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The authors are Bui Quang Binh and Nguyen Thi Thuc (Viet Nam Academy of Social Sciences). The report is supervised by Nguyen Dinh Chuc (Viet Nam Academy of Social Sciences), Ajeya Bandyopadhyay (KPMG India) (consultant team leaders) and Alessandro Flammini (UNIDO headquarters).

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For more information on UNIDO’s work on eco-industrial parks in Viet Nam, please visit https://eipvn.org/ or contact EIP@unido.org.
**ACRONYMS AND ABBREVIATIONS**

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<th>Acronym</th>
<th>Description</th>
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<td>DOIT</td>
<td>Department of Industry and Trade</td>
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<td>DOLISA</td>
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<td>DONRE</td>
<td>Department of Natural Resources and Environment</td>
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<td>EIP</td>
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<td>EMS</td>
<td>Energy Management System</td>
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<td>EnMS</td>
<td>Environment Management System</td>
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<td>EPZ</td>
<td>Export Processing Zone</td>
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<td>IP</td>
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<td>Ministry of Construction</td>
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<td>MOIT</td>
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<td>NATIF</td>
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<td>PPC</td>
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<td>SECO</td>
<td>Swiss State Secretariat for Economic Affairs</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>VDB</td>
<td>Viet Nam Development Bank</td>
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1. STATE MANAGEMENT APPARATUS ON INDUSTRIAL PARKS AND ECONOMIC ZONES IN GENERAL

Over 25 years of establishment and development, Industrial Parks (IPs) and Economic Zones (EZs) in Viet Nam have promoted their active role and contributed to socioeconomic growth and the process of industrialization and modernization of the country. The state management apparatus is gradually improving, with a view to meeting the demand of developing IPs and EZs towards the Eco-Industrial Parks (EIPs). However, the process of establishing and developing IPs and EZs continues to face challenges. Meanwhile, the legal framework for the operation of IPs and EZs is currently at decree level. Contradictions and inconsistencies within legal documents are still to be addressed, while coordination between ministries and agencies to solve problems related to state management for the operation of EZs and IPs needs further strengthening, potentially with international support.

1.1. CENTRAL GOVERNMENT

Responsibilities of the Prime Minister

According to Decree no. 29/2008/ND-CP and Decree no. 164/2013/ND-CP, dated 12 November 2013, amending and supplementing some articles of Decree no. 29/2008/ND-CP of the Government regulating IPs, EZs and Export Processing Zones (EPZs), the Government agreed on the state’s management of IPs and EZs throughout the country on the basis of assigning specific tasks and powers to each ministry, branch and Provincial People’s Committee (PPC) and IP management boards, in order to direct the establishment and implementation of planning and development plans and to promulgate policies and legal documents on IPs and EZs (see Figure 1 below).

The latest policy issued is Decree no. 82/2018/ND-CP, which regulates the management of IPs and EZs. The decree states that the Prime Minister has the authority and responsibility to implement laws and policies on IPs and EZs. The Prime Minister is also responsible for (i) approving and adjusting the plan of developing IPs and EZs, deciding on the investment policy under his authority; (ii) deciding on the establishment and expansion of EZs and (iii) adjusting and reducing the area and conversion of land use in IPs and functional areas in EZs. In addition, the Prime Minister is responsible for directing and resolving problems in planning, investment, establishment, operation and management of IPs and EZs that are beyond the authority of ministries, branches, PPC and management boards of IPs and EZs.
Ministry of Planning and Investment

The unit in charge of management and development of EZs and IPs is currently the Department for EZ Management under the Ministry of Planning and Investment (MPI), which has the function of assisting the Minister in carrying out state management of IPs, EZs and EPZs.

According to Decree no. 82/2018/ND-CP dated 22 May 2018 on the management of IPs and EZs, the powers and responsibilities of state management for the MPI include presiding over and coordinating with the Ministry of Construction (MOC), the Ministry of Natural Resources and Environment (MONRE), the Ministry of National Defence, the Ministry of Industry and Trade (MOIT) and related ministries, branches and provincial people’s committees, with a view to formulating a master plan on the development of IPs and EZs and submitting it to the Prime Minister for approval. The MPI is also responsible for reviewing and evaluating the results and socio-economic efficiency of IPs and EZs – to be reported to the Prime Minister – and a series of functions and tasks in coordination with other ministries and branches.

As well as the functions described above, the assigned tasks of the Department for EZ Management are (i) to participate in establishing and coordinating appraisal of plannings and master plans on the development of IPs and EZs throughout the country; (ii) to act as a focal point for researching and proposing models of IPs, EZs, mechanisms and policies for development and international cooperation related to IPs; (iii) to participate in developing a list of projects calling for domestic and foreign investment promotion; (iv) to assess the results and socio-economic efficiency of IPs and EZ; and (v) to take part in appraising, adjusting and supplementing planning related to IPs and EZs.

1 Decision no. 1889/QĐ-BKHĐT dated 22 December 2017 by MPI.
Ministry of Natural Resources and Environment

The Ministry of Natural Resources and Environment (MONRE) has functions and tasks that are highly important in terms of environmental protection and effective land use of IPs. Specifically, the Viet Nam Environment Administration and the General Department of Land Administration are two of the state management agencies under MONRE responsible for environmental protection and land management of IPs across the country.

For environmental protection activities in IPs, the Law on Environmental Protection 2014 has a separate article – Article 66. In addition, the Government has issued a number of regulations and guidelines on the implementation of the provisions in the Law. Environmental protection regulations for IPs are stipulated in some of the main documents, including Decree no. 38/2015/ND-CP, dated 24 April 2015, by the Government, on management of waste and discarded materials, Decree no. 80/2014/ND-CP, dated 6 August 2014, on drainage and wastewater treatment and Circular no. 35/2015/tt-BTNMT, dated 30 June 2015, by the MONRE, on environmental protection of IPs, EZs, EPZs, and high-tech zones.

The function of the Viet Nam Environment Administration is thereby clearly defined, from the planning of IP construction, technical infrastructure requirements for environmental protection to the management and operation of environmental protection works by IPs in the process of operation, management of wastewater, waste gas and solid waste generated from facilities in the IPs, as well as the specification of responsibilities of the parties in the environmental protection in IPs (among the local IP management board, the investor in construction and trading of IP infrastructure and owners of facilities operating in the IPs).

For management of IP land, the General Department of Land Administration is responsible for monitoring and checking at the site for land management and use by IPs, EZs, high-tech zones and industrial clusters, as well as other projects and works that use land under the authority of the National Assembly and the Government.

In addition, it is responsible for specialized inspection on land across the whole country according to the provisions of law, as well as participation in instructing the profession of inspection, examination and handling of law violations and settlement of disputes, complaints and denunciations in the field of land, as assigned by the MONRE.

Ministry of Industry and Trade

The MOIT is a state management agency for industrial clusters nationwide, as stipulated in Article 35 of Decree no. 68/2017/ND-CP. According to this Decree, the MOIT is assigned the following powers and responsibilities:

- Develop, promulgate or propose competent agencies for issuing programmes, plans, mechanisms, policies, laws, certificates and confirmation relating to industrial clusters, as well as planning agreement and comments on investment proposals in the form of public partners of industrial clusters.
- Carry out training and foster skills in management and development of the industrial cluster.
- Annually develop plans and cost estimates for the operation of industrial cluster development from the central budget, submitting them to the competent authorities for approval and, thereafter, for implementation.
- Responsibility for the development and submission to the Prime Minister for approval and implementation of the programme on investment in technical infrastructure of industrial clusters.
in the period after 2020, as guaranteed by the central budget. Make annual and five-year plans to use the central budget to support investment in the industrial cluster’s technical infrastructure and send them to the MPI for summing up and reporting to the Prime Minister for decision.

- Carry out periodic or surprise inspections and evaluations of the implementation of planning, policies, laws and operational efficiency of industrial clusters, as well as handling local petitions on industrial clusters and reporting to the Prime Minister.

- Issue a form of management regulations, report on industrial clusters and develop and operate the national industrial cluster database.

**Ministry of Labour, War Invalids and Social Affairs**

According to Article 3 of Circular 13/2009/TT-BLĐTBXH, dated 6 May 2009, by the Ministry of Labour, War Invalids and Social Affairs (MOLISA) on implementing the task of state management on labour, a number of major elements of state management on labour in IPs were specified, as follows:

- Understand supply and demand, as well as the fluctuation of labour supply and demand in the IPs as a basis for making plans on labour distribution and use in IPs.

- Collect statistics and information on employees, such as living standards, income and workers’ accommodation in IPs.

- Grasp information on employers and trade unions for each enterprise.

- Propagate and disseminate legal documents on labour to workers and employers in IPs.

- Instruct on building a harmonious, stable and progressive labour relationship in enterprises.

- Guide enterprises and workers to apply correctly the legal provisions on labour contracts, such as collective labour agreement, salary, labour discipline, material responsibility, labour safety and hygiene, working time, rest time, trade unions, labour disputes, social insurance and unemployment insurance.

- Inspect and check the implementation of labour laws, social insurance laws and handle violations of labour legislation.

- Settle labour disputes by the law.
1.2. LOCAL GOVERNMENT

**Provincial People’s Committee**

As at central government level, the PPC is responsible for general management and administration in the province, which includes the operation of IPs. Specifically, the PPC is responsible for presiding over the development of planning for IPs and EZs in the province and deciding on the establishment and expansion of IPs. It also has the responsibility to make the general construction plan for the IPs.

In addition, the PPC directs the establishment and approves the construction plan of IPs and functional areas in the EZs, deciding on use of state budget capital to support investors in technical infrastructure systems inside and outside IPs and EZs. The Committee carries out investment procedures for projects investing in infrastructure development of IPs and functional areas in the EZs where a management board of an IP or EZ has not yet been set up according to the law on investment.

In addition, the PPC also issues specific preferential and incentive policies, in line with the provisions of the law, for priority of recruiting and using on-the-spot labour and highly skilled workers, as well as supporting vocational training for labour working in IPs and EZs.

Other responsibilities include planning land for constructing resettlement areas, residential areas, social, cultural and sports facilities for workers in IPs and EZs, supporting investment in constructing houses for workers, resettlement areas, technical and social infrastructure projects according to legal provision, assisting investment, trade and tourism promotion, and supporting compensation and land clearance to speed up the process of investment and development of IPs and EZs. The PPC directs the recovery of land, water surface, compensation, land clearance and resettlement, as well as the implementation of procedures for leasing or allocating land in IPs and EZs according to the laws on land and related laws. The PPC directs the relevant organizations in setting up investment plans and organizing the construction of technical and social infrastructure systems outside of the fences of IPs and EZs, such as roads, power supply systems, water supply and drainage, communication, technical connection points with infrastructure works inside the fences of IPs and EZs, vocational training institutions, housing, as well as social, cultural, sports and medical facilities, schools and other public works designed to meet the needs of developing IPs and EZs.

Regarding investment procedures, the PPC directs the implementation of a “one-stop” administrative mechanism in the management boards of IPs and EZs, issues and supervises the implementation of the regulation on coordination of state management between management boards and agencies under the PPC and guides, assigns or authorizes the management board to perform certain state management tasks in the areas stipulated in Decree 82/2018/ND-CP.

In addition, the PPC is also responsible for issues related to IPs and EZs. These include the following:

- Direct the implementation of planning and regulations on construction, labour, environmental protection, fire and explosion prevention and security in IPs and EZs.
- Organize vocational training facilities in localities to meet the labour demand for IPs and EZs.
- Organize, inspect and supervise the settlement of problems arising in the process of formation and development of IPs and EZs. For matters beyond their authority, they shall coordinate with ministries and branches in settling or submitting cases to the Prime Minister for consideration and decision.

- Formulate a scheme on the establishment and reorganization of management boards for IPs and EZs to ensure the principle that each province or centrally-controlled municipality has a management board of IPs and EZs. Decide on the appointment of personnel to hold the position of Head and Deputy Head of the management board of IPs and EZs.

- Provide funds for administrative and non-business activities and develop investment capital for management boards of IPs and EZs, according to the provisions of the law on public investment and the state budget. Approve plans, fund and organize the promotion of investment, trade and tourism to develop IPs and EZs.

- Direct local specialized agencies on trade, finance, customs, banks, police, and other relevant agencies to arrange competent representatives to deal with related affairs in each IP and EZ, as necessary.

- Perform other state management tasks and powers regarding IPs and EZs according to the provisions of the law.

**Provincial management board of IPs and EZs**

The management board of an IP or EZ is the unit that performs the direct management function for IPs and EZs in the provinces. In addition, the management board has the function of providing services related to investment, production and business activities in IPs. With these tasks, the management board represents one of the positive factors promoting the socioeconomic development process of the province towards industrialization and modernization.

The role of the management board of IPs and EZs in the province is highly important. The board has the function of state management on certain essential issues within the IP area, contributing to supporting enterprises in improving the effectiveness of state management in a timely manner.

The management board also has the tasks of supporting and introducing areas, conditions, and investment incentive policies and initial guidance on procedures for investment in IPs, instructing administrative procedures, providing “one-stop” administrative services, directly solving administrative procedures and implementing effective support for investors in their investment projects in each province.

The management board has a comprehensive grasp of the operation situation of enterprises in IPs, in particular the situation regarding construction, production, business, the environment and labour, allowing it to report to the functional agencies for handling.

The board cooperates with the relevant agencies and local authorities to supervise, guide and inspect the infrastructure and business development company within IPs, with a view to implementing legal regulations in operation, in particular in the areas of security, fire and explosion prevention and social order and safety.

It monitors the situation of site clearance, handing over the site to investors in IPs according to the schedule. The board also works with local People’s Committees in districts and communes in handling related issues, when authorized, and proposes PPCs to direct the settlement of difficulties and problems.
The management board is responsible for detecting and reporting labour issues, coordinating with authorities to handle security issues when collective labour disputes occur (such as labour slowdown and strikes), according to their assigned authority.

It also supervises traffic safety in IPs, advising the implementation of measures to ensure traffic safety in IPs, combating traffic congestion, coordinating with the district and provincial traffic safety committee and trade union in provincial IPs to organize propaganda and education and raise awareness of the Traffic Law for labourers in IPs.

In addition, the management board has a number of functions and tasks related to other activities within IPs and EZs, such as participating in the organization of professional training courses for security forces, fire prevention and firefighting forces at enterprises and classes, propagating and disseminating labour laws to IP workers, helping leaders of the board in organizing meetings and talks with enterprises and organizing periodic preliminary reviews of coordination with the relevant functional agencies.

**State management of departments and agencies for IPs and EZs**

As with the state management agencies for IPs at central level, departments and agencies in each province have similar functions in planning, licensing, environmental management and management of labour and security. The decentralization and authorization of each province are slightly different, however in general the role of departments and agencies at provincial level is the same. These roles are outlined in detail below.

**Department of Planning and Investment**

The role of the Department of Planning and Investment (DPI) is highly important, not least as it is the state management agency directly responsible for appraising and submitting to the PPC the master plan and development plan of IPs and EPZs in the province. This, in turn, allows the PPC to submit the plans to the Government and the Prime Minister. In addition, the DPI instructs on how to implement plans and development plans for previously approved IPs and clusters.
For the management of regular and periodic activities, the DPI coordinates with other departments and the IP management board to be responsible for guiding, inspecting and producing reports on investment and development activities of IPs and EPZs, while proposing management and organizational models for IPs and EPZs in the area.

**Department of Natural Resources and Environment**

The Department of Natural Resources and Environment (DONRE) has the role of a state agency, carrying out appraisal, report and assessment of the environmental impact of projects investing in construction and business of infrastructure in IPs. The Department reports on and assesses the environmental impact and details the environmental protection scheme for projects investing in IPs under the approval authority of PPC (where the PPC has not authorized the management board of IPs and EZs). In addition, DONRE checks and certifies the completion of environmental protection works to serve the projects’ operation phase.

At the same time, DONRE certifies the environmental protection plan, a simple scheme for investment projects in IPs according to its authority (where it has not authorized the management board of IPs and EZs), and checks the implementation of its contents.

DONRE must, by law, coordinate with other agencies to issue registration for owners of the hazardous waste source, as well as monitoring and inspecting the recovery and disposal of expired or discarded products for production, business and service facilities in IPs.

The Department evaluates application dossiers for permits for the discharge of wastewater into receiving sources for investors constructing and trading infrastructure in IPs, while production, business and service facilities in IPs are under the authority of the PPCs. DONRE appraises the environmental protection fee declaration for industrial wastewater of investors constructing and trading IP infrastructure, production, business and service facilities. It also informs the must-pay fees for the above areas.

Finally, DONRE collects and evaluates data and evidence to determine environmental damage, as well as advising PPCs to claim compensation for environmental damage caused by the investor constructing and trading of IP infrastructure, production, business and service facilities (where it is under the responsibility of the PPC).

**Department of Labour, War Invalids and Social Affairs**

According to Circular no. 32/2014/TT-LĐTBXH dated 1 December 2014, as well as the general state management task for labour in IPs, EZs, EPZs and high-tech zones in the locality, the Department of Labour, War Invalids and Social Affairs (DOLISA) plays an important role as an agency supervising enterprises in IPs and EZs, performing social security activities such as taking care of workers’ lives, ensuring benefits for workers in terms of salary and social insurance participation, ensuring working time and rest time in accordance with the Labour Law, providing accommodation for workers and other services such as schools, hospitals, markets, amusement parks, security and order. In particular, the working environment and workers’ safety at the place of production and in factories are among the functions and tasks under the management and supervision of DOLISA.

In addition, the Department issues work permits for foreigners and labour books for Vietnamese workers, organizes registration of labour regulations, collective labour agreements, hygiene regulations and labour safety rules, and plans to send workers abroad for on-the-job training for periods of less than 90 days.
**Department of Industry and Trade**

In general, the provincial-level Department of Industry and Trade (DOIT) has relatively similar functions and tasks, namely to advise PPCs to perform the task of state management for IPs and EZs in the area by the law. The Department also has the function of presiding over the development of planning, plans, mechanisms and policies for industrial cluster development and implementing these following their approval by the PPC.

Concerning the infrastructure of IPs and EZs, DOIT also appraises dossiers for the establishment and expansion of IPs and EZs and comments on the basic design for projects investing in the construction of infrastructure for IPs and EZs and those investing in construction works by the law.

DOIT also implements preferential mechanisms and policies to attract investment, exports, imports, tax, finance, labour and construction of technical infrastructure, site clearance and relocation of production facilities, establishing new IPs and EZs in the area. Energy-saving and promotion of the use of renewable energy also fall under the jurisdiction of the DOIT. The Department plays a significant role in promoting clean and green IP and EZ models for the future, as demonstrated by the EIIPs.

**District and Commune People’s Committees in areas in which IPs and EZs are located**

The People’s Committees in districts and communes in which IPs and EZs are located are responsible for organizing the registration of wages, payrolls and labour norms. Specifically, the settling of collective labour disputes falls under the jurisdiction of the District People’s Committee.

The District People’s Committee is responsible for confirming the project’s commitment to protecting the environment, as per Decree no. 29/2011/ND-CP, following the approval by DONRE of the evaluation of the Environmental Impact Assessment.

In addition, the District People’s Committee coordinates with inter-agency units such as the management board, provincial departments and provincial police, in inspecting and supervising enterprises. The District People’s Committee is also responsible for ensuring order and security outside IPs and EZs located in the district.

In general, the Commune People’s Committee is not responsible for directly performing the task of state management for IPs and EZs in their communes. However, the Committee does play an important role in coordinating and supporting the management board of IPs and EZs, mobilizing local resources to participate in building and operating within the IPs to implement current policy, plans for relocation and resettlement when activities take place for the establishment, adjustment and expansion of IPs and EZs.

The Commune People's Committee also receives reports and notices on activities related to investment in and construction of IPs in the locality and coordinates with District People's Committees to solve problems related to the land and security situation in the area.

**IP infrastructure investment and development companies**

These companies have important roles and functions in promoting the development of industry in each province. They are responsible for managing and administering investment activities in IPs and deploying construction and business of IP infrastructure with investment capital from the state budget or other capital sources. Further details are outlined below.
• IP infrastructure investment and development companies are responsible for implementing procedures to prepare investment in IPs on the basis that investment projects and detailed planning have been approved. They coordinate with the relevant authorities to prepare procedures for land acquisition, make plans for compensation and site clearance and conduct procedures for the construction of resettlement areas.

• The companies have the responsibility to make investment plans for the development of infrastructure works in IPs, which are evaluated by the managing board and submitted to the PPC for approval. They carry out the construction of infrastructure works through the detailed planning of IPs, approved design and project schedule.

• IP infrastructure investment and development companies have to maintain IP infrastructure works during their operation, in order to ensure industrial hygiene, environmental protection and ecological environment in the IPs.

• The companies call and mobilize investors into IPs through IP development objectives and approved detailed planning.

• The companies deposit within the budget for land lease the fees for use of infrastructure and other service charges collected from the enterprises, after deducting the amounts they are allowed to retain according to regulations.

• Coordination takes place to monitor, inspect and urge enterprises to implement labour policies and regimes for workers in IPs under the Labour Law.

• A periodic and annual reporting regime is implemented for the management board and PPC.
1.3. COORDINATION OF AGENCIES IN THE MANAGEMENT OF IPs

1.3.1. Environmental management

Decree no. 82/2018/ND-CP determines that the functions and powers of the PPC are to issue and supervise the implementation of coordination between the IP management board and agencies under the PPC and to guide and assign tasks or authorize the management board to perform certain state management tasks in the field of environmental protection. Accordingly, the PPC authorizes the IP management board to organize appraisal and approval of environmental impact assessment reports for investment projects under the competence of PPCs in IPs and EZs.

The decentralization and authorization for the IP management board to perform some tasks of state management in the field of the environment have created favourable conditions for investors to implement administrative procedures according to the “one stop, one contact” mechanism. Environmental protection in IPs has also been enhanced, especially in propaganda and guidance on the implementation of regulations on environmental protection, supervision, inspection and handling of environmental violations. IP management boards monitor and manage investment projects from the outset, including the implementation process, so that they can grasp the full information about the project, while handling and processing procedure faster for investors. Under the provisions of the Law on Environmental Protection, the decision on approving the environmental impact assessment report is the basis for issuing construction permits. If this regulation is followed, investors will spend significant time performing procedures to begin construction. When authorized to appraise and approve the environmental impact assessment report, the IP management board can at the same time process procedures for appraisal of environmental impact assessment reports and construction permits, thereby shortening the project implementation time for investors.

However, regulations on decentralization and authorization for the management board to perform the task of state management in the field of environmental protection have not been stable, particularly with regard to the evaluation and approval of the environmental impact assessment report. Decree no. 21/2008/ND-CP regulates the authorization for the management board, however Decree no. 29/2011/ND-CP removes the authorization rules, while Circular no. 27/2015/TT-BTNMT instructs the authorization. The rapid change in these regulations has caused difficulties in organizing implementation, especially in arranging apparatus and human resources for management boards. According to the current regulations, an IP management board must comprise five or more staff with expertise in environmental protection if it is to be authorized to assess and approve environmental impact assessment reports. Following this rule is a significant challenge, especially in the current context of reduced staff numbers.

1.3.2. Labour management and labour safety

According to Decree no. 82/2018/ND-CP, the PPC, DOLISA and the District People’s Committee in certain provinces in which IPs and EZs are located have authorized the management boards of IPs and EZs to perform
certain state management tasks on labour within these areas. This has created favourable conditions for enterprises and investors in IPs and EZs to carry out administrative procedures in the labour sector, ensuring the implementation of a one-stop mechanism in the management board for the labour sector (where authorization has not been given, investors carry out procedures at a number of agencies, increasing time and costs).

Authorization from the competent agencies has helped the management board to actively implement and coordinate state management tasks on labour in IPs and EZs, providing them with a timely grasp and correct vision of the violations of employers. As a result, the management board is able to ensure the rights of employees, in compliance with the provisions of the law, and to implement security and social safety.

For some provinces, the PPC authorizes the management board in areas such as receiving notice of firing workers in IPs and EZs, obtaining reports on labour outsourcing in enterprises, receiving reports on the results of annual training to improve knowledge and professional skills in enterprises, receiving collective labour agreements of enterprises, registering labour regulations of enterprises, ensuring that enterprises’ reports explain the need to use foreign workers for each job position for which Vietnamese workers do not qualify, summing up and submitting to the chair of the PPC for decision and receiving the system of wage scales, payrolls and labour norms of enterprises.

DOLISA, meanwhile, authorizes the management board in fields such as receiving and processing registration dossiers for the implementation of internship contracts by enterprises that send employees to work overseas (in the form of advanced skills training with a duration of less than 90 days), receiving declaration of employment, reporting changes in labour, receiving notice of location, area, time of commencement of operation and manager, key person in the labour outsourcing company, granting, re-issuing and revoking work permits for foreigners, certifying foreign employees who are not subject to a work permit, obtaining notice of enterprises in IPs about organizing overtime work from over 200 to 300 hours in a year.
However, the state management of labour in IPs and EZs still has a number of shortcomings. These include the elements outlined below.

- The implementation of authorization from competent authorities remains slow. Since Circular no. 32/2014/TT-BLDTBPXH, which guides authorization to perform certain tasks of state management of labour in IPs, EPZs, EZs and high-tech zones, took effect on 1 December 2014, most provinces have been slow in their implementation. Therefore, where they do not receive authorization, management boards cannot grasp the observance of labour laws by enterprises and investors, are unable to manage foreign employees working in IPs and EZs under the scope of management and are passive in coordinating in state management to ensure political security and social order and safety.

- According to the organizational authority of state agencies, only the superior agency has the right to authorize subordinate agencies. In this case, in some provinces, DOLISA and the management board of IPs and EZs are two equivalent agencies directly under the PPC, while District People’s Committees are not superior to the management boards of IPs and EZs. As a result, assigning these two agencies to implement authorization is not appropriate.

- DOLISA carries out inspection in IPs and EZs independently, and does not recognize the sending of wage scales, payrolls and labour norms of enterprises in IPs and EZs to the management board, even though the District People’s Committee has authorized the management board to do so. This has caused a number of difficulties in the state management activities of the agencies.

- Besides the decentralization and authorization of PPC to the management board of IPs, the current popular management model also functions to coordinate with other departments and agencies, as well as to coordinate with the people’s committees of cities and districts in which IP is located, in order to manage and monitor the activities of IPs in all fields.

**Overall assessment of the state management apparatus on IPs**

In the past, the system of mechanisms and policies positively contributed to improving the development quality of IPs, EZs and EPZs. However, in this system of mechanism and policy, a number of limitations still exist and need to be revised, supplemented and completed. These are outlined in detail below.

- The task of state management for IPs and EZs faces a number of difficulties and problems. Institutions for IPs and EZs are not strong enough and are therefore governed by specialized laws and decrees.

- The documents guiding the implementation of Decree no. 82/2018/ND-CP have not been issued by ministries and central agencies. Current policies still lack stability and are not conducive to attracting investment or the development of IPs and EZ, while making it difficult for investors to adapt to new policies. The position and role of the IP management board in the system of professional agencies at provincial level have not been clearly defined, with the consequence that the relationship and mechanism of coordination with the PPC, departments, agencies and local authorities remains confusing.

- The decentralization and authorization of management board of IPs and EZs are inadequate and not fully consistent with the law on IPs and EZs. The mechanism of decentralization and authorization for management board to perform the “one-stop” function has not created the most favourable conditions for the management boards to carry out their state management responsibility. In addition, maintaining the authorization mechanism from departments, agencies or District People’s Committees without direct
decentralization from the specialized ministry, or directly allowing the PPC to authorize management board, has created overlap in state management among management agencies and inconsistency in implementing the content of state management for IPs and EZs between provinces and cities. Management boards do not have an inspection function, which means that checking, supervision, urging and inspection of enterprises implementing the provisions of law is ineffective and limits autonomy in implementing state management functions for IPs and EZs. In addition, some club members are yet to complete the functions, duties, powers and organizational structure as stipulated in Joint Circular no. 06/2015/TTLT-BKHĐT-BNV dated 3 September 2015 by the MPI and the Ministry of Home Affairs.
2. CURRENT ROLES AND RESPONSIBILITIES OF AGENCIES IN MANAGING ECO-INDUSTRIAL PARKS

According to Decree 82/2018/ND-CP, there are four government-level agencies (MONRE, MPI, MOC and MOIT) and one provincial-level agency directly responsible for the management, planning and licensing of EIPs. Specifically, the Prime Minister is responsible for general management, planning and modifying IPs and EZs, as described in Section 1 above. Ministries and departments are responsible for EIPs, for which the structure is outlined below.

**Ministry of Planning and Investment**

The MPI is in charge of assisting the Government in unifying state management of IPs and EZs, in general, and EIPs in particular. The MPI is responsible for presiding over and coordinating with relevant ministries and agencies to guide the establishment of EIPs.

The MPI also chairs and coordinates with other related ministries and agencies to provide guidance and related professional training for local IP and EZ management board about EIPs, such as the criteria and process of approval of documents for EIP conversion.

The MPI coordinates with the Ministry of Finance and related ministries and agencies to estimate the support plan from central budget for investment projects on EIP infrastructure development in localities. These projects include support for enterprises in the development of EIP infrastructure and helping ecological enterprises with preferential loans from the Viet Nam Environmental Protection Fund, Viet Nam Development Bank, financial funds and organizations and domestic and international donors, with a view to building IP technical infrastructure, implementing cleaner production measures and efficiently using resources and industrial symbiotic solutions.

In addition, the Ministry summarizes and evaluates the socio-economic results and efficiency of EIPs and coordinates with the Ministry of Home Affairs in guiding implementation of the functions, tasks and organizational structure of the EIP management board. It takes the lead in issuing guidelines on reports and statistics on IPs and EZs.

**Ministry of Natural Resources and Environment**

MONRE is responsible for issuing guidelines on environmental management and protection in EIPs. The Ministry also guides the authorization for the management board of IPs and EZs to perform the task of state management of the environment and certain tasks of state management of natural resources and the environment in IPs and EZs, in general, and EIPs in particular, in line with the law on environmental protection.

In addition, MONRE guides the reuse of waste, scrap and excess energy in EIPs, which also falls under the Ministry’s authority and state management responsibilities.
**Ministry of Construction**

The MOC issues regulations guiding the management board of IPs and EZs to perform state management of construction for technical infrastructure and construction works in IPs and EZs. In addition, it builds and develops houses, cultural and sports facilities for workers in IPs and EZs and is responsible for urban management and development in EZs, as well as for giving instruction on construction standards of EIPs.

**Ministry of Science and Technology**

The Ministry of Science and Technology (MOST) will assume responsibility for leading, coordinating and guiding localities in organizing technological-level evaluation and appraisal of technology transfer contracts in IPs and EZs, in general, and in EIPs in particular.

In addition, the MOST also guides IP and EZ management boards to perform state management of science and technology issues in IPs and EZs.

The MOST guides reuse of waste, scrap and excess energy in the EIPs. Other ministries and departments are also responsible for coordinating the promulgation of criteria and standards for EIPs, as well as managing and monitoring. These include MOLISA, the Ministry of Finance and the Government Inspectorate.

**Management boards of IPs and EZs**

The management boards of IPs and EZs also have functions and duties for EIPs. These include supporting and providing information for enterprises in IPs and EZs to associate and cooperate with each other to implement industrial symbiosis, cleaner production measures, establishment of EIPs, support for IPs, inter-sector zones and clusters. They are also responsible for presiding over and coordinating with the agencies concerned in adjusting IP construction planning, when converting them into EIPs.

**Enterprises**

Enterprises in EIPs play a decisive role in the success of EIPs and business associates, cooperating as they do with local communities. A community of manufacturing and service businesses has a close relationship with the same benefits, namely high-quality social, economic and environmental activities through cooperation in management in environment and resource issues. By closely cooperating, the “community” of EIPs will achieve greater overall efficiency than each enterprise’s operation, thereby leading to the complete formation of an EIP.
3. PROPOSED AGENCIES TO MANAGE EIPs

The most important step in the preparation phase for EIPs is to establish a system of competent agencies within the current legal framework with clear functions and responsibilities. This system would allow the agencies to undertake planning, implement policies and evaluate results, connect with other stakeholders and build an information system to analyse, evaluate, share and adjust policy mechanisms. Such a system would build upon existing national experience in the management of IPs. Through a number of EIP conferences and seminars related to the mechanism of implementing EIPs from central to local levels, experts from ministries, departments and provinces agreed to establish a central agency. The functions and duties on EIPs outlined below are envisaged for state management agencies. These suggestions are also based on the findings of a review of international experiences on EIP development (UNIDO, 2019) and research on the transformation towards a sustainable IP model in Viet Nam (Institute of Research and Social Development (IRSD), 2017).

3.1. NATIONAL STEERING COMMITTEE ON CONVERSION INTO EIPs

The Committee will be the competent authority for directing and creating coordination between central ministries and the PPC. The legal framework for the operation of this type of steering committee is stipulated in the Prime Minister’s Decision no. 34/2007/QD-TTg of 12 March 2007, on promulgating regulation on the establishment, organization and activities of intersectoral coordination organizations. Accordingly, the Steering Committee will undertake the functions and have the components outlined below.

- Advise the Prime Minister on directions and solutions to address issues and policies related to the transformation or formation of EIPs nationwide.
- Assist the Prime Minister in directing, regulating and coordinating among ministries and PPCs in planning policies and mechanisms related to the transformation and formation of EIPs.
- Support the Prime Minister in urging ministries and PPCs to implement and adjust policies and mechanisms related to the transformation and formation of EIPs.
- The Steering Committee will be led by a Deputy Prime Minister, while a permanent deputy is the Minister of Planning and Investment.
- The members of the Steering Committee will be the deputy heads of the relevant ministries, in particular representatives from MOIT, MOC, MONRE, MOLISA.
3.2. MINISTRY OF PLANNING AND INVESTMENT

The MPI is the central agency and plays the most important role in converting existing IPs into EIPs and forming new parks. This agency undertakes the establishment of sustainable EIP models, planning policies to assess, support and monitor the above processes.

The MPI undertakes the following main functions for management of EIPs:

- As standing committee, the MPI advises the National Steering Committee and the Prime Minister on issues related to EIPs.
- Planning and development of national policies to support the transformation and formation of EIPs.
- Coordination with other ministries to implement policies on managing EIPs.
- Monitoring, evaluation and adjustment of policies on EIPs.

Within the MPI, an office to support the Steering Committee that is responsible for EIPs at national level is established.

The main functions and tasks of the Steering Committee office are as follows:

- Advise and assist the National Steering Committee and Minister of Planning and Investment on policies related to the conversion of existing IPs into EIPs and formation of new EIPs.
- Certification for sustainable IPs as well as production and business enterprises.
- Develop a network of donors and research institutions, and coordinate with donors to formulate projects and preferential financial mechanisms for transformation and formation of EIPs.
- Develop evaluation criteria for the conversion of existing IPs into EIPs and form new EIPs.
- Establish information dissemination programmes, image promotion and technical support of EIPs.
- Develop and formulate a mechanism to connect and use the national-level database on EIPs (information on enterprises and IPs, recycling economy, symbiosis networks, data on using resources, energy and data on labour and other social issues).
3.3. PROVINCIAL IP MANAGEMENT BOARD

The provincial IP management board is the focal point for state management of IPs in the province. Management boards are involved in the following aspects of the management of IPs:

- Advise PPCs on supporting policies related to the conversion of existing IPs into EIPs and formation of new EIPs.
- Supervise the transition of IPs and enterprises towards EIPs and form new EIPs.
- Receive the decentralization and authorization of central ministries, People’s Committees and provincial departments for IPs to participate in the conversion or new development. This is important, given that the transition or development involves a number of aspects, in particular in terms of trade, environment, labour and construction. As a result, management boards with greater powers will ensure that support and supervision is more efficient.

3.4. EIP CENTRE

The proposed EIP Centre is a unit under the provincial IP management board (one in each province) with the following main functions:

- Advise the IP management board on planning and implementing mechanisms and policies to support conversion of existing IPs into EIPs and develop new EIPs in the province.
- Gather and publicize information about factories/enterprises in IPs, especially on demand for materials, energy, products, waste products, waste, demand for cooperation in production and services provided.
- Analyse flows for materials, energy and waste, compared with existing infrastructure and the needs of enterprises in IPs.
- Analyse and assess the social needs of workers in IPs, compared with current and future satisfaction.
- Connect information with centres in other provinces and with the National Steering Committee Office.
- Consult and provide technical assistance on effective use of materials, energy and potential sources of customers for enterprises in IPs.
- Make an initial assessment of the application file to certify EIPs.
- Build up a local partner network to support the transition and construction of EIPs through projects and funds.
- Promote close interaction between EIPs and local authorities and communities.
- Carry out programmes to promote the EIP image and attract strategic investors.
4. ROADMAP TO RETROFITTING INDUSTRIAL PARKS

4.1. ROADMAP FOR TRANSFORMATION AND PERFORMANCE TARGETS

If existing IPs are to be successfully transformed into EIPs, a detailed roadmap needs to be developed. The roadmap is proposed with medium periods that include 2019-2020, 2020-2025 and post-2025. Objectives and detailed tasks are identified with expected results in each milestone (see Table 1 below). This proposed roadmap would support the development of a stable society, green economy and sustainable industrial development of Viet Nam.

Table 1: Objective and milestones for EIP transformation in Vietnam to 2030

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Tasks</th>
<th>Expected results</th>
<th>Milestones</th>
<th>Responsible stakeholders</th>
</tr>
</thead>
</table>
| Study, survey statement of all IPs and review legal framework of institutions related to IPs and EZs in Viet Nam | • Collect statistical data on IPs/EZs relating to economic, social and environmental aspects  
• Review legal documents, legal framework and institution of IP/EZ management.  
• Disseminate results to ministries, sectors and others | • Report on IPs, EZs relating to economic, social and environmental statements  
• Report on documents, legal framework and institution of IP/EZ management  
• Ministries and sectors’ recommendations on reports | 2019 | MPI, MOLISA, research institutes, provincial IPs, EZ management board |

| Conduct the National Technical Guidelines for Eco-Industrial Parks in Viet Nam | • Research and review handbook on guidance of a Practitioner’s Handbook for Eco-Industrial Parks: Toolbox of WB, GIZ, UNIDO and lesson learned of successful countries  
• Disseminate guidelines to ministries, sectors and others | • The National Technical Guidelines for Eco-Industrial Parks in Viet Nam  
• Ministries and sectors’ recommendations on the guidelines | 2020 | MPI, IFC, research institutes and others |
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Tasks</th>
<th>Expected results</th>
<th>Milestones</th>
<th>Responsible stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propose hierarchical structure for EIP management</td>
<td>• Establish a system of competent agencies within the current legal framework, with a clear function, responsibility for planning, implementing policies and evaluating results</td>
<td>• Issue Decree on EIPs management</td>
<td>2019</td>
<td>Prime minister, MPI, National committee, provincial IP management committee and others</td>
</tr>
<tr>
<td>Develop mechanisms and measures to support conversion, such as amended set of indicators and preliminary list of enterprises and IPs</td>
<td>• Conduct a set of indicators and a list of potential enterprises in IPs</td>
<td>• Report on guidelines of implementation of EIPs with indicators</td>
<td>2020</td>
<td>MPI, National Committee, provincial IP management committee and others</td>
</tr>
<tr>
<td>Select potential IPs ready to transform to EIPs</td>
<td>• Review enterprises and industrial parks according to the selected criteria</td>
<td>• List of IPs and enterprises</td>
<td>2025</td>
<td>MPI, National Committee, provincial IP management committee and others</td>
</tr>
<tr>
<td>Implement pilot EIP transformation</td>
<td>• Implement pilot EIP transformation based on selected IPs and enterprises</td>
<td>• Report on implementation process periodically</td>
<td>2030</td>
<td>MPI, National Committee, provincial IP management committee, pilot IPs and enterprises</td>
</tr>
<tr>
<td>Review pilot IPs and enterprises after EIP transformation</td>
<td>• Review, evaluate, and recommend EIP transformation process, including achievements and limitations</td>
<td>• Report on EIP transformation process</td>
<td></td>
<td>MPI, National Committee, provincial IP management committee, pilot IPs and enterprises</td>
</tr>
<tr>
<td>Evaluate advantages and disadvantages of policy mechanism</td>
<td>• Adjust evaluation criteria and policy mechanism of transformation</td>
<td>• Issue Decree and Circular on EIP implementation and the national technical guidelines for EIPs in Viet Nam</td>
<td></td>
<td>MPI, National Committee, provincial IP management committee, pilot IPs and enterprises</td>
</tr>
<tr>
<td>Implement EIP nationwide</td>
<td>• List of IPs and all enterprises in the whole of Viet Nam to be implemented</td>
<td>• Report on implementation process periodically</td>
<td></td>
<td>MPI, National Committee, provincial IP management committee, all IPs and enterprises</td>
</tr>
<tr>
<td>Review IPs and enterprises after EIP transformation nationwide</td>
<td>• Monitor, evaluate and report EIP transformation periodically, including achievements and limitations</td>
<td>• Report on implementation process periodically</td>
<td></td>
<td>MPI, National Committee, provincial IP management committee, all IPs and enterprises</td>
</tr>
</tbody>
</table>
Tables 2 and 3 below suggest detailed indicators, targets and responsible stakeholders regarding environmental, social and economic issues for EIP transformation. These tables are conducted based on the guidelines from the Practitioner's Handbook for Eco-Industrial Parks: Toolbox provided by UNIDO, World Bank and GIZ in 2019.

Table 2: Environmental management

<table>
<thead>
<tr>
<th>Topic</th>
<th>Sub-topic</th>
<th>Indicator</th>
<th>Information required to set the targets</th>
<th>Steps involved in setting the indicators/Where and how to obtain information</th>
<th>Potential stakeholders to consult</th>
<th>What needs to be done if the information is not readily available, or if there is no relevant regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management and monitoring</td>
<td>Environmental/Energy Management Systems (EMS/EnMS respectively)</td>
<td>Proportion of resident firms, with more than 250 employees, that have an environmental/energy management system in place in line with internationally certified standards.</td>
<td>Annual national statistics on firms, published by the park operator/park management entity (in pilot parks).</td>
<td>Check with management firms that provide certification to identify firms that have EMS systems in place and hire more than 250 employees. Assess the national landscape of the firms with EMS/EnMS systems.</td>
<td>MONRE, MPI, provincial committee of industrial zones, certification institutions and the representatives of the firms.</td>
<td>Run a survey of selected IPs to examine whether resident firms with more than 250 employees have EMS in place, in line with international standards. Work with park operators to set a reasonable target value.</td>
</tr>
<tr>
<td>Energy consumption</td>
<td></td>
<td>Proportion of combined park facilities and firm-level energy consumption, for which metering and monitoring systems are in place.</td>
<td>Annual national statistics on firm-level energy consumption.</td>
<td>Request data from utilities (public and private) that provide power supply to IPs.</td>
<td>Utility companies, park operators.</td>
<td>Identify the reasons why no metering systems are installed and use the preliminary results available from the local utilities' current billing systems.</td>
</tr>
<tr>
<td>Renewable and clean energy</td>
<td></td>
<td>Total renewable energy use in the IP is equal to or greater than the annual national average energy mix.</td>
<td>Annual national average energy mix data, information on the installed capacity of renewable energy generators within the park.</td>
<td>Examine the annual national average energy mix. Examine the installed capacity of renewable energy plants within selected IPs. Compare the park’s renewable energy installation capacity against the national energy mix.</td>
<td>Representatives of stakeholder groups, including park operators, EVN, MPI, which grant licences or permits to operate renewable plants.</td>
<td>If there is no regulation that requires a certain level of renewable energy mix, or if no data is collected on the national renewable energy mix. Identify a benchmark in the region or around the world that promotes renewable energy use/production in the IPs. Compare this benchmark with available national data. Provide support for IP entities to help them to agree targets that go beyond the national average mix.</td>
</tr>
<tr>
<td>Topic</td>
<td>Sub-topic</td>
<td>Indicator</td>
<td>Information required to set the targets</td>
<td>Steps involved in setting the indicators/ Where and how to obtain information</td>
<td>Potential stakeholders to consult</td>
<td>What needs to be done if the information is not readily available, or if there is no relevant regulation</td>
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</tr>
<tr>
<td>Energy efficiency</td>
<td></td>
<td>Park management entity sets and works toward ambitious maximum energy intensity targets per production unit (kWh/USD turnover) for the park and its residents.</td>
<td>Information on national best practices within industry sectors that have significantly reduced carbon intensity. Use sandbox or similar tools provided by international development banks to calculate carbon intensity index.</td>
<td>Set the benchmark by identifying international/regional best practices that align with national policy goals. Involve the main IP entities in round tables to identify feasible targets beyond national industry sector benchmarks.</td>
<td>MONRE, MPI, provincial committee of industrial zones, certification institutions and representatives of the firms.</td>
<td>Establish a system at national level to collect data across IPs for one or two years. Identify national benchmarks by sectors, using tools and information provided by international development banks. Talk to IP entities to agree targets beyond national benchmarks.</td>
</tr>
</tbody>
</table>

Table 3: Social and economic management

<table>
<thead>
<tr>
<th>Topic</th>
<th>Sub-topic</th>
<th>Indicators</th>
<th>Potential stakeholders</th>
<th>Legal documents and regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social</td>
<td>Social security for workers.</td>
<td>Meet the general regulation and move towards higher standards.</td>
<td>MOLISA, MPI, provincial committee of industrial zones, and representatives of the firms.</td>
<td>Labour Law and legal documents under Labour law, ISO 26000.</td>
</tr>
<tr>
<td></td>
<td>Provide services such as housing, clinics, schools</td>
<td>Meet the general regulation and move towards higher standards.</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Labour Law and legal documents under Labour law, ISO 26000.</td>
</tr>
<tr>
<td></td>
<td>and entertainment areas for workers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure the working conditions and labour rights.</td>
<td>Meet the general regulation and move towards higher standards, respecting the presence of protection labour organizations</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Labour Law and legal documents under Labour law, ISO 26000.</td>
</tr>
<tr>
<td></td>
<td>Community relationships.</td>
<td>Participate in community activities and recruit local labour preferentially.</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Labour Law and legal documents under Labour law, ISO 26000, local PPC regulations.</td>
</tr>
<tr>
<td></td>
<td>Social responsibility.</td>
<td>Implement the system of regulations on social responsibility.</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Labour Law and legal documents under Labour law, ISO 26000, local PPC regulations.</td>
</tr>
<tr>
<td>Economy</td>
<td>Business efficiency.</td>
<td>The rate of profit and the growth of avenue and market shares.</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Meet the goals of local SEDP in the 2021-2025 period.</td>
</tr>
<tr>
<td></td>
<td>Producing connection in industrial zones.</td>
<td>The rate of using input-output from other enterprises in industrial zones and neighborhood areas.</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Meet the goals of local SEDP in the 2021-2025 period.</td>
</tr>
<tr>
<td></td>
<td>Industrial symbiosis.</td>
<td>The rate of recycling, reusing by-products, waste from other enterprises and vice versa.</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Meet the goals of local SEDP in the 2021-2025 period.</td>
</tr>
<tr>
<td></td>
<td>Sharing market information.</td>
<td>The connection of information about markets among enterprises in industrial zones.</td>
<td>MOLISA, MPI, provincial and local PPC, provincial committee of industrial zones and representatives of the firms.</td>
<td>Meet the goals of local SEDP in the 2021-2025 period.</td>
</tr>
</tbody>
</table>

4.2. PERIOD 2019-2020

Development of a system of agencies to plan, enforce, monitor and approve transformation

The EIP model is being supported by the Government of Viet Nam in order to transform existing IPs into a more sustainable model, with the expectation that the competitiveness of manufacturing enterprises will also improve, along with co-benefits in terms of environmental protection. The regulations in Decree 82/2018/ND-CP to ensure the development of IPs in the direction of transparency, stability and sustainability set the foundation for the transformation process.

The most important step in the preparatory phase (from now to 2020) would be to establish a system of competent agencies within the current legal framework, with a clear function and clear responsibilities for planning, implementing policies and evaluating results, connecting with other stakeholders and developing an information system to analyse, assess, share and adjust policy mechanisms.

Figure 2: Proposed hierarchical structure for EIP management

[Diagram showing the proposed hierarchical structure for EIP management]
In order to facilitate the transition, the National Steering Committee for converting IPs to sustainable models must be formed. The role of the MPI in EIP development is also strengthened with the establishment of the Steering Committee Office within the MPI. The role of the provincial IP management board and the establishment of the EIP Centre under the provincial IP management board are also defined. These structures are mentioned in Section 3 above.

**Development of mechanisms and measures to support conversion**

At central level, the MPI is mainly responsible for developing mechanisms and measures to support transformation in coordination with other ministries and agencies. The policies to support the transition relate to the following:

- Allocating a national budget to support the construction of infrastructure systems in the transformed IPs, an information system in IPs and programmes for promotion and technical support for the EIP model.
- Allocating loans to research projects, proposing mechanisms and policies to transform and develop EIPs.
- Developing preferential policies on taxes and fees for enterprises in transformed IPs, in accordance with the legal system and market mechanism.
- Building a priority mechanism for loans (from state funds such as the Environmental Protection Fund and the state-governed bank such as the Investment and Development Bank) for enterprises certified for sustainable business.

Other ministries and agencies set up technical standards for the EIP model and the mechanism of decentralization and authorization to ensure that provincial IP management boards have sufficient powers to enforce and supervise the transformation.

The provincial IP management board is responsible for developing a mechanism for transforming IPs in the area, as follows:

- Develop policies and consult PPCs about allocating budget and local funds to support IPs and enterprises participating in the transition programme.
- Make plans to expand IPs to ensure transformation, including financial incentives for technical infrastructure and social infrastructure works.
- Establish a plan to transform the model of infrastructure companies that are non-business units to companies operating under the Enterprise Law.
- Develop technical support policies and develop mechanisms to collect and use information about businesses and IPs.
- Make promotion policies through conferences, seminars and the media about the benefits of the EIP model.
- Develop policies to attract strategic investors.
Other partners such as financial institutions, banks, funds and international organizations develop preferential mechanisms to encourage cleaner production, industrial symbiosis and social responsibility. These mechanisms can include preferential credit, direct support, investment support, funding research and implementation projects, funding image promotion and technical training activities, etc.

Such projects have begun to be implemented. For instance, the UNIDO project “Implementation of Eco-Industrial Park initiative for sustainable industrial zones in Viet Nam” is jointly coordinated by the MPI and UNIDO, with the support of GEF, Switzerland’s State Secretariat for Economic Affairs (SECO) and the UNDP. The project has also worked with financing institutions such as the Green Credit Trust Fund (GCTF), International Finance Company (IFC), Viet Nam Development Bank (VDB), Viet Nam Environmental Protection Fund (VEPF), National Technology Innovation Fund (NATIF), Green Growth Strategy Facility (GGSF) and Green Investment Support Programme (GISP).

**Development of indicators and rate for assessing IPs according to sustainable models**

The development of criteria and a rating system suitable for reality – in both qualitative and quantitative terms – to assess IPs and enterprises is essential. Using these for analysis will create an overall picture of the status of IPs. The criteria would also form the basis for the implementation of policies and transition support.

In recent years, attempts have been made to develop a set of indicators to assess the sustainability of IPs. For instance, Tran Thi My Dieu et al. (2012) developed a system of criteria and indicators to evaluate the possibilities of conversion to an eco-industrial model in a southern IP. Similarly, in 2018, the IFC developed an analytical framework comprising a number of qualitative and quantitative indicators applied to analysing, evaluating and rating IPs, thereby considering the opportunity to convert them into EIPs. From the perspective of the green IP model, Tran Thi My Dieu (2017) has also developed a number of criteria and indicators to analyse the sustainability of the Tan Thuan EPZ.

In general, the above set of indicators usually comprises three steps, as follows: (i) prequalification or pre-assessment to identify IPs or enterprises that meet the specified minimum standards, (ii) calculating the scores of enterprises and IPs according to predetermined criteria and rates and (iii) classification and conclusions about the sustainability of IPs. Despite positive references, the above-mentioned indicators often focus on the “ecological” or “green” aspects of the IP, which means that greater attention is paid to the environmental perspective, some focus is on economic efficiency, but little attention is given to the social aspects.

As mentioned in the above sections, it is recommended the indicators and rates for EIP assessment include a combination of all three sustainability aspects. In addition, it is also necessary that institutional management aspects be integrated. The detailing into qualitative and specific quantitative criteria, assessment rate and the weight of each indicator to develop a composite index can derive from the suggestions outlined below.
<table>
<thead>
<tr>
<th>Sector</th>
<th>Problems</th>
<th>Orientation criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IP level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td>Quality of essential infrastructure (roads, electricity, water, telecommunications, trees)</td>
<td>Fully meet the current and future needs of enterprises in IPs</td>
</tr>
<tr>
<td></td>
<td>Model of infrastructure company</td>
<td>Be private and suitable for the market mechanism</td>
</tr>
<tr>
<td></td>
<td>Accompanying services</td>
<td>Fully meet the current and future needs of enterprises in IPs</td>
</tr>
<tr>
<td><strong>Economy</strong></td>
<td>Overall economic efficiency</td>
<td>Have average profit, deposit to the budget and create jobs</td>
</tr>
<tr>
<td></td>
<td>Attract strategic investors and develop production connection</td>
<td>Presence of big international corporation and the link between input and output in production and business among enterprises.</td>
</tr>
<tr>
<td></td>
<td>Shared energy facilities, industrial symbiosis</td>
<td>Presence of shared energy facilities, symbiotic relationships</td>
</tr>
<tr>
<td></td>
<td>Share market information</td>
<td>The connection of market information among enterprises via an exchange network</td>
</tr>
<tr>
<td><strong>Society</strong></td>
<td>Social infrastructure (houses, hospitals, schools, playgrounds)</td>
<td>Fully meet the current and future needs of employees</td>
</tr>
<tr>
<td></td>
<td>Relation with local authorities at different levels</td>
<td>The relation in settling conflict and coordinating in handling social issues</td>
</tr>
<tr>
<td></td>
<td>Relation with the surrounding residential community</td>
<td>Have connection and collaboration with the residential community in settling social issues</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Quality of wastewater</td>
<td>Satisfy general regulations and move towards higher standards</td>
</tr>
<tr>
<td></td>
<td>Quality of emissions</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Waste treatment</td>
<td>As above</td>
</tr>
<tr>
<td></td>
<td>Economical and efficient use of energy</td>
<td>Green design, use of renewable energy and energy-saving devices</td>
</tr>
<tr>
<td></td>
<td>Economical and efficient use of resources</td>
<td>Save water and other materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enterprise level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economy</strong></td>
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<td></td>
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<tr>
<td><strong>Society</strong></td>
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<tr>
<td><strong>Environment</strong></td>
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</table>

Source: IRSD, 2017
The above-mentioned indicators are only for orientation and need to be detailed in order to allow measurement, evaluation and/or classification and screening of enterprises and IPs.

**Review of enterprises and IPs according to the selected criteria**

After the set of evaluation criteria has been developed, it is necessary to proceed to the next step in reviewing enterprises and IPs. The review aims to achieve the following:

- Clarify the status of enterprises and IPs based on EIP criteria.
- Produce a preliminary list of potential enterprises and IPs for transformation.
- Adjust preferential, incentive and supporting measures for enterprises and IPs to transform through the process of collecting the opinions of stakeholders.
- Amend the set of indicators, rate and weight suitable for the practice.

### 4.3. PERIOD 2020-2025

Following the issue of legal documents, criteria and indicators to support the construction and conversion of existing IPs into EIPs in the period from 2019 to 2020, the period between 2020 and 2025 will see the implementation and establishment of institutional management, monitoring systems and potential EIPs. In addition, this is an important period during which Viet Nam will focus on its commitments to implement the Paris Agreement, which focuses on cleaner and more sustainable production content. The EIP roadmap in the period 2020-2025 will therefore be a crucial time in the context of the future success of EIP models.

*Figure 3. Implementation of pilot EIP transformation*
Based on the revised set of indicators and the preliminary list of enterprises and IPs, it is necessary to continue to review and select IPs with the greatest potential for conversion to conduct the pilot. The selection is based on the following additional standards:

- Scalability of IPs to be able to form shared infrastructure, including social infrastructure.
- Compatibility with the type of industry, based on the flow of materials, energy and products and waste. Multisector IPs may have significant potential for waste exchange but less potential for cooperation and linkage in production. In contrast, specialized IPs will be more convenient for production linkage, training, credit and information exchange but might encounter difficulties in using each other’s waste.
- Scale compatibility between factories and enterprises in IPs, to be able to close the material cycle.
- The distance between factories and enterprises, in order to reduce the cost of waste transport and operation of shared infrastructure.

From the selected IPs, the Steering Committee Office cooperates with centres for the sustainable development of IPs under the provincial IP management board in conducting conferences and seminars to disseminate information related to the following elements:

- The economic, social and ecological benefits of conversion.
- Experiences and initiatives on management, ecology and society for transformation.
- Preferential mechanisms and policies for enterprises participating in the pilot transformation programme.
- Potential risks and disadvantages of conversion.
- Seeking support from local authorities and communities.

Enterprises and infrastructure companies will be invited to participate in the pilot transformation programme. Participation in the above enterprises is completely voluntary.

Measures will be introduced to conduct technical support and to train human resources for enterprises participating in the pilot programme. In addition, the implementation of mechanisms and preferential policies on finance will be required, in line with the needs of businesses and the requirements of agencies and donors.

Re-evaluation will be conducted and information reviewed on the selection of IPs and enterprises registering to participate in the programme.

A certificate with a time limit for enterprises and IPs, which meets the selected criteria (ecological enterprises, EIPs), will be issued.

A group of enterprises will be selected in an IP or certain IPs with the greatest potential to implement transformation measures.

The development of a database of enterprises and IPs will continue.
4.4. PERIOD AFTER 2025

The period after 2025 will be the period in which to implement EIPs across the whole country. After the institutional management has been evaluated to operate smoothly, with the legal documents covering the entire EIP-related issue and the criteria tested appropriately in Viet Nam in the period 2020-2025, the period after 2025 will see all existing IPs converted to EIPs and new EIPs constructed.

*Figure 4. Monitoring and evaluation of pilot EIP transformation process*
The period after 2025 is expected to see the following activities carried out:

- Evaluation of the achievements and difficulties of IPs participating in the pilot transformation programme.
- Assessment of the advantages and disadvantages of mechanisms and policies applied in the pilot phase.
- Amendment of criteria, rate and indicators for evaluating enterprises and IPs in a sustainable way.
- Adjustment of mechanisms and policies to suit reality.
- Issue of certificates on a large scale to enterprises and IPs that have demands and meet the requirements.
- Review and supplementation of data on enterprises and IPs.
- Continuing measures to disseminate information and promote images of EIPs.
- Implementation of the conversion of IPs and enterprises that meet the set criteria.
5. CONCLUSIONS

The trend in the world and in Viet Nam is to encourage more environmentally-friendly production methods. With pollution in industrial production facilities reaching alarming levels in recent years, the conversion of existing IPs to EIP models is necessary. The model of EIPs aims simultaneously to achieve the goals of the economy (such as improving production and business efficiency), society (ensuring workers’ rights and community connection) and the environment (e.g. efficient use of resources and reduction in emission). In many cases, however, the above-mentioned objectives conflict, so the transition needs to be managed with accompanying policy mechanisms, which creates motivation.

However, the review shows that the policy framework for the transition to the EIP model in Viet Nam is both insufficient and inconsistent. There are too many agencies in charge of state management for IPs and a lack of effective coordination. At the same time, the decentralization mechanism is unclear, meaning that management boards of IPs in each locality operate according to different models, with different functions, tasks, and powers. There are a number of social policies for employees in IPs, however these are not focused and, in practice, not very effective. Financial policies encouraging cleaner production remain ill-defined and have failed to create incentives for businesses. In addition, insufficient attention has been paid to the creation of a connection between the IP and the local community.

In view of the above comments, a mechanism and roadmap for transforming IPs in Viet Nam in general could be carried out in three stages, namely Preparation, Piloting and Expansion. At each stage, the relevant enforcement apparatus needs to be developed, with clearly assigned tasks, evaluation criteria, incentives and support measures, as well as methods to adjust policies over time. The establishment of a database of enterprises and IPs in the two river basins is also highly important in the transition process. In addition, the active participation of enterprises, donors and local communities in the transition to the EIP model is required.

Changes in the organizational structure of management and production of IPs always run the risk of potential failure. In this context, risks should be taken into account, together with the above-mentioned transformation policy mechanisms. Risk assessment should focus on the management organizational structure, the economy, society and the environment. More generally, the conditions for transformation are the combination of legal frameworks, management models, support and encouragement measures and financial sources. At the same time, in order for the conversion of IPs into the EIP model to be successful, efficient use of resources should be ensured in order to create breakthroughs.
REFERENCES


Decree 38/2015/ND-CP on waste management.

Decree 80/2014/ND-CP on water discharge and water treatment.


