

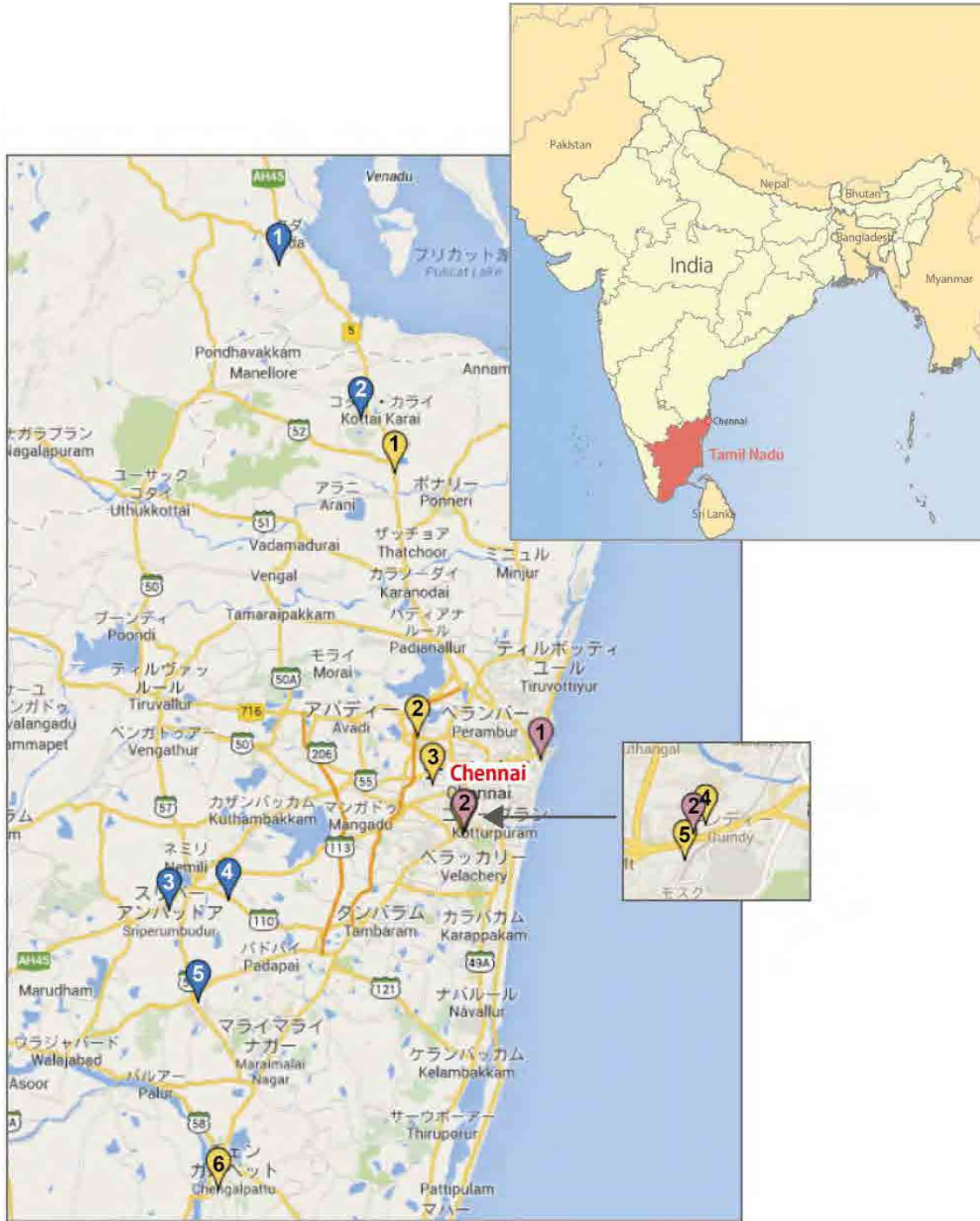
**INDIA**  
**DATA COLLECTION SURVEY**  
**ON SKILL DEVELOPMENT**  
**FOR MANUFACTURING SECTOR**  
**IN TAMIL NADU**  
  
**FINAL REPORT**

**OCTOBER 2014**

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**  
**JAPAN DEVELOPMENT SERVICE CO., LTD.**

<b>4R</b>
<b>JR</b>
<b>14-043</b>

# MAP



(Source) <https://maps.google.co.jp>

<Industrial Parks where Japanese factories are located>

- 1 SRI CITY
- 2 GUMMIDIPOONDI
- 3 SRIPERUMBUDUR
- 4 PILLAIPAKKAM
- 5 ORAGADAM

< Others >

- 1 Labour and Employment Department
- 2 TNSDC

< Vocational training organisations which are related to this report >

- 1 RMK Engineering College
- 2 ITI AMBATTUR
- 3 TVS Training & Service
- 4 ATI
- 5 ITI GUINDY
- 6 ITI CHENGALPATTU

## TABLE OF CONTENTS

1.	Outline of the Survey .....	1
1-1	Background of the service .....	1
1-2	Purpose of the service .....	1
1-3	Outline of field surveys.....	1
2.	Analysis of the National System for Vocational Skill Development in India .....	3
2-1	Education System in India .....	3
2-2	Vocational Education in India .....	6
2-3	Vocational and Skill Training in Tamil Nadu State.....	8
3.	Overview of Economic and Industrial Trends in Tamil Nadu.....	10
3-1	Macro-economic overview and trends of manufacturing sector .....	10
3-2	Current status of automobile sector .....	13
3-3	Current status of electric/electronics sector .....	14
3-4	Current status of industrial machinery sector .....	15
4.	Review of Manufacturing Policy of Tamil Nadu .....	16
4-1	Development policy for manufacturing sector .....	16
4-2	Development policy for HRD and vocational training .....	18
5.	Analysis of Demand and Supply of Vocational Skills in the Target Subsectors in Tamil Nadu ...	20
5-1	Existing reports on demand-supply gaps in vocational skills .....	20
5-2	Current needs from private firms for vocational skills .....	24
5-3	Current status for vocational skill development in Tamil Nadu .....	27
6.	Proposals for Technical Cooperation and Financing.....	31
6-1	Trends of other donors in related fields .....	31
6-2	Framework of support by JICA .....	33
6-3	Outline of the projects for technical cooperation.....	35
6-4	Outline of the proposals for financing .....	38

## LIST OF FIGURES AND TABLES

### < Figures >

Fig. 2.1 Educational Clarification by UNESCO.....	5
Fig. 2.2 Educational Clarification by BrainBuxa .....	5
Fig. 2.3 Relations among TNSDC, NSDC, ITI, VTP, and ATI .....	9
Fig. 2.4 Organisational Structure of Training Wing of Department of Employment & Training ..	10
Fig. 6.1 Advantage (benefit) and disadvantage (risk) of the cascade type .....	36
Fig. 6.2 Proposed scheme for a JICA’s technical assistance .....	36

### < Tables >

Table 1.1 Team Members .....	2
Table 1.2 Schedule of local survey trips.....	2
Table 1.3 Main local organisations where interviews are conducted .....	3
Table 2.1 Number of students in school/academic and vocational education systems.....	4
Table 2.2 National vocational skill development system at the 11th Five-Year Plan .....	7
Table 3.1 Macroeconomic indicators in Tamil Nadu State (local currency unit: crore rupees) ....	12
Table 5.1 Prediction of future skill gaps in Tamil State .....	20
Table 5.2 Skill gaps by occupation in the automotive sector .....	22
Table 5.3 Level of satisfaction of staff in companies of the automotive service sector (by hierarchical rank).....	23
Table 5.4 Availability by occupation in the automotive service sector .....	23
Table 5.5 Technology areas where the training needs have been identified.....	24
Table 5.6 Achievements of vocational training programmes commissioned by TNSDC (cumulative total including the amount of the preceding year, as of August 2014).....	28
Table 5.7 Specific support needs raised by government and training institutions.....	30
Table 6.1 Support by other main donors related to this topic .....	32
Table 6.2 Interrelationship of each institution .....	37

## PHOTOS



▲ Consultation at TNSDC



▲ Building of TNSDC



▲ School building of ATI



▲ Training facility for metal working at ATI (cutting, welding, etc.)



▲ Classroom for automation at ATI (practical exercise to staff of petroleum corporation, college trainers, etc.)



▲ Classroom for automation at ATI (teaching materials for the experiment of computer control system operation)



▲ Classroom for CNC machine tools at ATI



▲ Equipment for practical exercise in the classroom for CNC machine tools at ATI



▲ Equipment for practical exercise in the classroom for CNC machine tools at ATI (equipment funded by ILO in 1988)



▲ Practical exercise in the CNC classroom for machine tools at ATI (students: teaching staff of ITI)



▲ Practical exercise on welding in the classroom for heat treatment at ATI (students: teaching staff of ITI)



▲ Equipment for practical exercise on automatic fusing in the classroom for heat treatment at ATI



▲ Muffle furnace in the classroom for heat treatment at ATI



▲ Classroom for a hydraulic system at ATI (students: naval staff; equipment funded by the World Bank)



▲ Building of the classroom for automobiles, etc. at ATI



▲ Engine model in the classroom for automobiles at ATI (provided by Maruti Suzuki)



▲ Building of the classroom for metrology at ATI



▲ CNC measuring instruments in the classroom for metrology at ATI (Equipment funded by the World Bank, manufactured by Tokyo Seimitsu Co., Ltd.)



▲ Classroom for metal working at ATI



▲ Classroom for metal working at ATI



▲ Entrance of ITI in Guindy (for women)



▲ Classroom for metal working at ITI in Guindy (for women)



▲ Classroom for metal working at ITI in Guindy (for women)



▲ Electrical materials of ITI in Guindy (for women) (Funded by the World Bank)



▲ Building of ITI in Guindy (\* coeducational)



▲ Classroom for metal working at ITI in Guindy





▲ Practical exercise on metal working at ITI in Guindy



▲ Classroom for automobiles at ITI in Guindy



▲ Engine model in the classroom for automobiles at ITI in Guindy (provided by Ford)



▲ Classroom for tools and dies at ITI in Guindy



▲ Samples in the classroom for tools and dies at ITI in Guindy



▲ Samples in the classroom for tools and dies at ITI in Guindy



▲ Landscape of the campus of TVSTS (a private school in the series of TVS as the local leading two-wheel company)



▲ Landscape of the campus of TVSTS



▲ Classroom for machine tools at TVSTS



▲ Practical exercise at the workshop of TVSTS



▲ Equipment for practical exercise in the classroom for CNC machine tools at TVSTS



▲ Classroom for welding at TVSTS



▲ Outside appearance of RMK Engineering College (private school)



▲ Classroom for metal working at RMK



▲ CNC machine tools for practical exercise at RMK



▲ Pickup bus terminal for RMK students



▲ Scenery of the consultation with the Labour Employment Department of Tmail Nadu State



▲ Consultation with NSDC



▲ Scenery of the consultation with ESCCI Electronics SSC)



▲ Scenery of the consultation with ACMA (Automobile Manufacturers Association)

## ABBREVIATION

Abbreviation	Meaning
ACMA	Auto Component Manufacturing Association
ASDC	Automotive Skills Development Council
ATI	Advanced Training Institute
CII	Confederation of Indian Industry
CNC	Computer(ized) Numerical(ly) Control(led)
CoE	Centre of Excellence
CSO	Central Statistical Organisation
DGE&T	Directorate General of Employment & Training
EU	European Union
GDP	Gross Domestic Product
GSDP	Gross State Domestic Product
HIDA	Overseas Human Resources and Industry Development Association
HRD	Human Resource Development
ILO	International Labour Organization
ITC	Industrial Training Centre
ITI	Industrial Training Institute
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
MoLE	Ministry of Labour and Employment
NCVT	National Council for Vocational Training
NGO	Non-Governmental Organisation
NOS	National Occupational Standards
NPO	Non-Profit Organisation
NSDA	National Skill Development Agency
NSDC	National Skill Development Corporation
NSDCB	National Skill Development Coordination Board
ODA	Official Development Assistance
OEM	Original Equipment Manufacturer
PCM	Project Cycle Management
PMNCSD	Prime Minister's National Council on Skill Development
PPP	Public-Private Partnership
R&D	Research and Development
SEZ	Special Economic Zone
SSC	Sector Skill Council
TNSDC	Tamil Nadu Skill Development Corporation
ToT	Training of Trainers
TPM	Total Productive Maintenance
UNESCO	United Nations Educational, Scientific and Cultural Organization
VTP	Vocational Training Provider
5S	Seiri/Sort, Seiton/Set in order, Seiso/Shine, Seiketsu/Standardize, Shitsuke/Sustain

## **1. Outline of the Survey**

### **1-1 Background of the service**

India's population reached 1.237 billion persons in 2012. There has been an increase by about 350 million persons in 20 years since 1990. There has been an increase in the total population by 1.3 % per annum and in the labour force by 1.5 % per annum during this period, which indicates that the labour force increases faster than the total population, estimated to reach 700 million persons by 2022. The manufacturing industry which accounts for 12% of the working population is considered promising in terms of both its future employment absorption capacity and its Gross Domestic Product (GDP) share (currently 15% in India versus 28% in Thailand and 26 % in China) in employment situations by industry sector. Currently, the Government of India sets out a policy of raising the share of the manufacturing sector in GDP to 25% in its national manufacturing policy in 2011, expecting by this that it will be able to create employment for 100 million persons by 2022. Seeing the fact that many of Japanese companies already entering into India are engaged in the manufacturing industry, the Japan International Cooperation Agency (hereinafter referred to as JICA) has a policy for providing support focusing on human resource development in the manufacturing sector of India in line with the above-mentioned national manufacturing policy and they are facing the difficulties because of the shortage of skilled workers.

This service was carried out in order to clarify challenges and needs of human resource development in the manufacturing sector in Tamil Nadu.

### **1-2 Purpose of the service**

This service aimed to collect basic information broadly for analysis from various organisations involved in industrial human resource development such as private companies and personnel training institutes after understanding economic and educational policies in the manufacturing sector and a variety of industrial human resource structures in India with respect to the human resource development in the manufacturing sector of Tamil Nadu State in order to clarify challenges to human resource development in long-termed sustainable growth in the future industrial sector of Tamil Nadu State and examine appropriate measures for supporting human resource development in the state's manufacturing industry.

### **1-3 Outline of field surveys**

#### **(1) The structure of the field survey team**

Members of the team are as follows:

Table 1.1 Team Members

Organisation	Name	Department, job title	Field of responsibility
Japan Development Service Co., Ltd.	Hiroshi Hasegawa	Senior Consultant, Consulting Division	Chief adviser/ survey and analysis of industrial human resource needs
	Akira Doi	Senior Consultant, Consulting Division	Vice chief adviser/ survey and analysis of vocational training systems 1
	Shigekazu Yamawaki	Consultant, Consulting Division	Survey and analysis of vocational training systems 2

## (2) Schedule

In this study, we conducted interview surveys in Delhi and Chennai for the following periods:

Table 1.2 Schedule of local survey trips

Survey team member	Period of stay at sites
Hiroshi Hasegawa	18 August – 22 September 2014
Akira Doi	18 August – 2 October 2014
Shigekazu Yamawaki	18 August – 27 September 2014

The dispatch of Doi was originally planned until October 6, but it was changed to the above schedule because consecutive holidays were in early October in Delhi and thus a meeting was no longer possible at the JICA office.

## (3) Major sites visited for field surveys

Major sites that we visited for field surveys this time are shown below. As for government-related agencies, we could not conduct a hearing survey with SSC (Sector Skill Council) related to the industrial machinery during our stay in Delhi owing to their circumstances. In addition, we made survey requests to 34 companies, which we had planned at the time of IC/R (23 member companies of the Japanese Chamber of Commerce and Industry, Chennai and 11 non-member companies) and another company introduced by the Japan External Trade Organization (JETRO) Chennai Office, for Japanese-owned companies, but finally conducted onsite interview surveys with 17 companies owing to the cases of sheer sales companies not engaged in manufacturing, companies that withdrew from India, and those that declined our request for surveys. As for Indian companies, we limited targets to local suppliers of Japanese manufacturing companies once again and conducted surveys at 10 companies, based on JICA officials' comments at the countermeasure policy meeting (14 July). It should be noted that we do not describe specific company name in this report, because company interviews were allowed on the condition that no company name be publicised in reports, etc. in most cases.

Table 1.3 Main local organisations where interviews are conducted

Classification	Organisation visited
Government-related agencies <sup>1</sup>	<ul style="list-style-type: none"> <li>● NSDC ● NSDA ● ASDC<sup>2</sup> (automotive SSC) ● ESSCI<sup>3</sup> (electronics SSC)</li> <li>● TNSDC ● Labour and Employment Department of Tamil Nadu State</li> </ul>
Japanese companies	<ul style="list-style-type: none"> <li>● for automobiles: 12 companies,</li> <li>● for electrical machinery and electronics: 2 companies,</li> <li>● for industrial machinery: 3 companies</li> </ul>
Indian companies	<ul style="list-style-type: none"> <li>● for automobiles: 6 companies,</li> <li>● for electrical machinery and electrics: 2 companies,</li> <li>● for industrial machinery: 1 company,</li> <li>● for HR service: 1 company</li> </ul>
Training institutions	<ul style="list-style-type: none"> <li>● ITI Guindy ● ITI Chengalpattu ● ATI ● Helios and Matheson</li> <li>● Leadership Training Solutions ● TVSTS ● Providers Skills Academy</li> <li>● RMK Engineering College ● IL&amp;FS ● ABK-AOTS Dosokai</li> <li>● Premier Centre for Competency Training</li> </ul>
Others	<ul style="list-style-type: none"> <li>● JETRO Chennai ● HIDA<sup>4</sup> ● ACMA<sup>5</sup> Southern Region</li> </ul>

## 2. Analysis of the National System for Vocational Skill Development in India

### 2-1 Education System in India

#### (1) Outline

The formal education system in India can be roughly divided into pre-primary education (pre-school), primary education (grade 1 - 5), secondary education (grade 6 - 8), high-school education (grade 9 - 10), higher-secondary education (grade 11 - 12), higher education, and vocational training. The compulsory education is up to grade 8, and the score of the SSLC (Secondary School Leaving Certificate) performed at grade 10 classifies students into the course for higher education or admission into vocational training institutions. In their access to higher education, furthermore university admission is determined by the result of the standardised test at grade 12. After admission into higher education, the enrollment at the undergraduate level for 3 - 5 years and at the master's level for 2 - 3 years is considered common, dependent on specialties. The current status of the number of students and their composition by category in the entire school/academic and vocational education systems at present is shown as follows, which indicates that the population receiving vocational training and higher education is only 15.3 million people, as compared to the schooling population of 227 million people going to about 1.3 million schools.

<sup>1</sup> Even semi-private organisations fall into this category, if they are considered de facto governmental agencies.

<sup>2</sup> Automotive Skills Development Council

<sup>3</sup> Electronics Sector Skills Council of India

<sup>4</sup> Overseas Human Resources and Industry Development Association

<sup>5</sup> Auto Component Manufacturing Association

Table 2.1 Number of students in school/academic and vocational education systems

Category	Sub-category	Population (enrolment)
<b>School education</b>	Pre-Primary education	5,264,053
	Primary education (Grade 1 – 5)	132,048,727
	Secondary education (Grade 6 – 8)	52,195,171
	High-school education (Grade 9 – 10)	24,971,520
	Higher-secondary education (Grade 11 – 12)	13,414,499
	<b>Sub total</b>	<b>227,893,970</b>
<b>Vocational training</b>	<b>ITI/ITC</b>	<b>1,062,524</b>
<b>Higher education</b>	Ph.D/D.Sc/D.Phil	36,019
	MA	481,521
	MSc	230,247
	BA/BA (Hons).	3,727,727
	B.Sc.	1,579,355
	Medicine, Dentistry, Nursing, etc.	305,629
	B.Ed	244,825
	Enrolment in Open Universities	773,917
	Polytechnic Institutes	690,410
	Others	2,973,517
	<b>Sub-total</b>	<b>14,323,566</b>

Source: Aggregate information of MoLE described in “TOWARDS A MODEL APPRENTICESHIP FRAMEWORK” (ILO/IBRD, 2013) (Years 2009 - 2010)

(2) Conflicting Categorisation of Stages in the Indian Education System

The above four stages from primary education to higher – secondary education are often described as reclassified “junior school – middle school – high school” or “primary school – secondary school,” but such classification categories vary among materials regardless of Japanese or English literatures. Furthermore, their nomenclature is not yet unified as seen in the fact that the higher secondary education is also referred to as the senior secondary education.

As the tables below indicate, there seems to be two different categories about the stages of the total educational system in India.



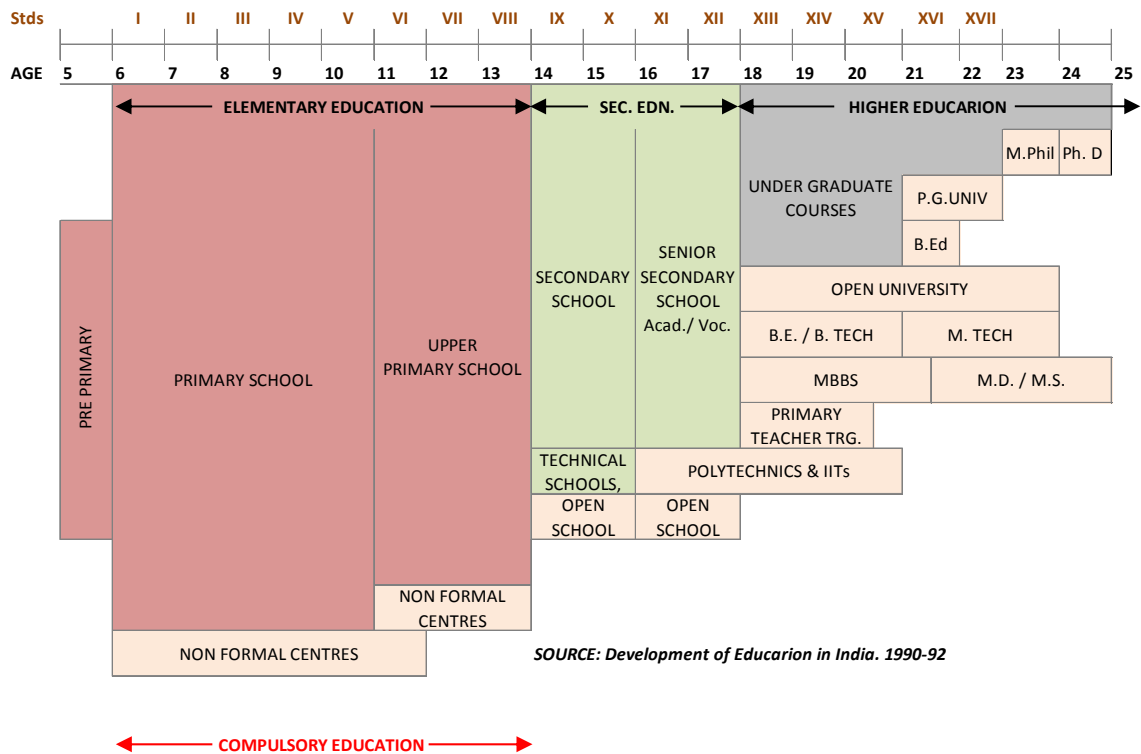


Fig. 2.1 Educational Clarification by UNESCO<sup>6</sup>

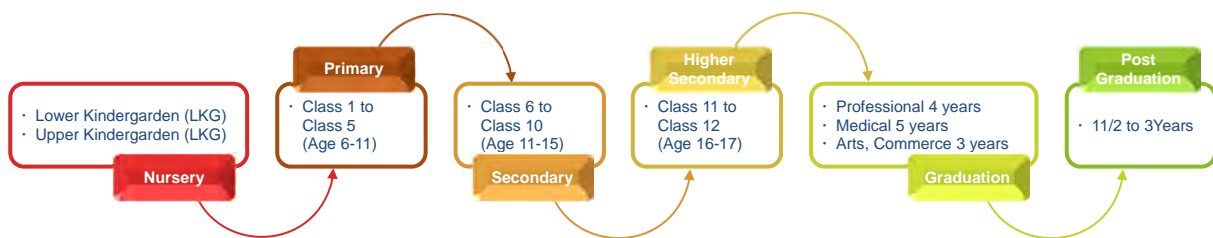


Fig. 2.2 Educational Clarification by BrainBuxa<sup>7</sup>

The point that the 1st to 5th grades fall into the “Primary School” is the same in both classifications, whereas the 6th to 8th grades fall into the “Upper Primary School” and the 9th to 10th grades into the “Secondary School” in the classification of United Nations Educational, Scientific and Cultural Organization (UNESCO) while the 6th to 10th grades fall into the “Secondary School” in the classification of BrainBuxa. The 11th to 12th grades are denoted as the Senior Secondary School in UNESCO and as the Higher Secondary School in BrainBuxa.

When we tried to clarify these discrepancies with companies, government agencies and others, they said that such discrepancies were not an important issue. The point is whether or not SSLC (Secondary School Leaving Certificate) at the end of the 10th grade is obtained.

<sup>6</sup> [http://www.ibe.unesco.org/fileadmin/user\\_upload/archive/Countries/WDE/2006/ASIA\\_and\\_the\\_PACIFIC/India/India.htm](http://www.ibe.unesco.org/fileadmin/user_upload/archive/Countries/WDE/2006/ASIA_and_the_PACIFIC/India/India.htm)

<sup>7</sup> <http://www.brainbuxa.com/blog/Stages-in-the-Education-System-of-India>

## 2-2 Vocational Education in India

### (1) Outline

Students that go to vocational schools after completing the 10th grade can be divided roughly into those going to a polytechnic where that diploma qualification can be obtained after graduation (3-year system) or those going to ITI (Industry Training Institute: 1~2 year(s) depending on courses) where certificate qualification is obtained after graduation. ITI is the public vocational training institution under the jurisdiction of the Directorate General of Employment & Training (DGE & T) of the Ministry of Labour and Employment in the Government of India, and the vocational training institution which corresponds to the ITI in the private sector is referred to as ITC (Industrial Training Centre).

In addition, there exists the training institution called ATI (Advanced Training Institute) under the jurisdiction of DGE & T, which conducts training to a wide range of groups such as ITI graduates, ITI instructors, public officials, and employees of leading private companies. ATI provides the guidance especially to ITI graduates on practical knowledge in order to fill a gap between technologies they possess and technical levels sought by companies.

### (2) Graduates of an ITI and the Manufacturing Industry

According to interviews with manufacturing companies, both Japanese and Indian manufacturing companies often employ ITI graduates as workers of their plants (often referred to as “Operators”) (Some of the Japanese companies have declined the employment of ITI graduates in consideration of the risk that they tend to form a union and are opposed to executives while inciting workers). Each company conducts its own in-house training to employ ITI graduates and have them acquire practical skills.

In addition, there is a tendency of employing people who completed the 8th or 10th grade in the Indian educational system for worksites centred on simple works such as assembly processes. There are also some companies that preferably employ women who can withstand simple and tedious jobs that many male workers do not want to do.

### (3) Change in the national vocational development system based on the governmental five-year plan

In 2008, an organisation composed of the following three tiers responsible for the capacity and technological development of the country was established in response to the announcement of the 11th Five-Year Plan (2007-2012).

Table 2.2 National vocational skill development system at the 11th Five-Year Plan

	Organisation	Role
1	Prime Minister's National Council on Skill Development (PMNCSD)	Decide the policy directions
2	National Skill Development Coordination Board (NSDCB)	Coordinate activities related to nationwide capacity building
3	National Skill Development Corporation (NSDC)	Promote cooperation with the private sector

NSDC is expected to play a role as “catalyst” for technological development of the country's industry people, promote the collaboration with the private sector by Public-Private Partnership (PPP), and contribute to the vocational training for 150 million people through the Training Partner (vocational training institution) in partnership by 2022. The Government of India has set a target to provide vocational training to 500 million people by 2022, of which NSDC will be involved in the training for about one-third of them. The vocational training to 350 million people which are equivalent to the remaining about two-thirds of them will be cared by various vocational training institutions over which 19 ministries under the umbrella of the central government of India have jurisdiction on their own account, including the Ministry of Labour and Employment (MoLE) that has jurisdiction over the ITI described above.

NSDC has also been mandated with the formation of the Sector Skills Councils which are industry led bodies which are laying out National Occupational Standards (NOS) as per the guidelines of the National Skills Qualification Framework. The NSDC funds the creation and/or scale up of large scale, sustainable private sector initiatives in the Vocational Training Provider (VTP) space. The funding is through grants, loans or equity.

National Skill Development Agency (NSDA) was inaugurated under the Ministry of Finance in July 2013 after the announcement of the 12th Five-Year Plan (2012-2017), and the PMNCSD described above and the NSDCB were integrated into the NSDA accordingly. NSDA is said to be the organisation that has jurisdiction over NSDC as well, but the relationship between NSDC and NSDA is not clear due to different interpretations among government officials. According to the explanation by NSDC, NSDA is the policy-making body, and NSDC is its executing department one of whose major roles is to provide private vocational training facilities with soft loans as the non-bank institution, focusing on its collaborative relationship with the private sector.

It should be noted that the Ministry of Skill Development, Entrepreneurship, Youth Affairs and Sports was newly inaugurated under the new administration of the Modi regime on 31 July 2014, and so there is a possibility that NSDC will be subsumed into this ministry as a result of revolutionary dissolution. There is also a possibility that all of the vocational training schools that was under the jurisdiction of 19 different central governments will be under the jurisdiction of the Ministry of Skill Development. The full extent of vocational training system by this new ministry as its core organisation has not so far been clear.

(4) Relationship between NSDC and DGE & T that has jurisdiction over ITI

The DGE&T in Ministry of Labour and Employment is the organisation for development and coordination at National level for the programmes relating to vocational training including Women's Vocational Training and Employment Services. Employment service is operated through a countrywide network of Employment Exchanges. NSDC, which leads India's participation in the Worldskills works closely with the DGE&T for this project. Many NSDC partners also use the infrastructure of ITIs. The "infrastructure" means buildings, equipment, students, etc. in this case. In fact, when conducting interviews with private training institutions that have received a loan from NSDC in this study, the cases were confirmed where they had implemented short-term training courses in partnership with local ITIs.

### **2-3 Vocational and Skill Training in Tamil Nadu State**

(1) TNSDC (Tamil Nadu Skill Development Corporation)

Tamil Nadu Skill Development Corporation (TNSDC) was inaugurated in July 2013, which plays a role as Nodal Agency (an umbrella body or facilitator) for public and private vocational training institutions. TNSDC used to be called Tamil Nadu Skill Development Mission (TNSDM) as Society under Labour Employment Department of the Tamil Nadu State Government. Then, TNSDM became the Section 25 Company (Non-Profit Organisation: NPO) under the classification of the Companies Act of India. TNSDC is currently collaborating with 62 ITIs within the state and also has collaborative relationships with national institutions and private training institutions, including the ATI under the jurisdiction of MoLE in the Government of India.

It has been said that TNSDC will develop an original occupational standards for the state. However, TNSDC would make minor alterations to NOS to be more suitable for local industries in Tamil Nadu if necessary. TNSDC respects NOSs which are defined by SSCs.

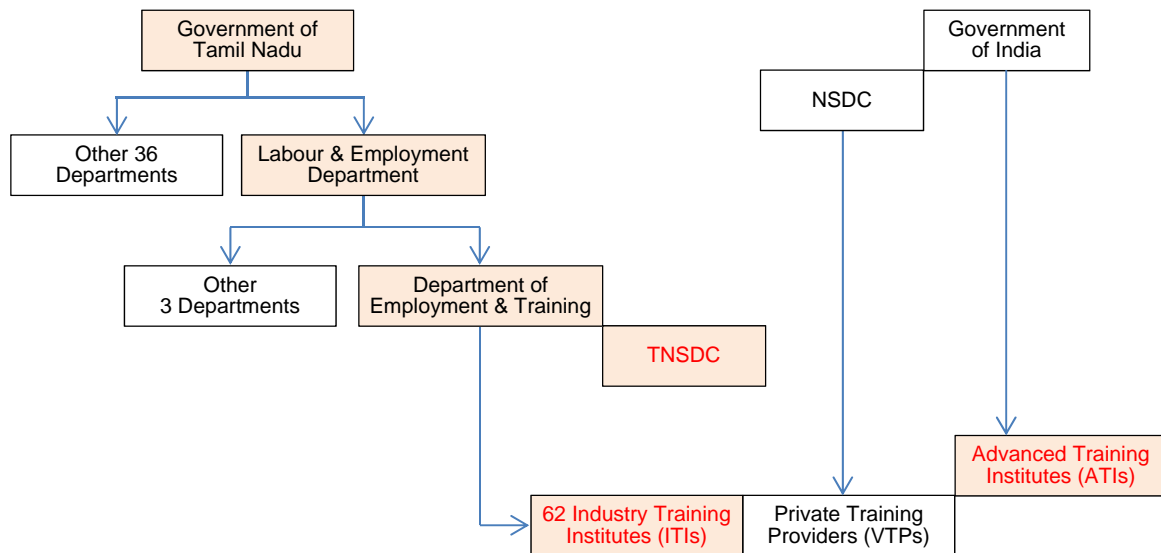
(2) Collaborative relationship between the TNSDC and NSDC

Ms. Bhavna Chopra, Head of Strategic Projects at NSDC states "NSDC engages with all state development missions in India and provides support in standardisation of processes, assessment and certification. Many NSDC training partners in partnership with the State Skill Development Missions to deliver skill development programmes in the state". The State Skill Development Mission in Tamil Nadu is TNSDC. Even though the "Tamil Nadu Skill Development Mission" is now called the "Tamil Nadu Skill Development Corporation", the words "Mission" and "Corporation" are interchangeable in this context.

In the meantime, NSDC has funded for Skill Development projects in the State of Tamil Nadu and 14 NSDC partners have presence in the state with over 27 Centres. NSDC has already contributed to train over 80,000 people in the state.

(3) Relations among TNSDC, NSDC, ITI, VTP and ATI

How the above-mentioned organisations are related is summarised in the diagram below. The abbreviation “VTP” stands for Vocational Training Provider. As NSDC sometimes refers to Training Institutions as VTPs, the same terminology is used in the diagram.

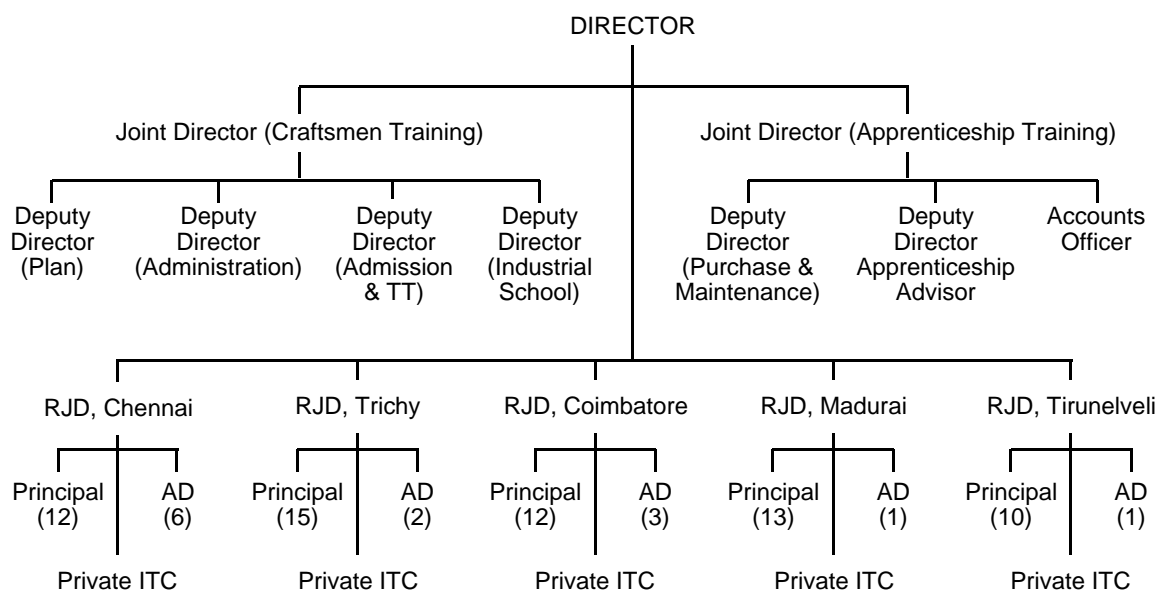


Remarks and Additional Explanation

1. It is confusing that there is the Department of Employment & Training under the Labour & Employment Department.
2. The department under a department is also called “Commissionerate” or “Directorate” depending on the position, rank or title of the head of the department.
3. If the rank of the head of the department is Commissioner, the department is also called Commissionerate.
4. If the rank of the head of the department is Director, the department is also called Directorate.
5. TNSDC is an independent body (NPO) which is called “Nodal Agency”
6. Its functions are to facilitate cooperation between different stakeholders and bridge (liaise) between different training institutions.
7. The structure of Department of Employment & Training is as Fig. 2.4.
8. Mr. Samaya Moorthy, the head of TNSDC is also the head of Department of Employment & Training.
9. Mr. Natarajan, Project Director of TNSDC reports to Mr. Samaya.

Fig. 2.3 Relations among TNSDC, NSDC, ITI, VTP, and ATI

The above diagram depicts that TNSDC is not directly related to any departments of the government of Tamil Nadu. However, as TNSDC’s director also assumes the role of Director of Department of Employment & Training, we presume that relationship and cooperation between the two organisations are strong. The following diagram illustrates an organisational structure of the Training Wing of the Department of Employment and training, which shows how ITIs and ITCs are related to the department.



Remarks:

1. Abbreviations and additional explanation
  - RJD : Regional Joint Director
  - Principal : Principal of ITI
  - AD : Assistant Director
2. A Private ITC is an ITI which is privately owned and run. There are about 600 ITCs are in the State of Tamil Nadu.
3. ITIs are divided into two categories: CTS (Craftsman Training Scheme) and CoE (Centre of Excellence).

Fig. 2.4 Organisational Structure of Training Wing of Department of Employment & Training

### 3. Overview of Economic and Industrial Trends in Tamil Nadu

#### 3-1 Macro-economic overview and trends of manufacturing sector

According to the report prepared by the Ministry of Finance of India “Economic Survey 2011-12,” the gross state domestic product (GSDP) of Tamil Nadu State in 2010 was 491,049 crore rupees (accounting for about 7.5 percent of the national GDP), ranked as the fourth largest following the GSDP in Maharashtra State (935,222 crore rupees), Uttar Pradesh State (519,328 crore rupees), and Andhra Pradesh State (510,421 crore rupees). The state government aims to maintain a high gross state product, setting a growth target in the “Tamil Nadu Vision 2023” that the gross state production within the state will be raised by 11% or more every year.<sup>8</sup>

<sup>8</sup> According to the report prepared by the Ministry of Finance “Economic Survey 2011-12,” the in-state production growth rate of Tamil Nadu State was 18.18% in fiscal 2005, 20.92% in fiscal 2006, 13.41% in fiscal 2007, 14.53% in fiscal 2008, 18.17% in fiscal 2009, 15.62% in fiscal 2010. It is found that the state has maintained a growth rate of 11% or more consistently, though the numerical value fell temporarily in recent years partly due to economic fluctuations. According to the estimate for each state by the Union Planning Commission of the Government of India, furthermore, the economic growth rate of the state was 6.13% in 2014. This is the value much greater than the average growth rate of India as a whole, 4.78%.

The keys to maintaining a high gross state production in Tamil Nadu State is considered to be: (1) the enhancement of the factory sector for manufacturing export-oriented products; and (2) an increase in foreign direct investment to promote (1). According to “the Annual Survey of Industries 2011-12” prepared by the CSO (Central Statistical Organisation), Tamil Nadu State is ranked as the first in the country for the number of factories, the first for the number of employees in the factory sector, the third for the amount of net production in industrial production, and the third for net added values in the factory sector. According to the “FDI Statistics” issued by the Department of Industrial Policy & Promotion of India of the Ministry of Commerce and Industry (DIPP), furthermore, Tamil Nadu State was ranked as the third in the country for the amount of cumulative foreign direct investment inflows between April 2000 and May 2014. Tamil Nadu State received investments with the amount of 65,406 crore rupees (US \$ 13,197 million) from abroad during this period. This is the amount behind Maharashtra State and New Delhi, (the amount of cumulative direct investment inflows in the whole India is US \$ 321,809).

According to the India Brand Equity Foundation, manufacturing industries such as automobiles & components, castings & forgings, pumps & motors, garments & textile products, leather products, chemicals & plastics, etc. in particular are thriving in Tamil Nadu State, and according to the “Annual Policy Note” in the state in 2014, manufacturing industries such as textiles and clothing, leather goods, automobiles and auto parts, and engine products are cited as industry sectors leading export products in Tamil Nadu State. There are well over 100 industrial parks and the flow of investments is also steady in the state as described above, and the manufacturing sector is expected as a key sector for economic development through a proactive policy to attract investments and infrastructure development programmes in the future. According to the “Tamil Nadu Industrial Policy 2014,” the industrial GSDP of the state increased by 9.6% in fiscal 2012 as compared with fiscal 2005, whereas the state government has a long-term plan to grow the share of the manufacturing industry in the state economy from 14% to 22% by 2023.

The Indian economy as a whole went into recession in 2011 or late due to a rise in rupee-denominated crude oil prices and the consequent inflation trend, etc., and, market conditions in the manufacturing sector has also been aggravated. According to our interviews with local and Japanese manufacturing companies this time, there were many responses that through the economic downturn certainly existed during this period in Tamil Nadu State as well, it was already at the bottom around 2013, and that the trend is in recovery now. According to the forecast in the Sector-wise Growth Rates by the Planning Commission of the central government in the 12<sup>th</sup> National Five-Year Plan (2012), the statewide growth target during 2012-2017 is expected to be 11.0% and the growth of the manufacturing sector is to be 7.4%.

For reference, the evolution of macroeconomic indicators in Tamil Nadu State over the past 10 years is summarised below. We outlined the status of the state’s manufacturing sector as a whole in the above description, and will examine situations of each individual sector such as automobiles, electrical machinery and electronics, and industrial machinery that are the target of this study in the following sections.

Table 3.1 Macroeconomic indicators in Tamil Nadu State (local currency unit: crore rupees)

Target year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Target year	193645	228846	276711	313812	359412	424724	491049		
Nominal GSDP *1		18,18	20.92	13.41	14.53	18.17	15.62		
Nominal GSDP growth rate (%) *1	30062	35243	42288	47606	54140	63547	72993		
GSDP per capita (nominal) *1		17.24	19.99	12.58	13.73	17.38	14.86		
GSDP growth rate per capita (nominal) *1								2025.75	2204.31
Wholesale price index *2								1970-71=100	1970-71=100
(Remark)									
Chennai	549	565	118	124	135	149	161	171	196
Coimbatore	500	508	119	127	137	151	166	176	193
Coonoor	501	511	115	122	134	148	168	182	204
Madurai	496	509	116	121	134	147	162	174	196
Salem	482	481	114	122	134	151	163	172	192
Tiruchirapally	544	579	119	126	141	156	174	184	208
(Remark)	1982=100	1982=100	2001=100	2001=100	2001=100	2001=100	2001=100	2001=100	2001=100
Exchange rate (average value during the period, exchange rate against US dollar) *4	44.9315	44.2735	45.2495	40.2607	45.9936	47.4437	45.5622	47.9215	54.4091
(Remark) indicators in the whole India	Average value during April - next March	Average value during April - next March	Average value during April - next March	Average value during April - next March	Average value during April - next March	Average value during April - next March	Average value during April - next March	Average value during April - next March	Average value during April - next March
Exchange rate (end-of-period value, exchange rate against US dollar)	43.7550	44.6050	43.5950	39.9850	50.9450	45.1350	44.6500	51.1565	54.3893
(Remark) indicators in the whole India	End-of period value at the end of next March	End-of period value at the end of next March	End-of period value at the end of next March	End-of period value at the end of next March	End-of period value at the end of next March	End-of period value at the end of next March	End-of period value at the end of next March	End-of period value at the end of next March	End-of period value at the end of next March

Source:

\*1: Prepared by Ministry of Finance: "Economic Survey 2011-12" (see <http://indiabudget.nic.in/es2011-12/estat1.pdf>, 12/09/2014)

\*2: "PRICE INDICES - Tamil Nadu Government" (See <http://www.tn.gov.in/deptst/priceindices.pdf>, 12/09/2013)

\*3: Labour Bureau Government of India "CONSUMER PRICE INDEX NUMBERS (for Industrial Workers) 2001 = 100 ANNUAL REPORT 2013" (See [http://labourbureau.nic.in/CPI\\_IW\\_Annual\\_Report\\_2013.pdf](http://labourbureau.nic.in/CPI_IW_Annual_Report_2013.pdf), 12/09/2014)

\*4: Japan External Trade Organization (JETRO) across India "Basic information and statistics on India" (see <http://www.jetro.go.jp/world/asia/in/#basic>, 12/09/2014)



### 3-2 Current status of automobile sector<sup>9</sup>

Tamil Nadu State is traditionally famous for automotive and automotive parts manufacturing, and its history can be traced back to the time when the Simpsons, Inc., a pioneer of the automobile industry in India started operations in Chennai in 1840. The company can be said to be present in driving the growth of the state as the base of automobile production by producing diesel engines, steam passenger buses, etc. Standard Car Company (UK) obtained a permit on automobile production, and Ashok Leyland (India) was founded in Chennai in 1948 after World War II. A number of automobile-related factories have been founded in this area in line with the expansion of production scales of these companies since then, and Chennai has established itself as “Detroit of India,” and this state reached the second-order automobile boom especially from the 1990 to the early 2000s. Currently, Ford, Hyundai, Renault Nissan, and BMW as major international manufacturers holds their manufacturing base in the state, meaning that there is an annual production operating capacity of 1.38 million units only with top six companies therein. It is considered that 12 automakers including local companies currently have their manufacturing facilities in Tamil Nadu State<sup>10</sup>, and Tamil Nadu State accounts for 32% or more of the automobile production capacity in India. The state government estimates that the automotive industry accounts for about 8% of the amount of the gross state production within the state, providing about 300,000 people with opportunities for the direct employment. The importance of Chennai in the automobile manufacturing supply chain of the whole India can be understood, seeing that exports from Chennai amount to 4,733 crore rupees and account for over 53% out of the total amount of automobile exports of 8,861.33 crore rupees across India in the statistics of 2007 – 2009, though a little old.

The above description provided the overview of the status of production in the state regarding finished cars, whereas the state also accounts for 35% of the total production amount in the whole India (US\$ 6.2 billion) in the automotive parts manufacturing sector. Only a group of three local companies headquartered in Chennai (TVS, Amalgamations and Rane) account for 22 % or more. It is currently considered that 350 companies in Tier-1 to 3 and 4,000 companies in Tier-4 or lower accumulate in Chennai, where it was found that supplies of auto parts flow in and out with neighbouring Karnataka State (Toyota has set up a production base in Bangalore) and Andhra Pradesh State (Isuzu is currently constructing a production base in Sri City Industrial Park near the state border), from which automotive company clusters can be expected to grow across the three states around Chennai in the future, when conducting interviews with Japanese automobile manufacturers and parts suppliers in this study.

The biggest reasons why Tamil Nadu State gained the privileged position in the automotive manufacturing industry in India as described above is that it is favored by export and import ports such as three ports in Chennai and one in Tuticorin. In addition, other reasons can be listed, including abundant labour forces, inexpensive manufacturing costs related closely to it, and the state policy to

---

<sup>9</sup> Descriptions in this section rely largely on the “Tamil Nadu Automobile and Auto Components Policy 2014” by the State Government of Tamil Nadu.

<sup>10</sup> It is based on our interview with the Project Director of TNSDC.

attract investments proactively as discussed in Chapter 4. With regard to “abundant labour forces” out of these factors, however, some of the Japanese automobile parts manufacturers that we interviewed with in this study pointed out that the securing of operators for production lines have already become tight, and it appears that wages have risen at a pace of more than 10 percent annually, because competitive recruitment of managers and senior technicians become severer as new investments expand in addition to effects of inflation. It can be believed in this aspect that the supply of high-quality labour forces through expanding the state vocational training system will be a direct benefit for Japanese automobile manufacturing companies. As for overall economic trends, the common opinion among company staff in the related sectors with whom we made interviews this time was “Though the bottom of the business cycle was hit, the growth of domestic markets is not as expected in the current state.” Nevertheless, it seems that active investments will be made in the automobile-related sector in the future, because bases in India has a meaning as centres for producing finished cars for exportation or Research and Development (R&D) centres for some manufacturers.

### **3-3 Current status of electric/electronics sector<sup>11</sup>**

Currently, Chennai has become the largest bases of manufacturing and exporting electronics in India. There are bases for computer and mobile phone-based manufacturing enterprises such as Nokia, Motorola, DELL Computers, Samsung, Foxconn, Sanmina-SCI, Flextronics, and Nokia-Siemens besides more than 30 components suppliers, etc. in the suburbs of Chennai, and suppliers in these fields include Japanese-owned companies though their number is small. It is estimated that the cumulative amount of investments in electronics hardware manufacturing in the whole Tamil Nadu State is 11,500 to 12,000 crore rupees, creating the employment for 40,000 people. In addition to computers or mobile phones, the manufacturing of solar power equipment tends to be increased in scale through investments mainly by American companies. Domestic production bases of residential consumer electronics manufacturers for India are typical cases of investments in terms of their history and scale in the electrical and electronic fields in the case of Japanese companies, where it appears that the manufacturing of computers, mobile phones, and hardware of solar power-related products (finished products) is not performed by Japanese companies. Therefore, it is necessary to note that there is a gap between situations of related companies in the whole state and trends of Japanese companies and their suppliers. (We are aware of descriptions focusing particularly on the latter aspect in Chapter 4 or later portions of this report.)

It is estimated that the statewide current turnover of electronic hardware industry is about 27,000 crore rupees, and sales prospects for the future tended to be expanding for the companies that we could conduct interviews in the case of Japanese companies operating in the context of this sector.

---

<sup>11</sup> Descriptions in this section relied heavily on the Webpage of the Department of Industries in Tamil Nadu State: <http://www.investingintamilnadu.com/>.

The reasons why international companies in electrical/electronics sector make investments in Tamil Nadu State include advantages of logistics by air and sea in addition to abundant labour forces. There are four international airports in this state where there are 450 flights or more weekly for USA, Europe, South East Asia, the Gulf and Far East at Chennai International Airport, and Chennai Airport gets 28 exclusive scheduled cargo flights every week. Currently, Another international airport is further being developed in the suburbs of Chennai, and thus advantages of logistics are going to be further strengthened.

### **3-4 Current status of industrial machinery sector**

Unlike both automotive and electrical machinery/electronics sectors, we could not verify a kind of industrial promotion policies and industry trends reports of Tamil Nadu State that specialised in the industrial machinery sector in this study. This section aims to predict general situations of the industrial machinery sector in Tamil Nadu State, drawing on the interviews with Japanese companies in related sectors in this study on the basis of information from the existing literature related to trends of the whole India and the “Tamil Nadu Industrial Policy 2014” concerning the whole manufacturing sector prepared by the state government. The definition of the term “industrial machinery” is broad, but it refers to descriptions with a main focus on construction machinery in light of trends of Japanese companies’ new operations into the state here.

According to the report by the Japan Machine Tool Builders' Association (2013)<sup>12</sup>, the scale of domestic markets for construction machinery in 2008 was 1,135 billion rupees (about 222 billion yen) for bulldozers and 14.46 billion rupees (about 28 billion yen) for other construction machinery. Major sectors demanded are the construction, mining industry and infrastructure construction, and it can be said that the domestic market for construction machinery has been expanding in line with the growth of the entire economy in the long term, although there was a temporary decline due to the global economic slowdown. Especially in recent years, there is also a forecast<sup>13</sup> saying that the production volume will be towards the recovery between the second half of 2014 and 2015, arising from the progress of 12<sup>th</sup> Five-Year Plan of the Central Government (April 2012 - March 2017) which advocated the public investment with the scale of one trillion US dollars concerning the development of roads and power plants and expectations for investments in infrastructures after the general election in 2014. The Japanese manufacturer in Tamil Nadu State with which we conducted a visit interview in this study also predicted that the market recession that began in 2011 had been reversed in 2013 and that the Indian domestic market would be likely to start the recovery from 2014. As for infrastructural development and expenditure of the state which greatly affect construction equipment demands there, the “Tamil Nadu Industrial Policy 2014” advocates the disbursement of 2,200 crore rupees in fiscal 2013, which might have been a big tailwind for construction equipment manufacturer within the state.

---

<sup>12</sup> “Study on prospects of demands for machine tools in India” by the Japan Machine Tool Builders’ Association (March 2013)

<sup>13</sup> From the “Construction machinery market in India” by the Industry Research Division of Mizuho Bank (February 2014).

Distribution of construction machinery manufacturers overlaps with the agglomeration of the automobile industry, since there are many cases in which parts suppliers are common to both of them, the northern part around Delhi, the western around Pune and Mumbai, and Chennai in Tamil Nadu State in the southern part are listed as bases for major construction machinery manufacturers. The amount of construction machinery production in India is expected to increase to 100,000 units by 2015 and 170,000 – 190,000 units by 2020 in the prediction of the ACMA cited in the report of the Japan Machine Tool Builders' Association, and the similar growth is expected in Tamil Nadu State around Chennai.

#### **4. Review of Manufacturing Policy of Tamil Nadu**

##### **4-1 Development policy for manufacturing sector**

The scope treated in the comprehensive industrial promotion policy “Tamil Nadu Industrial Policy 2014” announced by Tamil Nadu State is very broad, including electrical power development, establishment of higher education institutions (the Indian Institute of Information Technology) as a measure of IT industry promotion, the promotion of light industry development such as clothing/leather industries, food and textile processing industries, etc. In addition, strategic manufacturing sectors particularly to be strengthened in this Industrial Policy include Automobile and Auto Components Sector, Renewable Energy Equipment Manufacturing Industries, Aerospace Industry, Bio-technology and Pharmaceuticals Sector, out of which we aim to summarise the promotion policy of the state with a focus on three sectors such as automobiles, electric machinery/electronics, and industrial machinery that we keep in mind in this information collection and verification study in view of situations of new operations of Japanese manufacturers.

##### **(1) Automotive industrial promotion policy**

The automotive industry promotion policy typical of Tamil Nadu State in recent years includes the initiation of the “Ultra Mega Policy for Integrated Automobile Project” in which started to attract investments in the automobile business in May 2006. This policy to attract investments is a policy package that was launched by Tamil Nadu State that felt a sense of crisis against the stagnation of huge investments in the state after Hyundai and Ford had installed their production bases in Chennai in 1996, the failure in attracting investments by the “New Industrial Policy” announced in 2003, competitions over attraction of investments related to automobiles with other states, etc. It incorporated the full exemption of stamp taxes on condition that over 4,000 crore rupees be invested at a site within seven years after the conclusion of MOU (Memorandum of Understanding) with the state and that investments in intangible assets do not exceed 10% of all investments, etc., the alleviation of corporate burdens on the land acquisition, the expenditure by the state government to install transmission lines to factory sites, the exemption of power taxes for ten years, the exemption measures for Value Added Tax, Central Sales Tax, etc. As a result of this policy, the amount of investments that automobile and automobile parts manufacturing industry of Tamil Nadu State had invited amounted to 21,900 crore rupees (the numerical value

after the elapse of less than five years from May 2006), which corresponds to approximately five times as the amount of investments that the state has received for 15 years between May 1991 and April 2006.

In addition, the state has been successful in attracting the National Automotive Testing and R&D Infrastructure Project (NATRiP)<sup>14</sup> that is the automobile-related R&D development project by the central government, and currently advocates the launch of Automotive Industrial Development Centre as a specialised agency to invite companies to make investments and facilitate the policy of the state government, the development of industrial parks for automotive manufacturing enterprises, the development of infrastructures such as electric power, ports, roads, and railroads, and others in order to increase the automobile manufacturing volume in the state by twice every years by 2020.

(2) Industrial promotion policy related to electrical machinery and electronics

As for the industrial promotion policy of Tamil Nadu State related to electrical machinery and electronics, the following has been posted on the Website of the Department of Industries in the State Government. What are common to the automobile-related industry are generally listed in it as the contents of investment incentives. Although huge incentives in the automotive sector listed as the largest of the four major priority areas<sup>15</sup> in the “Industry Policy 2014” by the state, including the “Ultra Mega Policy” are unlikely to exist, but activities are carried out in the same system.

- 1) Environmental improvement related to the Protection of Intellectual Property Rights (IPR) (\* policy by the central government)
- 2) Promotion of the semiconductor industry (\* policy by the central government)
- 3) Attractive Package of Incentives depending on the size of investment and employment. Investments exceeding 250 crore rupees in Chennai neighbourhood (or 150 crore rupees in other districts) within 3 years will qualify for an attractive Structured Package of Support.
- 4) Land allotment in different Industrial parks and SEZ<sup>16</sup>s: SIPCOT (State Industries Promotion Corporation of Tamil Nadu Ltd.) has promoted 3 Electronic Hardware SEZs. Besides, the private sector has promoted 28 IT SEZs including Electronic Hardware.
- 5) Infrastructure support in the form of power, water, connecting roads, drainage, etc.
- 6) Single window facilitation through Guidance Bureau.

---

<sup>14</sup> The project of the central government which advocated the establishment of CoE bases to promote the automotive R&D at seven locations across the country, including Oragadam (near Chennai) in Tamil Nadu State by 2011. <http://www.natrip.in>

<sup>15</sup> The three areas outside the automotive sector consist of aerospace, renewable energy-related manufacturing industry, and biopharmaceutical.

<sup>16</sup> Special Economic Zone

(3) Industrial promotion policy related to the industrial machinery

As described in Section 3.5 of the previous chapter, it appears that there is no state promotion policy with a focus on the manufacturing in the field of industrial machinery such as construction equipment and machine tools. Nevertheless, the majority of specific industrial promotion policies listed in the “Tamil Nadu Industrial Policy 2014” of the state are infrastructure development programmes including those for port facilities, highways, power grids, industrial estates, etc., and these huge infrastructure development projects are expected to have effects of increasing demands for industrial machinery such as construction equipment and power equipment.

In addition, there is a description “A *manufacturing hub for Heavy Engineering products and components will be established in Thiruballur District, north of Chennai Metropolitan area*” as the “promotion of Heavy Engineering Hub” in the same “Tamil Nadu Industrial Policy 2014.” This Heavy Engineering Hub is planned to be developed on a scale of 600 acres in GK Industrial Park<sup>17</sup>, while Tiruchirappalli as its peripheral area is a major agglomeration of industrial machinery manufacturing industry, where giant companies such as BHEL, Cethar Vessels Limited, L&T, Thermax, and Caterpillar have already carried out the production. It is seen to be the planning of bases related to the industrial machinery with a view to relocating and expanding suppliers of these huge manufacturer groups.

#### 4-2 Development policy for HRD and vocational training

(1) Human resource development policy for the whole manufacturing sector

There is the following description as the Human Resource Development (HRD) policy of the state that targets the whole manufacturing sector in the “Tamil Nadu Industrial Policy 2014” (cited below).

1. *Thrust will be given for creating a skilled and balanced workforce with a special focus to enable women to enhance their employability. The Government will take the lead in partnering with the industry in developing a curriculum for the industrial training institutes to make their graduates industry-ready. Technical institutes and polytechnics will be incentivised to align themselves with the industry needs and organise skill development programmes jointly to improve the employability of their students.*
2. *Industry-Institution Collaboration: A framework for industry-institution collaboration and public-private partnership for ITIs, polytechnics and Engineering colleges will be formulated. The Government will facilitate setting up of Technology Parks within and around Higher Learning Institutions and Universities.*
3. *Cluster level skill development: This Initiative will focus on specific existing cluster in the auto, leather, textiles, and electronic hardware sectors. A Cluster Human Resources (HR) Skills Development Committee will be established in each major cluster with the membership of engineering colleges, polytechnics, ITIs, arts and science colleges in the vicinity and the participating industries to set targets for training and the revision of course content of these institutions.*
4. *Training Subsidy: The Government will offer training subsidy as an incentive on a case to case basis taking into account the capacity of employment generation and potential for significant improvement of skills.*

<sup>17</sup> <http://www.gkipl.com/the-park.htm>

Apart from them, inclusive development is advocated in this Industry Policy, including the poor and differently-abled persons. The improvement of women's employability mentioned in 1, collaboration between enterprises and vocational training institutions deeply related to 2, and automobiles and electronic hardware sectors mentioned in 3 are associated closely with our suggestions offered in Chapter 6 of this report.

(2) Human resource development policy related to automobiles

If limited to the automotive industry, the following HRD policies are advocated even in the "Tamil Nadu Automobile and Auto Components Policy 2014" as well (cited below).

1. *Students will be taught the technical skills required to work in the field, regarding the trends in the industry and also the certification and other statutory requirements. Besides, Auto Engineering (including repairs and services), areas like automobile sales, vehicle inspection services, auto finance and auto insurance will be introduced in the Curriculum for the vocational studies. This would produce industry-ready labour, thus increasing the productivity of the state, which in turn would be a huge incentive for new industries to look at investing in Tamil Nadu.*
2. *Technical Institutes and polytechnics will be encouraged to align themselves with the industry needs and consultant industry wherever needed for inputs and planning. An Industry-Institution Interaction Cell (III Cell) will be formed in each Polytechnic College.*
3. *An Auto Industry Training Institute on PPP mode will be promoted to produce skilled labour employable by the auto industry. Imparting basic industry practice, sensitizing basic skills and e-learning will be part of the curriculum.*
4. *'Training Incentives' award will be introduced for Automobile Manufacturers and Auto Component Manufacturers.*
5. *ITIs/polytechnics in industrial areas will be identified in association with industry for automotive industry training. Recruitment of experienced and knowledgeable faculty from Industry who have hands on experience will be facilitated. The curriculum, the training course and format will be revisited with the industry experts.*
6. *The Industry will be asked to extend support by way of providing a Guest Lecturer for the ITI's and Polytechnics once or twice a week.*
7. *Shop-floor training during the training period will be partnered with industry. Links will be established with automotive industry to help employ the trainees.*
8. *Companies employing students from schools/colleges and providing special training etc., will be incentivised to enable more training and employment generation. This would also reduce the burden on the infrastructure of ITI's.*
9. *As part of industrial exposure to the polytechnic students, industry visits will be made mandatory.*
10. *ITIs/Polytechnics will be encouraged to become E-enabled and conduct e-learning courses.*

We could not verify any cases where these policies are substantively advanced at sites of companies and training institutions in this field study, but if the movements in items 3, 4, 6, and 8 shift into full swing, they would be the movements that would be associated with future JICA's technical cooperation projects (especially in the aspect of collaboration with companies and existing institutions), and so it will be necessary to check their progress continuously in detailed design surveys, etc.

## 5. Analysis of Demand and Supply of Vocational Skills in the Target Subsectors in Tamil Nadu

### 5-1 Existing reports on demand-supply gaps in vocational skills

There is no information on quantitative analysis of skill gaps that specialise in each field of manufacturing industries (particularly each field of the automobiles, electrical machinery and electronics, and industrial machinery, based on trends of new operations of Japanese companies) in Tamil Nadu State at present.<sup>18</sup> Rather, the development and enhancement of such basic information through industry-government collaboration are included in future support needs that target the state (TNSDC in particular). For reference, we introduce three materials here: an Executive Summary of investigations regarding the status of skill gaps in the whole state conducted by NSDC; and furthermore two survey results on the analysis of skill gaps that targeted the automotive industry throughout India.

- (1) Report: Executive Summary for the State of Tamil Nadu (2012-2017, 2017-2022)

NSDC has conducted the skill gap analysis in the state of Tamil Nadu. The executive summary of its report depicts the skill gap (availability of workforce) using the table below:

Table 5.1 Prediction of future skill gaps in Tamil State

(Unit: 000)

Skill Gap	2012 – 2017				2017 - 2022			
	Unskilled	Semi-Skilled	Skilled	Total	Unskilled	Semi-Skilled	Skilled	Total
Incremental Human Resource Requirement	1,718	1,511	1,896	5,125	3,313	2,440	2,807	8,560
Incremental Human Resource Availability	2,179	258	1,065	3,502	2,519	278	1,137	3,934
Skill Gap	-461	1,253	831	1,623	794	2,162	1,670	4,626

The executive summary explains the situation as follows:

*Construction, retail and travel, hospitality & tourism and travel are expected to drive the incremental requirement for skilled human resources. Chennai, Kancheepuram and hiruvallur, forming a large industrial hub on the eastern coast are expected to generate considerable skilled human resource requirements. Moderately developed districts such as Cuddalore, Dindigul, Erode, Madurai, Salem and Tiruchirappalli, which are transitioning*

<sup>18</sup> To be more precise, there is a possibility that the analysis of more detailed skill gaps was conducted for the manufacturing industry in the detailed version of the report of the NSDC introduced in Section (1) here, but this detailed version is the one that even TNSDC officials have never seen. We requested NSDC to provide it to us in this survey, but it was not possible to obtain it during the period.



*towards higher levels of development, are also expected to have a high human resource requirement in sectors such as IT, automobile, construction, food processing, textiles and retail. The youth aspiration study suggests a strong inclination towards working in service sectors such as IT, banking, hospitality, transport and retail.*

*Low availability of appropriately skilled human resources is a problem faced by employers across sectors and districts. The problem is particularly acute in the case of Small Scale Industries – while larger firms can afford to conduct campus recruitments at skill training institutes or set up captive training centres, the unavailability of skilled workers is a major challenge for smaller firms. In spite of their inclusion in the government’s apprenticeship scheme, they often face difficulties in finding suitable candidates.*

In terms of the “quantity” of workers, there are currently some Japanese companies that already pointed out the labour shortage in the unskilled operator personnel in the industrial park in the suburbs of Chennai, but unskilled labour still seems to be in a condition of excessive provision if viewed in the whole state. However, it is anticipated that unskilled labour will fall into a shortage after 2017, and the shortage of semi-skilled labour force appears to be even more serious than at present. It is considered that securing the labour force will growingly be a major management issue for manufacturing companies in the future.

(2) Report: Human Resource and Skill Requirement of the Auto and Auto Components Sector

While the report described above is concerning the “quantity,” this report is associated with the “quality.” However, this does not aim to target only Tamil Nadu State. NSDC has also compiled a report “Human Resource and Skill Requirement of the Auto and Auto Components Sector” three sections of which describe “Skill Requirements and Skill Gaps”. Even though this report explains the situation in the sector nationwide, we presume the situation in Tamil Nadu would be similar to the national trend. The report indicates “skills required” and “skill gaps”. However, it does not include any quantitative data: The followings are the excerpts from the report on skill requirements and skill gaps at small Tier-1, Tier-2, Tier-3 and lower suppliers.

Table 5.2 Skill gaps by occupation in the automotive sector

<i>Function</i>	<i>Skills required</i>	<i>Skill gaps</i>
<i>Manufacturing / Operation</i>	<ul style="list-style-type: none"> <li>● Ability to understand the implications of defective parts/assemblies and how these link to increased warranty costs for the OEM<sup>19</sup></li> <li>● Ability to meet quality requirements of the OEM / Tier I suppliers.</li> </ul>	<ul style="list-style-type: none"> <li>● Personnel at smaller companies are unable to maintain quality of output and hence customer companies have to depute their own personnel to so as to ensure that the right quality of product is made available</li> </ul>
<i>Design and Development / Product Development &amp; Industrial Engineering / Technical Services</i>	<ul style="list-style-type: none"> <li>● Minimal design abilities to be able to convert OEM designs into manufacture-able in-house designs</li> <li>● Ability to understand testing specifications and conduct the basic tests needed accordingly</li> <li>● Ability to design processes given an OEM design, keeping the required quality specifications in mind and reducing rejections to the minimum level possible</li> </ul>	<ul style="list-style-type: none"> <li>● Inadequate ability to understand OEM design Specifications</li> <li>● Inadequate knowledge of materials used in auto components</li> </ul>
<i>Tool Room</i>	<ul style="list-style-type: none"> <li>● Ability to manufacture on-off parts using multiple basic machines for example, for manufacturing a failed machine part</li> <li>● Knowledge of gauges and the ability to manufacture and calibrate basic gauges</li> </ul>	<ul style="list-style-type: none"> <li>● Inadequate understanding of advanced engineering drawings for critical gauges etc.</li> </ul>
<i>Sales and Marketing</i>	<ul style="list-style-type: none"> <li>● Ability to maintain good working relations with large Tier I suppliers / OEM's (Tier I suppliers / OEM's)</li> <li>● Ability to understand exact technical requirements of customers</li> <li>● Ability to ensure that customer expectations (Tier I suppliers / OEM's) in terms of timely delivery are met.</li> </ul>	<ul style="list-style-type: none"> <li>● Inadequate ability to understand exact technical requirements of customers</li> <li>● Inadequate ability to ensure timely delivery</li> </ul>
<i>Service</i>	<ul style="list-style-type: none"> <li>● Ability to interact with Tier I suppliers / OEM's to understand the performance of their particular component w.r.t. quality, rejection rate, etc.</li> <li>● Ability to effectively provide genuine feedback to the design and manufacturing personnel about their components' performance and the changes required in design / production processes</li> </ul>	<ul style="list-style-type: none"> <li>● Inadequate ability to understand the criticality of the role played by their component in the overall system design</li> <li>● Inadequate ability to identify the exact problem in the component and understand why it was rejected</li> </ul>

As for manufacturing areas relevant to the present study, the quality control by individuals and small-scale business operators have been listed as a problem, situations where client companies must provide guidance were pointed out, and the same thing was pointed out by almost all the companies during our interviews with Japanese companies in this study.

<sup>19</sup> Original Equipment Manufacturer

(3) Report: Skill Gaps in Indian Automotive Service Sector

KPMG was entrusted by CII (Confederation of Indian Industry) to compile the report “Skill Gaps in Indian Automotive Service Sector”. To be precise, skills that are required in the automotive sector are different from those required in the manufacturing sector, but both are listed for reference here, as career options of graduates from vocational training institutions (especially at the ITI level) include both of the manufacturing sector and the service sector. The important points about the skill gap pointed out in the report are as follows:

1. To employ people with the right skill sets is challenging, especially at supervisor levels and technician levels. The table below shows the result of questionnaire to the companies in the sector in regard to the manpower availability in terms of Quantity and Skills:

Table 5.3 Level of satisfaction of staff in companies of the automotive service sector  
(by hierarchical rank)

Level	Quantity	Skills
Manager	71%	43%
Supervisor	57%	14%
Technician	71%	29%

The middle (supervisor) level is critical in terms of skill requirement.

2. Technician level personnel are typically fresh graduates from ITIs and Polytechnics. However, it is believed that there are gaps in skills as the curriculum in these institutes are not aligned to the needs of the current technical trends. This issue needs to be addressed by the institutions in conjunction with the industry.
3. The table below shows the availability of skilled manpower for different service areas:

Table 5.4 Availability by occupation in the automotive service sector

Service Area	% of respondents who feel availability is adequate
Regular Maintenance	71%
Diagnostics/Troubleshooting	14%
Accident Repairs	43%
Customer Management	80%

The key gaps exist in the areas of Diagnostics/trouble shooting. This is due to the lack of adequate exposure to modern vehicle technology at ITIs and polytechnics.

## 5-2 Current needs from private firms for vocational skills

Training needs of manufacturing personnel commented by local manufacturing companies covered a wide range of areas as described below. It can be said that these are technical fields related to the improvement of the quality of important local suppliers in helping to increase the local procurement rate in addition to Japanese companies' own factory personnel, and represent vocational training courses that can contribute to Japanese companies' benefits. With respect to the manufacturing technology field, these are generally overlapped with the fields of skill demands of the industrial side when asking vocation-related institutions (TNSDC and industry-wise SSCs, etc.) and industry associations about them, whereas demands from work sites of Japanese companies are particularly large for basic English and soft skills.

Table 5.5 Technology areas where the training needs have been identified

Field	Remarks	The number of companies where needs are identified
Welding	<ul style="list-style-type: none"> <li>The shortage of manuals and skills were pointed out on mounting of steel materials and pipes, assembly, etc. in addition to the shortage of skills for machine operation in the field of industrial machinery. In the automotive field, there are many companies that pointed out the shortage of skills for machine operation such as robot welding and spot welding, but there were also companies that pointed out the lack of manuals and skills for gas welding and the like.</li> <li>In view of a plan for future expansion of production and the growth of local construction demands by Japanese automobile manufacturing companies and auto parts producing companies in Tamil Nadu State, Japanese companies' support needs are extremely high for human resources for and skills of welding.</li> </ul>	<ul style="list-style-type: none"> <li>5 Japanese companies</li> </ul>
Machine work (machining)	<ul style="list-style-type: none"> <li>We identified the skills shortage in machine operation (including CNC<sup>20</sup> and MC<sup>21</sup>) such as cutting, boring, bending, grinding, etc. Skills shortage in machine operation was pointed out not only by Japanese companies but also Indian manufacturing companies for automobile parts and electronic devices/components in the same manner. Each company conducts skills training for these kinds of machine operation through On the Job Training (OJT) with its own production facilities, but they have high support needs for skills of basic machine operation.</li> <li>Two Japanese manufacturing companies for auto parts that had recently began their production pointed out that the basic knowledge of machining at the polytechnic level was insufficient.</li> </ul>	<ul style="list-style-type: none"> <li>3 Japanese companies</li> <li>5 Indian companies</li> </ul>
Metal stamping	<ul style="list-style-type: none"> <li>With regard to metal stamping parts, there was a Japanese consumer electronics manufacturing company that pointed out the shortage of local suppliers' skills. In addition, we identified the shortage of press stamping skills for brass at one Indian electronics manufacturing company.</li> </ul>	<ul style="list-style-type: none"> <li>2 Japanese companies</li> <li>1 Indian company</li> </ul>

<sup>20</sup> Computer(ized) Numerical(ly) Control(led)

<sup>21</sup> Machining Centre

Field	Remarks	The number of companies where needs are identified
Plastic moulding	<ul style="list-style-type: none"> <li>We identified the shortage of local suppliers' skills for plastic injection moulded parts at two Japanese companies for auto parts manufacturing and consumer electronics manufacturing. In the field of automobile parts, particularly the shortage of processing skills for precision parts such as gears was indicated.</li> </ul>	<ul style="list-style-type: none"> <li>2 Japanese companies</li> <li>1 Indian company</li> </ul>
Casting	<ul style="list-style-type: none"> <li>We identified the shortage of die-casting skills at two Japanese auto parts manufacturing companies and one major Indian auto parts manufacturing company. Workers having the qualification of Diploma were doing most of the mechanical operation for die-casting in these companies, we judge that they lacked the skills of machine operation such as grinding and CNC.</li> </ul>	<ul style="list-style-type: none"> <li>2 Japanese companies</li> <li>1 India company</li> </ul>
Die	<ul style="list-style-type: none"> <li>We identified the skill shortage at two Indian companies for manufacturing dies. There are delivery records in one Japanese company for manufacturing industrial machinery and two Japanese companies for manufacturing automobiles and auto parts among companies for manufacturing dies for metal working and in a Japanese company for manufacturing automobiles together with exportation to overseas Japanese automobile manufacturing companies among companies for manufacturing dies for plastic processing. However, it receives technical guidance on quality improvements from delivery destination companies in delivering dies for metal, and it is allowed only to deliver components of low precision for dies for plastic processing mould.</li> <li>According to Japanese companies, there are few local companies that can manufacture dies having the same quality level with these companies in Tamil Nadu. In addition, Japanese die-casting parts manufacturing companies point out that locally produced dies for die-casting are far behind Japanese products or those produced in Southeast Asia in quality.</li> <li>One Japanese company informed us of the labour demand for die maintenance staff that is difficult to get enough supply.</li> </ul>	<ul style="list-style-type: none"> <li>1 Japanese company</li> <li>2 Indian companies</li> </ul>
Coating	<ul style="list-style-type: none"> <li>Some Japanese companies pointed out that the volume of recruitment by Japanese manufacturing companies itself is oriented largely to mechanical coating for automobile parts, etc., but technical training needs could not be confirmed on mechanical coating, because it may be relatively easy to turn unskilled workers into line workers by in-factory training.</li> <li>According to a Japanese manufacturer for large industrial machinery, coating of large parts requires skills unlike mechanical coating.</li> </ul>	<ul style="list-style-type: none"> <li>1 Japanese company</li> </ul>
Assembly	<ul style="list-style-type: none"> <li>Training needs were not recognised for assembling small parts following a manual, because little expertise is required for workers.</li> <li>According to the Japanese manufacturer for large industrial machinery, the assembly of its large mechanical parts requires skills as only one person is engaged in assembling more than 2,000 parts there.</li> </ul>	<ul style="list-style-type: none"> <li>1 Japanese company</li> </ul>
Soft skills	<ul style="list-style-type: none"> <li>"Soft skills" mean emotional and thinking skills concerning mindsets, disciplines, safety awareness, attention to time and clothes, etc. Although subjects named "soft skills" have been offered in many existing training institutions, appraisals of the corporate side are very low to new employees in terms of their "soft skills."</li> </ul>	<ul style="list-style-type: none"> <li>7 Japanese companies</li> <li>3 Indian company</li> </ul>

Field	Remarks	The number of companies where needs are identified
Basic English	<ul style="list-style-type: none"> <li>English is used as a common language within a factory in India where languages are different among states. In general graduates with a college or higher degree who can speak English are employed for the management department, whereas few of the factory workers can speak English.</li> <li>In the case of ITIs in Chennai, texts are prepared in English, but the classes are conducted in the Tamil language. TNSDC has already requested the state government to recruit dedicated English teachers (outsourcing) for ITIs, but it is under process.</li> </ul>	<ul style="list-style-type: none"> <li>5 Japanese companies</li> </ul>
Production management	<ul style="list-style-type: none"> <li>TPM (Total Productive Maintenance), 5S<sup>22</sup>, KAIZEN, etc. were taken up. Such needs have been confirmed in almost all Japanese companies most of which listed them as training needs for local suppliers rather than for themselves.</li> <li>5S and efforts for KAIZEN have already been implemented at many of the local suppliers, but the overall appraisal by the Japanese company side is generally that there is still a room for guidance.</li> <li>One of the major “Tier-1” suppliers in the automotive industry commented that the company wanted to learn about “Just in Time” method.</li> <li>Japanese companies often conduct the quality improvement guidance at local suppliers’ production sites which they deal with, and many of them had high expectations for travelling guidance by JICA’s technical cooperation project to lay its foundation.</li> <li>The HIDA project, the AOTS Alumni Association (Chennai Branch), ACMA and its affiliated ACT (ACMA Centre for Technology, headquartered in Pune with no branch office in Chennai), CII, and others also carry out seminars, events, and visiting guidance in these fields (activity areas are different among them). Though these lecturers’ competences need to be verified through Japanese technical experts, it would be possible to consider the visiting guidance to onsite local suppliers in collaboration with these organisations and cooperation for Training of Trainers (ToT).</li> <li>There was a comment from a local company that a need is high for attending a class on TPM, since it is not yet a major movement there.</li> <li>One of the major “Tier-1” suppliers in the automotive industry commented that the level of Quality Control (QC) was to be improved.</li> </ul>	<ul style="list-style-type: none"> <li>6 Japanese companies</li> <li>2 Indian company</li> </ul>

Almost all Japanese companies already have a mechanism for completing technical training within themselves or their group companies, and required basic practical exercises at the level which they can judge that newcomers possess technical “grounding” before joining them (specifically at the levels of technical high schools or vocational schools in Japan) as technical training support. It is also common that Japanese companies conduct visiting guidance to suppliers, and the large majority of Japanese companies agreed to the support system by which JICA experts conduct travelling guidance to local suppliers mainly on the basics of production management (3S: Seiri: Sort, Seiton: Set in Order, Seiketsu: Sanitize) to lay a foundation before they conduct individual visiting guidance. Meanwhile, the HIDA project, ACMA, CII and the like are carrying out their own projects in the field of production

<sup>22</sup> Seiri/Sort, Seiton/Set in order, Seiso/Shine, Seiketsu/Standardize, Shitsuke/Sustain

management, and a scheme ought to be considered while incorporating the collaboration with them in its scope, though their quality will also need to be verified in a detailed design study or others.

In addition, there was a tendency to focus on very limited technical guidance needs (mainly among Indian companies), when technological challenges emerge clearly (eg. operation and maintenance of core-type component stamping machines, operation of dedicated spring manufacturing machines, manual coating and assembling of huge parts, etc.). As these technologies are considered non-generic or applied skills, it is determined that they are excluded from the scope of JICA's vocational training curricula and instead organized into the category of the guidance to suppliers by Japanese companies as described above or conventional in-house training within companies in this report. In addition, the need for overall maintenance to cope promptly with troubles of equipment, jigs and others within the factory also was manifested by a Japanese company and an Indian company. These needs are determined to be outside the scope of curricula for future JICA's vocational training assumed in this report, because it can be said that they are for multi-qualified technicians that acquired the overall knowledge of electrical and machinery, etc. in addition to the knowledge of metal working and welding in the above table.

Meanwhile, some of the Japanese companies said "technical education is not necessary," since they mostly operate processes through simple and non-technical works such as the assembly of small parts and simple machine operations. Even in these cases, more than a few companies agreed to the training needs before entry concerning "soft skills" such as mindsets, disciplines and safety awareness. We believe that (a part of) these fields can be incorporated into curricula by training at practical rooms through actual practice on equipment and ordinary student management and the like rather than handling them in single classroom courses alone.

### **5-3 Current status for vocational skill development in Tamil Nadu**

#### **(1) Current status of the state vocational training system mainly with the TNSDC as its core**

As recapitulated in Chapter 2, the skill development in Tamil Nadu State is under a system that TNSDC proceeds as a "skill hub" in collaboration with in-state public and private vocational training institutions. The State Prime Minister announced that vocational training will be carried out for 220,000 persons with the budget of 100 crore rupees in fiscal 2013, of which 57.8 crore rupees were allocated to TNSDC. The original vocational training system of the state was initiated with this policy, in which proposals would be accepted from in-state vocational training institutions and the offering of vocational training programmes is entrusted to each institution after approved by the Board of Directors, while TNSDC bears all tuition fees and a trainee can receive a vocational training programme gratuitously. Similar programme commissioning is continued in this fiscal year, and related staff of TNSDC says that the TNSDC's current budget for vocational training programmes is 100 crore rupees and that it is expected to be further increased in the future.

Training programmes commissioned to national, state and private vocational training institutions that are currently implemented in this system cover a wide range of fields, including IT, solar power systems, sewing, motorcycle maintenance, mobile phone repair, shoemaking, English education for nurses, crime prevention security services, etc., and these also include training on manufacturing-related fields such as welding and plastic processing, though the number of their cases is small as many as about several cases to the extent that we checked them with materials provided by TNSDC.

Table 5.6 Achievements of vocational training programmes commissioned by TNSDC  
(cumulative total including the amount of the preceding year, as of August 2014)

Classification	Breakdown (number of cases)	Overview
Completed	The total number of programmes (14 cases)	<ul style="list-style-type: none"> <li>• The total number of beneficiaries (planned value): 151,925 persons</li> <li>• Total budget: 13.9 crore rupees (excluding two programmes whose budgets are unknown)</li> <li>• Programmes in the fields related to this survey out of them</li> </ul>
	Programmes in the fields related to this survey out of them	<ul style="list-style-type: none"> <li>• Soft skills: the number of students: 19,963 persons, budget unknown, IL&amp;FS (nationwide private institutions that have a branch office in Chennai)</li> <li>• Welding (Basic &amp; Applied): the number of students: 192 persons, budget: 1.1 crore rupees, commissioned to WRI (an institution under BHEL that is the company for heavy electrical systems based in Tiruchirappalli)</li> <li>• Two-wheel service and maintenance: the number of students: 200 persons, budget: 0.03 crore rupees, commissioned to TVSTS (in Chennai, a series of TVS as the leading two-wheel manufacturer)</li> </ul>
Under implementation	The total number of programmes (16 cases)	<ul style="list-style-type: none"> <li>• The total number of beneficiaries (planned value): 110,082 persons</li> <li>• Total budget (planned value): 50.2 crore rupees (excluding two programmes whose budgets are unknown)</li> </ul>
	Programmes in the fields related to this survey out of them	<ul style="list-style-type: none"> <li>• Plastic processing technology: the maximal number of students: 200 persons (133 persons in progress), budget: 0.04 crore rupees, commissioned to CIPET (a national institute in Chennai)</li> <li>• Manufacturing technology (field unknown): the maximal number of students: 300 persons (95 persons completed), budget: 0.02 crore rupees, commissioned to ATI (a national institute in Chennai)</li> </ul>
Awaiting the implementation	The total number of programmes (6 cases)	<ul style="list-style-type: none"> <li>• The total number of beneficiaries (planned value): 4,129 persons (excluding two programmes at which the number of attending students is unknown)</li> <li>• Total budget (planned value): about 4.5 crore rupees (excluding one programme whose budget is unknown)</li> </ul>
	Programmes in the fields related to this survey out of them	<ul style="list-style-type: none"> <li>• Welding and piping: The number of students and budget unknown, commissioned to SNR Training Institute (a private institute in Coimbatore)</li> </ul>
Under review	The total number of programmes (25 cases)	<ul style="list-style-type: none"> <li>• The total number of beneficiaries (planned value): 73,530 persons</li> <li>• Total budget (planned value): about 69 crore rupees</li> </ul>
	Programmes in the fields related to this survey out of them	Details unknown



There was one programme on information and communication systems for which ITI was made the implementing agency among those described above and conversely there were three training programmes by outsourcing for students of ITIs (and polytechnics and colleges). Low training capacities of existing ITIs can be considered to be one of the reasons why TNSDC has coordinated a number of vocational training programmes in partnership with good-standing private schools or national training institutions while there are 62 schools of ITI in the state. In addition, the fact that a wide range of private training institutions, including major manufacturing group-based institutions, independent training institutions and NGOs (non-governmental organisations) have become contractors is also characteristic.

As far as we observe the current situations of commissioning vocational training programmes, the programmes that appear to be beneficial for mainly Japanese manufacturing companies are in the condition of inadequate arrangements in terms of the scope of technical fields to be treated, the number of cases, the number of produced industry personnel, and others. The TNSDC side shows their intention of agreement to the partnership with private training institutions related to the manufacturing industry and furthermore the partnership with private manufacturing-type companies in future JICA projects, and conversely the expansion of networks with manufacturing-type training institutions or companies (especially Japanese manufacturing) has become a potential support needs.

(2) Support for private vocational training institutions by NSDC

NSDC's low-interest loans for private vocational training institutions that recapitulated in Chapter 2 are to target the whole country, and there are several private training institutions that receive the loans through the review by the NSDC in Tamil Nadu State as well. Eight schools could be identified in the field of manufacturing sector as the targets of this study. We conducted interview surveys with about half of these schools, which include institutions centred on soft skills, training institutions for engineering technologies focusing on applied technologies, and training institutions for service-based technologies such as repair and sales even though they are categorized into the manufacturing sector, while we see the situation in which good-standing institutions that received the NSDC loan and simultaneously the institutions that provide training courses on the practice of manufacturing technologies targeted by Japanese manufacturing companies are quite limited. It should be noted that IL&FS (offering classes on soft skills in Chennai) included in Table 5.6 described above is the institution that receives the NSDC loan on the one hand, while also entrusted by TNSDC on the other hand. Only IL&FS corresponds to such an example according to the documents of both organisations. Financial planning review by an accounting audit corporation is also contained in loan screenings of NSDC, and it can be said in that sense that good-standing local private institutions that has reached certain criteria in the management aspect such as performances and scale are selected as institutions for granting loans by NSDC. However, the organisation and programmes of TNSDC were little known even among the related staff of such good private vocational training institutions. It is considered that this

point backs up support needs<sup>23</sup> to TNSDC in the aspects of public relations for private institutions and exploring institutions for partnership and commissioning.

- (3) Support needs related to vocational training on the side of administrative agencies and training institutions

Main support needs in the field of vocational training in Tamil Nadu State, as brought up during our interviews with central- and state-level public organisations and institutions related to vocational training can be summarised as follows:

Table 5.7 Specific support needs raised by government and training institutions

Item	Activities that they would like to ensure with the support
1. Support for ToT /Establishment of the CoE institution	<ul style="list-style-type: none"> <li>● Prepare the equipment for practical exercises, and conduct practical training.</li> <li>● Expand education for multi-skilled workers</li> <li>● Conduct the training of trainers (ToT)</li> <li>● Prepare equipment and curricula in consideration of the latest technological trends</li> </ul>
2. Assistance in research activities	<ul style="list-style-type: none"> <li>● Carry out research activities related to trends of industrial human resources (reflected in the curriculum)</li> </ul>
3. Expansion of vocational training programmes	<ul style="list-style-type: none"> <li>● Improvement of trainers' skills by technical guidance (ToT)</li> </ul>
4. Building the close relationship with the industry	<ul style="list-style-type: none"> <li>● Promote the entry into Japanese companies</li> <li>● Further linkage between skill demands of the industry side and vocational training</li> </ul>

The significance of the support for ToT in Item 1. is pointed out by organisations of the industry side such as the SSC in addition to TNSDC among these items. It was confirmed in our field survey this time that the training of newcomers was conducted in state-owned facilities with respect to the training of trainers of ITIs whose low level is particularly pointed out, more technical exercises were conducted by ATI under the central government, and that there were cases where private training institutions (TVSTS) accepted training. The expansion and enhancement of ToT training implemented by ATI or private training institutions are considered to be necessary support from the medium and long-term perspectives in the sense that it will increase the volume of skilled labour forces for supporting the future expansion of Japanese manufacturing companies' new operations.

It should be noted that any of the four activities in the “establishment of ToT/CoE institutions” in the above table or institutions such that all of them can be made possible were assumed, when local concerned persons used the term of CoE (Centre of Excellence), but there was a comment from a leading private training school that it had submitted a request for establishment to the state in the past with respect to the portion of “preparation of equipment and curricula in consideration of the

<sup>23</sup> It should be noted that there are several programmes in which their maximal number of students do not appear to be fulfilled among TNSDC commissioned training programmes. TNSDC brings up the enhancement of publicity for student recruitment first and foremost as issues and support needs, and thus it is believed that the “support for building publicity systems” may become important support needs including this point.

latest technological trends,” but that it did not lead to the realisation. However, its contents included equipment and facilities in the field of industrial robot technology, embedded system development, applied electronic engineering, and coating (local requirements for equipment are strict based on environmental pollution standards, and so investments are difficult for private schools), which are out of the scope of vocational training needs general listed by Japanese manufacturing companies at present.<sup>24</sup> Therefore, it is determined that a proposal with a focus on ToT is made in this report, while the proportion of the portion of “the latest technology trends” is lowered there.

In addition, Items 2.-4. represent the contents that match the industrial human resource development policy which is being undertaken in the state as outlined in Section 4.2. In particular, the provisions are different for ITI trainers in detail by educational background, but their essential practical experience in the industry is for the period of 0 - 3 years. An attempt to incorporate such activities to make up for the shortage of these trainers’ experience and knowledge can also be considered in “ToT” and “building the relationship with the industry,” and thus it is believed that these aspects would also be important support needs.

## **6. Proposals for Technical Cooperation and Financing**

### **6-1 Trends of other donors in related fields**

Ongoing projects for the manufacturing sector by other donors in Tamil Nadu State that could be identified in this study are listed in the table below (Table 6.1).

In addition, ATI described in 2-2 had kept its relationship with the World Bank and the European Union (EU) over many years, and had a number of equipment sets that seem to have been the equipment procured by these earlier projects. Moreover, ATI has also been engaged in the elaboration of NOS for the automotive industry, and it is said that this NOS development activity was also supported by the World Bank.

Apart from these, DEG (Deutsche Investitions- und Entwicklungsgesellschaft: German Investment and Development Corporation) as the subordinate organisation of KfW (Kreditanstalt für Wiederaufbau: German Development Bank) has been implementing the Innovation Voucher Programme<sup>25</sup> to support the R&D of small and medium-sized enterprises (SMEs) in Tamil Nadu State, which can be said to have been implementing activities in overlapping areas in terms of benefits for manufacturing companies in a broad sense.

---

<sup>24</sup> To be precise, there was a Japanese company that brought up personnel recruitment needs for painters at the applied level. Most of the demands for painters are oriented to operators for mechanised coating for relatively small parts in automotive and home appliance factories, for whom skill training has been internalised at each plant. On the other hand, skill levels required for painters tend to be raised in the case of coating of large parts such as ships or large industrial machinery. Andhra Pradesh and Tamil Nadu States also represent areas for producing ships, submarines, combat vehicles, etc., where demands for skilled painting workers are considered to be high. (The above trend is thought to be similar for welders).

<sup>25</sup> <http://www.innovationvouchertn.in/>

Table 6.1 Support by other main donors related to this topic

Donor name	Project title	Outline
World Bank (IDA: International Development Association)	Vocational Training Improvement Project	<ul style="list-style-type: none"> <li>● Implementation period: December 2007 - November 2014 (Amount of cooperation: US \$ 360 million (IDA contributions: US \$280 Million)</li> <li>● Major expected outcomes: Employment rates of graduates from technical training schools are improved (improve the employment outcomes of graduates from the vocational training system).</li> <li>● Main approaches:               <ol style="list-style-type: none"> <li>1. Introduce the Centre of Excellence (CoE)* system that ensures the acquisition of multiple skills and technologies.</li> <li>2. Promote the involvement of the private sector and establish Institutional Management Committees (IMCs) by PPP to improve management skills of training facilities.</li> <li>3. Build the Instructor Training Network (ITN) by involving private training institutions, and establish the Institutes of Training of Trainer (IToT) to transfer instructor training to a state-led system.</li> </ol> </li> <li>● Progress: According to the third-party tracer study in 2011, the employment rate of ITI graduates has increased to 60% (over the baseline of 32% and against the end-term target of 50%).</li> <li>● Remarks: The term “CoE*” is the term used widely by local concerned personnel vocational training, whose definitions are varied upon speakers, but the definition of multi skills training can be applicable to many cases.</li> </ul>
EU	India EU Skills Development Project	<ul style="list-style-type: none"> <li>● Implementation period: 2012 – 2016 (54 months) (Amount of cooperation: Unknown)</li> <li>● Counterpart institution:               <ol style="list-style-type: none"> <li>1. Ministry of Labour and Employment (Directorate General for Employment and Training: DGE&amp;T)</li> <li>2. National Skill Development Corporation (NSDC)</li> <li>3. National Council for Vocational Training (NCVT: National Council for Vocational Training)</li> </ol> </li> <li>● Project Consortium:               <ol style="list-style-type: none"> <li>1. Cambridge Education</li> <li>2. GIZ</li> <li>3. City &amp; Guilds</li> <li>4. Scottish Qualifications Authority</li> <li>5. Aarhus Tech International</li> </ol> </li> <li>● Expected results:               <ol style="list-style-type: none"> <li>1. Enhanced capacity of DGE &amp; T, NCVT, and NSDC to apply and adopt a European best practice perspective, as and where relevant, in work relating to skills development.</li> <li>2. Substantial progress made in the development and maintenance of a National Vocational Qualifications Framework for India, including national occupational standards and competency mapping by job roles.</li> <li>3. Labour Market Information Systems (LMIS) and analysis practices enhanced at the national level and at the level of a state/industrial cluster on a pilot basis.</li> </ol> </li> <li>● Remarks:               <p>The Vocational Cluster Approach that identified sectors and regions was also adopted as one of the approaches in the project: the automotive sector was selected as the first Vocational Cluster, and problems were tackled with experts dispatched by EU in several working groups in the regions of Chennai, Bangalore, and Pune from October 2012 to June 2013. Cluster groups are composed of representatives that were dispatched from related departments of the state government, SSC, vocational training institutions, etc. There is also a working group concerned with NOS, in which it is believed that representatives from ASDC that is SSC in the automotive sector, the Department of Industries and the Labour and Employment Department in Tamil Nadu State are also involved.</p> </li> </ul>

Source: from Websites of each donor country and international organisation and by interviews with related personnel

## 6-2 Framework of support by JICA

Several options exist such as a technical cooperation project as well as Official Development Assistance (ODA) loans (Yen loans) and grant aids as the JICA support for human resource development in general. This report describes general frameworks of a technical cooperation project that can be said to be a core of JICA's assistance in human resource development and also the ODA loan as seen in the ongoing implementation of the "Tamil Nadu Investment Promotion Programme (TNIPP)" for Tamil Nadu State.

### (1) Technical Corporation

Types of Technical Corporation are as follows: (Excerpts from JICA Website<sup>26</sup>)

#### (i) Dispatch of Experts

*Japanese experts are dispatched to developing countries to disseminate necessary technologies and knowledge to partner country government officials and engineers (counterparts). At the same time, they cooperate with these counterparts in developing and spreading technologies and institutions suited to the conditions in those countries as well as conducting awareness-raising activities. Giving consideration to a partner country's regional characteristics, historical background and language, when appropriate, JICA dispatches experts from third countries (countries other than Japan or the partner country) rather than experts from Japan in order to deliver services more efficiently.*

#### (ii) Acceptance of Training Participants

*JICA invites competent personnel in developing countries, who have significant responsibility in social and economic development, to Japan as training participants. They participate in training programs in Japan (see page 144, Training and Dialogue Programs in Japan, for details) and obtain knowledge and technologies needed in their home countries. JICA also organizes training programs in partner countries or in third countries.*

#### (iii) Provision of Equipment

*Equipment needed by experts for implementing effective cooperation is provided to partner countries.*

#### (iv) Technical Cooperation Projects

*Technical Cooperation projects, which optimally combine the "Dispatch of Experts," "Acceptance of Training Participants" and/or "Provision of Equipment" are the core operations of JICA's Technical Cooperation. Even more reliable project outcomes can be obtained through systematic and comprehensive project operation and implementation from planning to implementation and evaluation.*

*To raise a sense of ownership of developing countries, many Technical Cooperation projects adopt "participatory" methods, whereby local people in each project's target area participate in planning, operation management and evaluation activities. JICA also collaborates with private enterprises, universities, NGOs and other organizations to utilize their cumulative experience, knowledge and know-how in projects in order to address more-complex and high-level issues.*

#### (v) Technical Cooperation for Development Planning

*While supporting developing countries' policymaking and public works plans, JICA transfers technologies, including survey/analysis methods and planning methods to counterparts in the partner country.*

<sup>26</sup> [http://www.jica.go.jp/english/our\\_work/types\\_of\\_assistance/tech/projects/index.html](http://www.jica.go.jp/english/our_work/types_of_assistance/tech/projects/index.html)

## (2) Types of ODA Loans

ODA Loans are divided into two categories; Project-Type Loans and Non-Project Loans.

The following excerpts from JICA Website<sup>27</sup> summarise types of loans available:

### **[Project-Type Loans]**

#### (i) *Project Loans*

*Project loans, which account for the largest portion of ODA Loans, finance projects such as roads, power plants, irrigation, water supply and sewerage facilities. The loans are used for the procurement of facilities, equipment and services, or for conducting civil and other related works.*

#### (ii) *Engineering Service (E/S) Loans*

*Engineering Service (E/S) loans are for engineering services which are necessary at the survey and planning stages of projects. These services include reviews of feasibility studies, surveys on detailed data on project sites, detailed designs and the preparation of bidding documents. In the same manner as Project Loans, completion of feasibility studies or their equivalent and confirmation of the project's overall necessity and relevance are prerequisite for this type of loan.*

#### (iii) *Financial Intermediary Loans (Two-Step Loans)*

*Financial intermediary loans are implemented through the financial institutions of the recipient country based on the policy-oriented financial system of the partner country. These loans provide funds necessary for the implementation of designated policies, such as the promotion of small and medium-scale enterprises in manufacturing, agriculture and other specified industries and the construction of facilities to improve the living standards of the poor. These loans are known as “two-step loans (TSL)” because under the process, funds pass through two or more financial institutions before the end-beneficiaries receive the funds.*

*Under this type of loan, funds can be provided to a large number of end-beneficiaries in the private sector. Since these loans are implemented through local financial institutions, strengthening of the operational capabilities of these institutions and the development of the financial sector of recipient countries are also expected as the result of these loans.*

#### (iv) *Sector Loans*

*Sector loans are for materials and equipment, services and consulting required for the implementation of development plans in a specific sector consisting of multiple sub-projects. This type of loan also leads to improved policies and systems in the sector.*

### **[Non-Project Loans]**

#### (i) *Program Loans*

*Program loans assist recipient countries seeking to improve policies and implement general system reforms. Compared with former structural adjustment loans, these loans support implementation of national strategies or of poverty reduction strategies over longer time spans. Loan agreements are signed and funds are provided based on confirmation that reform items have been achieved by the partner country's government. In recent years, the most common type of these loans is one in which proceeds are incorporated into the target partner country budget (called a “backward-looking” type loan). In confirming achievement, consultation proceeds with future reform items in support of reforms based on a long-term framework. There are many instances in which these types of loans take the form of co-financing with the World Bank and other multilateral development banks (MDBs).*

#### (ii) *Commodity Loans*

*In order to stabilize their economy, commodity loans provide settlement funds for urgent and essential imports of materials to developing countries that are experiencing a worsening foreign currency situation and facing economic difficulties. These loans are often used to import commodities such as industrial machinery and raw materials, fertilizer and pesticide, agricultural and other kinds of machinery, which are agreed upon beforehand between the Japanese and recipient governments.*

<sup>27</sup> [http://www.jica.go.jp/english/our\\_work/types\\_of\\_assistance/oda\\_loans/overseas/types.html](http://www.jica.go.jp/english/our_work/types_of_assistance/oda_loans/overseas/types.html)

*(iii) Sector Program Loans*

*This type of loan is a Commodity Loan used simultaneously to support development policies in prioritized sectors of developing countries. Local currency (counterpart) funds received by the government as payment for foreign currency sold to importers are utilized for public investments for sector-specific development.*

The above-mentioned TNIPP is the type of Program Loans in the category of Non-Project Loans.

### **6-3 Outline of the projects for technical cooperation**

(1) Basic frame of JICA's technical assistance (proposed by JDS)

It can be said that meeting the requests by SSC and TNSDC for assistance in ToT as mentioned in 5-3 is essentially necessary support to aim at producing industrial human resources that acquire skills in a long-term and sustainable manner in Tamil Nadu State. However, it will usually take several years until training instructors who received ToT first can actually help students they teach to graduate as industrial personnel with certain skills in general terms. It is because the fostering of training instructors generally requires more time than the fostering of workers, and it can be said to be an inevitable "time cost" when carrying out the support for ToT on a full scale.

On the other hand, a scheme that enables the supply of industrial human resources can be started to a certain extent in the short term is required for resident companies of Chennai as the employers' side, because situations are not uncommon in which human resources are already tight even at the operator level. The opinion "We would like to request the JICA project to build a system in which the supply of industrial human resources can be started surely in the short term, although we know that it is impossible to request the production of human resources that acquire technologies perfectly from the next year after its initiation" (talks by concerned personnel of JETRO/the Japanese Chamber of Commerce and Industry, Chennai) is also an imminent need (their real intention) that cannot be ignored in terms of benefits for Japanese manufacturing companies. In this regard, it can be interpreted that the fact that TNSDC is promoting the partnership with and the commissioning to public and private excellent vocational training institutions in the state as its own activities and that have already performed the wider expansion of vocational training programmes (mainly for a short-term period) since fiscal 2013 is actually the movement that is consistent with short-term needs of the demand side (companies) to some extent in addition to the promotion of employment for the supply side (workers).

In addition, the engagement in expanding networks between the industry side and vocational training institutions and strengthening vocational training systems based on the industry needs as a result, as brought up broadly as a challenge in various documents related to industrial development policies and vocational training policies in the state and during the interviews with administrative officials, etc. in this study can be featured as the support to TNSDC that is

required for both the ToT described above (oriented to a long-term period) and the wider expansion of short-term courses in partnership with in-state public and private institutions (oriented to a short-term period).

In light of the above aspects, the JICA's support scheme relevant to the development of human resources for the manufacturing sector in Tamil Nadu State can be shown with the following figure and table in summary:

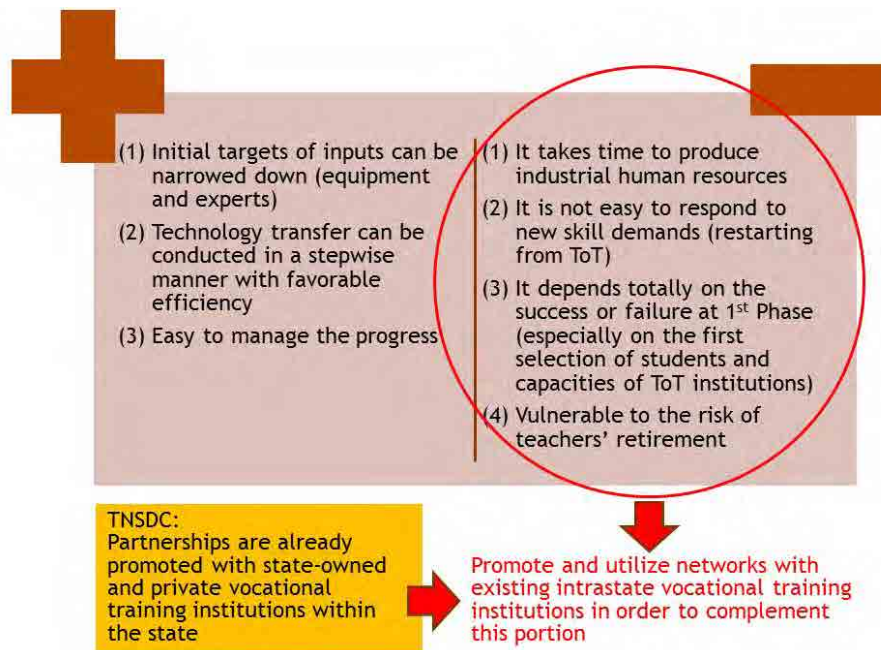


Fig. 6.1 Advantage (benefit) and disadvantage (risk) of the cascade type

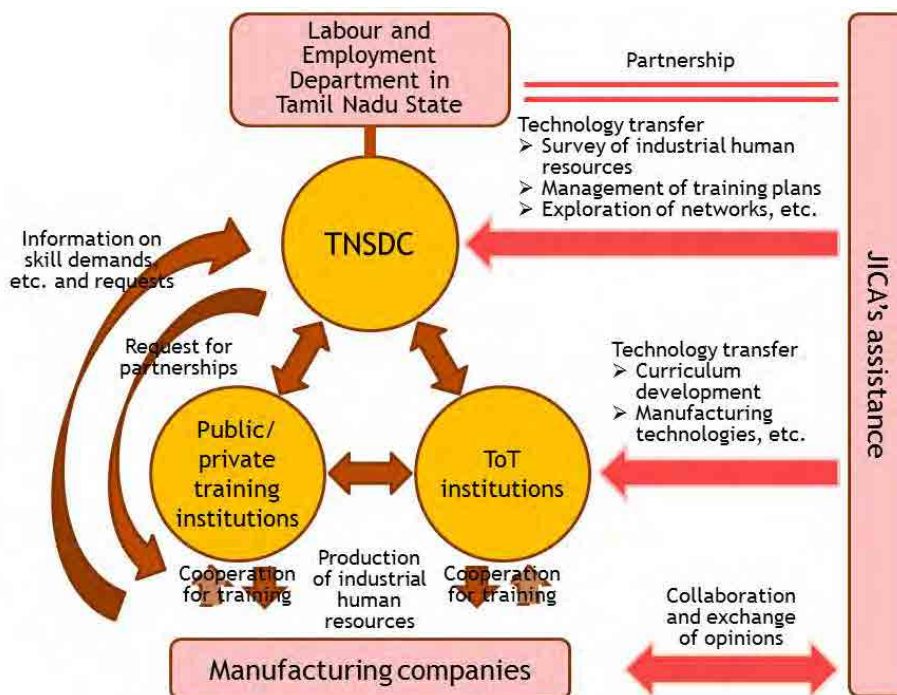


Fig. 6.2 Proposed scheme for a JICA's technical assistance



The relationship between TNSDC and ToT Institutions in Fig. 6.2 is the “long-term-oriented” activity, while the relationship between TNSDC and public/private training institutions is the “short-term oriented” activity. Then it can be said that the actions that TNSDC invites companies that make cooperation in the form of dispatching lecturers to ToT Institutions and other public/private institutions and accepting study visits and practical exercises at factories among manufacturing companies as a part of CSR (Corporate Social Responsibility) activities and expands the public-private collaborative network in vocational training are the activities in line with the state’s industrial human resources development policy in the “Tamil Nadu Industry Policy 2014” and “Tamil Nadu Automotive and Auto Components Policy 2014” outlined in 4-2. In addition, mutual relationships between each of the major institutions in Table 6.2 are summarised in the following table:

Table 6.2 Interrelationship of each institution

Classification of institution	Role
TNSDC	<ul style="list-style-type: none"> <li>• For ToT institutions: examination of the composition of curricula for training teachers based on skill demands from manufacturing companies with JICA experts, making a proposal to ToT institutions (and its concerned institutions) with coordination</li> <li>• For public/private training institutions: Examination and database development regarding situations of distribution of existing resources in intrastate training institutions in response to skill demands and siting of manufacturing companies</li> <li>• For manufacturing companies: survey of information on skill demands, encouragement of graduates’ employment, requests for cooperation in technical guidance at public/private training institutions or ToT institutions (* where possible)</li> </ul>
ToT institutions	<ul style="list-style-type: none"> <li>• For TNSDC: situations of ToT, reporting of problems, demands for assistance, etc.</li> <li>• For training institutions: Training and production of teachers (equivalent to the qualification test for engineers and operators: grades 2 - 1 in Japan)</li> <li>• For manufacturing companies: production of industrial human resources (*equivalent to the qualification test for engineers and operators: grade 3 in Japan, when they teach general students as well) (* if there are cooperating companies among local suppliers)</li> </ul>
Public/private training institutions	<ul style="list-style-type: none"> <li>• For TNSDC: Proposals for training plans, reporting of the status of training, etc.</li> <li>• For ToT institutions: Sending teaching staff out to ToT, requests, etc.</li> <li>• For manufacturing companies: Production of industrial human resources (equivalent to the qualification test for engineers and operators: grade 3 in Japan)</li> </ul>
Manufacturing companies	<ul style="list-style-type: none"> <li>• For TNSDC: provision of information on skill demands, requests for coordination of training institutions for recruiting and training, etc.</li> <li>• For training institutions: participation in technical guidance (* where possible), requests for recruiting and training</li> <li>• For ToT institutions: participation in technical guidance (* where possible), requests for recruiting and training (* when teaching general students or external human resources), cooperation for training in Japan (* study tours at head factories and training facilities, etc.)</li> </ul>

(2) Concerning further detailed design

1) Selection of technologies to be supported, ToT institutions and partner institutions

A total of eleven fields of vocational training needs were recognised for the side of manufacturing companies in this study, as summarised in Table 5.5 (welding, machine work (machining, etc.), metal stamping, plastic molding, casting, die, coating, assembly, soft skills, basic English, and production management). Because such fields as welding and machine work are of higher priority as the needs of the corporate side, they should be considered in a higher priority. Because private institutions with proven performances of ToT are present in

addition to national ATI within the state, the finalised selection of assistance fields, ToT institutions and partnership institutions is required by additionally considering conditions such as situations of equipment preparations, siting (the distance from factory zone(s)), levels of teaching staff and training, acceptance capacities in these institutions in a detailed design study conducted by each expert on manufacturing technologies.

2) Initiation of collaboration with the company side

It will be possible to build a more effective JICA support by initiating the exchange of views on the selection of an overall scheme, technologies to be supported, and supporting and collaborative institutions as well as draft curriculum modules from the stage of detailed design study described above in (1), and simultaneously by soliciting concrete cooperation for the JICA's support scheme from the company side.

3) Examination of PDM (draft) for a technical cooperation project

In preparing the draft PDM (Project Design Matrix), it is desirable to build a consensus among stakeholders through further obtaining the latest information and commonalising their awareness of issues and terminologies, including those of beneficiaries (training institutions, companies, etc.) by means of a participatory workshop on PCM (Project Cycle Management). The above 1) and 2) are also the matters that should be confirmed at the PCM workshop.

#### **6-4 Outline of the proposals for financing**

(1) Development of private training institutions through NSDC (proposed by JDS)

According to our interviews with NSDC (National Skill Development Corporation), NSDC's low-interest loans to private vocational training institutions are nationwide programmes, but it could also be carried out while limited to Tamil Nadu State. Thus, we believe that this can ensure the situation in which loan assistance is carried out in parallel in such a manner as to aim at expanding and enhancing private vocational training in the whole state for instance. As it has already been decided at the end of July this year that NSDA as the superior organisation of NSDC be absorbed into a new ministry named the Ministry of Skill Development, Entrepreneurship, Youth Affairs and Sports, and the situation is that the future organisational structure of NSDC is uncertain, however, so it has become necessary to assess the progress of such situations first of all for yen loans to the NSDC.

(2) Development of public training institutions and others through the TNIPP (Tamil Nadu Investment Promotion Programme) (proposed by JDS)

The Tamil Nadu State Government is carrying out vocational training programmes by commissioning to in-state vocational training institutions with its own budget separately from the

NSDC. A direct request for financial assistance does not come out from concerned officers of TNSDC or the Labour and Employment Department during the field survey, but it is reported that the State Governor expressed that international technical and financial assistance would be required for professional development in the Tamil Nadu State in January this year on the other hand.<sup>28</sup>

Items such as the authentication of vocational training courses of TNSDM (at that time<sup>29</sup>) and the introduction of vocational training to regular schools were already listed as items to be improved for human resources development (action plan) in JICA's "Tamil Nadu Investment Promotion Programme (TNIPP) Loan," and a proposal for a technical cooperation project in the previous section can also be positioned as an activity to complement the former in particular. This loan programme is intended to evaluate the degree of policy achievements in each fiscal year to carry out the loan in accordance with such achievements, and thus it would be worthwhile to include the hardware development for ITIs located near ToT institutions and factory zones in its policy goals in the "TNIPP - Phase 2" that is considered for years in 2015 and later. It appears that this matter can practically be examined at the timing of the consultation under the TNIPP that is currently in progress in parallel with this study in this fiscal year.

---

<sup>28</sup> [http://www.business-standard.com/article/news-ians/tamil-nadu-to-seek-external-funding-for-skill-development-114013000712\\_1.html](http://www.business-standard.com/article/news-ians/tamil-nadu-to-seek-external-funding-for-skill-development-114013000712_1.html)

<sup>29</sup> TNSDM (Tamil Nadu Skill Development Mission) which was organized in 2009 became TNSDC after reorganized in 2013 (Source: the document of TNSDC). However, the actual situation is that the designations of TNSDM and TNSDC are still confounded among related staff of local administrative agencies and vocational training institutions. (The governor's remark is also similar as it in the above article of Business Standard.)