1. Background

1.1 Since 2000, total Chinese employees are more than 700 million roughly; The number of worker is about 120 million. In the past five years, the employees in nationwide increased, on the other hand, the total workers decreased. The skilled workers in nationwide are about 70 million. During 1998-2003, the number of staffs and workers of state-owned enterprise reduced because government strengthen the merger and bankruptcy of state-owned enterprise, downsizing and cutting redundant workers, diversion of laid-offs to improve efficiency.

Among all kinds of workers of Chinese enterprises, the skilled worker is 46% with the largest proportion; Engineer and technician are 9.2%; The administrative staff is 11%; Logistic service and other personnel are 33.8%. According to survey, this proportion has kept relatively stable in the past three years. But compared with the past ten years, the proportion of these four types personnel has changed: the percentage of skilled workers decreased. Among the staffs and workers in China, the proportion of skilled workers was 68.4% in 1994; Engineers and technicians are 6.6%; the administrative staffs is 10.2%; and other personnel (including logistic attendant) are 14.8%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Skilled worker</th>
<th>Engineer and technician</th>
<th>Administrative staff</th>
<th>Other personnel (logistic attendant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>68.4%</td>
<td>6.6%</td>
<td>10.2%</td>
<td>14.8%</td>
</tr>
<tr>
<td>2002</td>
<td>46%</td>
<td>9.2%</td>
<td>11%</td>
<td>33.8%</td>
</tr>
</tbody>
</table>

1.2 The main part of skilled worker in enterprises is the graduates graduated from the medium-sized vocational school. According to a report surveyed by Ministry of Labor and Social
Security on the enterprises of manufacturing industry, 59.28% of total are the skilled workers graduated from high school, technical secondary school, vocational high school and technical school; 6.63% are the skilled workers graduated from junior college, higher vocational school, college and the above; however, 34.08% are the skilled workers graduated from junior middle school and the under. In all kinds of industry, it is relatively high that the schooling of skilled workers of food manufacturing industry, timber processing industry, culture and sports manufacturing industry, pharmacy manufacturing industry, non-metal industry, electric manufacturing industry and electronic manufacturing industry. Among them, more than 10% skilled workers have academic credentials of junior college and the above, which related in a certain extent to that these industries have more technology-intensive job.

**EDUCATION LEVEL STRUCTURE OF THE WORKERS IN MANUFACTURING INDUSTRY ENTERPRISES**

<table>
<thead>
<tr>
<th></th>
<th>Junior college and the above,</th>
<th>High school, Technical school and Secondary vocational school</th>
<th>Junior middle school and the under</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker</td>
<td>17.44</td>
<td>48.84</td>
<td>33.72</td>
</tr>
<tr>
<td>Skilled worker</td>
<td>6.63</td>
<td>59.28</td>
<td>34.08</td>
</tr>
</tbody>
</table>

1.3 According to the sample survey of Ministry of Labor and Social Security on worker's quality of mechanical industry, among the skilled worker of enterprises, the largest proportion are the intermediate worker who account for 43%, the second proportion are elementary worker who take 40%, and the senior worker account for 15%, the technician account for 1.5%, the senior technician only account for 0.5%. The information from International Labor Organization shows that the proportion of skilled worker in developed country presents the structure type of "Pail", namely, the senior skilled worker accounts for more than 35%, the intermediate worker is 50% and the elementary worker is 15%. By contrast, the structure of Chinese skilled worker presents the type of "steeple", namely, the technical grade of skilled worker is lower, and especially the technician and senior technician are in serious shortage.

1.3.1 The age of under the intermediate skilled worker is generally relatively young. To the age composition, all kinds of skilled worker under the age of 35 in manufacturing industry enterprise account for 55.62%, the number of 36-45 years old, 46-60 years old account for 32.09% and 12.29% respectively. The worker with intermediate level and the worker with elementary level under the age of 35 are of the proportion of 57.48% and 79.54% respectively.
By the different types of registration, the number of skilled worker under the age of 35 in private enterprise, foreign investment and Hong Kong, Macao and Taiwan investment enterprise account for the proportion of 75.73% and 66.55% respectively, which are higher than state-owned enterprise by 21.37% and 12.19% respectively.

1.3.2 According to the analysis to the supply and demand information of 62 cities’ labor market of the whole country in 2003, the ratio of the number of job hunters to enterprise's vacancy in the labor market are 1: 0.74. The supply of labor force exceeds the demand generally and the employment situation is still severe. By sharp contrast, enterprise's demand to every grade skilled worker are larger than all kinds of skilled workers for hunting job without exception, which namely the skilled workers are generally in short supply.

In 81 cities, there are about 1/4 of the cities where the skilled workers are generally in short supply at present. Among them, some cities situation are more evident such as Quanzhou, Fuzhou, Sanming cities of Fujian Province, Hangzhou, Shaoxing cities of Zhejiang Province, Xuzhou, Changshu cities of Jiangsu Province, Yinchuan, Shizuishan cities of Ningxia Province, Foshan, Guangzhou, Shenzhen cities of Guangdong Province, Qingdao, Weihai of Shandong Province, Xi'ning of Qinghai Province, Leshan, Sichuan and Liuzhou of Guangxi Province. In some areas, the ratio of recruitment of skilled worker and job seeker of skilled worker are up to 8: 1, namely, there are 8 vacant posts waiting for 1 skilled worker.

The age of skilled worker who are the above of the senior worker is higher. According to a statistic announced by Shanghai recently, the technician and the senior technician above the age of 45 in Shanghai account for 47.2% and 66.3% respectively, the proportion of technician and senior technician under the age of 35 years old only account for less than 10%.

According to the analysis to the supply and demand information in 62 cities’ labor market in nationwide in 2003, 69.3% of the labor demand concentrate on the laborer with the age of 16-34; Meanwhile, the laborer with higher skills can be employed obviously rather than the laborer with lower skills grade. In some cities, the ratio of supply and demand of the skilled worker under the age of 40 is up to 1:10, on the other hand, the ratio of supply and demand of the skilled worker above the age of 40 is 10:1. This shows that the structure of supply and demand of enterprise's skilled worker is out-of-balance and the reserve force is obviously insufficient.
2. Enterprises training activity

2.1 Since 1950s, China started to launch the enterprises training. At the beginning of the 1950s, the activity of eliminating illiteracy was developed as the main type and eliminated illiteracy for millions workers; In the 1960s, cultivation activity of new workers was launched and trained 5 million new-type laborers; "Double Making Up" education (making up the course of literacy elementary knowledge and technical theory knowledge) was launched in the 1980s for helping more than 30 million young people to improve their technology and knowledge quality; in the 1990s, the large-scale activity of vocational training was launched and trained the actual skilled workers of 70 million.

2.2 In 1996, the Regulation of Vocational Training for Workers and Staffs in Enterprises formulated by Chinese Government cleared the duty, right and obligation of workers and staffs’ training in enterprises. The regulation include:

2.2.1 Enterprise's duty and responsibility

1) Enterprises should formulate regulation and establish system of vocational training for the workers and staffs, according to the reality of enterprise, the training of on-the-job, transfer job, ability-promotion should be conducted, apprentice and new employees also ought to be trained before employment.

2) Enterprises should put the vocational training for the workers and staffs into the medium-term and long-term plans and annual plan of their own enterprise so as to provide the training funds and other training conditions.

3) Enterprise should bring the vocational training of workers into the post goal and economic responsibility system of the factory’s director (or the manager), which will be accepted the supervision and examination of the workers’ congress and responsible institution of higher level.

4) Enterprises should grant basic wage, bonus and relevant welfare treatment to the worker who participate in off-the-job training within half a year as approved. Enterprises should guarantee the worker's study time and create the essential study condition.

2.2.2 Worker's duty

1) The worker should participate in training according to the national regulation and enterprise’s
arrangement, abide by every rules and regulations of training consciously, and is obligated to teach the knowledge and skills what they learned to other workers of this enterprise.

2) The workers, whose tuition be offered by enterprise when participating in training, should sign the training contract with enterprise. Training contract should define the training’s goal, content, form, time limit, right and obligations and liabilities for breach of contract of both sides.

3) The worker should fulfill every obligation stipulated in training contract, obey the job offered by their own working unit, and do their job well.

4) When a worker, who participated in the culture and technical professional training at the cost of enterprise, proposes to release the employment relation with enterprise, to whom has signed the training contract, they ought to carry out the training contract; and to whom didn’t signed the training contract, they ought to carry out the labor contract.

2.3 Training funds

Chinese Government stipulates that enterprises should draw, use the funds of vocational training for the workers and staff according to the following regulations:

1) The funds of vocational training for the workers and staff will be drew according to no less than 1.5% of the workers’ payroll. Proper parts of enterprises own fund also can be used for the vocational training for the workers and staffs;

2) The funds of vocational training for the workers and staff should be arranged for rational proportion to use for worker's skills training according to the needs of enterprises;

3) The expenses of technical training in enterprises for introducing projects and technological transformation project can be listed in the projects’ expenditure;

4) Funds that the trade union uses for worker's spare education are grasped and used by the trade unions at all levels;

5) The funds of vocational training for the workers and staff of enterprises should be used rationally. Balance can be carried over into the next year to use.

2.4 Operating position of the training funds
The operating position of training funds of employee education is as follows

**WORKER’S OPERATING POSITION OF EDUCATION FUNDS OF ENTERPRISE**

<table>
<thead>
<tr>
<th>The classifications of personnel</th>
<th>Skilled worker</th>
<th>Engineers and technicians</th>
<th>Administrative staff</th>
<th>Other personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worker's operating position of</td>
<td>34%</td>
<td>28%</td>
<td>24%</td>
<td>14%</td>
</tr>
<tr>
<td>education funds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What need to point out especially is that the principle part of enterprise's training exist in enterprises in China. The government only defines the obligation that enterprises should be undertaken in employees’ training as well as the right and duty that employees participate in training, moreover, creates the good policy environment for launching employees’ training in enterprises at the same time. Enterprises are not only the executant of employees’ training but also the beneficiary who take on the main duty in employees’ training.

3. **Main type and manner of enterprises training**

Because the enterprise's type, demand and the employees’ quality are different, it is very difficult for enterprises training to apply mechanically with a mode. As far as it goes, the type and method of enterprises training in China are varied. The training activity that Chinese enterprises launch at present can be summarized as the following types and methods.

3.1 **Main type**

3.1.1 According to the target of training, the vocational training for the workers and staffs can be classified into: The training to the administrative staff for improving their managerial ability; The training to engineers and technicians for upgrading scientific and technological knowledge and improving the research and development ability of the products; The training to production attendant for improving the actual operative skill level and the training to the leader of team and group etc.

3.1.2 According to the content of training, the vocational training for the workers and staffs can be divided into skilled level training, on-the-job training and transfer-job training etc.
1) The skilled level training regards the national vocational standard as the main basis of training, which usually supplement the content of national vocational standard which not be listed in the need of job on the basis of carrying out technical grade standard and combining the actual request of the job, especially stress the skill training. Skill training combines the theory and practice, the teaching and production together by the workplace training mainly.

2) On-the-job training is the directional training for improving political ideology, working ability and production skills according to the need of job, which mainly include various adaptability training for obtaining the qualification of occupation and relevant promotion according as the occupational standard on the basis of the demand of production development of the job.

3) The training of transfer job is the training for helping the personnel of transfer job to use another new skill. At present, just the personnel needs the training of transfer job in the state-owned enterprise are up to 4 million people every year in China. They face new occupational selection and need to pass the transfer-job training to improve their working ability and reemployment ability urgently.

3.1.3 The organization undertake the task of enterprises training can be classified into three types:

(1) Training organization of worker run by the enterprise itself;
(2) The training organization run by enterprise and social training organization together, in which the social training school are in charge of the cultural theory teaching and the enterprises are charge with the actual skill training;
(3) The training organization run by social training organization, which implement the “order type” training by signing the training contract between the school and enterprises.

3.1.4 According to the type of participating in training, the training can be divided into off-the-job training and on-the-job training. Off-the-job training is the full-time training that the worker does not undertake the job task at the time of accepting training; On-the-job training is the part-time training while the worker needs to undertake work at the time of accepting training.

3.2 Training method

The method of enterprises training is varied. By now, most enterprises in China generally carried on enterprises training according to the following performance procedures:

3.2.1 Demand analysis. It is need to grasp the individual demand of employees in enterprise to
training, to analyse the task of every specialty post and the knowledge, skills and attitudes that employees need for being competent for their work through investigating and analysing so as to confirm the range of training. The demand analysis are as follows mainly:

--Post task analysis. To a certain work post, it need to list the inventory of the post task and to analyse requirement of skill through the method of interview with relevant personnel and post analysis, accordingly to define the concrete training demand.

--Post skill evaluation. It need to evaluate the single skill and all-around skill that every post needed, which should be graded according to standard coefficient in order to compartmentalize the skill’s grade.

--Personal training interview. In order to prepare year training plan, it is necessary to communicate and exchange about training with employees, to evaluate the training effect of the last year and discuss the training goal of the next year.

3.2.2 Planned course

--Making annual training plan of enterprise and individual. Through training interview, the training course demand and planned training month for every employee should be constituted at every end of year and the data should be gathered to department's annual training plan according to the training load, ability of giving course, focal point of work, authorized training demand and the training requirement of post skill.

--Setting up and describing the post training course. The post training courses should be confirmed according to the analysis result of post work and task, and it also need to be confirmed according to actual demand that training purpose, students’ range, teachers’ qualification, execution conditions, examination method and training content.

--Making the training requirement of post skill. Interviewing directions of all specialties and confirming the inventory of skill training course of every post in department which be needed on duty in the existing post skill training course inventory according to the requirement of post task and skill.

--Making personal skills training requirement. Interviewing directions of all specialties and confirming the individual inventory of skill training course according to the training course inventory of the employee’s post and concrete individual work character.
3.2.3 Teaching preparation

--Organizing writing the teaching materials of post training. Organizing the technicians of relevant department and teachers to write the post training materials, and edit and verify the form and content of the teaching material.

--Preparing the training facilities. Arranging the training place and teaching equipment, offering the good study environment to teachers and students so that the teaching can go through normally.

3.2.4 Training organizations

--Organizing employees to participate in training at training center. According to the department's annual training plan and monthly teaching plan of the training center, informing employees to participate in the training course which be offered by training center on schedule every month based on the work plan of every department and the arrangement of individual post of production and work.

--Organizing the post training activity. Employees accepted the systemic and concentrative training in training center; after went back to the work post, they still need to accept the on-job training which organized by department combining the requirement of post. The department will carry on the track record to the whole process.

-- Organizing new employee's training before on duty. Organizing pre-job training, signing the training agreement, pinpoint the training task and training time to new employees or transfer-job employees of department.

3.2.5 The result evaluation

--Through the training investigation and the data collection, evaluating quantitatively and intuitively the performance situation to the training achievement index, the improvement of quality after they participated in the training and the contribution to the production achievement.

--Submitting training summarization and arranging the training file. Based on the evaluation result, classifying and pigeonholing the training plan, training record and examination situation.

3.3 Existing problem

3.3.1 The maladjustment of skill training content:
The skill training content are timeworn and outmoded, the information of new technology, new

craft, new material, new equipment and product development is insufficient, which cannot meet

the rapid development and change of science and technology in our age. In addition, many

enterprises still put the emphases of work in academic cultivation, on the other hand, put it in

secondary position that the ability training of new and high technology and the operation

technique used in production directly to workers (include the redundant staff who does not suit the

request of produce post).

3.3.2 The maladjustment of training form:

Most enterprises take the single form of the training of science and technology quality. The main

form is that the master worker trains the apprentice face to face and teach-by- doing, which attach

importance to the skill training and ignore the quality cultivation to workers from long-term angle;

there is short of the modernized teaching training method, for example many kinds of modernized

tools such as satellite channel, computer-assisted teaching, audiovisual teaching have not been

used or utilized adequately for worker training, which is not suitable to the demand of large

quantities of high-quality laborers for accelerating enterprise's reforming.

3.3.3 The supplementary measure is imperfect:

At present, some three kinds of foreign-invested enterprises and township enterprises does not pay

attention to training talents by themselves, on the other hand they embrace talents with the high

salary; The skeleton skilled workers who be trained at the expensive cost by State-owned and

collective-owned enterprise be lost seriously. This situation cause that the non-state-owned

enterprises do not implement the training actively, and the state-owned enterprises ’ enthusiasm

has been injured.

4. Examination and certification system to enterprise's skilled workers

4.1 At present, Chinese economy is growing up and in the middle period of fast development with

high speed. It becomes the important measure of worker’s training in enterprises that setting up

the vocational qualification system that stress the equal importance to academic diploma and

launching generally the vocational skills testing activity in enterprises. It was a very long period in

the past, China implemented the single academic diploma in qualification certification system,
which not only had obstructed and limited the development of manpower resources in different levels and different fields seriously, but also had brought on that the education training attached importance to abstract quality at the same time looked down on practical ability, and was divorced from economy and production, self-circulation and self-service. Thus caused that the reserve workforce were short of the relevant skills met the needs of various kinds of occupational working and the on-the-job workers were difficult to meet the changes of economic and industrial structure adjustment. Under the unified organization of Chinese Government, vocational skills qualification organized the training and examination activities for 6 million newly growing workforce and enterprise’s on-the-job workers every year, offered the skills level certification of different grades. The vocational qualification has reflected the laborer’s ability to use the specific knowledge and skills for meeting the needs of job. Different from academic diploma, the vocational qualification is combined with the concrete request of the job works closely, reflect actual work standard and operation criterion of specific job more directly and accurately as well as the actual ability level that what they can reach when the laborer is engaged in this kind of job. National vocational qualification system is a comprehensive system about the occupational ability level of workforce resource that be planned, developed and managed by national government, which includes the following five aspects content mainly:

1) Occupational classification and vocational qualification standard: Based on social function of occupation (job functional analysis).
2) Vocational education training system: Take vocational qualification standard as the direction (occupational nurturance).
3) Vocational quality formation system: Take occupational ability as core, especially key-competence (competence nurturance).
4) Vocational skill testing system: Take examination based on standard-reference as a basis, and implement the socialization management under the guidance of the government (standard reference).
5) National vocational qualification certification system: Regard circulation of the labor market as the characteristic (marketing circulation).

As a mainstay that be regarded as equal importance with academic diploma system, national vocational qualification certification system is the multi-directional manpower resources development system with the essential feature of vocational direction of guiding. Its key part is the national occupational classification and vocational skills standard. On this basis, it also include the
school education, pre-job training, on-the-job training and the other social education and training; Include the development that equip of course, teaching material and teaching of the characteristic led with the job, and teachers' building of contingent; Include job-oriented organizational management of exam item bank, national exam item bank development, industrial exam item bank development, and the synthesis to the laborer or the appraisal and asserting of the job ability of the individual event.

4.2 The vocational qualification standard plays an important role in the whole vocational qualification certification system (Including vocational education training and examination system). A unified national vocational standard system, which according with the enterprise's interests, can lead vocational education training, direct vocational qualification testing, promote cultivation and development of labor market, assist workforce with employment and in obtaining job, guide laborer to succeed in their job, effectively. Watching from global range, standard lead has became the common goal of world vocational education reform trend already and happens to coincide with the action creed of various countries.

The compilation of national vocational standard, based on occupational indispensable ability, has the characteristic of dynamics, opening and flexibility in order to meet the needs of enterprise's production, scientific and technological progress and employment in an all-round way.

4.2.1 Standard structure modularization.

Adopting the vocational function module structure under the guidance of the vocational function analytical method. The frame of new type vocational skills standard can be designed to:

1) Occupational name
2) Vocational function module
3) Vocational skills modules
4) Elements of operation criterion
5) Activity fields
6) Contents of knowledge
7) Testify method
8) Examination and appraisal under guidance

4.2.2 Standard system level stratification.
While making the standard system of the national vocational skills, confirms and makes the key
skills standard dividing the level, which is the important method to meet the different needs of
vocational education training and examination in whole society, to improve the suitability and
opening of vocational qualification standard.

4.2.3 Working organization's specialization.

Appointed national standard should not be undertook by government directly, but be undertook by
intermediary organizations that be commissioned or authorized by government. This kind of
intermediary organizations not only includes trade or industry's technologist, expert of standard
formulation method and standard administrative staff in the composition, but what’s more
important is that the standard will be constituted according as the request of the leading enterprise
mainly supersede the request of the administrative department, which make the standard can be
approved by enterprises directly, and be adjusted with the change of the production technology.
The constitution and revision of standard will not be a paroxysmal government's behavior met in
more than ten years again, but will be the daily activity of the intermediary organizations.

4.2.4 The certification methods’ unification.

Along with the international trade increases sharply, the isolated, single national economic form
has already passed out of existence. International circulation of products and international migrant
of workforce required that all over the world countries should make the unified vocational skills
standard progressively in main occupation (type of work, specialty) field. The constitution work of
standard in our country should considered this trend and integrate with international vocational
skills standards in some important work posts, occupational fields.

4.3 Worker examination activity in enterprises implements the vocational skills testing activity
according to national vocation (type of work) standard and unified request of test affair
management, generally, combine with the practice of enterprises produce. Examination has many
kinds of mood too, for example, Daqing Oil Field find out a suit of examination method on "
integrate the concentration with decentralization, combine the content of examination question
base with new knowledge, link the execution standard with solving practical problem " according
to the practice of vocational skills testing in recent years; Aiming at different types of work,
Zhongyuan Oil Field adopted 5 kinds of different methods in examination, which include the
workplace operation evaluation, process realistical evaluation, products sampling evaluation,
simulation operation evaluation and typical project work evaluation, based on the production
scene and combined with worker's fieldwork and produce activity. The group company of Baoshan Iron and Steel Plant of Shanghai adopted and tried out the skills module type according to enterprise's actual conditions, and searched after the new method of vocational skill testing of enterprises. Etc.

4.4 Skilled worker's grade in China is divided into elementary, intermediate, senior level, and technician and senior technician level. Taking senior technician as an example, the main working routine of examination and evaluation is divided into four links that include the theory examination, skills examination, reply in argument about thesis and expert evaluation.

4.4.1 The theory examination: the proposition group should be established firstly, they make the clear regulation to question amount, question type, the degree of difficulty and proposition form. The proposition should be kept secret absolutely. The question type of theory examination includes filling vacancy, judging, choosing, question and answer, calculation, drawing, etc. Moreover, the main content is which closely related with production operation and the question amount is relatively great, the degree of difficulty is moderate.

4.4.2 Skills examination: it means mainly integrative skills operating examination, which is an important link in examination process of senior technician. In order to integrate the examining with finishing production task and solving the key problem of production technology organically, generally adopted the examination way of typical work piece and typical operation project in this type of work. For examining the ability to analyze question, obviate failure and technological innovation especially.

4.4.3 Reply in argument about thesis: For guaranteeing quality of examination and evaluation, personnel who declare senior technician are demanded to write the thesis combining with their duty work and outstanding personnel will be chose out through reply in argument about thesis, which requires the examinees not only to possess certain cultural theory and actual operative skill level, but also to have the corresponding writing level, induction and analysis ability and expression ability.

4.4.4 Comprehensive evaluation: on the basis of that the score of the examination is qualified, the evaluation committee that comprise some outer experts evaluate comprehensively the working achievement and technique level of personnel whom participate in the senior technician examination and evaluation according to the duty standard of senior technician, finally, vote by secret ballot after discussing seriously.
What needs to explain especially is that the senior technician is the supreme grade of the skilled workers, the degree of difficulty of its examination is most difficult, and at the same time the examination of other low grades should be relatively simpler.

5. Typical case

Because it is different that the enterprise’s management level, business scale, technical equipment and employees’ quality, etc., the enterprises training method and concrete measure are not the same totally either. For understanding the situation of implementing enterprises training at present, take the following examples to explain specially.

5.1—Shanghai Baoshan Iron and Steel Group Company

After groped for 20 years, The Group Company of Shanghai Baoshan Iron and Steel has came into being the system of operational talent training, established the four major systems, such as pre-job training, training of grade worker, training of main type of work and the qualification training of technician and senior technician, etc.

5.1.1 System of pre-job training:

Among the first, second and third phase project of Baoshan Iron and Steel Company, the pre-job training, which regard grasping the operative skill in the post as main content, be taken as the basic job-specific training of operative talent in order to guarantee putting into production successfully. Therefore, strict job-specific training standard has been constituted at first. The training and assessment standard of 276 jobs and 524 vocations are constituted by organizing more than 1 hundred engineering and administrative staff. Secondly, according to above-mentioned standards, there are 9 steps strict training to be carried out such as education of entering, culture study, skill exercitation in corrective factories, theory education of professional technique, training on workplace of construction, exercitation go abroad, impartation education after return to the homeland and simulation operative training. And then, the strict theory and skill examination need to be passed before obtain the certification of operator on workplace. Thirdly, in the interest of guaranteeing quality of job-specific training and examination, there is still strict system of selective examination, checking and accepting to be stipulated. One who cannot reach the standard need to make up a missed lesson and reexamine.
5.1.2 Training system of grade worker:

Baoshan Iron and Steel Company regard the grade worker training as the ladder of deepen job-specific training and take the following 7 measures:

(1) Hold the senior and secondary all-subject class;

(2) Hold the senior and secondary single subject class;

(3) Hold the tutorial and examination class of self-study to the senior workers;

(4) Hold the training class of closed-circuit TV to the senior and secondary workers;

(5) Set up the system of promulgating the training achievement of the students in the senior and secondary workers class, by which students can select their own subject according to the questions in production and by way of the PDCA (Plan. Develop. Check. Adjust) circulation. Promulgation meeting can not only check and show the teaching achievement, but also promote the combination of learning and using, so as to encourage the student to apply their theory and skill in production;

(6) Combine the training and examination of accountable skills to senior and secondary workers with contracting the project and participating in the construction project, so as to improve skills and study theory in project construction;

(7) Strengthen the workshop construction of skills training and examination. The workshop of training and examination to electrician, locksmith and welder has been set up successively. In 1988, actual operation examination workshop of 8 special work posts have been set up such as Japanese system traveling crane, German system traveling crane, Chinese traveling crane and machine for loading and unloading in port. In 1992, the skill training base of more than 7000 square meters with contemporary advanced level has been built up, on this base, there were 4 training centers already have been set up jointly with abroad now.

5.1.3 Training system of main type of work:

The important symbol of the-state-of-art factory in the world is the higher labor productivity. The sturdy basic skill is the key of raising labor productivity constantly from the angle of technological quality of operative talents. Accordingly, the old traditional idea with detailed division of work should be broken down, on the contrary, it become a new development trend that the direction of
“mastering many skills while specializing in one skill” that many kinds of skill should be equipped together with acquiring masterly the new technology and possessing new craft, moreover, training should be enhanced not only deepening the training vertically but also expanding training horizontally. For many years, Baoshan Iron and Steel Company has held dozens of training class already and trained several thousand talents of examination and repair of main type of work series. Tracking the result of examination and measure, the operation efficiency has been increased greatly after training of main type of work, which offered the advantage for cutting payroll to improve efficiency every year in the Baoshan Iron and Steel Company. Taking Power Plant of Baoshan Iron and Steel Company as an example, it is a traditional management method of domestic power plants that boiler, vapor machinery and electrical machinery be managed separately. But in Power Plant of Baoshan Iron and Steel Company, after trained and examined the operator of 3 specialties of stove, electricity and machine in more than 3 years stage by stage, it has realized that three posts be in charge of by one worker form one post be in charge of by one worker and the attendants reduce from 25 persons of per team to 13 people, furthermore, a high record of 1034 days of safe operation in domestic similar large-scale machine unit has been set. Now, “mastering many skills while specializing in one skill” in workers of equipment examination and repair is very general, multi-functional workers and generalists can be found everywhere in Baoshan Iron and Steel Company.

5.1.4 Qualification training system on technician and senior technician:

Technician is the core operative talent's team of the Baoshan Iron and Steel Company. In Baoshan Iron and Steel Company, a lot of technological difficulties, doubtful points and dangers in production examination and repair were solved by technician or senior technician. The technician played an irreplaceable role in producing smoothly and improving efficiency in Baoshan Iron and Steel Company. Since Baoshan Iron and Steel Company began to appraise and engage technicians in 1989, the construction of technician's team has been thought much of by the leaders at all levels of Baoshan Iron and Steel Company all the time, therefore, human resource department and educational and training department implemented a series of training measure aiming at technician and senior technician. The oldest and most general training measure is acknowledging someone as one's master and learning the craft, namely, each technician teach several apprentices, cultivate apprentices meticulously, teach-help-guide face to face. The technician teach his experiences which accumulated in production process in all his life to the apprentices in course of produce, examination and repair, accident handling. It is very difficult to expand training in this kind of traditional way to instruct in words and by deeds, but it has been proved effectual by practice for
many years.

5.2 Airplane industry (Group) Corporation of Shenyang

5.2.1 Shenyang airplane industry (Group) Corporation raise funds of 500,000 Yuan RMB as the training fund of training high skilled talents and reward of bonus for young expert of post., reward their workers. Moreover, 1-3 grades salary will be promoted to whom win the skills match.

5.2.2 In “The Relevant Regulations to Strengthen Training to Senior Skilled Workers of skilled worker”, the company proposed that: the students in senior skilled worker class are not restricted their working ages of promoting technician; the students, who got high grade and made outstanding contribution, will exempt from examination of theory when promote to technician after be authorized by technician examination committee of company.

5.2.3 The basic salary will be issued to the senior skilled workers when they participated in the out-of-work study, furthermore, they also can enjoy the additional salary when raise the standard of salary. The reward of promoting salary will grant to whom pass the examination, at the mean time, the reward of promoting grade and one-off commendation will grant to whom got high grade and solved the key subject for company. In addition, the personnel who participate in the out-of-work study within 1 year can enjoy the bonus at the end of the year equally as personnel on duty.

5.3 Jianghan Petroleum Administration Bureau

5.3.1 Establishing the system of integrating outstanding skilled talent with relevant salary and treatment. The students who participate in fulltime out-of-work class of senior skilled worker with two years length of schooling that will get higher skill salary of one grade after past the examination; The students who participate in fulltime out-of-work class of senior skilled worker with 1 year length of schooling or in correspondence training with 2 years length of schooling will get increased one grade salary at their own skill salary standard. Meanwhile, the outstanding students can break a rule to participate in technician's examination and evaluation.’

5.3.2 Setting up the subsidy systems to technicians and senior technician. Since the next month of accepting the letter of appointment, technician and senior technician can enjoy the subsidy of 60 Yuan and 80 Yuan for each person every month who work in the oil field workaround of geological prospecting, development and construction, technician and senior technician who work
in the other post can enjoy the subsidy of 50 Yuan, 70 Yuan for each person every month; in addition, they can enjoy the relevant treatment in such aspects as house etc. on an equal basis of the engineer and senior engineer.

5.3.3 Establishing the system of integrating post expert with relevant salary and treatment. The personnel who obtain the top three places in the technical competition will be granted the First-class Merit once and the lump-sum reward, at the same time will be promoted a grade of salary. The personnel who obtain the title of the skill expert of the outstanding contributions can enjoy skill expert's subsidy of 100 Yuan for each person every month. The personnel who get the national skill expert or obtain the top 10 in countrywide top-ranking individual competition or obtain the 1st place in the individual skill competition of group company or province can break a rule to be award the title of senior technician at the same time get the relevant reward.

6. National high skill talent training project

From the point of view of government, they don’t intervene the concrete activities of enterprises which including employees’ training anymore. The government only advance the employees’ training in enterprise from macroscopical aspect according to the requirement of change and adjustment in industry's economic policy, through the methods including policy supporting, propagating and leading, model inducting etc. This chapter introduces especially the national high-skill talent training project that Chinese Government organizing and implementing.

In order to strengthen the work of training skilled worker, Chinese Government launched " the national project of training high skill talent" (hereafter referred to as the “the project”) in 2002 according to the national industrial policy and accord with the need of economic restructuring and the demand of workforce's market. Choosing some cities of priority industry, the project implement several training projects of senior skilled workers training in some traditional industry such as making, processing, architecture, energy, environmental protection, etc and some news field such as technical industry and information communication, Aero-Space, etc. In October of 2002, the training project of senior electromechanic skilled worker was started at first, other projects will be issued and be implemented successively.

From October 2002 to the end of 2005, Chinese Government organized relevant departments and implemented the national training project of high skill talent -- Senior Electromechanical skilled
worker training project (hereafter referred to as “the electromechanical project”).

6.1 Task and goal

According to the urgent need of enterprise, the training of electromechanical high skilled talent of modern manufacturing technology in some city where the industry concentrate comparatively and some industry that the electromechanical job takes high proportion. The goal is that the quantity of senior worker, technician and senior technician increase obviously; and the proportion in skilled works raise by 3-5 percentage points, among them, the young senior skilled workers' proportion is up to about 30% to 2005.

6.2 The range of key implementation

6.2.1 Key city: there are 30 cities as the key connection city of Ministry of labor and social security such as Beijing, Tianjin, Taiyuan, Shenyang, Dalian, Changchun, Haerbin, Shanghai, Nanjing, Suzhou, Hangzhou, Ningbo, Hefei, Nanchang, Jinan, Guangzhou, Shenzhen, Luooyang, Zhengzhou, Wuhan, Xiang Tan, Zhuzhou, Liuzhou, Chongqing, Chengdu, Kweiyang, Xi'an, Lanzhou, Yinchuan, Urumchi,etc. In addition, the department of every province, municipality and autonomous region can fix on their own key connection cities.

6.2.2 The key industry organization and enterprise group include 10 enterprise groups that China Machinery Industry Federation and China Science and Technology engineering Group Company of Space flight, The First Group Company of Aviation of China, The Second Group Company of Aviation of China, Chinese group company of shipping industry, China group company of shipping heavy industry, Chinese group company of weapon industry, Chinese weapon equipment group company, China southern engine rolling stock industrial group company, and China northern engine rolling stock industrial group company.

6.2.3 Key vocational field: The numerical control machine tool operator, the measure and mould tool maker, the special type welder, the electromechanical and machinery (mechanical equipment) integrative maintenance man, and multi-skill compounding type skilled workers in the production line post and work post of machining and assembling.

6.3 Main content

6.3.1 Choosing 100 enterprises to set up "the training base of nationals high skill talent (electromechanical project)". The training base will be set up relying on some enterprise with
larger scale, modern techniques, standard management, better benefit and higher popularity. In principle, each key city confirms 2 bases, mechanical industry's federation confirm 10 bases, each key group enterprise confirm 3 bases, all of which will be announced in unison by Ministry of Labor and Social Security. Enterprises make the training plan and implement the following training projects combining reality and long-term development:

1) Facing the enterprise’s own worker, enterprise implement post adaptability training, transfer-job training, teaching apprentice training by master worker, skill raising training etc, and organize the skill contest and competition of the post, cite and reward the skill experts.

2) Consignable training and order training will be implemented facing small and medium-sized enterprises.

3) Facing the vocational education and training organization, joint training of the enterprise and the school will be implemented, at the mean time, part-time teacher, practice place and equipment also can be offered, and the probation or practice task also can be undertook.

4) Facing the needs of the society, the vocational education training organization will be done well unceasingly.

6.3.2 Choosing 100 universities to set up "the training base of nationals high skill talent (electromechanical project)". The training base will be set up relying on electromechanical advanced technical school and some industry science universities and vocational school with relevant specialty, advanced practice equipment and higher quality teachers. In principle, each key city confirms 2 bases, each key industry and group enterprise confirm 2 bases, some labor and social security department of province (district, city) confirm 18 bases, all of which will be announced in unison by Ministry of Labor and Social Security. Universities and schools make the training plan of reserve electromechanical senior skilled worker and implement the following training projects:

1) Facing medium-sized vocational school’s graduate and intermediate skilled worker with the coequal education level, schooling education to senior skilled workers will be implemented.

2) Facing the personnel with the senior vocational certification or the senior workers of enterprises, the training to technician and senior technician will be implemented.

3) Facing the unemployment personnel in the graduates (non-credit student) with the higher
education, high skill talent with higher cultural level will be trained by running a school jointly with institution.

4) Facing the graduates from junior high school and high school, the reserve skilled workers will be trained.

5) Facing the on-the-job personnel of enterprise, laid-off unemployed people, the job applicant of labor market and social other personnel, skill training and vocational qualification training will be implemented.

6.3.3 Choosing 3 vocational education training organization to set up " the resource development center of nationals high skill talent (electromechanical project) ". Implementing the basal research and development work by setting up the resource development center, relying on Beijing industry and trade technician institute, Tianjin vocational technological teachers college, Shanghai vocational training instructing center.

1) Following and understanding the popularization and application situation of new technology and new skills;

2) Developing the training course, launching demonstrative training;

3) Organizing training method study, undertaking the work of developing the teaching material and training core teachers.

6.3.4 Organizing and implementing the long-distance training of " training course of national modern manufacturing technology application software ". Implementing the long-distance training project of numerical control craft, numerical control simulative system development and numerical control machine tooling to popularize and apply modern manufacturing technology of CAD and CAM, relying on China employment training technique guidance center, Shanghai vocational training guidance center.

6.3.5 Organizing the vocational skills contest, propagandizing and citing a group of outstanding high skill talents. In principle, each key city and group enterprise hold 1-2 skills contest of key occupation (work post) bases within 3 years, gather and organize 1 special propagandas and commendation activity of skill expert every year. Ministry of Labor and Social Security will hold 1-2 national key occupation (work post) skill contests within 3 years together with the key industry and group enterprise. In fact, the mechanical industry's federation confirms three years in
principle. Ministry of Labor Security unites the key industry, enterprise group, will organize the technical ability contests of 1-2 national-levels key job (work post) within three years; The sixth and the seventh " Chinese skill Tournament " and the national skill expert evaluation and commendation increased the proportion of high skill talent in key vocation.

6.3.6 Raising money for fund

1) The local financial department arranges special funds for organizing and promoting “the project” and developing basal work.

2) Enterprise should implement skill-training funds from the education funds of workers (accounting for 1.5-2.5% of payrolls).

3) Training organization and the enterprise undertook the consignable training task can collect the training expenses to students according to the type of schooling education and vocational training, and in accordance with the standard that price department authorized.

4) The department of Labor and Social Security can make an allowance to the training according with certain condition facing laid-off and unemployed people, and the allowance standard can be improved properly.

7. The plan titled “Training 500 Thousand New Technician In Three Years”

For accelerating the construct of high skill talent of China, some relevant departments of Chinese Government decide to implement the plan titled “Training 500 Thousand New Technician In Three Years” within 3 years from 2004 to 2006 on the basis of implementing national high skill talent training project in the whole country.

7.1 Task and goal

7.1.1 Regarding implementing the strategy of " talent's powerful country " as guide, facing the vocation with high skill request such as manufacturing industry, service trade and involved industry, the plan of “Training 500 Thousand New Technicians” (including technician, senior technician and other talents with high grade vocational qualification) will be implemented for meeting the needs of economic development and technological progress within three years from
2004 to 2006, which can accelerate training the talents that the enterprise are of urgent need such as technical skill talents, compound skill talents and knowledge skill talents who meet the need of new high-tech industry development through the method that enterprise’s on-job training, schooling education training and individual improvement on-job, moreover, promote the holistic construction of skill talents, drive echelon development of all kinds of skilled personnel of high, intermediate and elementary grade, come into being the incentive mechanism of “fast training, making good use and high treatment” that training and employing the skill talents.

7.1.2 According to the request of schedule, 100,000 new technicians will be trained in 2004, 150,000 new technicians will be trained in 2005 and 250,000 new technicians will be trained in 2006 in the whole country.

7.2 Main content

1) The government encourages the enterprises of various kinds to implement the skill promotion and on-job training accord with the reality of producing, do it well that teaching according to the request and combining learning with use. Guiding the training base of enterprise high skill talents to launch the technician training, setting up the refresher and training system of high skill talents, taking the method of combination of concentration and dispersal for improving their professional theory knowledge and technical skill level constantly. Perfecting and popularizing the measure of that master teaching apprentice, launching the activities such as research of technique, innovation, creating benefit, acknowledging master and learning craft, viewing, emulating, discussing and skill exchange. Industry organization and group enterprise make technician training plan, summarize technician's law of growing up, popularize technician's experience of training combining with industry and enterprise development, accomplish the training of system and standardization progressively.

2) Promoting senior vestibule school, technician's institute and high vocational universities and colleges to reform, perfecting the teaching method, stressing the professional skill training, strengthening the content that new knowledge, new technology, new craft and new method, fully bringing into play the role of training base of high skill talents, taking the method of cooperation between school and enterprise, order training etc, launching the training of the reserve young technician. Combining society training resource, putting up multi-functional and high-level technician training system. Some cities with certain conditions can set up the practice and training base of high skill talents.
3) Reforming the examination and evaluation method of technician, unblocking the pass way of growing up high skill talents. According to the principle of "unifying standard, declaring independently, society examination, enterprise appointment", advancing the reform of technicians examination and evaluation system in an all-round way. Canceling the proportion limit that the technician enters for examination, by which all kinds of personnel according with technician's condition can apply for participating in the qualification certification. Breaking the limit of longevity, by which the personnel, who grasp high skill, compound skill and have outstanding contributions, can relax technician terms of declaring properly. Breaking through the age limit, by which younger worker with special high skill can be encouraged to participate in technician's examination and evaluation. Breaking the identity limit, by which the worker in all kinds of ownership enterprises can be encouraged to participate in qualifications evaluation of technician. For the method that the professional technical personnel and administrative staff of production participate in the technician examination, all areas can make experiments combining local practice.

4) Setting up and perfecting the technician evaluation system and method which combine the ability evaluation with achievement examination. The content include the skill evaluation together with all-around appraisal. The skill evaluation examines the professional knowledge and operative skill especially according to technician's qualification standard. The all-around appraisal examines the working achievement, technological innovation, skill teaching and vocational morality and give prominence to skill exercise and contributes. As regard the method of appraisal and engagement, the qualification certification is separated from engagement. To the personnel who obtain the technician qualification, the working unit can engage them according to the practice need of production. Enterprises also can set up the chief position at the key post and process for playing the leading role of the technician.

5) Launching the skill contest and the activity of evaluation and commendation so as to create the good social environment that the technician grows up. Paying attention to find and choose skill talent with super skill, outstanding achievement in different industries and vocational field. Expanding the range of premium of skill contest. Since 2004, the honorary title of “national skill expert” can be awarded to whom get the first place in all kinds of work post finals which include all provincial skill contest and the skill contest held by large-scale enterprise group. For doing the work of evaluation and commendation well further, the skill talents who make the outstanding contributions can enjoy corresponding reward and have the opportunity to promote to technician or the senior technician.
6) Improving the technician's treatment level, setting up the mechanism of development and exchange of high skill talents. Inducting enterprises to set up the incentive mechanism of "combining the employment with training and examining, contacting the treatment with achievement and contribution", popularizing the manner that technician, senior technician and corresponding professional skilled worker enjoy equal treatment in welfare and salary. Striving for that the local government establish the system of technician's subsidy actively for improving theirs treatment level. Holding these activities that setting up the information base of skill talents and skill achievement, implementing scientific and technical fruit transfer, unique skill show and innovation, started-up business. Each area and each industry can establish corresponding technician association for organizing the exchange activity of skill regularly and doing the work of technique research and teaching skill etc.
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??????, , ??????????????????? 3-5?????, , ?????????????????????

30%2 ??

6.2 ??

6.2.1 ?????: ?????????????????????????????????????????????????
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6.2.2 ??????????: ???????????????????? ???
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6.2.3 ?????: ??????, ??????????, ??
???????? (?????), ?????????????????????????????????????????

6.3 ??

6.3.1 ?? 100?? ?? “?????????????? (???) ????? “??????????
????????????????????????????????????????????????????????
???? 2? ??????????? 10?????????????? 3?, , ?????????

1) ????????, ??????????????????????????????????????????
?

37
2) ??????? , ????????????
3) ????????? ??????? , ??????????? , ????????????? ??????? , ?
??????????
4) ????? , ????????????? ????????
6.3.2 ?? 100?? ??? " ?????????? ( ??? ) ????? " ??????? ?? ????? ????????????? ??????????? ?????? , ???
????????????????? 2?? , ??????????????? ?????? 2?? , ?? ? ( ?? ? ) ?????????? 18?? , ?????????????????????????????????????????
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1) ????????????????????????????????????????????????????? , ?????
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2) ????????????????????????????????????????????????? , ?????????????
3) ??????? ( ? ) ????????????????????????????????????????? , ?????
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4) ????????????? , ?????????
5) ????????????????????????????????????????????????????????????? , ???
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6.3.3 ?? 3????????????? " ???????????????? ( ??? ) ? ???
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??????? , ?????????????
1) ????????????????????????????????? ;
2) ???????? , ?????????
3) ????????? , ?????????????????????
6.3.4 ? ? ? " ????????????????????????????? " ?????????????????
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???????????????????????? , ?????????????????????????????????
( CAD/CAM)
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6.3.5 ?????????? , ?????????????????????????????????????????????
???????? 1-2???????? ( ?? ) ??????? , ?????????????????????????
????????????????????????????????????? , ????????? 1-2?? ?????
?? ( ?? ) ??????? ; ?????? " ??????? " ????????????????????? , ??
6.3.6 ???
1) ??????????????? , ????????
2) ??????????? ( ????????? , 1.5-2.5% ? ??????)
3) ??????????? , ??????? , ???????, ? ?
4) ??????????? , ??????? , ???????

7. ???????

7.1 ???
7.1.1 ??? “ ??? ” ??????, ?????? , ???????, ?? ? 2004 ?? 2006??? , ??? “ ????” , ?? 50 ??

7.1.2 ??? , ?? 2004?? 10??? , 2005?? 15?? , 2006?? 25??? ??

7.2 ???
1) ??????????? , ??????? , ??

2) ??????????? , ??????? , ??
3) ???????????, ??????????????????? “ ??????????????? ????????, ?????
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4) ?????????????????????????????????????????????
?????????????????????????????????????????, ??????????
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5) ??????????????????????????, ??????????????????????????
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?, 2004??, ?????????????????????????????????????????
?????????????????????????????????????????????????
6) ???????????, ????????????????????? “ ???????
??????, ???????????????????????
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