TEDA's evolution.

The policy of "three orientations" in 1988 and "three combinations" in the 1990s differentiated TEDA from SEZs in China at first and similar to SEZs after. It tallied with TEDA's actual development conditions and demands so that it promoted TEDA's development, and laid a good foundation for its further development.

TEDA's preferential policy and privilege are not much different from other FEZs in China. They are even fewer preferences than those of SEZs and FTZs. But TEDA formulated in time new preferential policy in order to adapt to the changed development goals, including attracting and bringing up new and high-tech industries. Moreover, TEDA offers a good comprehensive investment environment for foreign investors, including efficient governance structure, well-developed infrastructure, and good service. But low-developed urban function limited TEDA's more successful development.

At the initial stage, TEDA attracted only small- and mid-size enterprises, but many large transnational corporations began to invest in TEDA in 1990. These companies, such as Motorola and Samsung, hold the leading position in TEDA's economic development. They have an absolute predominance in TEDA's major economic indicators.

Tianjin, as a central city backed by TEDA, is a modern port city and is the economic center in the northeast coastal area of China with a full range of industries with advanced technology and an open economic structure. Tianjin possesses a large economic hinterland which supplies TEDA skilled labor and staff, good public utilities, and more possibilities of production and technological cooperation as well as a large regional market. This is an important factor to attract the investment of the large transnational companies. But, following Beijing's economic and technological development, the development of PNA in Shanghai and Zhujiang Delta area, Tianjin and TEDA face a strong challenge by attracting foreign investment and technology. Especially, Tianjin is not well-known in the world like Beijing and Shanghai, even Shenzhen.

The political event of Tiananmen in 1989 caused economic sanctions from Western countries, and made a great negative impact on TEDA' s development so that TEDA's major economic indicators showed a decrease and even negatively increased during this period. "Deng' South

Tour" in 1992 encouraged foreign investment in China. The Asian financial crisis in 1997 led to the reduction of investment and export.

10.2. Classification of TEDA's Evolutionary Stages

Evolution of an economic system can be described by the selected indicators. The indicators of absolute values during a period can represent the economic scale and the volume change of an economic system, but the indicators of relative values during a period can represent the proportion of each economic factor and the relative change of an economic system. The numerous absolute and relative economic indicators can be used to a comprehensive and dynamic analysis of an economic system and simplify this analysis, but only some major indicators play a dominant role.

According to this principle, ten major indicators and their growth rates are collected to analyze TEDA's economic development and revolution. In addition, the evolutionary model of world FEZ, especially, the model of EPZs in East Asian countries, and the evolutionary model of the urban economic zone can be used as examples and references.

TEDA's Average Values of Major Economic Indicators and their Annual Growth Rate
TEDA's output, including six economic indicators such as GDP, GIOV, total export, financial revenue, per capita GDP, employment, and their annual growth rates from 1985 to 2000, can synthetically represent TEDA's economic development. TEDA's major input includes varied kinds of investment. They are the key motive force of TEDA's economic development. The total foreign investment can represent and replace another two indicators of foreign investment, such as the contracted foreign investment and the amount actually utilized. The total registered domestic capital is the 2nd motive force of TEDA's development, especially at its primary stage and in the future. The investment in fixed assets and infrastructure investment represent the input in TEDA's urban construction. The four investment indicators can synthetically represent TEDA's total economic input and its development motivation.

The figures of TEDA's major economic indicators showed TEDA's development trend from 1984 to 2000 (see appendix 3). If the curves are overlapped in a right angle coordinate system by unifying the numeral dimensions or values in a same scale of total indicators, a common and ideal curve will be obtained. The TEDA's development stages can be classified based on this average curve.[392]

The Curves of TEDA's Output / Input Economic Indicators and their Annual Growth Rates
According to this method, the two changing curves of average output values are obtained. The first curve represents TEDA's economic development from 1986 to 2000 based on the output indicators of GDP, GIOV, financial revenue, per capita GDP and employment. The curve is smooth and looks like a left-leaning "obtuse angle". That means that TEDA economy generally increased, but this growth is not stable and the year 1993 was the turning point. TEDA carried out the infrastructure construction from 1986 to 1992 so that it made a limited output during this period. Since 1993 and since the foreign investment in 1990,

[392] Note: the concrete method is to unify the values in a same scale with the different numeral dimensions of the selected major indicators from 1985 to 2000. And then, the sum of each indicator over the years will be divided by numbers of indicators. Finally, an average value of each selected indicator without dimension is obtained. Or, this value can be called as a "economic unit". A right-size curve will be drawn with these average values in a right angle coordinate system, which can synthetically and fully represent TEDA's economic development trend

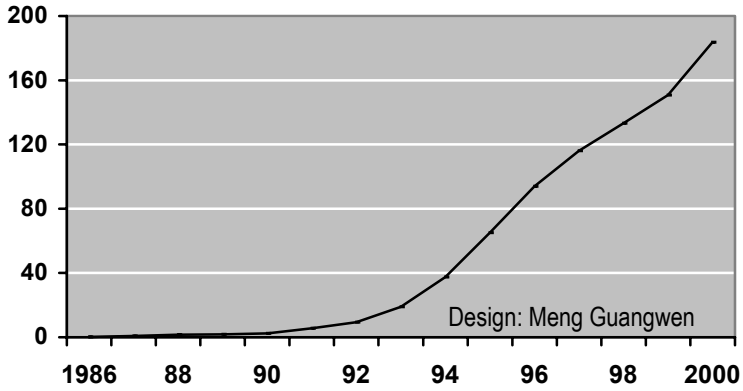
especially large transnational companies, have begun to create large output. TEDA has realized a rapid economic development since this period. The six major indicators represent the general output of TEDA's economy (see Table 38).

Tab. 38: TEDA's Total Average Values and Average Growth Rates of 10 Major Economic Indicators (1986–2000), Unit: United Economic Unit or Without Dimension

Term / Time	Total output		Annual growth rate of total output		Total input		Annual growth rate of total input		Total average output & input	
	Value	Average value	Value	Average value	Value	Average value	Value	Average value	Value	Growth rate
1986	1.32	0.22	-	-	5.10	1.30	-67.70	-16.90	0.76	-
87	5.05	0.84	2571	428.60	12.80	3.20	1055.8	263.90	2.02	346.40
88	9.37	1.56	634.20	105.70	9.90	2.50	223.40	55.90	2.03	80.80
89	10.61	1.78	117.50	19.60	13.70	3.40	17.30	4.30	2.34	11.95
90	14.87	2.48	224.70	37.45	11.50	2.90	166.70	41.70	2.69	39.60
91	32.93	5.49	476.96	79.30	15.40	3.80	414.30	103.60	4.60	91.50
92	55.71	9.29	369.81	61.60	54.80	13.70	976.20	244.10	11.50	152.90
93	113.08	18.85	494.92	82.50	76.30	19.10	310.00	77.50	19.00	80.00
94	225.50	37.58	453.50	75.60	98.70	24.70	195.50	48.90	31.28	62.30
95	390.58	65.09	316.20	52.70	115.80	28.90	80.00	20.00	46.99	36.40
96	563.82	93.97	237.40	39.60	125.90	31.50	619.00	15.50	62.70	27.60
97	696.17	116.03	118.90	19.80	155.10	38.80	78.60	19.65	77.40	19.80
98	799.75	133.29	68.10	11.30	173.80	43.50	32.30	8.10	88.40	9.70
99	904.87	150.57	84.72	14.12	120.90	30.20	-101.80	-25.50	90.50	-5.70
2000	1101,4	183.57	107.46	17.91	109.10	27.27	-110.28	-27.57	105.4	-4.83

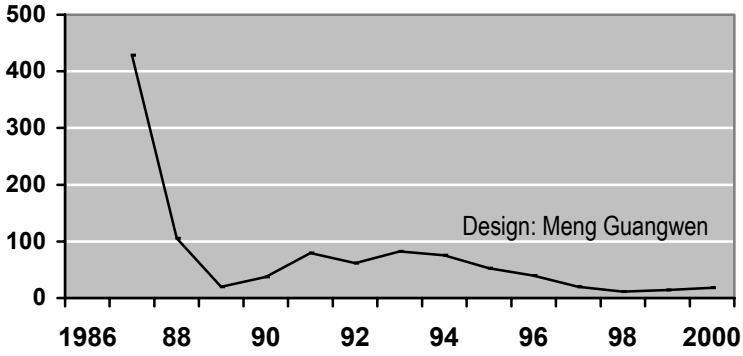
Note: sorted from: 1) total outputs include GDP, GIOV, total export, financial revenue, per capital GDP and employment; total inputs include total investment from foreign, Hong Kong, Macao & Taiwan-funded enterprises, total registered capital of domestic enterprises, total investment in fixed assets and total infrastructure investment; 2) GDP, GIOV, financial revenue, registered capital of domestic enterprises, investment in fixed assets and infrastructure investment with unit of 100m Yuan; export and investment from foreign, Hong Kong, Macao & Taiwan-funded enterprises with unit grade of 100m US$; employment and per capital GDP with unit grade of 10,000 persons and 10,000 Yuan; annual growth rate with percentage (%); 3) all of above-mentioned data through addition and division are without dimension

Fig. 53: TEDA's Development Based on the Average Value of Major Output Economic Indicators of TEDA (1986-2000)



The second curve represents the TEDA's economic growth rate from 1986 to 2000 based on above-mentioned six output indicators. The curve is not smooth like the 1st curve and looks like a right-leaning "obtuse angle." Based on a small economic base, TEDA had a large growth rate at its primary stage, but it has been generally decreased following the increase of its economic scale. Unlike absolute value, this relative growth trend was strongly interfered by national and international economic development. In the curve, there are two wave crests in 1987 and 1993 and two troughs in 1989 and 1997. The two troughs were caused by the international economic sanction against China in 1989 and the financial crisis of the Southeast Asia in 1997. The two wave crests were caused by the first large domestic investment and the first large foreign investment, which were encouraged by the first Chinese open policy and Den's south tour in 1992. TEDA was based on a small economic base at its initial stage, yet, the large investment can easily produce a still higher growth rate.

Fig. 54: The Changing Curve of Annual Growth Rate of TEDA's Major Economic Output Indicators (1986-2000); Unit: %



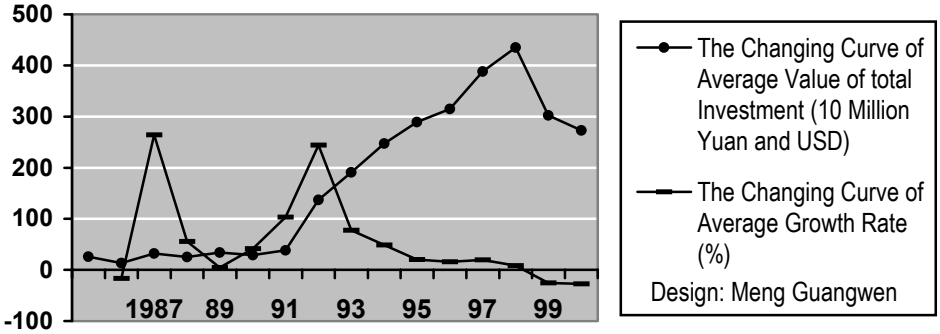
Investment is not only "rigid", namely, this economic behavior can be active during a short time, but also unstable, namely, it is highly sensible to any national and international economic and political change. In addition, the investment of large enterprises determined TEDA's investment change.

In the following figures, the two curves show TEDA's investment development and its development speed from 1986 to 2000. The first curve is smoother than the second one and looks like a left-leaning "irregular obtuse angle." That means that TEDA' investment generally increased, but there are two turning points in 1991 and 1998. The reason is that TEDA attracted only limit investment during its primary stage from 1986 to 1991, but it began to develop by leaps and bounds from 1992 due to Motorola's investment. After that, TEDA's investment quickly increased until 1997. The financial crisis of Southeast Asia in 1997 influenced negatively on the investment of large transnational companies in LDCs so that TEDA's foreign investment decreased from 1998.

The second curve shows the speed of TEDA's investment development from 1986 to 2000. The curve looks like a "W". Based on a small economic base, TEDA had a higher but unstable growth rate at its initial stage, and then, the speed generally decreased. This trend, however, was broken by the influences from the national and international economic and political changes. In the curve there are two wave crests in 1987 and 1992 and three troughs in 1986, 1989 and 2000. The two wave crests occurred because the first large-scale domestic capital was invested in TEDA from 1984 to 1987, and the first large-scale foreign investment of transnational companies has invested in TEDA in 1992. The three troughs took place based on the three reasons: 1) there was little foreign investment before 1986; 2) the international economic sanction in 1989; 3) TEDA had had a large economic base, and the financial crisis of the Southeast Asia in 1997 brought up a negative influence so that TEDA's

investment gradually decreased and a trough took shape in 2000.

Fig. 55: The Changing Curve of Average Value and the Growth of Total Investment of TEDA (1985-2000)

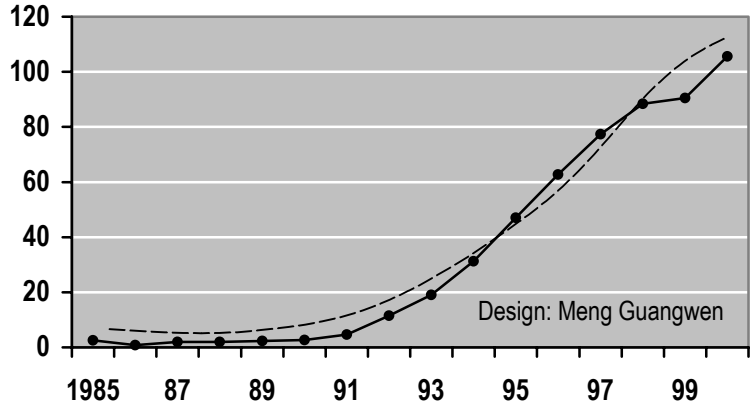


Note: TEDA's total investment includes investment of foreign, Hong Kong, Macao, Taiwan-funded enterprises, registered capital of domestic enterprises, investment in fixed assets, and infrastructure investment of TEDA

The Curves of Total Average Value of 10 Major Economic Indicators (Output and Input)

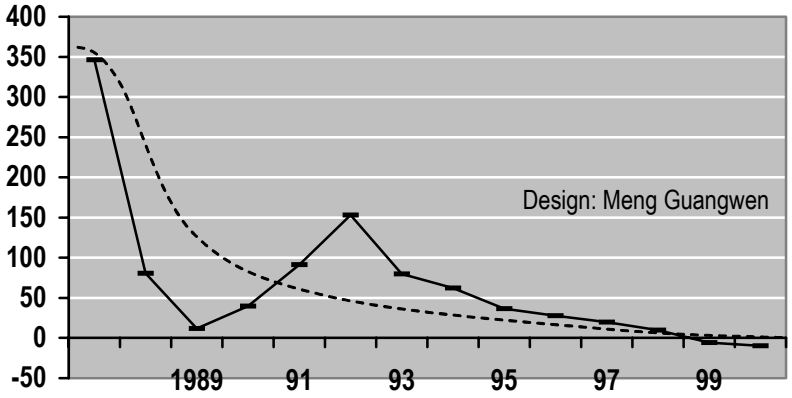
If the above-mentioned 10 major economic indicators are accumulated or added together, two smoother curves can be obtained. The two curves based on TEDA's 10 major indicators can synthetically show TEDA's economic evolution. The first curve based on the absolute value is a smoother left-learning "obtuse angle" curve with a turning point in 1992. From 1993 to 2000, TEDA's economy reached a higher level. The curve basically coincides with the "standard curve" under the ideal conditions based on the four hypothesis (established in a economic blank area, favorable location, stable supply of essential factors of production, stable national and international policy and economy). The second curve based on the relative value is a right-learning "obtuse angle" curve with two wave crests in 1987 and 1992 and two troughs in 1989 and 2000. It cannot fully coincide with the "standard curve" just because of the above-mentioned national and international unstable economic development. Generally, the year of 1992 can be regarded as a turning point of TEDA's development speed during the period of 1985-2000.

Fig. 56: The Changing Curve of Average Value of 10 Major Economic Indicators TEDA (1985-2000), and the Standard Curve (Broken Curve)



Note: major economic indicators: GDP, GIOV, financial revenue (100m Yuan), total export (100m US$), per Capita GDP (10,000 Yuan), employment (10,000 Person), total investment of foreign, Hong Kong, Macao, & Taiwan-funded enterprises (100m US$), registered capital of domestic enterprises (100m Yuan), investment in fixed assets and infrastructure (100m Yuan)

Fig. 57: The Changing Curve of Average Growth Rate of 10 Major Economic Indicators of TEDA (1987-2000) (%) and the Standard Curve (Broken Curve)



10.3. TEDA's Evolutionary Stages and the Prospect

The urban growth theory can be used to explain TEDA's development mechanism, but the industrialization of LDCs and EPZs in LDCs, the theory of city growth stage, urban and FEZ's life-cycles can be used to explain TEDA's development stages and evolution. By contracting FEZ's standard curves with TEDA's two average curves of 10 major economic indicators, and according to the growth mechanism, development model, policy and administration model, investment structure, industrial and spatial structure, TEDA' development can be classified into two stages since 1984, namely the starting stage and the growing stage. In the early 21st century, TEDA will trend to the flourishing stage. The turning point between the 1st and 2nd stages is the year of 1992 because TEDA' s total economic value realized a transition, or a sudden growth, and its growth rate was transformed into a slow and stable decreasing stage after the second wave crest in 1992.

TEDA's Starting Stage (1984–1992)
TEDA's major economic indicators had unstable but higher annual growth rates based on a small base, but its growth gradually decreased following the further economic development. Especially, a wave crest took shape caused by the international sanction in 1989. At this stage, TEDA realized initial economic development in an economic blank place by transforming the "window model" to the "three orientations", namely industrial orientation, foreign capital orientation and export orientation.

TEDA carried out regional-, production- and foreign enterprise-oriented preferential policy, including tax and duty reduction and holiday as well as the administrative and economic privilege. The government-oriented governance structure with simplicity and efficiency was mainly responsible for the economic administration and investment promotion.

The domestic capital played an important role because foreign investors had just begun the first step to invest in China and TEDA. TEDA had to attract domestic capital to develop land, construct infrastructure, and to build joint ventures with the first group of foreign enterprises in order to create a good atmosphere and achieve tax revenue. But, foreign capital became a key motive power to promote TEDA's development following the first group of foreign investment since 1989.

The growth model of this stage was "supply-oriented" growth, so that capital input and building of the investment environment were regarded as the major economic activities. The land development model was transformed from the land development with loans to the circulatory land development with its own capital and land development for hire. TEDA possessed a single-zone spatial structure, which consists of "starting industrial estate" and "living estate" and "development estate and reserved estate" inside industrial estate.

In order to create a good development atmosphere, almost all industrial sectors were welcome in TEDA. The small- and mid-size enterprises and labor-intensive industry played a dominant role in TEDA's primary industrial structure. Only a few larger enterprises invested in TEDA. Seven industrial groups were gradually established, including electronics, food and beverage, machinery, metal products, chemistry, textile and garments, building material and other industries. But, there were no close links among the industrial sectors and between TEDA and the domestic economy. TEDA's input from the outside was more than its output to the outside. The input to TEDA includes capital, technological and equipment, labor forces, materials for production and preferential policy. TEDA's output includes employment and products, investment environment and remitted profits. The challenges to TEDA were how to attract more investment and promote industrial development by improving the investment environment.

TEDA's Growing Stage (1993–the early 21st Century)

Since 1993, TEDA has began its growth stage. The year 2005 may be the ending point of TEDA's growth stage. The ending point of this stage should be determined only by TEDA's general development trend, its synthetical features and the macro economic environment. Generally, the growing stage should be longer than the starting stage (9 years). The change curve of the average value of TEDA's 10 major economic indicators also showed a trend of slow but stable growth after 2000. For example, the economic absolute value quickly increased from 20 economic units in 1993 to 105 economic units in 2000 (see table 39). It shows a rapid rising curve in the figure of TEDA's average economic development (Fig. 56). On the contrary, the annual growth rate gradually decreased and reached a negative value in 1999 and 2000, but there was no large wave motion during this stage based on a larger economic base. Unlike the international economic sanction in 1989, the financial crisis in Southeast Asia in 1997 did not play a large negative role in TEDA's economic development. In addition, China was admitted to the WTO at the end of 2001 with a transitional period of 3-6 years. This will change greatly China and TEDA's economic development environment. TEDA's special status will be changed after 2005.

In 1996, duty free import and financial subsidy for foreign-funded enterprise were canceled. TEDA's preferential policy was transformed from regional-orientation to the horizontal combination of regional- and industry-orientation. Besides foreign-, manufacturing- and export-oriented enterprises, the domestic enterprises, the new and advanced industry, senior specialists and tertiary industry were encouraged. Both economic administration and urban administration became the key functions of TEDA's governance structure. The permanent resident increased and more attention was paid to urban construction. TEDA became the urban proper of the Tanggu area.

Following the industrial development, TEDA put out more products so that "supply-oriented" and "demand-oriented growth" played a equal role in TEDA's economic development. Instead of land development, industrial development became TEDA's major economic activity, and development model was transformed to land development in other regions, industrial development and capital operation. Its spatial structure was transformed from

single-zone to multi-zones. TEDA includes several functional zones such as industrial estate, living and trade zone, EPZ and sub-zones. Industrial estate includes Taiwan investment zone, Korean zone, Motorola investment zone, industrial park of Tianjin University; sub-zones include Yat-Sen Scientific-Industrial Park, Microelectronic Industrial Park, Chemical Industrial Zone and Northwest SEZ by the Gulf of Suez in Egypt.

Foreign investment holds a dominant position in TEDA's total investment and has still been the key motive power to promote TEDA's development until 2002. Especially, several large transnational corporations have been the main parts of total foreign investment. Domestic capital has played only a supplementary role, but it is being more and more encouraged.

The objective model has been transformed from the "three orientations" to the "three combinations" and from a manufacturing-based ETDZ to a comprehensive ETDZ since 1996. The industry was taken as the key sector in TEDA's industrial structure, but tertiary industry become more and more important and has been paid more attention. The pillar industries have taken shape, including electronics and electric, food and beverage, machinery, pharmaceutical and chemical. The labor-intensive industry is being transformed to capital- and technology-intensive industry. The large transnational companies, such as Motorola, Samsung and Yamaha, hold a dominant position in TEDA's pillar industries and total economy.

Capital input and product output has increased quickly, but product output is almost equal to the input. Just due to a large amount of capital input, TEDA became a high-tech industrial production base. During this period, a large amount of TEDA's products entered the domestic and international market. Product export ratio increased gradually during this period and maintained a level of about 35%. In addition, employment, profits, capital and technological transfer have taken place. TEDA has played a demonstrating, spreading and promoting role in Tianjin and China.

As a result of its development, TEDA has also faced some challenges. Some preferential policies have been canceled; there is no close and harmonious administrative cooperation between TEDA, Tianjin port, Tiangjin FTZ and Tanggu city; urban construction and public facilities are behind the industrial development, and has resulted in a lot of commuters between TEDA and Tianjin proper and between TEDA and Tanggu proper as well as heavy traffic and environment pollution; there are also few training possibilities; many large transnational corporations are registered in TEDA, but are located outside TEDA; TEDA depends unduly on foreign capital, especially on several transnational corporations, such as investment, GDP, GIOV, export and so on; technological transfer has taken place, but TEDA is only a high-tech production base, transnational corporations have not established local R&D; The close linkages between the pillar industries, between the pillar industries and auxiliary industries as well as between TEDA and the regional economy have not been established; TEDA has only a low export ratio, and export market has over-centralized on several countries and territories in North America and Asia. These problems should determine if TEDA can realize further development.

Prospects for TEDA's Flourishing Stage (since the early 21st Century)

Based on the above-mention analysis, TEDA's economy will enter the flourishing stage in the early 21st Century. TEDA's economic base will become very huge and reach the highest level during this period, but the economic growth rate will gradually and continually decrease. The customs duty will furthermore decrease. It is possible for transnational corporations to

change their investment strategy. For example, they replace direct investment with direct commodity input. The changes would influence TEDA's economic development.

Furthermore, TEDA's preferential policy should be changed. First, general economic incentives such as tax reduction and holiday would be gradually canceled. Second, the administrative privileges, financial power and incentives to new- and high-tech industry would still be active. Third, FTZ and EPZ would enjoy free trade policy. Fourth, based on its open market, outwardly-oriented economy, TEDA would become a experiment base for world REI and trade liberalization, after China joins the WTO. In a word, TEDA's preferential policy would be transformed to a vertical combination of regional- and industry-orientation. It would be transformed from a comprehensive ETDZ to a modern, open and international port city or a special administrative area including FEZs. Its governance structure would be relevantly transformed to vertical combinations of an administrative area and FEZs, namely, that a special administrative area includes also varied types of FEZs.

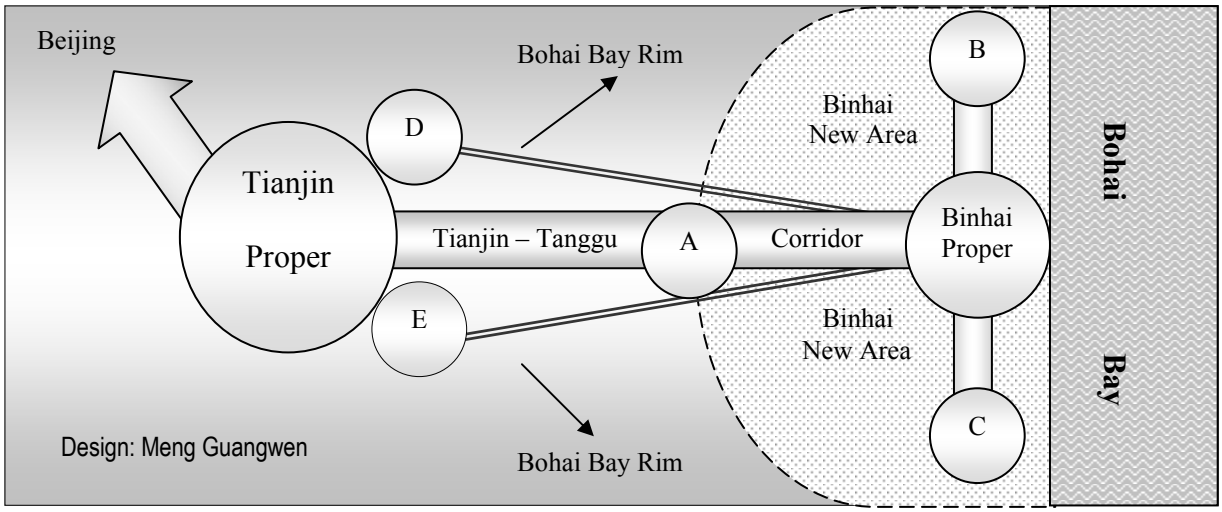
Following the increase of TEDA's economic strength, the domestic capital would enhance its position in TEDA's development. A comprehensive and technology-intensive industrial structure would come into being. Besides secondary industry, tertiary and primary industry would be promoted and well developed. In secondary industry, labor-intensive industry would remain to supply employment and create foreign exchanges, but the technology-intensive and high-tech industry would occupy a leading position. Electronics and electric, food and beverage, machinery, pharmaceutical and chemical industry still maintain their leading positions in TEDA's industrial structure. Following the investment of new large transnational corporations and the development of high-tech industry in TEDA, some new industries would become the new pillar industries of TEDA. For example, building material becomes again a pillar industry along with the investment of a French transnational company. In tertiary industry, transportation and storage, banking and insurance and tourism would occupy more important positions than that at the growth stage. Close links between the pillar industries and between TEDA and the rest regions would be established.

At the flourishing stage, demand-oriented growth plays the leading role in TEDA's economic development. Capital operation and industrial development would become TEDA's two major motive forces. Product output would be replaced by capital output or capital demand oriented growth. TEDA promotes the localization of transnational corporations, on the one hand, and it uses own capital to invest in other regions and foreign countries or operates and purchases enterprises, on the other. TEDA will be not only a high-tech production base, but also a high-tech R&D center. And TEDA's urban construction would be further promoted. TEDA's public facility and regional public facility in Tanggu area would be improved. There are more education possibilities. More and more residents would be absorbed to Tanggu area. The traffic conditions between Tianjin proper and Tanggu area would be further improved. Generally, TEDA would keep a higher and different export ratio. EPZ and FTZ would have higher export ratios, but NHIP and other economic area have a lower export ratio. Finally, the key export market would be expanded from several to more countries and territories and from east Asia and North America to the EU, west Asia and other continents.

TEDA's spatial structure should be greatly changed and regional economic integration would be promoted. The functional zones inside TEDA would be finely evolved and divided. First, TEDA would be spatially and economically integrated with Tanggu proper, Tianjin port, Tianjin FTZ, Tanggu marine NHIP, parts of Dongli, Jinnan, Dagang and Hanggu district, and NIZHR. Second, EPZ, port, living estate would keep their relative independence, and Tianjin FTZ, including the original FTZ and parts of port, and Tianjin EPZ would occupy a special

status as customs enclave. Third, TEDA's economic antenna would be spread in Tianjin proper, domestic market and international market. Numerous sub-zones and companies would be located in Tianjin, China and even in the world. TEDA's economic promoting, demonstrating and spreading role should be fully played at this stage.[393] In addition, TEDA would be the core and engine of Tianjin BNA and the economic area of Bohai Bay Rim by economic and technological linkages, such as economic and technological investment in this area (see Fig. 58).

Fig. 58: TEDA's Development Trend since the early 21st Century and the Spatial and Economic Linkages between TEDA, Binhai New Area, Tianjin Proper and Bohai Bay Rim



Note: Binhai Proper: including TEDA, Tanggu Proper, Tianjin Port, FTZ, EPZ, Tanggu Marian NHIP; the two lines point to the linkage between TEDA and its two Sub-zones; Binhai-B-C is the second development corridor; A: New Industrial Zone of Lower Reaches of Haihe River; B: TEDA's Chemical Industrial Sub-Zone; C: Dagang District; D: Yat-Sen Science Industrial Sub-Zone; E: Microelectronic Industrial Sub-Zone;

TEDA's evolutionary model consists of an objective model, an evolutionary mechanism and a structural model. TEDA's objective model is transformed from a EPZ to a CDZ and will become a new port city in the future. This process is divided into three evolutionary stages. The objective model will be realized by an evolutionary mechanism, including a growth model, an operation (development) model, a policy model and a governance model, and it will be represented by a structural model, including industrial structure, enterprises structure and spatial structure which also have three evolutionary forms each. TEDA's evolution is shown in Fig. 59.

[393] For discussion, see Wang Xuewei (1999), "The Lifecycle and their Transformation of Our Country's Economic and Technological Zones", (Woguo Jinjijishu Kafaqiu De Shengming Zhouqi Jiqi Zhouqi Zhuanxing), In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 164, TEDA, pp. 221-222

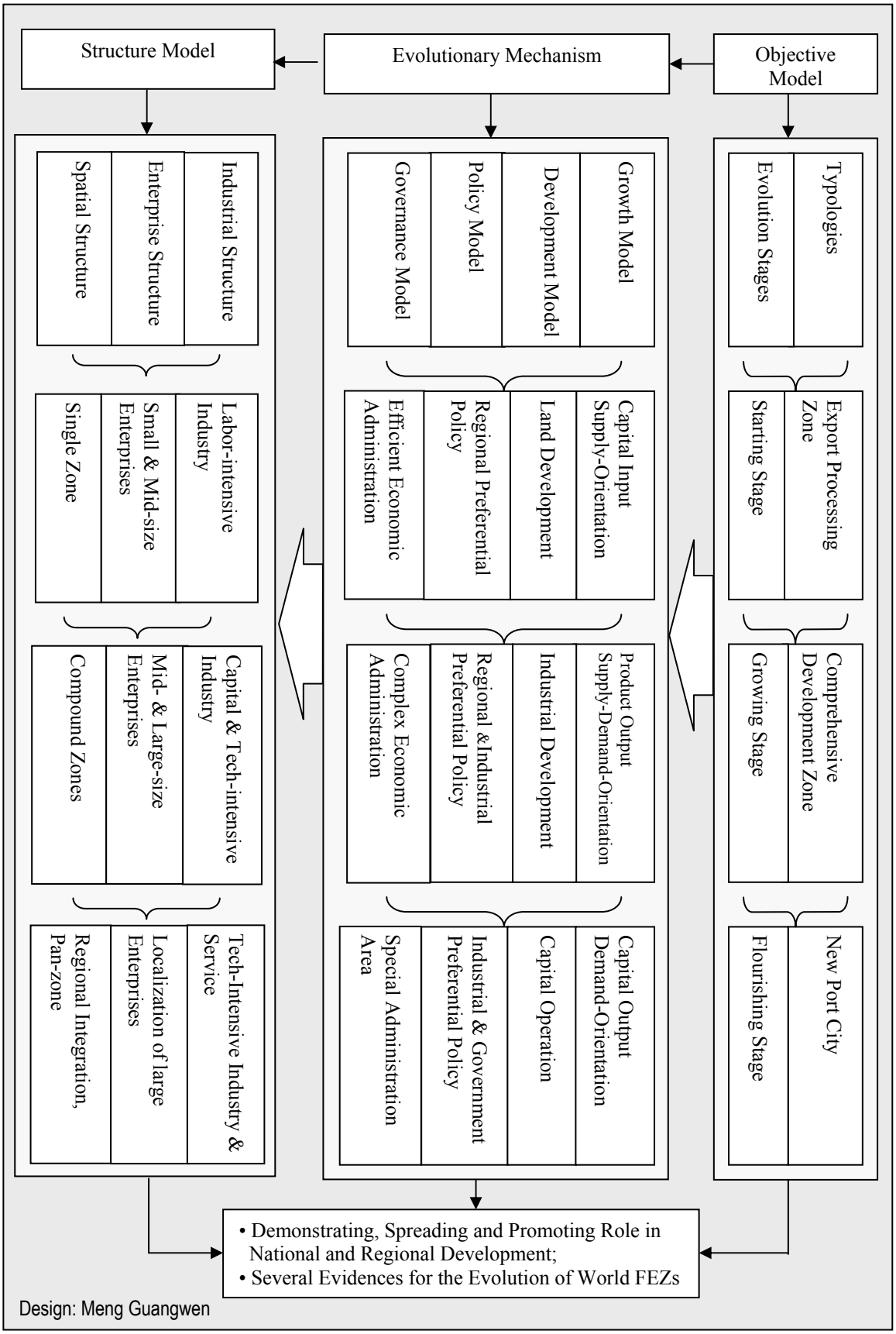


Fig. 59: TEDA's Evolutionary Model and Mechanism from 1984 to the early 21st Century

11. TEDA's Empirical Evidences for the Evolutionary Theory of World FEZs

The conclusion is quiet clear that Chinese FEZs, especially TEDA's development showed some new characteristics which are different from classic FEZs, especially EPZs and FTZs. The experience of Chinese FEZs, especially, the experience of TEDA, including their multi and dominant roles in national and regional economic development and open policy, investment of large transnational corporations, transformation of preferential policy and governance structure, low export ratio, technological transfer, close linkages with domestic economy, spatial expansion and capital operation, improves and enriches the evolutionary theory of world FEZs. Naturally, some theoretical considerations about the growth and decline of economical entities (most prominent of these is the theory of life-cycle) and the imperial evidences of world FEZs (EPZs in Asia) will be used to the discussion of the evolutionary model of FEZs in this chapter.

11.1. TEDA's Empirical Evidences for the Theory of Manufacture-based FEZs

New Features based on TEDA's Empirical Evidence
Like an EPZ, TEDA is a manufacture-based FEZ, which enjoys special policy and privilege, but it has created several new features following its development. That is different from the classic manufacture-based FEZ such as EPZs.

Classic EPZs have more economic objectives. TEDA and other Chinese FEZs play dominant roles in national and regional economic development and structural reform.

Unlike classic EPZ, TEDA is not an enclave of national customs territory. It carries out only a policy of special customs supervision, such as duty free import and export of some products. Following the setup of EPZ, TEDA mixed the open and enclave model, namely that TEDA is a part of the national customs system in general, but EPZ within zone is an exception.

Like classic EPZs, TEDA attracted only small-size foreign enterprise in the 1980s. Following the investment of Yamaha in 1990 and Motorola in 1992, large transnational corporations have provided not only the most investment to TEDA, but also the most GOIV, export and tax revenue. For example, 11 large transnational companies invested over 1b US$ each in 1995. Motorola invested 19b US$ in 2000. GIOV of Motorola in 1994 reached 2.82b $, which made 18.89% of TEDA's total GIOV. The classic manufacture-based FEZ, however, have more small- and mid-size foreign enterprises. They invested in these zones just for the cheap labor cost. If the production cost becomes higher, they will move into other EPZs so that they are called footloose enterprises.

Like classic EPZs, the TEDA attracted only the labor–intensive industry in the 1980s. Since the 1990s, its labor-intensive industry has been gradually replaced by the technology-intensive industry following the investment of the large transnational corporations such as Motorola, Yamaha, Toyuta, Canon, Volkswagen and Sumsung. This is also different from the classic EPZs.

The export ratios of Classic EPZs can reach 80%, but TEDA has a lower export ratio (about 35-40%). Following the investment of numerous large transnational companies, total export

has been less than import since 1993. Unlike small-size enterprises, the large transnational companies invested in the TEDA not only for cheap labor forces, but also for opening local market. TEDA has to exchange advance technology with the local market.

Following the economic development and its growing role, TEDA's special structure was transformed from a single zone in the 1980s to compound zones (sub-zones in other regions) in the 1990s. The classic Manufacture-based FEZ such as the EPZ occupies normally only a single zone.

Tab. 39: The New Features of TEDA Design: Meng Guangwen

Classic EPZs	TEDA
• Economic Objectives • Enclave of Customs Territory • Small-size Enterprises • Labor-Intensive Industry • High Export ratio • Single Zone	• Economic & Political Objectives • Combination of Open and Enclave • Large Transnational Corporations • Technology-Intensive Industry (4 pillar products) • Low Export Ratio (35%) • Pound – Zone (sub-zones)

New Conclusions of TEDA's Empirical Evidences

Several case studies on the EPZs in Asia were made from the 1970s to the 1980s, including the studies of Kreye and Pater Wall.[394] Their conclusion states that EPZs play only a limited role in national economic development, because EPZs have only limited linkages with the domestic economy and limited technology transfer. TEDA improves this conclusion as follows:

- The TEDA has made a big contribution to economic development and open policy of whole country and whole city, which is shown in the former section.
- The TEDA has developed close linkages with the domestic economy. For example, Motorola and Yamaha have over 100 Chinese cooperative partners to supply their most semi-finished materials.
- Technology transfer has taken place in TEDA, including some high-tech, modern equipment, training of Chinese employees and management cooperation (by equity joint venture and constructed joint venture), Motorola is an example.
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Tab. 40: The New Conclusion of TEDA Design: Meng Guangwen

Conclusion of Precious Studies	Conclusion of TEDA
• Limited benefit • Few links with the domestic economy • Little technology transfer	• Large benefit: 3b $ GDP in 2000 • Close links with the domestic economy: Motorola's 176 partner companies • More technology Transfer: Technology of cell telephone of Motorola to China

[394] Kreye, O., Heinrich, J., Fröbel, F. (1987), <<Export Processing Countries: Results of a New Survey>>, Working Paper No. 43, International Labor Office, Geneva, p. 7, 15

Warr, P. G. (1989), "Export Processing Zones: the Economic of Enclaves Manufacturing", In: <<The International Bank for Reconstruction and Development>>, No. 1, Washington DC

11.2. The Factors of the Life-Cycle of FEZs based on the Experiences of Chinese FEZs and TEDA

The theory of life-cycle of EPZ (Fujimori Einan) based on the experience of Asian EPZs states that EPZ has a great significance during the transition period of which a country or a region is transforming its development strategy from IS to export-orientation. Its character, however, will be changed along with the realization of the original targets and the change of the existing conditions. This process from birth, growth, maturity to decline is called EPZ's life-cycle.[395] Several factors influence an EPZ's evolution. They include the time limit of EPZ's preferential policy, the time limit of EPZ's lower wages, the service life of production equipment and technology and the competition among EPZs.

EPZ is only one type of FEZ so that the EPZ's effecting factors summarized by Fujimori Einan cannot fully show and represent FEZ's evolution today. Giving a synthetical consideration to FEZ's general features, evolutionary law and the experience of Chinese FEZs and TEDA, FEZ's factors of life-cycle can be summarized as follows:

Due to the special development history and the special economic and political position, which can not be replaced by others, there are some permanent free ports (city) and FTZs in the world. Hamburg and Hong Kong are two typical examples. For example, Hong Kong became a British concession and acted as a free port in 1841. Its primary purpose was to promote and facilitate British trade relations with China and other Asian countries. After the 2nd World War , Hong Kong held its status until 1997, when it was returned again to China. Based on the special economic and political situation, Hong Kong has not changed its status as a free port city, although it has been transformed from a trade-based to a comprehensive free port city or special administrative and economic area.

FEZs can be classified into multi- and single-functional FEZs. The multi-functional FEZ has multi objectives which need much time to be realized so that this type of FEZ has a long time life-cycle. The single-functional FEZ, on the contrary, has a shorter life-cycle. For example, Chinese SEZs have a longer life-cycle than EPZs in East Asia because they are multi-functional FEZs and are used as an instrument and tool to realize the industrialization and structural reform.

If a FEZ has a potential market, an open and stable national and international economic and political environment, it can be easily successful and have a long life-cycle. For example, the transformation of world industrial structure and economic flourishing from the 1950s to the 1970s encouraged the transnational corporations to invest overseas and indirectly promoted FEZ's establishment and their development (life-cycle). However, the adjustment of the preferential policy in 1996 and the membership of WTO in 2001 have influenced or will influence FEZ's life-cycle in China. Today, the huge domestic market has become a new important factor to attract the investment of the large transnational corporations in FEZs, which has been proved by TEDA and other FEZs in China.

The time limit of preferential policy is a key factor to influence FEZ's evolution and life-cycle because FEZ's essential character is its special law status, economic incentives and privilege. If they are not valid, the small foreign enterprises in FEZs will transfer their capital into other FEZs, and the FEZ will be transformed into a normal economic zone.

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[395] Fujimori Einan (or Hidenami) (1981), <<Export Processing Zones in Asian Countries>>, Chinese Translation, Publishing House of Chinese Academy of Social Sciences, p. 108

Generally, the large transnational corporations have a high investment level and a long operation time. TEDA's experience proved this fact. Their investment in FEZ, as a long-term and strategic investment, is relatively stable and will extend FEZ's life-cycle. On the contrary, the small- and mid-size foreign enterprises (so-called footloose enterprises) in a FEZ have only small-size investment and a short-term operation time, they can easily transfer their investment into other FEZs just after a few years of operation so that FEZ's life-cycle will be shorted.

Low wages, low land use charge, and low energy prices are the important factors to attract foreign investment and reduce the cost of production of foreign enterprise. If the profit reduces because of the increase of wages and the total cost of production, it is possible for foreign investors to transfer their capital to other FEZs with lower cost of production.[396] But, the experiences of Chinese FEZs and TEDA have proved that these factors have played a less important role than before and they have been less than the factors of a huge local market, a stable national economic and political environment.

In addition, there is competition between the FEZs inside a country and among the countries, between FEZs and other economic areas. The competition disperses the economic resources, leads to the development of some FEZs with favorable and the disappearance of others with unfavorable conditions. Some industries and technologies in FEZs have a long production and life-cycle, so that they enjoy also preferential policy for a long time and can extend FEZ' life-cycle. Finally, the favorable location and efficient administration can be beneficial for FEZ's success and a long life-cycle.

Tab. 41: New Factors of TEDA for Life-Cycle of FEZs Design: Meng Guangwen

Three Factors of Classic EPZs	TEDA's Experiences
• Time Limit of Preferential Policy • Time limit of Low Wages • Service Life of Equipment and Technology	• Special and multi Objectives: spatial status • Combination of open and enclave model: spatial status • Transnational Corporation: long-term investment goals for opening of local market
Small-size Enterprises: short life-cycle	Large Enterprises: long-life cycle and new features in each stage

11.3. Several Theories Related to the Evolution of FEZs

The theory of city life-cycle (Luis Suazervilla) states that a city will undergo different stages such as birth, growth, flourishing and decline. And at each stage there are several specific problems concerning its industrial structure, enterprise structure, spatial structure and so on. The theory of "economic growth stages" (W. Rostow) states that the process of economic growth can be classified into several stages such as traditional society, primary economic takeoff, economic takeoff, mature stage and consumer stage. The motive power of regional economic growth is the "bottle-neck". If the region desires to realize a new economic growth, the bottle-neck such as shorting of capital and advanced technology at its certain development stage must be broken again. As a economic system, FEZs will also undergo these stages.

The theory of urban growth (J. M. Keynes) includes "demand-oriented theory" and "supply-oriented theory". The demand-oriented theory states that urban growth can be realized when

[396] Wang Xuewei (1999), "The Lifecycle and their Transformation of our Country's Economic and Technological Zones", (Woguo Jinjijishu Kafaqiu De Shengming Zhouqi Jiqi Zhouqi Zhuanxing), In:<<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 164, TEDA, pp. 218-219

a city exports goods to external markets because product output can create income and employment. The supply-oriented theory states that the urban growth can be realized if the city can accumulate rich essential factors of production such as funds, resources and labor forces, and supply standard infrastructure, regional market and technological potential. If a city occupies a good "supply", the growth will be realized.[397] Generally, urban growth is mainly promoted by demand-orientation, but the supply-orientation plays a more and more important role following the urban development. They exist in the process of urban growth, and supplement and complement each other. They take effect at the same time, only one of them plays a leading role in urban growth during a period. In the case of FEZs, the supply-oriented growth will firstly promote their development by offering a investment environment, but demand-oriented growth will be the key motive power for FEZ's further development.

The industrialization of LDCs, especially LDCs and EPZs in East Asia, can be classified into three development stages: capital input as the 1st stage; production output as the 2nd one; capital output as the 3rd one.[398] The three stages are gradually transformed, e. g. there is production output at the stage of capital input, and there is also capital input at the stage of production output. Only capital input holds a leading position at the 1st stage, and production output is the leading factor at the 2nd stage. Foreign capital is regarded as the key factor at capital input stage of LDCs, but the domestic capital will gradually enhance its position. When capital input reaches a high level, the production output will take place and will be transformed from labor-intensive to capital- and technology-intensive output. When production output reaches a higher level, the capital output will take place. Capital input stage is analogous to the extension growth and the supply-oriented growth, and production and capital output stage are analogous to the effective growth and the demand-oriented growth. In the case of FEZs, they experienced also these three stages in their evolution. TEDA is a typical example.

11.4. FEZ's Growth Mechanism, Evolutionary Stages and their Features

In order to simplify the discussion on the general model of FEZ's evolution, several Hypotheses should be given. At first, FEZ is a normal economic zone, its growth and evolution, therefore, can be explained with some theories of regional economic growth. FEZ's growth and evolution, as a special economic zone, are also different from a normal economic zone because it can realize a extraordinary economic development throughout special policy and measure to attract capital, technology, labor forces, service, and commodity. FEZ's growth and evolutionary model and its features can be summarized and advanced based on the above-mentioned theories, the numerous empirical studies, the experiences of Chinese FEZs and TEDA in particular, and the several hypotheses as follows:

- FEZs are newly established in an area with underdeveloped economy
- FEZs have a favorable location near a port, traffic knot and economic center
- FEZs have enough supply of capital, labor forces, technology, and other resources
- National and international political and economic development are stable and continuous

[397] For discussion, see: Zhu Mutang, Zhang Haining & Wang Boyian (1988), <<City Economics of the Western Counties>>, (Xifang Chengshi Jingjixue), Publishing House of Chinese Finance and Economy, (Zhongguo Caijing Chubanshe), Beijing, pp. 38-40

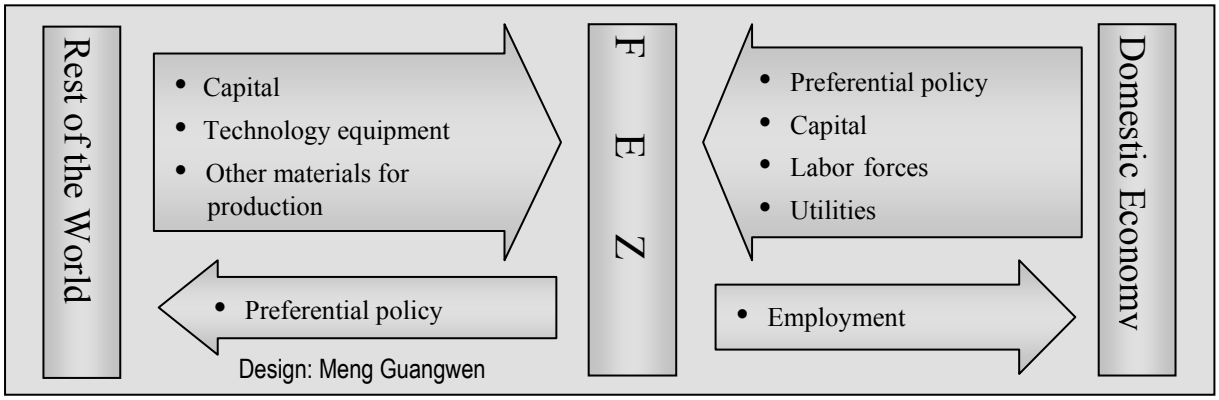
[398] He Chengying (1996), "Comparison and Choice among the Models of China's Special Economic Zones", (Woguo Teqiumeshi De Biyiao Jiqi Xuanze), In:<<Economy of Special Economic Zone>>, (Teqiu Jingji), Shengzhen, No. 11, pp. 21-23

FEZ's Birth / Starting Stage and the Features

FEZ's economic growth at the primary stage is mainly promoted by the supply-oriented mechanism. Only when a FEZ carries out preferential policy and supplies well-developed infrastructure, namely, increasing "supply", it can realize the extraordinary economic development by attracting capital, technology, labor forces and commodity. Capital from the outside is a key motive power to promote FEZ's development. Foreign capital is the key motive force for the FEZ's development, especially in LDCs.

The country supplies the financial incentives and economic privileges to a FEZ, or a FEZ is authorized to formulate preferential policy. The enterprises enjoy the most tax and duty reduction and holiday. The simple, efficient, and authoritative governance structure is mainly responsible for zonal establishment and economic activity. The key economic activity is the land development, and it forms a cycle: loans or own fund – land development – land charges – new land development – more land charges and so fourth. The land development is the first step to attract investment. A first group of enterprises, which are mostly small ones, will be established in the FEZ, but the pillar industries will be not developed. Almost all industrial sectors are welcome in FEZ. The zone shows a simple spatial structure, namely that a single zone covers only a small area. The economic linkages among FEZ and domestic economy and the rest of the world are simple and unclosed. At this stage, the FEZ receives more input from outside than its the output to the outside. TEDA experience proves this point.

Fig. 60: FEZ's Economic Linkages with Domestic Economy and Rest of the World at the Starting Stage



Note: the horizontal arrows point to the directions of input and output between FEZ and the outside

FEZ's Growing Stage and the Features

Supply-orientated and demand-oriented growth together promote FEZ's development, and both are gradually coming into an equal position. Along with gradually increased supply and the constantly improved investment environment, FEZ attracts more and more foreign and domestic capital, and large numbers of enterprises enter the zone. FEZ begins to export its products and service, and the outside increase its demands to FEZ. The industrial sectors for output will gradually take place. The growth of the output sectors promote the growth of service sectors, and finally, FEZ's growth is realized.

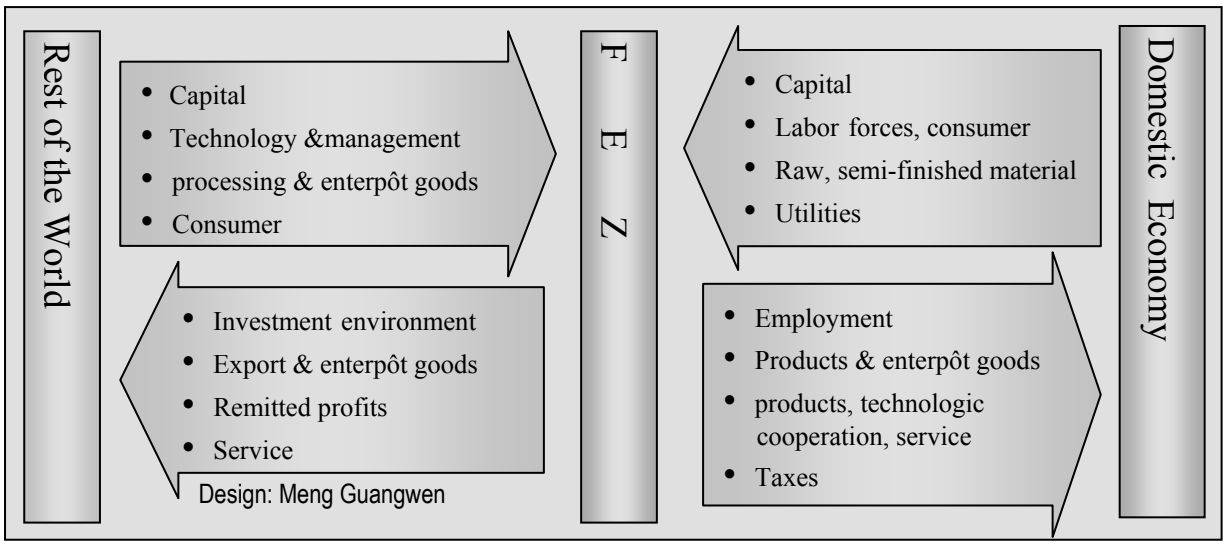
The preferential policies and governance structure are constantly improved and enriched. The former includes some tax and duty reduction and holiday, and will be changed. In other words, preferential policy begins to be transformed from regional-oriented to the horizontal combination of regional- and industry-orientation. The latter increases some functions of urban administration. A large amount of products is put out to the domestic and international market. The original model of land development cannot meet the demands of investors. The FEZ sells the land use right or rents the land to contractors. The contractors are responsible

for developing land and attracting investment. This model can speed up FEZ's land development. Land use structures become complex and several functional zones will be established. TEDA is a example. Besides the industrial estate and the living / service zone, the sub-zone takes place.

The industrial groups and pillar industries show an embryonic form at this stage. Besides small enterprises, mid-size and a few large transnational corporations begin to invest in the zone, and gradually become the core of industrial groups and pillar industries. Small-, mid-size and large enterprises play an equal role in Fez's development.

The closer and multi-economic linkages among FEZ, domestic economy and world economy are gradually established at this stage. The FEZ has transformed its key economic activities from land development to industrial operation and creates more output than at the first stage. The different FEZs have different output, but, generally, the output includes products, profits, employment and service. FEZ's input will increase. There are some new input such as processing and enterpôt goods, raw and semi-finished material and consumer.

Fig. 61: FEZ's Economic Linkages with the Domestic Economy and the Rest of the World at the Growing Stage



Note: the horizontal arrows point to the directions of input and output between FEZ and the outsides

FEZ's flourishing Stage and the Features

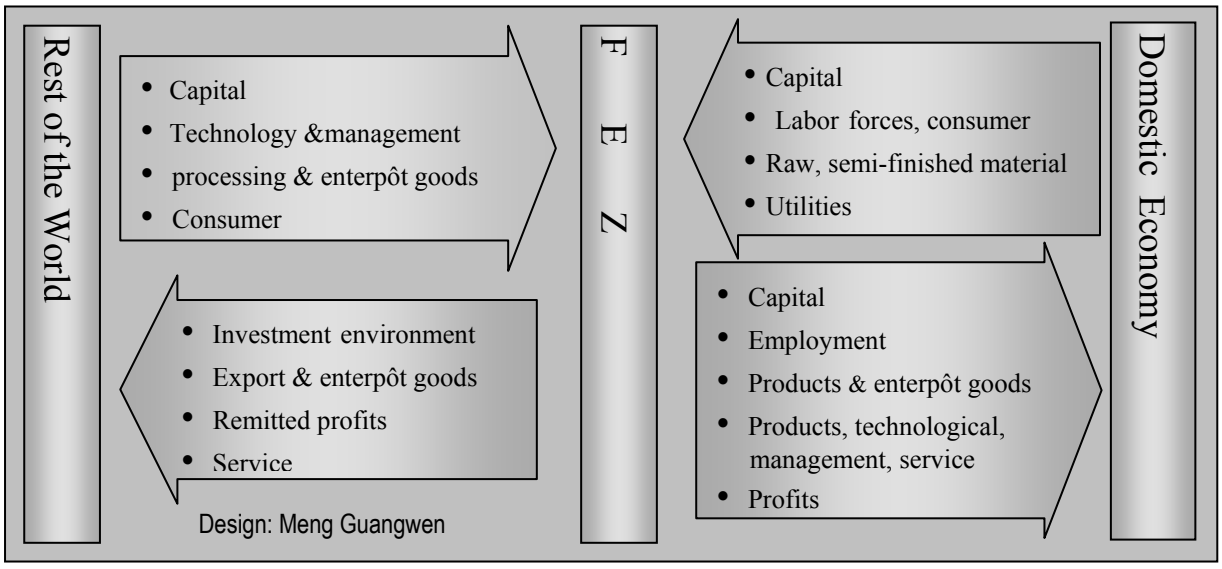
Instead of supply-orientated growth, demand-oriented growth holds a leading position and becomes the key motive force to FEZ's development. The output sector exceeds the basic sector. They become FEZ's key motives force at this stage.

Some preferential policies will be not valid, but some new ones will be formulated, such as FEZs in China and TEDA. The regional preferential policy will be transformed to the vertical combination of regional- and industry-oriented preferential policy. This transformation will take place in some types of FEZs such as EPZ and SEZs. Some FEZs such as free port and FTZ maintain their permanent free trade policy and special law status. The comprehensive FEZ can include other types of FEZs. High-tech and service will be encouraged. Governance structure is gradually enriched. Some large or comprehensive FEZs (Shenzhen SEZ) will realize the vertical combination of the administrative area and the FEZ. The land use structures are furthermore specialized and diversified, and numerous functional zones are established. FEZ's area is constantly enlarged. Some FEZs establish sub-zones in other regions and in other countries. The multi-zones spatial structure takes shape.

Industrial development and service become the main economic activities and capital output begins to taken place. The stable and rational pillar industries in which the large transnational corporation, high-tech industrial sectors, and service are regarded as the main factors, takes shape.

The close, varied and stable economic linkages among FEZ, domestic economy, and world economy are established. At this stage, FEZ' industry and service are well developed. Its output exceeds not only its input, but also more than the output at the second stage. In other words, FEZ exports more products and service to domestic and international market than they import from them. The different FEZs have different outputs, but, besides products, profits, employment and service, the FEZ begins to transfer capital to the domestic and foreign economy. The FEZ supplies more financial output and profits to the domestic and foreign economies than the growing stage. The new input in FEZ increased not only in value, but also in types.

Fig. 62: FEZ's Economic Linkages with the Domestic Economy and the Rest of the World at the Flourishing Stage



Note: the horizontal arrows point to the directions of input and output between FEZ and the outside

FEZ's Transitional or Standstill Stage and the Features

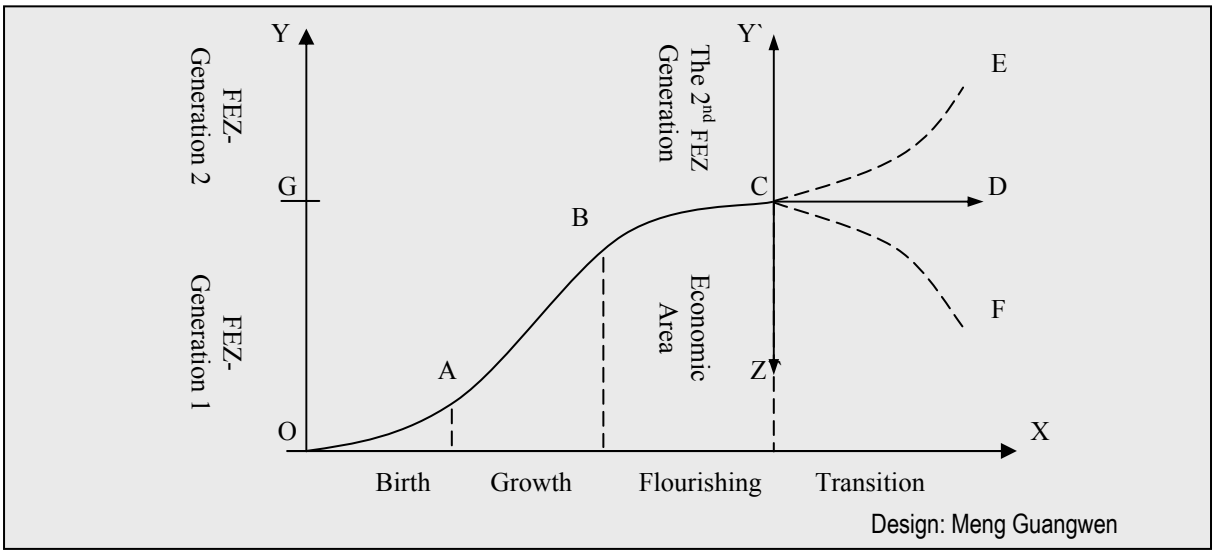
Following the increase of the cost of production such as land, factory building, energy, labor forces and raw and semi-finished material, a FEZ is increasingly challenged by other new FEZs and other regions. First, there is the competition of capital, resources, and market between the new and old FEZs because the new and large FEZs and some permanent FEZs enjoy more preferential policies and privileges, but some old FEZs have a well-developed economy. Second, there is the competition of capital, resources, and market between FEZs and other regions, namely, that the FEZs promote the regional relevant development, and the gaps between them is gradually reduced. The regions around the FEZs can be gradually able to compete in terms of capital, resources, and market with FEZs. The preferential policy will be gradually spread to the rest regions or transformed to "general principles" (national treatment). In addition, world REI will promote the transformation of a FEZ to a general economic zone or to a permanent FEZ.

At the transitional stage, FEZ's environment will be greatly improved. Some FEZs reach their fixed goals and lose their special status or do not enjoy preferential policy. They are either transformed to a normal economic zone, or are increasingly controlled by the country

macro-economic policy. Only some permanent FEZs such as free port and FTZ maintain still their special status and free trade policy. Some FEZs with the new goals redevelop and become the new generation of FEZs. The three development trends at this stage in detail are:

- Standstill trends, namely, FEZ maintains a stable but standstill situation based on its economic inertial development. Preferential policy and special legal status are totally or partly maintained. The FEZ is used to realize concrete, direct and partial economic goals. The FEZ is still FEZ, only it is in a standstill situation. This situation, however, cannot kept for a long time, it will sooner or later change into an other situation (see line of C–D in Fig. 63). For this reason, the standstill stage can be also called transitional stage.
- Decline trend: It means that some FEZs have realized their fixed goals and lost their preferential policy and special status in the national economy. Numerous foreign enterprises will leave FEZ, and invested in other FEZs or regions. Negative growth take place (see line of C–F). FEZ is transformed to a normal and declining economic zone.
- Redevelopment: FEZ is entrusted to new objectives. New supplies, including preferential policy and privilege, capital and technological output, are a new economic advantage against other regions, and create a new output to the outside and new growth. FEZ's industrial structure, special policy, and spatial structure are greatly changed, a new FEZ or the new generation of FEZ will take shape (see line of C–E). However, FEZ can be transformed to a normal economic zone, if it does not enjoy the special policy and privilege, although it creates new economic growth.

Fig. 63: FEZ's Evolution and the Three Trends at the Transitional Stage



Note: the horizontal arrows point to the directions of FEZ's evolutionary stages and time; the vertical arrows point to the economic growth and the reduction of preferential policy; the broken vertical lines show the limits of each stage; the solid curve shows FEZ's development; the two broken curves (C-E, C-F) and the solid horizontal arrows show the three development trends at the transitional stage.

Table 39 summarizes the features of the three evolutionary stages of a FEZ by analyzing its evolutionary mechanism (growth model, preferential policy, governance structure) and structural model (industrial sector, spatial structure) as well as economic linkages and input/output models. A FEZ will evolve from the birth, growing and flouring stage to transition stage. Its future will be determined by its political and economic conditions and its structural revolution.

Tab. 42: FEZ's Growth Mechanism, Evolutionary Stages and their Features

	Birth Stage	**Growing Stage**	**Flourishing Stage**	**Transition stage**
Growth Model	Supply-oriented growth	Supply- & demand-oriented growth	Demand-oriented growth	Standstill trend: a FEZ keep a standstill situation & will be gradually changed into a permanent FEZ or normal economic zone. Decline trend: a FEZ loses special status & becomes a normal economic zone; negative growth maybe take place. Redevelopment: a FEZ will be entrusted to new objectives, occupies new special status & become the 2nd generation of FEZ
Preferential Policy; Governance Structure	Regional-oriented preferential policy; Economic administration of FEZs	Transformation to horizontal combination of regional- & industry-orientation; Economic & urban administration of FEZs & economic zones	Vertical combination of regional-orientation & industry-orientation; Vertical combination of FEZs & administrative zones	
Industrial Sector, Spatial Structure	Land development; Small enterprises; No pillar industry; Single and small zone	Intro-national Land development inside domestic economy; Industrial development & service trade; Primary pillar industry; Small & mid-size enterprise, a few large enterprises; Multi-zonal structure, Intro-national sub-zones	Intro- & cross-national Land development; Industrial & service development, capital operation; Stable pillar industry; mid-size and large enterprises; Large multi-zonal structure, sub-zones in foreign country	
Economic Linkage and Input/Output	Loose inside & outside economic linkage; Input more than output; Little product output	Increasing inside & outside economic linkages; output equal input; more products and trade output	Stable & close inside & outside economic & administrative linkages; output more than input; more capital & service output	

Design: Meng Guangwen

12. References

1) Ai Chenglong, Ning Wei (1999), "The Current Situation and the Development of Economic and Technological Development Zones", In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 178, TEDA, pp. 57-60
2) Andrien, Corbiere-Medecin (1987), "Sophia Antipolice Scientific and Industrial Park", In: <<Export Processing Zones and Science Parks in Asia>>, Asian Productivity Organization, Tokyo, pp. 147-151
3) Author unknown (1978), "New York's Insurance Industry", In: <<The Economist>>, Vol. 273, No. 7107
4) Author unknown (2000), "Shanghai and Yunnan exploited together sub-zone of Liancang River-Mekong River", /Shanghai Yu Yunan Lianshou Kaifa Liancang Jiang Meigonghe Ciqiuyu), In: <<People's Daily>>, on July 26, 2000.
5) Author unknown, "Brilliant 20 Years, (8)" In: <<People's Daily>>, Beijing, Edition 1, 0/07/1998
6) Author unknown, <<Guangming Daily>>, Edition 4, Beijing, on 05.05.1992
7) Authorship unknown (1999), "Bringing TEDA's Demonstration, Spread and Promotion to Tianjin Economy into full Play", In: <<Study on Development – Reference for Decision>>, 1998 Bound Volume, No. 152, TEDA
8) Balassa, B. (1961), <<The Theory of Economic Integration>>, London
9) Balasubramanyan, V. N. (1988), "Export Processing Zones in Developing Countries: Theory and Empirical Evidence", In: <<Economic Development and International Trade>>, edited by D. Greenway, ed., London: Macmillan, pp. 157-195
10) Basile, A. and D. Germidis (1984), <<Investing in Free Export Processing Zones>>, Development Center of the OECD, Paris
11) Blank/Clausen/Wacker (1998), <<Internationale Ökonomische Integration>>, Verlage Franz Vahlen München
12) Bolz, K. Dieter Loasch and Petra Pissulla (1990), << Freihandels- und Sonderwirtschaftszonen in Osteuropa und in der VR China>>, Verlage Weltarchiv GmbH, Hamburg
13) Brown, L. A. (1981), <<Innovation Diffusion: A New Perspective>>, Methuen, London
14) Busch, Berthold (1992), <<Sonderwirtschaftszonen als Instrument der Systemtransformation>>, Deutscher Instituts-Verlage, 3/1992
15) Cai Zhiqang, etc (1992), "The Emergence and Development of World Special Economic Zones", (Shijiegeguo Jingjitequ De Chansheng Fazhan), In: <<Enterprise Economy>>, (Qiyiejingji), Nanchang, Vol. 5
16) Chang Xiuze etc. (1994),<<China's Economic Revolution>>, (Zhongguo De Huanti Geming), Tianjin People's Publishing House, Tianjin, p. 235.
17) Chang Xuze (1996), "How can Tianjin Economic and Technological Development Area fourthly develops under the New Conditions", (Tianjin Jingjijishu Kaifaqiu Zai Xinxingshixia Ruhe Genhaodi Fazhan), In: <<Study on Development – Reference for Decision>>, 1996 bound volume, No. 107, TEDA, pp. 35-40
18) Chang, S.-D.; Xu, W.-H.; Sun.J.-J. (1992), "Tianjin: North China's Reviving Metropolis", In: Yeung, Y.-M.; Hu, X.-W. (eds): << China's Coastal Cities – Catalysts for Modernization in two Chinese Cities>>, Honolulu.
19) Chen Ligao, Zhang Hongrou, Yang Chuang (1998), " Combination of Point and Area- the Problems and Tentative Idea of China's Free Trade Zone", (Dianmian Jiehe-Zhongguo Baoshuiqiu Fazhan De Wenti Jiqi Shexiang), In: <<International Trade>>, (GuojiMaoyi>>; Beijing, No. 12, pp. 17-19
20) Chen Zhilong (1999), "The Developments of Development Zone in Our Country's Coastal Region and the Inspiration to the Development of Pudong New Area", (Woguo Yanhai Kaifaqiu Dongtai yiqi Dui Pudong Xinqiu Fazhan De Qishi), In: <<Shanghai Synthetical Economy>>, (Shanghai Zonghe Jingji), Shanghai, pp. 27-29
21) Chen, X. (1994): "The New Spatial Division of Labor and Commodity Chains in the Greater South China Economic Region". In: <<GEREFFI, G. & KORZENIEWICZ, M. (EDS): Commodity Chains and Global Capitalism>>. Westport, Conn. pp. 165-186.

22) Chen, Xiangming (1995), "The Evolution of Free Economic Zones and the Recent Development of Cross-National Growth Zones", In: <<International Journal of Urban and Regional Research>>, Vol. 19, pp. 593-621
23) Cheng Gaolin, Lai Xiangnun, Tang Hong, Li Xiaopeng (1995): "Ten Economic Hot Spots of China in the Future", (Zhongguo Weilei Shida Jingji Redian), China Economical Publishing House, Beijing,, p. 180
24) Cheung, P. T. Y. (1999): "Guangzhou and Tianjin: the Struggle for Development in two Chinese Cities". In: CHUNG, J. H. (ED.): <<Cities in China. Recipes for Economic Development in the Reform era>>. London; New York. (Routledge Studies on China in Transition), pp. 18-53
25) Clasen, T. F. (1981), " US Foreign Trade Zones Manufacturing and Assembly: Overview and Update", In: << Law and Policy in International Business>>; vol. 13
26) Cong Wenzi (2001), "Motorola's Investment in China are Beneficial to Both Sides", (Motorola Touzi Zhongguo Hulishuangying), In: <<People's Daily>>, Overseas Edition, Jan. 31, 2001, Edition 2
27) Diamond. W. and Diamond. D.(1986), <<Tax-Free Trade Zones of the World>>, Matthew Bender, New York
28) Duckett, J. (1998a): "Government and Politics". In: HOOK, B. (ED.): <<Beijing and Tianjin. Towards a Millennial Megalopolis. Hong Kong>>. (Regional Development in China), pp. 31-55
29) Duckett, J. (1998b): The entrepreneurial state in China. Real estate and commerce departments in reform era Tianjin. London; New York. (= Routledge Studies on China in Transition)
30) Editorial Board (1994), <<A Survey of Tianjin's City Planning>>, (Tianjin Chengshi Guihuazhi), Publishing House of Tianjin Science and Technology, p. 370
31) Edmonds, R. L. (1998): "Geography and natural resources". In: Hook, Brian (ed.): <<Beijing and Tianjin. Towards a Millennial Megalopolis>>. Hong Kong. (Regional Development in China
32) Europäische Kommission (1995), <<Europa 2000: Europäischen Zusammenarbeit bei der Raumentwicklung>>, Luxemburg: Amt für amtliche Veröffentlichungen der Europäischen Gemeinschaften, s. 127-135
33) Fan Sujie, Wang Guangzhong (1993), <<World Free Economic Zone>>, (Shijie Ziyou Jingjiqiu), People's Publishing House, Beijing
34) Fröbel, P., Heinrich, J., Kreye, O. (1977), "Die neue Internationale Arbeitsteilung", In: <<Structurelle Arbeitslosigkeit in den Industrieländern und die Industrialisierung der Entwicklungsländer>>, Reinbek bei Hamburg
35) Fu Meibing (1993), <<The World Regional Economic Cooperation>>, (Guoji Quyujingji Hezuo), People's Republic House, Beijing
36) Fujimori Einan (or Hidenami) (1981), <<Export Processing Zones in Asian Countries>>, Chinese Translation, Publishing House of Chinese Academy of Social Sciences, p. 108
37) Futao, Zhou Zuchang (1985), <<Tianjin's Industry during 35 Years>>, (Tianjin Gongyi Sanshiwunian), Editorial Department of Tianjin Social Science, Tianjin, p. 19
38) Gao Hong, Huang Yuxiang (1996), "The Comparison between China's Development Zones and World Economic and Trade Zones", (Woguo Kaifaqiu He Shijie Jingjimaoyiqiu Bijiao), In: <<Study to World Economy>>, No. 5, (Shijie Jingji Yianjiu), Shanghai, pp. 14-18
39) Ge Hongsheng (1998), "SEZ's Economy in the 21 Century", (21 Shiji De Teqiu Jingji), in: <<Yearbook of China's Special Economic Zone and Economic and Technological Development Zone 1998>>, Reform Publishing House, Beijing, pp. 1-2
40) Gebhardt, H. and Abratis, J. (1991), "Large Research and Media Parks in the view of Information and Communication Enterprises", In: <<Netcom>>, Vol. 5, No. 2, pp. 401-122
41) Gehrke, B. et al. (1994), "Innovationspotential und Hochtechnologie", In: <<Technologische Position Deutschlands im Internationalen Wettbewerb>>, the 2nd Edition, Heidelberg
42) Grubel, Herbert G. (1982), "Towards a Theory of Free Economic Zones>>, In: <<Review of World Economics>>, No. 118, pp. 39-61
43) Grubel, Herbert G. (1983), "Free Enterprise Zones in Economic Development", In: <<New Opportunities for Entrepreneurship>>, Symposium 1983, Edited by Herbert Giersch, J. C. Mohr, Tuebingen, p. 224
44) Grubel, Herbert G. (1984), "Free Economic Zones: Good or Bad?", In: <<Außenwirtschaft>>, 39. Jahrgang (1984), Heft I/II, Diessenhofen, Rueegger

45) Gu Chaolin, Zhao Lingxun, etc.(1998), <<China's High Technologic Industrial Sector and Zones>>, (Zhongguo Gaojishu Changye Yu Yuangqiu), Zhongxin Publishing House, Beijing
46) Guo Xincang (1987), <<An Introduction to the World's Free Ports and Free Trade Zones>>, (Shijie Ziyougang He Ziyoumaoyiqiu Gailong), Publishing House of Beijing Aeronautical engineering Institute, (Beijing Hangkong Gongcheng Xueyuan), Beijing, p. 11
47) Guo Zhemin (1997), "Giving full Play to Promotional Role of Special Economic Zone, Promoting Economic Development in Interior", (Fahui Teqiu De Daidong Zuoyun, Zujin Neidi Jingji Fazhan), In: <<Theory and Practice of Special Economic Zone>>, (Teqiu Lilong Yu Shijian), No. 10
48) Hall, p. (1994), "International Urban System", In P. Roe (ed.), In: <<Emerging Regions in the Pacific Basin>>, IC² Institute, the University of Texas at Austin, Austin, Texas
49) Hamada, Koichi (1974), "An Economic Analysis of the Duty-Free Zone", In: <<Journal of International Economics>>, No. 4, pp. 225-241
50) Hamilton, Carl and Svensson, Lars E.O. (1982), "On the Welfare Effects of A Duty-Free Zone", In: <<Journal of International Economics>>, No. 13, pp. 45-64
51) He Chengying (1996), "Comparison and Choice among the Models of China's Special Economic Zones", (Woguo Teqiumeshi De Biyiao Jiqi Xuanze), in:<<Economy of Special Economic Zone>>, (Teqiu Jingji), Shengzhen, No. 11, pp. 21-23
52) He Huanzhen (executive editor): <<Tianjin Tourism>>, Tianjin Tourism Bureau, Tianjin, p.6-7
53) He Xinggang (1995), <<The Practice and Theory of Urban Development Zone>>, (Chengshi Kaifaqiu De Lilung Yu Shijian), Shanxi People's Publishing House
54) Hendrischke, H. (1999): "Tianjin - Quiet Achiever?" In: Hendrischke.H.; Chongyi. F. (eds): <<The Political Economy of China's Provinces. Comparative and Competitive Advantage>>. London; New York. pp. 183-206.
55) Ho Kwon Ping (1979), "Birth of the Second Generation", In: <<Business Affairs>>, May 18, 1979, pp. 76-79
56) Hodjera, Zoran (1978), "The Asian Currency Market: Singapore as a Regional Financial Center", In: <<IMF Staff Papers>>, Vol. 25
57) Hook, B. (1998): <<Beijing and Tianjin. Towards a Millennial Megalopolis. Hong Kong>>. (Regional Development in China)
58) Hou Jingxin, Li Mingxiao (1995), "Conception of Rationalizing the Construction of China's FEZs", (Zhongguo Kaifaqiujiangshe De Youhua Gousi), In: <<Economic Forum>>, (Jingji Lungtan), Shijiazhuang, No. 21, pp. 6-10
59) http://www.teda.gov.cn/law
60) http://www.thip.ac.cn
61) Hu Min-Juan, Zhangliang, Cao Zhidong (1999), "On the Operational Environment and Demonstrative Effect of Our Country's Industrial Park", (Lung Woguo Gongyeyuanqiu De Jingying Huanjing Yu Shifang Xiaoying), In: <<China's Tertiary Industry>>, (Zhongguo Disan Chanye), Beijing, No. 5
62) Hu Yonghui (1999), "The Summary about TEDA's Investment Environment in <<Report of 'Zero' Investigation>>", ("Lingdiandiaocha Baogao" Zhong Youguan Kaifaqiu Taozi Huanjing De Zhaiyao), In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 184, TEDA, pp. 98-102
63) IDIC (Industrial Development & Investment Center), (1993), <<Taiwan Industrial Panorama>>, February, 21, pp. 1-5
64) Jiang Zemin (1998), "Speech in the Commemorative Meeting for the 20th Anniversary of the Third Plenum of the 11th Party Congress", "(Zei Jinian Shiyijie Sanzhongquanhui 20 Zhounian Dahuishang De Jianghua), In: <<People's Daily>>, Overseas Edition, Edition 1-2, 18.12.1998
65) Jung-Man Suh (1987), "Science-based Industrial Parks: The ROK Experience of Past Achievements and Future Prospects", In: <<Export Processing Zones and Science Parks in Asia>>, Asian Productivity Organization, Tokyo, pp. 85-120
66) Key, Sydnex J. (1982), " Activities of International Banking Facilities: The Early Experience", In: <<Economic Perspectives>>, Vol. 2
67) Kindelberg, C. P. (1973), <<Die Weltwirtschaftskrise>>, Bd. 4 der Reihe Geschichte der Weltwirtschaft im 20. Jahrhundert, Fischer, W. München

68) Kong Xiangri, Hu Jianxin (1995), "Study on the Opening and Development of Tianjin Coastal Region", (Tianjin Binhaidiqu Kaifakaifang Yanjiu), In: <<City>>, No. 4, Tianjin, pp. 33-37
69) Kong Xiangri, Hu Jianxin (1995), <<Study on the Opening Strategy and Development of Tianjin Coastal Region>>, (Tianjin Binhaidiqu Kaifakaifang Zhanlue Yanjiu), Tianjin People's Republic Housing, Tianjin
70) Kumar, R. (1987), "Performance of Foreign and Domestic Firms in Export Processing Zones, In:<< World Development>>, 15, 10/11, pp. 1309-19
71) Kwan-Yiu Wong & David K. Y. Chu (1984), "Export Processing Zones and Special Economic Zones as Generators of Economic Development: the Asian Experience", In: <<Geografiska Annaler>>, 66B, I, pp. 13-14
72) Leung, C. K. (1996): "Foreign Manufacturing Investment and Regional Industrial Growth in Guandong Province, China". In: <<Environment and Planning A 28>>, pp. 513-536.
73) Li Bin (2000), "Our Country issued the Catalogue for the mainly developed New and High-tech Products", (Woguo Fabu Zhongdian Fazhan Gaoxin Jishu Chanpin Mulu), In: <<People's Daily>>, Overseas Edition, on 29.09.2000, edition 1
74) Li Haijian (1991), "The Review of World Special Economic Zones, Part 1", (Shijie Jingjitequ Shuping), In: <<Coastal Economy and trade>>, (Yianhai Jingmao), Qingdao, Vol. 10
75) Li Haiyan (1992), "The Various Types of Free Economic Zones in the World Today", (Dangjin Shijie Jingji Tequ De Zhongzhong Xingtai), In: << Special Zone and Open City Economy>>, (Tequ yu Kaifang Chengshi Jingji), No. 12, Beijing, p. 64
76) Li Hongjiang (chief editor) (1996), <<Theory and Essentials of Economics in Contemporary China – Study on Socialist Economy with Chinese Characteristics>>, Publishing House of Academy of Shanghai Social Sciences, Edition 1
77) Li Jingneng (1990), <<History of Tianjin's Population>>, (Tianjin Renkoushi>>, Publishing House of Tianjin Nankai University, p. 287
78) li Jingwen (Chef editor) (1995), << towards the 21 Century's Chinese economy >> , (Zouxiang 21 Shiji De Zhonggou Jingji), Publishing House of Beijing Economic Management, Beijing,
79) Li Li (chief editor) (1996), <<Study on the World Free Trade Zone>>, (Shijie Ziyoumaoyiqu Yanjiu), China Reform Publishing House, (Zhongguo Gaige Chubanshe), Beijing
80) Li Nanling, Chen Yani (2000), "The Great Project – SEZ's Historic Contribution to China's Open Policy and Reform), (Weida De Gongcheng – Jingjiteqiu Dui Woguo Gaigekaifang De Lishi Gongxian), In: <<People's Daily>>, Overseas Edition, 14-11-2000
81) Li Qing (1997), "The Trade Theory of Growth Triangle", (Zhengzhang Sanjiao De Maoyifazhan Lilung), In: <<Social Science Front>>, (Shehuikexue Zhanxian), No. 5, p. 93
82) Li Rong (2000), "Songjiang EPZ is being in Operation", (Songjiang Chukou Jiagongqiu Fengguang Yunxing), In: <<People's Daily>>, Overseas Edition, edition 2, 13-11-2000, 19-06-2001
83) Lin Hanchuan, Je Yuangsheng (chief editor) (1993), << A large Open Policy: China is moving towards World>>, (Dakaifang: Zhongguo Zouxiang Shijie), Wuhan Publishing House, pp.181-185
84) Liu Yuchi (1994), "The Evolution of the world's Economic Special Zones and the development Choices Facing China's SEZs", (Shijie Jinjitequ De Yanjin Yu Wuoguo Jinjitequ Fazhan De Xuanze), In: <<Tequ Yu Kaifang Jinji>>, (Special Zones and Development Zone Economy), No. 5, pp. 77-80
85) Lu Di (1999), "On Deng Xiaoping's Thinking of Constructing Special Economic Zone", (Lung Deng Xiaoping De Jingjiteqiu Jianshe Sixiang), In: <<Economy of Special Economic Zone>>, No. 4, Shenzhen, pp. 16-18
86) Luo Shuwei (1993), <<Tianjin Modern History>>, (Tianjin Jindaishi), Publishing House of Chinese Academy of Social Science, Beijing, pp. 195-196
87) Ma Mei (1997), <<The Study on the Urban Development of Tianjin: Industry, Spatial Structure and Population>>, (Tianjin Chenshi Fazhan Yanjiu: Chanye, Diyu, Renkou), Tianjin People's Republishing House, Tianjin
88) Man Xuejie, Mu Futian (1996), "TEDA: not only the Largest One, but also the Best One", (Tianjin Kaifaqiu: Bugan Zuode Zuida, Reqie Zuode Zuihao), In: <<Lookout>>, (Liaowang), Beijing

89) McCalla, Robert J, (1990), "The Geographical Spread of Free Zones Associated with Ports", In: <<Geoforum>>, Vol. 21, No. 1, Pergamon Press., Halifax, Canada
90) Meng Guangwen (1987), "Periphery Theory and China's Regional Development Strategy", Manuscript, Tianjin Normal University
91) Meng Guangwen (1989), " The Evolution and Characteristics of Tianjin's Town System and the Construction of Industrial Town at the Harbor on the lower Reachers of the Heihe River", In: <<Human Geographical Studies>>, No. 4, Xi'an, pp. 33-36
92) Meng Guangwen (1989), "Comprehensive Study on the Establishment of Tianjin Free Port", In: <<Tianjin Economy>>, Supplement, Tianjin, pp. 45-47
93) Meng Guangwen (1990), "Comprehensive Analysis of the present Situation of the Development in the Area of the lower Reaches of Tianjin Haihe-River, In: <<City**>>,** No. 2,Tianjin, pp. 45-48
94) Meng Guangwen (1990), "The Bonded Warehouse Zone and the Establishment of Tianjin Free Port", In: << Economic Geography>>, Vol. 10, No 2, China, p. 64
95) Meng Guangwen (1990), "Development of the Port Industrial Zone on the lower Reaches of Tianjin Haihe-River – a new Model of Development for the Port Industrial Zone", In: <<Urban Historical Studies>>, No.2, Tianjin, pp. 125-140
96) Meng Guangwen(1992), "Grading of Land in Tianjin Municipality's Tanggu District – Calculation of the Proportional Effects of the Town's Basic Facilities", Manuscript, Tianjin Normal University
97) Meng Guangwen (1993), <<Study on the Coordination between the Establishment of Tianjin Free Port and the Development of Tianjin Coastal Region>>, (Tianjin Ziyougang Jianshe Yu Binhaidiqiu Xietiaofazhan Yianjiu), Research Report, Manuscrip, Tianjin Normal University
98) Ostasiatischer Verein e.V. (OAV) (1995): "TEDA. Deutscher Industriepark auf dem Gelände der TEDA bei Tianjin", Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
99) Pan Jianpeng (1991), "The Policy Difference among Our Country's Special Economic Zone, Economic and Technological Development Zone and High-Tech Industrial Development Zone", (Woguo Jingjiteqiu, Jingjijishukaifaqiu Yu Gaoxinjishuchanye Kaifaqiu Zhengce Zhi Qiube), In: <<Shanghai Science of Law>>, (Shanghai Fayueyanjiu), No. 5, Shanghai, pp. 40-41
100) Pan Xiaomin (1997), "The Theoretical Evolution of Regional Integration", (Qiuyuyitihua De Lilungainian Jiqi Yianbian), In: <<Land and Regional Economy>>, (Guotu Yu Qiuyujingji), No. 2, Beijing
101) Pi Qiansheng (1998), "On the International Cooperation among Export Processing Zones and its Development Trend", (Lun Zhukaojiangongqiu Jiande Guojiehezuo Ji Fazhantaishi), In: : <<Reference for Decision>>, 1998, No. Supplement 1, TEDA, pp. 121-124
102) Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Tianjin People's Republic House, Tianjin p. 53
103) Qi, L.; Ash, R. F. (1998): Economic Development". In: Hook, Brian (ed.): <<Beijing and Tianjin. Towards a Millennial Megalopolis>>. Hong Kong. (= Regional Development in China, pp. 134-168.
104) Qin Xuewu (2000), "China will set up Export Processing Zone", (Zhongguo Jiangshe Zhukou Jiangongqiu), In: <<People's Daily>>, Overseas Edition, edition 2, 23-06-2000
105) Qiu Yuanlun (1998), "The Eight Contradictions of Economic Globalization", (Jinji Quanqiuhua Nehan Badui Maodung), In: <<World Affairs>>, No. 6, Beijing, p. 22
106) Rabani, F. A. (et. al) (1983), "Economic and Social Impacts of Export Processing Zones in Asia: an Evolution", In: <<Asian Productivity Organization, Tokyo
107) Reardon, Lawrence C. (1996), "The Rise and Decline of China's Export Processing Zones", In: <<Journal of Contemporary China>>, No. 5(13)
108) Reis, Heinz-Eckhard (1994), " Grenzüberschreitende Zusammenarbeit zwischen Deutschland, Belgien und den Niederlanden", In: << Raumordung und Raumplanung>>, No. 1, Deutschland, S. 36-42
109) Schrott, Jeffrey. J. (1989), << More Free Trade Areas?>>, Institute for International Economics, Washington, DC, pp. 16-17
110) Shanwaishan Business Group: <<The Strategy and Business Opportunity of Opened Border Cities in the Mainland>>, (Dalu Yanbian Kaifang Chengshi De Zhanlue Yu Shangji), Taiwan, pp. 17-19

111) Shen Danian (1988), << Tianjin's Financial Brief History >>, (Tianjin Jinrong Jianshi), Publishing House of Tianjin Nankei University, Tianjin, p. 9, 39, 107
112) Sklair, L. (1988), "Foreign Investment and Irish Development: a Study of the International Division of Labor in the Midwest Region of Ireland, In: <<Progress in Planning>>, 29. 3, pp. 147-216
113) Smith, P. J and Johnson, D.B. (1978), "The Edmonton – Calgary Corridor", Canada, The University of Alberta, pp. 42-47
114) Soulsby, J.A.,(1965), "The Shannon Free Airport Scheme: a New Approach to Industrial Development", In: << Scott. Gergr. Mag.>>, 81, pp. 104-114
115) Spinanger, Dean (1984), "Objectives and Impact of Economic Activity Zones – Some Evidence from Asia", In: <<Weltwirtschafliches Archiv>>, No. 120, pp. 64-89
116) Staeudner, R. (1995): „Das Joint Venture eines Hochspezialisieren Mittelständischen Unternahmens: Tianjin VEGA", In: Gruenebaum, Bertold (Hrsg): <<Marktchance China: Vom ersten Kontakt zum Joint Venture>>; Frankfurt am Main, New York, pp. 132-142
117) Statistical & Planning Bureau of TEDA (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Tianjin People's Republic House, Tianjin
118) Statistical & Planning Bureau of TEDA (1996): <<Annual Report on the Development of TEDA (1996)>>, www.teda.gov.cn
119) Statistical & Planning Bureau of TEDA: <<Annual Report on the Development of TEDA (1994-2000)>>, www.teda.gov.cn
120) Takeo, T. (1978), "Free Trade Zones in South East Asia, in: <<Mon. Rev. >>, 29, February, 1978, pp. 29-39
121) Takeo, T., (1977), "Introduction", In: <<AMPO: Japan-Asia q. Rev.>>, special issue entitled Free Trade Zones and Industrialization of Asia
122) Tang Min (1993), " Growth Triangle: Conception and Operation", (Zhengzhang Sanjiao: Gainian Yu Yunzuo Wenti), In: << Translation Collection of World Economic>>, (Shijiejingji Yicang), No. 7
123) TEDA (1996), << Master Plan of Tianjin Economic & Technological Development Area >>, TEDA
124) Thoman, R. S. (1956), <<Free Ports and Foreign-Trade Zones>>, Cornell Maritime Press, Cambridge, MD, p.18
125) Thompson, C. (1988), "High-Technology Development and Recession: The Local Experience in the United States 1980-1982", In: << Economic Development Quarterly>>,Vol.2, pp.153-167
126) Tianjin Daily, 21/08/1994 (*Tianjin Ribao)*
127) Tianjin, <<Tianjin Economic Yearbook (1986)>>, Tianjin People's Publication, p.6
128) Tianjin, http://www.stats-tj.gov.cn
129) Tinbergen, J. (1965), <<International Economic Integratio>>, 2Aufl. Amsterdam
130) Trespenberg, Uwe und Vooshol, Ulrich (1984), <<Unternehmenszonen: Ein Neues Instrument der Stadterneuerung in Großbritannien und in den USA>>; "Städtebauliche Forschung" des Bundesminister für Raumorderung, Bauwesen und Städtebau, heft 03.105
131) U.S. Agency for International Development, A.I.D (1983), <<Free Zones in Developing Countries: Expanding Opportunities for the Private Sector>>, Program Evolution Discussion Paper No. 18, Nov.
132) UNCTAD/Geneva (1985), <<Export Processing Free Zones in Developing Countries: Implications for Trade and Industrialization Policies>>, United Nations, New York
133) UNCTC (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe>>, UN
134) UNCTC Current Studies (1990), <<The Role of Free Economic Zones in the USSR and Eastern Europe, United Nations, New York, p. 1
135) UNIDO (1980), <<Exporting Processing Zones in Developing Countries>>, UNIDO/ICIS. 176/Corrigendum. 1,
136) United Nations Centre on Transnational Corporations (1991), <<The Challenge of Free Economic Zones in Central and Eastern Europe: International Perspectives>>, United Nations, New York
137) Viner, Jacob (1950), <<Customs Union Issue>>, New York, Carnegie Endowment for International Peace
138) Wang Haiping (1998), <<Study on the Port Development>>, (Gangkou Fazhan Yanju), Tianjin Publishing House of Science and Technology, Tianjin, pp. 95-96

139) Wang Qi (1999), "Creating the Hopes, Supporting the Future: Celebrating the 15th Anniversary of the Founding of Tianjin Economic and Technological Area", (Chuangzao Xiwang, Tuojiuweilai: Qingzhu Tianjin Jingjijishu Kaifaqiu Chengli Shiwuzhounian), People's Daily, Overseas Edition, 19/11/1999, edition: 9,12.
140) Wang Suokung, Lu Wei, Wang Baoming (Chief Editor) (1993), <<Land. Market. Operation>>, (Tudi. Shichang. Jingying), Publishing House of Tianjin Science and Technology
141) Wang Wenyang (1994), << Special Economic Zones>>, China's Prospecting Publishing House>>, (Thongguo Zhanwang Chubanshe), p.113
142) Wang Xin (1998), "Analysis of Development Prospect of Northwest Special Economic Zone by the Suez Gulf established by China and Egypt", (Zhongai Gongjian Suyishixibei Jingjiteqiu De Fazhanqianjing Fenxi), In: <<Study on Development – Reference for Decision>>, 1996 bound volume, No. 150, TEDA, pp. 176-185
143) Wang Xin (1999), "Study on the Development Strategy of TEDA's Urbanization", (TEDA Dushihua Fazhanyianjiu), In: <<Study on Development – Reference for Decision>>, 1999 Bound Vol. No. 133, TEDA, p. 202
144) Wang Xin, Ye Wang, Hu Baochun, Sun Quan (1996), "Study on the Problems of TEDA's Sub-Zone", In: <<Study on Development – Reference for Decision>>, 1996 bound volume, No. 118, TEDA
145) Wang Xuewei (1999), "The Lifecycle and their Transformation of Our Country's Economic and Technological Zones", (Woguo Jinjijishu Kafaqiu De Shengming Zhouqi Jiqi Zhouqi Zhuanxing), In:<<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 164, TEDA
146) Warr, P. G. (1989), "Export Processing Zones: the Economic of Enclaves Manufacturing", In: <<The International Bank for Reconstruction and Development>>, No. 1, Washington DC, pp. 65-88
147) Wei Hongmei (1999), "Findings Report on Commuter Cost of Employees in TEDA's Enterprises", (TEDA Zhuqiuqiye Zhigong Tongqinchengben Wenti Diaozhabaogao), In: <<Study on Development – Reference for Decision>>, 1999 Bound Volume, No. 177, TEDA, pp. 53-54
148) Wolfgang Taubmann (2001), "Wirtschaftliches Wachstum und räumliche Disparitäten in der VR China", In: <<Geographische Rundschau>>, Heft 10
149) Wu Ang, Zhang Jianxi (1995), <<Analysis of the Local Economical Development of China>>, (Zhongguo Difangjingji Fazhanfenxi), Publishing House of China Economy, Beijing, p. 33
150) Wu Zhendong (1989), <<The Study on the Macro-Plan of Our Country's High-Tech Development Zones>>, (Master thesis), Architectural Department of Tianjin University, Tianjin
151) Xiao Siru, Zhang Yu (1994), <<Towards the Prosperous Road – The Transforming China: Contradiction, Puzzle and Choice>>, (Tongxiang Fanrun Zhilu: Biangezhong De Zhongguo: Maodun, Kunhue, Xuanze), Shanxi People's Publishing House, p. 169
152) Xin Xin (1992), "The Historic Development and Recent Variants of World Special Economic Zones", (Shijie Jingji Tequ De Fazhan Yu Qushi), In: <<Economy Information>>, (Jingjixiu Qingbao>>, Wuhan, Vol. 5,
153) Xinhua (2000), "Special Economic Zones should Pilot Path to Globalization", In: http:// www. chinatopnews. com, 2000-10-12
154) Xu Guodi, Liu Yuan, Qiu Tianchao (1996), "The Study on the Development Tendency and Countermoves of Regional Economy of China ", (Zhongguo Quyujingji Fazhanqushi He Duice Yianjiu), In: << China Gold Coast Yearbook 1996>>, Qunyan Publishing House, Beijing
155) Xu Zice, Cai Renqun (1990), <<Chinese Special Economic Zones>>, (Zhongguo Jingjiteqiu), Guangdong Science and Technology Publishing House, Guangzuou, pp. 14-15
156) Yang Kaizhong (1989), <<The Study of Regional Development of China>>, (Zhonggou Quyufazhan Yanjiu), the Sea Publishing Hours, Beijing
157) Yang Zaiping (1999), "Financial Globalization: Advantages, Disadvantages and Management", (Jinrun Quanqiuhua: Libi Yu Guanli), In: << World Affairs>>, No. 6, Beijing, pp. 16-17
158) Ye Ying (1998), "The General Situation and the Characteristics of Our country's Open Policy in the Border Region", (Woguo Yanbian Duiweikaifang Jibenqingkuang Jiqi Tedian), In:

<<Yearbook of China's Special Economic Zone and Economic and Technological Development Zone 1998>>, Reform Publishing House, Beijing, pp. 85-88

159) Yeung, Y. & Li, X. (2000): "Transnational Corporations and Local Embeddedness: Company Studies from Shanghai, China". In: <<Professional Geographer>>, 52 (4), pp. 624-635.

160) Yue-man Yeung and Xu-wie Hu (Editors) (1992), <<China's Coastal Cities>>, University of Hawii Press, Honolulu, p. 44

161) Zeng Gang (1997), "The Present Situation and Development of Our Country's New and High-Tech Industrual Development Zone", (Woguo Gaoxinjishu Chanye Kaifaqiu De Xianzhuang Ji Fazhan", In: <<Regional Study and Development>>, (Diyu Yanjiu Yu Kaifa), Zhengzhou, pp. 48-52

162) Zenger, J. P. (1977), "Taiwan: Behind the Economic Miracle, in: <<AMPO: Japan-Asia q. Rev>>, Special issue entitled Free Trade Zones and Industrialization of Asia, pp. 79-91

163) Zhan Qicheng (1992), "The Special Economic Zones in the World", (Shijie Geguo De Jingji Tequ), In: <<Baike Zhishi>>, Beijing

164) Zhang Youwen (1997), "Some Theoretical Problems of World Economic Integration", (Guanyu Shijiejingji Yitihua De Jigewenti), In: <<Xinhuawenzhai>>, No. 12, Beijing, pp. 56

165) Zhang Zhongdong, Hou Xiaolu (1997), "The Comparison of the Preferential Policies between TEDA and other kinds of Special Economic Zones", (TEDA Yu Qita Teshujingjiqiuyu Youhuizhengce Bijiao), In: <<Study on Development – Reference for Decision>>, 1997 Bound Volume, No. 125, TEDA, p. 125

166) Zhou Shuwei (1998), "Free Trade Zone: A New Growth Point of Open Economy", (Baoshuiqiu: Kaifangxing Jingji De Xin Chengzhangdian), In: <<Guidance Newspaper of Reform>>, (Gaige Daobao), Guangzhou, on July 11.1998

167) Zhu Congshi, Weng Junyi (1997), "On the New Standardization of Special Economic Zone", (Long Jingji Teqiu De Chongxin Guifan), In: <<Economic Study>>, (Jingji Yianjiu), Beijing, pp. 61-65

168) Zhu Mutang, Zhang Haining & Wang Boyian (1988), <<City Economics of the Western Counties>>, (Xifang Chengshi Jingjixue), Publishing House of Chinese Finance and Economy, (Zhongguo Caijing Chubanshe), Beijing, pp. 38-40

169) Zhu Xijuang (1999), "Great Promise for the Future in Development Zones – Report from TEDA", (Kaifaqiu Dayou Xiwang – Laizi Tianjin Kaifaqiu De Qishi), In: <<Guangmin Daily>>, Beijing, in May 14, 1999. Edition 8

13. Appendix

13.1. TEDA's Economic Indicators

Tab. 1: Evolution of TEDA's Industrial Structure based on GDP (1993 – 2000), Unit: 10,000 Yuan

Term/Time	1993	1994	1995	1996	1997	1998	1999	2000
GDP	254591	487678	801100	1310135	1536270	1801056	2084516	2564400
Secondary Industry	179733	391160	674870	1106599	1235842	1399524	1617221	
Growth (%)		117.63	72.54	39.01	29.00	18.10	19.60	21.90
Proportion (%)	70.60	80.21	84.25	84.46	80.44	77.71	77.58	79.10
Tertiary Industry	74858	96518	126231	203536	300428	401532	467295	
Growth (%)		28.93	30.75	61.28	41.50	30.60	16.44	15.20
Proportion (%)	29.40	19.79	17.75	15.54	19.56	22.29	22.42	20.90

Source: sorted out from: 1) Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 46-47, but the data of 1985-1992 was not counted; 2) Annual Report on the Development of TEDA (1987 – 2000)

Tab. 2: The Added Investment of Foreign Enterprises in TEDA, Unit: 10,000 US$

Term	Enterprises added capital			Average added capital level	Enterprises with over 10m added capital		
Time	Number	Total added capital	% of total foreign invest.		Number	Total added capital	% of total added capital
1988	6	482	5.68	80	-	-	-
1989	1	18.80	0.18	19	-	-	-
1990	5	1373	11.22	275	-	-	-
1991	15	1526	8.22	102	-	-	-
1992	26	5109	7.22	197	2	2585	50.60
1993	48	5090	4.12	106	1	1500	29.47
1994	59	31422	20.63	533	6	24046	76.52
1995	62	97900	54.06	1579	9	-	-
1996	97	86700	45.25	894	25	-	-
1998	78	52000	35.10	667	19	-	-
1999	50	74600	52.20	1493	8	-	-
2000	55	230800	83.10	4196	7	-	-

Source: sorted out from: 1) "Annual Report on the Development of TEDA (1995-2000), Statistical & Planning Bureau of TEDA; 2) Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, pp. 31-32

Note: all of the data of 1997, total added capital of enterprises with over 10 million added capita and its proportion to total added capital from 1995 to 2000 were not supplied in the "Annual Report on the Development of TEDA (1995-2000); "– " means no statistic data

Tab. 3: The First 10 Home Countries and Regions of Investment in TEDA and the Rank Order (1985-2000) over the Years

Time / Term		1985-1994	1995	1996	1997	1998	1999	2000
No. of C -R		51	59	62	65	65	69	64
Countries and their proportion in TEDA's total investment	1	HK 37.6%	USA 46.60%	USA 24.20%	USA 21.70%	USA 23.80%	USA 23.60%	USA
	2	USA 20.20%	HK 14.09%	HK 21.80%	HK 21.10%	HK 18.40%	HK 17.60%	-
	3	Taiwan 6.80%	UK 7.98%	Korea 13.20%	Korea 13.20%	Korea 14.60%	Korea 14.60%	-
	4	Denmark 6.70%	Korea 5.92%	UK 8.60%	UK 8.00%	BVI 7.3%	BVI 8.6%	-
	5	Korea 5.80%	Japan 5.08%	Japan 6.20%	Japan 6.20%	Japan 4.90%	Japan 5.30%	-
	6	Japan 5.00%	Singapore 3.18%	Taiwan 5.10%	BVI 5.6%	CI 4.2%	Singapore 4.00%	-
	7	UK 3.30%	Holland 2.56%	Singapore 3.50%	Taiwan 5.00%	Singapore 4.1%	CI 3.9%	-
	8	Germany 3.00%	Germany 2.42%	Denmark 3.40%	Singapore 3.50%	Taiwan 4.10%	Taiwan 3.80%	-
	9	Singapore 2.40%	Canada 2.35%	Germany 1.80%	Denmark 3.00%	UK 3.90%	UK 3.40%	-
	10	Switzerland 2.00%	Taiwan 1.79%	Switzerland 1.16%	Germany 1.90%	Denmark 3.50%	Denmark 3.20%	-
Total %		92.80	91.97	89.40	89.93	88.80	88.00	-

Source: Pi Qiansheng, Li Yung, Chief Editor (1995), "10 Year's Statistical Report of TEDA (1984-1994)", Statistical & Planning Bureau of TEDA, p. 27; "Annual Report on the Development of TEDA (1995-2000), Statistical & Planning Bureau of TEDA.

Note: No. of C-R: total numbers of countries and regions invested in TEDA over the years; "-": no statistic data; BVI: British Virgin Island; HK: Hong Kong; CI: Cayman Island

13.2. Several Theories of Industrial Structures

General Evolution of Industrial Structure

The British economists, William Petty (1700s) and the C. G. Clark (1940), separately advanced the theory of industrial structure, namely the Petty-Clark Law. The main content of this theory is that all economic activities can be classified into primary, secondary, and tertiary industry or three evolution stages with gradually increased per capita national income.

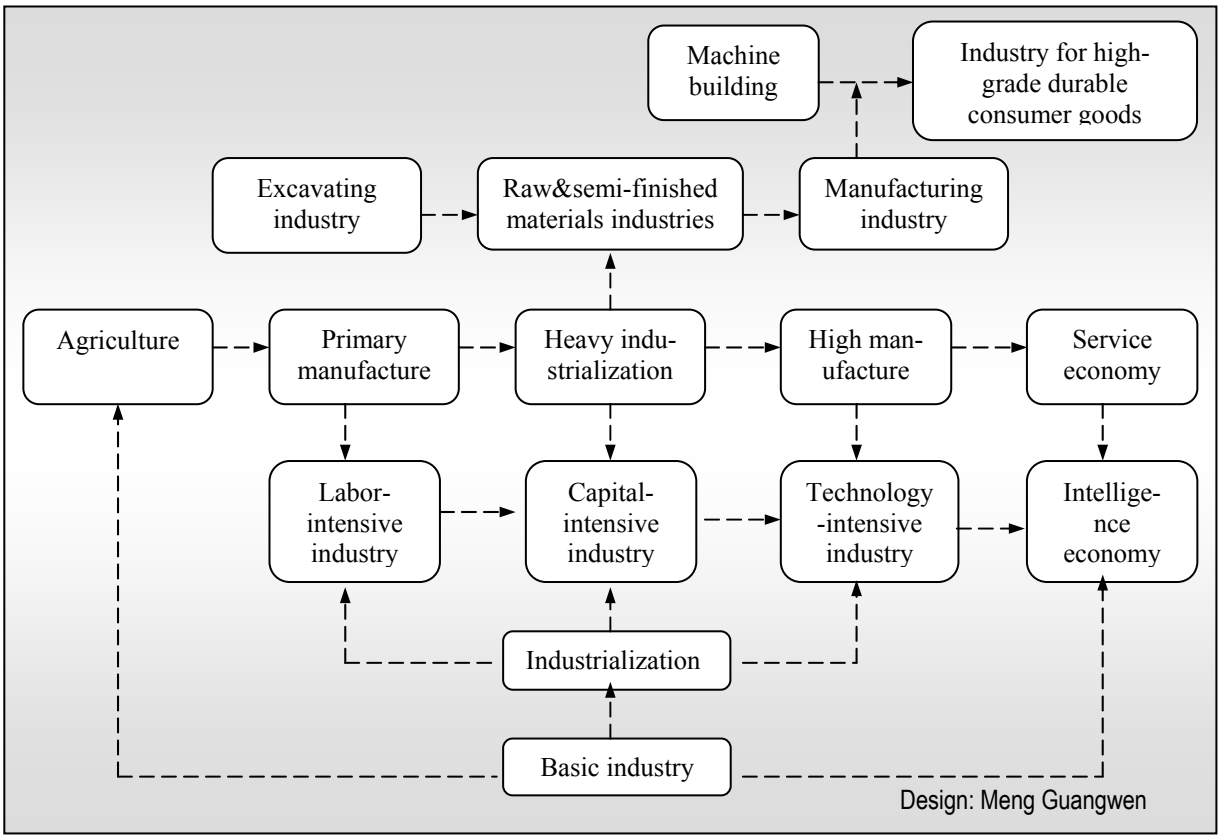
But, this theory didn't go deep into the industrialization and service trade. Several economists such as S. S. Kuznets, Walter Hoffman (1913), A. D. Hirschman (1958) and H. B. Chenery (1960) separately deepened and improved this theory. New studies on the technological and knowledge economy have enriched the Petty-Clark law since the 1990s. The evolution of industrial structure in modern economic activity can be summed up as follows:

- Agriculture is the basis of modern economy and the starting point of industrial structure.
- Raising agricultural productivity led to the transformation of the labor force from agriculture to industry and to the increase of per capita national income.
- The essential evolution of industrial structures in modern economies begins with industrialization. The structural transformation shows a regularity: primary manufacture – heavy industrialization – high manufacture or labor-, capital- and technological-intensive industry based on the technological development. Heavy industrialization can also be

classified into several stages. Today, intelligent economics lets us believe that there is a fourth stage, namely the intelligence-intensive industry.

- Due to the economic development and rise of industrial productivity, the service trade or tertiary industry will replace the industry as the leading factor in the national economy. This trend is called service-orientation economy.
- The growth of the modern economy is grounded or supported by basic industry including transportation, telecommunication, energy, raw and processed materials.
- The above-mentioned evolution of industrial structures in modern economy shows a general law. This model can be partly or completely observed in different regions and periods and based on different industrial policies, but the industrial structures in these regions are generally based on this law.

Fig.1: General Evolution of Industrial Structures and the Relations between them



Theory of Pillar Industry and Industrial Group

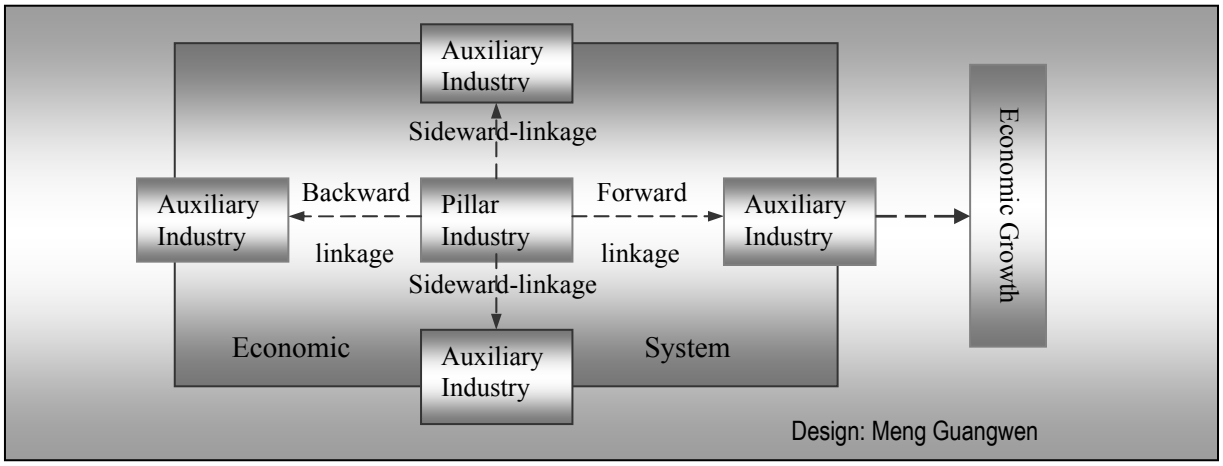
The theory of pillar industry states that economic growth is unbalanced. Some industrial sectors as leading sectors can control or determine other industrial sectors, and its growth can promote the growth of other industrial sectors and the regional economy by forward-, backward- and sideward-linkages. The leading industrial sectors are called pillar industries.

The development of the new industries in the American Silicon-Valley encouraged some scholars to study the industrial group in the 1970s. This industrial group means that the industrial sectors or industries gather in a area where there is or will establish the close technological and economic linkages between them. Its macro-form displays a regional industrial structure that consists of pillar industry or leading industry, auxiliary industry and basic industry on the one hand; its micro-form shows the close production linkage and the technological cooperation among industrial sectors on the other, namely the production of an

industrial sector will be used as the raw materials or semi-finished products. It has the following features:

- numerous enterprises gather in a defined area based on economic and technological linkages;
- high production coordination and division as well as specialized production among the enterprises coexist; a vertical division and a horizontal network coexist;
- large enterprises with large-scale production and mid- and small-size enterprises with flexibility and innovation coexist;
- the gathering scale of enterprises is determined by the market;
- the local network between the enterprises, which possess stable and densely linkages, and the enterprise's localization, namely that the enterprises take root among the local social culture, leads to the place that the enterprises are able to realize continuous self-development and innovation.

Fig. 2: Model of Pillar Industrial System



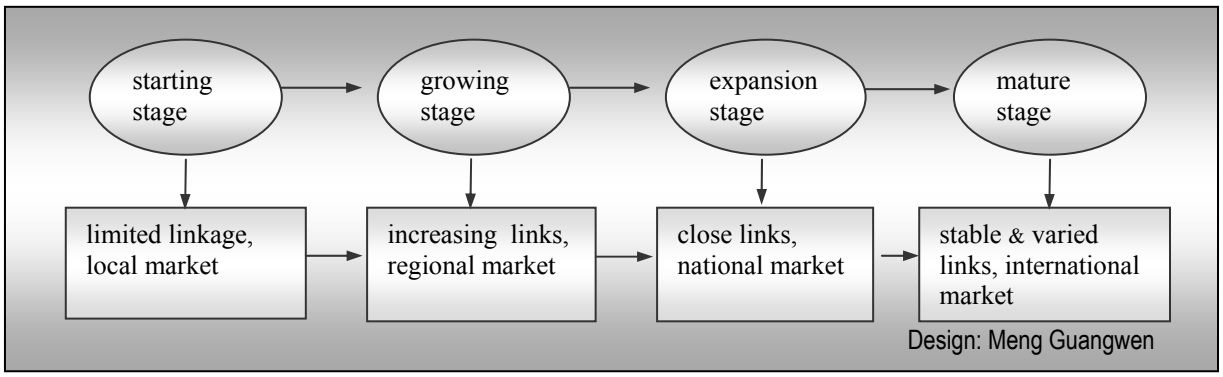
The industrial group is established on the basis of the enterprise's connection and assembling (gathering) that is determined by market mechanism and high regional division of labor. The core is the economic benefit gathering, including full utilization of various infrastructure and reduction of the use cost; reduction of transport and transaction cost; stimulating the innovation through the local network and the enterprise's localization; promotion of imitation and learning among the enterprises, and establishment and attraction of new enterprises. The development of industrial group can be classified into four stages:

- Starting stage: Some enterprises or industrial sectors do not orderly gather in a defined area. There are only limited economic and technological linkages among the enterprises or industrial sectors; and most enterprises are small ones and can only meet the needs of the local market.
- Growing stage: Some industrial sectors with the production and technological linkages begin to gather in a special place, and production and technological linkages among these enterprises emerge. Large companies develop and promote the establishment of small companies around them by production and technological coordination. The infrastructure becomes an economic resource. The enterprises begin to provide services to the regional market.
- Expansion stage: The number of enterprises or industrial sectors with close linkages will continually increase. The numerous industrial sectors or economic branches derive from

large enterprises, universities and new enterprises. The given infrastructure is fully used. Enterprises or industrial sectors begin to serve the national and international market.

- Mature stage: The multi production and technological linkages among the enterprises or industrial sectors will be stable and varied. The infrastructure has become a highly specialized industry. Enterprises develop an outwardly-oriented economy and international competitive power.

Fig. 3: Evolutionary Stage and the Features of Industrial Group



13.3. Figures of TEDA's Major Economic Indicators from 1984 to 2000

Fig. 4: GDP and Annual Growth Rate of TEDA (1986-2000)

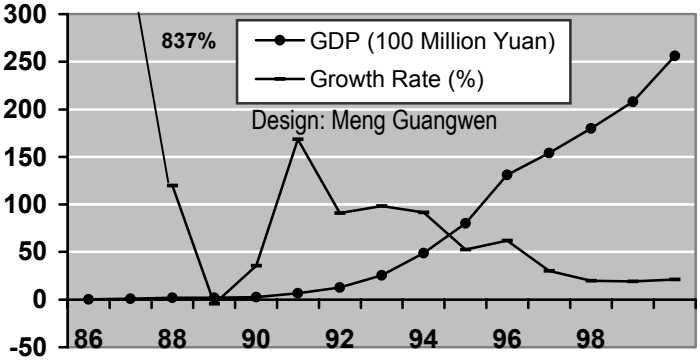


Fig. 5: TEDA's Total Import and Export and Growth Rate (1990-2000)

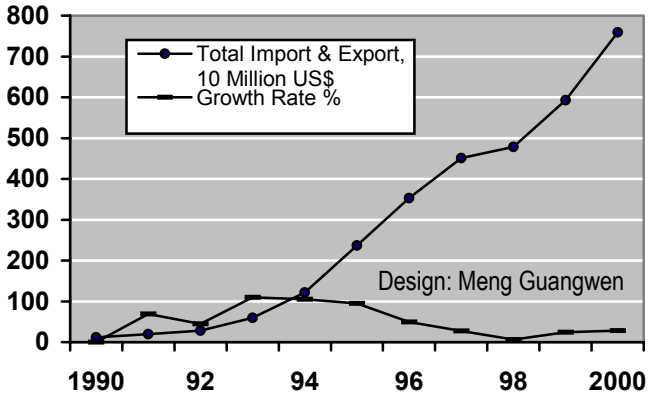


Fig. 6: Total Export and Annual Growth Rate of TEDA (1985-2000)

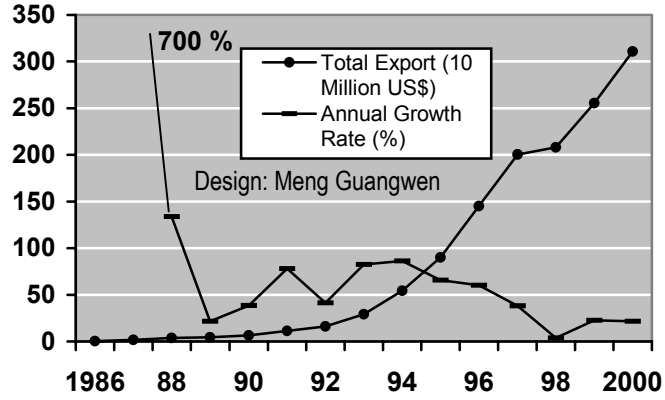


Fig. 7: Gross Industrial Output Value and Annual Growth Rate of TEDA (1986-2000)

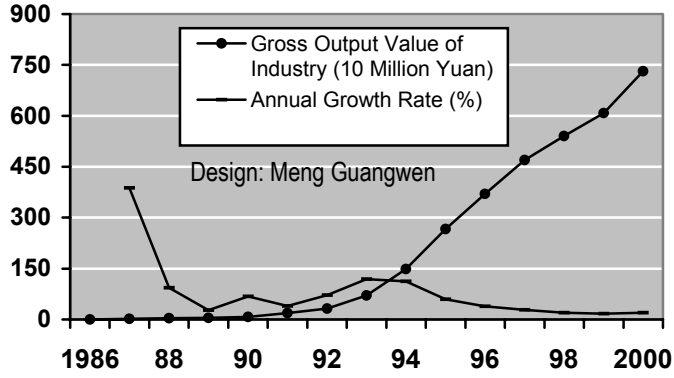


Fig. 8: Per Capita GDP and the Annual Growth Rate of TEDA (1986-2000)

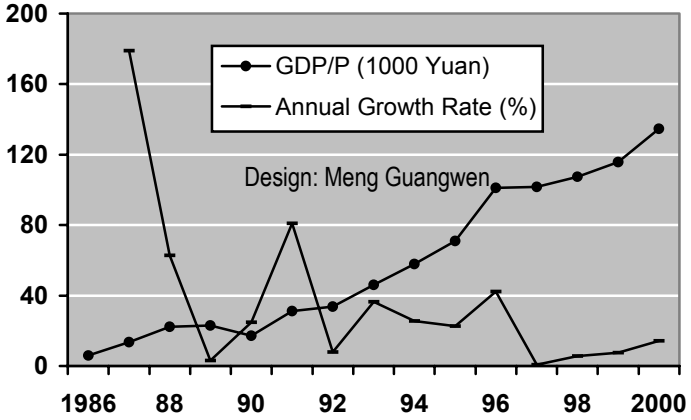


Fig. 9: Employment and Annual Growth Rate of TEDA (1986-2000)

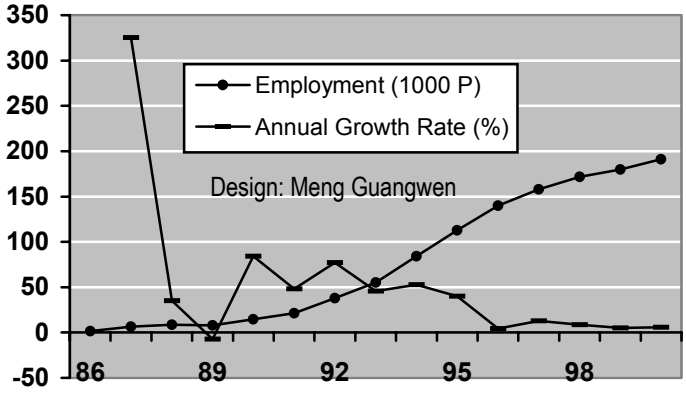


Fig. 10: Total Investment of Foreign, Hong Kong, Macao, Taiwan-funded Enterprises in TEDA (1985-2000), Unite: Yuan and %

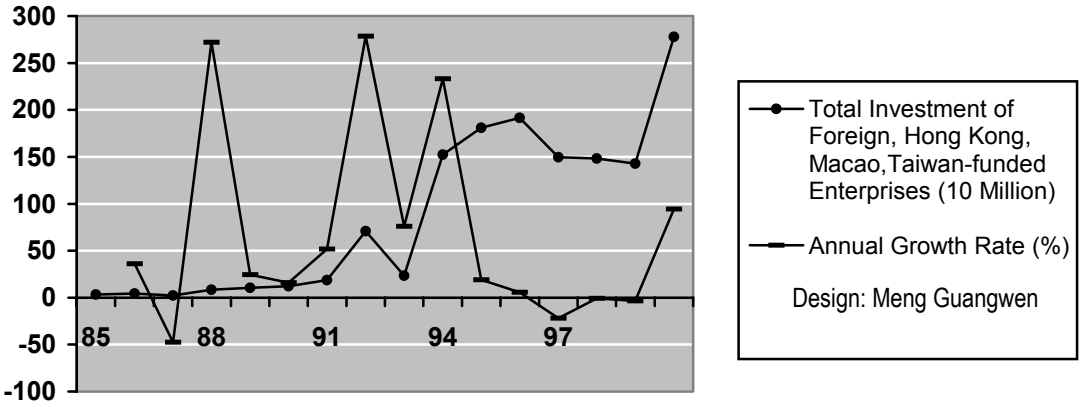


Fig. 11: Financial Revenue and Annual Growth Rate of TEDA (1986-2000)

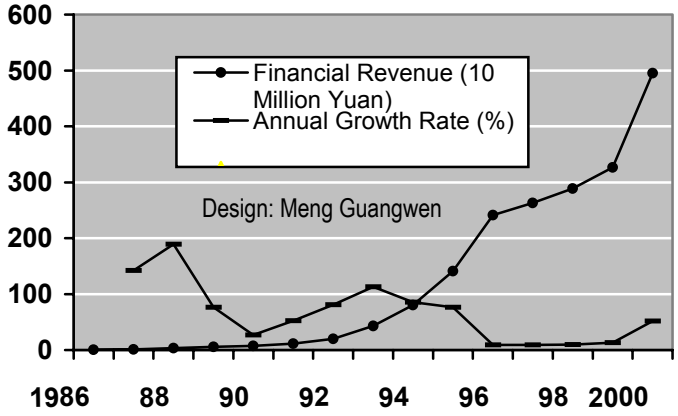
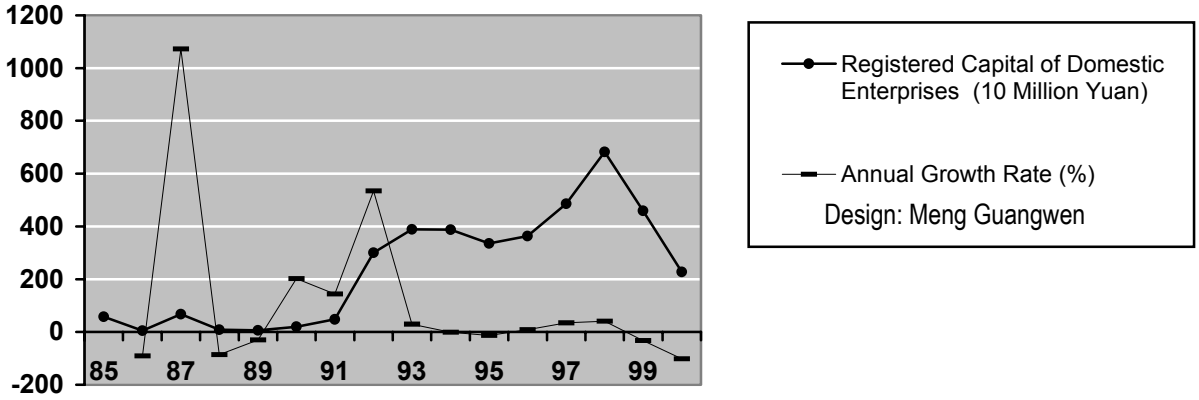


Fig.12: TEDA's Registered Domestic Captial & its Growth Rate (1985-2000)



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