Case Studies of Chinese Economic Reform

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Case Studies
of
Chinese Economic Reform

edited by
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Foreword

This volume consists of a collection of cases prepared by participants in a case-writing workshop organized for Chinese teachers and researchers by the Economic Development Institute of the World Bank. There has been a growing interest in China in the case method of teaching as it has been developed in North American business schools. The case method can be used to study the problems associated with reform and can lead to a better understanding of the costs, benefits, and practical feasibility of alternative reforms.

The objective of this workshop was to train users and writers of case studies in all aspects of case development, to establish a local capacity to provide training in the development and use of cases, and to increase the stock of Chinese-language case materials on various aspects of modern Chinese development and reform issues.

Amnon Golan
Director
Economic Development Institute
Introduction

Timothy King
The World Bank

The Case Studies in this Volume are translations of cases produced by participants in a Case Workshop for Chinese university teachers and researchers, organized by the Economic Development Institute (EDI) of The World Bank.

EDI was established in 1955 as part of the World Bank's mission to help countries improve the management of their own processes of development, by analyzing and disseminating the practical lessons for development policy that derive from the experience of its member countries. EDI's main activity is to design and implement policy seminars and training courses, where Bank staff, academics and government officials discuss development policies and learn from each other. But if EDI was to rely only on its capacity to organize courses itself, its contribution to development would inevitably be very small. EDI therefore works with a number of partner institutions in developing countries and hopes to strengthen their training to reach a much larger number of people than we could possibly do ourselves.

Nowhere is this more important than in China, both because of the country's immense size, and because of the damage done to China's educational institutions and stock of trained manpower by a policy of international intellectual isolation and by the Cultural Revolution. EDI's program in China began soon after China became an active participant in the World Bank in 1980. At the
beginning, EDI saw itself as providing essential information on the processes of development and the implications for government policy, based on what we had learned from experience elsewhere. EDI put special emphasis on courses for the staff of China's own training institutions, and on the translation and adaptation of materials developed for training elsewhere. We still regard this approach as very important. The similarities of the development process in different countries outweigh the differences between them, and the experience of other countries, especially of its rapidly growing and very successful East Asian neighbors, has much to teach China. In the initial stages of our work in China, there was also little material available on the Chinese economy itself.

Unfortunately, few Chinese teachers and participants have direct experience of foreign countries, so it is difficult for them to adapt foreign experience to the Chinese situation and such case material is bound to be less useful than case studies of China. Moreover the ongoing economic reform raises issues that are uniquely Chinese, even if others are widely shared in Eastern Europe. The need for case material derived from China's own experience has therefore been acutely felt. EDI's training courses are now fortunate in being able to draw on studies of China's economy that are prepared as part of the economic analyses that the World Bank makes of all its developing country members.

Studying reports written by specialists, whether nationals or foreigners, is not, however, the only way to learn how to bring about change in an economy. For many policy and managerial issues, it may not be the best way. Successful economic reform is not simply a question of applying a legislative or regulatory blueprint designed by experts for changing such things as the rules by which prices are set or production choices are made. Such measures will work only if they are followed by appropriate changes in the behavior of individuals at every economic level; in practice, even reform proposals that appear well designed from a theoretical perspective may have unpredicted consequences, both positive and negative, some of which may threaten the effective implementation of the reform. The "case method" is a way of studying the problems encountered in the implementation of attempted reforms in a more holistic way, so as to enhance an understanding of the costs, benefits, and practical feasibility of alternative reforms. Moreover in appropriate circumstances it has also several pedagogical advantages, which are discussed in the first two papers in this volume. EDI has become increasingly interested in this method of training.
As the contents of this book, particularly Larry Lynn’s opening paper, make clear, there are several sorts of case studies, and different types of cases are appropriate to different teaching situations and objectives. But “case teaching” is primarily a participatory affair, which forces a student to analyze and discuss the underlying issues, rather than merely absorb the analysis carried out by somebody else. This pedagogical approach is very different from traditional methods of education in China, which rely overwhelmingly on a one-way flow of information from teacher to student. In the words of Max Boisot, in the second paper, Chinese pedagogy has been overwhelmingly “teaching-based” as opposed to “inquiry-based.”

There has, however, been a growing interest in China in “case teaching” as it has developed in North American business schools. One manifestation of this was a decision of the Tsinghua University Institute of Economic Management to send several relatively junior faculty members to case-writing and case-teaching workshops at the University of Western Ontario. In turn this led Professors Zhao Jiahe and Zhang Jiping of the School of Economic Management in Tsinghua University, who had collaborated with EDI on other courses, to propose to EDI that we work together on a case-writing course in China.

In EDI we were very interested. Training users and writers of case studies in all aspects of case development, and so establishing a local capacity both to provide training in case use and development, and simultaneously to increase the stock of Chinese-language case materials on different aspects of modern Chinese development and reform was very desirable. But we were also a little skeptical. Could our normal two-phase process of case workshops work in China? Would teachers from universities and training institutions elsewhere in China be interested enough to make two visits to Tsinghua, first to study the teaching uses and techniques of preparation of case studies, and six months later to teach their cases to a critical audience of fellow participants and foreign teachers? Most important, even if they were interested, would they have enough time and motivation to carry out the difficult task of actually writing an original case during the intervening period? EDI decided that the potential benefits outweighed these risks. EDI’s Chinese partners and other educational institutions were invited to nominate participants only on condition that these would not only be able to attend both week-long phases of the workshop in Beijing in September 1988 and the following March, but would also be given several weeks following the first workshop to prepare a case. Each
participant was asked to prepare a case that would be useful to him in his or her own work, but preferably to highlight some aspect of economic reform.

Content of the Workshop

Business schools are not the only places to use teaching cases. The John F. Kennedy School of Government, Harvard University, bases much of its teaching on "policy cases," which deal with questions that are rather closer to most of the concerns of EDI. There are even greater differences between all such "teaching cases," which aim to describe a business or policy problem that students will come to understand primarily through class discussion, and "analytical case studies," which make their conclusions quite explicit and are often designed to illustrate the application of some general theory, and which EDI frequently uses as background reading for its courses. We felt it was important that the workshop consider all types of case studies and discuss how the choice among them should be determined both by the subject of the case and by broader pedagogical objectives, so that course participants could choose the approach suitable for their own requirements.

The first half of the first phase was devoted to discussing and demonstrating the use of case materials of different types. Prof. Larry Lynn, at that time Dean of the University of Chicago School of Social Service, taught a typical Kennedy School case. Zhang Jiping of Tsinghua, the workshop's co-director and its prime mover, and Max Boisot, at that time dean and director of the China-EEC Management Program, each taught enterprise cases. Professor Dong Fureng of the Chinese Academy of Social Sciences discussed his case study of rural development that he had earlier prepared for EDI, including a discussion of the role of theory and the process of research. Each such session was preceded by a small group discussion of the case, led by Ms. Zhang and her Tsinghua colleagues. The second half of the week was devoted to questions of case preparation and writing followed by individual discussions of the plans of each participant.

The participants then returned to their institutions to prepare their cases. A few found that they did not have enough time to prepare cases, but most worked extremely hard. Eventually 19 cases were provided for translation, displaying an impressive variety. Most

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of the cases were "teaching cases," but a small number were "analytical case studies" and tended to deal with broad policy questions in a more theoretical way. The second week, in March 1989, was mostly devoted to practice teaching of these cases, with the participants divided into two groups, followed by the discussion of each case with its author.

After the workshop, most of the participants made further changes to reflect comments made there, and most of the Chinese cases, together with the introductory talks on the teaching uses of cases given by Professors Lynn and Boisot, have been published by the Tsinghua University Press.

We have now decided also to publish a number of the cases in English. They are also preceded by the Lynn and Boisot papers, which have equal relevance for audiences outside China with an interest in pedagogy. Professor Lynn's paper, in particular, is a very useful compact introduction to case teaching by a highly experienced user and preparer of policy cases. The cases themselves were selected to provide a variety of reform situations likely to be of interest to non-Chinese readers. All are "teaching cases" in the sense used above, but since they are written with specifically Chinese teaching objectives in mind, they may not all be equally useful in this respect outside China. This is especially true of the enterprise cases, which are designed for Chinese managers, and the auditing case that concludes the volume. (Most of the Chinese cases were accompanied by teaching notes, which have been omitted here, except for some suggested questions for discussion.) They do, however, provide glimpses of how Chinese reform is operating at a microeconomic level, and of the issues that Chinese teachers and officials regard as important. Although the current Chinese resistance to political change differentiates its reform from the transition to market economies in most other previously Communist countries, there remain of course substantial areas of similarity.

The Case Studies

One common characteristic of all socialist countries is that they have developed a structure of relative prices that is very different both from the underlying cost structure and from those generally prevailing on world markets. Moreover in China it has often been possible to have restrictions on trade such that the same commodity can legally have very different prices in different markets. (This should be distinguished from the black markets that are a feature of almost all socialist economies.) Inevitably this leads to illegal and quasi-legal transfers from one market to another, as we see in the
first case here, and is a source of great inefficiency. If markets are to play their role in providing proper signals to economic agents to guide productive resources to their most productive use and in rewarding fruitful innovation, it is essential both to reduce massive subsidies, which are extremely wasteful and require crippling taxation elsewhere in the economy, and to free prices to find their own market level. In an economy making the most productive use of international trading opportunities, this eventually means that the price structure of tradable goods must approach that on the world market.

This situation, however, lies at the end of a road that politically is extremely difficult to follow. The most heavily subsidized goods in socialist economies tend to be energy and basic items of consumption such as food and housing. Raising energy prices raises costs throughout the economy, and raising food prices appears as a direct threat to living standards. The Chinese authorities have therefore been reluctant to go more than a little way along this road. The first case, Production, Supply, and Marketing of Chinese Cabbage, is not only interesting in itself, but also an illustration of the problems of partial price reform. It also provides an insight into the mixture of economic incentives, moral pressure, and government regulation that have characterized the Chinese Government's attempts to bring about economic reform. In general economic reform in agriculture has been one of China's major successes, and, as the case notes, has led to substantial improvements in the availability, quality, and variety of food in urban areas, as well as higher incomes for farmers. But it has also meant the end of price stability, and, during the period of this case, poor macroeconomic management led to significant inflationary pressure, which alarmed both the public and the government and even led to panic buying. Lacking confidence that the market could take care of an impending fall in supply, the authorities intervened in several different ways, ranging from comparatively harmless exhortation by senior officials to the counterproductive rationing and regulations over cabbage retailing and transportation that led to large amounts of the harvest being wasted. The situation was worsened by year-to-year changes in the regulatory environment, which meant that economic agents could not interpret economic signals or government announcements and make their plans

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2. For ideological reasons there has been an objection to using the phrase "market economy" and the cases here tend to use the phrase "commodity economy."
accordingly. The desire of a well-intentioned government to safeguard the food supply in towns and to protect standards of living of small producers and urban consumers was not in itself misplaced, however, and so the student is challenged to discuss how such objectives can best be met.

The second case study, The Assignment of Jobs to College Graduates, describes an issue that is perhaps more uniquely Chinese, and little understood in the West. Entry into China's higher-level and specialized secondary training institutions has involved in large measure the sacrifice of the individual right to choose one's place of work and residence. Through a variety of imperfect and frequently changing bureaucratic mechanisms, described in this case, the supply and demand for trained and educated manpower has been brought into an apparent balance, but at the cost of great restrictions on freedom of choice of both the employing work unit and the individuals concerned.

In recent years, in a limited number of institutions, this system has been modified, and graduating students have been given the right to seek out their own jobs, although the assignment process has been retained for those who do not make their own arrangements. One of the institutions in this experiment was Tsinghua University, and the case discusses the design and impact of the reform there. Interestingly enough, the move toward the abolition of state assignments has not been wholly welcomed by many of those who might be thought to be its prime beneficiaries, the graduates themselves. Greater freedom means also greater individual responsibility, and even if more doors are opened, individual economic security is much less assured. While China does not have the visible employment problems of most developing countries, the growing labor force, the great pressure of the population on land, and the obvious overmanning of many state enterprises, which should be reduced if economic reform is successful, mean that the security inherent in being a "state employee" is worth a great deal to the people who have it. Moreover in the absence of a properly functioning information system, the new labor market uses other discriminatory signals—it tends to favor those students who come from major cities and have good family connections, and discriminates against women.

The major thrust of Chinese reform has been a decentralization of economic decision making. It began in agriculture in 1978, when some individual peasants were allowed to lease land and make their own decisions about production, rather than taking instructions from, and sharing the income of, the commune and production
brigade to which they belonged. The system led to a very marked
growth of output and increase of rural prosperity and spread
rapidly. In industry, reform was slower to get off the ground, but it
eventually did, and the next four cases deal with different aspects of
industrial reform.

In the traditional design of a centrally planned economic system
that China adopted from the Soviet Union in the 1950s, state
to enterprises had traditionally been little more than government
departments—receiving instructions from a central planning
process, returning profits to the state, and getting more or less
automatic subsidization in the event of loss. Chinese planning was
probably never as taut as in some other socialist countries, so it is
not clear whether the system ever worked completely like this, but at
least during the Cultural Revolution enterprises had little incentive
to be profit or efficiency-minded, even in the short run. Reform
also began in the late 1970s with some localized experiments
permitting some profit retention. In 1981, the government began to
experiment with contract systems in which enterprises would hand
over only a proportion of incremental profits and in 1983 a tax on
profits replaced the general surrender of them, although enterprises
were still left very highly taxed.3

Chinese reform became increasingly organized around the idea
of contracts between individuals and the state. The socialist state,
often referred to as “the entire people,” remains the ultimate owner
of productive resources and retains responsibility for ensuring some
minimum level of individual economic welfare. (Since the latter is
thought to be threatened by excessive population growth, this
implies a state responsibility to restrict that growth, and family
planning policy essentially entails a contract between an individual
couple and the state.) Under the traditional command system, the
state tried to carry out its functions by fiat. The system of contracts
has replaced the commands, intending to steer the system through
economic incentives and disincentives, providing rewards for
improved performance, and letting individual economic agents
make most economic decisions.

*The Reform of State-Owned Enterprises* is a summary of an
actual discussion among academics and senior officials involved in
the design of the economic reform program during the early
experience with the contract system. It will provide the reader with a

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3. A good introduction to the experimentation and policy discussions in the
early years of industrial reform can be found in Gene Tidrick and Chen Jiyuan
A good introduction to the evolution of Chinese industrial policy and the emergence of the contract system, and how it looked in its early years to individuals that were very close to it. In general, its initiators were well pleased with its promise to improve incentives to invest productively and to reward good performance. Even government officials, however, felt that the effective rates of taxation were too high, and left enterprises unable to finance their own development. They also noted that there was still a long way to go in separating the rights of ownership and management. To Western ears this may sound a rather startling objective—indeed, the potentially conflicting objectives between the professional managers and long-term shareholders has at times been an area of concern in the West. In the Chinese context, however, the ultimate ownership of state enterprises by the “whole people” has to be taken as given, at least by participants in a discussion such as is reported here. What the reformers were seeking was to reduce government and Party interference with managerial decisions.

Some of the later discussants, predominantly academics, were more critical. In the first place, the system does not impose enough financial discipline on loss-making enterprises. Profitable activities have to be taxed to keep unprofitable ones going—a double waste of resources. Second, enterprises are in practice by no means free from government interference, though often at a provincial rather than a central level. Third, managers are too little concerned with the long-term future of the enterprise, and too ready to raise wages and bonuses.

At least one major factor that contributes to the latter is the way in which enterprise managers are selected. This is no longer done directly by a supervising ministry, but through the type of process summarised in the final appendix of Reform of State-Owned Enterprises, and illustrated in the next case, *Huanghe Machine Tool Factory*. The factory is a heavily indebted, financially struggling, technologically backward, state enterprise with a limited and aging product line in one of the poorest areas of China, which is about to choose a new director. Even if the director here is not to be formally elected by the workers themselves but by a committee, the process is a relatively open one, and the selection takes place after a public meeting inside the factory. The inside candidate faces two attractive alternatives, a take-over by a research institute that perhaps offers the best chance of technological modernisation, and a merger with another economically healthier machine-building enterprise. All the candidates promise new investment, higher technological efficiency, a more modern and diverse product line, and an attempt
to get favorable treatment by creditors. They also offer a better deal for employees, but also a guarantee that the status of state employees will not be changed.

The case also illustrates the often symbiotic relationship between state enterprises and non-state "collective" ones, which may operate as virtually private enterprises. Often these are set up with the assistance of the state enterprise to employ the children of its workers who may otherwise have a hard time finding employment.

One thing that emerges in this case and even more strikingly in the two that follow is the relatively high degree of competition that prevails even among state enterprises in China. It is true that such enterprises are often denied the ability to take the most effective measures to prevail in the competition—they cannot dismiss excess labor or find risk capital to finance new investment. It is also true that an enterprise like this factory would probably not be allowed to go out of business, at least without some other enterprise occupying its plant and taking responsibility for its work force. It is nevertheless clear that the competitive position of the enterprise, the market demand for its product, and its need for modernization and new investment are of primary concern to the enterprise. The planning system no longer assures it of a market for whatever it produces.

The pineapple canning factory, in the Luoshan Canned Foods Factory case, is also in great difficulty, both because of its profitability and the loss of key personnel. The case was written for the training of state farm managers, and readers will probably skim over the technical details, but the situation of the factory is of wider interest. While large urban factories may still be immune to the threat of bankruptcy, this is far from the case with rural enterprises, whatever the ownership structure, and in this case the management of the state farm that established the factory is threatening closure. Marketing certainly seems to be one of the factory’s problems. But there is also substantial scope for increasing technical efficiency, for diversifying its output, and for protecting itself against fluctuations in the supply and price of its raw material.

Just as the planning system no longer guarantees markets, it also seems powerless to stop reckless expansion, as shown in the case How Can the "Butterfly" Fly into North American Markets? The huge expansion of capacity, the fraudulent use of Shanghai trademarks, and the subsequent collapse of many small producers used to be targets of attack by socialist critics of capitalism. The Butterfly, however, has a secure and profitable domestic market
based on its reputation for quality, and a comfortable export market in the developing world, but is being urged to export to North America as a patriotic duty. Exporting generally is less profitable than domestic sales, although whether this is a reflection of the monopoly position of foreign trade enterprises or of a genuine lack of international competitiveness is not clear. The position of the enterprise is not unlike that of many producers in developing countries. Exporting to Western markets is not a simple question of making more of the same product and exporting it. It requires new designs and quality standards, and this is handicapped by the low quality of inputs available locally. The domestic market is protected and profitable, so why bother? The issue appears to turn on whether the municipal or central government will back its patriotic appeal with practical help.

The policy of opening up the economy is also reflected in the final case in this volume. Reform in China has been associated with a willingness to accept selected foreign investment and to borrow abroad. The Red Soil Development Project case describes a project financed by the International Development Association (IDA), the soft loan arm of the World Bank, in a relatively poor area of China, and its effects after a little more than one year of implementation. Although this is a relatively specialized case, designed for use in the training of government auditors, it also provides the reader with a sense of the complexity inherent in converting a multimillion dollar loan to the central government into very large numbers of individual loans to small farmers, and with a snapshot of the way in which local government has been organized in the project areas.
The Case Method: An Overview for Chinese Teachers

Laurence E. Lynn, Jr.
The University of Chicago

As China proceeds toward strengthening its economy, the demand for trained managers will grow rapidly. Chinese teachers may therefore wish to become familiar with one of the most effective methods for training managers: the case method of teaching and learning. The case method is founded on the premise that individuals learn best by becoming actively engaged with new ideas and new subjects and by thinking for themselves. In other words, individuals are taught how to make independent judgments about complex problems. Needless to say, it is up to the reader to determine the value to China of teaching in this way. But it is one option that Chinese instructors should consider in their effort to train Chinese managers to make the kinds of decisions and judgments that economic reform requires.

A Comparison of the Traditional and Case Methods of Teaching

Traditional classroom instruction, especially the lecture, is based on the following principles:

- The teacher is the source of knowledge, truth, and wisdom, and it is his or her duty to impart knowledge, truth, and wisdom to students.
The Case Method: An Overview for Chinese Teachers

- Students are seekers of knowledge and truth. It is their duty to absorb what their teachers tell them, to ask questions if they do not understand, and to respect the superior wisdom of the teacher.

- Knowledge and truth therefore flow one way: from the teacher to the student. If they learn enough, students may one day become the teachers of others.

The case method is based on a sharply contrasting set of principles which, in effect, redefine the respective roles of teacher and student:

- The teacher's duty is to motivate students to engage with a subject: to create an environment in the classroom that encourages students to contribute their own ideas, knowledge, and experience to the discussion and to engage in analytical thinking.

- The student's duty is to bring enthusiasm and commitment to the learning process and to accept responsibility for contributing to it. The student must believe, "I am responsible for my own learning. The instructor is here to help me, and I must take advantage of that help, but the ultimate responsibility for what I learn is mine."

- The goal of both teacher and student is to create a classroom environment in which students can acquire or at least be introduced to the cognitive and behavioral skills needed to address the kinds of issues and problems they will encounter in the work world following graduation. By their encouragement, teachers validate student efforts to become responsible for their learning. By their response to this encouragement, students validate the teacher's efforts to promote the development of the students' competence.

Another important premise of the case method is that the way learning proceeds depends on the individual; students learn in different ways. The case method allows teachers to interact with students as individuals and to base expectations on individual learning styles and needs. Thus, case discussions are likely to foster a closer relationship between the student and the teacher and the student is likely to feel more motivated to learn.

Other methods of teaching include individual research projects, coaching and counseling, role play, internships, programmed instruction, small group projects and workshops, and seminars and conferences. Many of these methods are valuable components of a
course or curriculum and are likely to be relied on more extensively by teachers who use the case method in contrast to those who depend mainly on lectures and examinations. Just because the case method originated in the West, however, does not mean that it is preferred by all Western educators for preparing students for professional careers. Although the business schools at Harvard University, Stanford University, and the University of Western Ontario, for example, are famous for developing and using teaching cases in their courses and casebooks are widely used in many other schools, not everyone practices case teaching. The case method is controversial even in the United States, where it originated. Many American teachers feel more secure in the thought that they are the experts and the absolute authority in the classroom and that students have little or nothing to contribute to learning. Some also believe that the case method is inefficient because it wastes time in ill-informed discussion and learning by trial-and-error, whereas well-designed lectures by expert instructors could cover much more material and at a faster pace.

Many students share these opinions: they simply want to sit passively in their classrooms and be told what to think by an expert and thus avoid taking responsibility for what they learn. Indeed, traditional teaching is preferred by many in the West as well as in the East because it appears to be both “natural” and efficient. As a result, case method teachers in the West tend to see themselves as evangelists looking for converts to an exciting “new” idea.

Case Teaching and Management Education

Evangelism on behalf of the case method should not be carried too far, however. Other methods of instruction have their uses. In some subject areas, the proper goal of instruction is to promulgate a body of knowledge, not develop analytical skills. Lectures may be appropriate, for example, when the subject matter is narrowly defined and the objective is to have the student acquire specific information, master scientific laws, or remember a precise body of facts. Lectures are appropriate when large numbers of students require the same information and when there is no time for discussion. Readings and lectures followed by examinations may also be appropriate when the goal is to impart specific information within a limited amount of time. Few courses of instruction would find such a goal wholly appropriate, however.

The mission of the teacher of both undergraduate and graduate students is to help them become competent at thinking and acting, gathering information, drawing appropriate conclusions, reflecting
on experience, and learning from it. Research and experience suggest that if true learning is to occur, students must do more than sit and listen and take notes and answer examination questions: they must be allowed to experiment, make mistakes, and revise their thoughts and actions. Before learning can occur, a student must be motivated. Motivation in turn depends on emotional as well as intellectual engagement with a subject, on a desire to learn. Such a desire originates in the personal conviction that one's life experiences will thereby be improved. Active engagement in learning is especially important when students are adults who already possess considerable knowledge and experience and are capable of critical judgment. Adults expect to participate in learning, as they have already participated in defining and carrying out their work responsibilities, and they will become frustrated if they are not allowed to play an active role.

The use of the case method is especially well suited to the training of managers for several reasons:

- The problems managers face are not clear-cut in the way that textbook problems are, and there are no "correct" answers. Managers are continually confronting "new" problems, each with its own facts and contingent possibilities, and their skill lies in finding solutions that take these specific facts and possibilities fully into account.

- Management problems, other than narrow technical ones, are complex and ill-defined, filled with ambiguity and uncertainly. There are a great many variables, and little or no theory is available to determine the right course of action. There is no "science of management" to learn and apply.

- Good management therefore requires problem-solving skills, artistry, craftsmanship, keen judgment, and wisdom, all of which can only be acquired through practice and independent, self-motivated effort and application. Good management is an active, ongoing, creative process requiring the mastery of a great many analytical and behavioral skills.

- By giving students real problems to solve in the form of cases and by expecting them to bring their existing knowledge, imagination, and capacity for analytical thinking to bear on these cases, this method of teaching exposes students to the process of management and enables them to acquire and practice management skills. Actual management is couched in
experience. The education of managers, too, must be couched in experience if it is to be useful.

**What Is a Case?**

A typical case is a story of an actual management problem, situation, or issue. A case recreates in compact written form a situation faced by an actual manager of a real enterprise or administrative unit. It presents the essential details of the story, together with all its complexities, ambiguities, and uncertainties. It brings the life of the manager as he or she actually experiences it into the classroom.

Thus cases can greatly expand a student's horizons without taking him or her outside the classroom. Moreover, they give students an idea of what it is like to act in circumstances that are characterized by conflicting opinions and inaccurate or inadequate information and therefore offer no clear guidance on how to arrive at an appropriate decision or how to motivate other people to act or behave differently. In this way, students come to recognize that managers everywhere face the same kinds of problems, and that systematic thinking and application of concepts and ideas that have been successfully employed elsewhere can help the individual arrive at a solution in a given situation. This kind of training leads to effective management.

A case is not just a story, however; it is not merely a description or history of a series of events. It is a life-like episode created to serve specific instructional purposes. Because teachers have many different purposes, there are many different types of cases.

**A Decision-Forcing Case** recreates a situation in which a manager is required to make a specific decision in a well-defined set of circumstances. Such cases are particularly appropriate for students of management, administration, or any other discipline calling for wise decisions and acute skill. There is no better way for students to appreciate what goes into decision making than to put them in the position of a manager in a specific situation and ask, “What decision are you going to make?” and insist that they produce an answer.

**A Policy-Making Case** recreates a situation in which a manager is required to establish goals and formulate objectives for an organization or administrative unit and then design a strategy for accomplishing them. Such cases are of particular interest to students who aspire to be policy makers for the government or an enterprise,
or who will be advisers to policy makers, and will be setting the
goals that will guide the efforts of others. Policy-making cases are
also useful when the teacher's goal is to promote an understanding
of the policy-making process in both government and enterprises.

An Illustrative Case recreates a situation or set of circumstances
that illustrate a manager behaving in a typical manner. Managers in
these cases may be regarded as role models for students; a careful
study of why they analyze and handle management problems can
help students identify some of the factors that contribute to success
in managerial activities. Cases can be used to show effective or
appropriate methods of analyzing complex problems. Students of
economic development, for example, may profitably study cases of
successful development planning and analysis.

A Problem-Defining Case presents students with the details of a
managerial problem; and they are asked to identify or define the
problem. One important task of management is to accurately
identify problems, especially in circumstances characterized by
confusion, ambiguity, conflict, or inadequate information. Cases
that focus on problem identification are an indispensable feature of
courses in management and administration. Sorting out useful facts
from a mass of data, deciphering complicated research reports, and
evaluating forecasts, for example, are problem-defining skills that
can be effectively taught with cases.

A Concept-Application Case recreates a problem or set of
circumstances in which a particular concept, theory, or method can
be applied. These cases often omit distracting information or
irrelevant details so that students can more readily test the
applicability of a theory or concept. Such cases are useful for they
are designed to develop an intuitive grasp of theory.

Cases vary greatly in length and complexity. If the underlying
problem or situation is complicated or the students lack experience,
many details may be required to ensure that readers have all the
background information they need. At other times, only the essence
or outline of a problem may be necessary. Short cases are especially
appropriate when students have a great deal of experience and
general knowledge and can therefore grasp an issue or problem
with the basic background information.

Cases also vary greatly in their format. A case may be presented
as an entire narrative that students are expected to read and address
in one classroom session. In some cases, however, the story is
broken down into distinct stages or sections that are presented in
several parts. Students work through each part in succession,
perhaps over a period of several classes. When a case is presented in several parts, students are made more aware of the various stages of problem solving since separate exercises are used to help them make a decision based on a set of facts, confront the consequences of the first decision and choose an appropriate response, evaluate the outcome, and draw some general conclusions from the analysis.

Students are likely to find successful cases interesting—but not if they consist of tedious recitation of facts or chronologies of events, a compilation of tables and organization charts, or many long, dull sentences. Such presentations tend to bore students and therefore do not stimulate them to learn. Research indicates that a good case in the view of students is one that tells an interesting story, is relevant to their interests and needs, includes quotations from individuals in the case, provokes thought, and conveys a sense of the skills needed to resolve the problem or issue. A teacher writing and using cases should be fully attentive to the literary quality of the presentation.

The case method is thus a highly flexible tool that provides an experiential basis for student learning. All kinds of situations, from relatively simple and straightforward ones to highly complex and puzzling ones can be represented in an appropriate case format and used in an engaging and lively way.

How Are Cases Used in the Classroom and the Curriculum?

Cases bring the real world into the classroom. As a result, they expand student awareness of the real world and its challenges. In so doing, they help the student discover potentially useful ideas and actions, test and obtain immediate feedback on ideas at low personal risk, and develop confidence in newly acquired skills and ideas.

Cases are but a means to an end, however. The teacher must first establish precisely what a given course is intended to accomplish. For example, the teacher may hope to increase students' understanding of and ability to apply concepts, increase their analytical ability, stimulate their interest in a subject, and help them develop specific skills such as how to identify and structure problems so that they can be analyzed and resolved, how to choose from among conflicting opinions, how to evaluate possible courses of action, and how to communicate with others. Once an instructor has established the goals of the course, the next step is to determine how cases can be used to achieve these goals.

A case discussion is often an excellent vehicle for introducing or stimulating interest in an important subject or idea. It can make students aware of why they need to know more than they already do
and what they need to know to become proficient in certain kinds of activities. By studying a case, students can experience at first hand the complexity of an issue or the difficulty of a decision, can gain insight into aspects of a problem that might otherwise have eluded them, and can begin to appreciate why they need a particular skill or specific knowledge if they wish to perform competently in their profession. A teacher can tell students that the world is complicated, but they will not become fully convinced until they have experienced the complexity for themselves by working through a case.

A case discussion also stimulates students to think about and apply ideas, methods, or concepts that they have been exposed to in lectures or textbooks. Cases are often a welcome change of pace when students have had to listen to many lectures or read a great deal of theoretical or complex material. Western students tend to appreciate a "balanced diet" of theory, lectures, and case discussions since they find that variety helps them become engaged with a subject.

Some courses can be taught almost entirely with cases, only occasionally supplemented with readings and lectures. The extensive use of cases is often appropriate for subjects that lack a strong foundation in theory; that are broad, diffuse, or interdisciplinary; or that focus on the application of concepts. Management subjects in particular, lend themselves to the case method, in contrast to engineering subjects, which are based on precise theories and an exact body of methods that must be mastered, rather than critically evaluated.

Cases have many potential uses in a course of instruction: they can motivate student interest, stimulate the student to become involved with the material, deepened student understanding of concepts, and help students develop and practice the skills they need to conduct an argument or analysis, to apply a theory, and to communicate with others. Whatever the particular use, teaching with cases requires considerable preparation. It is essential, of course, for the teacher to be thoroughly familiar with the case. Students will read a case with great care and often with great attention to detail. The instructor must be prepared to handle any question that might arise concerning the content of the case.

It is essential, too, to prepare a specific plan for using the case in the classroom. A strategy to work from may be suggested in the "Teaching Note" that accompanies most cases, or one may be built around the instructor's particular purposes and needs. The plan
contains guidelines on how the instructor is to perform his or her own role and specifies the teaching objectives that will be used to evaluate the success of the session. The instructor must know in advance precisely what kind of class discussion and what kind of outcome are intended and how the intended results are to be achieved.

Most teaching plans include an advance assignment to help students prepare for the case discussion, since they are usually asked to study the case in advance. In addition, the teacher may wish to give the students some specific questions to think about so that they will be prepared to discuss them in class. The study question may be simple and straightforward: "What should Mr. Liu do in this situation?" This question is sufficient to encourage students to look at the given situation through Mr. Liu's eyes and imagine the pressures he would experience in trying to make a decision. A different kind of question would elicit a different type of preparation: "What is the problem Mr. Liu faces and what caused it?" Here the student is invited to think about the nature of and explicit reasons for Mr. Liu's difficulties before attempting to formulate a solution. The question "What alternative courses of action might Mr. Liu consider and how would you evaluate them?" invites students to analyze the options and weigh their advantages and disadvantages before arriving at a solution to the problem.

Even more elaborate assignments are often appropriate. Particular students might be asked to lead the discussion, or the teacher might assign students particular roles and ask them to enact the events depicted in the case. Each student might be asked to prepare a report on a particular aspect of the case, either in writing or for oral presentation to the class. Or students might be divided into small groups to discuss the case and report their conclusions; later, they could assemble to compare their different conclusions.

Inexperienced instructors should be aware of a number of potential pitfalls. For example, they should avoid posing questions that require students to regurgitate the facts of the case without thinking about them. Instructors are often tempted to plan and conduct the session so stringently that students focus only on "what the teacher wants" rather than trying to think for themselves. In their determination to leave nothing to chance, or in their anxiety to achieve specific teaching objectives, inexperienced instructors may inadvertently stifle the very creativity and freedom of expression that cases are intended to stimulate. Teachers learn how to avoid this pitfall through experience, but a typical warning that such a problem is developing is a class that falls silent or is reluctant to
respond for fear of displeasing or disappointing the teacher. It is well to remember that even the most proficient case teachers are seldom satisfied with their approach to a case until they have taught it several times.

To reiterate a point made earlier, the basic principle of the case method is that students should be allowed to take chances, to experiment, and to build confidence in their own ideas. A teacher's plan and attitude must provide the time and opportunity for student expression. This raises the question of how the classroom discussion should be conducted. The teacher's personality will undoubtedly affect his or her style in the classroom. A teacher who tends to be shy and serious will not approach a class in the same way as a teacher who is outgoing and humorous. However, there are a number of approaches to classroom discussion that experienced teachers find effective, whatever their personalities.

Some instructors are resolutely nondirective. They force students to take charge of the discussion by stepping back and allowing students to talk to each other for longer periods, intervening only now and then and to provide a minimum of guidance. Other instructors are more directive. They take charge of classroom discussion by releasing a steady stream of questions, making frequent comments, and ignoring extraneous or distracting remarks by students.

Even when employing a directive style, however, instructors can avoid making themselves the center of attention. They can respond to student questions by asking additional questions and insisting that students respond to each other's questions and that they elaborate upon or defend their views. In this way, they can resist being drawn into the role of an expert or authority. Effective case teachers are usually active in the classroom. They do not remain frozen behind a table, in a chair, or at a lectern. They move about the classroom, making frequent use of the blackboard, using gestures, even acting out their attitudes and reactions. They convey the impression that they enjoy the experience of teaching the case and engaging the students. They have fun and encourage their students to have fun too.

Many instructors using cases for the first time fail to diagnose their own difficulties. Inexperienced teachers may therefore find it helpful to invite colleagues to sit in on and observe a class and then comment on what they saw and heard. Students may be asked for their evaluations, either at the conclusion of a class or on a questionnaire administered at the end of the course. If the
equipment is available, teachers might record their classroom performance on videotape, then view and evaluate the results.

The Basic Tenets of Case Teaching

The case method as employed in management education is based on several principles:

1. Management problems cannot be solved scientifically with the aid of theory or empirical research; the "right answers" are not "in the back of the book." Managers arrive at appropriate answers and solutions to their problems by carefully analyzing the facts of particular situations and thoughtfully exercising their judgment.

Working with cases helps students learn how to approach specific circumstances with an analytical frame of mind and how to weigh the available options and thus arrive at an appropriate decision. Cases afford an opportunity to try out ideas, think out loud, obtain critical advice, share thoughts, and attempt to persuade others to a particular point of view. A great deal of simulated experience can be compressed into a relatively short period of time.

2. Managers must have the confidence and ability to exercise independent judgment; although they will consult and listen to many people, managers cannot simply follow the dictates of others. They must have minds of their own.

Working with cases helps students become confident about their thinking and judgment and thus prepares them to function effectively in managerial roles. By practicing in a benign classroom environment, by making their first mistakes under the sympathetic eye of their teacher rather than on the job, students will gain the confidence they need to exercise good judgment on the job.

3. Self-reliance and self-confidence are characteristics of the most successful managers. The kinds of managers who bring about growth, innovation, and profitability and who not only meet but exceed quotas or goals invariably have confidence in their own abilities and are not afraid or reluctant to make needed decisions even when they are uncertain of the consequences. The most effective managers have the confidence to take responsible risks.

Working with cases enables students to appreciate both the qualities and the skills that effective managers exhibit when
carrying out their responsibilities. Cases portray managers in action, and students can learn from their experience.

4. Competitive debate and the open and candid expression of views are encouraged, not discouraged, by effective managers. People work harder and are more loyal when they feel that their supervisors listen to and respect their opinions, even if they do not always accept them. Managers are likely to make better decisions when they encourage criticism of their ideas and invite subordinates to suggest better ideas and supply additional facts.

Working with cases enables students to see the value of open, candid discussion. They learn to become comfortable with challenging others and being challenged, with defending a point of view and with yielding to a superior argument. The case teachers play a vital role in nurturing openness.

5. Ideas and solutions to management problems should be judged on their merits, that is, on how well they address the facts of the situation and whether they are based on sound reasoning, not merely on the authority of their sponsor. Superior authority does not always mean superior judgment. Many management disasters have occurred because the ideas of influential or authoritative individuals were adopted uncritically for fear of offending them.

Working with cases enables students to acquire confidence in judging the merits of solutions to problems and in critically evaluating a situation without giving unnecessary offense. Students learn how to criticize each other and their teacher and how to offer criticism in a constructive way, and how to accept criticism without feeling insulted.

To those who have not yet had the opportunity to develop their interest in teaching with cases, I offer sincere and enthusiastic encouragement based on experience. It is a method of instruction that could prepare Chinese students to lead and manage their country's enterprises, bureaus, and service organizations with skill and competence.
Two Models of Learning

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Educationalists in Western countries have long debated how the learning process can be made more effective. Should the student first be presented with a theoretical scheme and then taught to apply it to specific areas of experience? Or should the concrete experiences be presented first and then used to derive a theoretical scheme?

The traditional approach would be to begin with the theoretical scheme. In this way, the student is not left to explore in the dark. Such exploration can be time-consuming when a teacher has to deal with large classes of students. The main drawback here is that students will tend to learn the theory by rote, without ever grasping it conceptually. Learning then becomes artificial and mechanical in the sense that students only remember the concepts long enough to pass examinations. They gain little skill either in recognizing circumstances in which the theory might apply or in modifying or adapting the theory to specific situations.

When concrete experiences are presented first, students are encouraged to discover concepts or theories for themselves, by exploring and struggling to make sense of each experience. This approach, however, is time-consuming as already mentioned, and the student may draw the wrong lessons and thus make many false starts. Even when a promising set of concepts is elaborated, there is no guarantee that they will be applied to other relevant experiences.
Yet is is precisely through such “learning by doing,” as it is known, that a student comes to grasp concepts and retain them.

The first approach uses what we shall call a teaching-based model of learning; the second uses an inquiry-based model. The teaching-based model was popular in Europe and in America when education was viewed primarily as a process of transmitting knowledge and facts to a large number of people in a short time. Today, a country such as China, which faces the difficult task of training a large number of people in a short period of time in order to achieve its modernization goals, may still favor the teaching-based model. Although this model remains useful for transmitting factual knowledge, wherever greater stress is now placed on understanding, it has been replaced by the inquiry-based model.

Each of the two models of learning described above casts the instructor in a different role. The teaching-based model, as the name implies, treats the instructor as “teacher” or a disseminator of knowledge whose possession of “answers” endow him with authority and power. The second model considers him a “facilitator,” or one who is skilled in helping students through the exploration process. The two roles emphasize different skills: intellectual and analytical ones in the first case, and behavioral in the second. The danger is that the second role may convert into the first if the instructor, believing himself to possess the “right” answers, unconsciously conveys this impression to his students and hence once more becomes their teacher rather than their facilitator.

Thus, the choice of model depends not only on one’s view of effective learning, but also on one’s perception of the instructor’s function, the authority he is given, and the skills and expertise he is deemed to possess.

Western countries are moving away from the idea of the teacher as an authority figure in contrast to China, for example. In certain areas of exact knowledge such as the physical sciences, the teacher is still deemed to know more than the students, but otherwise students are by and large encouraged to question and challenge the ideas that the teacher puts forth and to suggest alternatives. Since students can get their facts just as easily from textbooks as from teachers, instructors are now expected to adopt a different role in the classroom—namely, to stimulate exploration and reflection. Their authority, as a result, has come to depend less on what they know and more on how they manage the learning process.

Paradoxically, instructors need to know more rather than less in order to play this new role since the kind of exploration they are
being asked to manage can only be conducted by those who have considerable mastery over their subject matter. Thus the inquiry-based model requires better-trained teachers than the teaching model and is likely to be resisted by those who have a less than perfect grasp of their subject. Indeed, the inquiry model is likely to be quite a challenge for a country such as China, which lacks well-trained teachers.

**Three Components of Learning**

Whatever model is finally chosen—as mentioned earlier, this will vary with the subject matter—effective learning takes place through the integration of three components, which are not always carefully distinguished (see Figure 2.1):

1. **Experience:** The raw data that the student must become familiar with consist of real-world phenomena that can be sources of either problems or opportunities in life. Since experience is for the most part vague and ambiguous, it has to be structured before these problems and opportunities can become clearly visible.

2. **Techniques:** Various procedures can be used to give the data of experience structure and coherence.

3. **Concepts:** Ideas and theories help students interpret and make sense of the experiences that have been the techniques of learning; they make experiences meaningful.
In the real world, the choice of experiences, techniques, and theories is potentially infinite. Therefore, learning may start with a specific experience, which the student relates to a limited set of techniques. He interprets these in turn by drawing on a limited range of concepts (Figure 2.2). In a textbook, for example, this is the function of practice exercises at the end of each chapter. An exercise preselects a limited number of facts that suggest which technique may be appropriate for their analysis. The exercise may also be structured so as to point fairly unambiguously to the concepts that should be used to interpret the results. This procedure is efficient in that it saves the student time and gives him mechanical practice in the use of certain techniques. But it is not always helpful in the real world, where skill often consists of identifying the facts of experience, techniques, and concepts that have to be brought together, rather than mechanically applying a technical skill.

The learning sequence might also start with a preselected theory, which would then guide the student to a particular area of experience and from there on to a choice of technique for analyzing and testing that experience. But here again, the real world usually does not give the appropriate theory at the outset, so that what is learned in class is of little help in dealing with the complexities of real life. In other words, the learning process remains "academic." Of course, an academic approach can be highly effective in certain areas of the real world. In the physical sciences, for example, the three components of learning—experience, technique, and theory—are all narrowly focused so that the choices available to the learner are quite limited. A teaching-based rather than an inquiry-based strategy is thus justified in many cases since the student should not be required to "reinvent the wheel" in these disciplines.

In contrast, knowledge in the social sciences is less exact, and "correct" answers much harder to come by. The learner has much more choice in the way that facts, techniques, and concepts come together here than is the case in the hard sciences. As a result, an academic or teacher-based strategy can be harmful since it will give the impression that the world is a more certain place than we know it to be and thus will blunt the student's critical faculties. China, like a number of countries that has cast the teacher in the role of expert, has used the teaching-based model in the social sciences as well as in the hard sciences with predictable results:

- Teachers with only a weak grasp of their subject have tended to focus their efforts on the application of a few techniques to
a limited number of facts and have avoided the kind of in-depth exploration that might be beyond their competence. In particular, they have neglected conceptual thinking, which requires something more than the mechanical application of technical skills.

- Students have tended to view the social sciences as primarily a technical discipline and have developed few of the skills in abstraction and conceptualization needed to handle the subject matter. This has greatly limited their ability to apply what they have learned to real-world situations after they have finished their studies. Consequently, the study of social science is often not perceived as relevant to China’s pressing problems.

In China, as elsewhere, a new balance has to be struck: on the one hand, teachers should avoid giving the student so much direction that he never learns to make risky choices; on the other hand, they should not leave him to drown in a sea of infinite possibilities and total confusion.

The Case Study

The case study is one possible means of arriving at such a balance, although by no means the only one. A case study, somewhat like a scientific experiment, narrows down the possible choices of facts, techniques, and concepts to something manageable without reducing them to mechanical exercises. A case tells a story, and a story is always open to several interpretations (Figure 2). Although initially conceived for inquiry-based learning, cases also lend themselves to teaching-based learning.

The way cases are written and organized may suggest one way of using them rather than another, but, unlike a textbook exercise, a case gives a course instructor considerable room to maneuver. Students being introduced to a topic for the first time, for example, may feel they need more guidance and direction than a group of seasoned practitioners. They may wish to use the case to practice and develop their technical skills, whereas those with more knowledge of the topic may use the case as a focal point for abstract reflection. The same case may well suggest different uses to different audiences, depending on their level of skill, their prior experience, and their particular interests.

In other words, as a teaching resource a case imposes few constraints on the teacher. He may introduce a case while using a teaching-based approach even with a group for which it might be
quite inappropriate. The freedom the case method gives the teacher can be used for good or ill. Placed in the wrong hands, a case can give worse results than well-constructed exercises. This point needs to be stressed since teachers in China may be drawn to the case method because it appears fashionable and up to date without fully realizing what it involves. Although a teaching-based approach using the case method may be justified at times, usually it is not, and unless the teacher is willing to accept the changes in attitude, behavior, and skill required in effective case teaching, he can actually do more harm than good to his students by using the method.

Figure 2.2 The Case Study

Case Writing

The writer of a case faces many of the same choices as the course instructor who will be using it. A further problem for the writer is that it is impossible to predict all the uses to which his work will be
put. How, then, should he organize his material? Should he be "directive" and push his readers toward a particular interpretation of the facts? Or should he allow multiple interpretations to coexist? Many teachers will choose the second option almost instinctively, particularly if they subscribe to a philosophy of inquiry-based learning. Skillful case writing, much like case teaching, should build up in the reader's mind an awareness of the facts presented, of the issues identified, and of alternative interpretations of the story being told. It should avoid doing this explicitly since the students would be left with little to do other than read the text. In this sense, the accomplished case writer works somewhat like a novelist, by carefully combining different themes without ever losing the guiding thread.

Paradoxically, many nondirective case writers will draft the most constraining teaching note imaginable to demonstrate that they are not confused and have all the answers. Thus, the case may be rich in teaching possibilities, but the teaching note so narrowly structured that the course instructor is unable to exploit such possibilities.

The fact that the written style of a case may differ from the style in which it is taught is not necessarily an unhealthy state of affairs given the complexities and diverse aspects of the pedagogical situation. A problem may arise, however, when the style of the case and that of its accompanying teaching note suggest different strategies to the course instructor. As a result, it may be more difficult to adapt the case to different circumstances. This problem usually occurs because the case writer adopted an inquiry-based model of learning when constructing the case itself and then has reverted back to a teaching-based model in the accompanying note. To be effective, case writing must adhere to the same philosophy in both documents.

Conclusion

China has a long tradition of teaching-based learning. The case method, although at times compatible with such a learning model, was originally conceived as a way of promoting inquiry-based learning. Chinese teachers may have difficulty adopting the case method since it involves far more than mastering a new technique: it calls for deep changes in educational values and attitudes toward the learning process. This means that teachers must also change this view of their own role and of the skills they need to fill it. A substantial personal investment in self-development is required to use the case method successfully.
Production, Supply, and Marketing of Chinese Cabbage Stored for Winter Consumption in Beijing

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History of the Chinese Cabbage

China is the homeland of the Chinese cabbage and has a long history of planting this vegetable. The Chinese cabbage is a cold- and heat-resistant plant that can grow in poorer soil and during any season of the year. In addition, its growing period is relatively short. The ancient Chinese called it “song,” meaning similar to “pine.” Su Dongpo, a famous poet of the Song Dynasty (960-1297) who traveled all around China and tasted almost every type of food and local cuisine in the country, once wrote a poem in praise of the Chinese cabbage: “The white song tastes like tender lamb, it grows out of the soil as a bear palm.” The Chinese people have long regarded both lamb and bear palm as delicious food. Thus, to some the plant is the king of vegetables.

Besides being palatable, the Chinese cabbage is highly nutritious. It contains protein and many kinds of vitamins, its Vitamin C content being more than three times that of an apple. And the fiber and lignin of the plant help digestion.

There are many ways to eat Chinese cabbage: it can be fried, stewed, braised, simmered, and added to a tossed salad. Northerners in China like to use it as stuffing for their favorite dumplings, usually served during festivals and for guests. Indeed, the Chinese cabbage has become indispensable in the northern diet, as it is the
staple vegetable throughout winter, from mid-October to mid-April. Consequently, Northerners store large amounts of it in the fall for winter consumption.

In recent years, government policy reforms, a more vigorous economy, and relaxed control of the market have stimulated the production of other vegetables besides cabbage and turnip, which for a long time were the only two vegetables available in city markets during the winter. This change was made possible when the government began developing local production and expanding the channels for purchasing vegetables from other areas in the country. Local people can now buy various kinds of fresh vegetables such as cucumber, broccoli, cauliflower, green pepper, garlic bolt, tomato, and Chinese chives, in the winter. Moreover, since 1986, the supply of cabbage has been as plentiful as that of any other vegetables. As a result, people have become less concerned about storing cabbage each year. However, because of the sharp hike in commodity prices, vegetable prices have recently increased—by as much as 38 percent in some areas. During the Spring Festival, for example, cucumbers sold at 6 yuan per kilo in Beijing, in comparison with 0.4 yuan per kilo in Hainan Island. According to government statistics, the cost-of-living index for jobholders in 32 large and medium-sized cities has risen by 18.3 percent, but the monthly income of an average urban household has increased only 6.5 percent. In other words, the actual income of quite a number of working people has declined.

For many years, the state-run stores were heavily subsidized by the government. Such stores fixed the price of cabbage at only 0.07 yuan per kilo, despite the fact that they did not actually have a supply. Occasionally, such stores would have some cabbage available, and long queues would form to obtain it. Meanwhile, in farmers’ markets, the price of cabbage jumped to 0.7-0.8 yuan per kilo, and, for the first time, individual peddlers became interested in selling cabbage. State employees and government officials in Beijing could no longer afford to keep up with the jump in the price of cabbage and started to panic. They pressed the municipal government to take some measures to curb the price increase. So, the Chinese cabbage, after being neglected for a while, again became a central concern of millions of residents in the capital of the country.

Management of Vegetables

China’s “vegetable basket,” or vegetable supply, is directly related to the national economy and people’s livelihood. Vegetables are different from other commodities. Every citizen of China eats
vegetables every day. With the improvement in people's living standards, the demand for a greater variety and better quality of vegetables has escalated.

Beijing alone consumes about 1.5 billion kilos of vegetables each year; but in 1987, it produced only 850 million kilos, far behind the market demands of the city. To remedy this situation, Beijing has in recent years set up vegetable supply centers in more than 70 counties and cities in Hebei, Shanxi, Shandong, Fujian, Yunnan, Guangdong, Guangxi, Hainan, Sichuan, Hubei, and other provinces and regions. In 1987, the city shipped in 450 million kilos of vegetables from these provinces. At the same time, it opened its door to all other areas of the country, inviting them to set up vegetable-selling shops in the city.

Beijing has also put considerable effort into developing year-round vegetable production centers in remote suburban areas. The municipal government has stipulated that farmers who have developed a mu of land for vegetable production will receive a 200-yuan subsidy from the government,1 the city will provide a vegetable transport vehicle for every 150 mu of vegetable-growing farmland; and all the means of production needed to develop such land will be included in the city's supply plan. At present, more than 100,000 mu of land are solely devoted to market gardening. These newly built production centers have played an important role in expanding the supply of vegetables in the local markets during the slack seasons and in diversifying the content of Beijingers' vegetable baskets. In addition, more than 70 special vegetables originating in foreign countries—such as lettuce, purple cabbage, and parsley from the United States, Japan, Holland and Denmark—have now been planted in Beijing.

The reforms in the vegetable production and supply system in the past three years have almost stabilized the flow of vegetables in the city. People now not only see more variety, but also a higher quality of vegetables in the markets. In early 1988, however, the vegetable market in Beijing experienced sharp fluctuations in both supply and prices. A wide gap had developed between the large market and the small-scale production typical in Beijing where farmer households contract to grow vegetables. Under the contract system, production teams assign each farmer household a certain amount of land to grow vegetables, depending on the size of the family. Each year, vegetable growers must turn over 60 percent of

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1. 1 mu = 0.165 acres. At the time of writing (January 1989) 1 yuan = $0.27.
their output to the municipal government, but they can sell the remaining 40 percent in the free markets.

The relaxation of price controls stimulated vegetable growers to increase production. Even in remote suburban areas, growing ordinary vegetables (such as turnip, potato, and cabbage) would bring farmers three to four times the income that they could earn growing grains. And the income from a mu of so-called protected land (for growing nonstaple vegetables) could be as high as seven to eight times the earnings from a mu devoted to grain production. The increased income has enabled many vegetable growers to build new houses, and to purchase color television sets and washing machines.

But another important change has also been taking place. Many farmers have become less interested in growing vegetables because of the hard labor involved and instead, want to find lighter and cleaner jobs. Moreover, because of the restructuring of the rural industry, the cost of production has increased. One vegetable grower has estimated that the plastic sheeting used to protect growing vegetables jumped from 3,800 yuan per ton in 1987 to 5,300 yuan per ton in 1988, and even at that price was still not available. One might be able to find it at a negotiated price of 7,400 yuan per ton, but that plus other expenses would push the cost of production of each mu of vegetable-growing land up to 3,000 yuan. Thus, it is not surprising that many farmers have switched to businesses other than growing vegetables.

Producers now hire laborers from other provinces to take care of the land assigned to them by the production teams in rural areas of Beijing. It is estimated that in most villages engaged in vegetable production, 20-50 percent of the labor force working in the fields are farmers from other provinces. In many places, the so-called 3861 Army Unit (38 here means women, as March 8 is the international women's day, and 61 means children, as June 1 is the international children's day) have become the mainstay of vegetable production. But because of their poor skills, output and quality have declined.

In addition, with the expansion of urban areas in recent years, less land is available nearby for production, but the increasing population in the city has boosted the demand for vegetables. The vegetable supply in Beijing is now clearly insufficient. To make matters worse, the cost of vegetables imported from other provinces has increased and pushed the prices of some vegetables to exorbitant levels. City-supplied vegetables—which have fallen
behind the competition because of poor quality and lack of variety—have been unable to stabilize prices in the vegetable market. In the winter of 1987 these problems came to a head in many local vegetable markets and loud complaints could be heard among the local residents.

Thus, on May 9, 1988, Premier Li Peng and other leaders from relevant departments under the State Council participated in an inter-city conference on possible reforms in the vegetable production and supply system. They discussed the worsening problems with the mayors of Beijing, Shanghai, Tianjin, Guangzhou, Chongqing, Nanjing, Wuhan, Shenyang, Harbin, and Xi’an. During the conference, participants stressed the importance of cabbage production in northern China. Premier Li pointed out that northern cabbage could be used to stabilize the vegetable supply in these cities and went so far as to suggest that the vegetable supply should be used as a yardstick to assess the performance of mayors or even the municipal governments. At the end of June 1988, the Ministry of Agriculture convened a special meeting to discuss issues of cabbage production. At the meeting, the deputy secretary general of the State Council urged that the areas devoted to cabbage production in the northern part of the country be expanded and the quality of the product improved. He also asked local governments to guarantee the supply and thereby avoid any problems.

Some people predicted that 1988, the Year of Dragon, would be an ominous one in China. Indeed, the country had its fair share of disasters that year, including flooding in northeast China, an earthquake in Yunnan Province in southern China, serious plane crashes, and train collisions. Even the Chinese cabbage suffered. The seeds of the Chinese cabbage are usually planted in midsummer, but that year Beijing had an unusually wet summer, and by August the rain had still not let up. Farmers began to fear that if the sowing was delayed, it would affect the growth of the cabbage heart later. In some areas the seeds were washed away and the farmers had to replant; some even resorted to transplanting young cabbages because the land was too wet to sow. The situation became even worse during the growing season when the cabbage in some areas was attacked by pests and then ravaged by hailstorms. Then, during the late stage, black spot disease turned up in a few areas.

Beijing Mayor Chen Xitong and other municipal leaders held special meetings and issued important instructions on almost every stage in the production of cabbage, from sowing to harvesting. On
July 22, 1988, Mayor Chen and Wang Xian, head of the municipal advisory commission, stressed at a rural economic conference that "the suburban areas must do a good job in growing vegetables and guarantee that the supply of cabbage in the city will exceed 500 million kilos this year. All districts and counties that have been assigned the task of growing cabbage must ensure that enough land has been devoted to cabbage production, and the sowing should be completed in a timely fashion and sufficient base fertilizer must be applied."

On August 3, 1988, the municipal government called a meeting in Sijiquing township to urge citizens "to go all out to overcome the difficulties caused by wet weather and to plant cabbage." On August 20, 1988, Vice-Mayor Huang Chao and more than 70 cadres from the Second Commercial Bureau, the Agricultural Bureau, and Fengtai District came to Fanjia Village in Hua Township, Fengtai District, to plant cabbage. Huang said: "The cabbage replanting in the city must be completed before August 27. It takes about 100 days from replanting to harvesting and we should not relax our efforts for a single moment. The agricultural and commercial departments should make every effort to ensure a bumper harvest." On August 31, 1988, the Beijing municipal government convened a conference attended by district, country, and bureau leaders. Mayor Chen briefed the participants on the decisions made by the 20th routine session of the State Council on stabilizing prices and markets.

To demonstrate its support for the important decisions of the State Council, the municipal government decided to cancel all plans for raising the price of cabbage stored for winter consumption and of admission tickets for the Beijing Zoo, Summer Palace, and other parks, and for increasing the tuition and miscellaneous fees of primary schools in the city. The retail price of cabbage was set at the same level of the previous year (0.06-0.07 yuan per kilo). Although increased costs of production would have doubled the purchase price of cabbage to 0.14 yuan per kilo, the municipal government decided to use subsidies to stabilize the market and win the confidence of the Beijingers. In this way, it hoped to create a better economic and social environment for the ongoing reforms.

On September 26, 1988, the municipal government called a meeting on autumn harvesting and planting and vegetable production in Shunyi County. Local residents were told that the production of cabbage that year depended on stabilizing the prices of all vegetables, but were assured that a stable market would be achieved.
Farmers were encouraged to take note of the situation and to help guarantee the supply in the capital's markets.

On the eve of National Day, October 1, Vice-Premier Tian personally inspected the fields devoted to cabbage production in the suburbs of Beijing, pointing out that the market and commodity prices would not become stable until local vegetable baskets had been stabilized. Cabbage, he said, "is the staple vegetable of Beijingers, so its production must be handled well." On October 20, 1988, the municipal government held a working conference on harvesting, purchasing, transporting, and selling cabbage. Concrete proposals were announced for improving all these aspects of cabbage production. The Beijing municipal government also announced that it would help stabilize commodity prices by setting prices for Chinese cabbage. Despite the tight budget, the state allocated nearly 40 million yuan to subsidies for cabbage production and supply, hoping thereby to achieve "unity and stability."

**Harvesting the Chinese Cabbage**

The Chinese cabbage provides a good example of the "product economy." All the problems of the old system can be traced in the comings and goings of this vegetable. Beijing is China's capital and its political, cultural, transport, economic, and tourist center. The task of the grain and vegetable growers of the city is to serve the capital, and the municipal government has repeatedly stressed the political significance of fulfilling the task. In May 1988, after the 10-city conference on vegetable production and supply, Beijing decided to expand the land devoted to cabbage production by 10,000 mu. By the time that the expansion plan was carried from the city to the townships and then from the townships to production teams and each cabbage grower, it was already late July and early August. Although it was still the right time for sowing the Chinese cabbage seeds, many farmers had already planted other vegetables, such as common cabbage, cauliflower, and greens. Some production teams had even signed contracts to supply such vegetables to retail outlets or groceries. So it was too late to change their plans. But since farmers had been asked to expand the Chinese cabbage growing area by the political authorities, few dared to defy the order. Some of them destroyed any common cabbage that was not growing too well to make room for the Chinese cabbage. A few areas even reported false numbers about the land devoted to cabbage production in order to gain a service subsidy (about 100 to 200 yuan per mu) and planned to buy cabbage later to make up the
shortfall. One township official in charge of vegetable production disclosed that in 1986 the township had spent 100,000 yuan to buy cabbage to fulfill the municipal government quota and was rewarded by the government—and so planned to do the same again in 1988.

Realizing that the supply of Chinese cabbage was likely to be reduced, the municipal government set up an interim office to organize the harvesting of fall vegetables to ensure that every cabbage was properly gathered. The government asked the Agriculture Office, the Commerce Committee, the Vegetable Management Office, the No. 2 Commercial Bureau, the Agricultural Bureau, the Transport and Communications Company, the Public Security and Traffic Control Bureau, Environment Sanitary Bureau, Commodity Price Bureau, Petroleum Company, the Industrial and Commercial Administration Bureau, and various departments of government connected with vegetable production to coordinate their efforts in purchasing and marketing Chinese cabbage in Beijing in 1988. The municipal government announced that any work unit that fulfilled its contract would receive a bonus equivalent to 10 percent of the value of cabbages it had handled (based on the purchase price of 0.14 yuan/kilo), and if it exceeded its quota, it would receive an extra bonus equal to 15 percent of the value of the extra amount. The person in charge of a cabbage production area would receive 1,000 yuan and the person in charge of a marketing area 500 yuan if they fulfilled their tasks. But those who failed to do so would be fined or even dismissed.

In keeping with the principle of the municipal government, each production and marketing area in the city set its own rewards and punishments. For instance, Yuyuantan Township in the city's Haidian District stipulated that a cabbage grower would receive a subsidy of 0.02 yuan/kilo if he or she met the quota of cabbage sales in the market and would receive a subsidy of 0.06/kilo for anything over that quota. However, a fine of 0.05 yuan/kilo would be imposed for any unfilled part. Wujiachang Production Brigade decided to offer a subsidy of 100 yuan for each mu of land that yielded 500 kilos of cabbage for the city (0.02 yuan/kilo), and any grower who failed to meet the quota would see his or her welfare treatment downgraded and access to the supply of grain, coal, and oil at state-set prices cut off.

District and township officials were bound to follow the instructions of the municipal government and some were willing to spend money to save the reputation of their superiors—and, of course, to safeguard their own positions. One township actually
spent 60,000 yuan to buy Chinese cabbage from the market at 0.20 yuan per kilo and then sold it to the state at 0.14 yuan per kilo in order to fill its quotas. A few places, however, refused to accept the quotas or to recognize the municipal government's mandatory planning. They continued to pursue multiple channels in cabbage production and supply. Most vegetable growers also voluntarily try to meet their quotas. Some even try to buy from the market to make up the shortage when they fail to harvest enough from the fields. But fines for unfilled quotas meant little to ordinary farmers. In the late 1980s, vegetable growers in the city were becoming better off thanks to the city government's policy. In the nearby suburbs, an average vegetable grower's annual income had risen to 3,000 yuan, more than twice that of an average government official. Although rising prices and natural disasters drove 1988 production costs beyond those of 1987, the fixed price at which the municipal government purchased the cabbage from farmers meant that they were still able to reap some profits. Nevertheless some farmers thought they were losing money by selling Chinese cabbage to the city at the price of 0.14 yuan per kilo because in the free markets the price could be as high at 0.40 yuan a kilo.

A vice mayor in charge of Beijing's agriculture came to help harvest the Chinese cabbage in the city's suburbs with several government officials. They gathered only the good cabbages and picked out the bad ones. Their task was particularly difficult as they had to safeguard the interests of both the cabbage growers and the consumers. To guarantee quality, the municipal government banned the sale of grade-3 and grade-4 cabbage, that is, cabbage in which less than 70 percent of the heart had reached maturity. It asked farmers to stop watering the cabbage seven days before harvesting, and after the cabbages were gathered from the fields, farmers were required to remove bad leaves and dry the crop for three days. In addition, they were instructed to separate the grade-3 and grade-4 cabbage from grade-1 (90 percent maturity) and grade-2 (70-80 percent maturity) cabbage. The lower-grade cabbage had to be piled up at the end of a cabbage plot or in nearby ditches. If any farmer failed to do so, purchasers were authorized to refuse to pay the set price for the farmer's cabbage.

Meanwhile, neighboring provinces and cities were also purchasing cabbage. The Beijing purchasers who were sent out to buy cabbage from other parts of the country had to ask the municipal government for emergency help when they found purchasers from other places offering a price of 0.40 yuan a kilo and their trucks dispatched to transport cabbage already parked in
the fields. The Beijing purchasers waited for a decision on raising the purchase price. Just at the peak period of marketing the Chinese cabbage, the government of Baoding City (in neighboring Hebei Province) decided to ban the sale of locally produced cabbage outside the city. As a result, Beijing’s plan to purchase 1.5 million kilograms of cabbage from Boading fell through. The municipal government then decided to stop all vehicles used by individuals or work units to purchase cabbage in the fields without permission and forced them to sell the cabbages they had already bought to the government at market prices. In addition, these vehicles were ordered to transport the purchased load to places designated by the government. Some individuals tried to smuggle their harvests to provincial markets. In order to prevent the Chinese cabbage from flowing out of the city, the Beijing municipal government set up checkpoints along the main highways leading from the capital to the surrounding provinces. Not one Chinese cabbage was allowed to be brought out of Beijing. All these checkpoints were manned with policemen from the municipal highway traffic control bureau. And all vehicles carrying cabbage were only allowed to enter but not leave the city.

Transporting the Chinese Cabbage

The period of harvesting Chinese cabbage is usually very short—between about November 1 and 15. The cabbage cannot be harvested too early because the heart may not be fully grown, nor can it be harvested too late because of the potential damage of freezing weather. Transporting 3.5 billion kilograms of cabbage from the fields to the designated groceries and makeshift sales shops within 15 days is a grueling task. Also, as the end of the year approaches, there are other materials to transport as well, such as coal, grain, salt, and building materials, all of which are urgently needed. In November 1988 there were huge amounts of overdue shipments to contend with as well. So it was impossible to stop the transportation of all other materials. But transporting the cabbage was a political task that had to be fulfilled.

For the already overextended Beijing transportation corporation (which would transport 70 percent of the total load of shipment of the Chinese cabbage), the pressure was overwhelming. The management of the corporation decided to mobilize all its staff and workers to take part in the transportation effort, and anyone who had a driver’s license was asked to drive cabbage on the condition that they vowed to drive safely. The firm’s 500 motor vehicles, which were used for training new drivers, were also put to work, and
its transport department organized more than 50,000 vehicle shifts. Altogether more than 6,000 motor vehicles were shuttled between the production areas and the markets, transporting the Chinese cabbage day and night. All vacations of drivers were suspended and some were asked to haul a load before and after their regular workday.

Because of the long distance, poor road conditions, and congested traffic, transporting the Chinese cabbage took a heavy toll on the vehicles and consumed a great deal of fuel. Some transport teams calculated that it would cost more than 20,000 yuan for the fuel, depreciation of the vehicles, and subsidies for staffers and workers. Furthermore, the municipal traffic control department dispatched more than 500 policemen to help control the traffic and issued special permits to vehicles engaged in the transportation of the Chinese cabbage, and the Yongding Bridge exempted such vehicles from the road toll and let them pass 24 hours a day. Meanwhile, the municipal environmental sanitation bureau had reinforced its fleet of 600 trucks with another 200 to remove garbage and cabbage leaves in order to keep the city clean during the cabbage season.

Selling the Chinese Cabbage

The Beijing Vegetable Company is a state enterprise with a network of groceries around the city. Every day, it sends more than 2.5 million kilograms of vegetables to the market (through the state-run grocery stores) or about 80 percent of the total vegetables sold. Most of these vegetables are supplied by the 20,000-hectare vegetable-growing area directly under the administration of the municipal government. Stores can purchase about 10 percent of the total through extra-plan channels at the government-set prices. So these grocers and stores have little autonomy.

In recent years, the quality of vegetables that they have been selling has deteriorated (as farmers keep the better ones to market themselves). The state only gives stores subsidies according to a planned monthly supply, and beyond this the more they sell the more they lose. They now try to sell less or even nothing at all and still obtain government subsidies by reporting false volumes of sales. Meanwhile, vegetable growers think it is unfair for the vegetable stores to earn double benefits—i.e., both government subsidies and normally a positive difference between their purchase and selling prices. So the farmers have called for the abolition of the middleman and urged the municipal government to give the Agricultural Department complete power over vegetable
management. In their view, “All power should belong to the farmers’ association.” Although this made some sense, the municipal government had to consider the employment problems it would have created for large numbers of employees in such stores.

In the past the supply of cabbage stored for winter consumption was rationed. Rationing was abolished in 1986 but Chinese cabbage was still sold in relatively few places. In 1987, many people stopped storing it, and had the painful experience of later paying higher prices. In 1988 the government decided to allow cabbage to be sold in neighborhoods, at fixed spots; each resident would be able to buy 30 kilos by presenting his or her proof of residence. This resulted from the concern that people were prepared to revive the habit of storing the vegetable, and that if it was not rationed, some peddlers would try to corner the cabbage market, so that most people would get no benefit from state subsidies. The new method of supply was designed to ensure that the majority of local residents would benefit from the nearly 40 million subsidies from the state. At the same time, however, it greatly increased the workload of stores that were already short of help.

To begin with, these stores had to conduct surveys to determine the demand of the residents in local areas and then set up makeshift shops or stalls. It took a great deal of effort to persuade peddlers to give way to such shops and stalls. More than 2,000 such stalls were set up throughout the city by more than 30,000 people working day and night.

At the Wuilong cabbage shop in the Shijingshan District of the city, a dog-tired clerk fell asleep when he took a break to use the washroom. At Rongxian Grocery in Xicheng District, a woman clerk who had just been discharged from the hospital for the treatment of cancer insisted on taking part in the campaign. She was quoted as saying, “In the past two years I was in the hospital and had spent a lot of state money (under the public medical service system). My life is given by the state and I don’t have anything to contribute to the state in repayment; so I just want to do something to benefit the people.” When Mayor Chen Xitong learned of this, he personally visited the clerk, telling her: “If every one of us would think of others as you do, the general social mood in this city would be greatly improved.” Everyone involved in selling the Chinese cabbage had made an enormous effort to bring several billion kilograms of cabbage to thousands of local households within two weeks. It was estimated that an average clerk handled about 50,000 kilograms of cabbage during this period.
Many store employees visited local neighborhood committees and delivered cabbage purchase coupons to households with members who were serving in the army or who had been martyred or those of childless and infirm persons before the selling began. When the selling began, they delivered the cabbage to these households. They also offered door-to-door delivery services for households that had no means of bringing the cabbage home.

In a letter to a local cabbage shop, a resident of Fengtai District wrote, "Lei Feng has been dead for many years, but from your staffers and workers involved in selling cabbage, I have seen the spirit of Lei Feng has come back."

Changchunyuan, Chengzeyuan, and Huixiuyuan are areas with a good number of intellectuals (many of the residents are on the staff of Beijing University). Aware of how sensitive the local residents were to the selling of cabbages, the local groceries paid special attention to providing good services such as helping deliver cabbage to households that had difficulty transporting it themselves. As a result, most Beijing University staffers and teachers were satisfied with the cabbage selling work and also happy about the quality.

**Buying the Chinese Cabbage**

On November 1, 1988, the city began to sell the Chinese cabbage to be stored for winter consumption. (The state-run stores usually begin to sell the cabbage around this time each year). A middle-aged resident arrived to join the queue in front of the Fuwai Street cabbage shop at 2:10 a.m. He said: "Last year, I did not store any cabbage and as a result, I had to spend more money. So, this year I would try my best to buy cabbage as early as possible and also store more." He stood outside the shop in the freezing morning for six hours and finally bought 180 kilograms of cabbage at a cost of 10.8 yuan. He thought it was quite cheap and it was worth standing in the cold wind for six hours.

The Quingjuayuan cabbage shop had many local residents queuing overnight, but when it began to sell the cabbage, the supply soon ran out and there was no means of transporting more to the shop. Some people had wasted several hours standing in the line and still went away without any cabbage that day.

Some complained about the quality: "Did you expect us to get up at midnight and stand in the freezing winter morning to buy this kind of stuff anyway? Doesn't the newspaper say that cabbage that is less than 70 percent mature at its heart will not go to the market?" A college lecturer added: "It is totally unnecessary to sell
cabbage in this way. Even if the government gives up its control over the market, the cabbage will be sold at about 0.20 yuan a kilo, which even an ordinary household can afford.” Thus many people did not try to buy cabbage because they did not like the way it was being sold. Some people in the municipal government also suggested that the price be raised to 0.10 yuan per kilo. They said that in comparison with the prices of several yuan per kilo for nonstaple vegetables, 0.10 yuan per kilo for the cabbage could not be called a price hike. Even low-income consumers could afford that. But the government argued that if it approved a 30 percent increase in the price of the Chinese cabbage (from 0.066 to 0.10 yuan per kilo), which accounted for one-fourth of the city’s total annual sales of vegetables, it would not be able to meet the central government demand for lowering commodity prices. So it did not dare to do it.

Two months later, three-fourths of the cabbage could be found in the corridors of apartments. It had dried up and had to be thrown away because it had not matured sufficiently in the first place. An economist pointed out that farmers had wasted thousands of mu of land that year in growing the Chinese cabbage. A gray-haired old man said: “What can we say since the government has spent 0.14 yuan per kilo to purchase it from the farmer and then sold it to us at 0.06 yuan a kilo? I believe only the Communist Party would have done things for people that way.” A British reporter could not believe that a government would spend millions to purchase cabbage at a price twice as high as the market price.

During the National Day festival in 1987, the municipal government also had to decide whether to provide fish for local residents at the expense of a flyover. At that time, the retail price of hairtail was 5.6 yuan per kilo in the Beijing markets, but the price for hairtail purchased by the city’s commercial department from other provinces for supply during the festival was 7.6 yuan per kilo, 2 yuan higher than the local price.

The government was faced with the question of whether to subsidize the sales of hairtail: without the subsidy, local residents would probably complain; but if the government offered the subsidy, it would cost 20 million yuan, the same as it would cost to build a flyover. This question found its way into five meetings and three discussions. Finally, the government decided to subsidize the sales of fish at the expense of a flyover. As it turned out, the supply of fish could not be guaranteed. As soon as the holidays were over, the hairtail disappeared from local markets and the complaints failed to subside. Instead, it was the ample supply of freshwater fish
and the reasonable prices that had balanced the demands of local consumers and the supply of aquatic products.

The Chinese cabbage market operated on the principle of annual government subsidies. In the first quarter of 1988, the municipal vegetable company imported 50 million kilos of cabbage from Hebei Province. When the Chinese cabbage reached the Beijing markets, its cost had already reached 0.54 yuan per kilo, but it was sold at 0.30 yuan per kilo. To make up the difference, the municipal government had to provide a total subsidy of more than 10 million yuan, with 0.20 yuan per kilo. In 1987, Beijing spent more than 100 million yuan on subsidies through commercial channels and the figure climbed to 200 million in 1988. Reporters learned from the municipal financial conferences that during the first eight months of 1988 the revenue of the municipal government had increased 9 percent over that of the same period in the previous year, but because of the increase in financial subsidies, the actual income was up by only 2.2 percent. Most of the increased revenue was quickly eaten up. At present, an average citizen in Beijing receives various subsidies totaling 550 yuan a year, the highest in China. How long can the government stabilize the commodity prices by providing subsidies? How can it ensure an adequate vegetable supply? Quite a number of people have now begun to think about these questions.

Storing the Chinese Cabbage

While purchasing the cabbage, the municipal party committee and government began considering the vegetable supply for the next spring. A great deal of cabbage could be lost because of the poor quality and abnormally high temperature during the season. Preparations had to be made to secure a large enough supply of vegetables to last into the late winter and early spring.

In the past, not only did individual consumers store some cabbage, but the production and sales departments also put aside a certain amount to ensure the needed supply would be available around the Spring Festival. The municipal government department in charge of vegetable production and supply had built some permanent vegetable cellars to store cabbage; at the same time, cabbage growers had set up some makeshift cellars for the same purpose (these cellars are used to store cabbage in winter and when spring comes, they are leveled and the land can be used to grow vegetables). In recent years, their standard of living has improved, and farmers have become less likely to store large amounts of
cabbage. Indeed, it has been difficult to sign contracts with them for storing cabbage.

The city had some old vegetable cellars, but some needed to be repaired and new ones built. Although the government did not have enough funds and manpower to do so, it tried to carry out a plan for storing more than 50 million kilograms of cabbage. Before the end of September 1988, the Xicheng District Vegetable Company had invested 650,000 yuan in building vegetable cellars covering 100 mu of land and with a total floor space of 8,000 square meters in Gongzhufu Township, Gu’an County, Hebei Province. These cellars have a storage capacity of 5 million kilos of cabbage. The commercial vegetable cellars belonging to the municipal government were to store 17.5 million kilograms; 20 million kilograms would be stored in the near suburbs by cabbage growers; and 40 million kilograms in the remote suburbs. The cabbage to be stored totaled 75 million kilograms, which was 25 million higher than the previous record in the city’s history.

The government estimated the purchasing price would be 0.144 yuan per kilo in December, 0.24 yuan per kilo in January, 0.316 yuan in February, and 0.434 yuan in March. It would allow the price to float plus or minus 10 percent. (The above prices were the prices for purchasing cabbage from farmers.) It should be pointed out that the large amount of cabbage stored in 1988 also played a role in alleviating the shortage and stabilizing prices. By the 1989 Spring Festival, however, it looked as though the city had stored a bit too much. After the holidays, cabbage kept flowing into state-run stores but sales had begun to drop sharply because local residents had already stored enough cabbage to tide them over the winter. In addition, with the rising standard of living, most households no longer regarded cabbage as a staple vegetable and only came to it when no other vegetables were available.

Although the quality of the cabbage was much higher than that of the cabbage sold at fixed sales spots in the preceding winter, it remained stockpiled in state-run stores, roting and with no customers buying it (the stores purchased the cabbage from farmers at 0.36 yuan per kilo and sold it at 0.16 yuan per kilo). Yet, only a year earlier Beijingers were incensed at not being able to find cabbage in the markets and were willing to get up at the crack of dawn to queue up to buy cabbage. Perhaps the municipal government failed to accurately estimate the projected demand. Since the markets were already saturated with cabbage, why would the stores have kept stocking cabbage? The stores said they were merely following the orders of the vegetable companies, which had
signed contracts with the farmers in the preceding year. If these companies had refused to honor the contracts, it would have harmed the farmers.

Those who did not turn over their product in accordance with the municipal government plan or sign contracts with vegetable companies but had stored cabbage themselves also suffered losses, but to a lesser extent. A few unscrupulous persons purchased cabbage from one state-run store at the price of 0.16 yuan per kilo and sold it to another at 0.36 yuan per kilo (the state purchasing price). Although state-run stores usually did not purchase vegetables without contracts, some of these people had signed contracts with them in advance. In addition, some vegetable peddlers smuggled cabbage out of the city and sold it at higher prices in other provinces. State-run stores were powerless to do anything about such things.

Cabbage Discussions

After the turmoil over the supply and marketing of Chinese cabbage in 1988 subsided, the municipal government convened a meeting of leaders from production and marketing districts and townships to assess the work. Vice Mayor Huang Chao noted that the work had been completed in just about 20 days and thanked all the relevant departments for their close cooperation. He regarded the experience as an experiment in macroeconomic control and in invigorating the micro economy. It also demonstrated, he said, the determination of the party and government departments at all levels to talk less and do more about serving the people. In his view, the story of cabbage indicated that most cadres and farmers were following the party’s instructions and that farmers had public spirit. It also indicated that the municipal government was capable of controlling the situation. But the vice mayor’s speech drew no applause; the meeting room was silent, as leaders from the districts, counties, and townships quietly remembered all the hardships surrounding the cabbage experience. Perhaps they were also wondering whether the same story would be repeated next year.

Some Afterthoughts

A TV crew from the Beijing station covering the cabbage affair had just left the office of Director Ma, head of municipal vegetables management. He was trying to think of a title for the TV documentary. Suddenly, it came to him—Sour, Sweet, Bitter, and Hot Taste of Chinese Cabbage. That summed up the experience perfectly for everyone. After putting so much effort into making
sure the people would have their supplies, the government leaders were still besieged with complaints: residents complained about the poor quality of the cabbage, growers were annoyed because their cabbage had not brought a better price, and some districts and townships were enraged because they had been fined for not meeting their purchasing quotas. And with so much cabbage stockpiled, the stores were also complaining. How difficult it was to be in charge of vegetable affairs! No wonder that vegetable growers were no longer willing to grow vegetables, vegetable sellers to sell vegetables, and officials in charge of vegetable affairs able to do their jobs.

Of all commodities, fresh produce is the hardest to manage, and of the vegetables, cabbage causes the biggest headache. The government had actually put more energy into the Chinese cabbage question than into grain production. To make things worse, there had been too many “mother-in-laws”—the party and various departments had all had some say in the production, supply, and marketing of cabbage. What, wondered Director Ma, are we going to do this year? Certainly, it did not seem wise to repeat last year’s performance. Should the government focus on reforming the vegetable production, supply, and marketing system or the pricing system? Or should a new system be introduced, perhaps combining elements of the planned economy and the market economy? Director Ma was not sure how to approach the problem. He decided to talk to several colleagues in relevant departments and see if together they could come up with some ideas for alternative programs before making a final decision. Here are some of the ideas that came out of that effort:

1. Go all out to put the vegetable fields in the hands of competent vegetable growers and link all those fields under unified management. In vegetable-growing areas, production teams could work out guidelines on the size of area and varieties for farmers to plant, which would be based on local production planning. These teams or vegetable production service groups would be set up by local townships and would also provide vegetable growers with the services they would need, including machinery, irrigation, materials supply, technical training, and marketing. For their part, the vegetable growers would follow the guidelines in growing vegetables and manage the fields. This system would help reduce production costs, improve efficiency, and improve vegetable producers’ ability to bear risks.
2. Promote further reform in the vegetable purchasing and marketing system. As soon as possible, the state-run wholesale enterprises should become autonomous entities that take care of their own profits and losses. Enterprises with the right conditions could set up solely funded or jointly funded interregional vegetable production and marketing groups to introduce the "one-dragon" management system that would link together production, purchasing, and marketing.

3. Set up vegetable production centers at different levels of government and distribute them around the country, as appropriate. By basing vegetable supply on local production and developing production centers in other provinces, the nearby suburban areas could concentrate more on the production of nonstaple vegetables, remote suburban areas could produce staple vegetables, and production centers in other provinces could produce vegetables to supply Beijing in the slack seasons.

4. Improve the regional balance between the production and marketing of vegetables and organize a common market of vegetables in North China. Member governments should make a concerted effort to work out plans for vegetable production, transport, and management in the common market and set up regulatory organizations.

5. Gradually reform the subsidy system and lift controls on the prices of all nonstaple vegetables. The subsidies for staple vegetables should be reduced in order to correct vegetable prices, to reflect the true producer price. Meanwhile, state commercial enterprises should convert to a market economy and allow competition in the market to set prices. Efforts should also be made to ensure that the factors of production are equally distributed among farmers. Therefore the financial subsidies should be channeled toward production and capital construction of vegetable fields.

6. Further consolidate the contract system that links earnings to outputs, set the lowest protective prices for vegetable growers, and establish a risk fund to help allay farmer anxiety concerning potential disasters and to stimulate their interest in scientific farming.

7. Gradually relax controls but do not eliminate them entirely. The overall goal is to enable small-scale producers to meet
the demand of the big markets in order to create flourishing markets and ensure an ample supply.

Questions for Discussion

1. Is Beijing's current vegetable management system suitable for improving the city's vegetable production?

2. Should the city continue the policy of keeping purchasing prices higher than selling prices over the long term?

3. Should the city store Chinese cabbage? How?

4. If you were a government official in charge of the vegetable business, what would be your decision in this regard?

5. If you were a grocery manager, how would you evaluate the 1988 cabbage supply and marketing methods? What answer would you give if you were an economist or a politician?

6. If you were a vegetable grower, what kind of policies would you like? What if you were a consumer?

7. Do you think the supply and marketing of cabbage in 1988 achieved its original goals? What problems were exposed during the whole process? Did they originate with the price or the system? Were they natural or man-made?
The Assignment of Jobs to College Graduates

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Many complaints have been voiced in recent years about the system of employing college graduates in China. The personnel chief of a work unit not long ago grumbled: "When one buys something, one should have choices. Then why not in recruiting people? In 1984, the state assigned a college graduate to our work unit. We later found out that the chap was totally incompetent and that he had flunked three courses at school. He is of no use here, but there is no place we can return him to. It really is impossible for our personnel department to do its job. We wish the government would give us the right to reject new recruits that are proposed and if they later prove to be unqualified, we should have the right to dismiss them" (China Youth, No. 6, 1987).

Another type of complaint about the system came from a newspaper editor: "We need people who can work independently and who have a wide range of knowledge. We are not interested in people who have specialized in only one field. This is like putting solid food into a teapot: you can get something in, but you cannot pour it out. So, we are now extremely cautious in recruiting new staff." (China Women's Journal, November 9, 1987).

In 1987, in the Beijing area alone, 655 college graduates were returned to their respective schools by employers (Guangming Daily, October 30, 1987). In Shanghai, the number of graduate students studying at universities and research institutions is said to
exceed that needed by local employers. Even a number of enterprises that urgently need highly educated specialized personnel have indicated that they will not accept postgraduates assigned to them by the state. According to a survey conducted by the Shanghai Economic Commission, however, these and other similar enterprises will need about 4,500 high-level specialists before 1990 (Press Digest, December 15, 1987).

Paradoxically, although there appears to be a surplus of college graduates, there is still a shortage in the supply. To help resolve this problem, Haidian Day College in Beijing (established four years ago), has taken great pains to train students in specialties that are in great demand in this city. This year, the college recommended 200 graduates, the first group to graduate from the college, to various enterprises and institutions, and they have all been hired and welcomed by their employers (Guangming Daily, November 28, 1987).

But elsewhere the problem remains serious. The gap between the demand and supply can be illustrated by the country's well-known Zhonghua College of Science and Engineering (see Table 4.1). Table 4.2 shows the supply and demand of graduates from regular institutions of higher education in China in recent years, while Tables 4.3, 4.4, and 4.5 compare the levels of college education the number of teachers and students, and the number of technical people in China with those in other countries. Table 4.6 shows how the number of graduates from colleges and secondary technical schools has grown since the founding of modern China.

History of the System

Since the Chinese Communist Party came to power in 1949, and particularly since 1977 when the college entrance examination system was restored, higher education in China has achieved remarkable progress. By 1987 it had more than 1,063 institutions of higher learning turning out 400,000 to 500,000 graduates each year.

The higher education system conforms with the principles of the country's planned economy, which is based on state ownership. The state exercises strict control over institutions of higher learning. From student enrollment to teaching, graduation, and job assignment, almost all educational activities are included in the state plan. There are no private universities in China; all higher education is financed by the government. College students do not need to pay tuition and most of them can even obtain stipends from the state to pay for their living expenses. (Despite some changes in recent years,
the overall situation remains the same.) As soon as a student passes through the gates of a college, he or she becomes the property of the government. As state employees, they enjoy not only free medical care, but also life-time employment. At the same time they are offered these privileges, however, college students are deprived of the right to seek their own jobs and to choose the places or the work units where they wish to work. Upon their graduation, they are assigned to various state-run enterprises and institutions, in accordance with the government's personnel distribution plans.

Under the traditional system, China has no labor markets. All labor belongs to its employers, or the dan wei (work unit). The concept behind this system is that labor is not a commodity; that laborers should not be too concerned about having the freedom to choose their jobs; and that they should follow the state plan and accept the assignments or decisions made by the authorities.

The system of employing college graduates in China can be regarded as a part of the country's labor and personnel system, which in turn is part of the overall political and economic system. Therefore the nature and functions of the system for assigning college graduates jobs are closely related to the political and economic system. Job assignment for graduates is also linked with state personnel and the cadre system, and is based on the concept that employers should have only limited autonomy in their personnel affairs.

The Principles and Operation of the Job Assignment System for College Graduates (1949-84)

China's highly centralized, planned economy was established in 1956. All the key elements of the economy were put under the strict control of the central government and all other levels of government. The market played almost no role in the economy. Consequently, most enterprises and institutions became subsidiaries of government departments. The employment of college graduates had been incorporated into the state plan even earlier.

The Basic Procedures

In 1949, soon after the new China was born, the state took over all institutions of higher learning around the country and put them under government administration. This made it possible for the authorities to introduce a unified job assignment system for college graduates (called tong fen tong bao). Thus, one might say that from the beginning of the republic, higher education played an important role in the country's reconstruction. By 1986, the state had assigned
jobs to more than 70,000 postgraduates and 4.9 million college graduates (*Beijing Higher Education*, No. 1, 1987: 192).

Over these years, a complete set of standards and system for assigning jobs to college graduates came into being. The procedure consisted of five basic steps:

1. **Planning**: The relevant agencies of government first conducted a survey of the numbers preparing to graduate in various specialties and of the demand for such graduates.

2. **Distribution**: An assignment plan was worked out to distribute those from certain schools and specialties in a way that would help meet the overall target of the country’s plan for economic development and the specific demands in various sectors in any given year.

3. **Dispatching**: Each school was to follow the distribution plan in assigning jobs to individual graduates. After its detailed job assignments were approved by the government departments in charge, it would issue job registration certificates to its graduates and dispatch them to their assigned work units.

4. **Acceptance**: Graduates who had received the notice of their job assignment were to report to their assigned work units, which would then assign them to specific posts.

5. **Readjustment**: If, within a year of the job assignment, any graduates found their jobs unsuitable or inappropriate, some adjustment might be made to reassign them to new jobs (but, in practice, this seldom occurred).

**The Period 1949-66**

From 1949 to 1966, the job assignment plan was formulated directly by the state, and decision-making power was highly centralized (although at times some changes were made in the division of power between the central government and local governments). Schools, employers, and the local government departments responsible for the distribution were merely the executors of the state plan.

During this period, however, the state made many changes in the leadership overseeing the work. From 1950 to 1954, the Ministry of Personnel of the central government was in charge of assigning jobs for college graduates. By the end of 1954, the Ministry of Personnel was abolished and the Ministry of Higher Education took over the job. Next year, with the approval of the State Council, the work on job assignment planning was shifted from the Ministry of
Higher Education to the State Education Commission. In 1956, the readjustment of job assignments became the responsibility of the Personnel Bureau of the State Council, in place of the Ministry of Higher Education. In 1962, a nationwide economic depression and readjustment led to a surplus of college graduates, and a large number of them were sent to work in rural areas. As a result, the task of distributing and readjusting assignments was again put under the control of the Ministry of Higher Education.

Another reason for this latest change was that many college graduates had been assigned to work units in which their specialties proved to be useless, so the late Premier Zhou Enlai personally intervened in the work. In a document entitled "About the Measures to Improve the College Graduates' Job Assignment Work," Zhou pointed out: "In the future, the college graduates' job assignment work must be closely linked to the college education." So the distribution and readjustment again became the task of the Ministry of Education. Later, the then State Planning Commission, the Ministry of Education, and the Ministry of Interior Affairs jointly set up a college graduates' job assignment committee. In 1964, through negotiations between the Ministry of Higher Education and the Ministry of Interior Affairs, and with the approval of the State council, the Institution Personnel Bureau under the Ministry of Interior Affairs took over the task of readjustment.

The Early Stages of the "Cultural Revolution" (1966-70)

The Cultural Revolution was launched in 1966. From 1966 to 1970, all institutions of higher learning in the country stopped enrolling students and jobs were no longer assigned according to normal procedures.

The Late Stages of the Cultural Revolution

In 1971 China introduced a new system of college enrollment whereby colleges and universities enrolled only the students recommended by their work units. Except for a small number who would receive jobs from the state, most graduates would follow the new she lai she qu system, which meant that after completing their education, the students would return to their original work units.

After the Cultural Revolution

The unified system was restored after the Cultural Revolution, beginning in 1977 with the revival of unified college entrance examinations. In addition, the various tasks of job assignment were...
again reallocated, but in a somewhat different way. Now the State Planning Commission was in charge of the long- and medium-term "talent training plans"; the Ministry of Education was then to organize college education according to these plans; and the State Personnel Bureau, with the cooperation of the State Planning Commission and the Ministry of Education, would work out the annual college graduates' job assignment plan and distribution plan. Thus, the State Personnel Bureau was given the responsibility for job assignment and distribution. Another such adjustment took place in 1982, and again in August 1985, when the State Planning Commission and the State Education Commission announced that from 1986 on the State Education Commission would be taking over the work of planning job assignments for college graduates and postgraduates. Since then, the State Education Commission has put the work of job assignment for college graduates and postgraduates under its unified management, and many provinces, autonomous regions, and municipalities have followed suit. As a result, the personnel departments (or bureaus) are no longer involved in the procedures and only intervene when postgraduates and professional college graduates have been inappropriately assigned after they have passed their one-year apprentice period and have become government officials.

The Principle of College Graduates' Job Assignment

The basic principle of the system is that everyone's capability must come into full play and individual interests must be subordinated to the needs of the country. Although the system underwent a number of changes between the founding of the republic and the mid-1980s, by and large, it remained dedicated to filling the need for educated people in the country. Between 1952 and 1958, for example, college graduates were assigned to key sectors, and in 1960, when the state called for a reduction in the general demand for college graduates, an effort was still made to meet the needs in important areas such as institutions of higher learning, scientific research institutes, and production and construction work units, as well as regions suffering from a shortage of college graduates. From 1963 to 1965, the principle was "to appropriately centralize the college graduates' job assignment work to meet the needs in key sectors, strengthen the grass root work units, temper college graduates, and make the best use of their capability." In recent years, the principle has been "to make overall arrangements, meet the needs in key sectors, take into consideration the pattern of demand, make rational use of their
talents, gear job assignment to the needs of grass root work units, and strengthen the front line of production and design.”

The emphasis in state policies and principles regarding such job assignments can be viewed from the two perspectives: the sectors of the national economy that are affected and their geographic distribution. On the economic side, the supply of college graduates for industries connected with energy, geology, metallurgy, nonferrous metals, nuclear development, astronautics and aeronautics, and national defense will be guaranteed. Institutions and enterprises in these sectors that are located in poorer areas will be given attention first. In terms of regions, the state gives first priority in the college graduates’ job assignment to the northwest, southwest, and northeast of China. The purpose of such efforts is to eliminate the imbalances in economic and regional development.

In recent years, government departments, institutions of higher learning, and research institutes have become saturated with college graduates, whereas the grass roots work units are still complaining about the serious shortage of educated people. As a result, the state has begun to put more emphasis on meeting the needs of grass roots work units and strengthening the front line of production.

Another central concern has been to make the best possible use of men and materials, although this has taken on various meanings during the different historical stages of the assignment system. Before 1977, the social class of one’s family or one’s family background and political attitude was used to judge the quality of a college graduate. Thus, the so-called political examination became the basis for distributing college graduates. After the Cultural Revolution, the political examination was canceled and family background no longer played an important role in the college graduate’s job assignment. In recent years, more attention has been paid to each graduate’s talents and academic performance.

The Status of College Graduates

Under the state’s unified mandatory job assignment plan, college graduates are guaranteed employment and they do not have to worry about finding a job. Once they enter a college or university, they are said to have secured an “iron rice bowl.” This practice has to a certain degree prevented college students from being more competitive and has failed to kindle their motivation to study. Furthermore, the state rarely takes into consideration the individual interests of college graduates, who therefore have little choice in their professions and particular jobs. Under this system, it is more or less common practice to praise college graduates who accept the
state job assignment without question. Because there is so little room for choice and most college graduates are filled with political enthusiasm, they happily take the jobs assigned to them by the state. And it is through political mobilization and orders that the state carries out its plan for assigning jobs to college graduates. Those who are asked to make great personal sacrifices by being assigned to remote and poor areas are usually given some spiritual reward, but seldom a material one.

However, it is the deep wish of almost every college graduate to have a plush job in one of the big cities or in the relatively developed eastern part of the country or in state-run enterprises and institutions. Although the state sharply criticizes such aspirations, most college graduates still admit that they have them.

The Work Units That Accept College Graduates

Work units usually have no say in the hiring of college graduates. When a work unit needs to recruit college graduates, it must apply to the government authorities to request that its need be included in the state job assignment plan. The work units themselves are not allowed to recruit people directly. Even if they do not want to recruit any college students but the state has assigned some to them, they are obliged to accept the newcomers. When the work units do not have to bear the responsibility for the costs and incomes of the graduates, they usually want as many as possible; and if there are already too many, they tend to “hoard their talents,” in part because the state takes care of the wage payments for new staff of such work units and there would be no gain in cutting down the size of their staff.

The Schools

Colleges and universities are subordinate to the government, and the state takes care of the employment of their graduates. The quality of education and school curricula have little effect on the fate of the school. As a result, they are not particularly well organized to make the effort needed to meet society’s needs since they are only indirectly and passively linked to society.

Reforms Since 1985

After the Third Plenum of the 11th Central Committee of the Chinese Communist Part in 1978, China introduced a number of economic and social reforms.
Economic and Social Changes

To begin with, enterprises were given more autonomy in managing their own affairs and benefits were tied closer to their performance. Since then, the highly centralized planned economy has begun to lose some of its foothold in the management of the national economy. The proportion of mandatory planning, for example, has been cut by large margins and increasing emphasis has been put on using guidelines and market regulation.

The Third Plenum of the 12th CPC Central Committee in 1984 approved the model of a Chinese socialist planned commodity economy. This model has brought tremendous conceptual changes, particularly in terms of the structure of ownership. The coexistence of diversified economic elements is now regarded as rational, and the private economy has been allowed to supplement state ownership. In 1985, in its proposal for the Seventh Five-Year Plan, the Chinese Communist Party made clear the three basic goals of the current reform—to revitalize China's enterprises, to set up a socialist market system, and to introduce a macroeconomic management system founded on indirect regulation and control. In 1987, at the 13th Congress of the Chinese Communist Party, the discussion focused on the concept of having the state regulate the markets and having the markets guide the economic management of enterprises. All these discussions have helped the nation better understand the goals of the current economic reform. Now that commodity and monetary relations have changed and market forces have been given a role in the state's guiding ideology, the principles and policies of economic development are bound to move in a new direction that will have a far-reaching impact on the country. After 1986 and particularly since 1987, when enterprises throughout the country began to take on more responsibility for their contracts, the independent economic accounting in each enterprise has forced a change in the method of recruiting employees. Because many enterprises have experienced hidden unemployment, they have begun looking for ways to improve labor organization, link payroll to quotas, and appoint officers through contracts or some other new systems. These changes are having a direct impact on the employment of college graduates.

The proposed changes in the ideology and system of employing college graduates will bear the brunt of this wave of reform because of the strong link between higher education and the national economy up to now. Whether the enrollment and education provided by the country's institutions of higher learning promote economic development will be reflected in the employment
situation of college graduates. In other words, the results will be judged in the same way that the performance of enterprises will be judged by the sales of their products in the marketplace.

At the moment, the idea of a labor market and a market for talent is receiving a great deal of attention in China. People are openly discussing whether labor can become a kind of commodity there. In the past, such discussions would have come under sharp attack. The very idea of commercializing the labor force had long been a theoretical taboo. Today, regardless of what the theorists say, most Chinese see labor as a type of commodity. Consequently, their view of employment conforms with the principles of a commodity economy. This also means that a great number of people have begun to stress independence and personal development, fair competition, and mutual acceptance between employers and job seekers.

The responses to questionnaires issued by a panel investigating the attitudes of college students in Beijing in June 1988 provide some indication of the intentions of today's college graduates in seeking employment. The survey was conducted among 1,429 students in various types of institutions of higher learning in Beijing. Of those surveyed, 13.7 percent were majoring in liberal arts, 14.5 percent in science, 44.1 percent in engineering, 5.1 percent in agriculture and forestry science, and 3.3 percent in medicine. Some of the questions and responses are outlined below.

<table>
<thead>
<tr>
<th>Question: If you had the freedom to choose a job before graduation, what would be your first choice?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Foreign trade firms</td>
</tr>
<tr>
<td>Studying abroad</td>
</tr>
<tr>
<td>Joint ventures</td>
</tr>
<tr>
<td>To study as a postgraduate</td>
</tr>
<tr>
<td>Research institutes</td>
</tr>
<tr>
<td>Party and government departments</td>
</tr>
<tr>
<td>State enterprises</td>
</tr>
<tr>
<td>College teacher</td>
</tr>
<tr>
<td>Others</td>
</tr>
<tr>
<td>To become self-employed</td>
</tr>
<tr>
<td>Collective enterprises</td>
</tr>
<tr>
<td>To become teachers at middle &amp; primary schools</td>
</tr>
</tbody>
</table>
**The Assignment of Jobs to College Graduates**

**Question:** If you had the freedom to choose the place where you will work after graduation, which of the following would be your first choice?

<table>
<thead>
<tr>
<th>Place</th>
<th>Yes (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anywhere as long as I can have an important position and play an important role</td>
<td>21.9</td>
</tr>
<tr>
<td>2. Beijing</td>
<td>21.3</td>
</tr>
<tr>
<td>3. Coastal open areas</td>
<td>16.7</td>
</tr>
<tr>
<td>4. Abroad</td>
<td>15.1</td>
</tr>
<tr>
<td>5. Special economic zones</td>
<td>8.6</td>
</tr>
<tr>
<td>6. Other big cities</td>
<td>7.7</td>
</tr>
<tr>
<td>7. Others</td>
<td>4.4</td>
</tr>
<tr>
<td>8. Ordinary cities and towns</td>
<td>2.2</td>
</tr>
<tr>
<td>9. Rural areas</td>
<td>0.6</td>
</tr>
<tr>
<td>10. Remote areas</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**Question:** What criteria would you use to choose a job?

<table>
<thead>
<tr>
<th>Order</th>
<th>Criteria</th>
<th>Yes (percent)</th>
<th>Comprehensive index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Good working conditions and I can play my role</td>
<td>35.6</td>
<td>2.178</td>
</tr>
<tr>
<td>2.</td>
<td>High income</td>
<td>25.7</td>
<td>2.354</td>
</tr>
<tr>
<td>3.</td>
<td>High social status</td>
<td>11.2</td>
<td>2.909</td>
</tr>
<tr>
<td>4.</td>
<td>Opportunity for further and advanced study</td>
<td>7.8</td>
<td>3.040</td>
</tr>
<tr>
<td>5.</td>
<td>The job should be cushy and stable</td>
<td>4.8</td>
<td>3.798</td>
</tr>
<tr>
<td>6.</td>
<td>Conditions might be poor but there is an opportunity to achieve a lot</td>
<td>5.2</td>
<td>4.064</td>
</tr>
</tbody>
</table>
Experimental Reform in the College Graduates' Employment System

Since 1983, the government has gradually given institutions of higher learning more say in the proposals for job assignment, the graduates' distribution lists, and any readjustments within a year of hiring. In addition, schools have been given the right to decide on or propose the job assignment for about 20 percent of their graduates.

As mentioned above, since 1986, the entire planning procedure and job readjustment have been under the control of the State Education Commission. Thus, the problem of multilayer leadership in this field has been resolved. The distribution plan has also been modified from the original rigid plan that covered every detail, down to the specific specialties that would be assigned graduates. The current distribution plan only specifies the sectors, regions, and levels of schools involved in the job assignment. As already pointed out, about 20 percent of the total graduates are assigned jobs on the basis of the schools' proposals. Thus, schools can now directly negotiate with employers and have a bigger say in job assignment.

Another major change is that employers at different levels now have an opportunity to meet their potential new recruits. Much more information on demand and supply is exchanged between the department under the State Education Commission that is in charge of the job assignment work and the government departments in various provinces and regions and municipalities that are going to accept the college graduates; and the information between schools and employers has doubled. The government departments often set up meetings at which the college graduates supplier and employers can talk to each other directly. For example, in December 1988, the Beijing municipal government organized a forum to provide an opportunity for college graduates in Beijing to meet their potential employers.

Another noticeable change in the employment of college graduates in recent years is that some competition has entered the system. Some employing work units are refusing to consider graduates from more than a small number of colleges. Competition is most evident among graduates from the same school who intend to join the same work unit. The graduates' performance on campus, their grades, and a comprehensive evaluation play a decisive role here. Some schools even allow students who have won the title of Excellent Student for three consecutive years to choose their place and work unit of employment within the job assignment plan.
Although the traditional means of ideological education and political mobilization remain in use, some policy adjustments have been made. For example, if graduates from inland areas have been assigned to work in remote areas, they do not have to change their official residence, and after working in the remote areas for eight years, those who want to return will be transferred to work units in their home town. In addition, graduates who have been assigned to remote areas may be given higher salaries and subsidies and other preferential treatment. Instead of assigning life-time jobs to college graduates, as in the past, the State Council recently announced that after five consecutive years (excluding the first year of probation), such employees will be allowed to move to work units other than the one they were assigned to.

An experiment in combining college graduates' job assignment with school enrollment and education is also under way. Some inland colleges and universities have begun to enroll students from remote areas or designated economic sectors on a trial basis. Upon graduation, these students will return to their original places and work units. This is not quite the same as the she lai she qu system introduced during the Cultural Revolution because students must pass the college entrance examinations before they can be enrolled.

A few schools are even experimenting with paid education by enrolling a small number of self-supported students or students outside the state enrollment plan whose tuition is paid by their employers. The distribution of such students upon their graduation is not included in the state plan and the state itself is experimenting with a paid recruitment system in some pilot schools. Under the paid recruitment system, the employers have to pay an education fee to the school when they recruit its graduates who were enrolled according to the state college enrollment plan.

The long-term goal of the state in reforming the college graduates' job assignment system is to offer more freedom for both the employers and college graduates in seeking employment. The hope is that eventually college graduates will be able to find their own jobs mainly through the labor markets. According to Yu Yinglin, deputy director of the students' department under the State Education Commission, the reforms are gradually moving toward a "double barrel system" under which graduates will have the freedom to choose their occupations and employers will have the freedom to choose competent employees (Guide for College Graduates' Employment 1989:1). In 1988, the State Education Commission announced that the state would no longer assign jobs
for students entering colleges and universities in 1989 and thereafter.

In brief, the goal of reform in this area is to introduce competition, increase students' enthusiasm for their studies, force employers to pay more respect to and make better use of students' talents, and stimulate institutions of higher learning to adapt to the economic and social needs of the country. As yet, however, this goal remains far off, although the state is preparing a transition program. Until the program is introduced, the existing system, with the state in charge of planning job assignments will remain in effect. Under this new program, the state will issue guidelines on the methods of recommending graduates to employers, employing graduates through contracts, and selecting competent graduates for recruitment. The program will be based on a model that "combines mandatory "control" and "decentralization." This model has emerged from experiments conducted at Qinghua University and Shanghai Jiaotong University since 1985.

QINGHUA UNIVERSITY: A PILOT SCHOOL IN THE REFORM. Qinghua University was one of the first schools to experiment with reform in the job assignment system. In 1989, the university began testing "two-way selection" in the graduates' distribution system. Under this system, graduates have the freedom to choose their future employers, schools can recommend graduates to appropriate work units, and employers can recruit the most suitable and competent graduates. But all these activities are to be conducted in accordance with state principles and policies concerning the employment of college graduates. The Qinghua 1989 graduates' distribution system operated on the basis of the following principles:

1. College graduates are to be assigned to jobs that the country needs most, to ensure that the knowledge they acquire can be applied and the best use will be made of their talents in their work.

2. Graduates will be distributed with a view to strengthening the key social and economic sectors, meeting general demands, making appropriate use of graduates, gearing the distribution to grass roots work units, and strengthening the front line of production. Priority will be given to the needs in key projects, economic sectors, and production departments in the country.

3. Graduates will be encouraged to work in remote areas that are suffering from serious shortages of educated people. Spiritual and material rewards will be provided for those who volunteer
to work in remote areas and such graduates will have full freedom in choosing their employers.

4. Priority will be given to the needs in areas where the graduates come from and in key state construction projects located in remote or poor areas, to ensure that graduates flow in the right direction and to control the number of graduates to be assigned to jobs in Beijing, Tianjin, Shanghai, and special economic zones.

5. Graduates who intend to become self-employed, to run their own business, or to work in private companies should declare their plan to the authorities in advance, and they may then be excluded from the graduates distribution plan. However, such graduates must pay back the education fee (at present, 20,000 yuan per student) and the scholarships or state subsidies they have enjoyed. (Before the reform, it was impossible for graduates to find jobs by themselves.)

College graduates who have been included into the distribution plan, but refuse to accept the jobs assigned to them by the state or who have been included in the distribution plan but later are rejected by employers because they make unreasonable demands will have their right to have a state-assigned job revoked and be asked to pay back the scholarships or state subsidies they enjoyed on the campus as well as part of their education fee (at present, 3,000 yuan per person).

The following is an outline of the steps that Qinghua University now uses to assign graduates jobs under the above-mentioned principles:

1. July-November: Collect information on the demand for and supply of graduates and survey graduates concerning their wants.

2. December-January: Publicize the information about demand and supply and let graduates report their intentions and choices.

3. February-March: Conduct the two-way selection through negotiations leading toward employment contracts and written recommendations.

4. April: Work out the preliminary plan for distributing graduates.

5. May: Hold the national graduates distribution conference to introduce balance in the overall plan.

7. July: Dispatch graduates to their assigned jobs.

8. July-August: Graduates report to their new work units.

Under step 1, Qinghua University examines evidence of state need to determine the demand for different kinds of graduates. Although the state does not impose any mandatory plans on this university, Qinghua has decided to incorporate the state distribution principle in its own plan. However, the information about the state’s need for college graduates is no longer indirectly channeled through government departments (such as the State Planning Commission, the Ministry of Personnel, and the State Education Commission). Instead, it comes directly from the employers. Before August every year, the school sends letters to various ministries, commissions, provinces, regions, and municipalities and some employers (such as key state institutions and enterprises) to inform them about the number and specialties of its graduates that year and to ask them to notify the school of their needs by October. Meanwhile, the school asks students to directly investigate the demand for college graduates in society during their winter vacation or field trips, according to the school directives. Then the students are to report the information they have collected to the school and the resulting information is to be shared by all.

Under step 2, the school then makes public the work units that need college graduates and the state’s key institutions and enterprises whose needs must be met (including key work units that have set fixed scholarships at Qinghua University), and let graduates make their choices. Each graduate can have three choices and declares his/her choices on a graduate intention form. However, in making their choices, the graduates must follow certain guidelines. For example, they must give priority to the needs in areas where the graduates have come from and in key state institutions and enterprises located in remote or poor areas. In principle, graduates who come from remote areas and whose specialties are needed there shall all return to these areas. (Some control will be exercised over the number entering Beijing, Tianjin, Shanghai and special economic zones.)

In step 3, the school uses the graduates’ choices to select some state key institutions and enterprises as well as some work units to send candidates to. The school will make certain recommendations to enable both graduates and employers to have an opportunity to select each other through face-to-face talks. And within the scope
allowed by state policies, the school also sets forth the necessary conditions for public and fair competition. Every March, the school holds large-scale job-seeking fairs on the campus to provide graduates an opportunity to meet with their potential employers.

For various reasons, the school cannot invite all work units that graduates have expressed an interest in to come to the school to recruit graduates. For graduates who do not have an opportunity to meet their potential employers, the school will send letters of recommendation to the work units concerned or will let graduates visit their potential employers by themselves. The recommendation letter includes the school’s assessment of the graduates’ academic performance, behavior, and status of health. If the employer is willing to accept the recommended graduate, it only needs to send back an acknowledgement. Graduates are also allowed to “sell themselves” to employers during their vacations and are allowed to take with them the school’s letter of recommendation. If the deal between the graduates and their potential employers is sealed, the graduates need only to leave the letters of recommendation with the work units and bring the acknowledgment back to the school.

Here is an example of how the system works. Ma Shuijian and Fang Jinu were two graduates from the Civil Engineering Department of Qinghua University. Before their graduation, they went to see the officers of the No. 4 Company under the No. 1 Bureau of China Construction Corporation, bringing with them the school’s letters of recommendation. Both Ma and Fang were quite confident of their capability in social activities and management. They liked practical work and believed that they would be better suited to managing construction sites than doing research, teaching, or designing. Moreover, they thought that construction management called for plenty of initiative, which was just what they wanted to display. Through two friends, they had learned that the company had a high reputation. It had undertaken many state key projects, boasted excellent working conditions, offered generous pay, attached great importance to promoting young engineers and technicians, and provided great opportunities for advancement. Moreover, the company had announced that it would only recruit graduates from Qinghua University. Encouraged by such messages, the two students went to the personnel department of the company.

First, they asked a number of questions about the company to obtain a better understanding of the firm. They then told the officer of their desire to work there and discussed their goals, personal backgrounds, and special skills. In the discussion, they emphasized two points: (1) that they wished to work with the company and to
devote their talents to its development, and that in pursuing their career, they were willing to withstand any hardship or work under any poor conditions; and (2) they had long been in student cadres on the campus and won the title of Excellent Student for several consecutive years, so in comparison with other students, they had more all-round capabilities. Because of their intelligence, eloquence, and strong recommendation of the school, they "sold themselves" to the company.

Most graduates can find jobs through this "double-selection" scheme. For the few graduates who cannot find a job within a certain period of time, the school will make certain recommendations and then assign them to selected work units in an unified way to make up the distribution plan for that year's graduates.

During step 4, the school uses the results of the double-selection and its unified assignment to work out the primary distribution plan and prepares to participate in the national conference held to adjust the distribution of graduates.

During step 5, the school's primary distribution plan is discussed, readjusted, revised, and balanced with other plans at the national conference. In most cases, only small alterations are made to the original plans.

During step 6, the revised and balanced plans are submitted to the State Education Commission for examination and approval and then become final graduates' distribution plans.

In the final two steps, graduates are dispatched and report to their new work units. This brings to a close the procedure for assigning jobs to college graduates.

In 1989, the Qinghua University system was introduced in 36 institutions of higher learning directly under the administration of the State Education Commission, as well as in some colleges and universities under the administration of ministries and commissions under the State Council.

**EMPLOYMENT OF GRADUATES FROM COLLEGES RUN BY NONGOVERNMENTAL ORGANIZATIONS.** At the same time that China began to diversify its economy, it allowed some nongovernmental institutions of higher learning to become established. The Beijing Haidian Day College and the short-term Joint University run by the Tao Xingzhi Study Society in Jiangsu Province mentioned above both belong to this category. Such schools enroll self-supported students and upon their graduation, their distribution is not under the control of the plan of
The Assignment of Jobs to College Graduates

Some state universities have also begun to enroll a number of self-supported students and they, too, will find their own jobs upon graduation. Moreover, some schools have introduced paid recruitment of college graduates supported by the state. This means that schools can charge the employers of their graduates a certain education fee. In some cases, a few state-supported college graduates have begun to be assigned to collectively run enterprises and township enterprises. However, all these cases are still of limited scope and in the early stages of experiment.

Whereas the job assignment system before the reform emphasized subordinating graduates to the needs of the state, today the distribution endeavors to serve the interests of the state, employers, and graduates by stressing coordination and balance between the state’s needs and personal goals. However, it must be pointed out that this is still a planned system—although it has more flexibility than before, employers and graduates have gained only a little more freedom in choosing each other.

The Initial Impact of the Reform

Although the reform in the job assignment system for college graduates is still in its initial stages, it has already had widespread repercussions.

First, many people find it difficult to accept the idea of not having the state guarantee jobs for college graduates, especially those who are now used to having the state take care of their lifetime employment (including risks and the freedom that might be attached). Since the new system will not ensure an “iron rice bowl” for every college graduate, those pessimistic middle-school students and their parents are no longer keen about a college education. Some college students are even beginning to feel lost. The days when young people felt they would become lucky dogs with an ensured life-time employment once they entered the gates of college have now gone forever. This has been a great shock for most Chinese college students. Although some students may inevitably become disheartened by it, others may find a new motivation for studying hard and may try to adapt themselves to the new social pressures. So far, the results are not yet clear.

All relevant parties welcome the opportunities for employers and college graduates to meet face-to-face. Graduates believe that through such talks they may have more room for selection and avoid blindly seeking a job, while employers use these opportunities to gain a better understanding of their prospective employees as
well as the situation within the schools. For instance, the Tianjin Seamless Tubing Mill recruited two competent graduates majoring in nuclear materials from Qinghua University during the employment talks. An officer from the mill said: “Our factory is a new state key enterprise featuring technology-intensive production. If we were asked to submit a recruitment plan, we probably would never think of including students majoring in nuclear materials. But through direct talks and the double-selection system, we have discovered that students in this field have knowledge needed by our factory. And we believe these two students will play a positive role in our factory’s development.”

The reform in the graduates’ distribution system has increased both the responsibilities and the decision-making power of the schools. It has also stipulated that schools must strengthen their relations with society and adapt themselves to the needs of the country’s socialist structure. While investigating the demand for and supply of college graduates, schools have also learned about the specific demands of the country with regard to the numbers and specialties needed to support economic development. This information will help them adjust their student enrollment and curricula accordingly. For example, through investigations, the Applied Mathematics Department of Qinghua University has learned that large-scale iron and steel complexes in the country need people with specialties in areas such as probability statistics, operational research, and numerical mathematics, and so it has expanded its courses in these areas to better equip its students for jobs in such complexes. In recent years, the department has sent a number of its graduates to the Shanghai Boashan Iron and Steel Complex, the Tangshan Iron and Steel Company, and the Panzhihua Iron and Steel Complex. In addition, Qinghua University has rearranged its curricula and disciplines to meet the demands of economic and social development.

Although many people are still not sure what the current reform in the college graduates’ job assignment system means to them or still do not know how to cope with it (some students say that although they now have more choices than before, they don’t know how to make the choices), nearly everyone approves of the direction of the reform. They are glad to see more emphasis on “providing opportunities for direct talks between the supply side and the demand side, creating conditions for fair competition, and ensuring the freedom of two-way selection.” Many students are even calling for more rapid and more drastic reforms.
Problems in the Reform

At the same time, the reform is running into some new and old problems that are of concern to many people.

The first problem lies in the flow of talent. Although some measures have been taken to address the question of whether the work unit or government department should claim ownership of the graduates' talents, it has not been resolved and one's life-time employment is still decided on the basis of the job assignment system. So, the job assigned upon one's graduation from a college is crucial to an individual's career. If an opportunity is allowed to slip by, another similar chance may never again present itself. As a result, the distribution system has, to a certain degree, deterred graduates from seeking jobs in grass roots work units or in areas with poor working conditions.

The question of fair competition has also become salient since the competition mechanism was introduced into the distribution system. This is what college students complain about most as many of them see various kinds of unfairness in the competition for employment at present.

For example, according to state policy, economic development must be balanced in various areas around the country and development must be assisted in less developed regions. As a result, students who come from remote areas will, in principle, be required to return to those areas upon their graduation, while students from big cities or relatively developed areas will naturally be assigned to work in such areas regardless of their academic performance and moral character. This, in fact, is a kind of regional discrimination which strips students from remote areas of the opportunity to work in areas with relatively better conditions. Thus, the imbalance in regional economic development appears to be at the root of this unfairness. Students from remote areas are unhappy with this policy.

Sex discrimination is another example of the unfairness that college graduates see in the employment system now that work units have greater freedom in recruiting college graduates. Some female college graduates and postgraduates are facing greater difficulties than their male counterparts since some work units prefer to employ male college graduates, even if their qualifications are not as satisfactory as those of their female counterparts.

Nepotism is another type of unfairness in the competition. Many work units are willing to recruit college graduates who have some connections with them. This phenomenon is rooted in social
corruption. Although the government, the schools, and some work units have made an effort to eliminate this practice, it remains far from being eliminated. Students who are related in any way to their employers (either directly as family members or as relatives of staff members of the work units) enjoy natural advantages in employment. Some people have even excused the practice by arguing that work units can reduce recruitment risks by employing such students since school recommendations and the graduates' self-recommendation are mere formalities and untrustworthy. Moreover, they argue that if the work units do not take care of the employment problems of the family members of their staff (particularly their children), who will? This notion derives in part from the practice several years ago of allowing children to take over the jobs of their retiring parents. To recruit the children of staff members was regarded as a type of welfare service offered by the work units. And more often than not, such recruitment also involved deals between the staff concerned and their employers. These deals would bring some benefits to the work units (and sometimes only to some individual officers).

Yet another problem is how to coordinate the reforms in the job assignment system and the reform being launched in the country's economic and political system. If the reform of enterprises and institutions is postponed and their internal motivation of cherishing and making good use of talents is inadequate, the present reform in the graduates' distribution system will put the graduates at a disadvantage as they may have to deal with new problems and yet not be able to do much about resolving the old ones. Recently, some institutions and enterprises have begun trying to improve their labor organization, and their demands for college graduates have been reduced. This phenomenon is not rational in a country that has a serious shortage of specialized talent.

The lack of attention to coordinating reforms can also be seen in the state's announcement that it will not take care of the employment of college students who entered college in 1989 and after. The question is, will the reform in the country's new personnel system and the talent markets be completed soon enough to handle this change? And can changes in the labor and legal environment; in other political, economic, and cultural concepts; and in the social psychology keep pace with the reforms?

The curtain has just been raised and the overture has just begun for reforms in China, and it still too soon to tell how the performance will turn out.
Questions for Discussion

1. Suppose you were a graduate, a college president, a government official, or the head of an employer work unit. What would be the most important factors to consider in assigning jobs to college graduates today in comparison with the period from 1977 to 1984? What principles would you follow?

2. How are the state interests reflected in the process of assigning jobs to college graduates? What are the actual results?

3. How do the personal demands of graduates relate to the needs of the state in matters concerning employment? Are there any options in coordinating these demands?

4. What has been the impact of reform on the employment system for college graduates? What are the causes, goals, and direct measures of the reform? How should they be evaluated?
Table 4.1 Supply and Demand of Graduates from Zhonghua College of Science and Engineering

<table>
<thead>
<tr>
<th>Major</th>
<th>Graduates</th>
<th>Number needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>48</td>
<td>164</td>
</tr>
<tr>
<td>Architectural engineering</td>
<td>48</td>
<td>127</td>
</tr>
<tr>
<td>Casting, forging, and pressing</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>Technique and equipment</td>
<td>17</td>
<td>38</td>
</tr>
<tr>
<td>Machinery design and building</td>
<td>46</td>
<td>163</td>
</tr>
<tr>
<td>Optical instruments</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Precision instruments</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Heat energy engineering</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>Automobile engineering</td>
<td>28</td>
<td>65</td>
</tr>
<tr>
<td>System and automation</td>
<td>29</td>
<td>46</td>
</tr>
<tr>
<td>Electric engineering and control</td>
<td>13</td>
<td>44</td>
</tr>
<tr>
<td>Semiconductor components and physics</td>
<td>29</td>
<td>10</td>
</tr>
<tr>
<td>Electronic physics and laser</td>
<td>28</td>
<td>9</td>
</tr>
<tr>
<td>Electronic computer</td>
<td>43</td>
<td>64</td>
</tr>
<tr>
<td>Industrial instruments automation</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>Modern physics and electronics</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Engineering thermal physics</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Solid-state mechanics</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Liquid-state mechanics</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Chemical engineering</td>
<td>30</td>
<td>26</td>
</tr>
<tr>
<td>Materials science</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Inorganic and nonmetal materials</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Metal materials</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Modern physics</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>Applied physics</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Physicochemistry and instruments analysis</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>English language</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>Computer programming system</td>
<td>30</td>
<td>46</td>
</tr>
</tbody>
</table>
Table 4.2 Statistics on Supply and Demand for Regular College Graduates in China in Recent Years
(Unit: 10,000 persons)

<table>
<thead>
<tr>
<th>Year</th>
<th>Graduates</th>
<th>Demand</th>
<th>Postgraduates</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>27.7</td>
<td>74.0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>1986</td>
<td>30.8</td>
<td>75.0</td>
<td>1.12</td>
<td>2.0</td>
</tr>
<tr>
<td>1987</td>
<td>37.4</td>
<td>47.3</td>
<td>2.5</td>
<td>4.0</td>
</tr>
<tr>
<td>1988</td>
<td>45.8</td>
<td>70.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Note: The demand in the table does not include that of township enterprises.

Table 4.3 Proportion of People Who Have Had a College Education in Selected Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Percentage of total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1982</td>
<td>0.6&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>United States</td>
<td>1980</td>
<td>31.9</td>
</tr>
<tr>
<td>Japan</td>
<td>1980</td>
<td>14.3</td>
</tr>
<tr>
<td>Germany, Federal Republic</td>
<td>1970</td>
<td>4.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1976</td>
<td>11.0&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Soviet Union</td>
<td>1979</td>
<td>8.3&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>German Democratic Republic</td>
<td>1981</td>
<td>17.3</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>1980</td>
<td>6.0</td>
</tr>
<tr>
<td>Hungary</td>
<td>1980</td>
<td>7.0</td>
</tr>
<tr>
<td>Poland</td>
<td>1978</td>
<td>5.7</td>
</tr>
<tr>
<td>India</td>
<td>1981</td>
<td>2.5</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1980</td>
<td>0.8</td>
</tr>
<tr>
<td>The Philippines</td>
<td>1980</td>
<td>15.2</td>
</tr>
<tr>
<td>Thailand</td>
<td>1980</td>
<td>2.9</td>
</tr>
<tr>
<td>Singapore</td>
<td>1980</td>
<td>3.4</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1981</td>
<td>1.9</td>
</tr>
<tr>
<td>Burma</td>
<td>1973</td>
<td>0.2</td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td>1980</td>
<td>8.9</td>
</tr>
<tr>
<td>Egypt</td>
<td>1976</td>
<td>3.4</td>
</tr>
<tr>
<td>Mexico</td>
<td>1980</td>
<td>4.9</td>
</tr>
<tr>
<td>Brazil</td>
<td>1980</td>
<td>5.0</td>
</tr>
<tr>
<td>Argentina</td>
<td>1980</td>
<td>6.1</td>
</tr>
</tbody>
</table>

a. Of the total population.

b. Of the population between the ages of 25 and 69.

c. Of the population aged 10 and older.

All other percentages in the table are based on a population of the age 25 and older.

Table 4.4 Numbers of College Teachers and Students in Selected Countries
(Unit: 10,000)

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1986</td>
<td>37.2</td>
<td>188.0</td>
</tr>
<tr>
<td>United States</td>
<td>1985</td>
<td>69.4</td>
<td>1,224.7</td>
</tr>
<tr>
<td>Japan</td>
<td>1984</td>
<td>23.8</td>
<td>240.3</td>
</tr>
<tr>
<td>Germany, Federal Republic</td>
<td>1984</td>
<td>18.2</td>
<td>151.9</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1984</td>
<td>8.0</td>
<td>100.7</td>
</tr>
<tr>
<td>Soviet Union</td>
<td>1985</td>
<td>37.7</td>
<td>514.7</td>
</tr>
<tr>
<td>German Democratic Republic</td>
<td>1984</td>
<td>4.2</td>
<td>43.3</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>1985</td>
<td>2.4</td>
<td>16.9</td>
</tr>
<tr>
<td>Hungary</td>
<td>1985</td>
<td>1.5</td>
<td>9.9</td>
</tr>
<tr>
<td>India</td>
<td>1979</td>
<td>27.7</td>
<td>534.6</td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td>1986</td>
<td>3.6</td>
<td>151.5</td>
</tr>
<tr>
<td>Brazil</td>
<td>1983</td>
<td>12.3</td>
<td>147.9</td>
</tr>
<tr>
<td>Egypt</td>
<td>1983</td>
<td>3.3</td>
<td>87.9</td>
</tr>
</tbody>
</table>

Table 4.5 Number of People in Scientific and Technological Careers in Some Selected Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Scientists and engineers&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1986</td>
<td>8,253,100&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>United States</td>
<td>1982</td>
<td>3,431,800&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Japan</td>
<td>1982</td>
<td>7,046,000</td>
</tr>
<tr>
<td>Germany, Federal Republic</td>
<td>1980</td>
<td>2,278,000</td>
</tr>
<tr>
<td>Soviet Union</td>
<td>1985</td>
<td>14,485,000</td>
</tr>
<tr>
<td>India</td>
<td>1977</td>
<td>697,600</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1973</td>
<td>100,500</td>
</tr>
<tr>
<td>Egypt</td>
<td>1976</td>
<td>492,470</td>
</tr>
<tr>
<td>Brazil</td>
<td>1980</td>
<td>1,362,206</td>
</tr>
</tbody>
</table>

<sup>a</sup> Scientists and engineers here refer to people who have received a college education, scientific and technological training and have reached the standards of specialties in the fields of natural science or industrial, agricultural, medical, or social sciences.

<sup>b</sup> Scientific and technological personnel in the field of natural science and employed by state-run work units.

<sup>c</sup> The figure does not include scientists in the fields of law, liberal arts, or education.

Table 4.6 Numbers of College and Secondary Technical School Graduates before and since Liberation
(Unit: 10,000)

<table>
<thead>
<tr>
<th>Year</th>
<th>College</th>
<th>Secondary technical school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1912-47</td>
<td>19.5</td>
<td>13.2</td>
</tr>
<tr>
<td>Since:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1949-57</td>
<td>36.8</td>
<td>111.4</td>
</tr>
<tr>
<td>1958-66</td>
<td>134.4</td>
<td>196.4</td>
</tr>
<tr>
<td>1967-77</td>
<td>108.7</td>
<td>189.7</td>
</tr>
<tr>
<td>1978-83</td>
<td>132.8</td>
<td>224.9</td>
</tr>
<tr>
<td>Total</td>
<td>415.1</td>
<td>722.4</td>
</tr>
</tbody>
</table>

A discussion was being held in the conference room on the reform of state-owned enterprises in China. More than 20 participants were present, including leaders from the State System Reform Commission and the Ministry of Finance, experts from China's Academy of Social Science and Institute of Economic Management, and professors on economic management from various institutes of higher learning, such as Qinghua University, Beijing University, and the Chinese People's University.

The deputy director of the State System Reform Commission, Mr. Zhang, was presiding over the meeting. As he looked around the conference room, he felt pleased to see that the participants were taking a great interest in today's discussion. At nine o'clock sharp, he declared the discussion open:

"Today's discussion is devoted mainly to the development of China's contract responsibility system and its related problems. Distinguished experts, scholars, and professors are encouraged to express their views. Now, I would like to ask Mr. Guo, Division Chief of the State System Reform Commission, to explain the origin of the contract responsibility system."

Mr. Guo began: "The contract responsibility system (CRS) introduced as part of the recent economic reform in China was not created by any talented economic theorists, but evolved from our
people's experience with socialist construction. From its birth, however, the CRS has run into various difficulties, and has followed a winding road. Nonetheless, it has broken down the barriers of some rigid economic models and has now taken root in China."

The following paragraphs summarize Mr. Guo's subsequent remarks.

Mr. Guo

Because the CRS was introduced in China's industrial enterprises after the household responsibility system in the countryside, it might be instructive to briefly review the evolution of the CRS in the countryside before exploring the CRS in urban enterprises.

As early as 1956, the household production contract appeared in areas of Wuhu in Anhui Province, Jianjing in Sichuan Province, and Wenzhou in Zhejiang. The purpose of the responsibility system was to eliminate idleness and waste and to increase labor productivity. In 1956, an agricultural leader pointed out in a meeting of the Central Party Committee that the responsibility system was needed in other sectors as well, including industry and finance, where it could be used to encourage fulfillment of production targets with bonuses and to penalize shortfalls. But at the time such ideas were regarded as a violation of the principles of socialism and therefore were rejected. Many who had voiced support for the household production system were denounced. In 1964, 85 percent of the production brigades in Anhui Province worked under the responsibility fields system to raise the level of output and help the province recover from three years of natural disasters. This system assigned responsibility to each person, contracted land to each household, and rewarded or punished it according to the output it produced. It provided the impetus needed to restore production to normal and to tide the region over its economic difficulties. Many peasants called their plots "life-saving" fields. But after only one year this system returned to the normal pattern. That was not all. The leaders who had voted for it were denounced for encouraging peasants to go it alone.

Then, in 1978, a great drought struck Anhui Province. After a visit to the farmlands, the provincial leaders, headed by Wan Li, concluded that where there was land that could not be worked by the collective it would be better to lease it to individual peasants rather than to let it lie idle. This experiment proved successful as the peasants were able to combat the drought in the following years. This experience in land-leasing led the Shannan People's Commune of Feixi County, Anhui Province, to launch the
household contract responsibility system in the so-called forbidden areas. As a result, wheat production in the entire district jumped to 20.1 million jin, which was triple the all-time record high of 5.75 million jin.

Even so, the agricultural responsibility system continued to be suppressed relentlessly. Many peasants, Party members, and cadres were adversely affected by the negative campaign, and the system suffered many setbacks. All the same, it quickly spread around the country because it responded to people's aspirations and promoted economic development. From 1979 on, the household responsibility system was widely practiced in China's countryside. Within a few years, China, which had previously been an importer of grain, cotton, oil, and tobacco leaf, was able to export soybeans, corn, and tobacco leaf. As its agricultural imports declined and its exports increased, the foreign currency reserve rose to U.S.$12.4 billion in 1982. This achievement in the Chinese countryside drew worldwide attention.

The success of China's household responsibility system in the countryside offered encouragement to China's urban industries, which for more than three decades had been under a highly centralized form of management. At the beginning of 1981, various enterprises began to try out an economic responsibility system called "contract with reward," which was meant to revitalize enterprises by means of contracts that made them responsible for their profits or losses. However, without a concomitant reform of the overall mechanisms of enterprise management, the new system could not go very far, and the economy seemed headed in the direction of growing investments and consumption but declining government income. In order to restrict consumption, accumulate government revenue, and equalize the profit sharing among different industries, the government began to switch from charging profits to levying taxes in June 1983. This conversion was completed by October 1984, except in a few enterprises (such as the Capital Steel Works and the Second Automobile Works), which continued to operate under the contract management system.

The strategy was to stimulate the interest of enterprises by expanding their independent management power. Then, the State Council, the State Economic Commission, and the State System Reform Commission issued a series of documents expanding further the independent power of state industrial enterprises and the general reform of the industrial sector. Those measures had a great impact—they weaned industries away from the old mode of management, provided incentives for employees, and improved
economic efficiency. The old financial practice of keeping a unified income-expenditure account was abandoned. Some of the funds are retained by enterprises, which are free to dispose of them as they see fit. The proportion of centrally planned operations has been cut down and enterprise autonomy increased in the areas of production planning and product sales. These actions have transformed many enterprises from production units into business entities.

The leadership structure of enterprises was also reformed, with factory directors installed as the legal head of their operations. Directors of managers were given a central role in management as they were made responsible for various aspects of their enterprise activities. The reform measures also adjusted the wage structure and promoted interenterprise cooperation. But in state-owned enterprises, the key issue remains the separation of the right of ownership from management. There is still a long way to go before enterprises can become truly independent business entities that are responsible for their profit and losses and are capable of self-development and improvement. At least two large obstacles must be overcome before industries can make any headway in this regard.

First, many enterprises have not yet acquired autonomy in management. According to a 1987 study of autonomy expansion in 27 large and middle-size enterprises in one city in China, management autonomy has been achieved in only 50 to 60 percent of all enterprises (for details, see Appendix 1).

An investigation of economic reform in the provinces of Heilongjiang, Liaoning, Sichuan, and Hubei revealed that six factors were responsible for preventing management in enterprises from becoming autonomous: (1) the lack of flexibility in selecting sources of materials within the enterprise; (2) the inability to set prices for the products sold by enterprises themselves; (3) the inability of personnel management to recruit employees openly, to take on those best suited to the firm’s needs, and to fire the nonperformers; (4) the lack of power to change organizational structures; (5) the inability to get control and adjust the wage structure; and (6) the lack of discretion in financial decisions.

Second, taxes on enterprises are too high, while profit retention is too low. Consequently factories have no means of supporting renovation. Compared with the Soviet Union or any Eastern European country, China is burdened with an enormous population and with a very poor economic foundation to support them. The standard of living is low. Therefore, China must spend more time
and energy than other countries in raising the standard of living. Nevertheless, its first priority at the outset was to surpass the western countries and thus to develop a strong military and a heavy industry. That policy prevailed for many years. The state managed to accumulate funds through its monetary and financial policies. In the 30 years since Liberation, China’s financial policies underwent eight major changes and distribution relations between the state and enterprises was revised six times. All the while, the state continued to take away almost 100 percent of the profit of enterprises through a profit remittance and taxes. To keep the national economy developing at a high speed, the state emphasized “production first and living second,” thereby suppressing demand and consumption. That policy did little to improve the standard of living and almost snuffed out people’s enthusiasm for production.

In 1983, China set out to change the so-called big pot economic system, switching from profit collection to taxes to finance government expenditures, but the forces of inertia prevented it from balancing accumulation and consumption, making money and spending money. After a profit was made by an enterprise, 50 percent of it would be surrendered to the government in the form of a product tax, value-added tax, and business tax. Enterprises also pay other taxes in the categories of real estate, transportation, land, city construction, and additional education. After that, 55 percent of the realized profit of the enterprise is to be submitted as income tax, or an adjustment tax (which is based on 1983 profits and calculated by reverse accounting). Finally, the enterprise must retain 15 percent from any remaining profit and hand it over to the state for an energy and transportation fund. Anything left is claimed by the Finance and Budget Department and other relevant government bodies through bonds of various kinds—construction bonds, financial bonds, and power development bonds. After the enterprise’s profits have been squeezed several times, there is very little left for themselves, no matter how masterful the management teams have been or how quickly they have increased their profits (see Table 5.1).

As Table 5.1 shows, although enterprises now keep a larger share of the profits for their own use by paying taxes instead of turning over the profit to the state, this amounts to only about 16 percent of the entire realized profit. According to the Almanac of China’s Statistics 1987, when the large and medium-size enterprises under the direct leadership of the central government are also taken into account, the portion of the profit kept by the enterprises for their own use is only 14.5 percent of the total. If transferred funds are
Table 5.1 Budgetary Profits Retained by State-Owned Industrial Enterprises in Hunan Province
(units: 10,000 yuan)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>124,306.8</td>
<td>129,389.0</td>
<td>100,400.0</td>
<td>72,693.0</td>
<td>85,028.3</td>
<td>111,209.0</td>
<td>12,210.0</td>
</tr>
<tr>
<td>Tax</td>
<td>102,923.8</td>
<td>116,707.1</td>
<td>120,083.7</td>
<td>113,495.5</td>
<td>120,242.0</td>
<td>84,279.0</td>
<td>8,894.0</td>
</tr>
<tr>
<td>Realized profit</td>
<td>227,229.0</td>
<td>246,096.1</td>
<td>220,523.7</td>
<td>186,188.5</td>
<td>205,271.0</td>
<td>195,488.0</td>
<td>21,104.0</td>
</tr>
<tr>
<td>Nominal amount</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>retained</td>
<td>10,264.0</td>
<td>10,490.4</td>
<td>25,245.2</td>
<td>27,204.0</td>
<td>30,635.8</td>
<td>43,847.0</td>
<td>4,686.0</td>
</tr>
<tr>
<td>Actual amount</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>retained</td>
<td>12,767.9</td>
<td>15,325.5</td>
<td>19,002.8</td>
<td>25,768.1</td>
<td>20,815.5</td>
<td>28,731.0</td>
<td>3,339.0</td>
</tr>
<tr>
<td>Percentage actually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>retained</td>
<td>5.6</td>
<td>6.2</td>
<td>8.6</td>
<td>13.8</td>
<td>10.1</td>
<td>14.7</td>
<td>15.8</td>
</tr>
</tbody>
</table>

Note: Realized profit is derived by adding profit and tax. The percentage actually retained is derived by dividing the actual amount retained by the realized profit.
also included, then the enterprises keep only 12.4 percent for themselves. This is considerably less than the share of the profits kept by enterprises in the U.S.S.R. and East European countries (Table 5.2).

Table 5.2 Share of Profit Retained by U.S.S.R., East European, and Chinese Enterprises

<table>
<thead>
<tr>
<th>Country</th>
<th>Proportion retained (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yugoslavia</td>
<td>60</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>30-37</td>
</tr>
<tr>
<td>Hungary</td>
<td>30-3</td>
</tr>
<tr>
<td>Romania</td>
<td>20</td>
</tr>
<tr>
<td>U.S.S.R.</td>
<td>17</td>
</tr>
<tr>
<td>China</td>
<td>14.5</td>
</tr>
</tbody>
</table>

The gap is even wider between China and the capitalist countries. The income tax rate for enterprises in France is 47 percent; Japan, 43.3 percent; Italy, 36 percent, the United Kingdom, 35 percent; the United States, 34 percent; Switzerland, 32 percent; and Hong Kong, 18.7 percent. These rates equal roughly one-third of the enterprises’ net income. After paying interest and dividends, the enterprises have about 50 percent of the profit left for use in expanding production. China’s income tax rate is 55 percent, and enterprises nominally keep only 19.5 percent of the profits for themselves. Of this sum, little can actually be used for expanding production. A survey of nine enterprises, including a textile mill, provides an idea of how some enterprises used their retained profit in 1986 (see Table 5.3).

According to the figures in Table 5.3, about 40 percent of the retained profit of the enterprises is spent on production. In the end, the net value of fixed assets and returns on investment declines, but investment fails to switch from the government to enterprises.
In the traditional planned economy, the state is the main investor. It has a huge fund at its disposal and also great decision-making power over investments. The state invests not only to construct important projects such as public facilities, but also to control the expansion of production for enterprises and their technological innovations. At times, however, the state exceeds its functions and calls for poor investments. The macroeconomic structure makes such investment possible, and thereby gives rise to imbalances in the nation’s economy. Moreover, the returns on investment are depressingly low, but the government departments that are to blame for this state of affairs do not bear any of the economic responsibility for the actual returns. Since they are unable to accumulate funds or to participate in the decision-making process, enterprises are also indifferent to the returns on investments. The value of output in relation to fixed assets in selected years can be used to gain an idea of the productivity of capital and how this fell sharply between 1957 and 1980 (Table 5.4).

Table 5.3 Use of Retained Profits in Nine State Enterprises

<table>
<thead>
<tr>
<th>Percentages</th>
<th>Amount (10,000 yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total profit retained</td>
<td>100.0</td>
</tr>
<tr>
<td>Funds for production and development</td>
<td>35.2</td>
</tr>
<tr>
<td>Staff welfare funds</td>
<td>23.6</td>
</tr>
<tr>
<td>Staff bonus funds</td>
<td>10.6</td>
</tr>
<tr>
<td>Additional circulating funds</td>
<td>3.9</td>
</tr>
<tr>
<td>Subsidies</td>
<td>4.7</td>
</tr>
<tr>
<td>Transfer funds turned in</td>
<td>13.2</td>
</tr>
<tr>
<td>Other</td>
<td>8.9</td>
</tr>
</tbody>
</table>
Table 5.4  Output per Unit of Fixed Assets in China’s Industrial Enterprises, Selected Years

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial output per yuan of fixed assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>2.88</td>
</tr>
<tr>
<td>1970</td>
<td>1.78</td>
</tr>
<tr>
<td>1975</td>
<td>1.4</td>
</tr>
<tr>
<td>1980</td>
<td>1.2</td>
</tr>
<tr>
<td>1983</td>
<td>1.37</td>
</tr>
</tbody>
</table>

Another problem with the traditional planned economy is that it emphasizes the derivative expansion of production, as can be seen in the degree of aging of the equipment in China’s enterprises. The degree of aging can be expressed by the net value ratio of fixed assets (ratio of the net value of fixed assets to their original value). The net ratio of fixed machinery assets for the period of the Sixth Five-Year Plan—with the exception of instruments and the meter industry, which show a slight increase—is declining (see Appendix 2). The net value ratio of fixed assets of state-owned enterprises as a whole is also declining, from 77.8 percent in 1961 to 69.6 percent in 1978 and to 66.2 percent in 1985 (these figures include assets of enterprises formed by capital construction). The net value of the fixed assets of quite a number of old enterprises is now less than half the original amount, which clearly suggests that some faults exist in China’s investment policy.

When China began restructuring its economy, it introduced a system of granting loans instead of allocating funds, in the hope of eliminating the various problems created by centralized investment. But enterprises have no means of accumulating funds, and it is not easy for them to pay off their loans on time. Thus, only 12 percent of the loans are usually collected. To remedy the situation, the Ministry of Finance decided to let enterprises pay back loans before paying taxes. In effect, the ministry is sharing 55 percent of the money for paying back loans. Thus, the banks are responsible for lending and the Ministry of Finance is answerable for repaying the debt—which is nothing more than a disguised form of eating rice
from one same bowl. To the enterprises, both allocations and loans are state funds. Why not take them? The more loans an enterprise asks for, the more it benefits. When the scale of investment exceeds the actual accumulation, the state resorts to an overdraft by the bank, issuing more money. Therefore, the scale of China's investment is seldom subject to the constraint of actual accumulative capabilities. (For a comparison of investment in fixed assets of China's state-owned enterprises and national income, see Appendix 3). During the sixth Five-Year Plan Period, China's fixed assets increased by a greater margin than the total social output and national income.

The discussion was now opened to other participants.

Mr. Li (leader of the Economic Committee of Jiangsu Province)

Enterprises that have a contract system thrive and prosper, doing better and better. For example, the Nanjing Chemical Industrial Corporation of Jiangsu Province is an old enterprise, over 50 years old. Before adopting the contract system, the original value of fixed assets was 493 million yuan, the ratio of net value to original value was 40 percent, of which the net value rate of the Nitrogenous Fertilizer Factory was a mere 15 percent. From 1982 to 1985, the corporation assigned a profit quota to individuals. As a result, the total industrial output increased by 13.47 percent over the level of 1981, the year before the contract system was adopted, and profits increased by 59.03 percent, while the tax payment increased by 17.76 million yuan. Over these four years, it accumulated 120 million yuan for its own use.

The Lianyuan Steel Works in Hunan Province, built in 1958, is another case in point. In the 21 years up to 1979, instead of turning any profit over to the State, the Steel Works received 81 million yuan in subsidies to cover its losses. From 1980 onward, however, it began a contract system of progressively increasing its profit remittance to the state. From then on, its profit and tax remittance increased at an average rate of 31.93 percent a year. In the 7 ensuing years, 321 million yuan were turned over to the state as profit and taxes, a yearly average increase of 12.98 percent. These two examples show that the contract system, whether in the form of a quota or a progressive increase of profit, is sure to bring a new look to enterprises set up before and immediately after Liberation, which have long operated with outmoded equipment and technologies, have been poorly managed, and have continually racked up huge losses.
Mr. Guo

Many others in China would now agree that the contract responsibility system is an effective way of revitalizing large- and medium-size enterprises, although it has met with a great deal of opposition as well. But most enterprise managers would agree with the director of the Fushun Steel Works: “The reasons for the rejuvenation of the Fushun Steel Works, in my view, boil down to one—the contract system.”

In April 1987, China’s Economic Commission convened a forum on the national contract responsibility system. The forum summarized the experience of enterprises practising CRS over the years since the provinces had been asked to test it. CRS was gathering steam across the country. Preliminary data indicated that at that time, about 37 percent of the nation’s large- and medium-size enterprises had implemented CRS. By December 1987 this proportion was 80 percent, and 100 percent in Shanghai. There are several reasons for this response. First, the CRS is not accompanied by many macroeconomic reform measures, and the form of CRS can be adapted to local conditions. That is to say, the system is flexible, adaptable, and convenient. Second, CRS balances the interests of the Ministry of Finance, industrial bureaus, enterprise management, and employees to a certain extent. The policy is fairly straightforward and there is a strong desire to have it implemented; as a result, it benefits all parties concerned in a short period of time, with the development of production. CRS is more acceptable to all the parties concerned than any other method of management. Third, the system puts a check on administrative intervention from industrial bureaus, thereby limiting the adverse effects of the traditional system, which promised success but allowed enterprises to run at a loss. (For details on the operation of the CRS in China’s state-owned enterprises, see Appendix 4).

Professor Ha (Economist, Institute of Economic Management of the State System Reform Commission)

The CRS separates enterprise ownership from management and thus frees it from being a subsidiary of state administrative bodies. Although the enterprise remains owned, it is able to operate autonomously. This is its most important feature. By signing a legally binding contract, the parties involved have transformed the original superior/inferior relationship between the state and enterprises into an equal partnership before the law. Therefore, the enterprise has acquired a “hard shell” to protect itself from outside executive intervention and been able to separate ownership and
management rights. Perhaps more important, the CRS has given the enterprise independent legal status.

Professor Xu (Qinghua University)

The CRS has improved the incentive mechanism of the enterprise. Before the CRS, workers put little emphasis on the enterprise’s performance. Under the CRS, workers’ bonuses and wages are linked to the enterprise’s economic performance. For example, some enterprises stipulate in their contracts that every 1 percent increase of tax-profit remittance to the state will yield 0.3-0.7 percent increase of workers' total wages, and that if workers fail to fulfill the tax-profit target, their bonuses and total wages will be reduced accordingly. This strategy helps mobilize workers' initiative.

Mr. Zhou (Manager, Capital Iron and Steel Company)

The CRS has intensified economic responsibility across all levels in the enterprise: Take Capital Iron and Steel Company for example. We have established a system of Contract for Work, Guarantee of Mutual Coordination, Assessment of Individuals’ within our enterprise. At the top is the company-level contract with the state, in the middle is the CRS at the factory and section levels, at the bottom are 23,000 workers who are personally responsible for performance. The target is contracted down to the individuals. This CRS has therefore made it clear at all levels that the extra profit is distributed across the enterprise. In this way the enterprise is encouraged to increase income and save expenditure and to tap its potential so as to increase the economic results.

At the same time, the CRS enhances the enterprises' capacity for self-accumulation. In the past, an enterprise could only invest funds allocated by the state or low-interest loans, with poor investment results. Since the introduction of the CRS, enterprises have been able to build up their own financial resources to shift the main source of investment away from the state to the enterprise itself, which is now obliged to be concerned about the scale of its investment and about investment results.

Following this change, the Capital Iron and Steel Company was able to build up a production development fund, which it used to complete a power station by itself; to export 100,000 m³ per day of coke gas for civilian use; and to build 1,069,000 m² of apartments in Shijingshan District, along with 130,700 m² of other living facilities, including 83 middle and primary schools, post offices, savings banks, and commercial service networks. In this way, it
provided society with many new products, services, and job opportunities.

The company is also prepared to build a branch factory of Qian’an Mineral Factory, with an annual output of 2 million tons of steel, of which 50,000 tons will be used in local development.

The contract system stipulates that the enterprise must return the loan after taxes, which gradually makes the enterprise the investment body. This has bearing on China’s reform of investment institutions. First, enterprises can get the capital for production expansion from three sources: the depreciation fund, large-repairing fund, and the production development fund. If necessary, the enterprise can borrow loans from banks or obtain financing from society, but the amount of investment depends directly on the enterprise’s capacity for accumulation. Therefore, this is helpful for establishing a controlling mechanism over the scale of investment. Second, under the pressure of market competition, the enterprise can automatically invest in products that are in short supply in priority items, which the enterprise is in a position to understand better than the state. Therefore, an error in the direction of investment will not be too large. When investment items are not in line with production policies, the state organs can have the final say. Third, the enterprise assuming the responsibility of investment risk would surely consider its own interest and make every effort to achieve a positive investment result.

Professor Zhang (Beijing University)

I agree that the CRS has its advantages, but it also has quite a number of problems that need to be studied closely. For example, the contract system has not made the enterprise solely responsible for its profits and losses. As an independent producer and manager, the enterprise should be able to take on this responsibility. But for a long time, enterprises owned by the "entire people" have only taken responsibility for their profits, and not for their losses. The percentage of the loss-making enterprises owned by the state can be seen in Table 5.5.

Table 5.5 shows that for many years one-quarter of the enterprises owned by the entire people have been incurring losses. In the past, China transferred the profits from enterprises that were doing well to

1. In China it is common to refer to state-owned enterprises as belonging to the "entire people" (sometimes translated as "whole people") (ed.).
those running at a loss in order to keep them going. During the years of restructuring, China allowed profits to be retained by the enterprise, and established the enterprise's incentive mechanism, but little headway has been made in making the enterprise responsible for its profits and its losses. After the contract system went into effect, 10-15 percent of the contracted enterprises still incurred losses. The idea of passing risk onto the factory-director and workers did not get to the root of the problem, but only served to put more pressure on these people. Enterprises still cannot afford the responsibility for losses. This is the problem that calls for a solution under the contract system.

**Professor Liu (Qinghua University)**

Another problem that has not yet been mentioned is that enterprises are only concerned about this short-term behavior. That is to say, quite a number of contracting enterprises seek the maximum profit not to develop the enterprise, but to secure the greatest possible wages and bonuses. The enterprise usually diverts the production development fund into wages and welfare. The impact of this action can be seen in a comparison of national economic development and the increase in enterprise income over the past few years (Table 5.6).

The rapid increase in workers' wages over the past few years can be traced to a number of factors beginning with the state subsidies

### Table 5.5 Percentage of Enterprises Owned by the "Entire People" with Losses

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>28.9</td>
<td>1977</td>
<td>27.4</td>
</tr>
<tr>
<td>1971</td>
<td>29.6</td>
<td>1978</td>
<td>23.9</td>
</tr>
<tr>
<td>1972</td>
<td>29.2</td>
<td>1979</td>
<td>23.4</td>
</tr>
<tr>
<td>1973</td>
<td>28.9</td>
<td>1980</td>
<td>22.4</td>
</tr>
<tr>
<td>1974</td>
<td>35.2</td>
<td>1981</td>
<td>27.7</td>
</tr>
<tr>
<td>1975</td>
<td>31.4</td>
<td>1982</td>
<td>25.1</td>
</tr>
<tr>
<td>1976</td>
<td>37.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5.6 A Comparison of National Economic Development and the Increase in Incomes among Enterprises

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The increase in national income over the previous year (percent)</td>
<td>10.5</td>
<td>10.0</td>
<td>6.8</td>
<td>10.6</td>
<td>11.0</td>
<td>19.4</td>
<td>24.0</td>
<td>11.0</td>
<td>19.6</td>
</tr>
<tr>
<td>The increase in productivity over the previous year (percent)</td>
<td>2.2</td>
<td>-0.3</td>
<td>-0.2</td>
<td>2.2</td>
<td>7.5</td>
<td>7.8</td>
<td>8.0</td>
<td>1.6</td>
<td>9.3</td>
</tr>
<tr>
<td>The increase in workers' total wage over the previous year (percent)</td>
<td>12.7</td>
<td>16.9</td>
<td>4.3</td>
<td>5.8</td>
<td>3.3</td>
<td>23.0</td>
<td>17.0</td>
<td>20.5</td>
<td>14.6</td>
</tr>
<tr>
<td>The increase of the workers' average wage over the previous year (percent)</td>
<td>10.9</td>
<td>12.6</td>
<td>-0.1</td>
<td>1.4</td>
<td>1.6</td>
<td>21.9</td>
<td>7.1</td>
<td>20.9</td>
<td>10.8</td>
</tr>
<tr>
<td>Retained profit of the enterprises (percent)</td>
<td>7.9</td>
<td>17.6</td>
<td>16.3</td>
<td>15.65</td>
<td>19.2</td>
<td>23.35</td>
<td>32.59</td>
<td>38.3</td>
<td>43.2</td>
</tr>
</tbody>
</table>
issued to compensate for the price rise. Enterprises also issued subsidies to appease workers comparing their lot with that of others.

Others are various subsidies in kind. This part of the income becomes the worker's stable wage throughout the year, embodying the principle of impartiality. This being the case, workers wanted to raise their wages even higher. Therefore the enterprises find themselves in a dilemma over wage distribution, more wages for workers—not enough capital, no wage increase—workers' horizontal comparison for wages frustrated their initiatives. Hence the way out is for the enterprise to take a large proportion of the low profit for the workers' welfare fund and bonus, regardless of the enterprise's economic results—good or bad (Table 5.7).

Table 5.7 shows the changing profit distribution between the state and the enterprise and the tendency to focus on the workers' wages. This means that enterprise activities are oriented toward the short term and so little attention is given to preserving enterprise assets for a depreciation fund, repair, or production development fund. Instead, equipment may be priced together to fill the quotas, and the equipment load coefficient may be as high as 127.5 percent since there is no fund for depreciation or heavy repairs. Furthermore, instead of keeping aside funds to explore new products the enterprises divest resources to their award fund. For example, most of the large- and medium-size enterprises in Tianjin and Wuhan keep less than 50 percent of the profit in the production development fund. Because the interests of the government itself are geared toward the short-term and different orders come from different government organs, it is little wonder that enterprise managers concentrated on short-term profit targets rather than the long-term development of their enterprises.

Mr. Qian (China's Ministry of Finance)

I would like to point out, however, that the great achievement of the CRS is that it has not only ensured the state's financial income but has also prevented our finances from declining. Equally important, it has mobilized workers' enthusiasm. Since the responsibility system was introduced in May 1987, the previous 20-month decline in enterprise profits throughout the country was reversed. In 1987, the state's finances increased by 6 billion yuan thanks to the responsibility system. From January to October 1988, the output of industrial enterprises increased by 11.1 percent, and there were even higher increases in taxes and profits, even though they had to spend 9 billion yuan on higher prices of power and raw materials and to compensate for a reduction in the subsidy on non-
Table 5.7 Use of the Profit Kept by China’s State-Owned Industrial Enterprises, 1979-87

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit kept (0.1 billion yuan)</td>
<td>86.54</td>
<td>144.0</td>
<td>168.1</td>
<td>215.2</td>
<td>279.7</td>
<td>161.5</td>
<td>240.54</td>
<td>228.3</td>
<td>265.33</td>
</tr>
<tr>
<td>Percentage of the profit kept for production development funds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>25.0</td>
<td>28.0</td>
<td>29.0</td>
<td>35.3</td>
<td>20.8</td>
<td>18.8</td>
</tr>
<tr>
<td>Percentage of the profit kept for bonuses and welfare funds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>75.0</td>
<td>72.0</td>
<td>71.0</td>
<td>64.7</td>
<td>79.2</td>
<td>81.8</td>
</tr>
</tbody>
</table>
staple food. In Jilin Province, where the responsibility system was particularly effective, industrial output from January to October 1988 increased 16.2 percent over that of 1987, the amount to paid to the state as tax-profit increased by 40.4 percent, and financial income increased 16.3 percent. From 1982 to 1988, the Capital Iron and Steel Company turned over to the state 20 percent more each year in profits. In addition, the company annexed 13 military-industrial enterprises attached to the North Industrial Corporation. Before the annexation, only 2 enterprises had been running at a net profit; the other 11 enterprises were all registering losses, which amounted to 44,880,000 yuan in the first six months of 1988 and 59,650,000 yuan in the last six months of 1988. When annexed to Capital Iron and Steel Company, these enterprises did not have access to its cadres and did not get any special treatment, but they did implement the responsibility system. Four months after the annexation, these enterprises began to take on a new look. By August, the losses had dropped from 7,480,000 yuan per month in the first six months of 1988 to 2,230,000 yuan. By September-October, profits were being recorded. The responsibility system had changed the management mechanism of enterprises, had endowed enterprises with a strong profit motive, had mobilized the workers' initiatives, involved enterprises in the market, and encouraged them to respond to market forces.

Mr. Sun (State System Reform Commission)

Another advantage of CRS is that it has introduced competition to management. Before the CRS was adopted, the director of the enterprise was appointed by the state, but after the contract system was launched tenders were invited from within the enterprise, from the trade department, or even from society at large. The election or public selection of managers created an opportunity for equal competition among entrepreneurs and widened the scope for selecting qualified persons. In this way, more and more good managers can demonstrate their talent. Among the public enterprises using the contract system throughout the country, 30 percent or so select the managers through competition, but the percentage is even higher in Jilin, Ningxia, Gansu, and other provinces, where it has reached 65 percent or more. The China State Statistics Bureau reports that 90 percent of the managers who take part in the tenders come from their own enterprises, and 10 percent come from other units. Thus, it seems that outsiders still have difficulty in entering the enterprise. Among the contracted managers, 85 percent are the original leaders from their own
enterprises; 4.9 percent are the middle-level cadres of their own enterprises; and 3.4 percent are cadres of party or government organizations. In less competitive and low-profit enterprises, the proportion of managers coming from other units is 16.9 and 15.1 percent, respectively; but in more competitive and high profit enterprises, that proportion is 5.7 and 6 percent, respectively. Those from outside appear to have a better chance of entering the depressed enterprises.

The contract system has also increased the factory director's responsibility since it has established a legal precedent for preventing government authorities from intervening in enterprise operations. Not only has this given the factory director greater authority, but it has allowed the enterprise to make decisions more rapidly and to strengthen its administrative capabilities. In addition, the contract system spreads economic responsibility among all the workers. The factory director and the workers share the risks and stand together through thick and thin. Therefore, the fate of the factory director, the enterprise, and the entire body of workers is closely linked, and the factory director's executive power is increased.

Professor Jiang (China Academy of Social Sciences)

The contract system has not yet entirely solved the problem of improper government intervention in enterprises. The relationship between enterprises and the relevant government bodies since the adoption of CRS is still unbalanced inasmuch as the contracts are still ultimately decided on by industrial bureaus and most enterprise leaders are selected by the higher authorities. Most enterprises still rely on government departments for access to investments, loans, and parity materials. As a result, an enterprise usually gains more from its negotiations with the government and its contact with the pertinent departments than from strengthening its own management, increasing the skills of its staff and workers, or tapping other potential sources of improving its performance. Therefore, contracting enterprises are still highly dependent on the government. What is more, the growing emphasis on regional and executive financial responsibility has merely strengthened the control of the regional governments on the enterprise. The enterprise's personnel, financial affairs, materials, supply, production, and marketing are now subjected to the administration of many different departments without any coordination. Thus, the enterprises have as many higher authorities controlling them as before, and life for them is still very hard.
Professor Wu (Qinghua University)

At present, the enterprise's contract system has some irrational factors. The system has recognized workers' excess labor by fixing the profit base to be turned over to the state, changing the idea that the state gets the larger proportion under any circumstances. But the system has been far from standardized. As a result, the enterprise's contracting base, the rate of increase in the profits retained, must be determined case by case. This means that the responsible departments and the enterprises spend a lot of time and energy bargaining on this point. From a long-term perspective, because of the great differences in the production level and economic results of enterprises in the same trade, linking the workers' total wage with the economic results would inevitably lead to a large increase in workers' wages in the future for those enterprises with a lower level of production and poor economic results but greater potential at present, and only a moderate increase in workers' wages in the future for those with higher production level and better economic results but little potential at present. This results in an unequal treatment of enterprises and makes it difficult to create a fair environment of competition.

The original idea in adopting the contract system was to make it possible for enterprises to engage in self-transformation and self-development so as to promote macroeconomic development. But what has happened is that the interests of enterprises are not necessarily based on their contributions to society. Thus, enterprises with greater contributions may not have good economic results and more income, and the enterprises with smaller contributions may not have poor economic results and less income.

Furthermore, the basic terms of the contract still lack a rational and scientific basis. At present, the contracting base of the enterprise is generally the amount of profit in the previous year, and sometimes the average profit of the previous three years. This method of calculation is simple, clear, practical, and easy to apply for the enterprise. But using previous performance as the base for the contract, means that the individual enterprises that have been performing well have higher profit targets than enterprises where the potential for short-run improvement may be greater, and this may frustrate the initiative of those enterprises.

Mr. Gao (the State System Reform Commission)

We have discussed many of the problems existing in the CRS, and we should not fail to see that the CRS needs to be constantly
readjusted and improved. Some of its shortcomings, however, are not the fault of the CRS per se. Rather, it is that we have not properly implemented all the regulations laid down for CRS. The CRS is an innovation in the development of socialist commodity economy with Chinese characteristics and thus has a number of advantages: First, it abides by the socialist principle of public ownership and the principal that relative earnings should be determined by one's work. Second, it fits in well with China's situation of extremely unbalanced economic development and the lack of knowledge on the part of economic administering cadres. Third, it allows the old and the new system to coexist and reduces the contradiction and friction during the conversion of the two systems. Fourth, a way has been found to turn the principle of state ownership of the means of production and state management into state ownership and enterprise management.

The contract system is therefore to be seen as a milestone in China's economic restructuring, and the only way that such restructuring can succeed. It has become a new and vital aspect of socialist enterprise management. We should not change for a long time to come.

Professor Shi (Chinese Peoples' University)

The overall objective of China's economic restructuring is to turn the traditional Chinese economic model of direct executive coordination into one of macro-controlled market coordination. But the goals and eventual results of the contract system go against this objective. The contract system, far from reducing the dependence of the enterprise upon the government or the government's administration of the enterprise, has further strengthened that dependence. The enterprise must continually bargain with the government on the progressive increase of its profits and some regional governments are now involved in providing detailed contracting quotas that constrain the enterprise. Therefore, the contract system is regressing in a sense and I am not in favor of it.

Professor Hong (Beijing University of Science and Technology)

Another problem that remains to be solved under the CRS is how to encourage the enterprise managers and workers to agree on long-term goals. After the contract system was adopted, the manager and the workers all agreed that the enterprise should increase its profits but then could not see eye to eye on how the enterprise should use those funds. Because China's labor market has not yet been formed
and there are still many imbalances in the distribution of social amenities, workers fail to see the advantage of investing in the long-term development of the enterprise. When they see the product price continuously rising, workers are eager to have some of the increase spill over into their wages, bonuses, and welfare benefits. But the state—which selects the enterprise competitors, sets up the contracts, and metes out the rewards and punishments to the factory director—wants the director to act on behalf of the long-term interests of the state and enterprise. In other words, enterprise profits should go toward renewing, transforming, and developing the enterprise over the long term. However, this is unrealistic. Under the present circumstances, no factory director would risk opposing the workers.

Note, too, that the contract system has not cleared up all the old problems. In some cases where the workers' ideological education has been neglected and the enterprise still follows strict executive orders, and monetary punishment in management is emphasized, the workers' sense of being the masters has decreased and their initiative has all but disappeared. Therefore, the contract system is not an ideal model, and should only be considered a transitional model born under the old and new system. The internal mechanism that would make the enterprise more self-reliant is still immature. The same is true of the external conditions, which are all the more important for China's enterprises—that is, the yet-to-be formed market of the means of production, the labor market, technology market, and capital market. Therefore, the contract system cannot be expected to turn China's enterprises into self-managing, self-developing, and self-reliant commodity producers and managers taking sole responsibility for their profits and losses.

Professor Zhao (Qinghua University)

Indeed, the contract system should not be considered a fixed and rigid system. Its form and content will undoubtedly change as economic restructuring evolves. That is to say, the contract system itself will move through various stages before it reaches its goal. We are now seeing the beginning stage. The contract of the enterprise is restricted to presenting simple reproduction with various forms. At some point in the future, the state will separate ownership and management power with regard to administering enterprise operations and will stop investing directly in enterprises. Instead, its major function will be to establish an environment suitable for the operation of the enterprise, to make adjustments to income and distribution, to provide public services, and achieve macro-
management. The enterprise will have the power to own, use, and dispose of state property, and will have all the rights, responsibility, and corresponding interests necessary to engage in expanded reproduction. In this way, the enterprise will truly become a self-managing, self-developing, and self-reliant commodity producer that takes the sole responsibility for its profits and losses.

Questions for Discussion

1. What are the main reasons that China has adopted the Contract Responsibility System (CRS)?

2. The participants at this meeting appear to be in agreement about the desirability of separating "enterprise ownership and management?" What are the advantages and disadvantages of this?

3. What are the main strengths of the CRS? Its main weaknesses?

4. The potential disadvantages of including political views among the qualifications for managers of state enterprises are obvious. Are there any advantages?

5. What is the way forward for Chinese enterprises?

2. The Chinese version of this case poses only one question, the last one here. The others were added by the editor.
# Appendix 1. Autonomy Expansion in 27 Large- and Medium-Size Enterprises

<table>
<thead>
<tr>
<th>No.</th>
<th>Items</th>
<th>No. realized</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Overall realized extent</td>
<td></td>
<td>55.3</td>
</tr>
<tr>
<td>2.</td>
<td>Planning right outside mandatory plan</td>
<td>18</td>
<td>66.7</td>
</tr>
<tr>
<td>3.</td>
<td>Selling right outside mandatory plan</td>
<td>17</td>
<td>63.0</td>
</tr>
<tr>
<td>4.</td>
<td>Stop checking right to above target output</td>
<td>7</td>
<td>75.9</td>
</tr>
<tr>
<td>5.</td>
<td>Right to source materials within the plan</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td>6.</td>
<td>Right to dispose of excessive inventory</td>
<td>21</td>
<td>77.8</td>
</tr>
<tr>
<td>7.</td>
<td>Right to nominate vice-directors</td>
<td>15</td>
<td>55.6</td>
</tr>
<tr>
<td>8.</td>
<td>Right to appoint and remove middle line managers</td>
<td>23</td>
<td>85.2</td>
</tr>
<tr>
<td>9.</td>
<td>Right to recruit technical/managerial staff</td>
<td>17</td>
<td>63.0</td>
</tr>
<tr>
<td>10.</td>
<td>Director’s right to award and punish</td>
<td>22</td>
<td>81.4</td>
</tr>
<tr>
<td>11.</td>
<td>Director’s right to fire/discipline violator</td>
<td>13</td>
<td>48.1</td>
</tr>
<tr>
<td>12.</td>
<td>Open public selection of best applicants for vacant positions</td>
<td>8</td>
<td>29.6</td>
</tr>
<tr>
<td>13.</td>
<td>Right to use own funds</td>
<td>15</td>
<td>55.6</td>
</tr>
<tr>
<td>14.</td>
<td>Right to raise wage scale within 3%</td>
<td>21</td>
<td>77.8</td>
</tr>
<tr>
<td>15.</td>
<td>Right to dispose of surplus assets</td>
<td>21</td>
<td>77.8</td>
</tr>
<tr>
<td>16.</td>
<td>Right to set up organizational structure</td>
<td>12</td>
<td>44.4</td>
</tr>
<tr>
<td>17.</td>
<td>Right to decide on the form of wages</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>18.</td>
<td>Right to retain all depreciation funds</td>
<td>21</td>
<td>77.8</td>
</tr>
</tbody>
</table>
Appendix 2. Ratio of Net to Gross Value of Fixed Assets in Enterprises Controlled by the Former Machinery Industry Ministry (percent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National average</td>
<td>62.60</td>
<td>61.71</td>
<td>60.51</td>
<td>60.38</td>
</tr>
<tr>
<td>Agricultural</td>
<td>65.87</td>
<td>65.03</td>
<td>62.20</td>
<td>63.15</td>
</tr>
<tr>
<td>Instrument and metering</td>
<td>64.57</td>
<td>65.02</td>
<td>64.27</td>
<td>64.27</td>
</tr>
<tr>
<td>General petrochemical</td>
<td>62.71</td>
<td>61.29</td>
<td>60.44</td>
<td>59.72</td>
</tr>
<tr>
<td>Heavy-duty mining</td>
<td>61.76</td>
<td>60.29</td>
<td>59.24</td>
<td>58.16</td>
</tr>
<tr>
<td>Machine tools</td>
<td>55.55</td>
<td>54.41</td>
<td>52.92</td>
<td>52.46</td>
</tr>
<tr>
<td>Electrical appliances</td>
<td>60.27</td>
<td>60.19</td>
<td>59.86</td>
<td>59.84</td>
</tr>
<tr>
<td>Universal spare parts</td>
<td>64.21</td>
<td>63.66</td>
<td>62.54</td>
<td>61.19</td>
</tr>
<tr>
<td>Bearings</td>
<td>67.77</td>
<td>66.76</td>
<td>64.94</td>
<td>63.37</td>
</tr>
<tr>
<td>Automobile</td>
<td>65.47</td>
<td>63.64</td>
<td>63.06</td>
<td>62.75</td>
</tr>
<tr>
<td>Food packaging</td>
<td>--</td>
<td>64.9</td>
<td>66.42</td>
<td>64.22</td>
</tr>
<tr>
<td>Others</td>
<td>--</td>
<td>--</td>
<td>66.16</td>
<td>63.93</td>
</tr>
</tbody>
</table>
Appendix 3. Comparison between Investment in Fixed Assets of China’s State-Owned Enterprises and Increase Therein against National Income

<table>
<thead>
<tr>
<th>Years</th>
<th>Total investment (billion yuan)</th>
<th>Increase over previous year (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>66.751</td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>84.531</td>
<td>26.6</td>
</tr>
<tr>
<td>1983</td>
<td>95.196</td>
<td>12.6</td>
</tr>
<tr>
<td>1984</td>
<td>118.518</td>
<td>24.5</td>
</tr>
<tr>
<td>1985</td>
<td>168.051</td>
<td>42.0</td>
</tr>
<tr>
<td>1986</td>
<td>197.850</td>
<td>17.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>National Income (billion yuan)</th>
<th>Increase over previous year (%)</th>
<th>Total social output value (billion yuan)</th>
<th>Increase over previous year (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>394.0</td>
<td>--</td>
<td>907.1</td>
<td>--</td>
</tr>
<tr>
<td>1982</td>
<td>426.1</td>
<td>8.1</td>
<td>996.3</td>
<td>9.8</td>
</tr>
<tr>
<td>1983</td>
<td>473.0</td>
<td>11.0</td>
<td>1112.5</td>
<td>11.7</td>
</tr>
<tr>
<td>1984</td>
<td>565.0</td>
<td>19.5</td>
<td>1316.7</td>
<td>18.4</td>
</tr>
<tr>
<td>1985</td>
<td>700.7</td>
<td>24.0</td>
<td>1658.7</td>
<td>26.0</td>
</tr>
<tr>
<td>1986</td>
<td>779.0</td>
<td>11.2</td>
<td>1896.1</td>
<td>14.3</td>
</tr>
</tbody>
</table>
Appendix 4. The Components of the Contract Responsibility System

The contract system specifies the nature of the relationship between the state and enterprises and also the terms and conditions as set forth, responsibilities, powers, and benefits that may accrue to either part in a written contract. The contract covers the following items:

1. Contracting elements (including the basis for contracting; progressive growth rate of the profit to be turned over to the state and the portion the enterprise will share in target output; objectives of technological transformation; the period of the contract; the ratio of distribution of funds retained for contractor’s use).


3. Powers and obligations of the contracting manager.

4. Awards and penalties for the contracting manager.

Legally speaking, the contract has a dual character. First, like most economic contracts, it binds both parties to an agreement in which they are considered equal before the law. They voluntarily negotiate with each other and reach a written agreement. They each undertake certain obligations, enjoy certain rights, and obtain certain benefits. Thus the contract has legal force. After the contract comes into effect, the sponsor of the contract is generally not empowered to directly interfere in the daily management of the contractor through administrative measures. However, a contract reflects not an ordinary exchange of products, but mainly the distribution relations in managing a business. The contractor turns in profit and tax to the state according to the terms of the contract. This is done as an obligation and not an exchange. The principle of equal economic benefit does not apply here. Therefore, both parties that are signatories of the contract must take into account the interest of the state, the collective, and the individual, and reasonably work out the basis for the contract on the basis of actualities. Furthermore, in choosing a manager, the competent authorities should consider the candidate’s political qualifications as well as other factors.

THE FORM OF CONTRACTS. The basic characteristics of the contract system are the fixed base and the guaranteed portion of profit to be
handed over to the state. More profit is retained in case of extra output, and subsidies are given in the case of shortfalls in output.

There are two ways to fix the base: (1) fix the yearly portion of the profit to be turned over to the state for a fixed number of years; or (2) fix the base for the first year, and the profit to be turned over to the state in ensuing years will increase at a certain rate with each passing year.

The portion of profit to be handed over to the state is usually guaranteed through a products tax, value-added tax, business tax, and other circulation taxes as well as local taxes and funds for energy and transportation. Thus this part of the profit to be handed over to the state varies with total sales. The remaining part replaces the original adjustment tax and income tax, and does not vary according to changes in the incomes from sales. In some places, both the circulation tax of enterprises and income tax are fixed by contracts and the sum to be handed over to the state is completely divorced from the sales income of the enterprises.

"Retaining more profit in case of above-target output" means that after paying taxes and profit, enterprises keep the entire profit or most of it for themselves, to invest in the production and development of the enterprise and in the consumption of employees. Loans are also repaid out of this profit. Enterprises that suffer losses are subsidized by the state according to a quota. The enterprises keep exemptions for their own uses.

"Subsidizing yourself in case of shortfall in output" generally requires enterprises to use their own funds to make up the portion due to be handed over to the state when losses are incurred.

At present, the following five forms are commonly used in the contract for enterprises:

1. "Two guarantees are one linkage." Two guarantees mean guarantee items for technological transformation and the profit to be handed over to the state; one linkage means that the sum total of wages should be linked to the profit and tax turned over to the state;

2. Guarantee progressive increases in profit to be handed over to the state;

3. Guarantee the base for the profit to be handed over to the state; share above-quota output;
4. Guarantee quota of profit to be turned over to the state by enterprises with small profits; and

5. Fix subsidies for enterprises that suffer losses.

Every contract must include the base, progressive growth rate of profit to be handed over to the state (or ratio) of sharing of above-quota output), goals for technological transformation, the period of the contract, and the portion of the distribution of various funds in the profit retained by enterprises.

CHOOSING MANAGERS. In the first days of an experimental contract system, the manager is often appointed by higher competent authorities. Many years of practice have led many areas to introduce competition in the choice of managers with a view to improving their qualities and creating the conditions needed to build up an army of entrepreneurs. The usual method is to invite applications for the manger's opening within the enterprise, the industry, or even within all walks of life. Normally, the sponsoring unit—the competent authorities of the enterprise—take charge of this whole process and request the attendance by the department concerned. After the vacancy is advertised, a credentials committee made up of departments supervising the conduct of cadres is set up, along with an examination board composed of economists and legal experts and administrators. They will examine the candidates and assess their political behavior, motives for entering the race, sense of policy, general knowledge, practical experience, plans for managing the factory, and other qualities. The process is outlined in the following table.
Choosing an Enterprise Manager

<table>
<thead>
<tr>
<th>Steps</th>
<th>Content</th>
<th>Units in Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitation authorities</td>
<td>Drafting AD</td>
<td>Competent</td>
</tr>
<tr>
<td>Application</td>
<td>Put on AD</td>
<td>Registration of applicants</td>
</tr>
<tr>
<td>1st Examination after</td>
<td>Preliminary exam</td>
<td>Interview</td>
</tr>
<tr>
<td>Signing up committee</td>
<td>1st selection of candidates</td>
<td>Credentials</td>
</tr>
<tr>
<td>2nd Examination</td>
<td>Candidate investigating;</td>
<td>Examination board</td>
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<td></td>
<td>factory drafting;</td>
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<td></td>
<td>management plan;</td>
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<td></td>
<td>assess plan;</td>
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<td></td>
<td>short-list candidates</td>
<td></td>
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<tr>
<td>3rd Examination</td>
<td>Question and answer session; political exam;</td>
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<td></td>
<td>decide on finalist;</td>
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</tr>
<tr>
<td></td>
<td>discussion by staff meeting</td>
<td></td>
</tr>
<tr>
<td>Appointment</td>
<td>Signature at notary's official appointment</td>
<td>Competent</td>
</tr>
<tr>
<td></td>
<td>Issue certificate publicly</td>
<td>authorities</td>
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May 1988. The fragrance of peach blossoms filled the air of Lanzhou, located in northwestern China, announcing the arrival of spring.

On May 30, the Huanghe Machine Tool Factory in the southern suburbs of the city was bustling with noise and excitement because a meeting would be held that day to present the candidates who had applied to run the factory under a new contract. By 8 o'clock, people had packed the workers' club in the factory and were overflowing into the corridors and even outside the front door of the club. Among them were retired workers, young workers who had entered the factory just a few years ago, and even workers from other factories, not to mention the ubiquitous fun-seekers.

All the lights were on in the club and a conspicuous banner above the rostrum read: "Conference on the Contract to Run the Huanghe Machine Tool Factory." When people heard the last beep from the radio indicating it was 8 o'clock sharp, the members of the judging committee and the three candidates for the directorship appeared on the rostrum and took their seats. Suddenly, the room became silent. The manager of the provincial corporation, who presided over the conference, announced the candidates would now make their presentations. The air became tense.
First up was Tang Zhongjie, 54, who had graduated from the Machinery Department of Qinghua University in 1962 and was former deputy chief of the Technical Division of the corporation that was the parent company of the factory. The corporation had put him in charge of the factory for a few weeks before the election. Tang explained his proposed program on how the factory might be managed under a contract (for his program, see Appendix 2). He was quite cool.

Shi Yuancheng, 34, came next. Shi had been enrolled by the Gansu University in one of the first batch of college students after the college entrance examination system was restored following the Cultural Revolution. He majored in mining machinery and graduated in 1981. Later, Shi obtained his master's degree in management engineering at Xi'an Communications University and then landed a job at the Technical Information Department of Changzheng Petroleum Machinery Research Institute. He was bright and enterprising. At the urging of the institute president, Shi had joined the competition in the capacity of a legal representative (for his program, see Appendix 3).

Last was Li Jin, 48, a senior middle-school graduate and manager of the Lanhai Machine-Building Company. Although Li had no advanced educational background and academic titles, he had accumulated more than 10 years' experience in management and he was sharp, resolute, and cool-headed. Wearing his western-style suit, Li looked like a typical modern entrepreneur. Nine years ago, he had determinedly quit his job at a state-run factory to set up a collectively run repair shop that grew into a machine-building company employing more than 1,000 people. Today, he was here eager to put the state-run Huanghe factory into his "sphere of influence" (for his program, see Appendix 4).

After the three candidates explained how they would run the factory if chosen, the chairman called for a short recess so the judging committee could discuss the candidates and vote for the winner of the directorship of the Huanghe Machine Tool Factory under the contract.

At this point, the audience seemed to be more nervous than the candidates sitting on the rostrum. People were whispering to each other and waiting for the results.

The Age of Reforms

It was at this time that China was in the midst of a period of reform and Huanghe Machine Tool Factory, of course, could not be
excluded. On the question of how to expand the reforms in state enterprises, the theoretical experts were debating whether enterprises should be made to pay taxes instead of turning all their profits over to the state, or whether some type of contract system or shareholding system would be more appropriate. The contract system gained wide support, and today, 85 percent of the country's industrial enterprises that are included in the state budget and 93 percent of all its large and medium-size enterprises are operating under this system.

In the first quarter of 1988, Lanzhou City experienced increases of 8.23 percent in the value of its total industrial output, 11.2 percent in realized profits and taxes, and 8.72 percent in the profits and taxes paid to the local government. At the same time, the eight enterprises that had first introduced the contract system in the city registered growth of 12.9 percent in the value of output, 23.8 percent in realized profits and taxes, and 19.5 percent in profits and taxes paid to the municipal government. Furthermore, enterprises under the contract system have done this despite an increase in the price of raw materials and electric power supply, in nonstaple food subsidies to their employees, and in the interest on bank loans. Nowadays, when one goes into a barber shop, a shoe repair shop or a grocery store and sees the prices still going up, the clerks or shopkeepers will more often than not say it is because “the shop is contracted now!” Today, there are even contracts on family planning, social security, school entry, and so on. As a result, contracts cover almost everything, including things that cannot or should not be operated under a contract. No doubt, this situation has come about because most people fail to understand the concept behind the contract system. Thus it may be useful to repeat the definition adopted by the Seventh National People's Congress in the “Law of the People's Republic of China on State-Owned Industrial Enterprises.”

This law defines the contract system as one in which enterprises are owned by the socialist state but this ownership is kept separate from enterprise management, and the relations between the state and enterprises with respect to responsibilities, rights, and interests are established through contracts that allow enterprises to be autonomous in their management and make them responsible for their own profits and losses.

Under the contract system, an enterprise signs a contract with the state specifying the amount of profits it will turn over to the state and defining its tasks in technical transformation. The enterprise is also expected to link its payroll with its economic efficiency. (In
Chinese parlance, this system is called "Two Contracts and One Link." While confirming the relations between the state and enterprise, the contract system also calls on the enterprise to conduct reforms in its internal leadership and its personnel, labor, and wage system.

Like everything else in the world, the contract system is not a perfect enterprise system. It may encourage some enterprises to pursue short-term profits and self-isolation. This is why the contract needs to be improved from time to time, as pointed out in a third plenum of the 13th Central Committee of the Chinese Communist Party: "To rectify the economic order, to improve the economic environment, to overall deepen the reform and to make serious efforts to improve the contract system will constitute the key task in our future reform and construction."

The Machine-Building Industry Corporation of Gansu Province (formerly the Machine-Building Industry Department of Gansu Provincial Government) is responsible for the operation of Huanghe Machine Tool Factory. During the past three decades the factory has constantly been running a fine line between losses and very slim profits. In an effort to improve the situation, the corporation decided to select a new manager for the factory through competition and public bidding. The factory was allowed to conduct an experiment based on the concept of "one factory, two systems," which means a collectively run state enterprise. The purpose was to introduce the risks and flexibility of collectively owned enterprises into state-owned enterprises. This move was unprecedented in large and medium-size state enterprises in this province. Upon accepting the proposals, Huanghe Machine Tool Factory would enjoy the following policy preferential treatment:

1. The enterprise would be able to decide on its own method of management, select its own manager, recruit employees, set wage levels, and handle its profits and losses by itself.

2. The fixed assets depreciation rate would be set at 6 to 8 percent, much higher than that for ordinary state enterprises (4 percent).

3. The bonuses for its employees would be allowed to exceed the ceiling of one-third of its annual payroll.

4. It would enjoy easier access to loans for its capital construction projects. It would receive loans from the People's Construction Bank of China as long as it had a deposit in the bank equal to 15 percent or more of the total investment in
the project and the term of its deposit was longer than three months. For ordinary state enterprises, the figures are 30 percent and six months. The bank would also have to decide whether to grant the loan on the basis of the feasibility of the project.

The conditions set by the corporation are:

1. The term of the contract will be three years.

2. The payroll of Huanghe Machine Tool Factory must be linked to its profits. Taking the 1987 payroll of 2.2 million yuan (not including bonuses) and 500,000 yuan of profits as the base, as long as the enterprise fulfills its quota on profits, its payroll can increase at an annual rate of 5 percent.

3. Taking 25 million yuan as the base of the total value of the fixed assets of the enterprise, the annual growth rate shall be 8 percent.

4. The main index of the contract are as follows:

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</thead>
<tbody>
<tr>
<td>Total industrial output value</td>
<td>1,100</td>
<td>1,300</td>
<td>1,500</td>
</tr>
<tr>
<td>Realized profits</td>
<td>50</td>
<td>100</td>
<td>150</td>
</tr>
</tbody>
</table>

History of Huanghe Machine Tool Factory

The factory was set up in 1958, at the peak of the country's Great Leap Forward Movement. It was one of the second batch of projects receiving aid from the Soviet Union. Its planned production capacity was more than 7,600 machine tools per year and it was to employ almost 10,000 people. The factory covered a total area of about 240,000 square meters. Designed to be the largest machine tool production base in the country, the factory required a total investment of more than 25 million yuan.

The factory began operating in April 1959, but several months later, two large workshops in the factory, which covered a total area of 1,200 square meters, were found to be subsiding. To avoid further damage, the then Gansu provincial government department in charge of industry decided to move more than 200 pieces of machinery and equipment to today's Xuelian Machine-Building
Factory. As a result, the number of Huanghe Machine Tool Factory's employees was reduced from nearly 10,000 to around 1,500. Its space was also reduced to about 90,000 square meters with only 37,000 square meters actually in use.

During the 1960 national economic readjustment, the factory operation was almost totally stopped and the number of its employees further dropped to around 200.

The next year saw the ill-fated factory merge with a ball-bearing factory in Lanzhou and resume production. At one point, the Ministry of Machine-Building Industry planned to take over the factory, but the local government was reluctant to give it up.

From 1966 to 1970, the ministry twice decided to move part of the Beijing Machine Tool Factory and Qiqihar Machine Tool Factory, as well as two heavy-duty workshops of Shenyang No. 1 Machine Tool Factory to Lanzhou to be merged with Huanghe Machine Tool Factory. But the local government effectively resisted the proposal by requiring all staff and workers to be moved to Lanzhou with the machines and equipment and "to bring with them their grain rations"—which was virtually impossible at that time.

About 16 years later, Huanghe Machine Tool Factory, just in its initial stage of reform, joined Lanzhou Petroleum Corporation, a firm that was to combine the control over personnel, finance, materials, supply, production, and marketing. However, the corporation did not organize its operation along these lines, and by 1987 the corporation itself broke up.

One could say that the "congenital defects" of Huanghe Machine Tool Factory were due to the lack of a scientific feasibility study for its establishment, to incomplete and incompatible equipment, and to the fact that auxiliary facilities were installed without state examination and approval, among other things. Although it did have several opportunities to make up for those defects at a later date, unfortunately little was done in this regard by the local government or department leaders.

Like most other enterprises, this factory used to be under direct state management, which meant that it was only responsible for fulfilling its production tasks. Several generations of leaders of the responsible government department and corporation have passed, but each would always turn a blind eye to the existing problems caused either by the wrong decisions of their predecessors or mistakes in state policies. Therefore, enterprises were eating out of the "big pot" of the state and employees eating out of the "big pot" of the enterprise. This practice was gradually taken for
granted. Consequently, in the past three decades, Huanghe Machine Tool Factory made almost no contributions to the state; rather, it incurred a loss totaling more than 8 million yuan. It is only in recent years that the factory has begun to make a profit. From 1983 to 1987, it paid the state a total of nearly 5 million yuan in profits and taxes.

The Current Status of Huanghe Machine Tool Factory

After many years of ups and downs, the factory settled to a relatively even keel in 1987. By then, the factory had a total of 1,470 staff and workers, 409 pieces of machinery and equipment for production (including 298 principal machines), and turned out products such as ordinary machine tools, oilfield beam pumping units, and transmission cases of three series, five models, and 10 specifications. Of those products, the CW6163-AL modified model of a 6-meter lathe was widely sold domestically; the products of the same model turned out by Shenyang No. 1 Machine Tool Factory and Dalian No. 2 Machine Tool Factory were sold mainly for export. So Huanghe Machine Tool Factory was the leading supplier of such machines for the Chinese market and produced about 250 such lathes for sale each year. The factory's C6138-AL lathe was also a modified model of its traditional product C618, which was suitable for small enterprises; and the factory's CY8-3-48B-I beam pump was named a provincial-quality product in 1987. Although credit for this achievement was due to all the staff and workers of the factory, the factory also had an excellent contingent of technical personnel. It had a total of 101 technical staff in 1987, including 12 senior engineers and 61 employees with middle-level professional titles such as engineer (as well as economist and accountant). Twenty-eight had junior titles such as assistant engineer. Most of these technical personnel had graduated from regular universities and colleges before the Cultural Revolution of 1966. They were skilled in their specialties and had ample experience. This, surely, was one of the major advantages of Huanghe Machine Tool Factory. However, a large number of the factory's 186 managerial staff had little knowledge about or experience with modern management. Efficiency was therefore very poor and staff put a great deal of energy into an internal struggle. The low quality of this group had become a headache for the director. But owing to the complex internal and external connections and personal relations, it became very difficult to shift good people to the front line of production. This is not an uncommon phenomenon.
Organization

In the first 20 days after Director Tang took office, he devoted almost all his energy to the factory's relations with the corporation and spent only a limited amount of time learning about conditions in the factory itself. Because the country was then undergoing economic reform, some of it might have been expected to rub off on them. But, the old relations and power distribution between enterprises and their "responsible departments" remained unchanged. Those so-called responsible departments could still interfere in the internal affairs of enterprises. As a result, many enterprises failed to obtain the autonomy granted by the state through the current economic reforms. In a certain sense, the dual-track macromanagement system and the organization of the enterprises themselves have provided the conditions for the above-mentioned interference from external organization (see Figures 6.1, 6.2, 6.3).

Figure 6.1 The Position of Huanghe Machine Tool Factory in the Country's Structure of Industrial Administration
Production

One of the items the factory produces is the CW6163 lathe. This type of lathe has a total of 2,758 parts and components. Of these, 918 must be specially produced and the remaining 1,840 are either matching parts or standard parts that can be purchased from other producers. Most components have to go through more than 20 processing stages, including casting and forging, primary and fine lathing, heat treatment, milling, grinding, scraping, polishing, inspection, assembly, testing, and packaging. This production process involves a total of 8,550 processing steps in addition to a large amount of preparation of production equipment. Therefore, to ensure the timely delivery of a CW6163-AL lathe, it must be ordered 25 days in advance.

On average, Huanghe Machine Tool Factory can produce 370 such machines each year. However, some of its workshops do not have the production capacity to meet this quota (see Figure 6.4). Also, customers frequently complain about the quality of the lathe’s guide rail or the precision and degrees of resistance to abrasion and the flexibility of its smooth roll and lead screw as they directly determine the life span and precision of the machine. In order to solve problems of quality in these fields, the factory’s technical transformation program called for the purchase of a guide rail grinder and a long axle-straightening cased-heat treatment oven, but because of the lack of funds, the factory had to give up the plan.

In the second half of 1984, Huanghe Machine Tool Factory joined the Lanzhou Petroleum Corporation, an integrated economic organization. The factory was forced to invest 2.7 million yuan in introducing two production lines to turn out oil production equipment (namely, cylinder packing and beam units). Later, the beam unit production line built up an annual production capacity
of 200-300 units. So, by joining the Corporation, the factory was given an opportunity to restructure its production, which proved to be beneficial.

**Figure 6.4 Final Production Capacity**

![Bar chart showing production capacity](image)

Of the factory's 1,400 staff members, only about 400 worked on the front line of production. According to the available statistics, to produce a CW6163-AL lathe in Huanghe Machine Tool Factory took up to 2,300 man-hours, in comparison with the 1,600 man-hours needed by Dalian Machine Tool Factory under similar production conditions. The low production efficiency of Huanghe Machine Tool Factory is directly related to its backward management, overstaffing, and "big pot" distribution system.

**Marketing**

Most of Huanghe Machine Tool Factory's main products—lathes—are sold in Zhejiang, Fujian, and Sichuan provinces and Guangzhou, Shanghai, Nanjing, and Wenzhou. The factory has set up 50 marketing services shops in those areas and appointed three full-time sales and repair persons to shuttle between these shops to provide its customers with all types of services. The CW6163-AL lathe is of a medium size and can process products ranging from 750 millimeters to 8 meters in length and 360mm to 800mm in diameter. Its customers include shipyards, paper producers, and enterprises in rubber and textile industries. In 1987, Huanghe Machine Tool Factory turned out 320 lathes, which accounted for
7.1 percent of the country's total output of this product. In recent years, the rapid development of township enterprises in newly opened economic areas pushed up the demand for CW6163 and C618 6-meter and 8-meter lathes. The following table shows the trend in sales of CW6163-AL 1.5-meter lathes.

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</thead>
<tbody>
<tr>
<td>Sales (lathes)</td>
<td>281</td>
<td>250</td>
<td>208</td>
<td>274</td>
<td>289</td>
<td>294</td>
<td>288</td>
<td>320</td>
</tr>
<tr>
<td>Total cost:</td>
<td>(10,000 yuan)</td>
<td>952.4</td>
<td>913.5</td>
<td>860.8</td>
<td>943.6</td>
<td>962.4</td>
<td>968.7</td>
<td>961.2</td>
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</table>

At present, Huanghe Machine Tool Factory is one of the major suppliers of such lathes to the markets of east and southwest China. Because the machine tool industry in northwest China is still quite backward, there is a large potential market in this area. As for competition from other factories, Huanghe Machine Tool Factory has many advantages in terms of location, transport, technical strength, and access to the latest information.

**Funding**

After the breakup of the joint corporation in 1987, Huanghe Machine Tool Factory received no more orders for oil production equipment. The two production lines specially built to produce oil production machines had become idle. Meanwhile, the factory lacked the funds to purchase the necessary equipment of the production of key parts of lathes. In that year, Huanghe Machine Tool Factory had only 870,000 yuan of working capital, including 680,000 yuan allocated to the factory by the state in 1980. So the factory's own working capital amounted to less than 200,000 yuan. As a result, the factory had borrowed bank loans totaling 6.7 million yuan and had also borrowed 1.08 million yuan from the Machine-Building Industry Corporation of Gansu Province. Each year the factory had to pay 560,000 yuan interest on its loans. Its capital took as long as 268 days to turn over. Last year, the factory reaped a net profit of just under 16,000 yuan and seems to be having difficulties.
Interestingly, however, the situation is quite different for a collectively run enterprise and a joint venture that both share the same compound with Huanghe Machine Tool Factory. One is the Riveting & Welding Branch Factory, formerly a subsidiary of Huanghe Machine Tool Factory, and another is Huanghe-Liming Aluminum Window Factory, jointly set up in 1985 by Huanghe Machine Tool Factory and Liming Aviation Engine Company in Shenyang, with each of them investing 300,000 yuan in the joint venture. These two state-owned and collectively run enterprises both have cooperative relations with Huanghe Machine Tool Factory, but externally they are registered independent enterprises that enjoy autonomy in their management. They take care of their own profits and losses. The following table may prove illustrative:

<table>
<thead>
<tr>
<th>Enterprise</th>
<th>Staff (person)</th>
<th>Full-attendance annual output value (10,000 yuan)</th>
<th>Labor productivity (10,000 yuan/person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huanghe Machine Tool Factory</td>
<td>1,470</td>
<td>1,056</td>
<td>0.718</td>
</tr>
<tr>
<td>Riveting &amp; Welding Branch Factory</td>
<td>195</td>
<td>600</td>
<td>3.077</td>
</tr>
<tr>
<td>H-L Aluminum Factory</td>
<td>31</td>
<td>51</td>
<td>1,645</td>
</tr>
<tr>
<td>HMTF Labor Service Company</td>
<td>50</td>
<td>65</td>
<td>1,300</td>
</tr>
</tbody>
</table>

Note: These are 1987 figures. All the enterprises in the table are located in the same compound.

This means that the 240,000 square-meter compound contains collectively run small enterprises as well as a large state enterprise. This compound has thus been divided into several different economic systems with different economic results. No wonder, after an inspection tour of the compound, a provincial government official in charge of economic system reform said ironically: "By walking into this compound one can see Hong Kong, Taiwan, and the mainland." If this is the case, one would inevitably come to the conclusion that in the state enterprise the "big pot" system and "iron rice bowl" are still in existence.
A Factory Conference

After being appointed director of Huanghe Machine Tool Factory, pending the election, Tang buried himself in piles of data, documents, and reports in an effort to obtain a better understanding of the situation in the factory. Tang then convened a conference to discuss the factory affairs. Here are some excerpts of the conference minutes:

Date: May 5, 1988 (Thursday) 8:30 a.m.
Location: Factory Meeting Room
Participants: Director Tang Zhongjie
Deputy Directors:
Feng Biao (in charge of production)
Wu Zhijie (in charge of operation)
Zhu Xin (in charge of logistics and administration)
Chief Engineer: Liu Yizhou
Chief Accountant: Li Dacheng
Trade Union Chairman: Wang Yucheng

The conference is presided over by Director Tang.

Tang: I have invited all of you to attend this meeting to discuss the two topics that the management office told you about two days ago. The purpose of the meeting is to provide all of us an opportunity to analyze the status quo of Huanghe Machine Tool Factory in an objective way so that we can be better prepared to work out the factory’s development strategy. Now, please speak up.

Liu: I’d like to say something first. Last year, our production was poor, in part because we made mistakes in setting our policies and in our operation and because we inherited some problems from the past. At present, the 12,636-square-meter Second Joint Plant is subsiding because its foundation is too shallow. Although a decision was made in 1985 to abolish the plant, we cannot find a place for nearly 100 pieces of machinery and equipment and the more than 200 workers in the plant. This problem must be solved immediately. In addition, of the factory’s 298 production machines, 59 have already broken down, 79 have exceeded their depreciation period, and nearly 47.8 percent of the rest have already served more than 20 years. So our equipment is becoming obsolete, creating serious problems in precision and featuring backward techniques. We lack high-precision and efficient equipment. From a long-term point of
view, technical transformation is the task the factory must face. This is my first point.

Second, in view of the current machine tool market and the rapid development of township enterprises, a large number of old enterprises have begun to undertake this technical transformation. This has created certain conditions for stable production in the machine tool industry. In particular, after the state issued the circular calling for the elimination of the eighth batch of electric machinery products, many factories in our trade around the country will enter a transition period to shift from producing old products to new products. For instance, Anyang Machine Tool Factory is the largest CW6163 and C630 producer in this country and its output accounts for about one-fourth of the country’s total. However, because the old products would have to be eliminated, it would take time for the technical transformation to yield any effects.

Here is another example. Guangdong Machine Tool Factory may not be able to engage in normal production because the factory is going to be moved to another location. Our factory’s products have already been upgraded several times. We have introduced all the strong points of the products in Shenyang No. 1 factory, Dalian No. 2 factory, and Guangdong factory into the design of our products and after several years of production and use by our customers, our products are leading in the machine tool industry in China and have reached the international level of the 1970s. So, as long as we try to guarantee the quality of production and improve our sales schemes, it is possible for us to take a bigger share of the market and raise the factory’s economic efficiency. However, we must not underestimate the competitiveness of the above-mentioned factories two or three years later.

Wu: According to last year’s statistics, the 14 producers of CW6163 (including C630) in this country turned out a total of 4,496 machines and sold 4,468, or 99.38 percent of the total output. Since the middle of last year, the demand for these machines has been growing. At least, we can say that sales remain stable and are even increasing, as is evident by comparing the statistics of our factory’s production in the first quarter of this year with that of the same period of last year (see Table 6.1).

From the viewpoint of market demand, the demand for our main products is increasing. However, because difficult techniques are involved in producing them, ordinary new factories or small factories will find it hard to mass produce such products. The Shenyang Machine Tool Research Institute predicts that the demand
for engine lathes of the above specifications will make up to 18 to 20 percent of the total demand for machine tools, which means the annual demand will reach 10,000 to 10,800 machines. Today, many factories are engaged in the production of such lathes, but their output still cannot meet the demands of the market. One problem in our own factory is the sharp increase in the price of raw materials. The prices of parts and components that we purchase from other producers have jumped by 70-100 percent and the price of steel products is also going up (see Table 6.2). But the most serious problem is the quality of our products, particularly the quality of casting and the guide rail. Our products may face a state "quality veto" at any time.

Feng: The quality of casting is another serious problem. Besides a high reject rate, poor quality often undermines the production plan of the processing workshops and affects the appearance of our products. The QC panel of the Casting Shop has solved some of the problems, but it has failed to eliminate the air cavities in the guide rail. Another problem, which has already been mentioned by Chief Engineer, is that there are more of 200 of our staff still working in that dangerous building. If anything happens, I don't think anyone here can be held responsible for the consequences.

Liu: In the past we attended a lot of meetings, but not many problems were solved at such meetings. We discussed them over and over and then made no decisions. Last year, after the breakup of Lanzhou Petroleum Corporation, we were in a difficult situation. At that time, Lao Li (Chief Accountant) and I put forth a proposal for solving the problem and had even signed a letter of intention. Two of us submitted a report to the factory management for this purpose, which has simply disappeared.

(Chief Engineer Liu produces from his pocket a copy of the report he has kept. Its edges have already turned yellow. He passes the report to Director Tang. See Appendix 1.)

Liu continues: The question is not whether we can find ways to solve these problems but whether we are able to tackle them. According to a report in the China Machinery Journal of March 3, 1988, Hong Kong companies in Shenzhen were purchasing large amount of gears, gearboxes, speed reducers, pulleys, taper sleeves, ring flanges, and bearing blocks, which were customized according to their design and then were exported to Europe and North America. I believe our factory has the capability to undertake such customization.
According to the predictions for 1990-1995, the demand for engine lathes will drop. But if you consider that about 46.92 percent of the existing lathes in this country have served 11-20 years, 21.93 percent have served more than 21 years, and the total of such machines accounts for 68.85 percent of the country's lathes, the aging problem is serious and the demand for engine lathes is not likely to drop sharply in the next 10 years. But upgrading and transforming those machines is going to be a formidable task.

Tang: This is a real problem. According to the 1985 statistics of Gansu Province, there were 12,936 metal stock-removing machines in enterprises at and above the county level throughout the province. Today, 1,400 of them need to be upgraded and modified. The Provincial Planning Commission (formerly the Provincial Economic Commission) has repeatedly asked the corporation to work out a program and promised to grant some subsidies. If we are going to handle 100 of them each year, it will take 14 years!

Wu: Last year, the economic efficiency of our factory was quite low. I think there were two reasons for this: One was that the prices set by the state for the machine tool industry were too low, which promised a mere 10 percent profit rate, but this was very unfavorable for factories putting out single products as we do. Second, we were not very well informed about the market situation. The price of the same product turned out by other producers could be as high as 50,000 yuan/machine while that of ours was only 42,000 yuan/machine, or even lower. The average price for our machine tool products stood only at 31,000 yuan/machine. Such problems were largely caused by the factory's poor information-collecting system.

Wang: Ours is a medium-size state enterprise but it lags behind even the small collectively run enterprise with just a few dozen employees. This is a question that warrants careful consideration. Besides problems of production and enterprise operation that were just mentioned, another issue is who should be the master of the factory. Everyone is said to know that workers are the masters of enterprises, but in fact, this is not the case. If one cannot bring the masses of workers into full play, the factory can never prosper.

The prices of nonstaple food have continued to skyrocket, and all staff and workers continue to complain about the decline in their standard of living. Last February, the factory was unable to pay the 250 yuan requested by the local neighborhood committee for the Spring Festival lantern exhibition. As a reprisal, in the recent
“Double Civilization” inspection, the committee removed the title of “Civilized Work Unit” from this factory and its leader gave us a tongue lashing. Worker Sun Fulin, 33, could not get married because he has not been given a house by the factory. Sun says he would move into the factory director’s house by himself. During the Teachers’ Day in last September, as the factory failed to send some gifts to certain kindergartens run by the district government, this spring it refused to accept any of the children of the people in this factory. Deputy Director Zhu could not find the words to express the hardship he has experienced as a result. Bad luck for him as long as he remains responsible for the factory’s logistics and administration.

Who Will the Committee Select?

On the basis of this discussion and his own analysis, Director Tang drew up his proposal. But two other candidates submitted alternative proposals. The judging committee seemed to be having difficulty reaching a decision. People in the club wondered which program would be selected and who would be the new director (contractor) of the factory.

Questions for Discussion

1. What does the history of Huanghe Machine Tool Factory tell us? What lessons have been learned from its many ups and downs following the Great Leap Forward movement?

2. Describe the internal conditions of the factory using the factor analysis method.

3. How would you describe the factory’s external environment? What are its advantages and disadvantages?

4. Why did the factory reap almost no profits in 1987? Was it poor management or something else?

5. What does the present status of the factory tell us?

6. Suppose you are one of the factory’s potential contractors. What do you think its central problem is, according to the data provided? What problem needs to be solved immediately?

7. What program would you recommend to revitalize the factory? What conditions does the supervising corporation have to meet under the terms of your program? How would you convince it to accept your targets and program?
8. If you were one of the members of the selection committee, which contractor would you choose as the winner and why?

Table 6.1 Factory Production, First Quarter of 1988 and 1987

<table>
<thead>
<tr>
<th>Order for Machines</th>
<th>Number</th>
<th>% in Plan</th>
<th>Number</th>
<th>% in Plan</th>
<th>Increase (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales volume</td>
<td>290</td>
<td>96.7</td>
<td>113</td>
<td>37.7</td>
<td>156.6</td>
</tr>
<tr>
<td>Total sales (10,000 yuan)</td>
<td>86</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>258.3</td>
</tr>
<tr>
<td>Sales income (10,000 yuan)</td>
<td>219</td>
<td>83</td>
<td>83</td>
<td>83</td>
<td>163.8</td>
</tr>
<tr>
<td></td>
<td>223.49</td>
<td>159.43</td>
<td>40.2</td>
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</tr>
</tbody>
</table>

Table 6.2 Price of Steel Products, 1985-88
(Unit: yuan/ton)

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</thead>
<tbody>
<tr>
<td></td>
<td>1,042</td>
<td>1,260</td>
<td>1,350</td>
<td>1,500-1,600</td>
</tr>
</tbody>
</table>

Note: According to estimates, the enterprise will use 1,100 tons of steel products, of which about 500 tons or 45.5 per cent will be allocated by the state.
Appendix 1. Report on the Proposal to Transform the Casting Workshop

Director:

Because of obsolete equipment and outdated production techniques, the casting shop in our factory has had a high reject rate and consumption rate of raw materials in the past few years. The workshop can hardly meet our customers' requirements for the products, and production costs keep going up each year. The municipal casting factory is an enterprise specialized in casting with advanced techniques and turning out high-quality products. In the light of the existing conditions and after consultation with Director Feng, we have signed a letter of intent asking Lanzhou Casting Factory to produce the casting for our machine tools. Since the Lanzhou factory itself is facing some difficulties, it has set some requirements for such cooperation. After careful consideration, we have worked out two programs (enclosed) for your consideration.

Yours truly,

Nov. 7, 1987

Liu Yizhou
Chief Engineer
Li Dacheng
Chief Accountant

Program 1:

1. Huanghe Machine Tool Factory lends a lump sum of 800,000 yuan to Lanzhou Casting Factory and borrower shall repay the capital and interest in five payments within five years at an interest rate of 7.7 percent.

2. The Lanzhou Casting Factory must provide 1,200 tons of casting for Huanghe Machine Tool Factory each year at the preferential price of 900 yuan/ton.

Program 2:

Huanghe Machine Tool Factory and Lanzhou Casting Factory will jointly produce casting and the latter shall guarantee the supply of casting for the machine tool factory.

1. Huanghe Machine Tool Factory invests 1.5 million yuan in Lanzhou Casting Factory. Of the total, 80 percent will be invested in fixed assets (the annual depreciation rate will be 20
percent or set through negotiations between the two parties) and 20 percent is working capital.

2. Huanghe Machine Tool Factory will take 30 percent of the profits of Lanzhou Casting Factory each year.

3. Lanzhou factory shall provide Huanghe Machine Tool Factory with 1,200 tons of casting each year at the price of 920 yuan/ton, which is equal to its production cost.

4. In the first five years, Huanghe Machine Tool Factory will take back the depreciation fees of the fixed assets of Lanzhou Casting Factory that have been created through Huanghe Machine Tool Factory's investment.

5. The interest rate on the bank loan is 9 percent (which can be deemed a discount rate). As the casting factory faces some problems in its own operation and management, the ongoing operation calls for a 2 percent rate.

Notes:

We have learned that: 1. The original flexible production cost of Lanzhou Casting Factory is 450 yuan/ton and its basic annual output stands at 800 tons. 2. If it gets a 1.5 million yuan investment, the casting factory’s production capacity may reach 2,400 tons per year. The outlook for demand for the casting in the following five years is favorable.
Appendix 2. The Contract Program of Comrade Tang Zhongji

1. The form of contract:

The factory will be contracted out to an individual. The contract shall set the quotas of profits that the factory as a low-profit enterprise should turn over to the state. The factory remains a state-owned enterprise, but it will be run according to the policies governing collectively run enterprises.

2. The terms of the contract:

The contract will last for three years, starting from 1988 and ending in 1990.

3. The main economic and technical indexes for the contract are as follows:

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<tbody>
<tr>
<td>Total industrial output value</td>
<td>¥10,000</td>
<td>1,056.02</td>
<td>1,100</td>
<td>1,300</td>
<td>1,500</td>
</tr>
<tr>
<td>(at constant prices)³</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Net industrial output value</td>
<td>¥10,000</td>
<td>344.17</td>
<td>423</td>
<td>508</td>
<td>560</td>
</tr>
<tr>
<td>Sales income</td>
<td>¥10,000</td>
<td>1,012.9</td>
<td>1,200</td>
<td>1,450</td>
<td>1,700</td>
</tr>
<tr>
<td>Realized profits⁴</td>
<td>¥10,000</td>
<td>1.6</td>
<td>50</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>Profits tax paid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>including income tax³</td>
<td>¥10,000</td>
<td>66</td>
<td>111.5</td>
<td>155</td>
<td>201.5</td>
</tr>
<tr>
<td>Turnover of quota working capital</td>
<td></td>
<td></td>
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<tr>
<td>Production cost for each 100 yuan output value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Output of main product</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lathe speed</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Speed of product</td>
<td></td>
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<tr>
<td>Speed of product</td>
<td></td>
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<tr>
<td>Speed of lathe</td>
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<tr>
<td>Speed of speed</td>
<td></td>
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<tr>
<td>Speed of speed</td>
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<td></td>
<td></td>
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<tr>
<td>Notes:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. These figures are set by the contract.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. The income tax included in the profits tax will be retained by the enterprises after a preferential treatment policy is introduced.</td>
<td></td>
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</tr>
</tbody>
</table>
4. Products' quality and other economic indexes

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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage pass rate of main products</td>
<td>%</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Rate of output value of quality products</td>
<td>%</td>
<td>/</td>
<td>15</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Rate of first-grade products</td>
<td>%</td>
<td>/</td>
<td>/</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Products that win quality product title</td>
<td>%</td>
<td>1</td>
<td>/</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Steady improvement rate in quality of products</td>
<td>%</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Utilization rate of steel products</td>
<td>%</td>
<td>48.5</td>
<td>51</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Steel consumption rate in terms of net output value</td>
<td>ton/10000 ¥</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2.5</td>
</tr>
<tr>
<td>Energy consumption rate in terms of net output value</td>
<td>ton (stand coal)/10,000 ¥</td>
<td>16.63</td>
<td>15</td>
<td>13.5</td>
<td>12</td>
</tr>
<tr>
<td>Average per capita profits tax</td>
<td>yuan/person</td>
<td>450</td>
<td>924</td>
<td>1,360</td>
<td>1,790</td>
</tr>
<tr>
<td>Full attendance labor productivity in terms of net output value</td>
<td>yuan/person</td>
<td>2,341</td>
<td>2,877</td>
<td>3,435</td>
<td>3,810</td>
</tr>
<tr>
<td>New products developed</td>
<td>%</td>
<td>70</td>
<td>60</td>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

5. Technical transformation

1. Depending on the degree of urgency, steps will be taken to transform and upgrade key production equipment such as the guideway grinder and the casting shop.

2. A new factory building will be constructed with a total floor space of 4,000 square meters and the machines and workers will be removed from the subsiding building as soon as possible.

3. All necessary public facilities and other complementary projects will be established.
The investment in the above three categories will total 4 million yuan.

Sources of Funding

A. The corporation will be asked to grant a 2 million yuan loan at discounted or low interest rates.

B. After the 30 percent of equipment depreciation fees are turned over to the state, the factory can retain about 700,000 yuan in depreciation fees each year.

So, in three years, the factory could have more than 4 million yuan to invest in its technical transformation.

6. With respect to the use of the factory’s retained profits, during the 1988-1990 period, the factory should be exempt from income taxes and the profits retained by the factory will totally be included into the “enterprise retained fund,” which will be used mainly for production development and bonuses for employees.

7. Treatment of the precontract creditor’s rights and debts of the factory:

A. In order to enable the factory to fulfill all the targets set for the contract period and to create a more favorable environment for its operation, the factory will ask the corporation to write off the 1.08 million yuan it borrowed before the contract is signed.

B. The factory invested 2.74 million yuan to introduce the beam unit production line (not including that for the factory building). Of the total investment, 1.70 million yuan was borrowed. The factory intends to repay only 950,000 yuan it has borrowed from the investment company, Lanzhou Petroleum Corporation and Lantong Factory, and it will ask the creditor of the rest of the loan to write it off and regard it as state compensation in the investment for setting up the beam unit production line.

8. Payroll and bonuses

Employees’ wages will be tied to the factory profits and allowed to float at several different levels. On the condition that the designated year’s economic and technical targets will be met, the base of the factory payroll (not including bonuses) will be set at 2.20 million yuan when its base of realized profits is set at 500,000 yuan. If the set target for profit is reached, the factory’s payroll will increase from its base at an annual rate of 7 percent.
9. Proposals for repaying old debts

A. The 950,000 yuan debt (250,000 yuan from the investment company, 500,000 yuan from Lanzhou Petroleum Corporation, and 200,000 yuan from Lantong Factory), borrowed for the 2.74 million yuan investment in building the beam unit production line, will be repaid through gradually increasing installments starting from 1988, and all the capital and interest will be repaid before 1990.

B. The 2 million yuan loan with discounted interest rate that the factory intends to borrow during the contract period will be repaid in several installments after 1991.

10. Organization

Following the principle of streamlining the administration and raising efficiency, the factory will restructure its organization to set up five departments, two offices, and a union.

The five departments are operation, production, technical, personnel and education, and logistic departments.

The two offices are the factory administrative office and the Party committee office.

And the union will be the trade union.

Operation department: The factory director will also be the chief of this department, with an economist as his deputy.

Production department: A deputy factory director will head this department, with the former production section chief and accountant as his deputies.

Technical department: The factory's chief engineer will head this department, and the former production technique section chief will be deputy chief of this department.

Personnel and education department: One of the deputy directors of the factory will be head of this department, with the former education section chief as his or her deputy.

Logistics department: One of the factory's deputy directors will head this department, with the former chief of the general affairs section as the deputy chief of the department.

Each department, in the light of needs, may have several cadres.

Each of the above-mentioned two offices will have a chief.

The trade union will have a chairman and several assistants.
Operational Policies

With the lathe as its main product, the factory will develop a diversified, multichannel operation and enter all types of economic cooperation. The aim of developing a diversified operation is to support the production of the main products and to guarantee a steady improvement in the factory's economic efficiency.

Measures to be adopted

1. To conduct corresponding reforms in the factory's personnel, labor, and wage systems to wipe out the "big pot" system and the "iron rice bowl," which guarantees life-time employment. The contract will cover every corner and every level of the factory. In the eight main workshops, the middle-level cadres will be appointed through tendering or competition, and the workshops will operate under independent accounting. Their payroll will also be linked to their output, and the quality of their products and their accounts will be settled according to the internal planned prices of the factory.

2. The piecework and quota wage system will be strictly enforced. Cadres will be appointed through contracts and the size of the staff will be fixed according to the positions needed in a department. The labor organization will be improved by eliminating incompetent staffers and workers. The accounting units will be streamlined and an effort made to strengthen the factory's management and raise its efficiency.

3. A strong technical contingent will be set up to work out annual technical transformation plans. It should focus its efforts on and give priority to projects that will improve the quality of products and production safety to yield quick results.

4. The single-product structure will be changed to reduce operation risks and sharpen the factory's competitive edge.

A. An effort will be made to expand the existing CW6163-AL engine lathes sizes of 1.5, 3, and 6 meters to 4, 5, and 8 meters to enable the factory to turn out a complete series of this type of lathe to improve its competitiveness in the market.

B. Cardwood-structure C630 and C618 lathes will be developed to meet the need for lathes with different functions used on specialized production lines.
C. The existing beam unit production line will be used to develop speed reducers with a center distance of 850 and 1,000 millimeters. Following the principle of mutual benefit, Huanghe Machine Tool Factory will seek stable cooperation with Lanshi Factory and Lantong Factory to produce a beam pump or its speed reducer, depending on market demand.

D. With the Riveting and Welding Branch Factory as a base, Huanghe Machine Tool Factory will develop the production of metal parts and try to obtain a license for the production of pressure containers with three years and then begin production of such products.

5. The surplus staff and workers created by the improvement in the labor organization will be organized to strengthen the logistic department, provide various services, and engage in the tertiary industry in order to raise the employees' social benefits, enrich their cultural life during their spare time, and find an appropriate position for everyone in the factory with a view to improving the enterprise's overall efficiency.

6. An effort will be made to improve the quality of the factory's managerial personnel and to upgrade its level of management and efficiency. To this end, the factory has signed a letter of intent with the Economic Management College of Gansu Province and won the support of the latter for (1) holding two courses to train section chiefs and group leaders from the factory's workshops and (2) accepting cadres at and above the level of workshop chief in the factory to attend training courses in different groups and at different times at the college to study modern enterprise management.

May 30, 1988
Appendix 3. The Changzheng Petroleum Machinery Research Institute Program for Putting the Huanghe Machine Tool Factory under Its Administration

(Legal Representative: Shi Yuancheng)

1. Analysis of the Current Situation

The Changzheng Petroleum Machinery Research Institute is a category-1 institute directly under the administration of the Ministry of Machine-Building and Electronics Industries and is in charge of the nationwide technological development of the petroleum machinery industry. In 1984, it was designated by Gansu Province as a pilot work unit in introducing reforms in the scientific research system in the province. In the following year, the Ministry of Machine-Building Industry designated the institute as the pilot work unit for introducing the technological contract system to replace the old state system allocating operational fees for the institute as a state institution. In other words, the state would stop its fund allocation for the institute and the latter would have to make profits through technological contracts, thus turning it from a pure research unit into an institute that combines scientific research with commercial management.

Such reforms have speeded up the process of applying this institute's achievements in scientific research to production. So far, it has established horizontal cooperative relations with dozens of factories, mines, and enterprises both inside and outside Gansu Province. After three years of hard struggle, the institute can support itself with its own profits, its research work has witnessed remarkable progress, and the working conditions and living standards of its employees have been greatly improved. At present, this institute still lacks a stable base with a sizable capability for conducting scientific research experiments and production to promote the development of technological projects and spread the achievements of scientific research.

Huanghe Machine Tool Factory is quite a large industrial enterprise under the administration of the Gansu Province's Machine-Building Industry Corporation. According to our initial investigation, we understand that this factory now faces the following problems:

1. Lack of variety in its products and low economic efficiency.
   For many years, Huanghe Machine Tool Factory has produced basically only CW6163-AL and C630 engine lathes, which feature a long production cycle and high production
techniques. Also owing to the state price control, such products usually reap only slim profits.

2. Because of a shortage of funds the factory is now operating with heavy debts. At present, the enterprise has only 870,000 yuan working capital, including the 680,000 yuan allocated to it by its responsible department at higher levels.

3. The factory was set up during the country’s Great Leap Forward Movement in 1958. Because its foundation is too shallow, the 12,000-square-meter main factory building is subsiding and may soon have to be abandoned. Most of the factory’s machines, equipment, and production techniques are out of date and it is facing the difficult task of technical transformation, which requires a total investment of 5-6 million yuan.

4. Under the constraints of the old system of managing state enterprises, the factory could not tie together the responsibilities, rights, and interests of cadres and workers or link their income to their performance.

2. Put the Factory under the Administration of the Institute

We suggest that the Huanghe factory be put under the administration of the research institute. This means changing the factory’s original subordinative relations and turning it into a scientific research, trial production, and production base and a component part of the Changzheng Petroleum Machinery Research Institute. In this way, the institute could provide the factory with the latest achievements of scientific research, help it develop the new products customers need, and create the capacity to turn out machine tools, petroleum machinery, and other products and thereby eliminate the existing single-product production structure.

Being part of the research institute, the factory could enjoy the benefits of the state preferential policy toward such institutions and become a new type of enterprise pioneering in scientific research. Once this institute has reached a certain capacity and size of development funds, it will facilitate the development and testing of new products and help turn the achievements of scientific research into products as soon as possible, thus speeding up the development of the country’s capabilities in science and technology and helping to develop the national economy.
3. Policy on Running the Factory and Its Short-Term Goals

THE POLICY. To stabilize machine tool production, readjust the product structure, and prepare for three years of struggle to turn the factory into an enterprise pioneering in scientific research.

THE GOALS.

1. After three years of endeavor, the factory's annual output value should reach 17 million yuan by the end of 1990, and efforts should be made to double its output value of 1987.

2. After three years of endeavor, the factory's accumulated profits during the three years should amount to 2.6 million yuan and efforts should be made to increase the figure to 3 million by the end of 1990.

3. Starting from 1989, each year the factory should turn out one or two new products and introduce scale production of a certain capacity for such new products.

4. By strengthening the control of production techniques and tightening the discipline in this field, an effort will be made to promote the factory to a higher level of enterprise, and to raise its overall management level. The target is to enable the factory to become a provincial third-grade enterprise by 1990.

5. By using the returned profits and other investment channels to meet the demands for improving the technical level for the production of machine tools and by readjusting the factory's product structure, the technological transformation program must be carried out during the Seventh Five-Year Plan period.

6. This year, the salaries of every employee in the factory shall be raised by one grade in the salary scale and an effort will be made to raise or let salaries float up another grade by the end of 1990.

7. The bonus system will be restored to gradually increase employees' incomes under the precondition of contributing more to society and the factory.

8. Under the precondition of contributing more to society and the factory, the factory will promote workers' collective welfare and do several practical things to improve the standard of living of the factory's employees.
1. To stabilize the factory’s current machine tool production to ensure that it can basically keep its present annual output of 200-300 C630 lathes (standard ones) and annual output value of 6-9 million yuan. Efforts will focus on improving the quality and raising the level of its products, increasing the proportion of high-grade products, and gradually switching its products in the direction of numeric control, numeric display, high efficiency, and high precision.

2. Using this institute’s achievements in scientific research in the field of petroleum machinery, an effort will be made to develop petroleum equipment, the pneumatic balancing beam-pumping unit, crank beam-pumping unit, and other efficient and energy-saving beam-pumping units. Within three years, the factory should be able to turn out 100 beam-pumping units annually with a total output value of 7 to 8 million yuan. Meanwhile, the factory shall try to improve the quality of its products, increase the proportion of marketable new products, and gradually switch to large-scale, high-efficient, series and complete sets of products.

3. The factory’s current advantages will be brought into full play in developing its capability for complete processing in the production of machine tools and for specialized, high-efficient, and customized products to meet the needs in enterprise technical transformation, so that the factory will become technical leader of the machine-building industry in Gansu Province.

4. With the market as the guide, the factory will expand the scope of its services and develop new products, such as large-scale precision dies and engineering plastic machinery, in accordance with market demand.

4. Measures

To reform the operational mechanism and expand the internal reforms.

1. To introduce the director responsibility system to strengthen the director’s status in the factory. The director will be appointed by the president of the Changzheng Petroleum Machinery Research Institute and the factory “cabinet” will be organized by the director. The director contract system and the system setting goals to be achieved during the director’s tenure shall also be implemented. Economic efficiency,
product quality, upgrading of products, and technical transformation shall be used as a series of indexes in evaluating a director's performance.

2. To reform the factory's internal operational mechanism. Efforts will be made to establish smaller accounting units and introduce contracts at each level, so the tasks and economic targets can be assigned to the grass roots units or individuals. Wherever the conditions are ripe, the leasing system can be adopted on a trial basis. Also, preparation shall be made for setting up an internal banking system to introduce two-tier accounting. Each independent accounting unit within the factory will have real decision-making power in its management and will take care of its own profits and losses.

3. To reform the personnel system and appoint cadres through the invitation system as well as the tenure-goal system so that competent people will be in positions of leadership, cadres will be ready to take a higher or lower post, and the life tenure system for cadres can be abolished.

4. To reform the labor system to bring into full play the initiative of all technical personnel, staff, and workers. By gradually introducing the contract system, the staff size of each group, section, and workshop shall be set and their working forces organized. Surplus nonproductive staff resulting from such reorganization shall be sent to work on the front lines of production to help raise labor productivity.

5. To reform the distribution system. The distribution system shall be diversified so that piecework salary can be introduced into the appropriate departments and for adequate types of work. For those departments that can adopt the leasing system, a contract shall be signed on the rents and they shall take care of their own profits and losses. For those who will be introducing a technological and economic development contract system, all relevant items in such contracts shall be strictly honored.

TO READJUST THE PRODUCT STRUCTURE AND OPEN THE MARKET. With science and technology as the driving force, new products will be developed for both domestic and international markets, and these markets will be opened up. Efforts will be made to keep the current production of machine tools and marketing at a level of 200-300 machines per year, but their quality will be improved and a complete series of products will be developed. The new products will first include a
series of energy-saving beam-pumping units such as pneumatic balancing and crank beam-pumping units. In three years, the factory should have the capacity to turn out 100 such units a year.

The factory shall also regard management as a key link and should replace its bureaucratic style of enterprise with vigorous economic activities. The management department should study the market, be well informed, and take the initiative in managing production. The planning department should give priority to the management and help transform the factory from a pure production unit into an enterprise that combines both scientific research and production. Gradually, the factory should set up an operational mechanism that integrates scientific research and production with trade.

5. Solutions to Remaining Problems

Before the factory becomes a subordinate work unit under the Changzheng Petroleum Machinery Research Institute, we hope that the provincial government, the provincial machine-building industry corporation, and relevant departments will help us solve the following nine problems:

1. To check and ratify the factory's circulating capital according to its production scale in 1988 and according to the general level in the machine-building industry. The insufficient part should be made up by the provincial machine-building industry corporation over several years.

2. To ensure the supply of raw materials. After the switch in subordinative relations, the quotas of raw materials for the factory shall still be guaranteed by the provincial machine-building industry corporation.

3. Preferential credit treatment should be offered to the factory to help it develop production. The provincial machine-building industry corporation provided the factory an interest-free loan valued at 4 million yuan. If the corporation has some difficulties in providing such a loan, it might provide the factory with a 4 million yuan loan at 60 percent free interest and the rest at a low interest rate.

4. In terms of taxation, except for machine tool products, the new sample machines and the trail products turned out by the factory shall be exempt from a product tax and income tax as well as the tax for transport and energy development fund.
5. To link the growth in the factory’s payroll with its economic efficiency. The 1988 payroll shall equal that of 1987 plus the part needed to raise the salaries by one grade in the salary scale for each employee. The technical titles for relevant staff and workers shall be appraised and decided upon and a salary system based on the grading of worker technicians shall be introduced. The payroll and the set target of profits to be made by the factory in 1988 shall be regarded as the baseline and with 1 percent increase in the factory’s profits, its payroll shall grow by 0.7 percent.

6. Financial affairs and auditing. Before the factory’s subordinative relations are switched, the audit department shall audit the financial records of the factory and assess its properties, creditor’s rights, and debts, which shall be deemed the financial situation when the factory comes under the administration of this institute. Each year thereafter, the achievements of the factory will be evaluated against this background.

7. To extend the debt repayment period. After ratification, the factory will continue to repay its debts incurred before it is put under the administration of this institute, but the repayment period will be rescheduled to begin from the fourth year or 1991.

8. The factory’s channel for receiving state-assigned college and secondary technical school graduates will remain unchanged.

May 30, 1988
Appendix 4. The Program of Lanhai Machine-Building Company for Merging with the Huanghe Machine Tool Factory  
(Legal representative: Li Jin)

The Lanhai Machine-Building Company was set up in June 1980. It now employs 1,437 people, including 507 state employees, and covers an area of 57,100 square meters. It has more than 850 sets of various kinds of equipment. Its fixed assets are valued at 19 million yuan and the company itself has a 30 million yuan fund.

The company has 20 factories and groups (departments) and four representative offices in other provinces. It engages mainly in the production of first- and second-class pressure vessels, metal structures, components of petroleum machinery, and nonstandard equipment. Its products are now marketed in Beijing, Henan, Guizhou, Xinjiang, and other places around the country. The consistent philosophy of this company is to emphasize the quality of its products, as well as the company's credibility.

Our policy in running the factory is to rely on the economic strength of the Lanhai Machine-Building Company and take advantage of the relaxed environment brought about by the state policy toward collective economy to run the factory according to strict rules and regulations, to perfect its commodity operational mechanism, to improve its capability, and raise its level of production by first changing its single-product structure and concentrating efforts on reform and tapping internal potential, and to help its machine tool products squeeze into markets throughout the country.

Our proposals are as follows:

I. To transform and perfect the factory's lathe and beam-pumping unit production lines and gradually form a new product structure that features machine tools as the mainstay, supplemented by components for petroleum machinery and pressure vessels.

1. The machine tool factory has traditionally been producing lathes, but owing to its single-product structure, outdated equipment, and uneven quality, its products lack a competitive edge in the market and its economic efficiency is low. Therefore, to tap the factory's internal potential, we will begin by improving the quality of its products, introducing advanced technology and equipment, perfecting its production means, and testing methods to upgrade the production technique as the key
link, which includes improving the casting quality of the lathe body and the precision of the guide rails. An effort will be made to push the current up-to-standards products to the level of first-class products to find a footing in the market and promote the popularity of the product, so that we can keep lathes as the mainstay products of the factory.

2. The machine tool factory has a beam-pumping unit production line with a total investment of 2.4 million yuan and our company has been engaged in the joint production of beam-pumping units with this factory for three years. At present, only some readjustments in the production line are needed to help the factory develop an annual production capacity of 100 beam-pumping units before the end of this year. The factory can do its own marketing and set its own prices. So an effort will be made to steadily develop the production of the beam-pumping units, which should be regarded as one of the main products of the machine tool factory.

3. There is a great potential market for the components of petroleum machinery, but owing to its limited space for production facilities as well as its processing capacity, our company has found it difficult to further increase its production. But, the processing methods of the machine tool factory are similar to those used in processing petroleum machinery components. Therefore, we propose to first build a cylinder packing assembly line in order to form an annual production capacity of 4,000 sets and then we may build spray pump and grouting pump production lines. By producing other components of petroleum machinery, the factory will not find it difficult to turn out 500 tons of petroleum machinery components each year.

4. At present, there is a large domestic demand for first and second-class pressure vessels. We will take advantage of the fact that our company has already obtained a certificate to produce pressure vessels to build a production line with an annual capacity of 500 tons to meet our customers’ demands.

5. The plan for investment in the factory’s technical transformation is as follows:

• In 1988, we plan to invest one million yuan in this field. The money will be used mainly to purchase equipment and technology, such as a guide rail grinder,
to improve the quality of the factory's products. Of the total, 600,000 yuan will be used for the above-mentioned purchases and the rest will be used to upgrade key equipment, which at present cannot guarantee precision in processing.

- In 1989, we plan to invest 3 million yuan, which will be used mainly to rebuild the now unusable factory buildings.

- In 1990, we plan to invest 4 million yuan in this field, aiming to raise the production capacity and level of the factory. Of the total, 2 million yuan will be used to upgrade equipment and another 2 million to build a 7,000-square-meter dormitory.

The three-year investment and efforts to tap the factory's potential and conducting the transformation should enable the factory to increase its annual production capacity to 400 machines in terms of machine tools alone.

II. Evaluation of the production capacity and efficiency

<table>
<thead>
<tr>
<th>Products</th>
<th>APC</th>
<th>Unit price</th>
<th>ATOV*</th>
<th>Annual profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW6163 machine tool</td>
<td>300</td>
<td>3</td>
<td>900</td>
<td>69</td>
</tr>
<tr>
<td>Beam-pumping unit</td>
<td>100</td>
<td>5.8</td>
<td>580</td>
<td>34</td>
</tr>
<tr>
<td>Petroleum machinery components</td>
<td>500 (t)</td>
<td>0.7</td>
<td>350</td>
<td>28</td>
</tr>
<tr>
<td>1st &amp; 2nd pressure vessel</td>
<td>500 (t)</td>
<td>0.5</td>
<td>250</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>2,080</strong></td>
<td><strong>153</strong></td>
</tr>
</tbody>
</table>

*Notes: APC = Annual Production Capacity; ATOV = Annual Total Output Value; Unit = 10,000 yuan.*
III. To run the factory strictly according to relevant rules and regulations by adopting positive and reliable measures and to improve the factory's personnel and labor management.

1. The machine tool factory is nearly 30 years old. It has a contingent staff and workers of certain technical quality and a key force of specialized technicians. By following the state-set principle that collectively owned enterprises should elect their own directors and recruit their own workers, we will largely rely on the employees of the factory to run it strictly according to the relevant rules and regulations and will introduce optimum labor organization. After fixing the number of jobs and the work load for each person working on the existing production lines, the factory will appoint cadres at all levels through invitation and will reorganize the labor force to achieve the optimum efficiency. The company will make appropriate arrangements for surplus staffers and workers resulting from such reorganization.

2. In accordance with the principle of “aiming for competency and efficiency,” we will introduce a competitive mechanism, readjust the management structure, and set up and perfect relevant management systems. Through means such as appointing cadres through invitation, introducing optimum labor organization, and readjusting the distribution system and other economic leverage, the factory will reduce the number of staff and workers on the second and third lines and send them to reinforce the labor forces on the front line of production. The same shall be done in the management departments at all levels in order to strengthen the grass roots units and improve production management.

3. By following the principle of “to each according to his work” in distribution, the factory will introduce the efficiency salary system to link work load quotas, costs, salaries, and bonuses directly to economic efficiency with no ceilings or floors, so that whoever contributes more will receive more.

IV. To adopt positive measures to improve the living conditions of the factory's staff and workers.
1. According to the state-set principle that collectively run enterprises should set their own salary levels, the company will draw 240,000 yuan from its rewards fund to increase the salaries of most employees of the factory. Six months after the merger, the company will allow most staff and workers' salaries to float to a grade higher in the salary scale upon examining their performance and contributions after the optimum labor organization system has been introduced.

As for the heads of production units with their own accounting, the company will introduce the existing target responsibility system into the factory. According to the system, those heads and their deputies can receive an additional income at the year end equivalent to 1-1.5 times their annual salaries, providing that they have reached the targets set in their contracts. The company will specify their responsibilities, and those who have failed to reach such targets will have their annual salaries deducted by 30 percent.

2. In the following three years, the company will allocate 2 million yuan out of its accumulated fund for building dormitories with a total floor space of 7,000 square meters to improving the housing conditions of the factory staffers and workers.

3. Every year, the company will draw 45,000 yuan from its welfare fund as subsidies for the Huang He factory employees to make up the price difference in purchasing liquefied petroleum gas so that they can enjoy the same price as the Lanhai company employees do. More specifically, the price for each cylinder of liquefied petroleum gas purchased by factory employees will be reduced from the present 10 yuan to 8.50 yuan.

4. Each year, the company will draw 30,000 yuan out of its welfare fund to be used as subsidies to improve the meals and services at the factory's canteen and the facilities of its kindergarten as part of the effort to gradually increase the material benefits for the factory employees.

5. Taking into consideration present price increases, starting from the next month after the merger, the company will use its welfare fund to pay each employee an additional five yuan a month as a living subsidy.
V. Several questions that need to be explained after the merger:

1. After being merged with our company, the ownership of the machine tool factory will be changed but all officially registered employees will continue to enjoy their status as state employees. Anyone among them who wishes to leave this factory will be allowed to do so in the capacity of a state employee. All the factory’s retired staff and workers will receive the treatment according to the state regulations regarding the retirement of state employees.

2. The merger will be conducted through purchasing. The properties will then be collectively owned and the capital will be reevaluated. After the reevaluation, the capital will be used to pay the factory’s debts and the land use right will be transferred together with its fixed assets.

After reevaluation, the fixed capital will be repaid within five years and the fund used for the payment will come from the company’s retained after-tax profits and depreciation fund. Each year, the company will pay back 2-3 million yuan of the state-owned properties.

3. In order to build four production lines and improve the employees’ housing conditions, the company intends to invest 8 million yuan into the factory within three years. This fund will consist of 2.5 million yuan profits to be made by the machine tool factory in the following three years; 3.5 million from equipment depreciation fees; and 2 million pooled by the company itself.

To achieve the above goals and meet the demands, our company has already asked Lanzhou Petrochemical Machinery Factory to be the guarantor for the repayment of the debts. The Lanzhou factory has decided (1) to help our company reach the three-year goals, and if this company cannot fulfill its tasks or is operating under capacity, the petrochemical machinery factory will shift part of its tasks to the company; and (2) if our company becomes bankrupt because of poor management, the Lanzhou factory agrees to take care of all those officially registered state employees (including the retired) of the machine tool factory at the time it was merged with the company.

Bright and early on November 26, 1986, the newly appointed director of Luoshan Canned Foods Factory, Mr. Liang Xiaojian, was in his office preparing to face a tremendous task: "reverse factory losses by 1987, make a profit of 100,000 yuan in 1988, and realize an annual 10 percent increase of profit afterward." These targets set by his superior management were weighing heavily on his mind.

At the age of 29, Director Liang was in the prime of his life. He had been born on the farm. After middle school, he did farm work on a production team. In 1981, when the Canned Foods Factory was built up, he was among the first batch of employees and was promoted to the position of team leader in recognition of his ability and competence. He was soon sent to Jiangnan Institute of Light Industry to study industrial enterprise management for two years, having earlier attended a half-year training course on food processing at the South China Institute of Tropical Plants. When he completed his studies in the autumn of 1986, he was assigned to work at the industry section of the farm. Not long ago, the former director of the factory, who had also served as deputy-director of the industry section, was transferred back to his home city Shantou, leaving vacant the office of factory director. To fill this vacancy, Mr. Liang was appointed the fourth director of the factory.

Director Liang knew only too well the workers and cadres of his factory and the situation his factory was in. Because of a shortage of
raw materials, the factory was running under capacity and could not fulfill its original production plan. The management problems that had been responsible for serious losses in both 1984 and 1985 (see Annex Table 1) seemed to be showing no marked improvement in 1986. And because of the low income levels, some workers had left the factory and employee morale was low. In a word, the factory was on the brink of collapse. Many people, including some leaders and staff members, had lost confidence in the enterprise and advocated its closure. After repeated discussions, the leading group of the farm finally decided to continue its operations for the time being.

Their decision was based on several reasons: (1) more than 1 million yuan had been invested in the enterprise, and it had considerable fixed assets; if the factory was closed, it would be difficult to dispose of these assets without incurring serious losses; (2) all employees in the enterprise were dependents of cadres working at the state farm headquarters, and closure would create unemployment problems for them; (3) the factory was an integral part of the agriculture, industry, and commerce complex and closing it would mean blocking the distribution channel for most of the agricultural products (fruits) produced by the farm.

Director Liang also knew full well the problems in management and the reasons for the losses. When he had worked at the Industry Section, he had looked into the reasons for the losses. He was sure that if the necessary conditions were satisfied, including sufficient independence over the management of production, supply, marketing, and labor and personnel affairs, and if he was provided with working capital and a fresh supply of fruit by the farm management, he could reverse the losses and make a profit in 1987, and realize a progressive growth of profit in the ensuing years. Mr. Liang negotiated the terms and conditions centering around the above objectives with the president of the state farm, Lian Ning, for two days, and assumed his present office the following day, after securing the farm’s commitment to meet his requirements.

Mr. Liang set to work on an implementation plan for his ideas to reverse the factory’s losses, but he had to stop halfway, to attend to some burning issues that required an immediate solution. For example, in recent days, workers had streamed in requesting to leave the factory to go elsewhere; factory executives were quarreling over the work arrangements during the coming off-season period; to make things worse, the one and only supply-cum-salesperson had just formally submitted his resignation request; the production plan for the next year had to be worked out right at that moment; a supply of fresh fruit had to be secured; packaging materials, cans
and bottles, and lids had to be ordered well in advance; and technical renovation and equipment procurement and maintenance needed his attention. None of these matters could be delayed or the entire production operations for the next year would suffer. Liang appeared to have well-thought-out answers to all those problems. He dealt with them one by one, while continuing with the master plan he had started to develop in his mind.

The following provides some background information about canned pineapple processing and the Luoshan Canned Foods Factory as well as the Wenlou state farm.

Canned Pineapple Processing and Luoshan Canned Foods Factory

The market for canned pineapple has experienced dramatic ups and downs in recent years. On the domestic market, the shortage of sugar before 1981 led many centers across the country, especially large industrial enterprises, to use pineapple syrup in cans as refreshment drinks, which helped maintain a premium price and high sales for canned pineapple products. Later, when the shortage of sugar eased up somewhat and there were good fruit harvests in northern China, the sales of canned pineapple dropped sharply. As a result, stockpiles grew and sales dropped even though the products were selling at 60 percent of their original price. Since early 1986, however, the price of canned pineapple has been on the increase, surpassing even the 1981 price levels.

Exports of canned foods have been more volatile still. Before 1983, the price of canned foods in the international market had been strong, and it had been profitable to export canned fruits. With energetic promotion efforts by provincial foreign trade corporations and strong prices, producers had reaped good profits. Regrettably, the good days passed too quickly. Since 1985, foreign trade corporations have lost interest in canned pineapple products, purchasing prices have been forced down, and tinplate is no longer available at the planned price. Exporters have even explicitly asked the producers to stop turning out such canned products.

Competition is fierce among canned pineapple producers. The simplicity of the processes and equipment necessary for the production of canned pineapple, particularly the bottled pineapple products aimed at the domestic market, put such operations within the scope of provincial, municipal, township, and community canned foods factories. And with less stringent quality requirements, state farms, townships, and villages are also in a position to set up such factories. In addition, some sugar mills also run canned fruits
operations as a sideline to their main activities, using off-season capacity to produce canned pineapple products. In recent years, some households have even started producing bottled pineapple products, using primitive equipment installed at home. As long as pineapple products sell well, the price is reasonable, and business is profitable, there will be various types of producers coming forward from every corner and competing with one another to produce and sell such products. Once sales become stagnant and the price falls, the producers will lose money and close their production facilities. Liang Xiaojian does not know exactly how many enterprises are competing in the same business line in the provinces of southern China, but he does know that there are no less than 10 competitors with considerable regular production capacity within his own city area. Luoshan Canned Foods Factory is small in comparison with its competitors.

Luoshan Canned Foods Factory (LCFF) is a small factory attached to Wenlou state farm, so named because it is situated in Luoshan Hill close to the farm. Wenlou state farm was founded in 1951; it has 80,000 mu of land and 3,500 employees. Its main operations consist of a natural rubber plantation and primary processing. In the late 1970s, in order to boost the economy, the government allowed, and in fact, encouraged the farm to enter into plantation and processing operations other than natural rubber after fulfilling the state plan for natural rubber production, and to engage in integrated agricultural, commercial, and processing operations. What was the most promising business to develop on Wenlou farm? After some research, analysis, and evaluation, the leaders of the state farm decided to grow and process pineapples. The reason for this decision were (1) surplus labor on the farm and 10,000 mu land (including glades between the rubber trees) were available and suitable for pineapple production, which would increase the utility of land and the income of farm workers; (2) pineapple promised a high output value per mu and economic gains (for details, see Annex Table 2). At its present price level, the per mu output value of pineapple is twice that of natural rubber, and also higher than other crops often grown in the area, such as sugarcane and bananas; (3) pineapple is a specialty in the area, famous for its high yield, quality, golden color, and sweet, tender, crisp, refreshing qualities, and often appears at state banquets to entertain honored guests; (4) the employees on the farm are experienced pineapple growers; (5) it is simple to produce canned pineapple products; and (6) this would enable the state farm to operate in a manner that integrated agriculture, industry, and commerce.
Luoshan Canned Foods Factory went into operation in 1982 after construction was completed. In the first year of operation, it trial-produced 69 tons of bottled pineapple in syrup and made a profit of 34,000 yuan from domestic sales. With the active support and encouragement of provincial foreign trade export corporations, it expanded its workshops and storage facilities, and constructed its export-oriented canned fruit (galvanized iron cans) production line. That year, it produced 255 tons of domestic-oriented bottled pineapple and export-oriented canned pineapple, and made a profit of 165,000 yuan—and had jumped its first hurdle.

The profits in the first two years greatly encouraged the leaders of the farm, who then bought whole sets of equipment for sideline production and built up new workshops for the production of concentrated fruit juice utilizing low-quality fruits, fruit kernels, and skins and other by-products such as pineapple proteinase and preserved pineapples. Soon afterward, they set up production facilities for producing soft drinks. For all the above, the farm invested 1.42 million yuan, including 0.43 million yuan in equipment. Workshop buildings and storage houses and other auxiliary production or living installations of 4,555 square meters had been constructed. Two production lines had been put in place with a capacity of producing 1,000 tons of export canned pineapple and 1,000 tons of bottled pineapple products. Just when they were ready to go into production full swing, the demand for pineapple products dropped sharply for the reasons mentioned above. Errors in management aggravated the situation, leading to serious losses in two successive years. The factory was still running in the red in 1986, and the morale of the employees was greatly shaken, overshadowed by gloomy pessimism. At that time, Liang Xiaojian was studying far away from the factory. After he returned and as he was preparing to take up the directorship of the factory, he studied closely the factory's problems in production, supply, and marketing as well as labor and personnel management.

Production

LCFF almost exclusively produces pineapple syrup in cans or bottles. Occasionally, it also produces preserved fruits, fruit juice, and pineapple proteinase, in small quantities. It is no wonder that people on the farm and in the factory call it Canned Pineapple Producer instead of LCFF. Even in pineapple processing, it only produces the 500-gram-bottled and 567-gram-canned pineapple products; for the latter category, the pineapple may be in the shape of slice, whole circle, screw, fan, or bits and pieces. For bottled types,
only bits and pieces are used. Because the pineapple harvest season is from May through October and fresh fruits are easily perishable and must be processed as they arrive, the off-season can last as long as 6 months. Even during the harvest season, the supply is not stable, sometimes more and sometimes less, with the result that production can often stop when the factory has to wait for material. For this reason, most factories in the industry have diversified from single-product pineapple processing into a series of product lines and even include items such as mushrooms, bamboo shoots, green beans, tomatoes, oranges, bananas, and soft drinks, and meat. Such diversification enables the enterprise concerned to adapt to market changes, reduce risks, and better use its existing building equipment and labor, especially during the off-season for pineapples, so that enterprise and employees can earn increased income.

The previous directors of Luoshan Canned Foods Factory had recognized such an opportunity and conducted discussions and research on this matter, concluding that it was necessary and feasible to diversify into other product lines. The farm had the necessary conditions for growing mushrooms, bamboo shoots, green beans, and tomatoes but the technology for processing them was not sophisticated. An additional 100,000 yuan investment for additional equipment and civil engineering work would suffice to put such a project into operation very quickly. Moreover, this might help reduce per unit fixed costs by 30-50 percent. But the master plan remained on paper for want of follow-up action. So, the factory is still producing one single product.

Pineapple processing does not need much equipment and the technique is relatively simple. The production line consists mainly of mechanical and semimechanical operations, as well as a considerable amount of work done by hand. The entire processing starts with cleaning the fresh fruit in the yard. The workers pour fresh pineapple into a trough and wash away the soil and dirt. The second step is to sort the fruit into different size groups before it is peeled by machines with sleeves at corresponding calibers. The beginners must use a wooden ruler in sorting the fruit, but experienced workers are allowed to rely on their sight. Not long ago, the factory tried out a fruit-sorting machine, which during the trial period improved efficiency threefold. But it was put aside after a few days, because the workers complained that the feeding table was too high and it was very tiring to raise basketfuls of pineapple onto the feeding table. The workers preferred the old way of sorting by hand.
The sorted fruit is then moved to a peeling workshop. Workers first cut off both ends of the fruit and then use a hand-operated device to dig out the hard core before they feed the fruit into the semiautomatic peeling machine. There are two such semiautomatic peeling machines, each equipped with sleeves of different calibers for different sizes of fruit. It takes about 10 to 20 minutes to replace the sleeves. There is also a large automatic peeling-and-coring machine that automatically takes out the skin and core of pineapples after the fruit has its two ends cut off by the workers. The machine is very efficient, but it has only one sleeve to process only the largest fruit, which accounts for 10-20 percent of the whole lot. The big machine therefore often operates under capacity. When the fruit was too small to be peeled even by the semiautomatic machines, or when a bottleneck appeared, which was usually several times a day, the former director would ask the workers to peel pineapple by hand. The team leader responsible for peeling told Director Liang that he needed two more peeling machines, costing 2,500 yuan each, or he could not be blamed for bottlenecks.

After the first two steps the fruit is carried by conveyer to the bottling-and-canning workshop. The workshop measures 17 x 60 meters and is the main processing center, with two parallel production lines. Workers there use a v-shaped knife to dig out the 5-millimeter-deep black spots (seed eyes as they are called), and then the cutting machine divides the fruit into equal segments before it is cut into 10-millimeter-thick, fan-shaped pieces. The slices are arranged according to their sizes, shapes, and colors. This is what they call the slice-selecting process. The selected slices are ready for the cans or bottles. The above are all hand-operated, requiring many hands. This stage, too, is prone to bottlenecks. Director Liang feels that the production output of the factory to a large extent depends on the output of peeling and filling stages and their coordination. Given their present level of raw material supply and output, the factory can produce only 600 tons per annum and cannot reach the designed production capacity. Director Liang considers it practicable to add another production line (this may entail a 10,000 yuan investment) in the same big workshop. This would increase the output of the above processing stages. In addition, more seasonal workers can be employed at harvest peak time to boost output by 50 percent or so; that is, output could be increased from the present 600 tons to more than 1,000 tons. If a steady supply of fresh fruit is guaranteed, the output may be raised 20 or 30 percent more, up to 1,200-1,300 tons.
The next stage is bottling and canning and sealing. Washed bottles are moved to the filling table; the fruit, after weighing, is put into bottles or cans. A pipe leading from the syrup-preparing room channels syrup down to the filling tables and into the cans and bottles. The filled bottles and cans are then sealed by two automatic can-sealing and one semiautomatic bottle-sealing machines installed at the ends of production lines. The design capacity of the can-sealing machine is 40 cans per minute. At present, only 10 percent of the normal capacity is used, so the stage presents the most comfortable position in the whole production line. The semiautomatic bottle-sealing is also an efficient process but only 30-35 percent of its capacity is utilized. A team leader of the slice-selection section told Director Liang in private that she did not like the sloppy way people operated the semiautomatic bottle-sealing machine; operators chatted as they worked, sometimes crashing 20-30 bottles at one go, and had to dump the slices, syrup, and broken glass pieces into the wastebasket. People complained about the manhandling of bottles in the cleaning process, too. They often broke bottles, even by the basketload at times, wasting scores of bottles at a time. In the record kept by his predecessor, Director Liang found some figures for broken bottles. In 1984 alone, the factory lost 129,000 bottles (each cost 0.28 yuan, including freight), half of which were broken during loading and shipment of the finished products, and the rest were losses that occurred during the production stages.

Normally, a loss of 1.5 percent of glass bottles is acceptable, but the factory's loss has reached 4-10 percent. Gong Mei, a quality supervisor, is not at all happy with the people filling the glass bottles. In 1985, she said, her spot check always showed excessive filling of 25 grams per bottle on average. She had reported this to factory leaders and pointed it out to people responsible for filling bottles, but things went on as they had before. Director Liang estimated that the above two abnormal losses alone have contributed 113.2 yuan to the cost per ton of pineapple products, or 0.06 yuan per bottle.

The last process is sterilization. The sealed cans and bottles are moved to the sterilization workshop, where they are hung from a hoister arm in a iron-wired basket and submerged and boiled in a big cauldron (sterilizing cauldron) for 5-7 minutes. Then, they are ready for the finished products inventory, final quality check, and packaging. The sterilization workshop has six cauldrons installed, but only two are usually necessary, and are operated leisurely by four workers (see Figure 1).
In the early days of factory operations, there used to be a retired technician from another factory there to give technical guidance. He left after the workers had grasped the operational skills. The workers are basically qualified for their jobs, and product quality has been quite well received by exporters, commodity-testing authorities, other relevant bodies, and domestic consumers. In recent years, there have been no major quality problems associated with processing techniques. But Director Liang knows well that the quality of his products is still behind that of the factory’s advanced competitors. For example, the neighboring Hafent State Farm Canned Foods Factory enjoys a larger scale (2,000-3,000 tons per annum) and a reputation for higher and more stable quality, reflected in the Award for Quality in the Industry in 1984. The East Wind Sugar Mill subsidiary, Canned Foods Division, also won the same award in 1981 for its canned pineapple products. On the whole, Luoshan Canned Foods Factory is close behind those two leaders and is ahead of the rest in the same business.

Supply and Marketing

LCFF has only one person in charge of supply and marketing (sales), namely the supply-cum-sales person, Mr. Gao Zhiliang. In fact, he is the only one responsible for marketing at the factory; the rest has to be done by cadres at the industry section and other sections of the farm.

What has given the factory director the biggest headache is the fresh fruit supply. In order to guarantee an adequate and stable supply of fresh fruit, the farm allocated about 3,000 mu of land for growing pineapples, stipulating that fresh pineapples should be transferred to LCFF at the internal price. However, the internal transfer price is 0.04 yuan per jin lower than the market price, and payment is settled once a year, usually at the end of the year, whereas, payment is made on delivery in the marketplace. Therefore, when there is a market demand for pineapples, fresh pineapples grown on the farm will flow into the marketplace secretly. According to 1984 and 1985 estimates, LCFF only got 60 percent of the total pineapple output of the farm. On the other hand, when market demand price for pineapple is weak, farm workers will vie with one another to dump their produce on LCFF in spite of its capacity to absorb them all.

At the peak of the pineapple harvest in 1985, the highest daily purchase of pineapple reached 60,000 kilograms. Because they could not be processed in time, 75,000 kilograms perished, 12,000 cases became substandard products, and the selling price dropped to
0.8 yuan per bottle. Under normal circumstances, one ton of processed fruit consumes 1.3 tons of fresh fruit, but the figure rose to 1.7 tons in 1985. Having learned the lessons of 1985, the farm stopped the unified purchase of pineapples, but things still turned worse for the factory. For the above reasons, LCFF was only able to purchase 20 percent of the amount of pineapple the farm had planned for it, and it was the worst kind of pineapple at that. So the factory was compelled to purchase fresh fruit from the market at a high price, and a considerable amount thus purchased was produced on its own farm and sold back to the factory via the marketplace. Judging from the market situation in recent years and the expanded acreage under pineapple growth, one would expect the factory to purchase more and better fresh fruit from the market.

The purchase of the other badly needed raw materials is often done in passing by cadres at the industry section that happens to be traveling for other reasons. Those cadres are not familiar with the process and are apt to make mistakes. For example, they once purchased 180,000 faulty bottle lids, with the result that 180,000 bottles of fruit were wasted and the factory suffered losses.

LCFF enjoys considerable autonomy in marketing its canned products. The farm will not intervene in such matters in principle. LCFF has no distribution network, nor does it have steady customers. But a few years of marketing efforts are beginning to make its name known to the public. The sales record in the past few years indicates easy selling of 1,000 tons of its canned food per year in the domestic market. Selling prices depend on market fluctuations. The average price for the standard product ranges from 2,075 to 2,264 yuan per ton, or 1.1 to 1.2 yuan per bottle.

There have been quite a few mishaps in its marketing in the past three years. In May 1984, the factory signed an order contract with a collective enterprise in Hekou City of the same province for 24,000 cases of bottled fruit at 1.2 yuan per bottle. After delivering 3,000 cases, a leader of the farm heard the delivery truck driver say that the collective enterprise was a “briefcase company” (usually an unregistered one-man company with everything crammed in a briefcase which moves around to fetch deals and is known for its swindling) and that its manager had been arrested. A meeting of the Party Committee of the Farm was urgently called, which on the same day instructed the factory to stop delivery at once. Mr. Gao Zhiliang, the supply-cum-sales person and the director of the industry section, Mr. Cheng Daolin, personally went to Hekou City and terminated the contract after a profuse apology. Later, the farm sent people to investigate the case, and it turned out to be a great
misunderstanding. But the factory lost that major buyer forever. In
July, the factory was negotiating a deal involving 500 tons with a
buyer from Liuzhou City, Juangxi Autonomous Region. The
factory asked for 1.18 yuan per bottle and the buyer offered 1.15
yuan. After lengthy and tough haggling over that 3 yuan, the
factory in the end gave up a good opportunity to sell. By October
1984 at Chengdu Fair, the market for canned pineapple had already
become very depressed. But when a prospective buyer from the
northeast offered to buy 600 tons at the price of 1 yuan per bottle,
the salesman could not get the go-ahead from farm officials when
he sent them a telegram about the deal. After that, the market
collapsed, and the price declined from 1 yuan to 0.9-0.8 yuan.
LCFF would not sell that cheap, but it produced over 600 tons of
pineapple in 1984 and it did not sell all that much until October
1985—3,000 cases of bottled pineapple went beyond storage time
and had to be dumped. The final accounting showed that the
marketed average price per bottle came to only 0.8 yuan (see Table
3). The market for pineapple started to recover in 1986, but at that
time, LCFF did not have enough products to supply the market
because of shortfalls in fresh fruit procurement, a 50 percent
reduction in the work force, and 60 percent drop in output
compared with the two previous years. LCFF missed another golden
opportunity.

Labor/Personnel Management

Liang Xiaojian knows his team left to him from his predecessor:
they are three deputy-directors, one Party secretary, and six
operational cadres.

Deputy-Director Zhang Rong is 30 years old this year. He was a
second-generation worker born on the farm. After middle school,
he joined the army and when he was demobilized he went to work at
the farm's grain- and oil-processing mill and became its director.
Later, when the first director of LCFF was transferred from LCFF, he
was appointed the Director of LCFF. Then, Zhang Rong was
reclassified as deputy director responsible for material yard, peeling
workshop, storage facilities, and other work.

Another deputy director is Li Qing, female and 54 with a primary
school education. She was one of the pioneers and founders of the
factory. In 1984, she led the first work force in learning production
skills at Honghe State Farm Canned Foods Factory and she led in
the establishment of Luoshan Canned Foods Factory. She has been
deputy director since then. Deputy-Director Li now is responsible
for the bottle-filling workshop.
The third deputy director, Huang Guang Da, is in Director Liange's peer group. He is only 27. After senior middle school, he was assigned to work at the farm's machinery repair factory. He is intelligent and quick at learning. Although he did not attend special training school, he learned a lot from his master. He is a qualified lathe operator, bench worker, electrician and forger, and he is an able assistant in technical innovation. When organizing the Canned Foods Factory, the first director personally selected him from the farm machinery repair factory and he made a great contribution to the founding of the Canned foods Factory. In 1985, he was promoted to the position of deputy director, responsible for water, electricity, and steam supply, as well as equipment maintenance.

In the leading group, there is also one Party secretary, Xu Zhiqiang, who is 56 years old and belongs to the first generation on the farm, which labored and sweated for its construction. In 1958, he served as the head of the agricultural Production Brigade, and later as Party secretary. In 1985, he was transferred to serve as the Party secretary of the factory responsible for political work and employees ideological work.

The director's office is also manned by six cadres. They are accountant Miao Xiaoyun, cashier Deng Bixian, statistician Chen Yonghui, supply-cum-salesman Gao Zhiliang, and technicians Xu Ping and Liang Yanan. These are native-born young men, all under 30. Director Liang knows their ability more or less. The accountant and statistician had not received special training before taking on the jobs or received any on-the-job training. Technician Liang Yanan joined the army after senior middle school and was sent to learn food processing at a Food Industry College in Jiangxi Province. He graduated in 1985 when he returned to the farm and was assigned to Luoshan Canned Foods Factory. The other technician had had much the same experience as Liang Yanan; he also was sent to learn food processing and testing at the Light Industrial College in Jiangsu Province by the farm's personnel department. Recently he finished his studies and returned to be appointed technician of the Canned Foods Factory.

Gao Zhiliang graduated from a Management College in Guangdong Province in 1984. He volunteered to be supply-cum-salesman of the factory to give scope to his expertise and to contribute to the development of the farm. But two years of work as a supply-cum-salesman put him through enough hardships. Not long ago, he wrote to his friend: "90 percent of the time, I am traveling north and south, often on trips lasting 2-3 months. When my child gets ill in the hospital, nobody is around to take care. But I
am still trying my best to earn more money for the factory. I am only a supply-cum-salesman in name, for all the thinking is reserved for the leaders. So now I feel it is futile to rack my brain for the factory’s supply and marketing issues. And I myself may be one too many here.” So he submitted his resignation.

Luoshan Canned Foods Factory has 177 workers on its register, who hold posts in different workshops. Production teams are organized according to processing stages, which are headed by a team leader and a deputy-team-leader who are responsible for coordination, quality control, attendance check-up, and documenting the performance of workers. The factory follows a piecework wage system with different wage standards set for different jobs and different workshops (managers and staff get a monthly salary according to their position). For example, a worker whose job is to pick “fruit eyes” gets 0.1 yuan for 1 kilogram of clean flesh of fruit that has passed examination and measurement; a worker whose job is to seal bottles gets 0.005 yuan for each bottle he or she seals. They get more pay for more work done. The team leaders are no exception; their pay is also determined by their piecework quantities, just like anyone else. So they feel they have been short-changed and some even have asked to step down.

The production of the factory is concentrated between May and October, and for the rest of the time, there is nothing to do. The workers only get paid during the production period (for piecework accomplished). The workers have to find jobs on their own during off-seasons. Even during the in-season, production does not always run at full capacity. As a result, the worker's income is low. Browsing through the payroll records in the previous two years, Director Liang estimated that during the production periods, the average monthly wage of all workers in the factory was 80 yuan, or 500 yuan or so per annum. Although the farm allowed the factory to spend 50 percent of its profit on the expansion of production and on bonuses, the factory could not take advantage of that provision because of the losses it had incurred. The above situation has caused about half of its employees to leave the factory and seek jobs elsewhere at their own risk. At present, about 80-90 workers are still with the factory. But they are now complaining about the low income and difficult living conditions, which become even worse during the off-seasons. Nonetheless, most of them still respect their work hours, care for the quality of their products, and observe the rules and regulations, in the hope that their factory will prosper some day.
In order to lead the entire work force of the factory out of the present predicament, Director Liang Xiaojian is busy working out his plan and strategy for improvement.

Questions for Discussion

1. What is the present condition of Luoshan Canned Foods Factory (LCFF)?

2. What should Director Liang's first priority be when he takes office?

3. If you were Director Liang, how would you deal with the current issues, and why?

4. What problems exist in factory operations? Where? What caused those problems? How would you resolve those problems if you were Director Liang?

5. In order to solve those problems, what help do you think director Liang would probably request from his superior—the Director of the Farm, and why?

6. What advice can you give Director Liang for the next year's operations and for the future development of his factory?
Annex Tables and Figures

Table 1. Loss and Profit Statement of Luoshan Canned Foods 1984-1985
(unit: 10,000 yuan)

<table>
<thead>
<tr>
<th>Items</th>
<th>1984</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales Income</td>
<td>88.23</td>
<td>101.22</td>
</tr>
<tr>
<td>Sales Cost</td>
<td>127.38</td>
<td>128.96</td>
</tr>
<tr>
<td>Net Profit</td>
<td>(39.15)</td>
<td>(27.74)</td>
</tr>
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</table>

Table 2. Canned Foods Sales of Luoshan Canned Foods Factory 1983-1986

<table>
<thead>
<tr>
<th>Year</th>
<th>Output(ton)</th>
<th>yuan/ton</th>
<th>yuan/bottle</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>255</td>
<td>2,462.48</td>
<td>1.30</td>
</tr>
<tr>
<td>1984</td>
<td>608</td>
<td>1,509.60</td>
<td>0.80</td>
</tr>
<tr>
<td>1985</td>
<td>611</td>
<td>1,654.92</td>
<td>0.87</td>
</tr>
<tr>
<td>1986 (till November)</td>
<td>360</td>
<td>2,350.00</td>
<td>1.25</td>
</tr>
</tbody>
</table>

*Note: 1 ton equals 1,887 bottles, and 1 case contains 24 bottles.*
Figure 1. Flow Chart of Canned Pineapple Production Process

Table 3. Profit/Loss Report for Fresh Pineapple Production at Wenlou State Farm
(Unit: yuan/mu)

<table>
<thead>
<tr>
<th>Items</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product income</td>
<td>660.00</td>
</tr>
<tr>
<td>Cost and expenses</td>
<td></td>
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<tr>
<td>Fertilizers (N,P,K, and trace elements)</td>
<td>50.00</td>
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<tr>
<td>Pesticides</td>
<td>18.00</td>
</tr>
<tr>
<td>Wages</td>
<td>80.00</td>
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<tr>
<td>Seedlings</td>
<td>48.00</td>
</tr>
<tr>
<td>Gibberellins (flower and fruit boosting)</td>
<td>30.00</td>
</tr>
<tr>
<td>Transportation</td>
<td>10.00</td>
</tr>
<tr>
<td>Land use, management, and welfare fees</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>348.00</td>
</tr>
<tr>
<td>Net income</td>
<td>214.00</td>
</tr>
</tbody>
</table>
Table 4. Costing of Bottled Pineapple Per Ton (1985)

<table>
<thead>
<tr>
<th>Items</th>
<th>Unit</th>
<th>Quantity</th>
<th>Price</th>
<th>Cost amount (yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh fruit</td>
<td>t</td>
<td>1.7</td>
<td>360</td>
<td>612</td>
</tr>
<tr>
<td>Sugar</td>
<td>t</td>
<td>0.09</td>
<td>1,200</td>
<td>108</td>
</tr>
<tr>
<td>Packaging</td>
<td></td>
<td></td>
<td></td>
<td>600</td>
</tr>
<tr>
<td>Wage</td>
<td></td>
<td></td>
<td></td>
<td>250</td>
</tr>
<tr>
<td>Fuel</td>
<td>t</td>
<td>0.09</td>
<td>100</td>
<td>9</td>
</tr>
<tr>
<td>Water/power</td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>Tax</td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
<td></td>
<td>146</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td></td>
<td>1,915</td>
</tr>
<tr>
<td><strong>Fixed cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td></td>
<td></td>
<td></td>
<td>98</td>
</tr>
<tr>
<td>Overhaul</td>
<td></td>
<td></td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td></td>
<td>195</td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td></td>
<td></td>
<td></td>
<td>2,110</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1.12 per bottle)</td>
</tr>
</tbody>
</table>
How Can the “Butterfly” Fly into North American Markets?

Ying Wangjiang,
Finance Department, Shanghai Finance and Economics University

On April 28, 1986, Mr. Liu Dake, director of the Shanghai Butterfly Bicycle Factory, got a call from Wang Yongquan, the head of the factory’s supply and marketing section. Wang was at a trade fair in Guangzhou and he called to say that the factory’s products were selling very well. Indeed, foreign firms had nearly doubled their orders over the preceding year and their friends in the business were becoming jealous. But when Wang explained that orders were coming mainly from developing countries in Asia and Africa and that they had no customers from the United States and Canada, the director told him to return home as soon as possible.

Wang felt bewildered as he hung up. “What’s wrong with our director? Our products are selling very well, and why must we sell them to the United States?” Wang did not know that Director Liu had just returned from a symposium on development strategy for enterprises in coastal cities where he had learned that the central government was calling on industries to help China develop a world-oriented economy. Since Shanghai was at the forefront of the move to open the country to the outside world, the central government had great expectations for the city. A government official told Liu: “Although your bicycles are selling very well in the domestic market and are always in short supply and your factory is also a top exporter among all domestic bicycle factories, I wonder whether you can further widen your vision of the world
market. It is reported that bicycles imported by the United States and Canada account for about 50 percent of the world’s total bicycle imports. You should try to edge into the North American markets to expand exports and earn more foreign exchange for the state. If you have any questions or requirements, please let us know and the municipal government will try its best to help you.”

After the conversation, Director Liu began to think about the strong Butterfly sales in the domestic market and wondered why no one had shown any interest in the North American markets. How could it enter the North American Markets?

Chen Zhihua, a factory investigator, was assigned to study the question, and Director Liu gave him one month to produce an in-depth report on this issue.

International Production and the World Market

Chen was a newcomer to the factory. He had just graduated from the industrial economics department of Shanghai Industrial University. Nonetheless, he was eager to demonstrate that he could perform well in his profession. His first step was to collect information about the world market for bicycles. He sent numerous letters to many domestic experts asking for help.

Experts explained that bicycles were no longer used as a means of transport in the United States and Canada or in the industrialized countries of Europe. They were now used for touring and racing. Furthermore, people of different age groups, in different social circles, and in different areas all wanted different types of bicycles. Therefore, the demand in the North American markets was quite diversified and was constantly changing. Before 1960, traditional bicycles were popular, but in 1965 they lost ground to light bicycles. After 1970, small-wheeled bicycles became trendy and in 1975 multi-speed bicycles gained favor. Then, in 1980, BMX cross-country bicycles became a great hit. In recent years, the demand for bicycles designed for mountain areas and for exercising has continued to increase, and customers have also expressed more interest in streamline shapes. So, the varieties and styles of bicycles sold in the North American markets underwent considerable change almost every five years.

To meet the demands of this market, most foreign bicycle manufacturers had already introduced computer technology into their production and management, which enabled them to rotate their operations and thus handle a greater variety of bicycles. In this way, one British bicycle company had been able to develop more
than 2,000 varieties, and bicycle makers in other parts of Europe and in Japan and Taiwan had also developed no less than 300 types.

In 1985, the world produced a total of 90 million bicycles, of which 9 million were sold in the world market. That year, Taiwan alone exported 7.35 million, which accounted for 81.6 percent of the total volume of world trade. Meanwhile, China had turned out 30 million bicycles and exported 800,000 which made up 9 percent of the volume of world total trade and 2.67 percent of domestic output. In contrast, Taiwan's export of bicycles, both top of the line and inexpensive models, enjoyed the lion's share of the market. A Taiwan-made bicycle was almost 50 percent lighter than one produced by factories in China. Although the Forever bicycle, made by another bicycle factory in Shanghai had tried to squeeze into the markets in the United States, it was unable to establish a firm foothold there because its quality was not quite up to the U.S. standards.

Domestic Production and the Domestic Market

China is the kingdom of bicycles. The number of existing bicycles and the country's annual output both rank number one in the world. Back in 1979, domestic bicycle production began to have trouble keeping up with the increase in demand. As a result, many areas set up bicycle factories, and before long the country's output of bicycles was growing at an annual rate of 26.58 percent. By the end of 1984, China had a total of 77 factories engaged in the production of bicycles, and their annual output totaled more than 27 million. The Ministry of the Machine-Building Industry then formulated a plan to raise the country's output to 33 million by 1985. According to statistics from state information centers, however, various areas had already set their own production targets, which would have pushed the total output of bicycles to 47 million, or 43 percent higher than the state-set target. Some areas had seen the target being set higher at each level of administration. For instance the central authorities had set the output quota for Shanxi Province at 450,000, but the provincial government had raised it to 750,000 and the figure was further boosted to 1.25 million by local enterprises, almost 170 percent higher than the original state target.

At a national conference on electric machinery for daily use, Chen Zhihua had also learned that China was experiencing a severe shortage of steel, timber, paint, and other raw materials. Since many kinds of steel products were needed in the production of bicycles, these factories were hard hit by the shortage. In addition, the supply of paint was unsteady and a program for developing the production
of bicycle tires and tubes had not yet been implemented. Because of the short supply of raw materials and numerous changes in specification requirements, some bicycle manufacturers had to constantly adjust their production techniques. This not only affected the quality of their products but also raised their production costs. For example, because band steel and light-gage sheet were in short supply, some manufacturers switched to high-quality steel, which was usually reserved for military equipment. Some plants charged 15 percent more than state-set prices. Coiled sheet steel was sold in sheets that were too large for the bicycle factories to handle and it had to be shipped out to be cut and then shipped back again, thus adding high transport costs to the cost of manufacture.

By early 1984, bicycles of inferior quality had flooded the domestic markets. Huge quantities of these bicycles did not even leave the warehouses. Eventually, 22 bicycle factories were forced to close down or shift their production.

Demand was not expected to increase very much during the Seventh Five-Year Plan period (1986-90) as there were already more than 200 million bicycles in use with 1 for every 5 Chinese (1 for every 1.5 residents in urban areas), in comparison with an average of 1 bicycle for every 3.6 persons in Britain and 1 for every 2.4 persons in the United States. Since the trend in urban areas was mainly to upgrade bicycles, the demand for bicycles might even decline. Thus the volume of sales in 1990 could be as much as 20-30 percent lower than the current figure. So the state warned local areas not to further expand the scale of bicycle production.

When talking about the small proportion of exports in the country's total bicycle output, one bicycle factory director complained to Chen: "As a production enterprise, we do not have the right to engage directly in foreign trade. And the purchasing price set by the foreign trade departments is even lower than the price in the domestic market. It would be dumb to export one's products under those conditions, even if their quality had been up to the international standards."

Chen also learned that China had developed about 200 types of bicycles, but most of them were heavy-duty bicycles. Although some manufacturers could produce racing, exercising, and BMX cross-country bicycles, the production cost was very high and the makers would suffer large losses by going into such production. As a result, the country had not developed any production capacity in
those lines. In fact, most of the high-grade racing bicycles used by Chinese athletes were imported from abroad. The quality of Chinese-made fancy bicycles was not satisfactory. Some domestic customers complained about the lack of touring and BMX cross-country bicycles in the domestic market.

The economic and technological indexes in the bicycle industry vary tremendously from one enterprise to another. For instance, labor productivity in bicycle factories ranges from 600 yuan/person/year to 5,800 yuan/person/year, a difference of nearly 1,000 percent. Output of bicycles in terms of each 100 yuan of fixed assets ranges from less than one to nine. Moreover, China's bicycle production equipment is designed to produce only limited types of products. For instance, its pipe bender and frame production lines could only turn out products of a single specification.

Unlike China's factories, most foreign bicycle factories have refrained from producing complete series of parts and components for bicycles. Instead, they usually purchase most of their parts from other producers and put more emphasis on the quality of such parts. In China, the bicycle industry seems to have paid more attention to the whole bicycle and less to its parts. Chen discovered that a Chinese-made bicycle had few high-quality parts, largely because of its antiquated and inaccurate methods of production. For example, the front fork of the Chinese-made bicycles was manufactured by a technique of salt-bath blazing, which produced deformed parts with a coarse surface. In addition, the industry lacked uniform standards.

Another problem for the industry was the packaging of the final product. Bicycles produced in other parts of the world were usually packed on packaging lines or singly packed. In China, they were packed in batches. One cubic meter of timber could produce 10 boxes, each of which could hold six 28-inch bicycles. The price of a box had already more than doubled. Also, boxes were being made smaller and were less convenient to transport.

After completing his investigations, Chen concluded that the domestic bicycle industry had a number of serious problems: management was extremely backward, economic and technological indexes were far short of levels in other countries, instruments for advanced product testing were not available, and production safety measures were not up to international standards.

To alleviate the great shortage in brand-name bicycles and address some of these problems, several bicycle manufacturers had
entered into joint operations with other producers around the country. For example, the bicycle producers in Shanghai joined up with factories in other provinces, agreeing to produce the same brand and share profits and to charge fees for technical aid. The Shanghai No. 10 Bicycle Factory signed joint production agreements with bicycle factories in Suzhou, Nantong, Yantai, Shaoxing, and several other places. The Shanghai factory agreed to provide its partners with drawings and to send its technical personnel to them to hold training courses and help solve technical problems of production. The Shanghai factory's partners would provide factory buildings, equipment, and laborers for the joint production. These local factories would first produce small batches of bicycles and be allowed to use the brand name of the Shanghai factory products when the quality of their products reached those set by the ministry and the Shanghai factory. The Shanghai factory would share in the after-tax profits of its partners.

A number of problems, however, had cropped up that made it difficult to implement such cooperation:

1. Some local factories in other provinces could not guarantee the quality of their products, but since they had paid for the right to use the brand name of factories producing higher-quality bicycles, they did so. Moreover, the prices were almost the same.

2. Some partners in the joint production projects were not fully qualified but because of political pressure were pushed into partnerships with Shanghai. This was the case with a factory in Xinjiang. Since the two factories were several thousand miles apart, the Shanghai factory found it impossible to provide timely solutions to technical problems cropping up in the Xinjiang factory. As a result, the Xinjiang factory could not guarantee the quality of its products, and economic efficiency suffered because of the high production costs. However, the factory still used the Shanghai brand name for its own products.

3. Interregional cooperation was also hindered by the inconsistency in economic policies from one area to another. For example, Nantong City in Jiangsu Province charged local enterprises a power supply fee. This reduced not only the local factory's profits but also the income of its Shanghai partner. Another example comes from Tianjin, where the bicycle manufacturer entered joint production with Changzhi Bicycle Factory in order to ensure the supply of coal from
Shanxi Province. But under the terms of the accord, if the Changzhi factory suffered losses, the Tianjin partner had to shoulder 30 percent of them. As it turned out, the Changzhi factory had an annual deficit of 4 million yuan.

Current Situation at the Shanghai Butterfly Bicycle Factory

Chen also concluded that the Butterfly factory was facing the same problems as its counterparts elsewhere in the country. The Butterfly factory had entered into agreements with many producers of bicycle parts, and, indeed, relied on them for most of its parts. Even bicycle bells and tubes were provided by specialized manufacturers. Although the Butterfly factory had workshops for electroplating, painting, welding, heat treatment, and forming, Chen found that every single link in the factory's production was beset by problems.

For one thing, the factory's three forming machines used the A.C. welding technique, which was a complicated system of construction that consumed high levels of energy, but featured a slow welding speed (about 12 meters per minute). Consequently, the quality was uneven and this created many problems for the next stages of processing. The existing equipment did not have an automatic device for cutting a set length so the rim could hardly be cut according to the required technical standard. In addition, the factory wasted a tremendous amount of its raw materials on rejected products.

The factory itself had developed the high-frequency pipe-making equipment it used—but that was back in the 1960s. Its high-frequency discharger had rapidly become obsolete and was no longer reliable. After many years of effort, it was modified to produce ordinary pipes, but it still could not meet the quantity and quality required for export bicycles.

The factory's other equipment and production techniques were also outdated. Such equipment consumed excessive energy because it was not heat-efficient, was labor-intensive, and caused serious pollution through the emission of poisonous cyanic salt, which often had ill effects on workers' health. Moreover, the pollution shortened the life-span of most equipment and electric machinery in the factory. In addition, since most of the parts were hand-made, they could not meet international standards.

At one point, the chief engineer's office of the Butterfly factory put forward a program to upgrade and transform the existing
equipment and to introduce vital equipment from overseas. He had proposed the acquisition of:

1. A rim-forming machine and welding equipment. The factory could import new techniques such as high-frequency welding, computer-assisted designing, rolling, and locus feeding butt seam welding, as well as automatically adjusting processing scopes. If this happened, the machine speed could be increased to 20 meters/minute and the percentage pass rate of production could rise from around 90 to 97.5. The quality of the factory’s products would then be greatly improved.

2. High-precision pipe makers. Such equipment could double the current production speed and could process pipes with a shell thickness ranging from 0.6 to 2.0 millimeters and a diameter ranging from 13 to 32 millimeters, which could not currently be done. In addition, the new equipment could process one-end or double-end pipes with shells of different thickness diameters of 25 and 28 millimeters, as well as 13 types of steel and aluminum pipes.

3. Heat treatment equipment. Such equipment would feature computer control, advanced testing measures, and high automation.

4. Testing instruments. The necessary testing instruments would be acquired and the ISO international bicycle standards and CPSC safety criteria introduced to check the quality of the factory’s products.

5. A fancy bicycle workshop. A facility would be built to produce aluminum alloy parts and assemble bicycles made of aluminum alloy. Its annual output would require an investment of 5.5 million U.S. dollars and the construction projects would take 11 million yuan.

If the program had been approved and the projects completed, the factory would have reduced its product reject rate by 7.5 percent, and it would have exported 50 percent of its products to other parts of the world, earning an estimated 25 million U.S. dollars each year. The factory could have recovered its foreign exchange investment within 15 months of putting the new equipment into operation. Unfortunately, however, the factory was unable to find the necessary funding and the program was later shelved.
Conclusions

After nearly a month's study, Chen had a better understanding of the status of China's bicycle industry and greater insight into the problems that the Butterfly factory would have to overcome if it was to edge its way into the North American Market.

First, the factory would have to learn how to expand exports and at the same time meet domestic demands. The short supply of brand-name bicycles in the domestic market may lead producers to become blindly optimistic about their prospects and to adopt policies focusing on quick income and to lose interest in exports.

Second, if Butterfly hopes to enter the North American market in order to expand exports, the factory must improve quality and quantity and yet keep down its cost. That it to say, the producer must ensure that the quality of its products meets the expectation of the consumers and then must guarantee to increase its output. At the same time, the factory must control production costs to make its selling price competitive in the international market while still making a profit.

It is almost impossible for the factory to meet these three goals without support from the government. The relevant government departments should work out appropriate policies to encourage them to increase exports of their products while promoting the domestic production.

It was only two days away from the deadline set by Director Liu. Besides the report to Mr. Liu on a strategy for penetrating the North American market, should Chen also prepare a draft for Liu to the municipality government? Chen began thinking about what to write.

Questions for Discussion

1. Under the current system, what factors are hindering Butterfly from flying into the North American markets? What problems cannot be solved by the factory alone?
2. How should enterprises producing famous brands deal with the relations between the domestic and the world markets?
3. What kind of efforts should the government and enterprises be making to expand exports and increase earnings of foreign exchange?
4. Is the program worked out by the office of the chief engineer feasible?
5. In your opinion, how can the Butterfly enter the North American markets?
The Red Soil Development Project in Jiangxi Province

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On December 28, 1986, China signed a credit agreement with the International Development Association (IDA) to provide funding for the Red Soil Development Project. Under this agreement, the World Bank was to lend China SDR 30 million for the project. The Chinese Ministry of Finance then transferred the loans to Fujian and Jiangxi provinces, and in May 1987, the ministry signed separate loan transfer agreements with the two provincial governments.

By May 1989, the Red Soil Project was in its second year of implementation. The Jiangxi Accounts Office and the Jiangxi Auditing Bureau were entrusted with the task of separately auditing the project. This case briefly reviews the background of the project and relevant information about the auditing. The questions of central interest here are (1) how are the World Bank loans being used in the project and (2) has the project lived up to its objectives?

1. IDA is financed by grants from industrialised member governments of the World Bank, and is thus able to make loans to the poorest countries on extremely soft financial terms. Other conditions are the same as regular World Bank lending.

2. The SDR or special drawing right, is a synthetic international unit of account whose value is defined in terms of a basket of major convertible currencies, and issued by the International Monetary Fund (IMF) to expand international liquidity. A country that holds the SDRs in an IMF SDR account may use them instead of foreign exchange to settle international transactions.
Background of the Project

China is a large agricultural country with a population of nearly 1.1 billion. Its rural residents account for about 83 percent of the total population. Chinese agriculture consists mainly of crop growing, forestry, animal husbandry, other economic activities by agricultural producers ("sideline production"), and fishing.

The Status of Agriculture in China and Its Plans for Red Soil Development

China has 99.50 million hectares of arable land, which amounts to only 10.4 percent of its total area, and its average per capita possession of arable land stands at only 0.1 hectare, in comparison with the world average of 0.367 hectare. Another notable feature of China's agriculture is its backward technology and equipment. Most of the work is done by hand, and the resulting long and extensive operations have had an adverse effect on the environment. Agricultural resources have therefore suffered serious damages and continue to deteriorate.

At the Fourth Plenum of the 11th Central Committee of the Communist Party of China (CPC) held in 1979, a resolution was passed to speed up agricultural development. In the following two years, the CPC Central Committee introduced a series of measures for perfecting the rural system managing rural production and for developing a diversified economy. Originally, these policies were designed to boost the country's agricultural production since 8 million Chinese people were engaged in farming and the country still had to import grains. Unexpectedly, these changes later touched off a series of economic reforms in China.

In 1986, the central government took a major step toward agricultural development when it incorporated the Red Soil Development Project in Fujian and Jiangxi provinces into the nation's Seventh Five-Year Plan. Subsequently, departments concerned under the State Council set up a joint group to manage the project. The loan for the entire project covers a period of five years, and the two provinces have been in charge of working out the plans.

The Jiangxi Program

Jiangxi Province is located south of the Yangtze River. This is an inland agricultural province that has traditionally grown rice, cotton, oil-bearing crops, oranges, and ramie. In the early 1960s, the province was one of the leading agricultural producers in the country and was called the "rich farmer" by its neighboring
provinces. During the 1980s, however, it became one of the poorer provinces. The blame lies in part with management, but also with its geography. Most of the province is covered by hills. Apart from relatively fertile soil in the Poyang Lake basin, most of the land in Jiangxi Province is composed of red soils, which are a type of highly acidic clay. It easily dries out and becomes hardened. Local farmers describe it "as hard as a plate of copper during sunny days and as sticky as a pot of mud during wet days." More than 60 percent of the province's arable land is made up of red soil. Since it produces poor yields, people have made little effort to develop it over the years. As a result, large areas of barren hills can be found throughout the province. In 1986 the value of its agricultural output based on fixed 1980 prices totaled about 10 billion yuan, with an average per capita output value in its rural areas standing at not much more than 348 yuan. Because of the red soil problem, agricultural production in some of the remote and mountainous areas remains primitive and people still suffer from shortages of food and clothing.

Under the Red Soil Development Project, the Jiangxi provincial government instructed the relevant departments to conduct research on red soil development and it used the subsequent results to formulate a program with the following objectives:

- To make the specialized farmer households the basic unit engaged in the development project;³ to provide financial aid to such households to run family farms on hills with a view to making the best use of the existing red soil resources; and to combine the long-term and short-term production as well as agricultural production and animal husbandry with a view to developing the commodity economy and eradicating poverty.

- To organize technical training courses for the specialized households and help them develop the skills and knowledge required for red soil planting, contour reclamation, the cultivation of oranges and ramie, and financial and project management; and to thoroughly improve the red soil and increase its fertility.

- To upgrade the level of materials, equipment, and technology; increase the input of the means of production in

³. "Specialized households" are agricultural households that have been exempted from the requirement to grow grain because of their specialization in other activities (not necessarily all agricultural.)
farming; and to guarantee the supply of chemical fertilizers, walking tractors, and other materials.

- To strive to improve the living standards of farm households in the areas under the project; and to increase their income from agricultural production to ensure that these households will be better off at least by 1995.

World Bank Aid

The World Bank provides financial and technical assistance for economic development. Since China became a member state of the World Bank, it has obtained loans for a wide variety of projects in industry, agriculture, education, and railway building, along with technical aid, to help develop China's economy. From 1979 to 1981, World Bank loans to China totaled U.S. 200 million in the educational field alone.

The government recognizes that China requires foreign aid to develop its economy and has been working closely in recent years with the World Bank to this end. In addition, it has introduced a policy of openness to the outside world.

A substantial investment will be required to carry out the comprehensive development of the red soil region and the benefits will take time to materialize. However, the World Bank agreed to provide SDR 30 million in support of the Red Soil Development Project.

In May 1987 the Jiangxi provincial government took over the implementation of the project, and SDR 20 million of the Bank loan were transferred to the province. Then in June the Planning Commission and the Financial Department of the provincial government signed separate agreements concerning the use of these funds with 15 counties, farms, and agricultural research institutions in the province. Before the funds were allocated (see Appendix 2), the feasibility reports on all areas of the project were examined. The comprehensive financial analysis indicated that over a period of 20 years, that is, by the year 2005, the project could be expected to bring in 123.62 million yuan. According to the sensitivity analysis, the internal rate of return would be 16 to 17 percent.

Preliminary Investigations

Once the auditors had become familiar with the background materials, they conducted preliminary investigations on the planning and implementation of the project.
Implementation Plan

According to the loan accord, the World Bank loans must all be used for the Red Soil Project, for the following specific purposes:

- To help specialized households in the project areas expand crop cultivation by using the red soil to its best advantage—namely, by growing mainly high-quality oranges, ramie, and other plants suited to the red soil. The provinces’s farm products were to be gradually introduced into the world market to increase China’s foreign exchange earnings.

- To enable the specialized households to reclaim wasteland and expand the arable land, increase the production of major grain crops, and import chemical fertilizers to boost grain output.

- To help specialized households increase poultry and animal farming and animal husbandry, accumulate farm manure, improve the quality of the red soil, and thereby improve the fertility of the land.

- To provide financial aid to agricultural engineering projects, such as the construction of small reservoirs, water-pumping stations, main and secondary irrigational canals, highways, and both high- and low-voltage electric lines in project areas.

- To help specialized households purchase medium- and small-size agricultural machinery, organize family-run farms, and gradually expand the scale of farming.

- To conduct technical training in project areas to teach local farmers how to manage such projects and to impart agricultural know-how.

Organization and Implementation

During the implementation of the project, the central government reshuffled the Jiangxi provincial government, appointing a well-known Chinese reformer who had been born and brought up in rural areas to be the governor and an agricultural expert and former party secretary of Hunan Province as party secretary of Jiangxi Province. The new leaders of the provincial government called for closer cooperation with the World Bank and other international financial organizations and began to make an all-out effort to complete the project as scheduled.

In 1986 the government of Jiangxi Province established a project group headed by a deputy governor of the province to oversee the planning, decision making, and implementation connected with the
project throughout the province. All prefectures and counties concerned established similar project groups to oversee local planning and implementation of the project. At the same time, the agricultural departments at all levels set up agricultural development companies, which, under the dual leadership of the project groups and the agricultural departments, were in charge of implementing the project. According to the original plan, such companies were to be organized as enterprises by linking their performance directly to the efficiency of project development. However, because most people staffing these companies had been transferred from agricultural departments and research institutes and were reluctant to give up their status as “state employees,” the companies were organized as institutions. The agricultural development companies have many functions and have played a major role in project implementation (see Appendix 3).

The financial departments at all levels in this province have not only managed and supervised the use of the World Bank loans, but have also acted as the guarantor of the repayment loans. In order to ensure the recovery of the loans, the financial departments in the counties involved in the project signed an agreement with their local townships on borrowing funds from the transferred World Bank loans (see Appendix 4).

The development of the township subproject was to proceed by having specialized households move to mountainous areas. First, farm households had to apply to join the project. Their applications were then discussed by local villagers and examined by the villagers’ committee before they were passed on to the township Red Soil Project office and the local agency of the Agricultural Bank of China for further consideration. Then they went to the county agricultural company for final approval. Before specialized households could be authorized to participate in the project, their applications had to be notarized and a letter of guarantee on mortgage loans submitted to the loan issuer (see Appendix 5).

By and large, the project has been implemented as planned, but each area has had its own way of doing certain things. In general, however, the procedure has been for the local departments to provide loans for specialized households to help them move into mountainous areas and organize family farms to reclaim red soil wasteland on barren hills. Such farms then set up long-term projects for cultivating crops and fruits (such as oranges) that will grow well in red soils. These activities are to provide their regular income. At the same time, they are to develop breeding and animal farming and are to interplant fruit trees with short-term economic crops,
such as peanuts, watermelon, rape, and feed crops, to obtain quick returns that can be used to fund their long-term projects. They may also produce green manure to improve the quality of the soil and increase its organic fertility. The overall goal is to improve the red soil and boost the production of farm crops.

Auditing Details

By March 1988, Jiangxi had received foreign transfers totaling US$5 million (including US$2 million in cash and US$3 million in equipment and materials purchased through bidding), which covered 17 percent of the planned loans. If the funds used for the materials that had already arrived but had not yet been transferred are included in this amount, the province had actually used loans valued at US$11.5 million, or 38.3 percent of the total.

By then, the auditors had in hand ample data to start fixing the subjects and standards for the auditing. The auditing indicated that by March 1988 the following progress had been made in implementing the project.

Progress in Red Soil Development

In the project areas in Jiangxi Province, 3,631 specialized households had moved into mountainous areas, or about 38 percent of the target number, and they had reclaimed about 9,333 hectares of red soil wasteland, or 47 percent of the target figure. However, this fell short of the planned figure of 10,000 hectares for 1987.

Use of Loans

Total investment in the project areas had reached 130 million yuan, which included 46 million yuan of the World Bank loan (based on an exchange rate of approximately US$1 = 4 yuan). Most of the loan had been used for the project, but in a few cases had been applied for other purposes. In some project areas, for example, work units and cadres had covertly divided the quotas of imported chemical fertilizers among themselves or sold them to nonproject areas. As a result, specialized households in project areas could only get a small part of their chemical fertilizer quotas. And in Chongyang County, a few specialized households used the loan money to buy luxurious consumer goods, prepare for a wedding ceremony, or to do their own business. Some even used the money to gamble.
Effects of the Loans

More than 5,000 specialized farm households in Jiangxi Province have begun running family farms and engaging in comprehensive farm operations on the hills in the project areas. Besides growing fruit and planting shelter-forest, they are now raising more than 1,500 milk cows and over 11,000 stock boars and brood sows.

Ten specialized households in the development areas of Ertang Township in Jinhui County have raised 312 pork-type hogs and 10 brood sows, reaping a net profit of more than 14,000 yuan. A healthy ecological cycle is taking shape there that links pig raising, orange growing, the cultivation of short-term crops, and the development and utilization of biogas.

In addition, in little more than 12 months, the state-run Red Flag Comprehensive Reclamation Farm set up a fairly large and modern dairy farm for specialized households by using the loans from the World Bank. One household on the farm is now taking care of six Dutch cows that have already given birth to five calves and yield 130 kilograms of milk a day.

The project areas in the province have built 5 small reservoirs, more than 50 water-pumping stations, main and secondary irrigation canals covering about 100 kilometers, and new highways extending more than 100 kilometers. They have also set up 200 kilometers of high- and low-voltage electric lines and have launched environmental improvement projects including improvements to land, water supply, orchards, woods, roads, and villages. Most such projects have complied with the requirements of the overall development program.

The project unfolded with surprising efficiency. In 1987, the investment-profit and the cost-profit ratios in the province’s project areas were 2.65 and 2.6 percent higher than the planned rate, respectively (see Appendix 7).

In 1987, the average income of each specialized household in the project areas reached 3,848 yuan, and the average per capita income 641 yuan (the average household was assumed to consist of six members). The household figure was 31 percent higher than that of local farmer households, and the per capita figure was also considerably higher than the average per capita income of 200 yuan of the other rural residents in the province. Many specialized households had become rich.
In Boqian Township, Dongfang County, 13 specialized households have spontaneously entered joint agricultural production and are using the loans from the World Bank to reclaim red soil, cultivate oranges, and raise hogs. In 1987, the total income of the 13 specialized households stood at 204,210 yuan, with average per capita net income reaching 857 yuan, doubling the figure of 400 yuan in the county that year.

In Dashan Village of Fengshan Township, Jinhe County, six specialized households earned a total income of 64,818 yuan by reclaiming red soil for the cultivation of feed crops, raising hogs, and growing short-term crops. The average household income has exceeded 10,000 yuan a year and the average per capita income has topped 2,000 yuan. Whereas Dashan Village used to be a poor and isolated village nesting in a piece of bushland, today it is a prosperous hamlet with highways leading to almost everywhere in the province.

Treatment has begun to improve the red soil in Jiangxi Province. Before the red soil project was introduced, the 3,000-hectare hilly land in Chonggangwadian, Linba County, was losing 2.7 millimeters of deep surface soil each year. By 1987, soil erosion had dropped to 1.7 millimeters.

The Direction of Flow of Equipment and Materials Purchased through Bidding

The equipment and materials purchased with the aid of World Bank loans included mainly urea, walking tractors, steel products, and cross-country motor vehicles. Some of this was directly used in agricultural production and sold to obtain funds for urgent projects. A large percentage of the imported walking tractors and urea had been allocated to nonproject areas, and some of the funds obtained by selling the imported equipment and materials were used for other projects (see Appendix 8).

The Payback of the World Bank Loans

The World Bank loans were issued by agricultural development companies in some project areas and by financial departments in others, while the domestic loans were all granted by the Agricultural Bank of China. Most of the specialized households that earned high incomes were able to repay their loans in the same year, but some households were unable to repay their loans because of their poor
operation. Since the loans were granted through several channels (for example, the agricultural development companies, the financial departments, and the Agricultural Bank of China), the financial departments in some project areas and branches of the Agricultural Bank of China began passing the responsibility back and forth. As a result, some areas had no one taking care of the loan repayment. Under the accord between the Chinese government and the World Bank, the repayment of the principal with interest was to begin in 1991.

At one point, the Jiangxi provincial government announced that the red soil project would be given the same preferential treatment extended to Sino-foreign joint ventures or to solely foreign-funded enterprises. Organizations under the project were allowed to engage in exports by themselves and to use their foreign exchange earnings to repay their debt. However, the prospects for this now seem to have diminished. One reason is that little foreign exchange has been earned because many of the region's products are not up to export standards owing to technical and quality problems. Although oranges have been a traditional export of the province, for instance, many of the specialized households are still poorly skilled at both cultivation and management and the young orange trees are not growing well; meanwhile, the oranges produced by old trees have also failed to attract foreign importers because of their low quality. A second reason is that China has had to combat soaring inflation in the past few years and therefore introduced an austerity policy that has tightened its control on foreign trade as well as on other economic activities. The foreign trade quotas of various provinces (except for special economic zones) are now set according to the state plan. The foreign trade quota for Jiangxi Province has not been increased, so there is little room for exercising flexibility. Since the export plan connected with the Red Soil Project has not been registered as an independent item in the state plan, the export plans submitted to the provincial government by all the local project areas have received little attention.

4. The specialized household had been granted low-interest RMB loans, which according to the loan agreement were to be repaid in the same year as they were issued. As for the WB loans, the financial departments in project areas must repay them with their foreign exchange quotas. Starting from 1991, the Jiangxi provincial financial department will act on behalf of all local areas in repaying the principal with interest to the Ministry of Finance. The annual interest rate of the WB loans is 4 percent.
Questions for Discussion

1. Suppose you were the head of a group auditing the red soil project. How would you use the initial results of the investigation to draft a Red Soil Development Project Auditing Plan?

2. Using the background information and the results of the initial investigation, analyze the possible objectives of auditing the Red Soil Development Project and then set what you consider to be appropriate objectives for the auditing.

3. Use the auditing and project planning objectives to establish appropriate criteria for auditing. What progress has been made in the auditing? How has the implementation of the project deviated from the set standards, and what are the causes behind the deviations?

4. Do you think the Jiangxi Red Soil Development Project has been carried out according to the plan? Can the project succeed? What kind of implementation problems did the project experience? What difficulties must be overcome and what measures should be adopted to deal with them? Please prepare a draft of an auditing report on the project.
Appendix 1

Excerpts from the Agreement on Using the IDA Loans to Implement the Red Soil Development Project signed by the Ministry of Finance of China and the government of Jiangxi Province on May 12, 1987:

Clause 1

The Ministry of Finance shall transfer to the Jiangxi provincial government SDR 20 million out of the total SDR 30 million loan provided by the International Development Association.

Clause 2

The government of Jiangxi Province shall use all the funds thus transferred for the Red Soil Development Project, according to the targets of project implementation as set in the credit accord.

Clause 3

The Ministry of Finance has agreed that the government of Jiangxi Province may appoint the person in charge of the joint office of the project as the loan receiver; this individual can withdraw the loans directly. The name of this person and his or her signature shall be authenticated by the Ministry of Finance for the IDA.

Clause 4

During the project implementation period, the Red Soil Project office jointly set by Jiangxi and Fujian provinces shall contact the World Bank in a unified way for the withdrawal and repayment of the loans and for account settlement procedures; shall submit project progress reports to the World Bank; shall conduct the international bidding and handle the purchasing of materials; and shall repay principal with interest to the Ministry of Finance in a unified way.

Clause 5

The Ministry of Finance has the right to supervise the use of the loans and the implementation of the project.
### Appendix 2. The Distribution of the SDR 20 Million Loan Provided by the World Bank

(Unit: 10,000 SDRs)

<table>
<thead>
<tr>
<th>Project Areas</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chongyang County</td>
<td>304.0</td>
</tr>
<tr>
<td>Linba County</td>
<td>264.0</td>
</tr>
<tr>
<td>Dongfang County</td>
<td>240.0</td>
</tr>
<tr>
<td>Jinhe County</td>
<td>250.0</td>
</tr>
<tr>
<td>Jinhui County</td>
<td>216.0</td>
</tr>
<tr>
<td>Guihai County</td>
<td>120.0</td>
</tr>
<tr>
<td>Provincial Animal Husbandry Complex</td>
<td>232.0</td>
</tr>
<tr>
<td>Red Flag Reclamation Farm</td>
<td>192.0</td>
</tr>
<tr>
<td>Provincial Agricultural &amp; Animal Husbandry Training Center</td>
<td>6.4</td>
</tr>
<tr>
<td>Provincial Fruit-Processing Factory</td>
<td>20.0</td>
</tr>
<tr>
<td>Provincial Red Soil Research Institute</td>
<td>32.0</td>
</tr>
<tr>
<td>Provincial Feed Factory</td>
<td>60.2</td>
</tr>
<tr>
<td>Provincial Silk Cocoon Tea Research Institute</td>
<td>16.0</td>
</tr>
<tr>
<td>Provincial Fine Breeds Farm</td>
<td>25.0</td>
</tr>
<tr>
<td>Paixia Farm in Lequan County</td>
<td>22.4</td>
</tr>
</tbody>
</table>

**Total**                                           **2,000.0**

The Government of Jiangxi Province

- Jiangxi red soil project leading group (a policy-making & guiding organization)
- Jiangxi Agricultural Joint Development Corp. (executor of the red soil project)
- Jiangxi red soil development technology committee (a project consultancy & service organization)

Red soil project leading groups at prefectural & county levels

- Agricultural development companies at prefectural & county levels
- Project technical service groups at prefectural & county levels

Township A Township B Township C

Village (a) Village (b) Village (c)

Notes:

a. The departments under the agricultural development company and their functions are the Development Department, which is in charge of the planning and implementation of the project; Credit and Loan Department, which takes care of the financial affairs; Technical Department, which is in charge of tests for the project and technical training; and the Imports Department, which introduces foreign exchange and purchases imported equipment and materials.

b. The project organization at the township level is the township project office.

c. The project organization at the village level is the village committee on red soil development project.
Appendix 4. Agreement on Borrowing Funds from the Transferred World Bank Loans

No. 004 Chongyang (county) Yongchang (township)

Agreement No. 2

Through detailed negotiations, the Chongyang County Financial Bureau (hereinafter, the Lender) and the People’s Government of Yongchang Township (hereinafter, the Borrower) sign this agreement and both pledge to honor the agreement.

1. From April 1, 1986, to March 30, 1987, the Lender shall provide the Borrower 300,000 yuan for red soil development and the fund shall be repaid in two installments. the repayment plan is as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Sum</th>
<th>Interest</th>
<th>Purpose</th>
<th>Date</th>
<th>Principal (yuan)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 15</td>
<td>100,000</td>
<td>6%</td>
<td>To help specialized households move into mountainous areas</td>
<td>3/30/87</td>
<td>100,000</td>
</tr>
<tr>
<td>Sept. 1</td>
<td>200,000</td>
<td>6%</td>
<td>To purchase chemical fertilizers</td>
<td>9/30/87</td>
<td>200,000</td>
</tr>
</tbody>
</table>

2. The Lender must pay the fund to the Borrower according to the data and amount specified in the above plan; otherwise, the Lender must pay the compensation to the Borrower according to the amount of fund and days involved in the violation of the above plan, and the compensation shall be the same as the fine for overdue repayment for loans.

3. The loan interest rate is set according to the current bank loan interest rate, and any adjustments are made by the bank; the loan interest rate shall be calculated according to the new rate and method of calculation.

4. The Borrower must use the loan for the purposes specified in this agreement and shall not use it for other purposes; otherwise, the Lender has the right to stop issuing new loans.
and even to retrieve the loan that has already been paid to the Borrower.

5. If the Borrower does not use the loan according to the time period and amount specified in this agreement, the Borrower must pay a fine to the Lender for violating the agreement. The fine shall be calculated according to 50 percent of the loan interest rate and the amount of fund and days involved in the violation.

6. The Borrower must repay capital with interest according to the repayment period specified in this agreement. If the Borrower intends to extend the repayment period, the Borrower shall submit the repayment postponement application no later than three days before the due date. After being approved by the Lender, the Borrower shall go through the accepted procedures for extending the loan repayment period. However, the extension shall not be longer than 50 percent of the original repayment period, and the Borrower shall be fined for the overdue repayment if the Lender has rejected the repayment postponement application or if the Lender has agreed to accept the application but the Borrower has failed to go through the necessary procedures.

7. The fund borrowed by the Borrower shall be guaranteed by the guarantor's working fund at the agency of the Agricultural Bank of China.

8. If the Borrower fails to repay the principal with interest for the loan one month after it is due, the guarantor (work unit or individual) shall repay the principal with interest, as well as fines for the Borrower.

9. There are four copies of this agreement: one for the Lender, one for the Borrower, one for the guarantor, and one for the notary agency.

10. This agreement becomes legally effective on the date when it is signed by the two parties involved.

The Borrower:
The People's Government of Yongchang Township (seal)
The person in charge: Liu Jianhua (signature and seal)
Handled by: Li Aiping (signature and seal)

The Borrower's Guarantors:
Work unit: The agency of the Agricultural Bank of China in Yongchang Township (seal)
Individual: Li Hong (signature and seal)

The Lender:
Person in charge of Chongyang County Financial Bureau:
Wang Renshen (signature and seal)
Handled by: Chen Quang (signature and seal)

The notary agency:
Agency: The Chongyang County Notary Office (seal)
Person in charge:
Date: March 20, 1986
Appendix 5. A Letter of Mortgage Loan

On April 25, 1986, I signed a Letter of Mortgage Loan with the Yongchang Agency of Chongyang county Branch of the Agricultural Bank of China for a loan of 5,000 yuan. For the repayment of the loan, see the agreement on the loan; and for the installments of repayment, see the receipt of a loan. I and my relatives are willing to raise a mortgage on my house, properties, and orchard in Shangjie Village (for details see the following table). If I do not or am unable to repay the loan when it is due, the creditor has the right to auction the mortgaged properties and use the income to repay the principal with interest, the insufficient part shall be paid by me, and if there is surplus, it shall be returned to me. This is totally approved by the owner of the mortgaged properties. Before the principal interest for this loan is totally repaid, the owner of the mortgaged properties shall not sell, transfer, or use as gifts the mortgaged properties as he/she wishes.

The mortgaged properties:

<table>
<thead>
<tr>
<th>Properties</th>
<th>Unit</th>
<th>Number</th>
<th>Location</th>
<th>Estimated Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>House</td>
<td>Room</td>
<td>4</td>
<td>Shangjie</td>
<td>4,000 yuan</td>
</tr>
<tr>
<td>Furniture</td>
<td>Set</td>
<td>1</td>
<td></td>
<td>1,000 yuan</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>5,000 yuan</td>
</tr>
</tbody>
</table>

*Mortgage loan borrower:*
Zhang Erchun (Signature)

*Owners of the mortgaged properties:*
Zhang Erchun, Wang Junxiang, Zhang Xiaoping and Zhang Xiaopiu (signature)

*Witness of the mortgage:*
Zhang Chuan (signature)

*Verifier of the ownership of the mortgaged properties:*
Shangjie Village Committee (seal)

April 25, 1986
### Appendix 6. The Progress Table on Moving Specialized Households into Project Areas and Reclamation of Red Soil Land (by December 1987)

<table>
<thead>
<tr>
<th>Country or work unit</th>
<th>Households to move into project areas</th>
<th>Land reclaimed (hectare)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Five-year plan</td>
<td>Actual number</td>
</tr>
<tr>
<td>Chongyang County</td>
<td>2,000</td>
<td>670</td>
</tr>
<tr>
<td>Linhe County</td>
<td>1,696</td>
<td>674</td>
</tr>
<tr>
<td>Dongfang County</td>
<td>1,496</td>
<td>542</td>
</tr>
<tr>
<td>Jinhe County</td>
<td>1,625</td>
<td>656</td>
</tr>
<tr>
<td>Jinhai County</td>
<td>1,368</td>
<td>534</td>
</tr>
<tr>
<td>Guixi County</td>
<td>690</td>
<td>399</td>
</tr>
<tr>
<td>Provinicial Animal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husbandry Complex</td>
<td>275</td>
<td>31</td>
</tr>
<tr>
<td>Red Fruit Reclamation Farm</td>
<td>275</td>
<td>67</td>
</tr>
<tr>
<td>Provinicial Red Soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Institute</td>
<td>123</td>
<td>54</td>
</tr>
<tr>
<td>Provinicial Silk Cocoon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Tax Research Institute</td>
<td>64</td>
<td>4</td>
</tr>
<tr>
<td>Provinicial Fine Breeds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm Paixia Farm in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lepu County</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9,617</td>
<td>3,631</td>
</tr>
</tbody>
</table>
Appendix 7. Analysis of the Efficiency of Jiangxi Red Soil Development Project (unit: 1,000 yuan)

<table>
<thead>
<tr>
<th>Year</th>
<th>Planned Investment</th>
<th>Actual Operational Cost</th>
<th>Total Operational Cost</th>
<th>Planned Total Income</th>
<th>Actual Total Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>58,539.48</td>
<td>42,817.30</td>
<td>11,712.02</td>
<td>70,251.25</td>
<td>10,443.98</td>
</tr>
<tr>
<td></td>
<td>94,347.76</td>
<td>87,182.70</td>
<td>29,344.21</td>
<td>123,691.97</td>
<td>34,307.68</td>
</tr>
<tr>
<td></td>
<td>52,312.75</td>
<td>49,298.24</td>
<td>101,910.99</td>
<td>69,572.99</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>27,070.03</td>
<td>60,447.84</td>
<td>87,517.87</td>
<td>83,937.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13,729.80</td>
<td>85,807.23</td>
<td>99,537.21</td>
<td>97,335.98</td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>88,594.52</td>
<td>88,594.52</td>
<td>110,777.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>246,000.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* The planned period of the project is 20 years; the above table includes figures for only the first six years.

The planned investment-profit rate:
- 1986: 17.84%
- 1987: 36.36%

The actual investment-profit rate:
- 1986: 18.02%
- 1987: 45.98%

The planned cost-profit rate:
- 1986: 89.17%
- 1987: 116.91%

The actual cost-profit rate:
- 1986: 91.23%
- 1987: 120.02%
Appendix 8. Direction of Flow of Part of the Equipment and Materials Purchased through Bidding under the Jiangxi Red Soil Development Project (April 1, 1988)

<table>
<thead>
<tr>
<th>County</th>
<th>Total</th>
<th>Number</th>
<th>%</th>
<th>Nonspecialized household</th>
<th>In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linba</td>
<td>5,165</td>
<td>3,465</td>
<td>67.09</td>
<td>700</td>
<td>1,000</td>
</tr>
<tr>
<td>Chongyang</td>
<td>5,835</td>
<td>3,169</td>
<td>54.31</td>
<td>1,079</td>
<td>1,587</td>
</tr>
<tr>
<td>Jinhe</td>
<td>4,516</td>
<td>3,386</td>
<td>74.98</td>
<td>330</td>
<td>800</td>
</tr>
<tr>
<td>Guihai</td>
<td>2,800</td>
<td>1,390</td>
<td>49.64</td>
<td>810</td>
<td>600</td>
</tr>
<tr>
<td>Dongfang</td>
<td>4,126</td>
<td>2,213</td>
<td>53.64</td>
<td>582</td>
<td>1,331</td>
</tr>
<tr>
<td>Jinhui</td>
<td>3,936</td>
<td>1,635</td>
<td>41.54</td>
<td>365</td>
<td>1,936</td>
</tr>
<tr>
<td>Total</td>
<td>26,378</td>
<td>15,258</td>
<td>57.84</td>
<td>3,7866</td>
<td>7,254</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>County</th>
<th>Total</th>
<th>Number</th>
<th>%</th>
<th>Nonproject area</th>
<th>In stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linba</td>
<td>177</td>
<td>125</td>
<td>70.62</td>
<td>46</td>
<td>6</td>
</tr>
<tr>
<td>Chongyang</td>
<td>290</td>
<td>198</td>
<td>68.28</td>
<td>32</td>
<td>60</td>
</tr>
<tr>
<td>Jinhe</td>
<td>170</td>
<td>50</td>
<td>29.41</td>
<td>80</td>
<td>40</td>
</tr>
<tr>
<td>Guihai</td>
<td>105</td>
<td>68</td>
<td>64.76</td>
<td>28</td>
<td>9</td>
</tr>
<tr>
<td>Dongfang</td>
<td>220</td>
<td>139</td>
<td>63.18</td>
<td>70</td>
<td>11</td>
</tr>
<tr>
<td>Jinhui</td>
<td>164</td>
<td>60</td>
<td>36.59</td>
<td>50</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>1,126</td>
<td>640</td>
<td>56.84</td>
<td>306</td>
<td>180</td>
</tr>
</tbody>
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