

# Renovation of Industrial Zones in Ho Chi Minh City: An Approach from Changing Function of Processing to Urban Warehousing

Thu Le Thi Bao

**Abstract**—Industrial parks have both active roles in promoting economic development, and source of appearance of boarding houses and slums in the adjacent area, lacking infrastructure, causing many social matters. The context of recent pandemic and climate change on a global scale pose issues that need to be resolved for sustainable development. Ho Chi Minh city aims to develop housing for migrant workers to stabilize human resources and at the same time, solve problems of social evils caused by poor living conditions. The paper focuses on the content of renovating existing industrial parks and worker accommodation in Ho Chi Minh city to propose appropriate models, contributing to the goal of urban embellishment and solutions for industrial parks to adapt to decree 29/2008/ND-CP abnormal impact conditions such as pandemics, climate change, crises.

**Keywords**—Industrial park, social housing, accommodation, distribution centre.

## ABBREVIATIONS

BXD: Vietnamese Ministry of Construction  
DC: Distribution centre  
EPZ: Export Processing Zone  
HCMC: Ho Chi Minh City  
HEPZA: Ho Chi Minh City Export Processing Zone Authority  
IP: Industrial Park  
TCVN: Viet Nam standards for designing  
UNIDO: United Nations Industrial Development Organisation

## I. INTRODUCTION

HO Chi Minh city started the strategy for industry development from 1990. According to Hepza, Tan Thuan IP is the first IP of HCMC, built in 1991 [9]. Up to now, in 2021, there are 16 IPs within territory of HCMC at total area of 3.750 ha. At the time of planning approval, project certified, construction work launched; in decade 1990-2000, all of the IP sites were at suburban of HCMC. Based on the last 30 year legal issues of planning standards (TCVN 4449-1987/BXD), only buildings for industrial directly served were permitted within the IP boundary. It led to the fact that many temporary accommodations for worker appeared rapidly without any legal basis. These accommodations lacked necessary infrastructure such as water supply, sewage and stormwater drainage; and lacked social amenity also; because the sites used to be low-productivity agricultural area, with

sparse population density, infrastructure system as traffic, electricity, water supply and drainage could not develop synchronously with the rapid concentration of labour from other localities to work in industrial zone of HCMC.

During 30 years as growth poles, attracting a variety of secondary economics and services, these IPs had become centre of new urbanized areas of HCMC. This fact promotes some important change in the policy of industrial premises development. Decree 29/2008/ND-CP stipulates the conditions for IP expansion or new IP, that the developer has to provide in dossier of planning both full infrastructure system and social amenity in the vicinity. Industrial estates developer is obliged to synchronously deploy master planning works for both IP and residential areas in adjacent, ready to provide for migrant workers working in IP.

Applying the Decree 29/2008/ND-CP, from 2010, the People's Committee of HCMC allowed IP developer to revise the approved industrial zone master plan. The revision of IP master plan is expected to devote a part of the area in the IP project for worker accommodation, convenience store and community serves and kindergarten. Currently, 15/16 of HCMC's industrial zones have built worker accommodation [1], but the quantity has just met 1/10 of actual requirement (providing 21,500 in total 210.000 of actual requirements) and these premises lack a legal basis standard for design and construction of this type of housing.

Current 16 IPs of HCMC have absorbed 274.622 workers, 69% of them are migrant. In this total of 189.489 workers, there is 11,34% accommodated (21.500 officially provided in 15/16 IP), 15% (living in the adjacent province) move daily to and from IP by shuttle buses and then 73,66% have to choose boarding houses within a distance of 30-45 minutes riding [15]. During the last COVID-19 pandemic, 90% of the workforce flow to IP was blocked in the situation of lockdown city wide in order to prevent infection. This incident caused by the lack of convenient accommodation for migrant worker.

After pandemic, the municipal government considers preparation of accommodation for worker as the most important task to develop socio-economic steadily. This task simultaneously is a solution toward green city image as a goal of the next period to reach higher position of HCMC<sup>1</sup>. Over the last 30 years, the socio-economic of peri-urban zone has been driven by IPs; it developed transport infrastructure,

Thu Le Thi Bao is with Faculty of Civil Engineering, Ho Chi Minh City University of Technology Viet Nam National University Ho Chi Minh City, Vietnam (e-mail: thu.bmkt@hcmut.edu.vn).

<sup>1</sup> Document of the 4<sup>th</sup> Congress of Communist Party Committee of Ho Chi Minh City about IP, EPZ term 2020-2025.

attracted an agglomeration of secondary economic activities, increased urbanization indicators, promoted to trigger these areas from rural to urban districts. The case of Binh Chanh suburban district is an example of the process of urbanization due to industrialization. The region where 4 IPs Tan Tao, Le Minh Xuan, Vinh Loc, Pou-Yuen are located, has been transformed to be Binh Tan district when criteria of population density and non-agricultural income of this part responded [2]. Furthermore, these industrial zones are licensed to operate for a period of 50 years<sup>2</sup> which means they will stop industrial activities in the next 20-30 years (2040-2050) to transform into other urban function. It is necessary to discuss of proper plan to embellish current IPs and the surrounding area.

## II. LITERATURE REVIEW

### *IP Planning Principles*

Planning principles issued by UNIDO recommend the effectiveness of an IP. This has a significant impact on investment promotion when it shows a highly positive cost-benefit to attract quality investment for strong infrastructure and services. From this approach, concept of “tailored investor” lead to variety of benefit harvesting from IP, not only for manufacturing or processing, but also for R&D, new technology incubator or logistic services. Especially, when the situation of IP site has been upgraded to urbanized area with higher living cost, the industry has to improve for higher value added. Consequently, IP has to be renovated to provide relevant service [3].

### *Industrial Town*

At their beginning, IPs located outside of the city’s administrative boundary. The reason of the outskirts location of IP has been due to low cost for land tenancy. At the outskirts of the city, IPs can avoid contradiction with residential neighbourhood about emission from processing or heavy traffic. Over time, IPs have pulled urban factors surrounding their sites as employees have settled. The local authorities have responded to this process of settlement by increasing services of housing, market, medical care and pre-education. It is the growth of secondary sectors that increase urban economic and social characteristics, connecting the expanding of the city, blurring former gap between suburban and urban centre. The obvious process of urbanization from industrialization shows the necessity to consider urban agglomerations and their requirement when the authorities research for urban master planning incorporating these factors in IP master planning and renovating. This response ensures better integration between IPs nearby urban centres and towns, not least as regards utilities, and social infrastructure and services [4], [5].

### *Last-Mile Distribution Center*

E-commerce is revolutionizing inventory how companies move at such an incredible rate. This effort is for meeting

<sup>2</sup> Decree 36/ND-CP on issuance of regulations on Industrial parks, Export processing zones, Hi-tech zones

consumer expectations: the faster delivery the better.

In the time of e-commerce, logistics has continuously improved for serving consumer better and cheaper. When production can manage to highest quality at lowest price, extra competitive value comes from service, and some services become the standard for decision of consumer. According to research done by Deloitte, 64% of consumers do not want to pay extra for a 2-day delivery time [6]. This trend affects the design of commercial spaces. Stores on main roads are designed with a delivery bay suitable for large trucks, but in alleys, there is not enough space for bay or truck. In densely populated urban areas with many small alleys, shippers on their small vehicles become reasonable solution. When fin-tech booms, especially during the pandemic as COVID-19 last two years, social-distancing and staying home are obligated, the last-mile distribute centre and warehouse become even more urgent requirements in urban areas to promptly meet demand of consumption.

### *Urban Warehouse*

Some years ago, the primary purpose of warehousing was to store product at low cost. Today requirement of product from consumer is not only its high quality at low price but the time to delivery, as soon as possible when customer decides to choose things. To reduce cost of fast delivery in a density city, where e-commerce is emerging as a result, urban warehouse becomes a relevant solution. They may be located within the urban core or located one to 10 miles outside the urban centre, where suits modern distribution facilities and there are sufficient parking spaces [6]. Then, former manufacturing plant or obsolete office building seem a right choice to fill the “last-mile” gap [7].

## III. MATERIALS AND METHODS

### *A. Materials*

#### 1. Legal Basis

#### *HCMC Regional Development Planning (View to 2050)*

HCMC plays the role of the key economic zone of Viet Nam. Agglomeration of workers in IPs and secondary economic activities have bring to this city both welfare and urban matters such as pollution, traffic congestion, shortage of infrastructure. This urbanization also spreads out to the surrounding areas of HCMC, prompting the government to quickly draw up regional development-oriented plans to cooperate with adjacent localities to develop together.

The point of view for a master plan to develop HCMC is to consider the resources and targets for this city and the adjacent localities on scale of region wide. Formerly, this kind of master plan for development had been limited in each local administrative boundary.

The master plan for development of HCMC view to 2050 provides the orientational direction of developing base on relation between this city and surroundings [Fig. 1]. There are 7 adjacent provinces in HCMC regional development planning view to 2050, at total of 30.404 km<sup>2</sup>. Therein, 69000 ha for

industrial use, including 7080 ha of HCMC [8].

Industrial land in HCMC region has been planning in subzones or belts for manufacture function:

- Central subzone: Thu Duc - Tan Binh - Binh Chanh;
- South-East subzone: Ben Luc - Hiep Phuoc

- Northward belt: Binh Duong city - Thu Dau Mot - Ben Cat
- Eastward belt: Bien Hoa-LongThanh - Nhon Trach
- North-Westward belt: Cu Chi - Duc Hoa

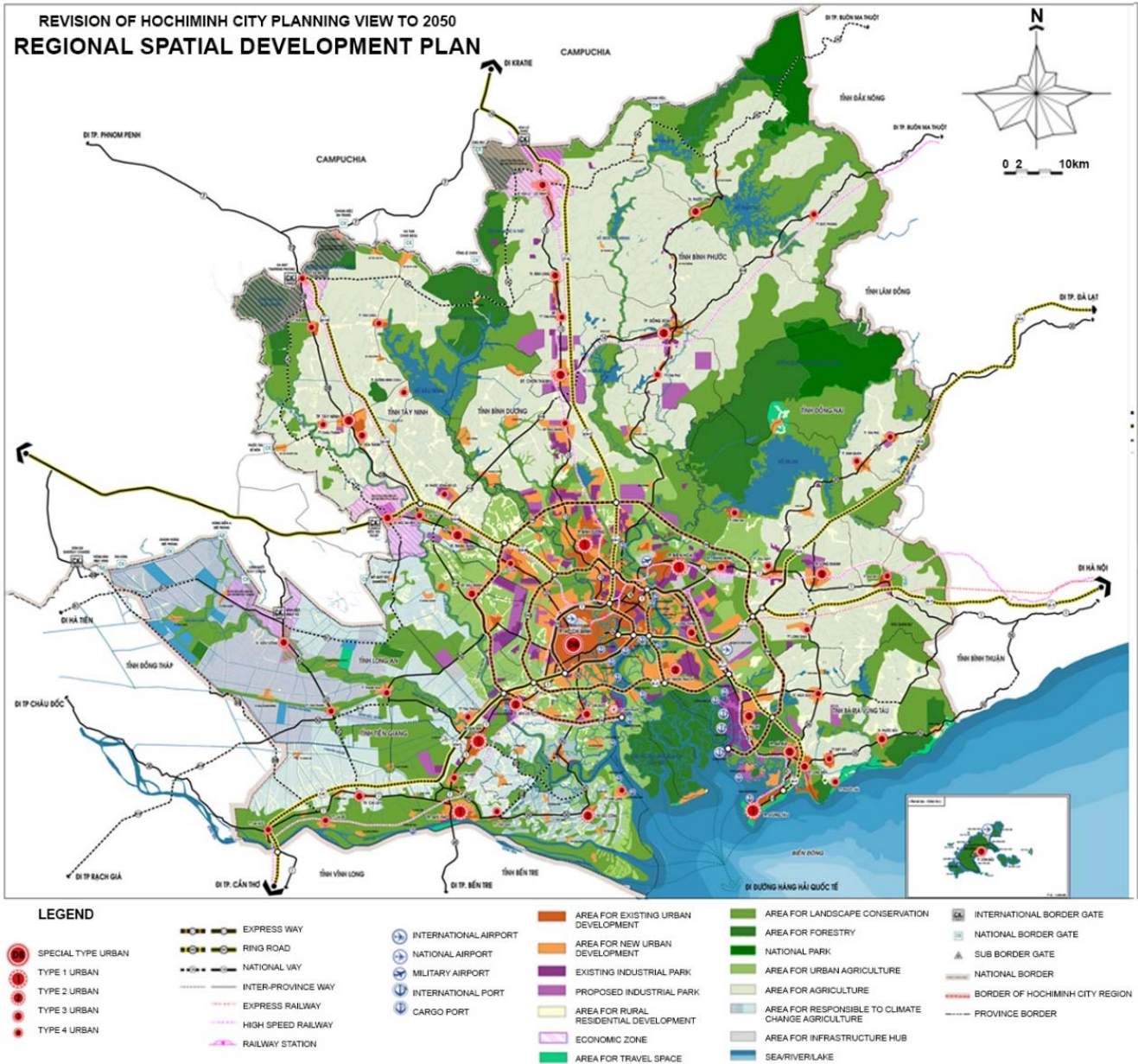


Fig. 1 Regional spatial development plan [8]

### HCMC Transport System Development Planning

With the population of over 10 millions citizens, like other populous cities in the world, HCMC faces traffic problems due to rapid urbanization. The demand for circulation of passengers and goods increases rapidly in parallel to the growth of the economy. Smooth circulation is an essential condition for the healthy development of the city. This requires the government to provide adequate transport

infrastructure.

According to regional spatial development planning view to 2050 [8]; transportation system includes expressway and beltway:

- Expressway: as cores of five regional economic corridors (HCMC and Vung Tau; Dong Nai; Tay Ninh; Binh Duong, Mekong Delta)
- Transportation system for freight load: beltway 3-4; dedicated road (inter-ports; Inland Container Depot);

railway, waterway, airway

- Logistic centre at Northward; North-Eastward; North-

Westward; South-Westward [Fig. 2].

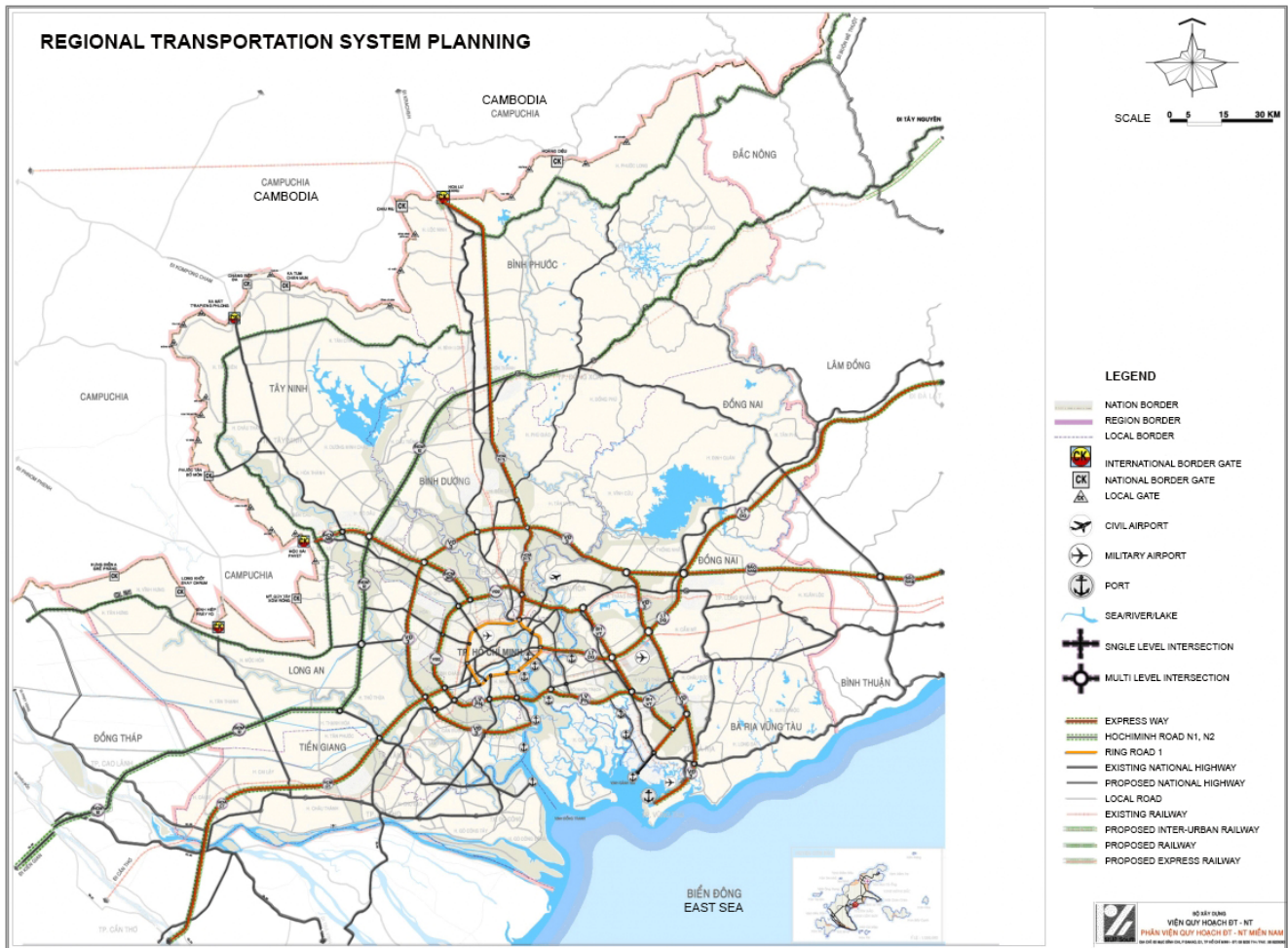


Fig. 2 Transportation system for regional development [8]

## 2. Actual Basis

### *Dormitory for Workers - Tan Thuan IP*

Tan Thuan IP is located in the Southeast of the city. Since 2000, the 174ha IP has concentrated warehouses and processing plants of 200 industrial manufacturers and processing plants of 200 industrial manufacturers with thousands of workers. Tan Thuan IP has many support policies for tenants, one effective support is launching projects of worker dormitories to stabilize human resources for factories [1].

Dormitory of Tan Thuan EPZ locates on the site of 1.48 ha. There are 6 blocks providing accommodation to 5000 workers. The only amenity of these dormitory is open playground and greens [Fig. 3].

### *Social Housing*

Social housing can be provided as apartment or townhouse with average unit area in 25 m<sup>2</sup>-70 m<sup>2</sup>, or up to 77 m<sup>2</sup> at 10% of total only. In 2022, HCMC authorities plan to serve 52.1 ha

for social housing. There are 2 projects for the intraurban (districts 4, 5, 6, 8, 10, 11, Binh Thanh, Go Vap, Phu Nhuan, Tan Binh, Tan Phu), including 379 apartments for worker. At the outer city area (District 7, Binh Tan), the state invests in infrastructure and private invests in boarding houses for workers [Fig. 4].

### *Method*

#### 1. Integrating Three Types of Development Planning

Existing IPs in future functional spatial structure of HCMC can be located by overlapping three maps of HCMC regional development planning view to 2050. The integrated planning map helps define advantage factors to continue existing function as industrial space or other urban function. From the integrated map, it is possible to figure out the axes connecting IP and freight traffic hub, enhancing to a dedicated production-transport route, a solution to the congestion caused by mixed traffic as up to now on.

From the integrated map, we locate residential function areas in nearby or conveniently connecting IPs through metro

or BRT (existing/planning to develop) or IP only shuttle bus for proposal of “Bubble of IP and worker accommodation”, as an adaptive solution to the quarantine situation while

maintaining industrial activities as last COVID-19 pandemic in 2020, 2021.

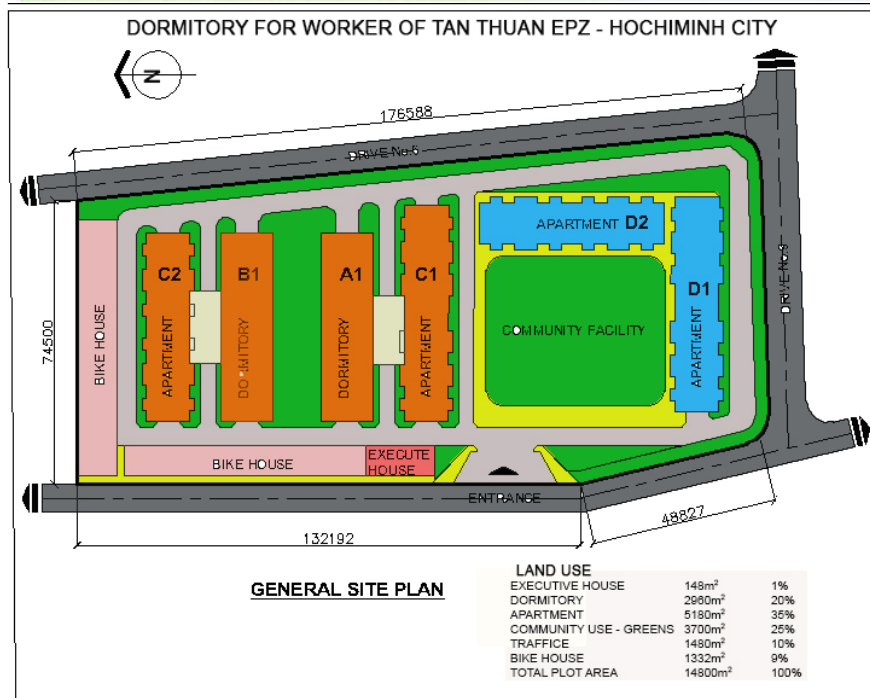


Fig. 3 Worker Dormitory Project - Tan Thuan IP [9]

2. Analysing Remote Sensing Images to Evaluate the Mediation Effect of Regional Industrial Structure to the Urban Sprawl of HCMC

The implementation of the Doi Moi Policy since 1986 has triggered industrial development in HCMC and adjacent localities. The rapid development of IPs has changed the socio-economic status of the Southern key economic region including HCMC, Binh Duong, and Dong Nai. The process of

urbanization under the influence of IP has been also impressive, which can be observed from satellite images [11] [Fig. 5].

From the remote sensing images, we can see the process of spillover effects from IPs outward, continuing to interact and rapidly urbanizing the corridor between IPs. The urbanization process spillover from IP at periphery of the city has completed phase 1, transition from rural to urban. When

implementing administrative planning to 2030, view to 2050, the IP cluster should move to phase 2, urban upgrading; in phase 2, some kind of existing industry may be moved out of the urban zone.

#### IV. RESULTS

##### A. Evaluate Ex-Advantage Factors of IP Caused by Existing Location of IP after 25 Years of Urbanization

After 25 years to spread out impact of urbanization with the role of growth pole at the suburban zone, IPs are now located in the inner of new urban areas. That is the case of IP Tan Binh, from an IP at outer city formerly, now it locates amongst the most density zone of HCMC. In the current context, advantage factors at the beginning of IP have been faded. Congestion in traffic happens every day at IP gate in the time worker in/out shift. Over time, urban character of surrounding zone has been more obvious, overwhelmed industrial function, meanwhile industry consumption and emission become serious issue for residential neighbourhood [Fig. 6].



Fig. 4 Social housing project in District 12 – HCMC [10]

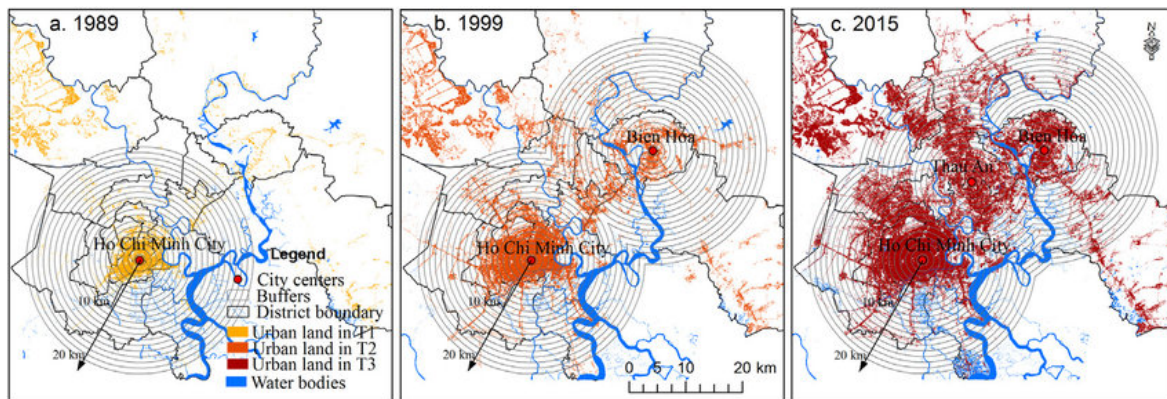


Fig. 5 Urbanization in the mediation effect of regional industrial structure [11]

Locating amongst density residential areas, factory owners have to pay more for tenancy contracts and other fees caused by higher living cost. In such a situation, it is difficult to require them to follow green urban criteria. A possible solution is to change into the urban serving function instead of maintaining industrial function inside residential area.

##### B. Evaluate the Effect of Worker Dormitories built in HCMC

###### 1. Social Housing

Social housing is the necessary solution to the requirement of accommodation in a populous city, such as HCMC. This type of housing is suited for resettlement habitants from state projects, or migrant labours, or low-income households. The population of HCMC is 13 million people, of which 5 million are migrants. It is the reason why the government

comprehensively considers administrative management aspects to get the appropriate policy for social housing.

Social housing projects are accumulated in suburban zones, wherein cheap and vacant plots are ready for built. The utilities in those projects almost are open spaces for greenery or promenade. Other essential services of healthcare, education, commercial are all missing.

Social housing is for sale only, not for hire. It is difficult for migrant workers to pay within 10-20 years for the house, because they can move to work in another locality with better income and cheaper costs. Furthermore, long-distance to IP is an inconvenience for workers who work in shift.

###### 2. Worker Dormitory

There are two types of worker dormitory built in HCMC recently: dormitory of IP project and dormitory of some

industry producers to provide accommodation to their own labours. Both types provide accommodation only, not any

social services yet, even essential ones as kindergarten and playground.

MASTER PLAN OF TANBINH INDUSTRIAL PARK  
 LAND USE MAP

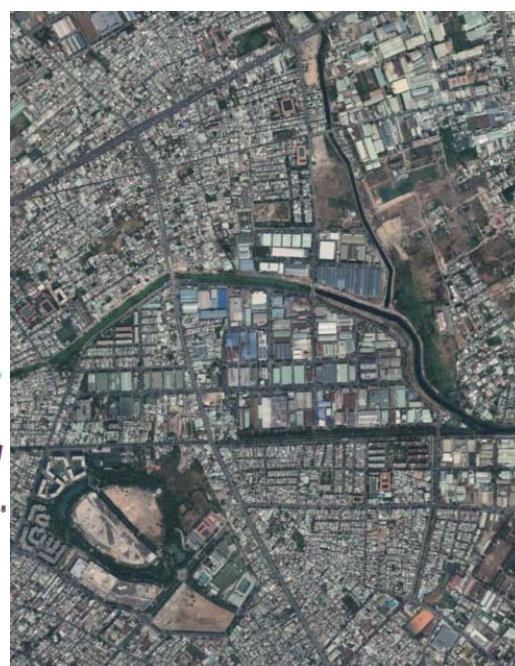


Fig. 6 Master plan of Tan Binh IP and existing situation in 2021

As for local authority, it is difficult for them to administer the migrant workers living in such dormitories as local inhabitants.

The shortage of essential serves, kindergarten, healthcare supplied directly within the dormitory causes inconvenience for workers. This is also the reason why it is difficult to keep migrant workers stay in HCMC during the block-down situation to control the spread of virus during the recent COVID-19 pandemic.

### 3. Inadequacies in Actually Implementing Legal Issues

Decree 188/2013/ND-CP; Decree 100/2015/ND-CP on development and management of social housing, Decree 82/2018/ND-CP on the management of industrial zones/economic zones, issued by the Government, are the legal bases that have been added to complete and concretize the organization of IP space in harmony with urban space. Accordingly, from 2009, the dossier planning of a new or expanded IP within HCMC must contain the planning of residential areas and social infrastructure to serve the needs of labour of the IP. Actually, most of the complex projects

combining IPs and residential are behind schedule due to many obstacles in legal procedures for compensation, clearance, legal land allocation, investor recognition...

## V. DISCUSSION

### A. Discussion of a Distribute Centre Option to Replace Existing In-Urban IP

#### 1. Legal Basis

#### Prime Minister Decision 1012/QĐ-TTg of Logistic Development Planning

The decision issues planning criteria of a distribution centre are as follows:

- Ensuring close relationships with partners, connecting with manufacturers, importers, railway stations, bus stations, industrial zones... connecting with consumers, focusing on wholesale and retail distributors.
- Being in the advantage geographical location, near the source of goods supply such as industrial zones, port, ... or near markets, consumers in which, priority is given to

identifying logistics centres that have advantages near the market, concentrated consumption areas, large and stable consumption, developed trade, vibrant trading activities, density network of customers and effective delivery serving.

#### *Feasibility Study of Logistic Infrastructure Development of HCMC to 2025*

Feasibility Study of Logistic infrastructure development of HCMC to 2025 has been drafted by the Vietnam Institute of Logistic Development and Research. The FS has been submitted to the People's Committee of HCMC for approval in 2019.

The FS proposes locations of Logistic centres at 04 gateway of the city: Cu Chi Center in the NorthWest, Tan Kien Center in the SouthWest, Hiep Phuoc Center in the SouthEast; Cat Lai Center in the NorthEast. From these core centres, HCMC can develop the net of mediation warehouses which are in charge of circulating flow of goods from manufacturers or importers to urban consumer.

#### 2. Assessment of Feasibility of IP Tan Binh as Warehousing Center

##### *The Advantages of Warehousing Function at the Location of IP Tan Binh*

- IP Tan Binh locates on Asia Highway to MocBai border gate, connecting Cu Chi Logistic center and Hiep Phuoc, Tan Kien logistic center, in distance 5 km to Tan Son Nhat airport and Hoa Hung railway station. This IP is also nearby IP Vinh Loc, which can be a goods supplier and consumer of material for processing. This location is suited with criteria mentioned in the above FS.
- Trend of e-commerce requires a last-mile distribution center, which is amongst density residential neighbourhood. Case of Tan Binh IP is worth to consider.
- HCMC intends to become the distribution center of Southern Key economic zone of Viet Nam to ASEAN and global market. To this goal, development warehousing infrastructure is priority of the Authorities.

##### *Adaption to Green City Goal of HCMC*

As a distribution center, it is necessary to renovate existing land-use structure to provide function of management and marketing development of distributors. In the scenario of a distribution center, IP Tan Binh may change its appearance to appropriate one with modern office-building with sustainable solution in architecture. Simultaneously, Distribution center Tan Binh can reduce its existing total of emission as IP, an important criterion of a green city.

##### *Response to the Goal of Being E-Commerce City and Higher Benefit of Investor*

Existing IPs locating in in-urban of HCMC have lost their competitive advantages compared to ones of adjacent provinces such as Long An, Binh Duong. The vital change must be launched. In 2021, Vietnam is assessed as one of the countries with the fastest e-commerce growth in the world,

with a growth rate of 35% per year, 2.5 times higher than Japan. The government has launched to target that by 2025, 55% of the population will participate in online shopping with sales of about 35 billion USD [16]. HCMC is a populous city of Viet Nam with nearly 13 million inhabitants. The city has vibrant e-commerce activity, so that it is necessary to develop corresponding system of logistic infrastructure. Existing IP can contribute to this system as warehouse and freight transportation utility.

#### *B. Discussion of a Bubble "Industrial Park-Dormitory" for Migrant Workers*

##### 1. Requirement of an Accommodation Being Adaptive in Any Situation

From the COVID-19 pandemic in 2020-2021 emerges the need for a Bubble "IP-Dormitory". This bubble may help the manufacturer has enough labour for processing in spite of lock-down city-wide situation. In the Bubble, workers move to and from IP on shuttle bus for IP workers only. In dormitory campus, which locates within a distance of 15 minutes driving to IP, there are essential daily services as convenience shop, grocery, kindergarten and playground, building for community activities, vegetable garden, sport facility.

Thu Duc city is the creative city of HCMC. Thu Duc has important resources to be the locomotive of HCMC such as Viet Nam National University (VNU), Saigon Hi-tech park (SHTP). SHTP (purple coloured in Fig. 7) has contributed the processing value at a total of 17 billion USD in 2019 [13]. Human resource is vital for SHTP to continue the contribution to the development of Thu Duc city. SHTP has provided incentives to the labours, such as dormitory in adjacent residential neighbourhood (yellow coloured in Fig. 7) [Fig. 7].

##### 2. Description of Dormitory for the Migrant Workers of HCMC

Migrant workers are at average age of 18-35; single status (unmarried or married but working alone in HCMC) accounts for 65%; the status of being married with children accounts for 35%. The dormitory for migrant workers should provide appropriate accommodation and other activities.

- *Single worker:*
  - Personal living space: standard, sharing in groups of 4 workers/room or 10 workers/room (Fig. 8)
  - Space for suitable activities: sports, arts, gardening, reading, chess club, ...
  - Service space: convenience shop, grocery, beauty care kiosks, coffee kiosks, ...
- *Couple worker with children*
  - Living space: standard family of 4 people
  - Kindergarten and playground, ...

Each IP needs to build dormitory with the average rate of 65% and 35%, respectively. In the campus, there will be residential buildings and service facilities corresponding to the space as discussed. The proposed model with a scale corresponding to the number of workers in the IP, meeting the basic living needs of workers, will adapt to the city's lockdown



conditions in six months as experienced during the recent pandemic in HCMC. The location of the dormitory construction site is within a 15-minute reach by shuttle bus

like the idea of Carlos Moreno [14], which is a solution to reduce traffic time on the road, increase rest time for workers, and reduce traffic jams, pollution, energy consumption, etc.

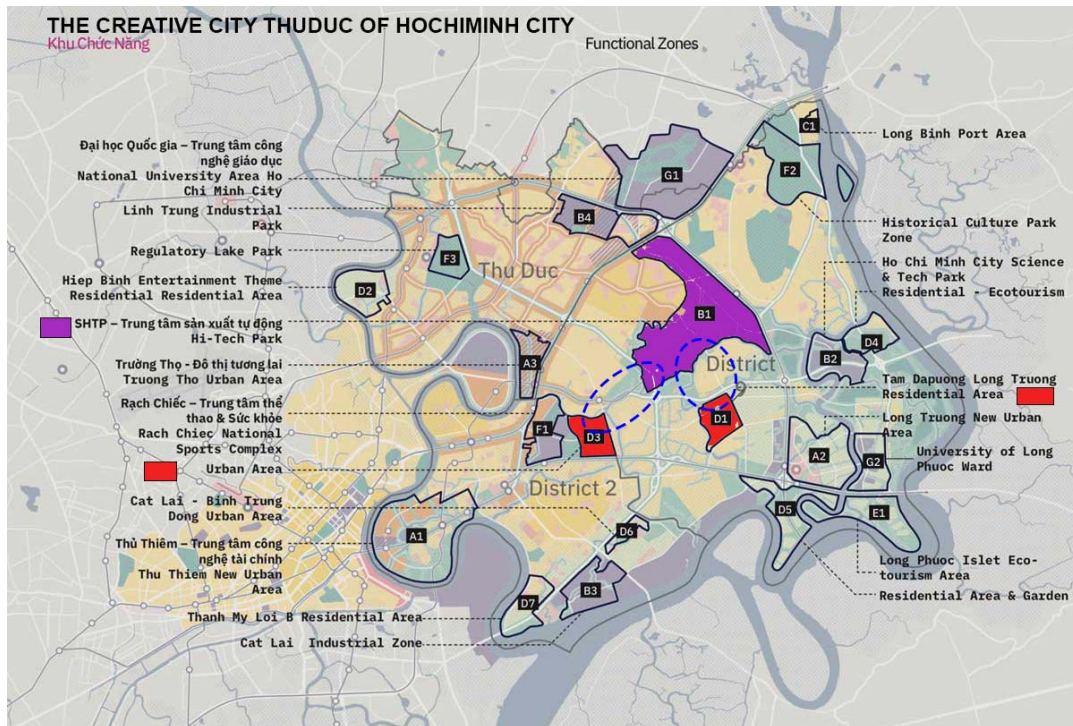


Fig. 7 Proposal of Bubble “Industrial Park - Dormitory”: Re: Author propose on material of HCMC Planning [13]



Fig. 8 (a) Proposal of Worker Dormitory in bubble “Working-Living”



Fig. 8 (b) Proposal of Worker Dormitory in bubble “Working-Living” – Apartment layout

## VI. CONCLUSIONS

- Existing intraurban IPs are sources of polluted emission and traffic congestion. Renovation these IPs towards the goal of a green city needs a variety of solutions, depending on the proper condition of each IP. As for IP Tan Binh, with the advantages of location in the map of freight, transferring to a DC is a sustainable solution. This proposal responds to different goals as to reduce the environmental impact of IP to residential neighbourhood; to enhance benefit of IP investors; to contribute to the economic of HCMC. To launch the proposal “Distribution Centre Tan Binh” successfully, all participants’ contribution is necessary: Legal basis issued by authorities; revision of land-use for new function by architects; coordination to specialize functions of manufacturers and distributors.
- Proposal of the Bubble “IP-Dormitory” is the important solution for the goal of a green city, because the Bubble helps to reduce the amount of personal moving on daily traffic to and from IPs. Almost essential needs are provided within the dormitory campus, so that, workers living in the dormitory do not have to waste time, waste physic and mental health for traveling every day. The available services in the dormitory are another strength of this type of accommodation. It helps to avoid food poisoning from spontaneous market’s stuff or other incidents. In case of a pandemic as COVID-19, the requirement to maintain processing in condition of quarantine, the Bubble IP-Dormitory proves to be the useful solution. It is necessary to clarify whether worker accommodation is social house or facility of IP project. The authorities need to issue design standards, regulations

on land-use planning, architecture standards, construction management regulations... of the type IP-Dormitory.

## REFERENCES

- <http://www.hepza.hochiminhcity.gov.vn/>, 2015. (Online). Available: <http://www.hepza.hochiminhcity.gov.vn/web/guest/khu-cong-nghiep-tan-binh>.
- H. B. Tuan, "hcmcpv.org.vn," 2 12 2018. (Online). Available: <https://hcmcpv.org.vn/tin-tuc/binh-tan-ky-niem-15-nam-ngay-thanh-lap-quan>.
- UNIDO, "International Guidelines for Industrial parks," 29 Nov 2019. (Online). Available: [https://www.unido.org/sites/default/files/files/2019-11/International\\_Guidelines\\_for\\_Industrial\\_Parks.pdf](https://www.unido.org/sites/default/files/files/2019-11/International_Guidelines_for_Industrial_Parks.pdf).
- "Industrial Heritage of EU," June 2018. (Online). Available: <http://industrialheritage.eu/EYCH2018/June>.
- R. Maarefdoust, "The role of Industrial towns on physical structure of cities," International Journal of Engineering and Advanced Technology Studies, pp. Vol.3, No.2, pp.49-60, 2015.
- "Understanding the role of Last-mile distribution and warehousing," December 2019. (Online). Available: <http://www.globeconfreight.com/blog/understanding-role-last-mile-distribution-warehousing>.
- S. Somasundram, "Impact of E-commerce on the Urban Landscape - Strategies and tools for managing connected consumers," 2020. (Online). Available: [https://expert.taylors.edu.my/file/rems/publication/106814\\_6051\\_1.pdf](https://expert.taylors.edu.my/file/rems/publication/106814_6051_1.pdf).
- VIUP, "www.viup.vn," 2015. (Online). Available: [www.viup.vn/vn/Quy-hoach-vung-pla4-QHXD-Vung-TP-Ho-Chi-Minh-den-nam-2020-tam-nhin-2050-d47](http://www.viup.vn/vn/Quy-hoach-vung-pla4-QHXD-Vung-TP-Ho-Chi-Minh-den-nam-2020-tam-nhin-2050-d47).
- <http://www.tanthuan.com.vn/>, 2018. (Online). Available: <http://www.tanthuan.com.vn/vi-VN/ha-tang/ky-tuc-xa>.
- H. C. D. o. Construction, "Social House," (Online). Available: <https://soxaydung.hochiminhcity.gov.vn/nh%C3%A0-%E1%BB%9F-%E1%BB%99>. (Accessed 10 11 2021).
- L. J. J. L. Z. S. Gang Xu, "Understanding urban expansion combining macro patterns and micro dynamics in Southeast Asian megacities from 1990 to 2014: Bangkok, Ho Chi Minh City, and Manila (2019)," Science of total environment, 2019.
- "GoogleEarth," Google, (Online). Available: <http://www.earth.google.com/>. [Accessed 10 December 2021].
- H. C. M. C. D. o. P. a. Architecture,

- "<https://qhkt.hochiminhcity.gov.vn/>" 28 9 2020. (Online). Available: <https://qhkt.hochiminhcity.gov.vn/tai-lieu-hop/de-an-hinh-thanh-va-phat-trien-khu-do-thi-sang-tao-tuong-tac-cao-phia-dong-tphcm-1897.html>. (Accessed 20 12 2021).
- [14] C. Moreno, "www.dezeen.com," 26 10 2021. (Online). Available: <https://www.dezeen.com/2021/10/26/15-minute-city-carlos-moreno-obel-award>.
- [15] Hepza, "http://www.hepza.hochiminhcity.gov.vn 2021 (online). Available: [http://www.hepza.hochiminhcity.gov.vn/web/guest/tin-tuc-su-kien/lao-dong?p\\_p\\_id=EXT\\_ARTICLEVIEW&p\\_p\\_lifecycle=0&p\\_p\\_col\\_id=center-left-1&p\\_p\\_col\\_count=1&\\_EXT\\_ARTICLEVIEW\\_groupId=13025&\\_EXT\\_ARTICLEVIEW\\_articleId=102635&\\_EXT\\_ARTICLEVIEW\\_version=1.0&\\_EXT\\_ARTICLEVIEW\\_redirect=%2Fweb%2Fguest%2Fhome](http://www.hepza.hochiminhcity.gov.vn/web/guest/tin-tuc-su-kien/lao-dong?p_p_id=EXT_ARTICLEVIEW&p_p_lifecycle=0&p_p_col_id=center-left-1&p_p_col_count=1&_EXT_ARTICLEVIEW_groupId=13025&_EXT_ARTICLEVIEW_articleId=102635&_EXT_ARTICLEVIEW_version=1.0&_EXT_ARTICLEVIEW_redirect=%2Fweb%2Fguest%2Fhome)