

## CHAPTER 6 MEASURES TO ACCELERATE THE PROJECT IMPLEMENTATION

### 6.1 ORGANIZATIONAL DEVELOPMENT FOR HHTP-MB AND DEVELOPERS

Given the importance of the HHTP-MB' role in the project, it is necessary to develop adequate organizational structure of the HHTP-MB and the division of work plan with developers.

This section attempts to make recommendations for the division of work for infrastructure development project at first, and then, to provide the preliminary proposal of PMU, to make recommendation on operation and maintenance structure, and investment promotion structure.

#### 6.1.1 Recommendation on Division of Work for Infrastructure Development Project

##### (1) Construction of Infrastructure

Following table shows recommendation on division of work for construction of infrastructure.

**Table 6.1.1 Recommendation on Division of Work for Construction**

Work		Main Infrastructure		Infrastructure in Functional Zone	
		PMU	Supplier	PMU	Developer
1	Removal of obstacle	X X		X X	
2	Earth works	XX			X X
3	Road construction	X X			X X
4	Installation of water pipes	X X			X X
5	Installation of storm water pipes	X X			X X
6	Installation of wastewater pipes	X X			X X
7	Electrical work (Hoa Lac 110/22 kV No.1 S/S)	X X (Note 1)			
8	Electrical work (wiring)	X X (Note 1)			X X
9	Telecommunication work	X X			X X

Source: JICA Study Team

Note 1: PMU should request construction supervision of the Power Company and handover the facilities to the Power Company after completion of construction.

On the above table, it should be noted that PMU undertake work of developer in R&D Zone and Education & Training Zone as mentioned previously.

Coordination work is crucial when more than one organization engages a project, but it is sometime disregarded. Without coordination work, the different organizations are not brought into a harmonious relationship. According to Decision No. 391/QD BKHCN, the HHTP-MB has responsibility and authority for coordinating in the fields related to HHTP development and construction investment.

##### (2) Procurement Work

Following table shows the recommendation on procurement work for the infrastructure development project, except for procurement work to be done by contractors.

**Table 6.1.2 Recommendation on Division of Work for Procurement**

Procurement Item		Purchaser
1	Buses for Internal Transport System	HHTTP-MB

Source: JICA Study Team

### 6.1.2 Preliminary Proposal of PMU

The HHTTP-MB needs to formulate the organizational structure of PMU.

#### (1) Function and Tasks of PMU

PMU should have the functions and tasks described below. For items 1) and 2) below, the details are given in the Circular 03/2007/TT-BKH of March 12, 2007, issued by MPI.

##### 1) General functions and tasks

- a) Planning tasks, including elaborating an overall plan and detailed annual plans on program or project implementation (disbursement plan, spending plan, bidding plan, etc.).
- b) Tasks of management of preparation for program or project implementation.
- c) Tasks of bidding and contract management.
- d) Tasks of financial and asset management and disbursement.
- e) Administrative and coordination tasks and responsibility of justification.
- f) Tasks of monitoring, evaluating and reporting program or project implementation.
- g) Tasks of take-over, hand-over and financial settlement of programs or projects.

##### 2) Particular tasks

- a) Tasks shall be defined in the Regulation on organization and operation of PMU or in each specific authorization document.
- b) When international agreements on ODA signed with donors define the organizational structure of project management, tasks and responsibilities of PMU, these provisions shall be concretized and fully defined in the Regulation on organization and operation of PMU.

##### 3) Other tasks

- a) PMU shall perform other tasks within the scope of programs or projects assigned by the agency deciding on establishment of PMU.
- b) Common infrastructure should be designed consistently with all the functional zones. From viewpoints of infrastructure design, it is desirable that common infrastructure be designed after design of all functional zones is completed. However, in case of this way, it will take long time before starting common infrastructure design, because some functional zones may be designed at later stage. On the other hand, in case that common infrastructure is designed without waiting for such late functional zones, PMU shall determine the conditions of interface between common infrastructure and each functional zone, for example, the location and size of tie-in points of water supply piping and electric power cable.
- c) PMU shall coordinate planning, design, and construction work with Ministries, Departments of HPC, agencies, development companies, and investors in R&D Zone and Education & Training Zone, for examples:

- MOC (Planning, design, and construction work in HHTP)
  - MOT (Planning, design, and construction work of LHLE, NH21B, UMRT, and BRT)
  - MARD (Retention function in HHTP)
  - HPC, Department of Industry and Trade (regional power supply plan)
  - HPC, Department of Planning and Architecture (participate in Appraisal Council)
  - Professional Departments of HPC (to be invited to Appraisal Council)
- d) HHTP-MB need to strengthen their professional organization to have adequate capacity to implement appraisal of basic designs of construction works in HHTP.

## (2) Required Organizational Structure of PMU

The HHTP-MB needs to newly establish PMU specialized for ODA projects, in addition to the existing organizational structure of the HHTP-MB. Following activities are not included in the duty of PMU.

- Any work in North Phu Cat Area
- Work inside the functional zones except for R&D Zone and Education & Training Zone
- Operation and maintenance of the existing infrastructure in HHTP
- Investment promotion

The HHTP-MB needs to establish the organizational structure of PMU as follows in accordance with Circular 03/2007/TT-BKH of March 12, 2007, issued by MPI. The details are given in the circular.

### 1) Basic Requirements for Organization and Personnel

- a) PMU shall have a proper organizational structure and enough personnel with relevant capabilities and experience to ensure efficient and sustainable management of program or project implementation. In specific cases, key titles of PMU may be subject to agreement of donors according to donors' rules.
- b) The functions, tasks, responsibilities and powers of each division or department; and work relations between divisions and departments shall be clearly specified in the Regulation on organization and operation of PMU.
- c) Each title and position in PMU must have the Terms of Reference worked out by PMU director and must be publicized in PMU and units of the agency deciding on establishment of PMU. The Terms of Reference must specify requirements on professional capabilities, scope of responsibilities and powers, remuneration, reporting and work result evaluation regulations.
- d) Key titles of PMU include director, deputy director (if any), chief accountant or accountant should be appointed or dismissed by the agency deciding on establishment of PMU.
- e) Employees of PMU who are selected from the personnel of the agency deciding on establishment of PMU shall be approved by this agency. PMU may recruit and employ outsiders on a contractual basis. Recruitment of PMU staffs must base on the standards on expertise, experience and personal qualities specified in the Terms of Reference and must comply with current law and international agreements on ODA signed.

- f) PMU director must possess ethical qualities; professional and leadership capabilities; and experience in program and project management. Those who are proficient in foreign languages relevant to the assigned programs or projects shall be prioritized. PMU director must be in the working age group throughout the programs' or projects' life specified in program or project documents.

## 2) Organizational Structure of PMU

PMU's organizational structure usually consists of:

- a) The administrative, organizational and supportive section.
- b) The functional section in charge of planning, bidding, finance, ground clearance and other necessary activities.
- c) The technical section in charge of supervision of design, construction and environment or different technical parts of programs or projects.

## (3) Preliminary Proposed Four Options

Table 6.1.3 shows four options of PMU organizational structure, which JICA Study Team presented to the Chairman of HHTP-MB in January 2009, to help the HHTP-MB to make the organizational structure plan of PMU.

The HHTP-MB provisionally regarded those options as follows:

- It may be difficult to establish PMU directly under the Prime Minister, because there is not an example in Vietnam and the Prime Minister will issue soon a new HHTP regulation to give the HHTP-MB higher position in MOST.
- It may be difficult to establish PMU under direct control of MOC, because this option will require lengthy discussion in depth with MOC and decision of the Prime Minister.

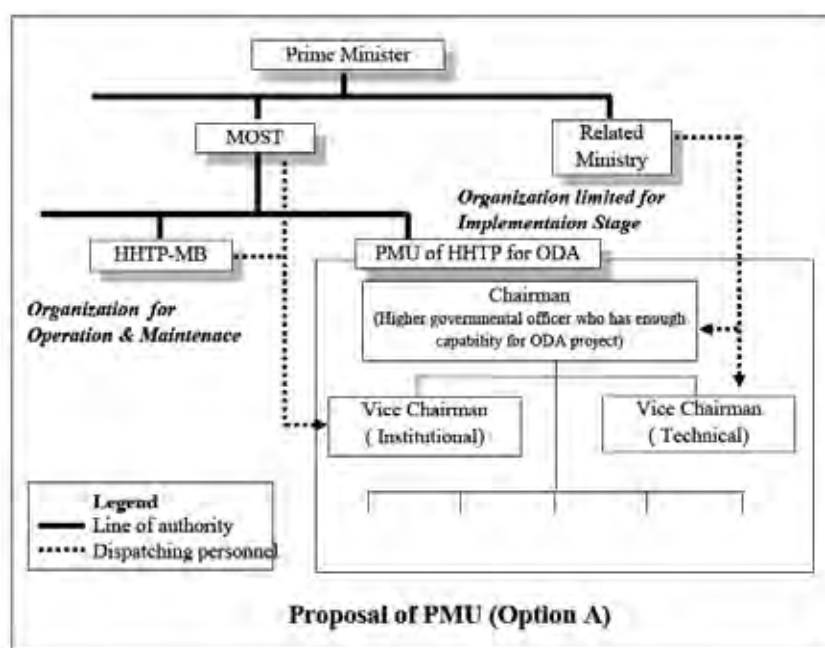
The HHTP-MB needs to formulate the organizational structure plan in consultation with the Minister of MOST, taking account of: compliance with Vietnamese regulations; establishment of cooperative relation with MOC; and assignment of higher administrative authority.

Simplified organization charts are shown below for Option-A and C, which are regarded as options with less difficulty in administrative procedure for establishing the PMU judging from the above provisional opinion of the HHTP-MB.

**Table 6.1.3 Preliminary Proposed Options**

	Supervisory authority of PMU	Relationship with HHTP-MB	Director of PMU
Option-A	MOST	PMU is positioned at the same level as HHTP-MB	Higher governmental officer who has enough capability for ODA project.
Option-B	MOC	PMU is positioned at the same level as HHTP-MB	Vice ministerial level officer of MOC.
Option-C	MOST (Under the direct control of the Chairman of HHTP-MB)	PMU is positioned in the HHTP-MB	Vice Chairman of HHTP-MB who has experice in ODA projects.
Option-D	HHTP-MB is upgraded to the position under direct control of Prime Minister. PMU is positioned under direct control of the Chairman of HHTP-MB	PMU is positioned in the HHTP-MB	Vice Chairman of HHTP-MB serves concurrently as Director of PMU, who shall be assigned by the Prime Minister.

Source: JICA Study Team



**Figure 6.1.1 Proposed Organization Chart of Option-A**

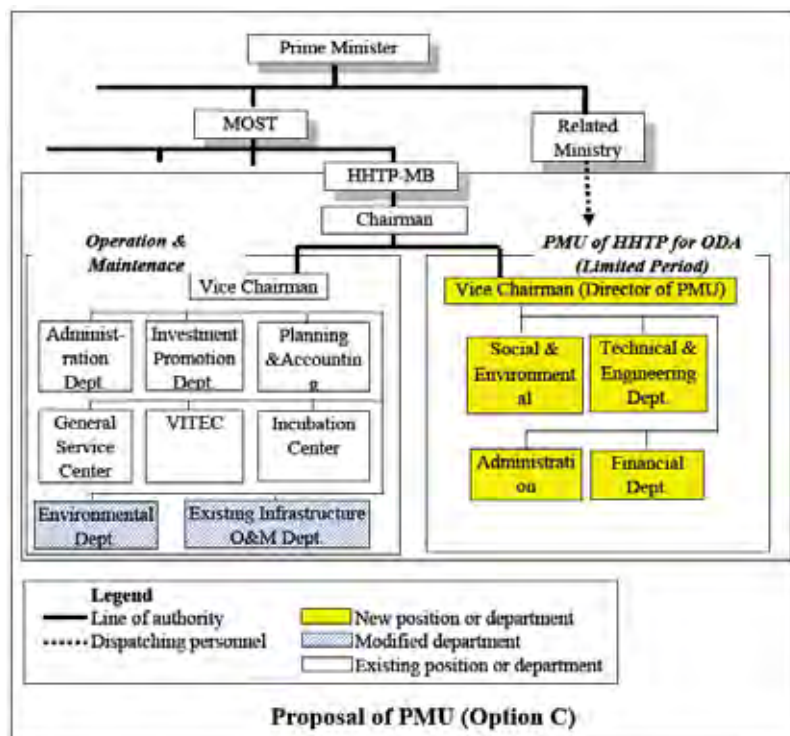


Figure 6.1.2 Proposed Organization Chart Option-C

### 6.1.3 Recommendation on Operation and Maintenance Structure

#### (1) Structure for Operation and Maintenance of Infrastructure

Table 6.1.4 shows the recommended organization for operation and maintenance of infrastructure. Following structures are recommendable for operation and maintenance of infrastructure.

- VINACONEX is responsible for supplying water from Da River Water Supply Project to the HHTP-MB via water pipes that have been installed. The HHTP-MB are responsible for supplying water that is received from VINACONEX to developers via own water pipes.
- As for storm water system, wastewater system, and road, the HHTP-MB is responsible for operation and maintenance of infrastructure outside the block of functional zone. Developers are responsible for maintenance of own facilities in the block of functional zone.
- As for internal transit system, the HHTP-MB is responsible for operation and maintenance.
- Power Company is responsible for supplying electricity through the facilities handed over and doing maintenance on these facilities. Developers are responsible for supplies electricity that is received from the Power Company to own tenants via own facilities in the functional zone and doing maintenance on these facilities.
- The HHTP-MB shall consign operation and maintenance for telecommunication work to a supplier.
- URENCO is responsibilities for providing service of solid waste management directly to individual tenants or customers in HHTP and doing maintenance on own facilities.

(Note) In the above sentences, developer of R&D Zone and Education & Training Zone is the HHTP-MB for operation and maintenance.

**Table 6.1.4 Recommended Operation and Maintenance Structure**

		Main Infrastructure		Infrastructure in Functional Zone	
		HHTTP-MB	Supplier	Developer	Supplier
1	Water Supply System	XX	(Note)	XX	
2	Storm Water System	XX		XX	
3	Wastewater System	XX		XX	
4	Roads	XX		XX	
5	Internal Transport System	XX			
6	Power Supply System		XX (Power Company)	XX	
7	Telecommunication	XX	(Note)	XX	
8	Solid Waste Management		XX (URENCO)		XX (URENCO)

(Note) The HHTTP-MB shall consign O&M to supplier.

Source: JICA Study Team

## (2) Collection System of Charges

Table 6.1.5 shows the recommendation on collection system of charges for utilities and services provided in HHTTP.

It is recommended that developers collect charges for utilities or services from individual tenants and pay collected charges to the suppliers or the HHTTP-MB, except for internal transport system and telecommunication. Individual passengers pay fare for internal transport system directly to the operation body (HHTTP-MB). Individual tenants or customers in HHTTP pay telecommunication charge directly to telecommunication companies.

**Table 6.1.5 Recommended Collection Systems of Charges**

		Collection of Charges for Utilities or Services
1	Water Supply System	Tenants → Developer → HHTTP-MB → Supplier
2	Storm Water System	Tenants → Developer → HHTTP-MB
3	Wastewater System	Tenants → Developer → HHTTP-MB
4	Roads	Tenants → Developer → HHTTP-MB
5	Internal Transport System	Passenger → → → → → HHTTP-MB
6	Power Supply System	Tenants → Developer → Supplier (Power Company)
7	Telecommunication	Tenants → HHTTP-MB → Supplier
8	Solid Waste Management	Tenants → → → → → Supplier (URENCO)

Source: JICA Study Team

## 6.1.4 Recommendation on Investment Promotion Structure

### (1) Structure for Investment Promotion

It is recommended that the HHTTP-MB and developers cooperate and work together for investment promotion. The table below shows the recommended division of work so that the HHTTP-MB and developers could well cooperate for investment promotion.

Basic concept of recommended division of work is that the HHTTP is responsible for investment promotion concerning the whole HHTTP, R&D Zone, and Education & Training Zone and for administrative matter; and each developer is responsible for investment promotion concerning the appointed functional zone.

**Table 6.1.6 Recommended Structure for Investment Promotion**

Work		HHTP-MB	Developers
1	Select developers and conclude contract with developers	X X	
2	Holding investment seminars	X X	X (Note)
3	Development of promotion materials including website and brochure for the whole HHTP	X X	X (Note)
	Development of promotion materials for the individual functional zones (if necessary)		X X
4	Continuous contact with potential investors to R&D Zone and Education & Training Zone	X X	
	Continuous contact with potential investors to the appointed functional zones		X X
5	Issuing investment certificate	X X	
6	Price setting for the individual functional zones		X X
7	Approval of price for the individual functional zones	X X	
8	Land sublease agreement with tenants		X X

Note: Developer will support the HHTP-MB to hold investment seminars and develop the promotion materials for the whole HHTP.

Source: JICA Study Team

At first, the HHTP-MB needs to appoint developers so that they can start cooperative work with appointed developers. Then, persons in charge of investment promotion in the HHTP-MB and developers come together to form a committee to work cooperative for investment promotion.

(2) Other Recommendations on Investment Promotion

- 1) If HHTP-MB considers the developers do not have enough capacity and experience, HHTP-MB should induce developers to improve their project implementation structure by employing experienced persons and/or by developing cooperative relations with experienced companies like foreign developers of industrial parks.
- 2) FPT can not started full-dress activities for investment promotion yet, because they are still waiting for transferring the land use right. Under the circumstances, HHTP-MB is obliged to tentatively take charge of investment promotion for the whole area of the Feasibility Study. Together with land use right, HHTP-MB should also transfer its investment promotion activities to FPT.
- 3) Land Transfer from VINACONEX to FPT

Land of 34.5 ha in the High-tech Industry Zone is still managed by VINACONEX who invested there in the Step 1 of Stage 1. If the land is left as it is, it is hard to use the land effectively because this part has irregular shape, and it is difficult to provide the same service to tenants by the uniform operation and maintenance structure recommended above.

VINACONEX and FPT have negotiated with each other. However, they haven't reached the final agreement of how they will transfer, or in return whether FPT has to grant any business right to VINACONEX.

The HHTP-MB only carries out some administrative actions to speed up their negotiation, because it has no authority to force them.

The GOV is needed to grant sufficient authority to the HHTP-MB to force the agreement on this issue.



4) Marketing of Greenfield Site

In Stage 2 area of High-tech Industry Zone-1, a tenant is constructing factory at present. As the matter of course, this construction site is Greenfield where technical infrastructure will not be developed until completion of Stage 2.

According to the HHTP-MB, the tenant by itself is going to arrange power supply and telecommunication service, and to dig wells for water supply. The tenant will manufacture mobile phones. Although it is not surveyed whether the tenant will manufacture printed circuit board (PCB) for mobile phones or not, manufacturing of PCB consumes a large amount of water and exhaust waste water containing hazardous chemical substances.

As marketing of Greenfield site is just selling the use right of bare land, it is quite easy. However, it cannot provide tenants with infrastructure and services, which will disturb the harmonious development of HHTP. Besides, it may cause environmental problems, unless the tenant itself provide own wastewater treatment facility.

The HHTP-MB should keep off further marketing of Greenfield site to maintain order of development.

6.1.5 Recommendation on One-Stop Service Structure

It is recommended that developers should provide One-stop Service to investors/tenants so that investors/tenants could deal with problems by contacting with the Provider of One-stop Service. The HHTP-MB needs to induce the developers to form the required One-stop Service Structure and monitor the performance of One-stop Service.

Following table shows the recommended One-stop Service that is not only for pre-investment stage of investors/tenants but also for their investment and operating stages.

**Table 6.1.7 Recommended One-Stop Service to be Provided by Developers**

		Stage for Investors/Tenants		
		Pre-investment	Investment	Operation
1	Providing support to apply for investment certificate with the HHTP-MB	X		
2	Providing support to conclude contract of utilities and services		X	
3	Introducing professional advisory firms for legal service, lawyers, accounting, whenever the investors/tenants request	X	X	X
4	Taking necessary actions to let the responsible organizations respond complaints/requests from the investors/tenants			X
5	Conveying messages from related agencies such as an urgent notice of blackout to the investors/tenants			X
6	Introducing labors to the investors/tenants whenever they request		X	X
7	Organizing conferences inviting the investors/tenants, the HHTP-MB, and related agencies to deal with the issues common to every the investors/tenants, for example, countermeasures for new legal document, labor difficulty, and change in taxation			X

Source: JICA Study Team

The HHTP-MB should introduce the developers to establish the structure for one-stop service referring the following figure.

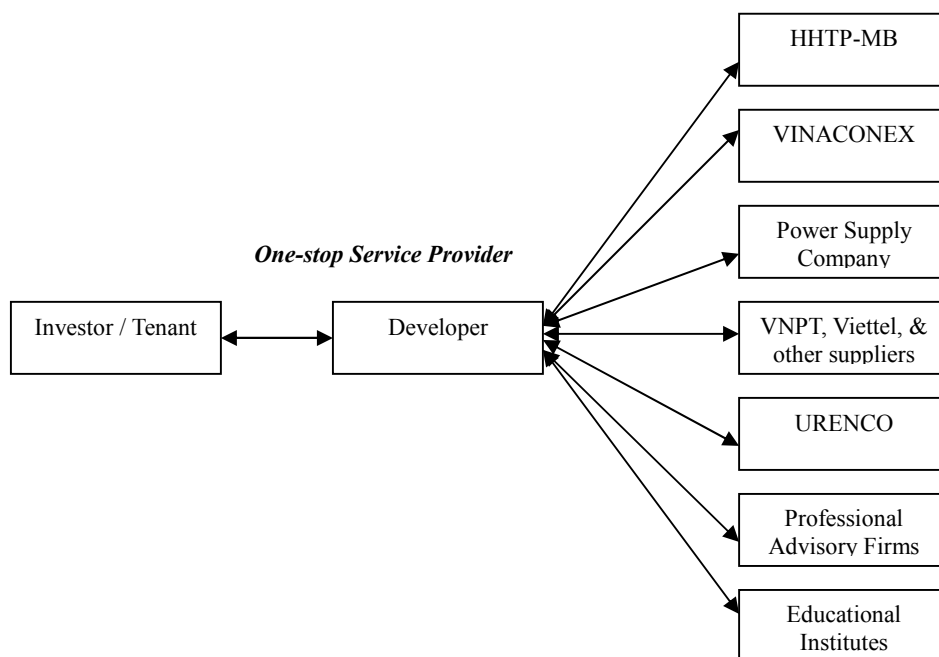


Figure 6.1.3 Recommended One-stop Service Structure

## 6.2 IMPROVEMENT OF PREFERENTIAL TREATMENT TO INVESTORS

### 6.2.1 Corporate Income Tax

The preferential rate of corporate income tax (CIT) for HHTP is 10% for 15 years from the first year in which the enterprise has turnover. CIT is exempted for 4 years from the first year in which the enterprise has taxable income and CIT rate is reduced to 5% for 9 subsequent years. Since the condition of the incentive on the corporate income tax do not differentiate HHTP from some other enterprises, specialized incentives only for HHTP has been discussed by order of the Prime Minister.

It is recommended only for HHTP that the duration of preferential tax rate be extended to 30 years or the whole duration of project implementation to differentiate HHTP from other enterprises.

This recommendation is made in line with the following regulations.

- 1) Article 3 of Decision 53-2004-QD-TTg on a number of policies on encouraging investment in high-tech zones (dated April 5, 2004) stipulates that investors shall be entitled to the corporate income tax rate of ten (10) per cent for the whole duration of project implementation; and they shall be exempt from corporate income tax for four years as from when they have taxable income and shall be entitled to a reduction of fifty (50) per cent of the amount of tax payable for the following nine (9) years.
- 2) Article 15, Clause 2 of 124/2008/ND-CP Detailed regulations and guidelines for implementation of the Law on Corporate Income Tax (dated December 11, 2008) stipulates that the duration of preferential tax rates may be extended in the case of large scale and high-tech projects which particularly need to attract investment, but the duration shall not exceed 30 years.

**Table 6.2.1 Recommendation on CIT**

Current CIT incentives for HHTP	Recommendation
The preferential rate of CIT for HHTP is 10% for 15 years from the first year in which the enterprise has turnover. CIT is exempted for 4 years from the first year in which the enterprise has taxable income and CIT rate is reduced to 5% for 9 subsequent years.	The duration of preferential rate is extended to 30 years.
	The duration of preferential rate is extended to the whole duration of project implementation..

Source: JICA Study Team

### 6.2.2 Personal Income Tax

By enforcement of Law on personal income tax 04-2007-QH12 from January 1, 2009, tax rate of personal income tax (PIT) was reduced from 40% to 35% for the highest income level resident and reduced from 25% to 20% for non-resident. However, tax rate of PIT is still higher than that in the advanced industrial counties and there are no PIT incentives for encouraging high-tech.

It is really required for Vietnam to invite many specialists from advanced industrial countries for research of science and technology fields, high-tech education and training, high-tech production, and software development, in order to promote high-tech in the country. However, high rate of PIT in Vietnam will probably discourage initiatives of these specialists from the advance industrial counties.

It is recommended that GOV discuss PIT incentives to encourage high-tech in Vietnam.

**Table 6.2.2 Recommendation on Personal Income Tax**

Current PIT in Vietnam	Recommendation
Tax Rate · Resident: 35% for highest income level · Non-resident; 20%	To discuss PIT incentives in Vietnam

Source: JICA Study Team

### 6.2.3 Import Tax

The exemption of the import tax for HHTP is applied as follows at this moment:

- Exemption of the import tax on fixed assets.
- Exemption of the import tax for 5 years on raw materials and semi-products to be used for manufacturing, which are not produced within Vietnam.
- Exemption of the import tax on commodities directly used for scientific researches and technical developments.

In order to attract foreign investments and location and R&D facilities, it is recommended to eliminate import tax on all commodities used by investors and researchers in HHTP and to liberalize import of used machinery.

### 6.2.4 Other Incentives

Although the HHTP-MB has offered the following incentives, they have not realized them yet. It is indispensable to realize those incentives as offered.

- Acquisition of Multi-entry Visa for foreigners.
- Administrative procedure for One-Stop Services for investors.

In addition it is necessary to ease regulations to open markets for various service industries in HHTP such as restaurants, serviced apartments for foreigners, and supermarkets for foreigners.

## **6.3 DEVELOPMENT GUIDELINES AND RULES FOR LAND LEASE CONTRACTS**

### 6.3.1 Development Guidelines

If individual projects are approved and implemented without coordination, it is unable to achieve a harmonious development of HHTP. Following guideline is prepared so that the HHTP-MB could guide various developers' work in order to achieve the harmonious development of HHTP.

#### (1) [Section-1] General

##### 1) Objectives

- 1.1 To ensure an eco-friendly environment, harmony between Zones and linkages with surrounding related developments.
- 1.2 To ensure safety and security conditions for the activities and properties in the Park.
- 1.3 To protect the environment and scenery of the natural resources inside and surrounding the Park.
- 1.4 To maximize the utilization of the facilities in the Park.
- 1.5 To promote synergy among the activities in the Park.

##### 2) Prohibitions

- 2.1 Any activities against the objectives set in Section-1.
- 2.2 Any environmental pollution or contamination.
- 2.3 Any activities that destroy property or restrict activities in the Park.
- 2.4 Utilization of dangerous, hazardous or toxic materials is prohibited without written approval of the Management Board of Hoa Lac High-Tech Park (hereinafter refer as HHTP-MB) and without the user providing a guarantee of safe handling, use, compliance with occupational health and safety laws, emergency containment, cleanup and disposal procedures.
- 2.5 Violation of the laws and regulations issued by GOV and rules sets by the Park.

##### 3) Alteration of the Operation and Uses

- 3.1 Alteration of the operation and uses of the Zones may be considered by HHTP-MB as far as it is necessary to ensure the activities of the Zone.
- 3.2 Changes which would cause damage, loss or disadvantage to other activities in the Park are prohibited.
- 3.3 The Development Company (hereinafter referred to as the DC) shall be responsible for settling and solving claims including all costs related to any alterations that are made.
- 3.4 In the case where the alteration is required to comply with governmental laws, the written approval of the HHTP-MB shall be required.

- 3.5 The DC shall start construction works within one (1) year after the date of signing the utilization and/or lease agreement by HHTTP-MB. Full development shall be achieved within three (3) years after the date of signing the agreement and before year 2012.
- 3.6 In the case of a failure to achieve the requirements of Article 3.5 above, the DC shall forfeit the unfinished development together with all unfinished structures in the Zone as well as expenses paid for the construction and decamp/demobilization for the DC's activities. HHTTP-MB shall be free to take possession of the Zone together with all unfinished structures and withdraw all rights held by the DC for development of the Zone.

(2) [Section-2] Controls

1) Approvals

- 1.1 The DC shall submit plans, internal regulations for the tenants and specifications to HHTTP-MB, including:
  - a. A detailed plan, including the Zonal infrastructure for road, drainage, water supply, power supply, sewerage and telecommunication conduits.
  - b. Consumption or demand estimation for water supply, power supply, sewerage and telecommunication.
  - c. Plan of infrastructure connection to the HHTTP common infrastructure based on the conditions given by the HHTTP-MB.
  - d. Landscape considerations, such as the lake side, greenery, parks, buffer zones and fences.
- 1.2 All development plans and internal regulations for the Zone shall be examined and approved by HHTTP-MB before and during operation.
- 1.3 Any construction and improvement work connected with the common infrastructure of the HHTTP shall be examined and approved by HHTTP-MB before, during and after construction work.
- 1.4 Designs and regulations for the items listed below shall conform to typical designs specified by HHTTP-MB.
  - a. Section of main roads.
  - b. Street lighting, signboards and road marking.
  - c. Retention pond, since each Zone is prohibited from increasing the original run-off capacity.
  - d. Underground space for power distribution lines and telecommunication cables.
  - e. Water supply back-up system, such as reservoirs and pumps, if necessary.
  - f. The Construction Byelaw for the Tenants.
- 1.5 HHTTP-MB shall review the plans to determine compliance with a) aesthetic and landscaping requirements to preserve the eco-friendly environmental condition of the Park, and b) the engineering requirements. The plans will be examined by the relevant government authority after approval from HHTTP-MB.
- 1.6 All submitted documents shall be signed by the General Director and with the company seal.

- 1.7 The DC shall not make any excuse about the issues described in the Internal Regulations by the reason only of approval of the plan by the relevant government authority.
  - 1.8 HHTTP-MB shall respond or give approval within fourteen (14) calendar days of receipt of the DC's application.
- 2) Construction Supervision
- 2.1 The DC shall obtain all necessary approvals and permits from authorized agencies for the construction work.
  - 2.2 The DC shall submit a construction schedule and inform the HHTTP-MB in writing no later than fourteen (14) calendar days before commencement of construction. The construction schedule shall include name of the Contractor, name of responsible/authorized person and the contact details including the address.
  - 2.3 The DC shall submit all revisions to the construction plan and schedule as soon as possible.
  - 2.4 No direct work affecting the HHTTP common infrastructure is permitted, except for the connection point, unless the DC obtains prior approval from HHTTP-MB.
  - 2.5 The DC shall inform HHTTP-MB in writing of the reason for all alterations to the schedule and of delays in the schedule or completion of construction.
  - 2.6 The DC shall demolish and/or remove temporary works and remove all waste, materials, and any facilities and/or equipment arising from its construction work within fourteen (14) calendar days of completion of the construction work.
  - 2.7 The DC shall notify the HHTTP-MB in writing of both completion of construction work and completion of demobilization within seven (7) calendar days of the completion and demobilization of the contractor's facilities and equipment.
- 3) Indemnification
- 3.1 The DC shall not obstruct the transportation network or damage the HHTTP common infrastructure and other property within the Park during construction work.
  - 3.2 The DC shall bear the cost of all compensation for the damages caused during construction work. Also the DC shall take out insurance to cover their own property in the Park in respect of loss and liability risks.
  - 3.3 The DC shall accept full responsibility and indemnify HHTTP-MB against all incidents, claims, compensation and expenses due to the DC's construction work and/or any act, negligence or default of the DC.
- (3) [Section-3] Specific Construction Controls
- 1) Landscape
    - 1.1 The DC shall be responsible for the landscaping, appearance and maintenance in the Zone. This responsibility shall include greenery, design works and building controls.
    - 1.2 The landscape must be in harmony with adjoining landscaping to maintain the identity of the Park.
    - 1.3 The DC shall observe a twenty (20) meter (m) setback and control the development work that will be done by the Tenants of the Zone.

- 1.4 No item listed below may be used for landscaping and planting in the Zone.
  - a. Crops
  - b. Fruit trees
  - c. Plants or trees that produce an offensive odor.
- 1.5 Proper care and maintenance, not limited to watering, trimming and fertilizing, shall be the responsibility of the DC.
- 1.6 Any damage and/or claim for compensation arising from the landscaping shall be the full responsibility of the DC.
- 1.7 In case of insufficient care of landscaping by the DC, HHTTP-MB will serve a notice and the DC shall be obligated to take all necessary action for improvement within fourteen (14) calendar days of receipt of the notice.
- 1.8 The DC shall not change the landscape of Tan Xa Lake and shall not alter the original shapes. To retain the landscape, the DC shall instruct all tenants located beside the lake to provide a sufficient set-back in accordance with HHTTP-MB approval that must be sought during the design stage and as may be specified in the “Construction Byelaw for the Tenants”.

2) Construction Density

The maximum building coverage ratio, floor area ratio and number of stories for each Zone shall not exceed the limits listed below in order to protect the landscape, eco-friendly atmosphere and world-class status of the high-tech park environment.

**Table 6.3.1 Construction Density**

Basic Indicator	Max. Bldg Coverage Ratio (%)	Max. Floor-Area Ratio (%)	Max. No. of Stories (number of floor)
1 Software Park	30	80	5
2 Research and Development Zone			
a. Research and Development	30	80	5
b. High Class Residential	40	80	3
3 High-Tech Industrial Zone	40	100	3
4 Education and Training Zone	35	150	5
5 Center of High-tech City	70	500	10 (extra height 30)
6 Mixed Use Zone	80	300	8
7 Residential Zone	50	150	4
8 Housing Complex	60	300	12
9 Reserved Area	40	100	3
10 Amenity Zone			
a. Golf Course	1	0.2	2
b. High Class Residential	40	80	3
11 Amusement Zone	5	1	3

(4) [Section-4] Connection to the HHTTP Common Infrastructure

1) Roads

- 1.1 The road section design shall follow the typical design set out by HHTTP-MB.

- 1.2 Road marking, street lighting, sidewalks and pedestrian crossings shall be planned and consider both safety and the landscape of the Park.
- 1.3 Intersections with street signals shall be designed with minimum length of one (1) kilometer (km).
- 2) Signs
  - 2.1 All signs shall require written approval from HHTP-MB prior to installation.
  - 2.2 It is prohibited to place signs on the top of buildings and poles.
  - 2.3 Obtrusive or aesthetically inappropriate signs shall not be permitted.
- 3) Gates
  - 3.1 For the High-Tech Industrial Zone, a maximum of two (2) gates for every block that has access to the HHTP common road constructed by HHTP-MB.
  - 3.2 For other zones, a maximum of four (4) gates for every block that has accesses to the HHTP common road constructed by HHTP-MB.
  - 3.3 Construction of a gate within twenty (20) meters of the property borderline is prohibited.
  - 3.4 A minimum distance of two hundred (200) meters from all road intersections must be maintained.
  - 3.5 Prior to construction, the gate design shall be submitted to HHTP-MB for approval to ensure that the gate design shall meet to the landscape and harmonious design of the Park.
- 4) Parking
  - 4.1 The DC shall strictly establish zonal regulations and/or guidelines for safety and convenience and shall ensure a sufficient area of paved parking space and dust-free parking for the Tenants.
  - 4.2 On-street parking is strictly prohibited without prior permission from HHTP-MB.
  - 4.3 All vehicles parked on the street without permission shall be removed by HHTP-MB without prior notice.
- 5) Fencing
  - 5.1 In consideration of landscape and sufficient design of the Park, the design of fences must be approved by HHTP-MB before the fence is constructed.
  - 5.2 Fences shall be open type fences and made from painted iron bars, galvanized chain-link fencing material or other material approved by HHTP-MB.
  - 5.3 The maximum height of fences along the HHTP common road shall be three (3) meters.
- 6) Drainage
  - 6.1 The DC shall provide a sufficient retention pond volume to maintain the rain water run-off capacity at the original level. The total pump capacity shall not exceed the original run-off capacity.
  - 6.2 Connection of the Zone drainage system to the HHTP common drain system shall be carried out by the DC under the instruction and attendance of HHTP-MB.
  - 6.3 The DC shall properly maintain and clean all drains in the Zone in order to prevent



any deleterious affect on the HHTP common drain system.

- 6.4 The DC shall take responsibility for all claims and cost incurred due to damage or obstruction of the HHTP common drain system that are caused by the Zone's drain system.
- 7) Water Supply
    - 7.1 The DC shall not establish any new water wells. All water demand shall be supplied by HHTP-MB or the Water Supply Company from the common water supply pipeline.
    - 7.2 The DC shall inform HHTP-MB of any required water supply capacity not less than thirty (30) calendar days before its required utilization.
    - 7.3 HHTP-MB has the right to shut down the water supply during periodical or emergency maintenance of the water supply facilities.
    - 7.4 The DC shall provide a water reservoir with a minimum capacity of one (1) day.
    - 7.5 Connection of the Zone water supply pipes to the HHTP common water supply pipeline shall be carried out at the DC's expense by a contractor approved by HHTP-MB and under the instruction and attendance of HHTP-MB.
  - 8) Power Supply
    - 8.1 The DC shall inform HHTP-MB of any required power supply capacity before the DC makes a submission to and/or enters into any negotiation with EVN or a Power Company.
    - 8.2 Power supply is the responsibility of EVN or a Power Company.
    - 8.3 The DC shall make arrangements for their internal power distribution system with EVN or a Power Company. All internal power distribution systems shall be underground systems.
  - 9) Telecommunication
    - 9.1 The DC shall inform HHTP-MB of any required telecommunication system capacity before the DC makes a submission to and/or enters into any negotiation with the telecommunication agency/company appointed by the Government.
    - 9.2 The telecommunication system is the responsibility of the appointed telecommunication agency/company.
    - 9.3 The DC shall make arrangements for their internal telecommunication system with the telecommunication agency/company. All telecommunication cable lines shall be underground system.
- (5) [Section-5] Environmental Preservation
    - 1) Sewerage
      - 1.1 The DC shall utilize the HHTP common sewerage system.
      - 1.2 Connection of the Zone sewer pipes to the HHTP common sewer pipeline shall be carried out at the DC's expense by a contractor approved by HHTP-MB and under the instruction and attendance of HHTP-MB.
      - 1.3 The DC shall provide a facility to remove garbage before connecting Zone the sewer pipes to the HHTP common sewer pipeline and ensure that no any garbage or

solid waste enters the HHTP common sewer pipeline.

- 1.4 The DC shall accept all responsibility for claims and costs incurred due to damage or obstacles entering the HHTP common sewer system from the Zone's sewer system.
  - 1.5 The DC shall monitor the Zone effluent water quality before the connection point to the HHTP common sewer pipeline and report the monitoring results to HHTP-MB each month. The water sampling shall be done weekly and the samples shall be analyzed by an institute approved by HHTP-MB.
  - 1.6 Where the effluent water quality indicates any contamination as listed below the DC shall pre-treat the effluent.
    - a. Biochemical Oxygen Demand (BOD<sub>5</sub>) > 300mg/l
    - b. Suspended Solids (SS) > 300mg/l
    - c. Any radioactive substances
    - d. Any petroleum sprits
    - e. Any non-biodegradable pigments
    - f. Any colored water
    - g. Any liquid that may damage the sewer pipeline
  - 1.7 When a violation of Article 4.1 (f) above is founded HHTP-MB shall send a notification to the DC. The DC shall be fully responsible for improvement of the effluent quality within fourteen (14) calendar days of receiving notification.
  - 1.8 Where the DC fails to meet the requirement of Article 4.1 (g) above, HHTP-MB shall have a right to terminate the utilization or lease agreement between the DC and to stop the supply of water to the Zone. The DC of the negligent Zone shall compensate any costs incurred by the Tenants for the DCs of other Zones.
- 2) Air Pollution
- 2.1 The DC shall install air pollution measurement devices at major points agreed by HHTP-MB.
  - 2.2 The air quality shall be in accordance with the requirements of Vietnamese Standard issued by the Ministry of Construction (MOC) and the Ministry of Natural Resources and Environment (MONRE).
- 3) Noise Pollution
- 3.1 The DC shall install noise measurement devices at major points agreed by HHTP-MB.
  - 3.2 The noise level shall be in accordance with the requirements of Vietnamese Standard issued by the Ministry of Construction (MOC).
- 4) Solid Waste
- 4.1 The DC shall make their own arrangement with a company duly authorized by HHTP-MB to treat and dispose of solid waste in an approved way.
  - 4.2 Solid waste storage shall be strictly controlled to ensure the environmental status of the Park, especially in relation to sanitation, scenery and odors.
  - 4.3 The DC shall have all responsibility for claims and costs incurred by others due to

damage or obstructions cause by the Zone's solid waste treatment system.

5) Others

- 5.1 Utilization, production, storage, disposal and handling of any dangerous or hazardous material inside the Park are prohibited.

(6) [Section-6] Safety and Security Measures

The DC shall ensure the security and safety inside the Zone for all activities and properties.

The DC shall install a fire fighting system, an emergency alarm and an emergency communication system inside the Zone.

(7) [Section-7] Others

Exemptions from the Specific Construction Controls shall only be granted by HHTP-MB in the case of an emergency, disaster or Force Majeure.

### 6.3.2 Rules for Land Lease to Tenants

A tenant who intends to locate within the HHTP will have to conclude a land lease agreement with the relevant developer. The following draft proposes the contents of the land lease agreement and its attachment. In the implementation stage, the proposed items in the land lease agreement shall be prepared in a standard format to ensure fairness and consistency in the assessment of tenants. It is recommended that the HHTP-MB should make improvements of the following draft contents as needed so that it could guide the developers to prepare the land lease agreement.

#### **Draft Contents of the Land Lease Agreement**

- 1) Project description of the HHTP to briefly introduce the HHTP to a tenant.
- 2) Incentives and favorable treatment for the tenant.
- 3) Qualification for application for investment.
  - (i) A tenant shall comply with the laws and regulations in Vietnam.
  - (ii) A tenant who is a foreign company, including joint ventures, shall have received approval for the investment from the related authorities or be under evaluation for approval.
  - (iii) A tenant shall have adequate capital to implement the project.
  - (iv) A tenant shall fulfill the requirements specified in the application form and the attachments in good faith. The tenant shall submit the documents required for the evaluation.
  - (v) A tenant shall operate its activities in a high-tech or related industry, which includes electrical/electronics, ICT, and medical/biology, which are defined as prioritized sectors for investment.
  - (vi) A tenant shall occupy a land area of not less than 10,000m<sup>2</sup>.
  - (vii) If available land does not meet of the size or shape required by a tenant, the developer will discuss arrangements with the tenant to arrive at a mutually acceptable arrangement between the developer and the tenant.
- 4) Conditions for the land lease agreement

- (i) The maximum period of a land lease shall be fifty (50) years.
- (ii) The right of the land use shall not be transferred from the tenant to another body without prior acceptance by the developer.
- (iii) A tenant shall comply with the following conditions after signing the land lease agreement:
  - a. A tenant shall pay the full amount for the land lease by a lump-sum payment within twenty (20) days of signing the land lease agreement.
  - b. A tenant shall, in principle, commence construction work within one (1) year and commence operations within three (3) years after the signing the land lease agreement.
  - c. If a tenant suspends operations or changes the purpose of land use, the tenant shall inform the developer of its intention to do so not less than six (6) months before the suspension of operations or the change of purpose. In either case, the tenant shall be requested to discuss their intentions with the developer.
- (iv) The developer may terminate the land lease agreement in the following cases. In such case, the developer will not refund payment for the land lease to a tenant.
  - a. Any malpractice in the application submitted by the tenant.
  - b. The tenant fails to follow the requests and instructions of the authority responsible for environmental protection and pollution control.
- (v) Others

A tenant may be requested to conclude a separate agreement for environmental protection and pollution control.

## 5) Application procedures

- (i) Contents of the application form
  - a. Name of company, location, name of representative, name of contact person, telephone number, and e-mail address.
  - b. Name of facility (or name of project).
  - c. Where the tenant is a foreign enterprise (including a joint venture), the availability of an approval for the investment, name of the approval authority, date of the approval, and registered number for the approval.
  - d. Land area (ha) and expected land plot location.
  - e. Attachment:
    - Business plan (note: detail contents are given below)
    - Certified copy of Registration and Articles of Incorporation
    - Statement of accounts for the latest three years  
(If a tenant is newly established and can not provide a statement of accounts, the tenant shall submit the statement of accounts of main equity holder(s) or its parent company(s))
    - Certificate of tax payment for the latest three years  
(If a tenant is newly established, the tenant shall submit a certificate of tax

payment by the main equity holder(s) or its parent company(s))

- List of the main equity holder(s)
- A copy of the investment approval
- Others (e.g. the company brochure of a tenant)

If the developer requires further information other than that listed above for the evaluation, the tenant shall be requested in writing to submit other documents and required to attend the office of the developer.

(ii) Contents of the business plan

a. Brief description of the tenant:

- Name of the tenant (or name of the project)
- Location, capital stock, number of employees, fiscal term, and Vietnamese partner
- Corporate history
- Business policy
- Name of the representative person and name of the executive director
- Description of the business and a list of main products
- Main sales destination (by country and region)
- Sales amount for the latest three years

(If not available, a tenant shall submit the sales amount of the main equity holder(s) or parent company(s))

- Location of existing factories, list of main products, number of employees, year and month of the commencement of operation

(If not available, the tenant shall submit the information of the main equity holder(s) or parent company(s))

b. Business plan:

- Name of the project
- Purpose of the project
- Name of products
- Proportion (by main source) of imported materials and proportion (by main destination) of export of products, both listed by country and region
- Expected time for commencement of operations and expected sales amount for the first three (3) years after starting operations
- Plan for employment for first three (3) years after starting operations (by sex, by age, and by full-time and part-time workers)
- Investment plan with details, including total investment amount, cost of land acquisition, cost of construction work (including ancillary work), cost of equipment, cost of pollution control measures, cost of landscaping, etc., and a phased-wise development plan

- Financial plan with details including proportion of own funds and borrowed money, with the name of the capital source
  - A brief description of the facilities, including type of structure, number of floors, building coverage area, total floor area, construction amount, and layout plan
  - Other information considered relevant by the developer
- c. Pollution control:
- Type of fuel: LPG, Bunker A, Bunker B, Bunker C, Kerosene, Others
  - Quantity of fuel consumed: Planned quantity by fuel type
  - Volume of water consumption: Piped water (m<sup>3</sup>/day), Industrial water (m<sup>3</sup>/day), and Ground water (m<sup>3</sup>/day)
  - Volume of wastewater: m<sup>3</sup>/day
  - Volume of wastewater to be discharged for treatment by the manufacturing process: m<sup>3</sup>/day
  - Main processing equipment and its purpose: Name of equipment, purpose, type, capacity, and purpose of processing
  - Number of company vehicles by type of vehicle: Passenger car, Truck, Bus, Special purposed vehicle, Other
  - Number of employee vehicles by type of vehicle for commuting: Motorcycle, Car, and Other
  - Type of pollution or environmental affect source: Vibration, Noise, Smoke, Wastewater, Dust, Odor, Traffic, Hazardous waste, Other
  - Facility for pollution control and treatment process (by pollution source)
  - Listing of previous complaints or notices of instruction related to causing pollution in the past. If any, a description of the counter measures that were applied

## **6.4 PROMOTION MEASURES FOR ATTRACTING FACILITIES**

The technical infrastructure is developed in HHTP to attract Research Institutes, Education & Training Institutes, High-tech Enterprises, Commercial Facilities, and Housing Facilities. However, well-developed technical infrastructure is not enough to attract them. This section describes the measures to attract them to HHTP.

### **6.4.1 Promotion Measures for Attracting Research Institutions**

#### **(1) Achievement by the Initiatives of Prime Minister**

Among several achievements for attracting research institutes in the past year, it is considered the largest one should be announcement of relocation plan of Vietnam Academy for Science and Technology (VAST). VAST is the national scientific research agency that is directly controlled by the Prime Minister, and it retains many research institutes. VAST is considered to be appropriate State agency for HHTP.

It is expected that this achievement is realized mainly by the initiatives of the Prime Minister.

(2) Expected Land Use by Research Institutes

As shown below, a land of 64.4 ha is expected to be allocated to State research institutes including VINASHIN for which the HHTP-MB formally approved land allocation in January 2009. This just accounts for 28% of the R&D Zone as shown on the table below. Therefore, it is necessary to attract further research institutes.

**Table 6.4.1 Expected Land Use by Research Institutes**

Name of Research Institutes	Land (ha)
Vietnamese Academy of Science and Technology (VAST)	26.8
Vietnam Ship-Building Industry Corporation (VINASHIN)	25.0
National Institute of Hygiene and Epidemiology (NIHE)	5.8
Vietnam Metrology Institute (VMI)	6.8
<b>Total</b>	<b>64.4</b>
Others	164.6
<b>Total land area of the R&amp;D Zone</b>	<b>229.0</b>

Source: HHTP-MB

(3) Further Attraction of Research Institutes by the Initiatives of Prime Minister

In order to attract more research institutes, continued importance is attached to the initiatives of the Prime Minister. Under the initiatives of the Prime Minister, the following methodology is recommended.

- Ministries and agencies should select the State research institutes which are suitable for HHTP under the initiatives of the Prime Minister.
- The responsible Ministries or Agencies together with the selected research institutes should promote the project in terms of fund-raising, advanced technology, capacity-building of researchers, other items necessary for setting up the research institutes.
- In parallel, the selected research institutes should prepare basic ideas of setting up research institutes in HHTP to ask the HHTP-MB to allocate the land.
- After the above matters are settled, the research institutes should prepare the detailed construction plan by employing the reliable consultants.

(4) Preferable Research Area

In addition to the research institutes that are going to be set up, the institutes specialized for the following research areas are preferably set up in HHTP based on the Draft Law of High-tech and “*Vietnam Science and Technology Development Strategy by 2010*” enclosed with Prime Minister Decision No. 272/2003/QĐ-TTg.

- Improvement of energy efficiency
- Renewable energy
- Prevention of natural disaster
- Bio-technology for environment
- Automation and mechatronics
- Machine tool technology

#### 6.4.2 Promotion Measures for Attracting Education and Training Institutions

##### (1) Achievement by the Initiatives of Prime Minister

A large achievement was observed for attracting educational institutes in the past year. It was announcement of establishment plan of Hanoi University of Science and Technology (HUST). The detailed description on HUST is given in the previous chapter.

It is obviously HUST is promoting at initiatives of the Prime Minister. According to Asian Development Bank (ADB), the GOV, through the Prime Minister and Deputy Prime Minister/Minister of Education and Training (MOET), has requested ADB to consider financing the development of four “new-model” research universities including HUST.

##### (2) National Plan for Developing High-tech Workforce

A new law of high-tech is being preparing at present. According to the Draft Law of High-tech, the Ministry of Science and Technology (MOST) will prepare the national plan for developing a high-tech workforce and; the related Ministries and the People’s Committees of Provinces and Cities will execute this plan.

The HHTP-MB plans to establish the High-tech Workforce Training Center (HWTC) in HHTP as described in the previous chapters. Take considering the fact that MOST is responsible Ministry for HHTP, HWTC that is planed by the HHTP-MB likely to be a key training institution for high-tech workforce.

##### (3) Expected Land Use in Education & Training Zone

As shown in the table below, a total planned area for FPT University, HUST, and HWTC is 98 ha, accounting for more than 90% of the Education and Training Zone.

**Table 6.4.2 Expected Land Use in Education & Training Zone**

Name of Research Institutes	Land (ha)
FPT University	30
Hanoi University of Science and Technology	65
HWTC	3
<b>Total</b>	<b>98</b>
Others	10
<b>Total land area of the Education &amp; Training Zone</b>	<b>108</b>

Source: HHTP-MB

##### (4) Next Step for Attracting Education and Training Institutions

As is clear from the above table, the next required step is not a selection of more education and training institutes for HHTP. It is really required for responsible Ministry and Agencies to take actions to realize the plan of HUST and HWTC. Accordingly, the HHTP-MB that is responsible for HWTC should take actions to realize the plan of HWTC.

#### 6.4.3 Promotion Measures for Attracting High-tech Enterprises

##### (1) Investment Promotion Activities for High-tech Enterprises

FPT as the developer for High-tech Industry Zone-1 and Software Park Zone is responsible for investment promotion activity for high-tech enterprises. As repeatedly described, FPT is still waiting for approval of developers’ work and not yet starting investment promotion. Tentatively,



on behalf of FPT, the HHTP-MB is carrying out investment promotion activity in these zones.

## (2) Timing of Investment Promotion

Generally speaking, foreign investors, especially Japanese investors, do not make investment decision until they trust how the lot is prepared for their factory. After making an investment decision, Japanese investors wish to start factory construction to begin the commercial operation as soon as possible. For these reasons, before investors visit the site, major technical infrastructure is needed to be prepared. In the light of this, investment promotion should be started after starting construction work.

On the other hand, a developer occasionally employs a different method from the above in order to attract a large scale investment. A developer accepts order of the investor and makes their lot with customized technical infrastructure. In this case, investment promotion should be started well before starting construction work.

Anyway, care should be taken not to cause inconsistent zone development in the rush to subleasing the land for high-tech enterprises in a short period.

## (3) Measures for Attracting High-tech Enterprises

Besides the investment promotion activity, other promotion measures are needed. The JICA Study Team for Update of MP Study formulated 39 projects. Among them, the following seven measures are those for attracting high-tech enterprises.

- Provision of tax incentives
- Improvement of one-stop services and custom clearance
- Provision of testing and analysis services
- Provision of rental factories for SME
- Formulation of the well-thought-out marketing plan
- Marketing activities in line with the marketing plan
- Continuation of incubation services in HHTP

Progress of these measures is reviewed one by one in the previous chapter. Some measures are being implemented, but others are not. It is necessary to implement these measures in order to attract high-tech enterprises to HHTP.

In advanced industrial countries, there are a lot of small and medium-sized enterprises (SME) that have highly-qualified technological capability to develop the high-tech industry. The establishment of a good investment climate is needed in HHTP for attracting such foreign SME, in addition to the rental factories mentioned above.

### 6.4.4 Promotion Measures for Attracting Commercial and Housing Facilities

#### (1) Promotion Measures for Attracting Commercial Facilities

Promotion activities for attracting commercial facilities to the HHTP should be designed to reflect the local market area, likely characteristics of customers, and their lifestyles. The latest analysis of the local market area highlights the history, industrial composition, age groups, characteristics of employment, and spatial location, in addition to a conservative estimate of population, retail sales value, traffic volume, and number of passengers by transportation mode.

In this context, the major developments in the periphery of the HHTP will affect the size of the market area. For instance, if Vietnam National University relocates to Hoa Lac and the FPT University project is implemented, these projects will create a population concentration of more than 200,000. These projects will form areas that are characterized by younger generation, highly-educated people including students, researchers, engineers, and entrepreneurs. Taking into consideration other conditions of the Lang-Hoa Lac Highway and the current vehicle usage pattern, it is not practical to create the long-term vision for commercial promotion for the time being.

Hence, it is suggested that the target sector for commercial promotion focus on growing retail shops such as convenience stores and department stores operated by international firms.

## (2) Promotion Measures for Attracting Housing Facilities

In the first stage, to be completed by 2015, it is estimated that the incremental population in the HHTP will be 143,500. In the second stage, to be completed by 2020, it is estimated that the incremental population will increase by 85,500 and bring the total incremental population to 229,000. When the existing 11,000 residents are included, the total population will be approximately 240,000.

Following table shows the predicted number of resident (permanent) and non-resident (day residents) in the HHTP. After completion of Stage 2, the incremental resident population will be approximately 100,000. Housing units should be provided to meet the need to accommodate these 100,000 incremental residents, excluding both the non-residents and the existing residents.

**Table 6.4.3 Incremental Population Projection**

	Resident	Non-Resident	Total
Stage1(2015)	56,700	86,800	143,500
Stage2(2020)	42,600	42,900	85,500
Total	99,300	129,700	229,000

Note: Total population does not include the existing 11,000 residents.

Source: VN Revised M/P

Based on the assumption that the average household size will be four (4) persons, approximately 25,000 housing units should be provided. In general, the private sector, particularly the real estate sector, will usually fulfill the housing demand. Therefore incentives will not be necessary to promote housing development in the private sector. It is anticipated that the private sector will provide multi-story housing and detached houses, in accordance with the market. It will be important to control both of land use and land development process, rather than specifying the number of houses to be provided. If any incentives will be necessary for the housing development in the implementation of the HHTP, the incentives needs to be provided for the investors who will realize the living environment suitable with or better than that of the proposed development concept for the HHTP. The incentives shall be designed to include the preference for the land lease, tax treatment, and others based on the discussions with the investors.

## 6.5 EXAMINATION OF SUPPLY OF HUMAN RESOURCES

It is becoming difficult for the existing enterprises in Hanoi and its outskirts to secure adequate numbers of workforce for industry, under the economic growth in the country. Under such situation, securing workforce is crucial for successful development of HHTP as well. It seems to be difficult for foreign investors to secure workforce without recruiting service, even if some

education and training institutions are established in HHTP. This section describes the necessity of securing human resource, the process of recruiting service and proposed mechanism to provide the service in the first three subsections. In the subsequent parts, it examines the magnitude of demand for human resource.

#### 6.5.1 Necessity of Securing Human Resource

Human resource is surely most important resource of Vietnam for foreign investors to invest. However, the foreign investors may have a difficulty in recruitment of labor by themselves. In addition, it becomes more difficult for investors to secure labors due to overdevelopment of industrial parks in Hanoi and its outskirts in these days. Therefore, recruitment service is crucial service of industrial parks that helps their foreign investors.

As for investors in HHTP, so far, it is not difficult to employ labors, because there is not many job opportunity in the surrounding areas. However, such good employment situation does not seem to last so long. It is expected that some industrial parks be developed along with the expansion of the Lang-Hoa Lac Expressway, which creates many job opportunities.

As for Japanese investors, they can enjoy the recruitment services provided by the Japanese developer, if they invested in the industrial parks managed by such developers. This kind of recruitment service is needed also for investors in HHTP; otherwise foreign companies are difficult to secure labors. The HHTP-MB is needed to have a mechanism of the recruitment service that helps foreign investors.

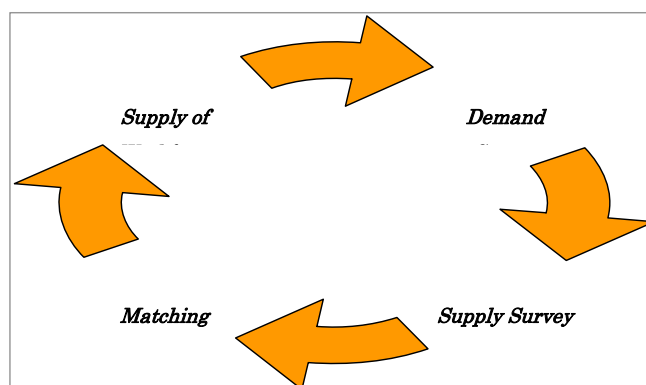
In addition to the recruitment service, the HHTP-MB may need to help foreign investors to carry out adequate labor management in future. Such labor management is important, as there are some unauthorized strikes to ask for an advance in wages in these days under a high inflation rate in Vietnam.

#### 6.5.2 Activities of Recruiting Service

As illustrated by the next figure, recruitment service is provided by a series of activities composed of demand survey, supply survey, matching of demand and supply sides, and supply of workforce. Individual activities are carried out as follows:

- **Demand Survey:** Inquire the job offer and hiring requirements directly from investors in HHTP.
- **Supply Survey:** Inquire workforce supply capacity directly from education and training institutions in HHTP and its surrounding areas. Send information on job offer and hiring requirement.
- **Matching:** Provide matching opportunities between employers and potential workforce.
- **Supply of Workforce:** Supply workforce to employers by efforts of the above activities.

It is necessary to repeat the series of activities mentioned above every year.



**Figure 6.5.1 Cycle of Recruitment Service**

### 6.5.3 Recommended Mechanisms of Securing Human Resources

Cooperation between employers and educational institutions is necessary for providing the recruitment service efficiently and effectively. It is recommended that the HHTP-MB should establish “the Hoa Lac High-tech Human Resource Platform” as a mechanism of securing human resource in HHTP.

#### (1) What is the “Platform”?

The Hoa Lac High-tech Human Resource Platform (HHRP) that is composed of industry, educational and training institutions, research institutes and HHTP-MB is a council for fostering and supplying high-tech workforce to investors in HHTP.

The platform functions is a place where the people share the common ideas of existing situations and discuss and/or adjust the strategy and direction of the future human resource development and the supply workforce with putting their priorities on the efficiency and effectiveness. In addition, in the platform, detailed human resources development program is formulated.

#### Purpose of Establishing HHRP

To discuss and/or adjust the strategy and direction of:

- Human resource development
- Supply of workforce

To formulate detailed human resources development program

#### (2) Function of HHRP

To accomplish the above purpose, following functions are assumed for the time being, although HHRP perform them step-by-step. The HHTP-MB needs to design the HHRP in detail.

- Support of promoting educational programs of career development and entrepreneurship.
- Enhancement of internship programs in education and training institutions fostering factory engineers.
- Promotion of Japanese learning programs for engineers.
- Development of systems of supplying human resources to enterprises.
- Provision of opportunities for matchmaking between enterprises and students.
- Introduction of scholarship systems to students who can not afford for higher education.

- Development of living environments for migrations of labor forces.
- The survey on human resources needs of industries and job requirement of students.
- Holding seminar for labor management inviting foreign investors.
- Training of people who are capable of making linkages between industry and education and training institutions.
- Sending a message, “Hoa Lac High-tech Park can provide with human resources in the high-tech industry”.

### (3) Structure of HHRP

HHRP is composed of industry, educational and training institutions, research institutes, the related ministries and agencies, and the HHTP-MB, as illustrated by the next figure.

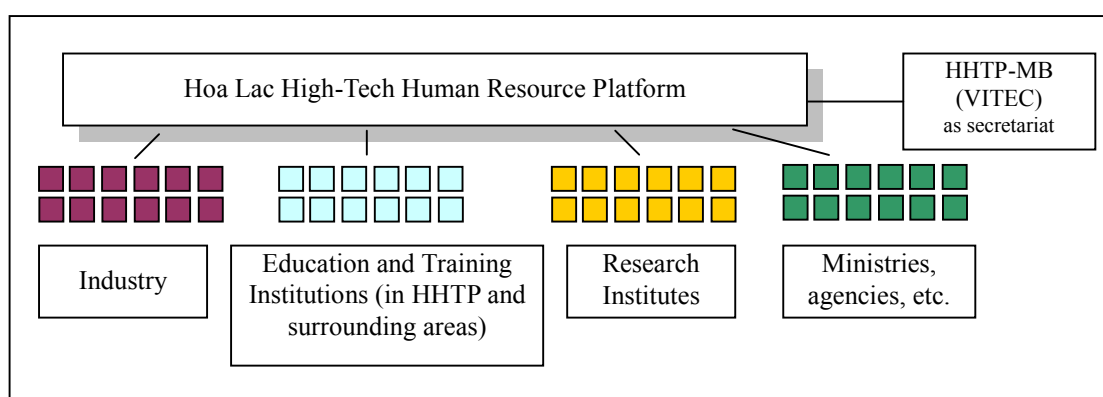


Figure 6.5.2 Structure of Hoa Lac High-tech Human Resource Platform

#### Secretariat of HHRP

VITEC of HHTP-MB is a secretariat of HHRP, organizing the platform. In addition, VITEC conducts studies regarding human resource development and demand and supply of labors, and arrange supports to foreign countries.

#### Member of HHRP

##### 1) Education and Training Institutions

- Universities such as FPT University, Hanoi Science and Technology University (Conceptual Phase), VNU (in the process of project execution), and other universities in surrounding areas of HHTP
- Existing technical colleges in the surrounding areas of HHTP, and a new institution that VITEC plans to establish in HHTP
- Japanese learning center such as private Japanese learning schools in Hanoi like Vietnam Eiko
- Educational institutes for business training such as VJCC (Vietnam Japan Cooperation Center) in Hanoi
- Vocational schools and high schools existed in the surrounding areas
- New education and training institution in HHTP planned by VITEC (Conceptual Phase)
- Incubation facilities like High-tech Business Incubator (HBI)

- 2) Industry
  - Foreign high-tech manufacturers and IT-related industries in HHTP
  - Local enterprises in HHTP
- 3) Research Institutes
  - Research institutes in HHTP, including those belonging to VAST (Vietnam Academy of Science and Technology)
- 4) Ministries and Agencies
  - MOET, MOST, Hanoi Peoples Committee, and VCCI (Vietnam Chamber of Commerce and Industry)

#### (4) High-tech Workforce Training Center

Technical training is also necessary to ensure high-quality labor supply to industries. In Binh Duong Province, Vietnam Singapore Technical Training Center (VSTTC) is located to adjacent to Vietnam Singapore Industrial Park (VSIP). VSTTC is providing practical training based on the technical training curriculum of Singapore to give a priority supply of graduates to the tenants in VSIP.

In HHTP, VITEC is planning to construct the High-tech Workforce Training Center (HWTC) as described in the previous part of the report. It is desirable that HWTC should focus on practical training for skillful technical workers among several targets of education previously described and give a priority supply of graduates to the tenants in HHTP in the same way as VSTTC.

#### 6.5.4 Magnitude of Human Resource Demand

As mentioned above, demand survey should be conducted by inquiring the hiring requirement from investors. Besides such demand survey, a provisional estimation of human resource demand in HHTP is done based on population forecast by the Revised Master Plan, so that it could help HHTP-MB to know the magnitude of required recruitment to create the mechanism for recruitment service. The results of provisional demand may be overestimated; however it should be accurate enough for formulating the plan of recruitment service.

According to Tables 3.2 through 3.4 in the Revised Master Plan Report, population and labor in the HHTP have been forecasted as follows:

- Forecast up to 2015: total population is 134,508 in which the number of labors for Software, R&D, High-tech Industrial, Central, and Service Complex Zones is 59,181.
- Forecast up to 2020: total population is 229,072 in which the number of labors for Software, R&D, High-tech Industrial, Central, and Service Complex Zones is 109,540.

High-tech Park requires high quality and skilled labors with various educational backgrounds. The next table shows the estimated demand for labors divided into graduates from university and higher and those from college and high school.

**Table 6.5.1 Estimated Demands for Labors**

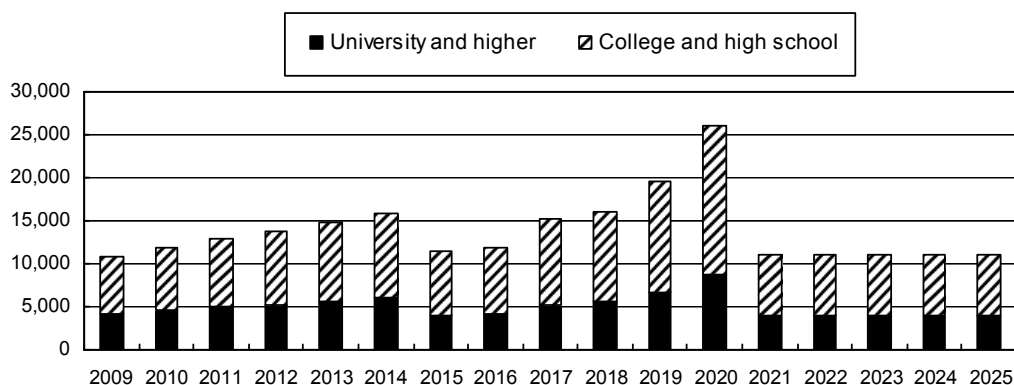
Kind of Land	No. of Labors		Graduates from University and higher		Graduates from College and High School	
	2015	2020	2015	2020	2015	2020
Software Zone	8,800	15,190	6,160	10,633	2,640	4,557
Research and Development Zone	7,967	13,740	7,170	12,366	797	1,374
High-tech Industrial Zone	22,634	54,950	3,395	8,243	19,239	46,708
Central Zone	12,505	12,505	3,752	3,752	8,754	8,754
Service Complex	7,275	13,155	2,183	3,947	5,093	9,209
<b>Total</b>	<b>59,181</b>	<b>109,540</b>	<b>22,659</b>	<b>38,940</b>	<b>36,522</b>	<b>70,601</b>

Note: The demand for labors was forecasted under the following assumptions.

- 1) The number of labors is based on the Revised Master Plan as stated above.
- 2) The ration of graduate from university and higher institutes and those from college and high school is estimated for each zone as follows: 7:3 for software zone; 9:1 for R&D zone; 15:85 for high-tech industrial zone; 3:7 for central zone; and 3:7 for service complex zone.

It is estimated that the following levels of annual recruitment be required as shown in the figure below to fulfill the labor demand mentioned above.

- Recruitment of graduates from university and higher: 3,900 - 8,800
- Recruitment of graduates from college and high school: 7,100 - 17,300
- Total annual recruitment: 11,000 - 26,100



Note: The required annual recruitment was forecasted under the following assumptions.

- 1) (No. of recruitment) = (Recruitment required for increasing demand) + (Recruitment to make up the retired persons)
- 2) Recruitment required for increasing demand is estimated under the assumption that one-sixth of forecasted labors in 2015 are recruited every year from 2009 to 2014 and one-sixths of forecasted labors in 2020 are recruited every year from 2015 to 2020.
- 3) Recruitment to make up the retired persons is assumed as 10% of the employed labor.

**Figure 6.5.3 Required Annual Recruitment**

### 6.5.5 Human Resource Supply

#### (1) Vietnamese Education System

The next table illustrates the education system in Vietnam. General education includes three levels: primary, secondary and high school, while higher education includes four levels: college, university and master course, and doctor course.

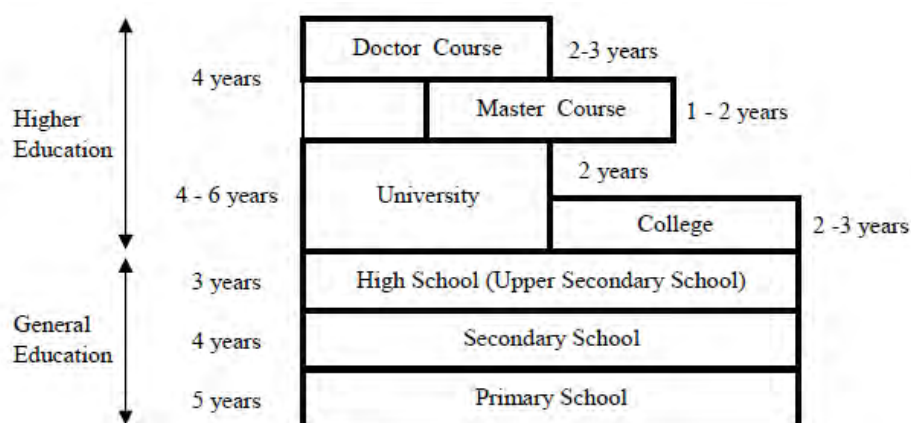


Figure 6.5.4 Vietnamese Education Systems

(2) Human Supply Source by Education Level

1) Universities in Hanoi and Ha Tay

Following table shows the number of graduates from universities in Hanoi and Ha Tay, which includes various disciplines. There are 39 universities in those provinces. During the academic year 2004-2005, there were 111 universities in Vietnam. 35% of universities in the whole country are located in those provinces. It is forecasted approximately 44,000 students graduate from universities in those provinces in 2010.

Table 6.5.2 No. of Graduates from Universities in Hanoi and Ha Tay

No.	University	Graduated/ to be graduated in					
		2006	2007	2008	2009	2010	2011
1	Vietnam National University, Hanoi – College of Technology		360	423	450	513	504
2	Vietnam National University, Hanoi – University of Science	1026	1035	990	990	1026	954
3	Vietnam National University, Hanoi – University of Social Science and Humanities	1116	1116	1152	1179	1251	1260
4	Vietnam National University, Hanoi – University of Languages and International Study	1035	1080	1080	1080	1080	1080
5	Vietnam National University, Hanoi – College of Economics	211	270	311	311	333	297
6	Vietnam National University, Hanoi – Faculty of Laws		198	252	252	270	252
7	Vietnam National University, Hanoi – Faculty of Education	261	261	270	270	270	252
8	Post & Telecommunications Institute of Technology	225	180	225	248	180	540
9	National academy of public administration	270	315	270	360	405	441
10	Banking academy of Vietnam	585	630	810	927	1350	1683
11	Academy of Finance	990	1080	1260	1440	1638	2070
12	Hanoi University of Technology	3330	3330	3330	3330	3483	3483
13	Hanoi University of Industry						1710
14	Hanoi University of Pharmacy	225	216	234	360	405	450
15	Hanoi University of Pharmacy						450
16	Electric Power University	2250	1800	1935	2160	2250	2403
17	Hanoi University	900	945	1080	1170	1260	1170
18	National Economics University	2880	2880	2988	3150	3393	3600
19	Hanoi Architectural University	900	900	900	945	990	1080
20	Vietnam Forestry University	720	765	810	855	945	1035



No.	University	Graduated/ to be graduated in					
		2006	2007	2008	2009	2010	2011
21	Hanoi University of Laws	855	900	1035	1080	1170	1287
22	Hanoi University of Mining and Geology	1170	1215	1017	1215	1485	1980
23	University of industrial arts	117	108	108	108	108	180
24	Vietnam University of fine arts	99	77	72	54	54	68
25	Hanoi University of foreign commerce	945	1305	945	990	1485	1485
26	Hanoi University of Agriculture	1530	1575	1800	2250	2430	2610
27	Medical University of tooth, jaw, face			27	81	90	90
28	Hanoi National University of Education	1620	1620	1710	1377	1836	1440
29	Water resources University	900	819	810	990	963	1238
30	Vietnam University of commerce	1710	1710	1710	1935	1890	2403
31	Hanoi University of Culture	630	630	675	702	756	720
32	Hanoi University of Civil Engineering		1845	1935	2250	2520	2790
33	Hanoi Medical University	450	392	378	450	720	720
34	Hanoi School of public health	81	81	81	108	108	108
35	Hanoi Open University	1679	1710	1800	1980	2250	2250
36	Dong Do University	810	900	900	945	990	990
37	Oriental University	1350	1350	1350	1350	1350	1485
38	Thanglong University	900	900	900	900	900	1170
39	Hanoi University of Commerce and Technology	1260	1260	1350	1350	1440	1683
	Total	33,030	35,758	36,923	39,592	43,587	49,411

Source: Guidelines books for students to get exams to universities and www.onthi.com

Note: Number of student graduated is assumed around 90% of number of entered 4 or 5 years before.

## 2) Colleges in Hanoi and Ha Tay

Following table shows the number of graduates from colleges in Hanoi and Ha Tay, which includes various disciplines. There are 18 colleges in those provinces. During the academic year 2004-2005, there were 119 colleges in Vietnam. 15% of colleges in the whole country are located in those provinces. It is forecasted approximately 9,000 students graduate from colleges in those provinces in 2010.

**Table 6.5.3 No. of Graduates from Colleges in Hanoi and Ha Tay**

No.	College	Graduated/ to be graduated in					
		2006	2007	2008	2009	2010	2011
1	Constructional and industrial College					315	495
2	Vietnam-Hungary Industrial College					360	765
3	Hanoi College of Electronics and Electric-cooling						378
4	The College of Transport	1080	1161	1233	1233	1323	1800
5	College of Chemistry	135	1035	1080	1080	1170	1350
6	Hanoi College of Economics - Industry						720
7	College of Economics, Techniques, Trading			765	765	855	945
8	College I of Broadcasting and Television						675
9	Central College of Education	603	450	900	450	900	990
10	Hanoi College of Resources & Environment	270	450	540	450	540	720
11	College I of Document Archives					270	405
12	College of Urban Works Construction			270	270	360	360
13	College No-1 of Construction	450	495	540	495	540	675
14	Hanoi College of Education	482	405	324	405	324	540
15	Ha Tay College of Education	468	495	558	495	558	648
16	Medical college of Hanoi					90	378
17	Bac Ha College of Technology					450	810
18	Thanhdo College of Technology			855	765	855	945
	Total	3,488	4,491	7,065	6,408	8,910	13,599

Source: Guidelines books for students to get exams to universities and www.onthi.com

Note: Number of student graduated is assumed around 90% of number of entered 4 or 5 years before.

3) High School in Hanoi and Ha Tay

There were 2,224 high schools in Vietnam, from which about 691,000 pupils were graduated in the academic year 2004-2005. There were 155 high schools in Hanoi and Ha Tay. It accounts for 7% of the whole country, which is low compared with 35% for universities and 15% for colleges. Approximately 63,000 pupils graduated from high schools in those provinces in the same year. Ha Tay has the largest number of graduates followed by Hanoi in the Red River Delta region. HHTP appears to be a good location for recruiting labor force.

**Table 6.5.4 No. of Graduates from High School in 2004-2005**

		No. of High School		No. Graduates	
<b>Whole Country</b>		<b>2,224</b>	<b>100.0%</b>	<b>690,996</b>	<b>100.0%</b>
<b>Red River Delta</b>		<b>497</b>	<b>22.3%</b>	<b>197,584</b>	<b>28.6%</b>
1	Hanoi	96	4.3%	30,211	4.4%
2	Hai Phong	52	2.3%	18,443	2.7%
3	Vinh Phuc	38	1.7%	13,317	1.9%
4	Ha Tay	59	2.7%	32,707	4.7%
5	Bac Ninh	29	1.3%	13,239	1.9%
6	Hai Duong	43	1.9%	18,865	2.7%
7	Hung Yen	49	2.2%	11,544	1.7%
8	Ha Nam	24	1.1%	9,387	1.4%
9	Nam Dinh	43	1.9%	21,133	3.1%
10	Thai Binh	39	1.8%	18,123	2.6%
11	Ninh Binh	25	1.1%	10,615	1.5%

Source: Website of Ministry of Education and Training

4) Education and Training Institutes in HHTP

Assuming the establishment of Hanoi University of Science and Technology (HUST), FPT University and High-tech Workforce Training Center (HWTC) in HHTP, number of graduates are estimated on the basis shown on the next table.

It is estimated the following numbers of students in each level be graduated from HHTP.

- Doctor, master and university level: 2,530-4,330
- College and vocational school (high school level): 600-1,600

**Table 6.5.5 Estimation of Graduated Students from HHTP**

Year		2015	2020	
HUST	Number of Students	6,000	10,000	
	Training Structure	University	80%	80%
		Master	15%	15%
		Doctor	5%	5%
	No. of Student	University	4,800	8,000
		Master	900	1,500
		Doctor	300	500
	Training Lenth (year)	University	5	5
		Master	2	2
		Doctor	2	2
	% of Graduation	University	90%	90%
		Master	90%	90%
		Doctor	90%	90%
	No of annual graduates (calculated)	University	864	1,440
		Master	405	675
		Doctor	135	225

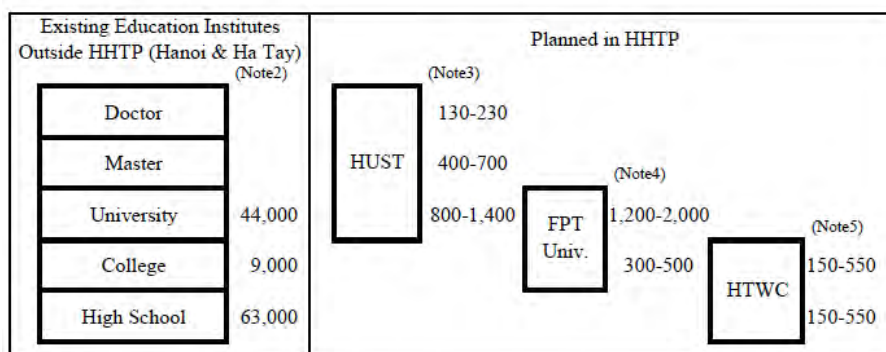
Year		2015	2020	
	<b>No of annual graduates (adopted)</b>	<b>University</b>	<b>800</b>	<b>1,400</b>
		<b>Master</b>	<b>400</b>	<b>700</b>
		<b>Doctor</b>	<b>130</b>	<b>230</b>
FPT University	Year		<b>2015</b>	<b>2020</b>
	Number of Students		6,000	10,000
	Training Structure	University	90%	90%
		College	10%	10%
	No. of Student	University	5,400	9,000
		College	600	1,000
	Training Lenth (year)	University	4	4
		College	2	2
	% of Graduation	University	90%	90%
		College	90%	90%
	No of annual graduates (calculated)	University	1,215	2,025
		College	270	450
	<b>No of annual graduates (adopted)</b>	<b>University</b>	<b>1,200</b>	<b>2,000</b>
<b>College</b>		<b>300</b>	<b>500</b>	
HTWC	Stage		<b>Stage-1</b>	<b>Stage-2</b>
	Number of Students		1,000	3,000
	Training Structure	College	40%	40%
		Vocational	60%	60%
	No. of Student	College	400	1,200
		Vocational	600	1,800
	Training Lenth (year)	College	2	2
		Vocational	3	3
	% of Graduation	College	90%	90%
		Vocational	90%	90%
	No of annual graduates (calculated)	College	180	540
		Vocational	180	540
	<b>No of annual graduates (adopted)</b>	<b>College</b>	<b>150</b>	<b>550</b>
<b>Vocational</b>		<b>150</b>	<b>550</b>	

Source: JICA Study Team

### (3) Human Supply to HHTP

The next figure illustrates the human resource supply from universities, colleges, and high school in Hanoi and Ha Tay; and from Hanoi University of Science and Technology (HUST), FPT University, and High-tech Workforce Training Center (HWTC) which are planned in HHTP.

It is estimated that approximately 44,000 and 2,530-4,330 of students graduate from universities and higher outside HHTP (Hanoi and Ha Tay) and inside HHTP, respectively. As for college, approximately 72,000 and 600-1,600 of students are estimated to be graduated from outside HHTP (Hanoi and Ha Tay) and inside HHTP, respectively.



- Note: 1. Figures denotes number of graduates in a year  
 2. No. graduates from universities and colleges are forecasts in 2010, while that from high school is past data in 2004-2005.  
 3. Estimated for HUST (Hanoi University of Science and Technology) assuming total no. of students is 6,000 - 10,000  
 4. Estimated for FPT University assuming total no. of students is 6,000 - 10,000  
 5. Estimated for HTWC (High-tech Workforce Training Center) assuming total no. of students is 1,000 - 3,000

**Figure 6.5.5 Human Resource Supply by Source**

#### 6.5.6 Supply and Demand for HHTP

The next figure summarizes the supply and demand for human resource in HHTP estimated above.

As the results of estimation, the following are revealed:

- Regarding university and higher level, number of graduates from educational institutes in HHTP is about 50-65% of demanded in HHTP. Assuming a certain number of students graduated from HUST, FPT University and HWTC get jobs outside HHTP, more than half of demanded human resource is required to be supplied from outside HHTP, especially from Hanoi and former Ha Tay province.
- As for college and high school level, number of graduates from education institutes in HHTP is quite smaller than demand for HHTP, even if HWTC is established. Majority of this level is, therefore, needed to be supplied from outside HHTP.

Hence, the following functions of HHTP are justified:

- Establishment of educational and training institutes in HHTP including HUST, FPT University and HWTC.
- Establishment of Hoa Lac High-tech Human Resource Platform (HHRP) to ensure labor force supply to HHTP from education and training institutes both inside and outside HHTP.

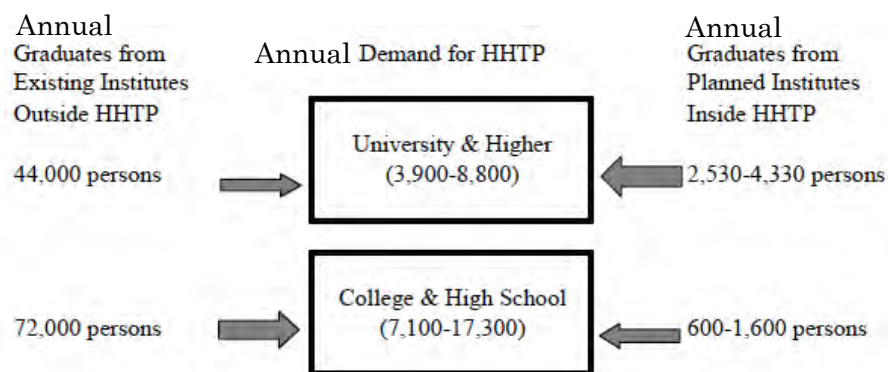


Figure 6.5.6 Supply and Demand for Human Resource in HHTP

## 6.6 NECESSITY OF ACTION PLAN FOR EACH ISSUE

Following table summaries status, issue, recommendation, responsible organizations, and organization concerned for the following priority issue:

- 1) Land acquirement and resettlement,
- 2) Enhancement of organization,
- 3) Relocation of universities and research institutes, and
- 4) Investment Promotion.

It is recommended that the HHTP-MB should take the following steps for each priority issue to steadily implement the project.

- First, develop action plan that strictly defines the actions together with deadline and responsible person required to settle each issue for accelerating the project implementation,
- Second, take actions based on the action plan, and
- Third, assess the progress for each issue at regular intervals.

Table 6.6.1 Summary of Recommendation for Each Issue (1/4)

Item (Corresponding project no. proposed by JICA Updated MP)	Status	Issues	Recommendations	Responsible Organizations	Organizations Concerned
(1) Land Acquisition and Resettlement (A1)	<ul style="list-style-type: none"> <li>Completed 826.5 ha (82% of the total area) : Hoa Lac Area 595.5 ha + Northern Phu Cat Area 231 ha, as of January 2009</li> <li>The 1st resettlement area (7.8 ha) was finished in 2005.</li> <li>The 2nd resettlement area (36.4 ha) is expected to be completed in Quarter II /2009</li> </ul>	<ul style="list-style-type: none"> <li>Local authorities do not work sufficiently on the problems concerning land acquisition and resettlement of inhabitants.</li> <li>Topographic survey of the JICA Study Team was sabotaged by some inhabitants</li> <li>There is a delay in land acquisition and resettlement of inhabitants</li> </ul>	<ul style="list-style-type: none"> <li>To accelerate development of resettlement area, before the further land acquisition</li> <li>To provide an explanation to inhabitants in order to promote an understanding of HHTP project</li> <li>To promote land acquisition and resettlement of inhabitants</li> </ul>	<ul style="list-style-type: none"> <li>Hanoi People's Committee</li> <li>HHTP-MB</li> <li>Local Authorities (?)</li> </ul>	
1 Enhancement of Organization (B1, C1, C2)	<ul style="list-style-type: none"> <li>The HHTP-MB has not yet been positioned directly under the Prime Minister</li> <li>Since the last year, there is small change in staff members. Number of Vice Chairmen was decreased from 4 to one. Number of staff was increased for the incubation center and PMU.</li> </ul>	<ul style="list-style-type: none"> <li>Lack of coordination ability                             <ul style="list-style-type: none"> <li>* Coordination with MOT for the work related to the interchange, etc.</li> <li>* Coordination with MARD for retention function</li> <li>* Coordination among FPT and VINACONEX in solving the problem of enclave in the developed area</li> </ul> </li> <li>Promoting a project that is not matched with the overall plan (Marketing of Greenfield site)</li> </ul>	<ul style="list-style-type: none"> <li>To strengthen coordination ability and leadership of the HHTP-MB                             <ul style="list-style-type: none"> <li>* Coordination with MOT for the work related to the interchange, etc</li> <li>* Coordination with MARD for retention function</li> <li>* Coordination among FPT and VINACONEX in solving the problem of enclave in the developed area</li> <li>* Development management based on the overall plan</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>MOT</li> <li>MARD</li> <li>FPT</li> <li>VINACONEX</li> </ul>
		<ul style="list-style-type: none"> <li>Indefinite division of the roles among the HHTP-MB and developers</li> </ul>	<ul style="list-style-type: none"> <li>To define division of roles among the HHTP-MB and developers</li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>FPT</li> <li>VINACONEX</li> </ul>
		<ul style="list-style-type: none"> <li>The developer has not been allowed to start working yet</li> </ul>	<ul style="list-style-type: none"> <li>To commence the developer's work early. (To complete the approval procedure for the developer's work early)</li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>FPT</li> <li>VINACONEX</li> </ul>
		<ul style="list-style-type: none"> <li>Indefinite and insufficient organizational structure for constructing infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>To strengthen organization and ability for constructing infrastructure                             <ul style="list-style-type: none"> <li>* To define the responsible organization (PMU)</li> <li>* To build capacity of the responsible organization, for example, assignment of a vice chairman in charge of infrastructure construction and reinforcement by personnel transfer from the organizations concerned.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>MOC</li> <li>MOT</li> <li>EVN</li> <li>VNPT, VITTEL</li> <li>FPT</li> <li>VINACONEX</li> </ul>
		<ul style="list-style-type: none"> <li>Insufficient implementation structure</li> </ul>	<ul style="list-style-type: none"> <li>To strengthen organization and ability for investment promotion</li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>FPT</li> <li>VINACONEX</li> </ul>
		<ul style="list-style-type: none"> <li>Insufficient structure for operation and maintenance of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>To construct structure for operation and maintenance of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>FPT</li> <li>VINACONEX</li> </ul>
		<ul style="list-style-type: none"> <li>Pending collecting system of utility charges, etc</li> </ul>	<ul style="list-style-type: none"> <li>To make collecting system of utility charges</li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>FPT</li> <li>VINACONEX</li> <li>EVN</li> <li>VNPT, VITTEL</li> <li>URENCO</li> <li>VIVASEEN</li> </ul>

Table 6.6.1 Summary of Recommendation for Each Issue (2/4)

Item (Corresponding project no. proposed by JICA Updated MP)	Status	Issues	Recommendations	Responsible Organizations	Organizations Concerned
2. Relocation of Universities and Research Institutes (A2)					
Education and Training Institutions (H1, H4, H5, H6, H9)	<ul style="list-style-type: none"> <li>Phased relocation of <b>VNU</b> will commence in 2010. Designs for infrastructure and facilities, as well as the construction of dormitories, were partially completed as of October 2008. Construction school buildings have not yet been started.</li> <li>The investor for construction was changed from VNU-Hanoi to MOC in September 2008.</li> </ul>		<ul style="list-style-type: none"> <li>Accelerating the relocation of VNU</li> </ul>	<ul style="list-style-type: none"> <li>MOC</li> </ul>	<ul style="list-style-type: none"> <li>MOET</li> <li>VNU-Hanoi</li> </ul>
	<ul style="list-style-type: none"> <li>VAST is planning to establish <b>Hanoi University of Science &amp; Technology (HUST)</b>. The Government of Vietnam, through the Prime Minister, has requested ADB to consider financing.</li> </ul>		<ul style="list-style-type: none"> <li>Formulating the establishment schedule of HUST</li> </ul>	<ul style="list-style-type: none"> <li>VAST</li> </ul>	<ul style="list-style-type: none"> <li>MOET</li> </ul>
	<ul style="list-style-type: none"> <li>The groundbreaking ceremony of the first phase project of <b>FPT University</b> was scheduled in September 2008, but it has not been held yet as of the end of October 2008.</li> </ul>		<ul style="list-style-type: none"> <li>Accelerating the construction of FPT University</li> </ul>	<ul style="list-style-type: none"> <li>FPT</li> </ul>	<ul style="list-style-type: none"> <li>MOET</li> </ul>
	<ul style="list-style-type: none"> <li>VITEC is planning to establish <b>High-tech Workforce Training Center</b>.</li> </ul>		<ul style="list-style-type: none"> <li>Formulating the plan of High-tech Workforce Training Center by VITEC</li> </ul>	<ul style="list-style-type: none"> <li>HHTP-MB (VITEC)</li> </ul>	<ul style="list-style-type: none"> <li>MOST</li> </ul>
Research Institutes (B?, F1, F2)	<ul style="list-style-type: none"> <li>VAST commenced the discussion with the HHTP-MB regarding the relocation plan of 10 research institutes besides HUST. The HHTP-MB has already allocated land for Vietnam Metrology Institute (VMI), Space Technology Center (STC), and National Institute of Hygiene and Epidemiology (NIHE).</li> <li>Vietnam Ship-Building Industry Corporation (VINASHIN) received a decision from the HHTP-MB to allocate land. Construction will be done with a financial support from Poland.</li> </ul>		<ul style="list-style-type: none"> <li>Accelerating relocation of research institutes affiliated with VAST (formulating the detailed plan and financing plan for relocation)</li> <li>Promoting relocation of research institutes under various ministries at a strong initiative of Prime Minister</li> </ul>	<ul style="list-style-type: none"> <li>VAST</li> <li>STI/VAST</li> <li>NIHE/MOH</li> <li>VINASHIN/MOT</li> </ul>	<ul style="list-style-type: none"> <li>MOST</li> </ul>

Table 6.6.1 Summary of Recommendation for Each Issue (3/4)

Item (Corresponding project no. proposed by IICA Updated MP)	Status	Issues	Recommendations	Responsible Organizations	Organizations Concerned
3. Investment Promotion	<ul style="list-style-type: none"> <li>As for private investment in Hoa Lac Area, 16 companies have already obtained investment license. Among them, 3 are in operation; 8 are under construction; and 5 are under preparation for construction.</li> <li>In the Northern Phu Cat Area, investment license has already been issued to 13 companies.</li> </ul>			<ul style="list-style-type: none"> <li>IIITP-MB</li> </ul>	
<ul style="list-style-type: none"> <li>Infrastructure Development (A3, A4, A5, A6)</li> </ul>	<ul style="list-style-type: none"> <li>As for telecommunication, VNPT and Viettel decided investment to HHTP.</li> </ul>	<ul style="list-style-type: none"> <li>Early development of common infrastructure</li> <li>Early development of stable power supply system</li> <li>Early development of high speed telecommunication / internet</li> </ul>		<ul style="list-style-type: none"> <li>HHTP-MB</li> </ul>	
<ul style="list-style-type: none"> <li>Taxation Incentive (G1)</li> </ul>	<ul style="list-style-type: none"> <li>For investors in SHTP and HHTP, Corporate Income Tax (CIT) is exempted for 4 years and reduced to 5% for subsequent 9 years. Preferential treatment concerning CIT only for investors in HHTP is under discussion by the Government.</li> </ul>		<ul style="list-style-type: none"> <li>Early completion of discussion on preferential treatment concerning CIT only for investors in HHTP</li> </ul>	<ul style="list-style-type: none"> <li>MOF ?</li> <li>MPI ?</li> <li>HHTP-MB</li> </ul>	
		<ul style="list-style-type: none"> <li>No preferential treatment for personal income tax</li> </ul>	<ul style="list-style-type: none"> <li>Early consideration of preferential treatment concerning personal income tax</li> </ul>	<ul style="list-style-type: none"> <li>MOF ?</li> <li>MPI ?</li> <li>HHTP-MB</li> </ul>	
	<ul style="list-style-type: none"> <li>Limited preferential treatment for import tax</li> </ul>		<ul style="list-style-type: none"> <li>Strengthening preferential treatment for import tax (Exemption from import tax imposed to all goods, machines, and equipment)</li> </ul>	<ul style="list-style-type: none"> <li>MOF ?</li> <li>MPI ?</li> <li>IIITP-MB</li> </ul>	
<ul style="list-style-type: none"> <li>Simplification of Procedures (G2)</li> </ul>	<ul style="list-style-type: none"> <li>No progress in establishing one-stop service structure due to no operation of the developer</li> </ul>		<ul style="list-style-type: none"> <li>Early establishment of the organizational structure for one-stop service</li> </ul>	<ul style="list-style-type: none"> <li>IIITP-MB</li> </ul>	<ul style="list-style-type: none"> <li>FPT</li> <li>VINACONEX</li> </ul>
	<ul style="list-style-type: none"> <li>Customs clearance was improved by opening customs office in HHTP.</li> </ul>		<ul style="list-style-type: none"> <li>Construction of inland clearance depot (ICD) and bonded warehouse</li> </ul>	<ul style="list-style-type: none"> <li>IIITP-MB</li> </ul>	<ul style="list-style-type: none"> <li>MOF (Custom Department)</li> <li>Logistic companies</li> </ul>



**Table 6.6.1 Summary of Recommendation for Each Issue (4/4)**

Item (Corresponding project no. proposed by JICA Updated MP)	Status	Issues	Recommendations	Responsible Organizations	Organizations Concerned
• Provision of Services to Tenants (G3, G4, G7)	<ul style="list-style-type: none"> <li>• Vietnam Metrology Institute (VMI) has submitted the detailed plan of relocation project. VMI will be able to provide test and analysis services by utilizing highly-accurate standards and other instruments.</li> <li>• The HHTP-MB is considering the implementation structure taking the lead in building rental factories for SME.</li> <li>• High-tech Business Incubator (HBI) is providing incubation service to 8 tenants in the start up building.</li> </ul>		<ul style="list-style-type: none"> <li>• Consideration of support service to tenants including test and analysis services provided by VMI and other organization.</li> </ul>	<ul style="list-style-type: none"> <li>• HHTP MB</li> <li>• VMI</li> </ul>	<ul style="list-style-type: none"> <li>• VMI</li> </ul>
	<ul style="list-style-type: none"> <li>• The HHTP-MB is planning to provide multiple-entry visa to foreigners.</li> </ul>		<ul style="list-style-type: none"> <li>• Early provision of multiple-entry visa to foreigners.</li> </ul>	<ul style="list-style-type: none"> <li>• HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>• MOFA</li> </ul>
• Human Resource Supply (D1)	<ul style="list-style-type: none"> <li>• VITEC is responsible for human resource supply, but it has not a recruitment service mechanism.</li> </ul>		<ul style="list-style-type: none"> <li>• Development of mechanism for ensuring human resource (human resource platform)</li> </ul>	<ul style="list-style-type: none"> <li>• HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
• Marketing (G5, G6)	<ul style="list-style-type: none"> <li>• There is not progress in formulating a marketing plan and performing marketing activity, because the developer has not started substantive activities yet.</li> </ul>		<ul style="list-style-type: none"> <li>• Formulating the well thought out marketing plan.</li> </ul>	<ul style="list-style-type: none"> <li>• HHTP MB</li> </ul>	<ul style="list-style-type: none"> <li>• FPT</li> <li>• VINACONEX</li> </ul>
4. Others			<ul style="list-style-type: none"> <li>• Attracting commercial and housing facilities</li> </ul>	<ul style="list-style-type: none"> <li>• HHTP-MB</li> </ul>	<ul style="list-style-type: none"> <li>• Developers</li> </ul>

## CHAPTER 7 COST ESTIMATE

### 7.1 PROCUREMENT PACKAGE PLAN

The features of the Project are described in the associated chapters. It is linear in nature, covers vast rural areas and huge earthmoving works of more than ten million cubic meters for land reclamation and coordination with the presently ongoing works in the Project area.

These factors, together with its magnitude, limited accesses to the construction sites and the need for speedy completion, are considered to make it unsuitable for implementation under one or two contracts packages. Taking account of this, the contract package is divided into five components.

Among five components, the contract packages of CP-1A, CP-1B, CP-2 and CP-3 are categorized into the infrastructure portion. These four components are composed of one international competitive bidding (ICB) for wastewater treatment plant, and three local competitive bidding (LCB) for road transport system, zone land reclamation, drainage, water supply and power supply plant as below:

Contract CP-1A	Major infrastructure development Local competitive bidding (LCB)
Contract CP-1B	Zone land reclamation Local competitive bidding (LCB)
Contract CP-2	Wastewater treatment plant International competitive bidding (ICB)
Contract CP-3	Power supply system Local competitive bidding (LCB)

On the other hand, the following contract package CP-4 for internal transport system is categorized into other portion and subject to local competitive bidding (LCB):

Contract CP-4	Internal transport system Local competitive bidding (LCB)
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### 7.2 PROJECT COST

#### 7.2.1 Terms of Estimation

The Project cost was estimated based on the following conditions and assumptions:

- Price level: at the end of December 2008.
- Exchange rate: USD 1 = JPY 104.91 = VND 16,392 (JPY 1 = VND 0.0064).
- Unit costs: Most of unit costs were estimated at the local currency and allocated into 10% for foreign currency portion and 90% for local currency portion, respectively.  
Unit costs of imported material and equipment/plant were allocated into 80% for foreign currency portion and 20% for local currency portion, respectively.
- Import duties: 5% of CIF Hai Phong port prices of the costs for procurement of plant and equipment from foreign countries.
- Tax for contract: 10% of the contract amount.
- Administration cost for the GOV: assumed to be 2% of construction cost and engineering services.
- Price escalations are assumed to be 1.7% for foreign currency and 7.4% for local currency.

- h) Physical contingency is assumed to be 10%.
- i) Value Added Tax (VAT) is 10% of the expenditure in local currency of the infrastructure scheme portion.

### 7.2.2 Construction Cost

The construction costs of the contract packages above were prepared with reference to prevailed market prices of construction resources, standard criteria and actual costs of similar projects.

**Table 7.2.1 Construction Cost**

Contract Package	Infrastructure	Cost (JPY)
<b>I. Infrastructure scheme portion</b>		
<b>CP-1A</b>	<b>Major infrastructure development</b>	
	1) Preparatory works	745,751,000
	2) Tan Xa Lake protection and green areas	109,266,000
	3) Road and transportation system	6,819,567,000
	4) Drainage system	2,307,005,000
	5) Water supply	884,045,000
	6) Sewerage	420,242,000
	7) Telecommunication	2,804,880,000
	8) Technical Ditch	1,570,020,000
	9) Soil Disposal	58,737,000
	<b>Sub-total CP-1A</b>	<b>15,719,513,000</b>
<b>CP-1B</b>	<b>Zone land embankment</b>	
	1) Preparatory works	330,743,000
	2) Land reclamation	6,614,845,000
	3) Soil Disposal	484,193,000
	<b>Sub-total CP-1B</b>	<b>7,429,781,000</b>
<b>CP-2</b>	<b>Wastewater treatment plant</b>	
	1) Preparatory works	181,244,000
	2) Sewerage treatment plant	3,624,872,000
	<b>Sub-total CP-2</b>	<b>3,806,116,000</b>
<b>CP-3</b>	<b>Power supply</b>	
	1) Preparatory works	194,597,000
	2) Power supply	3,891,934,000
	<b>Sub-total CP-3</b>	<b>4,086,531,000</b>
	<b>Total (CP-1A, 1B, 2 and3)</b>	<b>31,041,941,000</b>
<b>II. Other scheme portion</b>		
<b>CP-4</b>	<b>Internal transport system</b>	
	1) Procurement of middle bus	36,960,000
	2) Procurement of large bus	311,040,000
	<b>Sub-total CP-4</b>	<b>348,000,000</b>
	<b>Land Acquisition and compensation</b>	<b>4,480,000,000</b>

Source: JICA Study Team

### 7.2.3 Engineering Service Cost

In line with the proposed implementation schedule, the proposed engineering services were programmed on the following basis:

- The engineering Terms of Reference (TOR) was considered based on the experience of past similar projects in Vietnam.
- The assignment schedule was prepared based on the construction time schedule.
- Billing rate was assumed from the rates commonly used for international aid projects in Vietnam.

Summary of the assumed TOR is listed below:

**Table 7.2.2 Summary of Terms of Reference (TOR)**

<b>1. DESIGN STAGE</b>	
<b>A. STUDY REVIEW WORKS</b>	
1.A.1	Review of Previous Related Studies
1.A.2	Review and Update Data
1.A.3	Preparation of Necessary Project Document
<b>B. DETAILED DESIGN WORKS</b>	
1.B.1	Field Investigation 1) Geotechnical Investigation 2) Water Quality Sampling Survey 3) Hydrological Analysis for 3 rivers (Dua Gai, Vuc Gang and Tich) 4) Inventory Survey for existing constructed work items 5) Properties Survey for compensation 6) Environmental Monitoring Survey
1.B.2	Determination of Design Standard and Criteria
1.B.3	Detailed Design Works
1.B.4	Bill of Quantity and Specifications
1.B.5	Construction Plan and Schedule
1.B.6	Cost Estimate
1.B.7	Pre-qualification Documents
1.B.8	Tender Documents
1.B.9	Environmental Monitoring and Management Program
<b>C. TECHNICAL ASSISTANCE (SOFT COMPONENTS) during DESIGN STAGE</b>	
1.C.1	Empowerment and Assistance for Project Implementation
1.C.2	Empowerment and Assistance for Investment Promotion
1.C.3	Enhancement of Coordination Structure of HHTP-MB, Developer and Supply
<b>2. PRE-CONSTRUCTION STAGE</b>	
2.1	Pre-Qualification
2.2	Assistance in Tender
2.3	Assistance in Contract Award
<b>3. CONSTRUCTION SUPERVISION STAGE</b>	
3.1	Preparatory Works/Mobilization
3.2	Preparation of Construction Drawings and Specifications
3.3	Check of the Contractor's Drawings and Specifications
3.4	Check of Construction Plan
3.5	Control of Quantity and Quality
3.6	Monitoring and Control of Work Progress
3.7	Environmental Monitoring during Construction Period
3.8	Control of Payment
3.9	Supervising Preparation of As-built Drawings and Completion Report
3.10	Supervising Preparation of Operation and Maintenance Manuals
3.11	Final Inspection and Completion Certificate
3.12	Assistance in Institutional Development
3.13	OJT based Transfer of Technical Knowledge

Source: JICA Study Team

Required engineering service to implement the TOR above is shown in the table below.

**Table 7.2.3 Assumed Required of Engineer's Inputs**

Engineering Stage	Foreign Engineer (Man-Month)	Local Engineer (Man-Month)
1. Design Stage	206	352
2. Pre-Construction Stage	15	27
3. Construction Supervision Stage	350	2,074
4. Soft-Component Services	39	
5. Project Manager	117	
<b>TOTAL</b>	<b>727</b>	<b>2,453</b>

Source: JICA Study Team

The engineering fees for stages including design works, pre-construction and construction

supervision are estimated at JPY 3.54 billion in total consisting JPY 2.36 billion for foreign engineering fees and JPY 1.18 billion for local engineering fees, respectively. The total engineering service cost is equivalent to about 11.4% to the total direct construction cost. It is recommended that the project manager should be assigned fully during implementation stage in order to implement the international project in line with the project management procedures under the requirements of funding agency.

#### 7.2.4 Project Cost

The estimates of the project cost excluding interests during construction were tentatively prepared through iterative process and the result of the project cost is summarized below:

**Table 7.2.4 Summary of Project Cost (Infrastructure Scheme Portion)**

Component	Cost (JPY)
<b>I. Infrastructure Scheme Portion</b>	
<b>Project Direct Construction Cost</b>	<b>31,041,941,000</b>
1)Price Escalation	18,306,981,000
2)Physical Contingency	4,934,892,000
<b>Total Construction Cost</b>	<b>54,283,814,000</b>
<b>Engineering Service Fee</b>	<b>3,540,387,000</b>
1)Price Escalation	995,601,000
2)Physical Contingency	453,599,000
<b>Total Engineering Service Cost</b>	<b>4,989,587,000</b>
<b>Total of Infrastructure Scheme Portion</b>	<b>59,273,401,000</b>

Source: JICA Study Team

**Table 7.2.5 Summary of Project Cost (Other scheme portion)**

Component	Cost (JPY)
<b>II. Other scheme portion</b>	
<b>Internal Transport System (Procurement) CP-4</b>	<b>348,000,000</b>
1)Price Escalation	246,266,000
2)Physical Contingency	59,427,000
<b>Total Procurement Cost</b>	<b>653,693,000</b>
1)Land Acquisition	4,480,000,000
2)Price Escalation	764,053,000
3)Physical Contingency	524,405,000
<b>Total Land Acquisition Cost</b>	<b>5,768,458,000</b>
1)Administration cost	1,185,468,000
2)VAT	5,927,340,000
3)Import Tax	578,161,000
<b>Total of Other Scheme Portion</b>	<b>14,113,119,000</b>
<b>TOTAL PROJECT COST</b>	<b>73,386,520,000</b>

Source: JICA Study Team

## CHAPTER 8 PROJECT EVALUATION

### 8.1 FINANCIAL EVALUATION

#### 8.1.1 General

Financial evaluation is conducted to examine financial viability of the project and also to examine expected cost and revenue in order to secure sustainability of HHTP operation, and for the HHTP-MB to be able to consider their financial plan including subsidy to be proposed to GOV. The result of financial evaluation is shown in the form of “Financial Internal Rate of Return (FIRR)”, B-C, B/C and “cash flow table”.

Financial evaluation is generally conducted from the point of view of a project. For the case of the HHTP development, the implementing agency is the HHTP-MB. However, there is no clear regulation regarding rate of fees (land lease, O&M), cost recovery, and demarcation of revenue between the HHTP-MB and developers. Therefore, the financial evaluation is conducted from the point of view of implementing agency which is the HHTP-MB.

It is also important to know that since the HHTP-MB is a governmental organization the HHTP-MB is not allowed to make profit from HHTP operation. In case the profit is made, the HHTP-MB has to return the profit to the GOV.

#### 8.1.2 Methodology of financial evaluation

##### (1) Basic Assumption of Financial Evaluation

Since cost recovery policy has not been decided, financial evaluation is conducted for two cases as shown below.

**Case 1: Cost recovery of investment is not considered**, that is, investment cost is not covered by operation revenue. Financial analysis is conducted for operation revenue and O&M and administration cost.

**Case 2: Cost recovery of investment is considered**, that is, investment cost is integrated in the financial evaluation.

##### (2) Revenue Calculation

###### 1) Operation revenue

Based on industrial estate management in Vietnam and management strategy of the HHTP-MB, operation revenue needed for HHTP operation is defined as following two items.

- a) **Land lease (infrastructure use fee)**: collected from tenant and developer for using HHTP infrastructure. The HHTP-MB plan to charge land lease to provide infrastructure in HHTP. Since land lease can be paid through one time payment or installment payment, for financial evaluation installment payment is applied.
- b) **O&M fee (infrastructure management fee)**: charged for use of O&M of basic infrastructure in HHTP. Main infrastructure that the HHTP-MB has to maintain is road, drainage, waste water treatment plant, common space (green area).

###### 2) Presumption of revenue calculation

Since regulation on financial arrangement has not been finalized, presumption is set for revenue calculation. Expected revenue from HHTP operation is calculated based on the following presumptions.

**General presumption**

- The area covered for revenue calculation is 1,036ha in the Hoa Lac area, which is equivalent to the Study Area.
- Revenue is calculated separately for the zones to be developed by HHTP-MB and private developers because land lease rate, fee collection mechanism and implementation schedule are different.
- Land lease from zones to be developed by the HHTP-MB will be transferred to the HHTP-MB from tenants directly. Land lease from zones to be developed by developer will be transferred from developer after developer's share is deducted from the land lease collected from tenants.
  - For calculation of HHTP-MB revenue, it is assumed that 20% of the land lease in the zones to be developed by private developer is transferred to the HHT-MB (estimated based on the information in JICA Updated M/P).
- Revenue generation schedule is calculated based on land reclamation schedule, that is, tenants can start operation where land reclamation is completed.
  - For zones to be developed by the HHTP-MB, land reclamation is scheduled from 2014 to 2021, so the operation of tenants expects to start after 2014.
  - For zones to be developed by private developer, land reclamation is assumed to be completed by 2018. As of 2009, a part of land has already been prepared, so tenants can start operation from 2010.

**Calculation of area where land lease can be charged**

- Among the land use plan, infrastructure, lake and buffer, green/tree are deducted from revenue generating area because lease fee can not be charged to those areas.
- Among the total area to be developed for each zone, 10% of the area is deducted as infrastructure and common area where lease can not be charged.

**Fees calculation**

- Land lease are calculated by referring to land lease in the industrial estate in Hanoi and surrounding areas and to the contract term between developer and tenants in HHTP. The land lease is set low compared with the rate charged to other industrial estate in order for HHTP to be competitive to attract investors. Land lease ranges from USD 0.4/m<sup>2</sup>/year to USD 1.4m<sup>2</sup>/year. Considering the location of HHTP, the land lease has to be kept lower than USD 1/m<sup>2</sup>/year.
- O&M fee is calculated at 15% of land lease by referring to land lease in the industrial estate in Hanoi and surrounding areas. Since price escalation affects the cost of O&M, price escalation is applied at annual rate of 7.4% for every five (5) years.

The fees used for financial evaluation is listed in the table below.

**Table 8.1.1 Estimated Fees**

	<b>Zones to be developed by Private Developer</b>	<b>Zones to be developed by HHTP-MB</b>
Land lease	US\$ 0.80/m <sup>2</sup> /year	US\$ 0.60/m <sup>2</sup> /year
O&M fee (infrastructure management)	US\$ 0.12/m <sup>2</sup> /year	US\$ 0.09/m <sup>2</sup> /year

Following figure shows revenue mechanism assumed for financial evaluation.

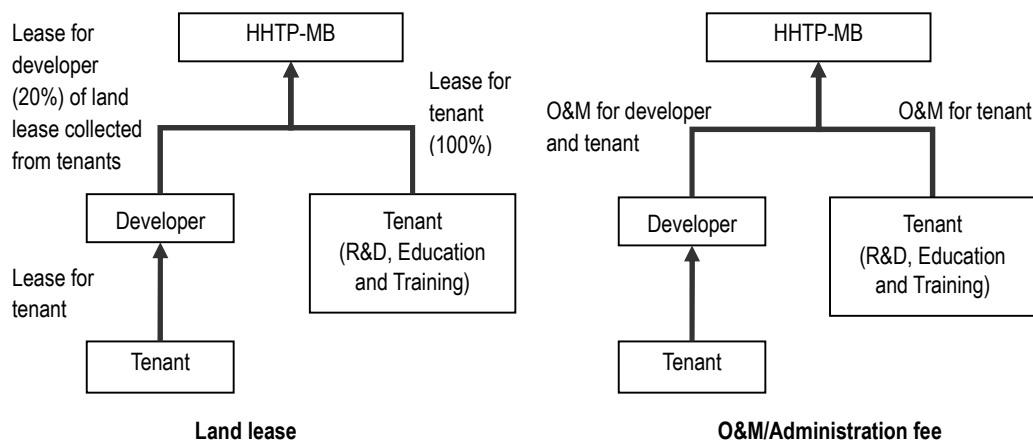


Figure 8.1.1 Revenue Collection Mechanism

(3) Cost Calculation

1) Operating cost

Costs are calculated by applying a ratio of construction cost and revenue. The operating cost required for HHTP operation is shown below.

- a) **O&M cost (Operation and Maintenance) for basic infrastructure:** the cost required for operating and maintaining basic infrastructure including roads, common space and sewerage treatment plant, lights, drainage, and other infrastructure.
- b) **HHTP-MB management cost:** The cost is required for the HHTP-MB facility maintenance, HHTP-MB staff, and activity including human resources development and support for science and research activity such as Start-Up Center.

2) Presumption of cost calculation

Expected cost from HHTP operation is calculated based on the following condition.

- i) O&M cost is calculated by applying a ratio of the construction cost which was already developed by the HHTP-MB and to be developed by ODA. Since price escalation affects the cost of O&M, price escalation is applied at annual rate of 7.4% for every five (5) years.
  - O&M cost of basic infrastructure is calculated at 0.5% of investment cost whose rate is usually applied for O&M of infrastructure (same rate is used in JICA Updated M/P).
    - O&M cost for the portion to be developed by ODA is calculated based on the construction cost JPY 31.0 billion (USD 295.9 million) which is calculated in the Study.
    - O&M for the portion which the HHTP-MB constructed is calculated based on cumulative expenses until 2008. HHTP-MB has already spent VND 1,000 billion (USD 60 million) for infrastructure and study necessary for HHTP development.



- O&M cost of wastewater treatment plant is calculated at 2% of construction cost whose rate is usually applied for O&M of wastewater treatment plant.
  - HHTP-MB management cost is calculated based on the HHTP-MB budget. In 2007, approximately VND 8,280 million (USD 500,000) is spent on the HHTP-MB management and has to be increased as HHTP is developed.
- ii) O&M cost is required as infrastructure is developed.
- O&M of ODA portion of the construction cost is calculated based on implementation schedule. A part of O&M is required from 2014 and in 2021 when construction is expected to be completed, full O&M is required.
  - O&M of the HHTP-MB portion of construction assumes to start from 2010 because some infrastructure has already been constructed.
- iii) ODA loan condition is calculated based on Yen loan condition, which is assumed as shown below:
- Interest rate: 1.3%
  - Loan periods: 30 years
  - Grace period: 10 years (It is noted that the interest payment shall be made during the loan period)
  - Total loan amount is estimated to be JPY 34.6 billion (USD 329.6 million) which is consist of JPY 31.0 billion (USD 295.9 million) for construction and JPY 3.5 billion (USD 33.7 million) for Engineering Service. This amount along with the land acquisition and compensation amount (JPY 4.5 billion or USD 42 million) has been used as ODA portion of investment cost for FIRR analysis.

### 8.1.3 FIRR (Financial Internal Rate of Return) Analysis

Based on the cost and revenue calculated above, price escalation is deducted for FIRR calculation. FIRR can not be calculated. FIRR calculation result is shown in the table below.

Net Present Value (NPV) analysis is also conducted. NPV calculated at discount rate of 4.15% (2007 Treasury Bill rate). NPV of cost and revenue is USD 389 million (JPY 40.9 billion) and USD 42 million (JPY 4.4 billion), respectively. B-C is USD -347 million (JPY 36.4 billion) and B/C is 0.11.

**Table 8.1.2 FIRR and NPV**

(US\$ 1000)

Year	Cost				Revenue	Profit/Loss
	Investment	O&M	Administration	Total Cost		
~2009	60,339	353	500	61,192	0	-61,192
2010	34,163	353	500	35,016	59	-34,956
2011	8,541	353	500	9,394	118	-9,275
2012	8,436	353	500	9,289	247	-9,042
2013	3,374	353	500	4,227	370	-3,858
2014	82,498	831	500	83,828	769	-83,060
2015	108,142	1,559	500	110,200	1,167	-109,033
2016	89,626	2,209	500	92,336	1,566	-90,770
2017	10,219	2,255	500	12,974	1,965	-11,009
2018	10,219	2,301	500	13,020	2,364	-10,657
2019	10,219	2,347	500	13,066	2,639	-10,427
2020	10,219	2,393	500	13,112	2,915	-10,198
2021	0	2,393	500	2,893	3,190	297
2022	0	2,393	500	2,893	3,190	297
2023	0	2,393	500	2,893	3,190	297
2024	0	2,393	500	2,893	3,190	297
2025	0	2,393	500	2,893	3,190	297
2026	0	2,393	500	2,893	3,190	297
2027	0	2,393	500	2,893	3,190	297
2028	0	2,393	500	2,893	3,190	297
2029	0	2,393	500	2,893	3,190	297
2030	0	2,393	500	2,893	3,190	297
2031	0	2,393	500	2,893	3,190	297
2032	0	2,393	500	2,893	3,190	297
2033	0	2,393	500	2,893	3,190	297
2034	0	2,393	500	2,893	3,190	297
2035	0	2,393	500	2,893	3,190	297
2036	0	2,393	500	2,893	3,190	297
2037	0	2,393	500	2,893	3,190	297
2038	0	2,393	500	2,893	3,190	297
2039	0	2,393	500	2,893	3,190	297
2040	0	2,393	500	2,893	3,190	297
2041	0	2,393	500	2,893	3,190	297
2042	0	2,393	500	2,893	3,190	297
2043	0	2,393	500	2,893	3,190	297
2044	0	2,393	500	2,893	3,190	297
2045	0	2,393	500	2,893	3,190	297
2046	0	2,393	500	2,893	3,190	297
2047	0	2,393	500	2,893	3,190	297
2048	0	2,393	500	2,893	3,190	297
2049	0	2,393	500	2,893	3,190	297
Total	435,994	85,065	20,500	541,559	106,688	—
NPV				389,680	42,372	

Discount rate 4.15%

IRR —  
B-C -347,309  
B/C 0.11

#### 8.1.4 Cash Flow Analysis

Based on the condition mentioned above, cash flow analysis is conducted. Cash flow is conducted for 40 year period which is typical contract period of industrial estate. The result of cash flow analysis is summarized below.

##### (1) Cash Flow without Investment Cost Recovery

- Expected revenue is around USD 3.5 million when HHTP is in full operation. The cost, however, becomes higher because price escalation has to be integrated. Since it is difficult to raise land lease because the lease rate has to be kept low for strategic reason, land lease can not be raised to cover O&M cost and price escalation. As a result, loss becomes bigger each year.
- In order for the HHTP-MB to conduct an appropriate level of O&M, government funds, such as subsidy needs to be allocated to cover the O&M cost.

##### (2) Cash Flow with Investment Cost Recovery

- Revenue is limited so the revenue can not cover investment cost.
- Loan repayment is summarized as follows. During the grace period, interest payment in USD 4.3 million/year. When capital payment starts, loan payment will increase to USD 18.8 million/year. Considering annual revenue is around USD 3.5 million which should cover O&M cost, loan payment by HHTP operation revenue is difficult.
- In order for the cash balance to improve, the GOV also has to consider allocating fund for construction of infrastructure development, which will reduce burden of interest payment of ODA loan.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	(US\$)
<b>1 Revenue</b>																					
<b>1.1 Zone to be developed by private developer</b>																					
1.1.1 Land lease (infrastructure use fee)	169,000	338,000	704,000	1,057,000	1,409,000	1,761,000	2,113,000	2,465,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000
1.1.2 O&M fee (infrastructure management)	25,000	51,000	106,000	158,000	227,000	284,000	340,000	397,000	454,000	488,000	488,000	488,000	488,000	488,000	524,000	524,000	524,000	524,000	524,000	524,000	563,000
Total Revenue from Zone by private developer	194,000	389,000	810,000	1,215,000	1,636,000	2,045,000	2,453,000	2,862,000	3,271,000	3,305,000	3,305,000	3,305,000	3,305,000	3,305,000	3,341,000	3,341,000	3,341,000	3,341,000	3,341,000	3,341,000	3,380,000
<b>Revenue to be transferred to HHTP-MB</b>	<b>59,000</b>	<b>119,000</b>	<b>247,000</b>	<b>369,000</b>	<b>509,000</b>	<b>636,000</b>	<b>763,000</b>	<b>890,000</b>	<b>1,017,000</b>	<b>1,051,000</b>	<b>1,051,000</b>	<b>1,051,000</b>	<b>1,051,000</b>	<b>1,051,000</b>	<b>1,087,000</b>	<b>1,087,000</b>	<b>1,087,000</b>	<b>1,087,000</b>	<b>1,087,000</b>	<b>1,087,000</b>	<b>1,126,000</b>
<b>1.2 Zone to be developed by HHTP-MB</b>																					
1.2.1 Land lease (infrastructure use fee)	0	0	0	0	240,000	479,000	719,000	958,000	1,198,000	1,437,000	1,677,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000
1.2.2 O&M fee (infrastructure management)	0	0	0	0	39,000	77,000	116,000	154,000	193,000	249,000	290,000	332,000	332,000	332,000	357,000	357,000	357,000	357,000	357,000	357,000	383,000
<b>Total Revenue from Zone by HHTP-MB</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>279,000</b>	<b>556,000</b>	<b>835,000</b>	<b>1,112,000</b>	<b>1,391,000</b>	<b>1,686,000</b>	<b>1,967,000</b>	<b>2,248,000</b>	<b>2,248,000</b>	<b>2,248,000</b>	<b>2,273,000</b>	<b>2,273,000</b>	<b>2,273,000</b>	<b>2,273,000</b>	<b>2,273,000</b>	<b>2,273,000</b>	<b>2,299,000</b>
<b>2 Operation Cost</b>																					
<b>2.1 O&amp;M of basic infrastructure</b>																					
2.1.1 O&M of infrastructure (road, open space)	285,000	285,000	285,000	285,000	663,000	1,134,000	1,520,000	1,570,000	1,619,000	1,792,000	1,845,000	1,845,000	1,845,000	1,845,000	1,981,000	1,981,000	1,981,000	1,981,000	1,981,000	1,981,000	2,127,000
2.1.2 O&M of utility (wastewater treatment plant)	68,000	68,000	68,000	68,000	229,000	541,000	852,000	852,000	852,000	915,000	915,000	915,000	915,000	915,000	983,000	983,000	983,000	983,000	983,000	983,000	1,056,000
Total O&M cost	353,000	353,000	353,000	353,000	892,000	1,675,000	2,372,000	2,422,000	2,471,000	2,707,000	2,760,000	2,760,000	2,760,000	2,760,000	2,964,000	2,964,000	2,964,000	2,964,000	2,964,000	2,964,000	3,183,000
<b>2.2 HHTP-MB management</b>	<b>500,000</b>	<b>537,000</b>	<b>577,000</b>	<b>620,000</b>	<b>666,000</b>	<b>715,000</b>	<b>768,000</b>	<b>825,000</b>	<b>886,000</b>	<b>952,000</b>	<b>1,022,000</b>	<b>1,098,000</b>	<b>1,179,000</b>	<b>1,266,000</b>	<b>1,360,000</b>	<b>1,461,000</b>	<b>1,569,000</b>	<b>1,685,000</b>	<b>1,810,000</b>	<b>1,944,000</b>	
<b>Total Operation Cost</b>	<b>853,000</b>	<b>890,000</b>	<b>930,000</b>	<b>973,000</b>	<b>1,558,000</b>	<b>2,390,000</b>	<b>3,140,000</b>	<b>3,247,000</b>	<b>3,357,000</b>	<b>3,659,000</b>	<b>3,782,000</b>	<b>3,858,000</b>	<b>3,939,000</b>	<b>4,026,000</b>	<b>4,324,000</b>	<b>4,425,000</b>	<b>4,533,000</b>	<b>4,649,000</b>	<b>4,774,000</b>	<b>4,900,000</b>	<b>5,127,000</b>
<b>4 Financial Condition of the HHTP-MB (without loan)</b>																					
(1) Revenue	59,000	119,000	247,000	369,000	788,000	1,192,000	1,598,000	2,002,000	2,408,000	2,737,000	3,018,000	3,299,000	3,299,000	3,299,000	3,360,000	3,360,000	3,360,000	3,360,000	3,360,000	3,360,000	3,425,000
(2) Cost	853,000	890,000	930,000	973,000	1,558,000	2,390,000	3,140,000	3,247,000	3,357,000	3,659,000	3,782,000	3,858,000	3,939,000	4,026,000	4,324,000	4,425,000	4,533,000	4,649,000	4,774,000	4,900,000	5,127,000
(3) Profit/Loss	-794,000	-771,000	-683,000	-604,000	-770,000	-1,198,000	-1,542,000	-1,245,000	-949,000	-922,000	-764,000	-559,000	-640,000	-727,000	-964,000	-1,065,000	-1,173,000	-1,289,000	-1,414,000	-1,702,000	
(4) Cumulative profit/loss	-794,000	-1,565,000	-2,248,000	-2,852,000	-3,622,000	-4,820,000	-6,362,000	-7,607,000	-8,556,000	-9,478,000	-10,242,000	-10,801,000	-11,441,000	-12,168,000	-13,132,000	-14,197,000	-15,370,000	-16,659,000	-18,073,000	-19,775,000	
<b>5 Loan payment</b>																					
Interest payment		4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,096,251	3,904,798	3,710,856	3,514,394	3,315,377	3,113,772	2,909,547	2,702,667	
Capital payment		0	0	0	0	0	0	0	0	0	0	14,538,142	14,727,137	14,918,590	15,112,532	15,308,995	15,508,012	15,709,616	15,913,841	16,120,721	
Total payment		4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	4,285,247	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	
<b>6 Cash Balance with loan repayment</b>	<b>-794,000</b>	<b>-5,056,247</b>	<b>-4,968,247</b>	<b>-4,889,247</b>	<b>-5,055,247</b>	<b>-5,483,247</b>	<b>-5,827,247</b>	<b>-5,530,247</b>	<b>-5,234,247</b>	<b>-5,207,247</b>	<b>-5,049,247</b>	<b>-19,382,388</b>	<b>-19,463,388</b>	<b>-19,550,388</b>	<b>-19,787,388</b>	<b>-19,888,388</b>	<b>-19,996,388</b>	<b>-20,112,388</b>	<b>-20,237,388</b>	<b>-20,525,388</b>	
<b>7 Government budget allocation (annual)</b>	<b>794,000</b>	<b>5,056,247</b>	<b>4,968,247</b>	<b>4,889,247</b>	<b>5,055,247</b>	<b>5,483,247</b>	<b>5,827,247</b>	<b>5,530,247</b>	<b>5,234,247</b>	<b>5,207,247</b>	<b>5,049,247</b>	<b>19,382,388</b>	<b>19,463,388</b>	<b>19,550,388</b>	<b>19,787,388</b>	<b>19,888,388</b>	<b>19,996,388</b>	<b>20,112,388</b>	<b>20,237,388</b>	<b>20,525,388</b>	
<b>Government budget allocation (cumulative)</b>	<b>794,000</b>	<b>5,850,247</b>	<b>10,818,493</b>	<b>15,707,740</b>	<b>20,762,987</b>	<b>26,246,234</b>	<b>32,073,480</b>	<b>37,603,727</b>	<b>42,837,974</b>	<b>48,045,220</b>	<b>53,094,467</b>	<b>72,476,855</b>	<b>91,940,244</b>	<b>111,490,632</b>	<b>131,278,020</b>	<b>151,166,409</b>	<b>171,162,797</b>	<b>191,275,185</b>	<b>211,512,574</b>	<b>232,037,962</b>	

Table 8.1.3 Cash Flow Table (1/2)

Table 8.1.3 Cash Flow Table (2/2)

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
<b>1 Revenue</b>																				
<b>1.1 Zone to be developed by private developer</b>																				
1.1.1 Land lease (infrastructure use fee)	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000	2,817,000
1.1.2 O&M fee (infrastructure management)	563,000	563,000	563,000	563,000	605,000	605,000	605,000	605,000	605,000	650,000	650,000	650,000	650,000	650,000	698,000	698,000	698,000	698,000	698,000	750,000
Total Revenue from Zone by private developer	3,380,000	3,380,000	3,380,000	3,380,000	3,422,000	3,422,000	3,422,000	3,422,000	3,422,000	3,467,000	3,467,000	3,467,000	3,467,000	3,467,000	3,515,000	3,515,000	3,515,000	3,515,000	3,515,000	3,567,000
Revenue to be transferred to HHTP-MB	1,126,000	1,126,000	1,126,000	1,126,000	1,168,000	1,168,000	1,168,000	1,168,000	1,168,000	1,213,000	1,213,000	1,213,000	1,213,000	1,213,000	1,261,000	1,261,000	1,261,000	1,261,000	1,261,000	1,313,000
<b>1.2 Zone to be developed by HHTP-MB</b>																				
1.2.1 Land lease (infrastructure use fee)	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000	1,916,000
1.2.2 O&M fee (infrastructure management)	383,000	383,000	383,000	383,000	411,000	411,000	411,000	411,000	411,000	441,000	441,000	441,000	441,000	441,000	474,000	474,000	474,000	474,000	474,000	509,000
Total Revenue from Zone by HHTP-MB	2,299,000	2,299,000	2,299,000	2,299,000	2,327,000	2,327,000	2,327,000	2,327,000	2,327,000	2,357,000	2,357,000	2,357,000	2,357,000	2,357,000	2,390,000	2,390,000	2,390,000	2,390,000	2,390,000	2,425,000
<b>2 Operation Cost</b>																				
<b>2.1 O&amp;M of basic infrastructure</b>																				
2.1.1 O&M of infrastructure (road, open space)	2,127,000	2,127,000	2,127,000	2,127,000	2,284,000	2,284,000	2,284,000	2,284,000	2,284,000	2,453,000	2,453,000	2,453,000	2,453,000	2,453,000	2,634,000	2,634,000	2,634,000	2,634,000	2,634,000	2,829,000
2.1.2 O&M of utility (wastewater treatment plant)	1,056,000	1,056,000	1,056,000	1,056,000	1,134,000	1,134,000	1,134,000	1,134,000	1,134,000	1,218,000	1,218,000	1,218,000	1,218,000	1,218,000	1,308,000	1,308,000	1,308,000	1,308,000	1,308,000	1,405,000
Total O&M cost	3,183,000	3,183,000	3,183,000	3,183,000	3,418,000	3,418,000	3,418,000	3,418,000	3,418,000	3,671,000	3,671,000	3,671,000	3,671,000	3,671,000	3,942,000	3,942,000	3,942,000	3,942,000	3,942,000	4,234,000
2.2 HHTP-MB management	2,088,000	2,243,000	2,409,000	2,587,000	2,778,000	2,984,000	3,205,000	3,442,000	3,697,000	3,971,000	4,265,000	4,581,000	4,920,000	5,284,000	5,675,000	6,095,000	6,546,000	7,030,000	7,550,000	8,109,000
Total Operation Cost	5,271,000	5,426,000	5,592,000	5,770,000	6,196,000	6,402,000	6,623,000	6,860,000	7,115,000	7,642,000	7,936,000	8,252,000	8,591,000	8,955,000	9,617,000	10,037,000	10,488,000	10,972,000	11,492,000	12,343,000
<b>4 Financial Condition of the HHTP-MB (without loan)</b>																				
(1) Revenue	3,425,000	3,425,000	3,425,000	3,425,000	3,495,000	3,495,000	3,495,000	3,495,000	3,495,000	3,570,000	3,570,000	3,570,000	3,570,000	3,570,000	3,651,000	3,651,000	3,651,000	3,651,000	3,651,000	3,738,000
(2) Cost	5,271,000	5,426,000	5,592,000	5,770,000	6,196,000	6,402,000	6,623,000	6,860,000	7,115,000	7,642,000	7,936,000	8,252,000	8,591,000	8,955,000	9,617,000	10,037,000	10,488,000	10,972,000	11,492,000	12,343,000
(3) Profit/Loss	-1,846,000	-2,001,000	-2,167,000	-2,345,000	-2,701,000	-2,907,000	-3,128,000	-3,365,000	-3,620,000	-4,072,000	-4,366,000	-4,682,000	-5,021,000	-5,385,000	-5,966,000	-6,386,000	-6,837,000	-7,321,000	-7,841,000	-8,605,000
(4) Cumulative profit/loss	-21,621,000	-23,622,000	-25,789,000	-28,134,000	-30,835,000	-33,742,000	-36,870,000	-40,235,000	-43,855,000	-47,927,000	-52,293,000	-56,975,000	-61,996,000	-67,381,000	-73,347,000	-79,733,000	-86,570,000	-93,891,000	-101,732,000	-110,337,000
<b>5 Loan payment</b>																				
Interest payment	2,493,098	2,280,804	2,065,751	1,847,901	1,627,220	1,403,670	1,177,214	947,813	715,431	480,027	241,564									
Capital payment	16,330,290	16,542,584	16,757,638	16,975,487	17,196,168	17,419,718	17,646,175	17,875,575	18,107,957	18,343,361	18,581,825									
Total payment	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388	18,823,388									
<b>6 Cash Balance with loan repayment</b>	-20,669,388	-20,824,388	-20,990,388	-21,168,388	-21,524,388	-21,730,388	-21,951,388	-22,188,388	-22,443,388	-22,895,388	-23,189,388	-4,682,000	-5,021,000	-5,385,000	-5,966,000	-6,386,000	-6,837,000	-7,321,000	-7,841,000	-8,605,000
7 Government budget allocation (annual)	20,669,388	20,824,388	20,990,388	21,168,388	21,524,388	21,730,388	21,951,388	22,188,388	22,443,388	22,895,388	23,189,388	4,682,000	5,021,000	5,385,000	5,966,000	6,386,000	6,837,000	7,321,000	7,841,000	8,605,000
Government budget allocation (cumulative)	252,707,350	273,531,738	294,522,127	315,690,515	337,214,903	358,945,292	380,896,680	403,085,068	425,528,456	448,423,845	471,613,233	476,295,233	481,316,233	486,701,233	492,667,233	499,053,233	505,890,233	513,211,233	521,052,233	529,657,233

### 8.1.5 Conclusion

Conclusion for financial evaluation is summarized below.

- Since land lease has to be kept low to maintain competitiveness and to attract investors, revenue is limited so the revenue can not cover O&M cost and investment cost. The HHTP development should be financed by GOV fund including finance by ODA assistance.
- GOV subsidy is needed to support to O&M cost when tenants are not fully located and revenue can not cover O&M cost.
- Since GOV has been allocating budget to the HHTP-MB for HHTP development (VND 498, 000 million or USD 30 million in 2008), GOV should keep allocating the budget for HHTP development in order to support HHTP development cost and O&M cost.
- Lease contract between the HHTP-MB and developer/tenants have to be prepared as soon as possible so that all stakeholders can examine their financial plan and the HHTP-MB can also prepare detailed financial plan to examine how much subsidy or public money is needed.

## 8.2 ECONOMIC EVALUATION

### 8.2.1 General

The HHTP development will generate economic effects in many fields which will enhance socio-economic condition not only in the Hoa Lac area but also in whole Vietnam. The economic evaluation is conducted by describing expected impact to the economy qualitatively, thus, Economic Internal Rate of Return (EIRR) is not calculated. The economic benefit is defined as the impact of HHTP operation.

### 8.2.2 Expected Economic Benefit

Expected economic benefits can be defined as i) promotion of industry and high-tech industry development, ii) promotion of high technology through R&D, education, and iii) promotion of economic development in surrounding area.

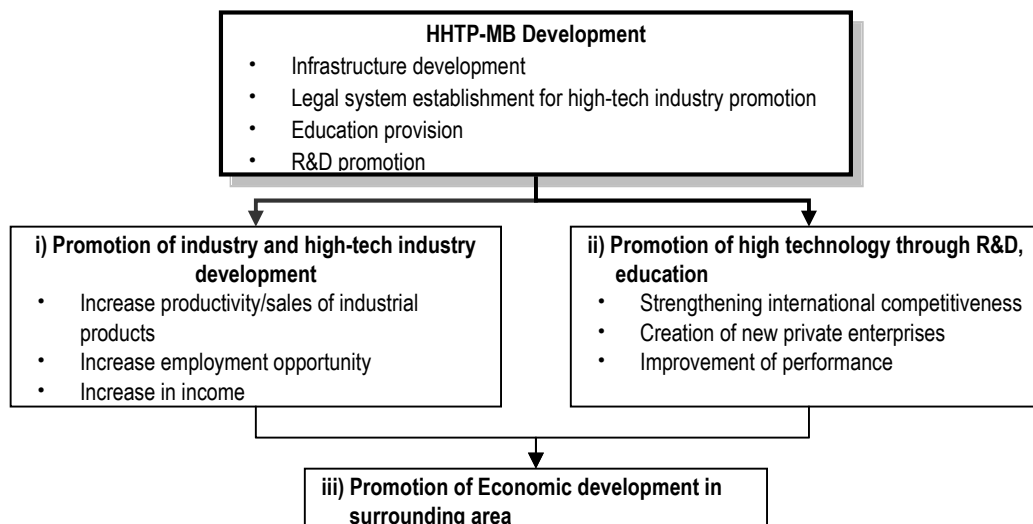


Figure 8.2.1 Composition of Benefit

(1) Industry and High Tech-industry Development

Promotion of industry and high-tech industry development is composed of (i) increase in land productivity, (ii) creation job opportunity, and (iii) increase in income as shown below:

1) Increase in Land Productivity

Before HHTP was developed, the area was mainly used as an agricultural area where was used for cassava and paddy. Productivity of land is expected to increase as the land is converted from agricultural use to industrial use for which value added is high. In addition, population density of the HHTP area increase as HHTP is developed which also contributes to increase in productivity of the land.

2) Increase Employment Opportunity

The target population of the Hoa Lac area in HHTP is 188,559 of which 89,934 is daytime population and is considered working population. Since before HHTP was developed, the area is considered predominately agricultural area and economic activity and employment opportunity was limited, 89,934 population can be considered newly created jobs.

Unlike other industrial estate, one of important activities of HHTP is to support human resources development, through which people are trained to acquire skills to be utilized as workers in HHTP, so job opportunity in HHTP is greater than ordinary industrial estate.

3) Increase in Income

Income for the manufacturing sector and science and technology sector is higher than that for agricultural sector. According to the data from General Statistics Office, it is shown that income of manufacturing sector is 50% higher than that of agricultural sector and the income for science and technology sector is 43% higher. Shifting employment from agriculture sector to industry and science and technology sector contributes to increase in income.

**Table 8.2.1 Average Monthly Income (2007)**

Sector	Monthly Income (thousand VND)	Difference (%)
Agriculture	1,398	
Manufacturing	2,101	+50
Science and technology	2,155	+43

Source: General Statistics Office

(2) Promotion of High Technology through R&D, Education

As mentioned above, R&D and education is one of important activities for supporting and promoting high tech industry in Vietnam. Expected benefit of R&D, education is summarized below.

- Strengthening of international competitiveness of overall industries caused by the installation of high-tech machinery and equipment
- Creation of new private enterprises
- Creation of job opportunity through the creation of new high-tech industries
- Increase of export of high-tech products
- Improvement of performance, quality, international competitiveness of industrial products in whole Vietnam caused by the influence of high technologies

### (3) Promotion of Economic Development in Surrounding Area

HHTTP development will bring close to 200,000 day/night population and industry, which expects to have impact in the surrounding area. HHTTP activities need to be supported by many sectors such as housing, commercial, services and supporting industry, so economic activities are expected to be accelerated, resulting increase in GRDP (Gross Regional Domestic Products).

Development of HHTTP which promote industrial development and develop residential area also contributes to mitigation of congestion in Hanoi.

#### 8.2.3 Conclusion

Conclusion from economic evaluation is summarized below.

- Promotion of industry expects to contribute to job creation and income increase.
- Synergetic effects can be maximized by executing R&D and education together with infrastructure development and industrial development promotion.
- HHPT development should be implemented together with R&D and human resources development which contributes to promotion of industry development, promotion of high-tech and economic development in the surrounding areas.

## **8.3 ENVIRONMENTAL IMPACT OF PROPOSED PROJECT**

### 8.3.1 EIA on Proposed Project

Developments in HHTTP to be examined under the EIA are infrastructures studied and proposed in the Study since EIA study is to be conducted in accordance with a feasibility study of project in Vietnam. JICA Study Team has technically supported preparation of EIA for developments studied in the Study based on the result of feasibility study for infrastructures.

The EIA study and report preparation will be completed by March 2009. The EIA report will be used by HHTTP-MB to apply approval by the competent authority of EIA that is MONRE in case of HHTTP-project. HHTTP-MB has to coordinate with the concerned agencies.

HHTTP-MB has to take care of procedure to obtain approval of EIA together with F/S required in Vietnam.

### 8.3.2 Assessment of Environmental Impacts of Proposed Project

It is anticipated that activities accompanying with the project might cause negative environmental impacts. Activities in the project to be considered in EIA are listed in Table 8.3.1. Based on the potential impact by these activities, environmental issues are analyzed and evaluated.

The assessments of environmental impact of the project are summarized in Table 8.3.2.



**Table 8.3.1 Activities in the project considered in EIA**

Phase	Activity
Pre construction phase	Land acquisition
	Resettlement of people and assets
	Alteration of land use
Construction phase	Alteration of landscape
	Operation of heavy equipment for construction
	Traffic of construction vehicle
	Disposal of residual soil and waste
Operation phase	Increase and concentration of population and traffic
	Operation and discharge of wastewater treatment plant
	Drainage for rainwater

Source: JICA Study Team

**Table 8.3.2 Summary of Environmental Impact Assessment**

Phase	Item	Environmental impact of the project
Pre Construction	Resettlement	1,200 households will be forced to be resettled by the development in F/S area. These households will be able to maintain their lives in local community after the implementation of resettlement, as the investor is preparing resettlement area.
	Living and livelihood	1,714 households will be affected by the land acquisition of the project. These households' livelihood will be affected as many households will not be able to continue their current occupation (mainly farming). Thus the investor is required to prepare land acquisition plan to compensate for affected households according to the project implementation schedule.
	Heritage	There are no historic relics and cultural assets in the area affected by the land acquisition. The investor is required to take residents intention into consideration when resettling cemetery in the project area.
Construction	Air Quality	Air quality in surrounding area will get worse temporary by the air pollutant discharged from construction vehicles and heavy equipment. It is considered that the concentration of air pollutant will not be high locally as topography condition in surrounding area is gentle. Impact of dust discharged in construction will be mitigated by washing vehicles and watering at the site.
	Water quality	It is necessary to equip facility to prevent water pollution by wastewater and sewage from construction workers. It is necessary to equip adequate facility to prevent water pollution by oil leakage from construction machineries and vehicles.
	Noise	Noise will be increased by moving of construction vehicle to site. However, impact on residents' living condition will be limited as most of construction vehicles will use main roads for movement. Noise from operation of construction machineries may affect residents' living condition. Consideration for noise mitigation is necessary by taking resettlement schedule into account when implementing construction work.
	Waste	Residual materials in construction and solid waste from construction workers will not cause impact by appropriate treatment of waste.
	Soil contamination	It was found by the field survey that the soil in project area was contaminated. Adequate measure for treatment and disposal will decrease environmental impact. The investor is required to consult with the concerned agencies and ensure safe disposal of soil from site.
	Flora, fauna and ecosystem	Growing area and habitat for plants and animal will be decreased by alteration of land use. On the other hand, Tan Xa Lake will be preserved as much as possible. As it was confirmed by the field survey that almost all species found in project area was also found in surrounding area, environmental impact on ecosystem will not be significant.
	Hydrology	It is judged development plan will not cause significant impact on hydrology as improvement of river system and retention of rainwater is considered in drainage planning.

<b>Phase</b>	<b>Item</b>	<b>Environmental impact of the project</b>
	Ground water	Excavation work for construction of sewer pipe and wastewater treatment will reach in aquifer. However, condition of groundwater will not be affected by these excavation works.
	Topography and geology	Topography of project area is gentle and construction work of the project will not change the current topographic condition significantly.
	Sanitation	The HHTP-MB will pay attention to keep sanitary condition of the site as well as the surrounding area. Therefore serious impact is not anticipated.
	Landscape	The landscape plan will contribute to developing new landscape of the high-tech park while current scenery at the area will be lost. Consistency in landscaping will be kept in the park and the landscape will impress people who will visit, work and reside.
	Accident	Investor will try to prevent accident during construction work by adequate construction supervision. If explosive bomb is found, investor will inform to concerned organization and treat adequately.
	Traffic accident	Construction vehicles will be regulated to drive only on main roads and to refrain from travelling on living space of local residents. Development of LHLE will distinguish the travelling route for residents from travelling routes for construction vehicles.
Operation	Air Quality	Transportation of vehicles will increase in accordance with increase of human movement by the project operation. Emission of air pollutant will be reduced by introducing circulating public bus. Besides, JICA Study recommends introducing electrically electric car.
	Water Quality	The discharged wastewater from the F/S area will be treated by a wastewater treatment plant and discharged to the environment. This will abide the water quality environmental standards. Therefore water quality in surrounding environment will not be affected by the project. Developers must comply with the requirement for wastewater discharge as specified in the guidelines.
	Noise	Increase of traffic and transport vehicles will increase in accordance with increase of human movement by the project operation. Traffic jam and noise will be mitigated by introducing circulating public bus.
	Waste	All tenants in the park will have contracts with URENCO and solid waste generated in the park will be transported and disposed adequately outside the park. Developers must comply with the requirement for solid waste management as specified in the guidelines.
	Odor	Wastewater treatment plant, which may cause odor is proposed in High-tech industrial zone. To minimize bad odour and any negative impact on residents, sewage sludge will be dehydrated and treated adequately outside of the park.
	Rain runoff	Rain runoff will increase as per the development of the HHTP. However, impact on surrounding area will be decreased by the improvement of retention capacity of rainwater.
	Living and livelihood	Employment opportunity will increase by the project operation.
	Accident	It is necessary to prevent accident by adequate operation of each functional zone and facilities operated by the HHTP-MB.
	Traffic accident	Traffic demand will increase in accordance with increase of human movement and progress of the project operation. Security of passengers and smoothness of traffic will be ensured by introducing circulating bus system.
	Global warming	Transportation of vehicles will increase in accordance with increase of human movement and progress of the project operation. The amount of carbon dioxide generated by these vehicles is estimated to be about 26,000 ton/year.

Source: JICA Study Team

## **CHAPTER 9 CONCLUSION AND RECOMMENDATIONS**

The conclusion of feasibility study was presented in this chapter for the four key issues; i) measures to accelerate the project implementation, ii) infrastructure development, iii) environmental aspects, and iv) recommendations. This chapter also attempts an anticipation of the development schedule of individual functional zones, although the developers will implement those functional zones development.

### **9.1 MEASURES TO ACCELERATE THE PROJECT IMPLEMENTATION**

#### **(1) Organizational Enforcement**

- a) It is quite important to improve the HHTP-MB to have a high position for infrastructure development and administrative authority for investment promotion.
- b) It is required to define the division of work for infrastructure development, operation & maintenance, and investment promotion, because HHTP is developed by the HHTP-MB in cooperation with several developers.
- c) The following measures are recommended to be taken for the success of the Hoa Lac High-tech Park Project:
  - To establish the PMU responsible for implementation of the infrastructure development project, with adequate capacity for professional and administrative tasks.
  - To improve the existing organizations related to HHTP to allow attraction of high-tech industries, educational institutions, and R&D institutions into HHTP.
  - To establish the organizational structure with adequate division of work for infrastructure development, operation & maintenance, investment promotion and one-stop service in collaboration with HHTP-MB, developers, and suppliers.

#### **(2) Preferential Treatment to Investors**

- a) To expand oriented period of the present level of preferential corporate income tax of 10%, while exempt the personal income tax for foreigners assigned for R&D and education on high-tech sector.
- b) To eliminate import tax and VAT on all commodities used by investors in HHTP.
- c) To compensate direct operational cost, such as water supply and electricity.
- d) To realize incentives for acquiring multi-entry visa for foreigners, and providing one-stop services to investors.

#### **(3) Establishment of Research and Educational Institutes**

- a) It is necessary for GOV to establish more research institutes in HHTP by the initiatives of the Prime Minister.
- b) It is really required for responsible Ministries and Agencies to take actions to realize the establishment plan of Hanoi University of Science and Technology and High-tech Workforce Training Center, and; to develop the condition for starting construction of FPT University.

(4) Investment Promotion for High-tech Industry

- a) It is recommended that FPT should be fully involved for attracting high-tech industries.
- b) It is necessary to take measures for attracting high-tech industries including: provision of tax incentives; improvement of one-stop service and custom clearance; provision of testing and analysis services; provision of rental factories for SME; formulation of well-thought-out marketing plan; marketing activities in line with the marketing plan; and continuation of incubation services in HHTP.
- c) In advanced industrial countries, there are a lot of SME that have highly-qualified technological capability to develop the high-tech industry. The establishment of a good investment climate is needed in HHTP for attracting such foreign SME, in addition to the rental factories mentioned above.

(5) Supply of Labor Force

- a) The HHTP-MB needs to have a mechanism of recruitment service that helps foreign investors. It is recommended that the HHTP-MB should establish the Hoa Lac High-tech Human Resource Platform (HHRP) as the mechanism of recruitment service.
- b) Supply and demand for human resource in HHTP were roughly estimated in the feasibility study. The results of estimation revealed that a large number of labor force should be supplied from outside HHTP, in addition to expected supply from FPT University, Hanoi University of Science and Technology, and High-tech Workforce Training Center (HWTC), which are envisaged to be located in HHTP.

(6) Action Plan for Measures to Accelerate Project Implementation

It is recommended that the HHTP-MB develop action plan that strictly defines the actions together with deadline required to settle each issues for accelerating the project implementation.

- a) Prepare action plan which described the necessary actions, period and responsible body.
- b) Implementation of the action plan.
- c) Periodical evaluation of the implementation progress by action.

## **9.2 INFRASTRUCTURE DEVELOPMENT**

### **9.2.1 Conclusions on Infrastructure**

It is recommended that the following projects proceed smoothly to the implementation stage and that they follow the proposed schedule to minimize the issues and problems arisen under HHTP development and harmonize with the infrastructures outside of HHTP.

(1) Proposed Project

The proposed projects are summarized below:

- a) Land reclamation works to meet 100 years return period.
- b) Tan Xa Lake environmental conservation with protection bank of 21km in length.

- c) Road development with 21km in length and road widening with 16km in length.
- d) Drainage system with sewer line of 39km length and retention reservoirs with a capacity of 386,000m<sup>3</sup>.
- e) Water supply system with pipeline of 64km.
- f) Sewerage system with sewer line of 54km and wastewater treatment plant with a capacity of 36,000m<sup>3</sup>.
- g) Power supply system with cables of 75km and sub station No.1 with 110/22kV, and more relocation of overhead transmission line with 5km of underground cable.
- h) Telecommunication system with telecommunication conduit of 61km, 7 base station houses, 7 antenna towers with a height of 50m and 64km optic fiber cable.
- i) Area development with area of 399ha in total for 3 zones of R&D, E&T and High-Tech City Center.

(2) Relevant Projects

Relevant projects for infrastructure outside of HHTP are recommended below:

- a) To construct a main gate interchange with a fly-over bridge and an underpass for linkage between Hoa Lac High-Tech Park (HHTP) and the Lang Hoa Lac Expressway (LHLE) as part of the LHLE Project.
- b) To improve the National Road No.21 with drainage system located on the west boundary of HHTP.
- c) To improve the existing ditch and the Trung Lu Stream/Tich Gang River with enough flow capacity to be able to receive effluents from the Tan Xa Lake in the exigency.
- d) To improve the Vuc Giang Stream between the Newly Built Reservoir and the Tich River for reinforcing its flow capacity to cope with flood prevention at the downstream area of HHTP.
- e) For VINACONEX to expand the Da River Water Supply Project and provide a distribution main.

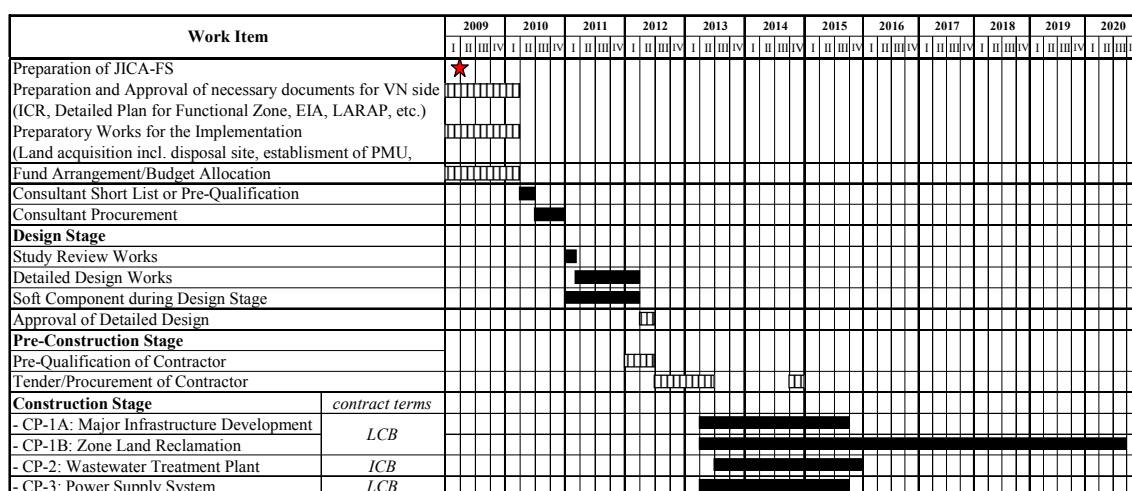
## 9.2.2 Implementation Schedule

(1) Planning Basis

- a) The schedule is assuming based on the experience of past similar projects in Vietnam, especially in Hanoi and surrounding.
- b) Indefinite time for fund approval of works, procurement works, contract procedures and fund arrangement was assumed as a fastest case in the North Vietnam.
- c) The schedule shall be modified based on the actual period required during the implementation stage.
- d) Procurement package plan is proposed based on; i) the present ability of the contractor, ii) characteristic of the work, and iii) minimum number of the packages to reduce burden and responsibility of PMU.
- e) Land embankment as a critical work should be given priority, since the total work volume will be around 14,350,000m<sup>3</sup> (2,319,000m<sup>3</sup> for road work and 12,031,000m<sup>3</sup> for zones work) excluding soil disposal with assumed volume of 2,372,000m<sup>3</sup>.

(2) Implementation Schedule

Implementation schedule is assumed as shown in Figure 9.2.1 below.



Legend: ■ fixed schedule □ fluctuate schedule depending on approval procedure  
sources: JICA Study Team

Note: fixed schedule means the schedule with fixed period/duration but not fixed for implementation timing, fluctuate schedule means the schedule with both period/duration and implementation timing are not fixed.

**Figure 9.2.1 Implementation Schedule**

Considering the complicated works on the CP-1A and CP-1B both of which are civil works and utilize the same limited number of the access roads, one package contract is strongly recommended from safety and efficiency view points of the construction works.

For smooth handing-over, power supply work package should be followed EVN customs and instructions, which commonly done by Local Competitive Bidding (LCB).

### 9.2.3 Issues and Risks

The implementation of the proposed project must be undertaken in a manner that will minimize the issues and risks that could arise due to the fact that the Study was carried out without proper data and information required for planning the inside infrastructures of HHTP. These issues and risks are listed below:

- a) Collection of data and information on the existing facilities, hydraulical and relevant infrastructures outside of HHTP was limited, eventually the plan and basic design for infrastructures were conducted based on assumptions of design factors at safety side.
- b) It is recommended that the infrastructure development plan and basic design shall be reviewed and modified based on the sufficient relevant data and progress of the related infrastructure development.

## 9.3 ENVIRONMENTAL ASPECTS

### 9.3.1 Land Acquisition and Resettlement

In the Study, it was confirmed that HHTP-MB together with local competent authorities had considerably been advancing land acquisition and resettlement for the HHTP project. Nevertheless, it is recommended to develop a practical plan for land acquisition and resettlement with adequate social considerations to the affected people, together with system for monitoring of the progress of these issues.

### 9.3.2 Consideration of Livelihood of the People Affected by the Project

While compensation for resettlement and land acquisition will be continued in accordance with relevant regulations Vietnamese, it is obvious that local residents would not be able to continue agriculture that they currently rely on for livelihood.

Some measures such as opportunities of vocational training for local people affected by project should be considered. It is fact that HHTP project may offer job opportunity after it starts to be operated. However, it seems local residents do not have enough capacity for working in HHTP project.

### 9.3.3 Execution of Environmental Management Plan

Some negative impact on the natural environment caused by the project is anticipated. Mitigation measures for negative impact are proposed in the plan of the project. Measure for preservation of natural environment such as conservation measure for Tan Xa Lake, retention function for flood water also developed in the plan.

It is necessary to implement the proposed mitigation measures and to monitor the condition of natural environment in accordance with the environmental management plan which is included in the EIA study report.

### 9.3.4 Treatment and Disposal of Contaminated Soil

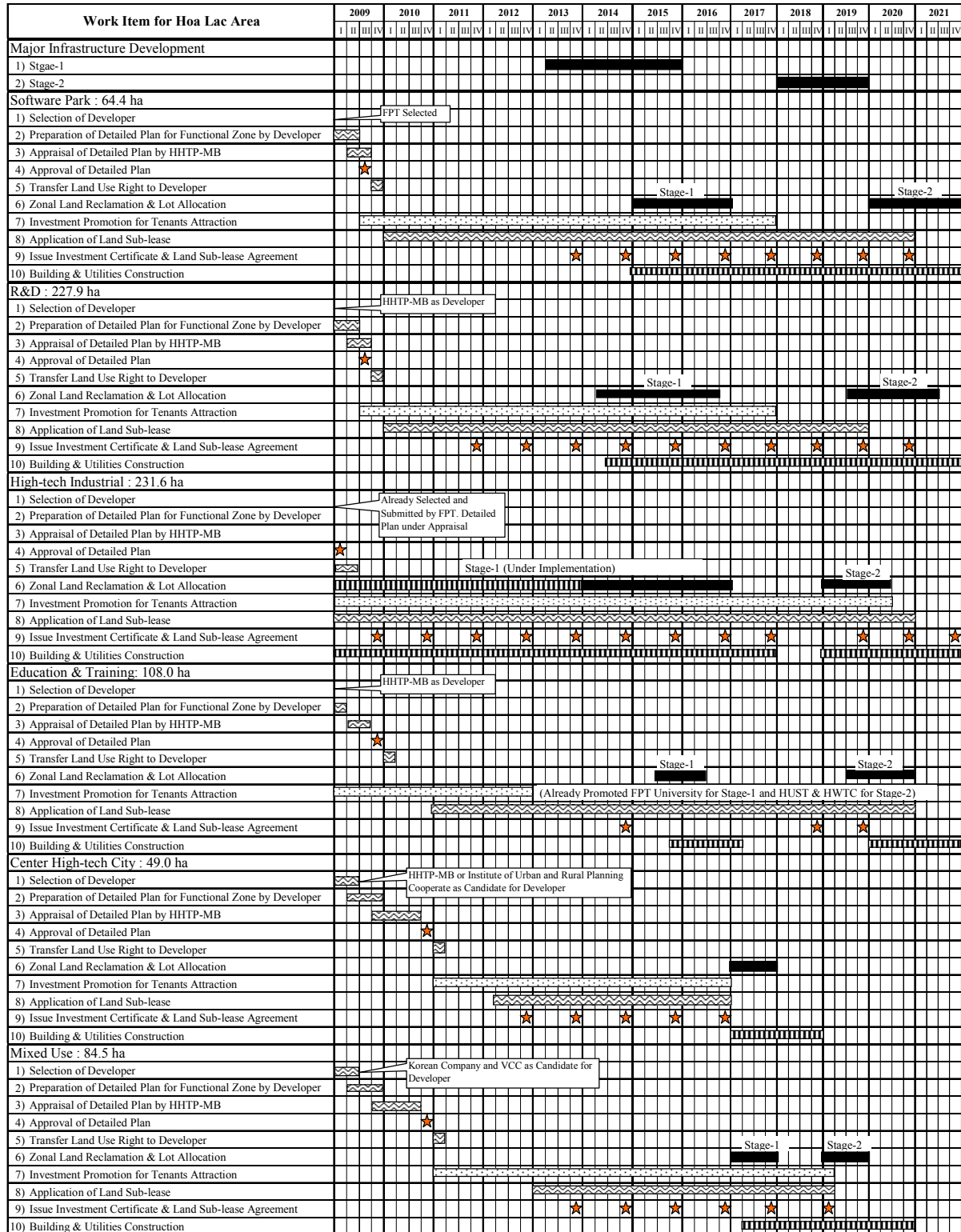
The contamination of soil was found in the environmental survey under the Study. It is assumed that the soil may be contaminated by heavy metal and toxic substance which exist naturally. HHTP-MB is required to follow the instructions by MONRE to treat it appropriately. It is probably necessary to find, as soon as possible, the place for the disposal of vast amount of soil which will be generated from construction of the project site.

## **9.4 ANTICIPATED SCHEDULE OF FUNCTIONAL ZONES DEVELOPMENT**

The functional zones will be developed by the individual developers in the following steps:

- a) The HHTP-MB selects and appoints the developer for each functional zone.
- b) The selected developer formulates detailed plan for each functional zone, entrusting consultants as needed.
- c) The HHTP-MB appraises the detailed plan for each functional zone with the participation of departments of HPC, and calls for the developer to revise the detailed plan where necessary.
- d) The HHTP-MB approves the detailed plan in cooperation with members of the appraisal committee when it reaches to an acceptable level.
- e) The HHTP-MB transfers the land use right of each functional zone to the developer.
- f) The developer executes the land reclamation and develops technical infrastructure as needed in each functional zone.
- g) The developer takes investment promotion activities to attract investors to each functional zone.
- h) The investor who wants to invest in each functional zone applies for investment certificate with the HHTP-MB and for land lease with the developer.
- i) The HHTP-MB issues investment certificate to the investor after appraising the application. The developer concludes the land sublease agreement with the investors.
- j) The investor builds the facilities and connects utilities to the lot.

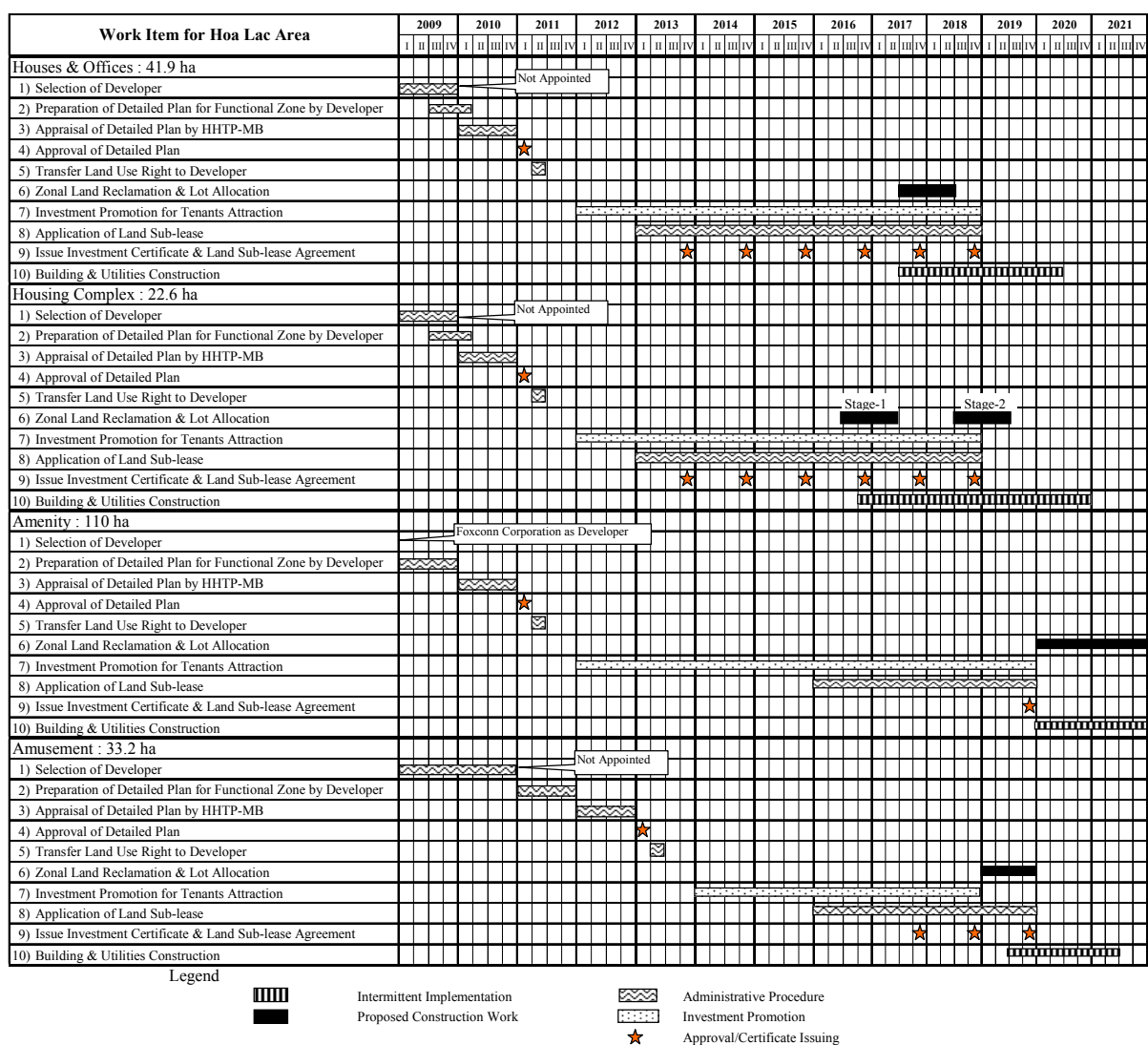
It is necessary for the HHTP-MB to formulate the overall development schedule including the functional zones as well as the common infrastructure. The tentative schedule has been formulated as a speculative draft for further planning of the HHTP-MB.



Source: JICA Study Team

Figure 9.5.1 Tentative Development Schedule of Functional Zones (1/2)





Source: JICA Study Team

**Figure 9.5.1 Tentative Development Schedule of Functional Zones (2/2)**

## 9.5 CONCLUSION

HHTP development it is important as a national project for high-tech industrial development which contributes to advancement of the science and technology in Vietnam. However, it is big challenges which necessary to prepare, implement and monitor based on an action plan which is clarified all necessary action to be taken.