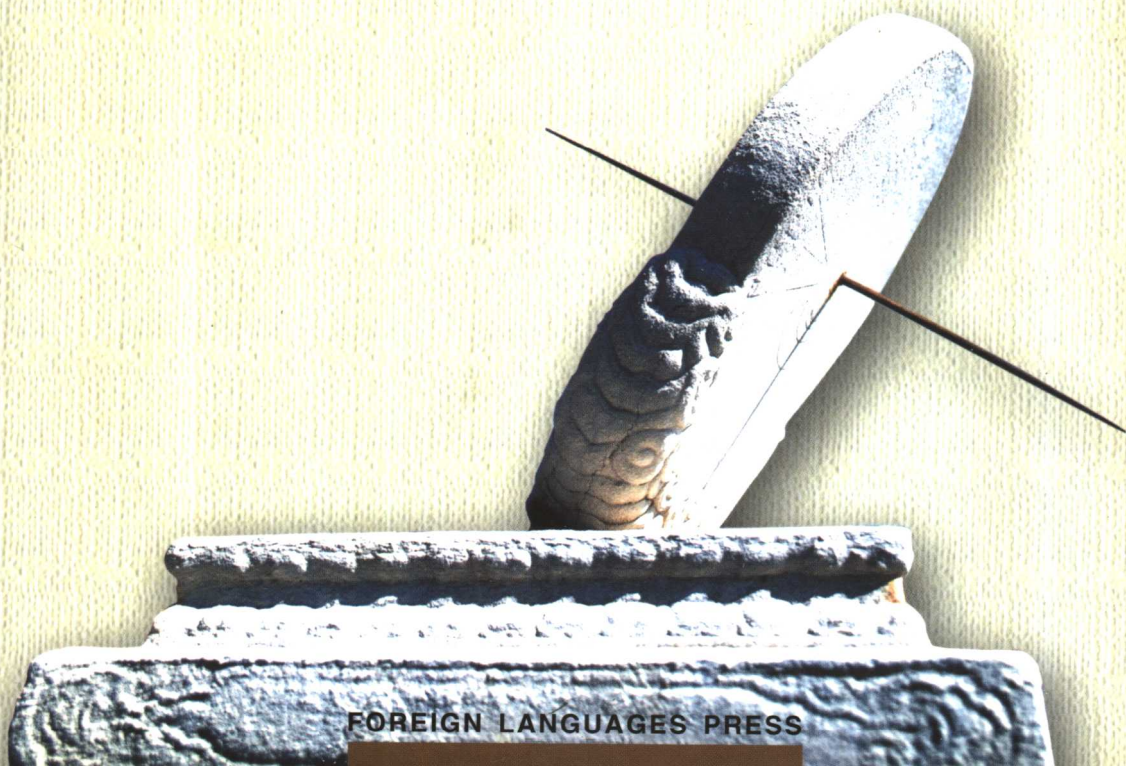


# **C** INTEGRATED STUDY OF **HINA'S** **DEVELOPMENT** **AND REFORM**

**PRELIMINARY EXPLORATION OF  
SOCIAL SYSTEM**

■ Huijiong Wang



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# **Integrated Study of China's Development and Reform**

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## PREFACE

This book is a collection of papers by the author, who has worked for over twenty years in policy research for and giving advice (strategic planning at macro and micro level) to the Chinese government. And he had been invited abroad to give speeches and read papers on various aspects of China's reform and opening-up. Eighteen papers are selected from his works in the area of development planning, science and technology, economy, social and environmental development; most of these papers had been published in books and journals abroad. The purpose to publish these selected papers in this book, titled *Integrated Study of China's Development and Reform*, represents an attempt to give the readers an overall picture on China's reform and opening-up from various perspectives, so as enable them to better understand the achievements and issues on China's development and reform as well as some possible challenges the country faces ahead.

The success of China's reform and opening-up since the late 70's has attracted worldwide attention. Many excellent papers have been written on China abroad, but most of them focused mainly on one or several specific areas. For example, China's economic development, or economic reform and its challenges, or sustainable industrial development had been studied extensively by many international organizations, such as the World Bank, IMF, OECD, ADB, UNIDO, etc. The feature of this book tries to provide a new perspective of study — an integrated approach. Of course, the author has also absorbed widely from the above-mentioned studies in preparing this book.

Although this book has presented five essential components in the consideration of China's development and reform, the author does not intend to pay too much attention on theoretical or quantitative explorations. To make an integrated study of China's development and reform is by no means a simple task, which is impossible to be completed by the effort of an individual. It calls for organized research and study of both Chinese and foreign experts. It took the author more than twenty years to complete a book *An Introduction to Systems Engineering* (published in 1979), when the author served as a chief engineer of electric power industry. The author also has rich experience, basic knowledge of general system theory, the capability of analysis and synthesis equipped with appropriate mathematical tools, a good sense of logic, as well as a sound understanding of the various disciplines

of social sciences that he has acquired from learning and doing. But it should also be stressed that the author learned the lessons from his 33-year experience and continuous learning on engineering and 22-year work and study on economics and other branches of social sciences; economics, as a part of social science, is a very complicated field of study, because social science mainly focuses on the study of society and human relationship. The domain of it is still not fully clarified, and the study of human behavior is very difficult to be quantified. For example, psychology is often seen as a natural rather than social science, and economics is most likely to be regarded as a comparatively unproblematic social science. But the penetration of mathematics into economics and current economic modelling still suffer from certain difficulties due to the involvement of human behavior and political environment factors both domestically and internationally and development study. It is quite different from engineering in that there is not enough experimental data, and there is also the difficulty of measurement, in spite of the fact the functionalism of Talcott Parsons offers the fullest employment of systems theory in sociology. Therefore, this *Integrated Study of China's Development and Reform* will serve as a very preliminary study and experiment of system approach to social science and development study. From the "Contents" of this book, it can be seen that a few papers are collected in part IV, the social aspects, although the author had written a paper in Chinese titled "Some Studies on Cultural Industries," etc. I have no intention to have it translated and included in this book. Because this book is only an illustrative study to see how system approach can be applied to the objective world, the weakness of part IV is remedied somewhat in paper 12 and the "Conclusions" part. The mankind and the world it lives is developed and changed continuously. There is no end for the recognition of the objective world and themselves for the mankind through learning and practice. It is expected that more knowledge of the world can be learned and some relatively in-depth studies on this subject can be done by the author in the rest of his life through life-long learning process.

The author wish to thank sincerely his distinguished classmates and friends both at home and abroad, close colleagues, the sponsor and all the organizations that have assisted the preparation of these papers and the publication of this book.

All criticism and comments are sincerely welcome.

*Huijiong Wang*

May 15th, 2003

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## INTRODUCTION

China's reform, opening-up and its development over last two decades since the late 1970s have achieved an extraordinary success; it has attracted wide attention from the global society. It can be seen from the fact that, the famous research project of the World Bank, "The East Asian Miracle," which was published in 1992, had not taken China's development into account. But the recent study "The Emerging Asia" of Asian Development Bank launched in 1997 and the study "Rethinking the East Asia Miracle" of the World Bank published in 2001 both have focused on China and treated it as a crucial component of the study of the experience of Asia's development. There are also several special studies focused on China recently, such as OECD's publication in 2002 "China in the Global Economy: Challenge of Domestic Policies", IMF's publication in 2003 "China: Competing in the Global Economy". In fact, there are enormous amount of publications and literature from various research institutions of different countries, developed or a few of developing countries, which focused on the experience and issues of development and reform of China in recent years.

Many studies on China have been done by large international organizations. They are generally carried out by assembling large numbers of experts from abroad. Sometimes, Chinese experts are also invited to participate in these studies. Generally speaking, most of these studies are of a relatively good quality, which had observed and summarized the experiences, lessons and issues of China's development and reform correctly in the relative sense; some useful suggestions have also been raised. They are deserved to be studied and learned seriously by the relevant institutions, organizations and professionals in China. They can also provide useful references for the developing countries as well as background information about China to developed countries. From the academic point of view, they represent a new accumulated pool of knowledge for the newly emerging disciplines since World War II, the development economics, policy science and policy analysis,

and also the transitional economies emerged in recent years. Those new disciplines have been continuously improved and developed. New experiences have been provided by them. But it is regretted that there are relatively few publications, written directly in English by Chinese scholars to introduce systematically the experiences of and issues in China's reform and development.

The enormous amount of economic and social construction since the founding of the PRC, and particularly in past more than twenty years of reform and opening, have provided a rare good opportunity for the author who has done all sorts of practical work and plunged head and tail into the study of theory. Especially in the recent twenty years and more, the author worked in one branch of the Development Research Center of the State Council, formerly called "Technical Economic Research Center," my colleagues and I made use of the chance to engage in the study of macro and micro issues of development and reform of China, and made wide connections and exchanged views with various international organizations and academic professionals, and accumulated a fair amount of experience in doing joint research projects with them. In the recent ten years and more, I have been invited by various international organizations and academic institutions on more than 100 occasions to give speeches abroad, most of which had been published in publications of international organizations or academic institutions, some of them were translated into Japanese, French and Portuguese. Of them, I have selected fourteen papers, the other three papers are selected from international conferences held in China, and one is a report given at the National Conference of Academicians of Chinese Academy of Sciences and Chinese Academy of Engineering in 1998. The author has rewritten them into English with some supplements. These above eighteen papers are collected in this book titled *Integrated Study of China's Development and Reform*. The purpose is to provide a relatively overall picture of the development and reform of China as well as some other issues in a comprehensive perspective. On the other aspect, former PRC President Jiang Zemin had mentioned in his report to the Twelfth National Congress of Communist Party of China that the target of China's economic restructuring is to establish a system of socialist market economy, which is a very complicated social system engineering. Therefore, on the part of this author, this book is a very preliminary exploration in the study that ranges from engineering systems engineering to social systems.

This book is divided into five parts.

Part I is an overview. Four papers are collected in this part. The first paper is “System Concept of Sustainable Development—Sustainable Development of Mode of Production and Consumption and the Impact of Social Culture”. This paper was originally a speech the author was invited to give at the National Conference of Academicians of Chinese Academy of Sciences and Chinese Academy of Engineering in 1998. The content in this paper reflects the author’s overall academic perspective on China’s development and reform. In fact, the basic concept is expressed nearly throughout all chapters of the book. The original speech is given in Chinese. It is rewritten into English based basically on the original speech, but is supplemented with some new materials.

The second paper is titled “The Experience of Development Planning in China”. This was a speech delivered by the author on the invitation of the United Nations. It was presented in the National Planning Conference in Iran in October 1998. Planning and market had been a major subject of debate in the domestic economic field at the initial stage of China’s reform and opening-up. It is also a focus of debate among scholars of international political economy. In reality, as the development of the contemporary world is related to the interaction of many factors, political, social, economic, technological, and environmental, it is fair to say that nearly all countries (include large corporations or large cities) of the world need to prepare a national (corporate or regional) development planning to certain extent, especially the strategic planning. It is well known that two famous economists, the Nobel Prize Winner Dr. Tinbergen of Netherlands, and Arthur Lewis of the United States had contributed to the study of development planning. It is necessary to have a “vision” or certain “target” to be achieved, and make preparations to take actions in implementation. This is true both for a nation or even an individual. But, it is also necessary to emphasize that the function, the process, the content and the techniques of planning are evolving and developing internationally as times goes on. In this national planning conference of Iran, there were large numbers of participants coming from governments, corporations and enterprises and academic institutions. Three experts from China, the Republic of Korea and USA were invited to give speeches on their countries’ experience. This can show the general trend of the study of development planning in contemporary world takes. In the re-

port presented by the author, a brief introduction of international experience on development planning was given in the very beginning, a relatively detailed explanation of the history, achievements and issues confronted at different stages of development planning of China since the founding of the PRC was presented, the methodology which was designed and applied in the important national project "China Towards the Year 2000" sponsored by the former Technical Economic Research Center of the State Council was also introduced in brief.

The third paper, "Redefining Regional Development Strategy, the Chinese Experience — Toward a Framework of Study of Regional Development Strategy," was written for the Global Forum on Regional Development Policy and the International Symposium towards Sustainable Urban and Regional Development jointly sponsored by UNCRD and UN/DESA on December 1-4, 1998, Nagoya, Japan. This paper explained that China was in transition from a former centrally planned economy to a socialist market economy. The gap between the regions in terms of economic, social and cultural development will diminish during this process. This paper gives the historical perspective on regional development of China, stating that new regional development strategies will be defined within the context of globalization and multipolarization to tackle issues unique to different regions of China. Taking into consideration of the huge population and size of the country, the author holds the view that it is not sufficient to study the development strategy of China as a whole; it must be supplemented with the understanding and study of regional development strategies. This is one of the reasons that the center where I had worked had set up a Bureau on Development Strategy and Regional Development. The content in this paper represents a complement to the study of paper 2 in this part. This paper was abstracted in UNCRD Proceedings Series No. 37 in July 1999. It is incorporated in this book in its original English draft.

The fourth paper is "Two Decades of Experience of Policy Modeling of DRC". This paper is jointly written by I and two of my colleges, the two successive directors of the Bureau of Development Strategy and Regional Development of our center, based on the working experience our unit gained. This paper was written and presented at an International Conference sponsored by the China Association of Quantitative Economics. The major difference of contemporary economics and its traditional study is that a large

number of mathematical tools are employed in statistics, projections, analysis and policy simulation of economic phenomena. The application of mathematics of the natural science to the study in social science, and particularly economics, represents an extension of the application of mathematics. This is also the natural result of the emergence of many new "interdisciplinary studies" to meet the necessary demand of complexity of the "object" to be studied. But it should be warned that people should have a clear understanding that there is difference in basic nature between the application of mathematics to natural science or engineering and to the study of social science. The basic definition of social science is "A general label applied to the study of society and human relationships."<sup>1</sup> Generally speaking, it is difficult to quantify human behavior, social behavior and the relationship between them. There is not enough experimental data to support this type of study. With the precondition of recognizing this, a right approach may be found to the policy modeling. We have not discussed the mathematical details of various models and their appropriate area of application. This paper is simply a retrospect and summary of lessons and experiences of policy modelling of the DRC (including the former Technical Economic Research Center of the State Council). It can be seen from this paper that the policy modelling of the center is developed in the past two decades relying not only on the cooperation of Chinese experts from other ministries and academic field, it also has been improved gradually through extensive international cooperative effort, thus illustrating greatly the necessity of opening-up and international cooperation. Although this paper summarized that the most important experience in the following: "The quantitative analysis should be applied in combination with qualitative analysis and sound judgement in policy modelling", we have been making continuous exploration for the improvement and application of quantitative method, in order to adapt to the requirement of policy studies to achieving the target to establish a better-off (*xiaokang*) society in China by 2020. This should be the basic concept in exploring the objective world of the mankind.

The second part of this book focuses on study related to science and technology. Strictly speaking, science and technology are two related terminologies with different meaning. Three papers collected in this part are based more on the

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1. *The Concise Oxford Dictionary of Sociology*, edited by Gordon Marshall. Oxford University Press, 1994.

summary and exploration of China's technological development. There is no argument on the fact that science and technology are the engine of growth and development of the economy and society. On the other hand, science and technology are developed within the environment of specific socio-economic system; their development is promoted or constrained also by factors of their socio-economic environment. In the realm of micro-economics, technological innovation is inseparable with enterprise management. While under the market economy system, enterprise should be the major actor of technological innovation. Therefore, the issue of current technological innovation of China cannot be studied without the reform of the economic system. It is also necessary to keep in mind the following views: innovation is a process, the life cycle of a product is also a process. Technological innovation is not only occurred in the value chain of research, development, design, testing, engineering and production, it is also existed in the process of marketing planning and market development. Due to the influence of traditional centralized mandatory planning, China has relatively strong macro-capacity in technological management. But, the micro-management and the technological innovative capacity of the enterprises, which are the major actors in the market, are waiting to be further improved and strengthened. These are the major messages expressed in the three papers of this part.

One of these three papers "China's Experience of Technological Independence" was completed in 1986. This is a paper written for an international joint research project, "Self Reliance of Science and Technology in Development," sponsored by the United Nations University with the participation of six Asian countries (China, Japan, the Republic of Korea, the Philippines, Thailand and India). The twenty Chinese participants came from three units, with Madamn Li Poxi and I as the heads. The major English report was written by me. This research was not published at that time. The emergence of East Asia, especially the publication of a World Bank Policy Research Report titled "The East Asian Miracle" in 1993, had attracted the worldwide attention on the experience of development of East Asia. This research report was published by the United Nations University Press in 1994 titled "Technological Independence — the Asian Experience". The report, written by the author on behalf of the Chinese team, had presented a relatively detailed retrospect of the history of development of science and technology at different stages since the founding of the PRC; this study of development of S&T is linked closely with the development of the

socio-economics as well as the social culture of China. Thus, the international society can understand better what is the potential of competitiveness of China in global manufacturing activities. The issues faced by China on S&T development are also pointed out in this paper.

The other two papers collected in this part, "Technology Innovation and Enterprise Management and a Case Study in China" and "Some Issues of Technology Management in China: A Challenge towards the 21st Century", were both written on the request from Professor Bela Gold, the guest editor of the *International Journal of Technology Management*, which changed its name into *International Journal of Manufacturing Technology and Management* in 2001. The two papers were published in the journal at different times. Part of economic and technological data in the later paper are mainly those of the 80's and 90's, which can complement the first paper "China's Experience of Technological Independence". The contents of all three papers are mutually supplementary. All three papers expounded on role of the system concept to the development of science and technology in China at different depths. This is especially evident in the first paper of this part.

The third part of this book focuses on China's economic development and reform. Economics is a relatively matured discipline in international social science; it has developed continuously from qualitative study to quantitative study; and the areas studied are expanded continuously in depth and in breadth. For example, the growth rate of GDP, its demand (or expenditure) side includes investment, consumption and net export (export minus import); its supply side (or output) includes primary, secondary and tertiary sectors. All of them can be analyzed and predicted with simple arithmetic operation on the precondition that the available statistics are accurate. Along with the development of the financial market of the developed economies and the various ways to apply advanced mathematics in this field, there is now emerging the new discipline of "financial engineering" abroad, which is defined as the following: "The use of financial instruments, such as derivatives, to obtain a desired mix of risk and return characteristics. More broadly, the application of financial technology to solve financial problems and exploit financial opportunities."<sup>2</sup> Also emerging is the new occupation "financial engineer"

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2. From "Dictionary of Financial Engineering" by: John F. Marshall, Ph. D. John Wiley and Sons. Inc. 2000

In the field of economics, a new branch, the "development economics," had also emerged during and after World War II; it deals with the problem of growth of developing countries. Even this new discipline has undergone considerable change in recent years. On the theoretical side, the relevance of neo-classical economics to developing countries has been questioned and there has been increasing emphasis upon institutions. With the termination of the cold war, many economists working in some large international organizations (such as the World Bank and IMF) are exploring a new field of study, the transitional economics. For example, *The World Economic Outlook* published by the IMF in May and October of 2000 respectively focused on the study of transitional economies of Eastern European countries. Large amount of data was collected and statistical analysis was done, policy recommendation was given on the transition of the Eastern European Countries and on their membership in European Union. Again take the organization and management theory in the microeconomics for example. It has been subjected to a five-generation change within nearly one century since the term "scientific management" of the first generation was raised in 1910, coined after the view of Taylor who focussed primarily on increasing worker efficiency. The theory on management is now entering into the stage of "knowledge management." Furthermore, thanks to the separation of the right of ownership and operation, there have emerged large numbers of corporations and salaried professional managers or directors, who have acquired substantial powers in respect to the affairs of the corporations. They are paid to run the corporations or enterprises on behalf of their shareholders but not always had the best interests of shareholders in mind when performing their managerial functions. Thus, a series of issues occurred. The Cadbury Committee Report (1992) recommended a "Code of Best Practice" related to the appointment and responsibilities of executive directors, the independence of non-executive directors and tighter internal financial controls and reporting procedures. Then corporate governance became the new area studied by some economists. But in the real world, there are one after another news of scandals in USA in recent years. Enron is one of them. It is worthwhile for us to do further research of all facts of the real world and study the related theoretical study. One point can be further discussed, i.e., the issue of reform. China launched its economic reform in the late 70's. But we must be aware that 'reform' is not an issue unique only to the former central mandatory planning economies. It is also



an issue existing in the entire process of economic development that all countries of the world must face. We must have a sense of its complexity. Paul E. Atkinson of OECD wrote a paper, "The Experience of Economic Reform in OECD-APEC Countries"; it was presented at a conference for preparation of the APEC meeting in New Zealand. In the paper, he pointed out, "Economic reform is usually a difficult and wrenching process. It involves substantially changing the way a society thinks about whatever it is that is being reformed and often dismantling of existing institutions and arrangements." The above quotation is to emphasize the point that the rapidly changing society would result in a trend of rapid change of economics theory and that the complexity of the reform should be fully recognized. It is expected that people working in the economic field of China strengthen their cooperation and exchange with people working in the economic field abroad, because it is necessary to absorb useful lessons abroad and combine them properly with the concrete domestic conditions. Discovering and solving problems are by no means a simple task.

Therefore, the six papers collected in this part cover only a limited scope of the study of economics. Their selection has the following considerations.

The first paper in this part is titled "Industrialization and Economic Reform in China". This paper was a report given in Brazil on Feb. 1993, when the author was invited by the Vargas Foundation. This report is divided into four parts: Overview; industrialization of China in the pre-reform era (1949-1978); development strategy of industrial economy in the 80's — the period of economic reform; China's economic strategy in 90's and recent policy of economic reform, issues and measures. The report discussed also the sectoral aspects, therefore it can complement the contents of part I of this book. The oral presentation was translated into Portuguese and published by the Vargas Foundation in 1994. The version collected here is the original draft in English.

The second paper is "Foreign Direct Investment Policies and Related Institutional Building in China". It was written at the request of ESCAP. Detailed descriptions of the development, policy and institutional building regarding the use of foreign direct investment are given in it. It is published in a symposium titled "Foreign Direct Investment in Selected Asian Countries: Policies, Related Institution-Building and Regional Cooperation" by ESCAP.