

Proposed solutions for Industrial cluster development and environmental management in Hanoi Vietnam

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Abstract

For developing industrial clusters we need many combined policy: development of firm hubs, policies and regulations, investment encouragement, FDI and ODA, etc. And roles of bank sector as well. Many localities have faced difficulties and embarrassment in converting the state-invested industrial cluster model to enterprises acting as investors in construction and infrastructure business to handle previous problems.

By using experiences, observations, practical situations with cases studies of industrial clusters in Hanoi, Vietnam combined with qualitative analysis, synthesis, and explanatory methods, This study proposed some solutions such as: State will invest mainly, production and business establishments will contribute a part of the capital to invest in the construction of this concentrated environmental treatment zone.

Last but not least, developing industrial clusters need more firm hubs to expand their largest network for industrial cluster development.

Key words: development, industrial cluster, firm hubs, policies, investment, Hanoi

1, Introduction

By the end of 2016, the whole country had established 736 industrial clusters (CCNs) with a total area of 22,317 ha, of which 621 CCNs (total area of over 19,536 ha) have been put into production and business activities, attracting tourists. 10,680 production and business investment projects with a total registered capital of 137,568 billion VND; create jobs for 537,172 employees.

Over the past time, since the Regulation on management of industrial zones was promulgated (according to Decision No.

105/2009/QĐ-TTg dated August 19, 2009), the management of industrial parks has been uniformly regulated, from the planning, establishment, investment in infrastructure construction and operation management. In addition, although the central budget's support for industrial zones is not much, it has initially contributed positively with the local budget to support investors to remove capital difficulties to invest in infrastructure construction. industrial development as well as business development; contributing to attracting investment, increasing occupancy rate,

promoting socio-economic development in the whole country.

However, according to the assessment of the quality of urban industrial planning work is not high, the ability to forecast and calculate the planning needs and the ability to meet the resources to carry out the planning is not close to reality, suitable to the reality in Vietnam. local. The implementation of planning, investment in construction of infrastructure of industrial parks in general is still slow and facing many difficulties. The number of industrial clusters put into operation, attracting new investment projects reached 42.3% compared with the planning (621/1,467 clusters). The issue of environmental protection in the CCN has not been paid attention by localities and investors, and has not met environmental standards; most of the industrial zones have not built the waste concentration area, wastewater treatment system. The whole country has only 98 industrial zones with wastewater treatment works put into operation (accounting for 15.7% of the industrial parks in operation). Attracting investment capital for infrastructure business in industrial zones faces many difficulties, because most of the industrial zones are located in rural areas, the location is not convenient for traffic, and the surrounding infrastructure is weak...

(source: http://arit.gov.vn/tin-tuc/quan-ly-phat-trien-cum-cong-nghiep-hieu-qua-thuc-day-cong-nghiep-nong-thon-phat-trien-0bac232e_3836/, access date 19/3/2022).

Industrial cluster development policy and industrial cluster infrastructure construction planning

below table:

Table 1 - Related studies

Authors	Year	Content, results
Bergmen, E. M., & Feser, E.	1999	Discussed an issue: Rural Industrial Cluster: to Cluster or Not to Cluster.
Narula	2004	mentioned R&D collaboration by SMEs: new opportunities and limitations in the face of globalization

Decision No. 105/2009/QĐ - TTG dated August 19, 2009, on Promulgation of Regulations on Management of CCN clearly stated:

- Based on the socio-economic development planning, the industrial and handicraft development planning in the area, the master plan, land use plan, and other relevant plans, the Department of Industry and Trade shall preside over, coordinate with the Departments, branches, and district-level People's Committees in formulating the industrial cluster development planning scheme in the area

The main contents of the industrial cluster development planning project include:

- a) Legal grounds and necessity for planning;
- b) Overview of the development situation of industries and industrial zones in the area;
- c) Analysis and assessment of the current status of construction and development of industrial zones that have been planned and established in the area,
- d) Orientation for distribution and development of industrial clusters in the locality, including name determination, location, expected area size, ability to arrange land, nature of the industry, and conditions of connection. External infrastructure connection of planned industrial clusters.
- e) Identify solutions, mechanisms, policies and propose plans for implementation;
- f) Strategic environmental impact assessment;
 - g) Show the planning options for industrial development on the planning map.

Next authors summarize previous studies in

Hallencreutz, D., & Lundequist, P.	2003	stated Spatial Clustering and the Potential for Policy Practice: Experiences from Cluster-building Processes in Sweden.
Huy, D.T.N	2015	Risk management needed for corporate governance in development
Soloveva et al	2021	For socio economic potential of regional development, we need Investment and innovation activity
Nguyen Dinh Trung et al	2021	Conducted Overview of the development of industrial clusters in Hanoi

(source: author synthesis)

2. Methodology

Authors mainly use experiences, observations, practical situations with cases studies of industrial clusters in Hanoi, Vietnam combined with qualitative analysis, synthesis, and explanatory methods.

This study also uses historical and dialectical materialism methods, with data and statistics in Hanoi, Vietnam.

3. Main findings

Discussing issue

Environmental protection work in industrial clusters (CCNs)

Statistics show that, by the end of 2020, the country has established 968 Industrial clusters with a total area of over 30,912 hectares; in which 730 CCNs with a total area of about 22,336.3 ha have been put into operation, attracting nearly 12,000 production and business investment projects, the average occupancy rate is 65%; create jobs for about 600,000 workers.

The formation and development of industrial zones in recent years have made an important

contribution to economic restructuring, speeding up industrial development, creating more new jobs for workers; promote access to and innovate technology, improve management capacity; raise GDP growth, export value, budget revenue and promote socio-economic development. In particular, the development of industrial zones is often associated with relocation, arrangement and attraction of production facilities, small and medium enterprises, individuals and households in each locality to invest in production and business. in the focus area. However, besides creating products, the activities of enterprises and production facilities in Industrial clusters also generate a large volume of waste such as: Waste water, solid waste, exhaust gas, hazardous waste ... And according to the assessment, the environmental protection work in industrial zones currently has many limitations, inadequacies,

In addition, because the established Industrial clusters are mostly of small scale (from a few hectares to several tens of hectares) and are only within the scope of local management; are not concentrated production zones (industrial parks) established by the Prime Minister's decision; therefore, the environmental protection planning and management in each locality for industrial zones are also different; production scale of investment projects in CCN is mainly small and

medium scale or just equivalent to household size; Infrastructure and technical infrastructure for traffic and environmental protection in industrial parks are therefore still quite limited...

Industrial clusters have almost no environmental impact assessment (EIA) reports.

While making an EIA report is the basis for enterprises to better know the status of environmental quality in their production activities, as well as the basis for proposing measures to reduce pollution. effectively, in order to meet the prescribed environmental standards, but due to time pressure and lack of infrastructure investment from the outset, most of the previous industrial clusters did not have an EIA. Even some industrial clusters have become local environmental hotspots; due to the concentration of many production facilities in one area but there is no EIA, there are industrial parks in inappropriate locations (in the inner city, inner city, near residential areas...).

(source: <http://consosukien.vn/phat-trien-cu-m-cong-nghiep-gan-voi-bao-ve-moi-truong.htm>, access date 19/3/2022).

Proposed solutions for industrial cluster development:

–Directing environmental management to the goal of sustainable development of industrial clusters. The main characteristic of sustainable development of industrial zones is the harmonious combination of factors: i) Economic growth; ii) Environmental protection; iii) Social security; iv) Good institutional settlement in development.

–Environmental management should be done by synchronous measures and integrated tools. Regarding synchronous measures, if considering the nature of the measure, measures must be taken in terms of economy, technique, organization, management, law, propaganda, education, etc. If considering the responsibilities of the branches, At all levels, there are State management measures; measures of industrial clusters; measures of society, and measures of organizations that research, manufacture, supply technology and equipment for environmental treatment.

– Solving the problem of environmental

pollution in industrial zones requires appropriate steps and a roadmap.

–Environmental management and environmental pollution settlement must take the main principle of combining pollution treatment, environmental improvement with nature conservation.

–The Department of Homeland Security has decided to make more decisive decisions. Environmental issues need to be considered not only when planning projects, investing in projects, planning for industrial development, detailed planning for industrial construction, but also when operating and using the infrastructure.

From those points of view, the author proposes the following solutions:

+ The city needs to be resolute in not approving and granting construction permits for investment projects, in the planning of development and expansion, and construction of industrial zones without an environmental impact assessment. Industrial clusters must strictly comply with regulations on making and appraising environmental impact assessment reports and approving them. Environmental impact reporting is important content when planning, appraising, and approving projects. The environmental impact report should focus on two issues.

1) Determine the scope of impact and extent of the impact on the environment of several industries and products of the industrial cluster such as i) Industry of mining, processing, and production of building materials (brick production) tile, stone, ceramic...); ii) Agriculture, forestry and food processing industry (wood processing, food processing, bamboo, and rattan...); iii) Chemical industry, dyeing, bleaching (varnishing, bleaching, dyeing, paper production...); iv) Mechanical industry and metal processing (Casting, plating, manufacturing, mechanical engineering...).

2) Forecasting the changing trend of the environment. When implementing a project, it is necessary to accurately forecast the trend of changing environmental components such as:

Water environment: The most negatively affected water resources are chemical processing, metal surface treatment, paper production, dyeing, bleaching, waste collection,

and treatment plants. . Next is the processing of agricultural, forest, and food products and then the mechanical industry sub-sectors, mineral processing, production of building materials...

Air environment: The biggest negative impact is due to the emission of air from the mining and mineral processing industry and then the metal surface processing industry.

Soil environment: Industrial plants occupy a large area of land which has a negative impact on the quality of the soil.

Biodiversity: It becomes degraded mainly due to the impact of mining, mineral processing, and processing of forest products.

Factors affecting the environment when constructing and putting industrial zones into operation include solid waste of all kinds; dust, smoke causing air pollution; water pollution; especially when industrial clusters investment projects come into operation. Among these industries, chemical manufacturing, papermaking, bleaching and dye manufacturing, coating processes, and chemical surface cleaning are all sectors with a large environmental impact on their surroundings.

+ To attach importance to the planning and construction of industrial parks in association with environmental protection.

Article 38 of the Law on Environmental Protection (2005) stipulates: “The planning, construction, renovation, and development of craft villages must be associated with environmental protection. The State encourages the development of industrial zones and clusters of craft villages that share the same infrastructure system for environmental protection. Decision 105/2009/QĐ-TTg dated August 19, 2009, also identifies the environmental problem of industrial clusters as one of the main contents of the industrial clusters development planning project.

For newly built industrial clusters, the environmental protection master plan right from the project formulation plays an important role. In the planning, in addition to the arrangement of premises for factories, it is necessary to mention the environmental protection plan. In each industrial cluster, it is necessary to set aside a certain area of land to build a wastewater treatment system and plant trees. When arranging production and business establishments, it is

necessary to pay attention to dividing them into groups of industries with medium and light pollution levels to arrange into clusters close to each other. Production and business establishments that cause heavy or medium pollution must be located behind the wind direction compared to those with light pollution levels.

+ Build and complete the concentrated environmental treatment zone.

This is a very effective solution for wastewater treatment in industrial clusters and is also a mandatory requirement when building. A centralized wastewater treatment system built to treat the same volume of wastewater of the same type from many production facilities will save more costs from the construction, operation, and maintenance of the system. In areas where multiple industries generate the same type of wastewater, locating these industries in one zone makes wastewater treatment easier.

Currently, out of the newly built industrial clusters, only 5 have built a centralized wastewater treatment station. Therefore, in the coming time, the City needs to request the industrial clusters that have been put into operation to quickly complete this item. For industrial zones that are or have not yet built infrastructure, it is necessary to supplement and deploy the construction of a centralized wastewater treatment area. The city is determined not to approve new industrial clusters or expand industrial clusters without building a centralized wastewater treatment area.

4. Discussion and conclusion

In fact, the concentrated environmental treatment zone is a kind of public good, and many production and business establishments in the cluster use it. It is a non-competitive commodity, the money invested in the concentrated environmental treatment zone in many cases is beyond the capacity of a business establishment. Therefore, the State will invest mainly, production and business establishments will contribute a part of the capital to invest in the construction of this concentrated environmental treatment zone.

So far, the current legal documents on the management of industrial clusters, including

Decree No. 68/2017/ND-CP, Decree 66/2020/ND-CP, Circular 28/2020/TT-BCT on basically created a legal corridor for management and development of industrial zones unified from planning, establishment and expansion of industrial zones to investment in infrastructure construction and production in industrial zones.

Some localities have not yet made development planning, so they face difficulties in investment and development of industrial zones, or some other localities are slow to adjust the master plan for industrial development in the area for the period 2016-2020.

The observance of some contents and provisions of Decree 68/2017/ND-CP and the law in some localities is still not serious and complete. Central agencies and many localities have not yet developed mechanisms and policies strong enough to complete investment in infrastructure of industrial zones, attract enterprises to invest in infrastructure business of industrial zones and secondary enterprises to enter industrial zones. Many localities have faced difficulties and embarrassment in converting the state-invested industrial cluster model to enterprises acting as investors in construction and infrastructure business to handle previous problems.

Last but not least, developing industrial clusters need more firm hubs to expand their largest network for industrial cluster development.

Moreover, Limitations and disadvantages in the construction of industrial infrastructures are: The quality of the industrial development plannings and the detailed plannings on the construction of industrial infrastructures are not high; there is still the phenomenon of “hanging planning”; The infrastructure is not synchronous and modern; construction time of industrial infrastructure is often prolonged compared with the plan; State management has some shortcomings. The reasons for these limitations are: There is no general plan for the development of Hanoi city; mechanisms and policies to support the construction of industrial infrastructure, although existing, are not attractive enough to attract investors to invest in industrial infrastructure; There are no specific criteria in selecting investment projects, choosing investors, many industrial clusters cannot attract capable enterprises to invest in the infrastructure business.

Research limitation

Author need to discuss detailed plans fo industrial clusters

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