



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

Inclusive and Sustainable Industrial Development Working Paper Series  
WP 3 | 2019

# UNIDO'S CONTRIBUTION TO THE DEVELOPMENT OF SPECIAL ECONOMIC ZONES AND INDUSTRIAL PARKS IN CHINA

DEPARTMENT OF POLICY, RESEARCH AND STATISTICS

WORKING PAPER 3/2019

**UNIDO's contribution to the development of Special  
Economic Zones (SEZs) and Industrial Parks (IPs) in  
China**

Hongfei Yue  
UNIDO Consultant  
School of Economics, Peking University

Zhen Wang  
UNIDO

Yintong Zheng  
UNIDO Intern  
University of International Business and Economics



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Vienna, 2019

## **Acknowledgements**

This Working Paper was prepared by Hongfei Yue, UNIDO National Consultant, School of Economics/Peking University, Zhen Wang, Chief of Talent Planning and Development, UNIDO, and Yintong Zheng, UNIDO Intern, University of International Business and Economics, with inputs and suggestions from UNIDO colleagues, including Smail Alhilali, Federic Meylan, Nobuya Haraguchi, Eneyew Gebremenas, Rafik Feki, Jie Zhao and Jaidev Dhare.

The designations employed, descriptions and classifications of countries, and the presentation of the material in this report do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. The views expressed in this paper do not necessarily reflect the views of the Secretariat of the UNIDO. The responsibility for opinions expressed rests solely with the authors, and publication does not constitute an endorsement by UNIDO. Although great care has been taken to maintain the accuracy of information herein, neither UNIDO nor its member States assume any responsibility for consequences which may arise from the use of the material. Terms such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment. Any indication of, or reference to, a country, institution or other legal entity does not constitute an endorsement. Information contained herein may be freely quoted or reprinted but acknowledgement is requested. This report has been produced without formal United Nations editing.

## **Table of Contents**

1. Introduction .....	1
2. UNIDO's contribution to policymaking in the development of China's SEZs and IPs.....	3
3. UNIDO's contribution to the sustainable development of China's SEZs and IPs .....	6
4. UNIDO's contribution to human resource development and investment promotion of China's SEZs and IPs .....	10
5. UNIDO's contribution to knowledge sharing of China's SEZs and IPs .....	12
6. Conclusion.....	16
References .....	17

## **List of Tables**

Table 1	The milestones of UNIDO's knowledge sharing on SEZs and IPs .....	13
---------	---	----

**Abstract:** UNIDO's mandate is to promote inclusive and sustainable industrial development in developing countries and emerging economies. UNIDO recognizes the importance of developing Special Economic Zones (SEZs) and Industrial Parks (IPs) in terms of their spillover effects on national economic development. UNIDO has collaborated with various stakeholders in China since the reform and opening up in the 1980s to promote the development of SEZs and IPs. It contributed to the introduction of advanced technology and management experience from developed countries in China and later fostered the sustainable development of township and village enterprises and the development of eco-industrial parks across China. Within the framework of UNIDO's Programme for Country Partnership, an innovative multi-stakeholder partnership model, UNIDO facilitates the sharing of experience and knowledge on the development and management of China's SEZs and IPs with developing countries.

## 1. Introduction

In accordance with the Constitution of UNIDO<sup>1</sup>, the primary goal of the organization is to promote and accelerate industrial development in developing countries and cooperation at the global, regional and national as well sectoral level. The organization's current mission is to foster and intensify inclusive and sustainable industrial development (ISID) in developing countries and emerging economies as enshrined in the Lima Declaration adopted in 2013. UNIDO aims to contribute to ISID by improving countries' environmental performance, their resource productivity, the protection of existing industries and by supporting the creation of new industries that provide environmental goods and services.

According to the growth poles theory, economic growth and development are not uniform over an entire region. Growth and development take place in a specific geographic location—a pole (or cluster)—dominated by key industrial activities. Special Economic Zones (SEZs) as one of the main forms of a free (trade) area, establishes a favourable investment environment by promoting tariff reductions, encouraging foreign investment, introducing advanced technologies and best practice management to stimulate economic development. These advantages apply to a limited area of public or private land within a national territory, dedicated to a specific type of economic activity, such as industry, logistics, commerce, banking and R&D. SEZs include industrial zones, export processing zones, free trade zones, tax bond zones and other similar terms<sup>2</sup>. The location of IPs, which are geographical areas reserved primarily for industrial and business uses, depends on the type of industries and businesses hosted within the park<sup>3</sup>.

SEZs and IPs have evolved from traditional models such as free trade zones and export processing zones to a new generation of parks and zones, including science and technology parks, innovation parks, research parks, smart parks, eco-industrial parks and e-commerce parks. SEZs and IPs have been regarded as economic greenhouses for business growth. Some economists have emphasized that clusters take advantage of agglomeration economies, economies of scale and reduce transactions costs (Greenwald & Stiglitz, 1986; Lin & Monga, 2011). Industrial clusters are geographic areas with a large number of interconnected firms that operate in the same or related industries (Krugman, 1996). The establishment of SEZs resulted in the creation of clusters over time, particularly in developing countries. Together with

---

<sup>1</sup> Adopted by the United Nations Conference on the Establishment of the United Nations Industrial Development Organization as a specialized agency on 8 April 1979 in Vienna.

<sup>2</sup> Akinci and Crittle (2008), Farole and Akinci (2011) on terminology.

<sup>3</sup> UNIDO defines them as “*a tract of land developed and subdivided into plots according to a comprehensive plan with or without built-up factories, sometimes with common facilities for the use of a group of industries*”<sup>3</sup>. For example, high-tech industries are usually established around cities and large towns, while agro-parks are mainly concentrated in rural areas.

numerous industrial clusters, SEZs have significantly contributed to gross domestic product, employment, exports and the attraction of foreign investment, particularly in China (Douglas Zihua Zeng, 2011). Evidence shows that SEZs and IPs offer a structured institutional framework, integrated services and physical infrastructure that may not be available outside of the industrial parks.

In the late 1970s, China embarked on far-reaching economic reforms and opening up. The reform began with the effective dismantling of collective agriculture and the simultaneous opening of the economy to trade and foreign direct investment (FDI), initially in selected locations and then across the entire country. In the 1980s, reforms began to be extended more cautiously to the urban state-owned industrial sector. Stimulated by the removal of prohibitions, large numbers of hybrid enterprises and joint ventures sprang up, both in towns and in the country side. They represent a broad spectrum of mainly light industrial and service activities in eastern coastal areas.<sup>4</sup>

UNIDO's involvement in China's industrial transformation and technology upgrading within the framework of UNDP Country Programmes initiated in the late 1970s coincided with the country's reform and opening up, and gradually increased in the 1980s and 1990s. UNIDO focused on capacity-building, industrial policy advice, investment promotion and the introduction of advanced management skills and technologies in China. Among others, UNIDO has consistently provided technical support for the development of SEZs and IPs since the 1980s.

UNIDO's most important contribution is supporting its Member States in (1) identifying how existing physical and human resources can be better utilized; and (2) transferring specific experiences and knowledge observed in other parts of the world to developing countries and regions.

In the following sections, we assess UNIDO's experience in the development of SEZs and IPs in developing countries based on its function of providing policy advice, its convening power and normative role as well as standard-setting activities. In the same vein, we will examine UNIDO's contribution to the development of SEZs and IPs in China.

---

<sup>4</sup> Industrial development review – China: managing investment-led growth, UNIDO and Economist Intelligence Unit, 1996.

## **2. UNIDO's contribution to policymaking in the development of China's SEZs and IPs**

UNIDO has accumulated considerable experience supporting initiatives for the development of SEZs and IPs. Shortly after its establishment in 1966, UNIDO was an important driving force in the development of global economic zones. In 1967, a group for export promotion was established at UNIDO as part of the Industrial Policies and Programming Division. The organization carried out a technical assistance mission in Mauritius in 1969, for example, which transformed into a project that provided industrial policy advice and assistance, including the initial preparation for the development of an industrial free zone. As a result, the Government of Mauritius was successful in attracting a large amount of foreign investment into this proposed zone, which had a positive impact on the economy and led to the economic “miracle” of the 1970s.

In the 1970s, the development and operation of industrial parks tended to be driven by the public sector. Gradually, the private sector began adopting a greater role, and a coordinated public-private partnership model with an emphasis on science and technology evolved over time. Since the 1975 Lima Conference<sup>5</sup>, UNIDO has conducted several studies and organized seminars on various aspects of industrial estates as well as on the development of small-scale industries. Most of these were dedicated to sharing national experiences and showcasing projects, with an emphasis on industrial estate design, planning, construction, management and operation. The organization considered industrial estates to be the best and most economical tool for promoting the development of manufacturing industries, especially medium- and small-scale industries in transition economies. Significant efforts were undertaken to promote the economic development of rural and underdeveloped regions.

As a general rule, SEZs and IPs are established when suitable conditions for export-oriented industry cannot be created on a nationwide basis due to infrastructural deficiencies and administrative obstacles. It is considered a temporary solution and a step towards establishing a nationwide duty-free regime for exporters. SEZs and IPs should therefore not be planned in isolation, but as part of a broad, long-term strategy to develop an internationally competitive manufacturing sector.<sup>6</sup>

---

<sup>5</sup> In 1975, at UNIDO's Second General Conference in Lima, Peru, the Declaration and Plan of Action on Industrial Development and Cooperation announced that every effort must be made to increase the share of world industrial production in developing countries to 25 per cent by the year 2000. At the time it amounted to 8.6 per cent. UNIDO pledged to intensify and expand its present operational activities.

<sup>6</sup> Export Processing Zones – Principles and Practices, by UNIDO, 1996.



In cooperation with other international organizations, UNIDO has contributed to the development of SEZs and IPs in China since 1980, providing policy advice and fostering capacity-building, investment promotion, technology transfer and knowledge sharing<sup>7</sup>. UNIDO functions as a source of high level input and advice on “sustainable industrial development” for the Chinese government. The services provided should ultimately be used in the design—or even as the foundation for the implementation—of specific national plans. As part of its strategy, UNIDO implemented ongoing projects and programmes throughout the entire country to establish models as a basis for extrapolation in China to foster productivity growth and, ultimately, to alleviate poverty.<sup>8</sup>

To attract foreign direct investments to boost the country’s economic growth, the government decided in 1980 to establish a number of SEZs along the coastal area. Using its international networks, UNIDO organized a six-week study tour for a team of eight senior Chinese governmental officials. The delegation, led by Jiang Zemin (then-Deputy Director of the State Import and Export Management Committee and later President of China from 1993 to 2003), visited SEZs in six countries, namely Ireland, Malaysia, Mexico, the Philippines, Singapore and Sri Lanka (including the Shannon Special Economic Zone, the world’s first duty-free industrial zone based on export processing). The members of the delegation took part in dozens of meetings and training courses that focused on issues relating to special export zones such as fiscal incentives and physical infrastructure, as well as common facilities and services for foreign investors. They gleaned in-depth knowledge about export and investment promotion from these meetings.

UNIDO experts accompanied the group during the trip, offering independent observations and expertise. At the end of the trip, the delegation submitted its recommendations to the State Council and the National People’s Congress. These inputs were reflected in their report to the CPC Central Committee<sup>9</sup>. Based on the report, China’s first group of special economic zones was formally established in 1980 in Shenzhen, Zhuhai, Shantou of Guangdong Province and

---

<sup>7</sup> From 1980-1995, UNIDO provided technical services within the framework of UNDP Country Programmes; from 1996 to 2000, UNIDO gave priority to 16 sustainable development projects aligned with China’s Agenda 21, which were funded mainly by bilateral donors and global environmental funds; from 2001-2005, UNIDO implemented a Country Service Framework (with 50 projects to address technology upgrading and the balance of regional development) with voluntary national and international contributions; since 2006, several UNIDO Country Programmes with a focus on environmental protection, green industry, food safety, investment and innovation have been developed and implemented.

<sup>8</sup> Research on Integrated Policies for China’s Sustainable Industrial Development, Yang Weimin, Sergio M. Miranda-da-Cruz, 2004.

<sup>9</sup> CCCPC Party Literature Research Office.

[https://www.wxyjs.org.cn/dhgzjzldryj\\_558/201207/t20120712\\_17004.htm](https://www.wxyjs.org.cn/dhgzjzldryj_558/201207/t20120712_17004.htm)

Xiamen of Fujian Province with a focus on industrial development<sup>10</sup>. Another 14 coastal cities were selected in 1984 for preferential policies on export and foreign investment. These SEZs and IPs in different provinces have significantly contributed to China's development by attracting foreign capital, advanced technology and technical and managerial expertise, which has further stimulated industrial development and facilitated China's integration into the global economy. For instance, China's manufacturing value added (MVA) in 1978 in current prices (1981) is estimated to have roughly been around USD 68 billion. According to a UNIDO estimate of 1978, world MVA, excluding China, in current prices (1981) was around USD 2516 billion, i.e. China's share was roughly around 2.6 per cent.<sup>11</sup> Between 1995 and 2010, China's MVA accounted for over 30 per cent of global MVA.

Reviewing the success and failure of SEZs and IPs, UNIDO found that SEZs and IPs have been successful in promoting export-led industrial development in East and South-East Asia in the past. Some SEZs and IPs in other regions, however, have not always produced the expected benefits due to unsuitable locations and poor infrastructure combined with ineffective management and an inappropriate policy environment. Some key factors that determine the success of an SEZ or IP are: (1) a location close to reliable international transport and commercial support services; (2) adequate physical and institutional infrastructure and a policy environment that favours export growth; (3) a solid fiscal and management system; (4) the availability of an affordable labour force; and (5) the presence of lead companies that are investing in the park or zone.

With the assistance of UNDP, the World Bank, UNIDO and other international organizations, the development of SEZs and IPs in China has gradually shifted from coastal to inland areas as well as to the border areas in Southwest China (sub-region of Lancang-Mekong), West China (New Eurasia Land Bridge) and Northeast China (Tumen River area development). These efforts have contributed to poverty reduction through the spillover and migration effects of exports and FDI, forward and backward linkages with local industries, and to some extent to the reduction of disparities of regional development in China (Ying Ge, 2008). In addition, UNIDO also contributed to China's "Western Development" policy in cooperation with the National Development and Reform Commission (NDRC), which included the establishment of the Yangling Agricultural High-Tech Industries Demonstration Zone (Shaanxi Province) in the late 1990s.

---

<sup>10</sup> All of the 11,414 foreign funded enterprises included in the 1995 China Statistical Yearbook for Fujian (3,135) and Guangdong (8,279) were engaged in industry.

<sup>11</sup> Industrialization in China: an overview of past performance and current prospects, UNIDO, 1981

### **3. UNIDO's contribution to the sustainable development of China's SEZs and IPs**

Over the past three decades, UNIDO has promoted the mainstreaming of resource efficiency and cleaner production in industries and industrial parks located in developing and emerging economies through pilot demonstrations and global knowledge and disseminations projects. Along with the emergence of environmental problems in industrial parks, an increasing number of scholars have focused their research on the development of eco-industrial parks, including on the ecosystem and the nature of eco-industrial parks (Popescu, 2008; Gibbs and Deutz, 2007), the historical development of eco-industrial parks (AK, 2005), the design and operation of eco-industrial parks (Roberts, 2004; Oh, 2005), and the relationship between eco-industrial parks and environmental protection (Gertler, 1995; Lu, 2016). A National Eco-Industrial Park Standard for promoting industrial symbiosis in China was evaluated by examining the applicability and feasibility of the standard's indicator system, the first of its kind globally (Yong Geng, Pan Zhang, Raymond P, Cote and Tsuyoshi Fujita, 2008).

Eco-industrial parks<sup>12</sup> have addressed the trade-off between economic growth, social considerations and environmental protection since the 1990s, integrating economic opportunities and improved industrial eco-systems, as well as pursuing innovative avenues for conducting business. This is particularly important for developing countries and transition economies. UNIDO supports the mainstreaming and upscaling of eco-industrial parks in these countries, thereby promoting inclusive and industrial sustainable development (ISID). The first UNIDO pilot initiatives on eco-industrial parks (EIP) were implemented in 2010 in India (Vadodara-Ankleshwar Industrial Area and Dahej Petroleum, Chemical and Petrochemicals Investment Region, in the state of Gujarat). In the same year, UNIDO introduced the concept of EIPs in Tunisia, targeting two industrial parks (Bizerte Business Park and Djebel Oust and Bir M'cherga Industrial Zone).

From 2012 to 2015, UNIDO's work in the area of eco-industrial parks expanded under the joint global Resource Efficient and Cleaner Production (RECP) programme with the United Nations Environment Programme (UNEP), funded by the Swiss government through its State Secretariat of Economic Affairs (SECO). Within the scope of this programme, a global assessment of eco-industrial parks in developing countries was conducted, involving 33 industrial parks in 12

---

<sup>12</sup> An eco-industrial park can be defined as an earmarked area for industrial use at a suitable site that ensures sustainability through the integration of social, economic and environmental quality aspects in its siting, planning, operations, management and decommissioning. The term green field eco-industrial park is used for completely new EIPs, while the term brownfield is used for existing industrial parks that are transformed into EIPs (2017, UNIDO Implementation Handbook for the Eco-industrial Parks).

countries (UNIDO, 2016a). From 2015 to 2018, UNIDO implemented EIP pilot projects in six countries under the global RECP programme (in China, India, Morocco, South Africa, Colombia and Peru). Moreover, an EIP country project was implemented in Viet Nam, funded by the Global Environment Facility (GEF) and SECO. From 2017 to 2018, UNIDO aimed to create a common understanding and the implementation of methods in EIP, which resulted in the development of an international EIP Framework and other standardized documents (handbook and toolbox) to mainstream EIPs in developing countries. Apart from technical projects on industrial park development, UNIDO assisted countries in drafting laws regulating industrial parks and subsequently, free economic zones. The organization has demonstrated experience in conducting feasibility studies on industrial zones in several countries.

The Chinese government attaches great importance to sustainable development in the pursuit of industrialization. In 1994, China published its Agenda 21, providing a broad outline of its policies in the context of sustainable development. UNIDO in cooperation with the Chinese government identified 16 priority projects that China could benefit from with reference to UNIDO's experience and expertise with a focus, inter alia, sustainable industrial development policies and cleaner industrial production.

Specialized expertise has enabled UNIDO to provide assistance to China's industrial sector in introducing pollution prevention technologies. UNIDO's technology experts have facilitated the transfer of innovative, low pollution and low energy-intensive technologies and processes essential to China's efforts to redirect its development towards a more sustainable path. Over the years, UNIDO has acquired a wealth of experience in China through the provision of technical assistance to support industrial pollution abatement. Many UNIDO projects have explicitly addressed the urgent need to reduce the emission of atmospheric pollutants, particularly emissions arising from the use of coal in energy generation. UNIDO has also helped Chinese scientists and engineers address the need to recycle industrial and post-consumer waste and to reduce the discharge of industrial and municipal waste to surface watercourses.

UNIDO assisted China in its efforts to promote the Township and Village Enterprises (TVEs)<sup>13</sup> project to enhance sustainable development. These enterprises had sprung up in the countryside in the 1950s and continued to develop steadily. The purpose of their establishment was to provide employment for surplus labour and to maximize the returns to the units that controlled them.

---

<sup>13</sup> In 1979, the Ministry of Agriculture renamed the 1.5 million "commune and brigade enterprises" under its authority in "township and village enterprises".

TVEs have played an important role in the development of China's economy since 1979. They have increased the income of farmers, absorbed rural surplus labour and accelerated the industrial development of rural areas. However, due to lack of and access to funds and to advanced technologies and equipment, TVEs face a number of challenges, such as low energy efficiency and high environmental pollution. According to the Ministry of Agriculture in the 1990s, TVEs' rate of energy consumption was between 30 per cent and 60 per cent higher than that of state-owned enterprises; one-sixth of industrial carbon dioxide was emitted by TVEs<sup>14</sup>. From 2001-2006, UNIDO launched a joint project with the Ministry of Agriculture, GEF and UNDP with total budget of USD 10 million to support TVEs in achieving sustainable development. The initiative focused on four major industries, including brick making, cement production, coking and metal manufacturing. By establishing incentive mechanisms and monitoring systems, it supported the adoption by TVEs of energy-saving production systems, the improvement of product quality and the introduction of cleaner production. One of the results was that local governments established industrial parks and provided facilities to mitigate the level of pollution and emission of TVEs. It thereby established a centralized approach to pollutants and realized the economy of scale.

Another example is UNIDO's assistance in promoting China's eco-industry parks. Over 7,000 industrial parks account for the bulk of China's industrial production. According to the National Bureau of Statistics of 2013, the industrial sector was responsible for around 70 per cent of the country's energy consumption and 72 per cent of its carbon emissions. To address concerns related to carbon emissions, natural resource scarcity and pollution, Chinese authorities set up three pilot programmes for industrial parks: the Eco-Industrial Park Demonstration Programme led by the Ministry of Environment Protection (MEP); the Circular Transformation of Industrial Parks Programme led by the National Development and Reform Commission (NDRC) and the Ministry of Finance (MOF); the Low-Carbon Industrial Park Programme was headed by the Ministry of Industry and Information Technology (MIIT). By 2017, the number of national eco-industrial demonstration zones in China approved by the government had reached 48. In addition, 45 eco-industrial parks are currently under construction<sup>15</sup>, most of which have been transformed from economic and technological development zones to high-tech development zones.

---

<sup>14</sup> UNIDO cooperates with China - in commemoration of the 50th anniversary of UNIDO, Joint publication of UNIDO and MOFCOM of China, 2018.

<sup>15</sup> Ministry of Ecology and Environment, [www.mee.gov.cn/gkml/hbb/bgth/201704/t20170428\\_413191](http://www.mee.gov.cn/gkml/hbb/bgth/201704/t20170428_413191)

In line with the requirement of China's industrialization policies, UNIDO is focusing its technical assistance on eco-industrial parks or green industry parks and has carried out research on the standard of eco-/green industrial parks to guide the transformation of existing parks in cooperation with the Chinese government. An environmental guideline, which was a key output of UNIDO's Green Silk Road Project (UCSSIC, 2012), was jointly conducted with the Chinese Research Academy of Environmental Sciences, the Ministry of Environment Protection and the Ministry of Industry and Information Technology. The environmental guideline referred to the relevant policies and technical specifications in China, and drew on the successful experiences for the construction of green/ecological industrial park in other developed countries. It intended to provide guidance on the establishment of green industrial parks for the countries along the Belt and Road Initiative.

UNIDO also carried out a project entitled *Capacity-Building for Eco-industrial Parks* in China to improve their environmental performance by introducing globally proven best practices in the ecologically-friendly regulation, construction and operation of industrial parks, including compliance with the principles of the circular economy and industrial ecology. The main objectives of the project consisted of the evaluation of industrial parks' ecological construction, piloting environmental performance improvements, information and knowledge sharing as well as capacity-building.

In addition, UNIDO implemented a Resource Efficiency and Cleaner Production (RECP) pilot project at the Sino-Swiss Zhenjiang eco-industrial park from 2016 to 2018 with financial support from the Government of Switzerland. The project aimed at improving industries' resource productivity and environmental performance through the application of the RECP model, EIP strategies and practices as well as green chemistry (GC) strategies and practices in the Zhenjiang Economic and Technology Development Zone (ZETDZ), Jiangsu Province.

#### **4. UNIDO's contribution to human resource development and investment promotion of China's SEZs and IPs**

UNIDO has designed and organized numerous training activities, because qualified management and workers are required to run a factory, maintain machinery, conduct research and manage such an institute. In the initial stages of industrialization, expatriate manpower often holds responsible positions, but as political and economic independence increase, self-sufficiency in terms of trained manpower becomes increasingly important<sup>16</sup>.

Empirical research clearly indicates that the human capital of entrepreneurs (managers and owners of enterprises) is a critical factor for the success and failure of industrial development in developing countries (Keijiro Ostuka, Tetsushi Sonobe, 2018). In most SEZs and IPs, technology is transferred to the domestic economy via the movement of personnel. Hence, human resource development and obtaining practical skills and capacity through on-the-job training is of utmost importance.

Dating back to July 1979, UNIDO's programming mission to China discussed the development and the strengthening of the country's industrial management capacities within the UNDP and China cooperation framework in depth with officials of the State Economic Commission.<sup>17</sup> Subsequently, UNIDO supported capacity-building of the local officials and investment promotion officers through on-the-job training and software application training courses such as project formulation and appraisal, including COMFAR (Computer Model for Feasibility Analysis and Reporting)<sup>18</sup>. According to UNIDO's annual reports and project reports, it is estimated that approximately 200 to 300 project personnel from China attended on-the-job trainings and study tours abroad every year under UNIDO technical cooperation projects in the 1980s-1990s.

Within the human resource development programmes, UNIDO provided fellowship opportunities to Chinese technicians and government officials. Fellowships are granted to national experts/counterparts who—apart from working side by side with foreign experts—benefit from the opportunity to study abroad and to obtain practical rather than academic training to hone their skills and know-how and to gain the necessary experience to take over the functions initiated by the foreign experts. A technical assistance project can only continue to be

---

<sup>16</sup> “UNIDO Activities in Training”, Vienna International Center, Library, 1984.

<sup>17</sup> Report on the project SI/CPR/80/802 – Industrial management development advisory mission including seminar for top executives (December 1980).

<sup>18</sup> COMFAR facilitates fast computation of financial statements needed for financial and economic appraisals of investment projects. It can be used for small- to large-scale projects, expansion, rehabilitation and modernization of existing enterprises and joint ventures.

successful after the termination of foreign assistance if well-trained local staff can carry out the necessary functions and tasks.

Apart from fellowships that last between one to several months, the participation of senior staff in study tours that last between one to four weeks is of particular significance as well. Such study tours feature visits to relevant authorities and institutions in developing and developed countries, and allow for an exchange of views and best practices. They are of particular value in establishing new or revisiting existing strategies for specific areas of industrial development.

UNIDO also introduced and implemented In-Plant Group Training Programmes for the Chinese participants in the areas of iron and steel (in Ukraine), electrical (Sweden), textile (Poland), pulp and paper (Sweden), management of maintenance systems (Sweden), standardization (Soviet Union), railway maintenance (Federal Republic of Germany), tropical food processing (India), industrial design (Egypt) and small foundry operations (Turkey), etc.

In China, the government and state-owned enterprises assigned senior managers to work for a given period in joint-ventures in the zones and subsequently moved them to other state-owned enterprises, capitalizing on the experience they had acquired. For instance, in 1994, China established a joint economic zone with Singapore in Suzhou to learn from Singapore's expertise in zone management. By 2008, more than 2,000 Chinese officials had been trained by the Singaporean partner, while around 20,000 officials from different parts of China visited the zone each year to study the "Suzhou Model" (Zhao and Farole, 2011).

In addition to supporting the technical transformation of China's industrial parks through human resource development, UNIDO also leveraged its network of partnerships around the world to promote investment activities in China and to attract FDI globally. Foreign investment has played a key role in China since the early 1980s. By the end of 1985, FDI totalling USD 1.17 billion, about 20 per cent of the total amount of FDI flowed into the four SEZs (Wong, 1987). By the end of the 1980s, about 20,000 SEZ projects involving foreign investors were approved with an investment of over USD 30 billion. More than half of the investors were overseas Chinese, followed by the United States of America (20 per cent) and Japan (15 per cent) (Tom Kelleher, 1992). It should be noted that the annual inbound FDI to China was less than USD 10 billion in the early 1980s. By 2012, the annual inbound FDI to China exceeded USD 100 billion.



The bulk of foreign investment has found its way into provinces that have sought to attract funds from nearby Hong Kong (SAR) and Taiwan Province of China by establishing SEZs. For instance, Guangdong Province absorbed 32 per cent of total FDI in 1994, followed by Fujian Province (10 per cent)<sup>19</sup>.

UNIDO and China have carried out various forms of business match-making activities to attract investment and promote the construction of industrial parks. In 1984, UNIDO and China jointly organized the China Investment Promotion Fair in Guangzhou, inviting many international manufacturers to learn about China's policy of opening up and the development of SEZs and IPs.

The China International Investment and Trade Fair has been held in Xiamen since 1997, and is co-organized by UNIDO together with the WTO, UNCTAD and WIPO. The Xiamen Fair has taken place more than 20 times to date with the assistance of UNIDO and other international organizations. A total of nearly 15,000 investment projects and over USD 110 billion have been contracted<sup>20</sup>. Many projects have focused on the establishment of industrial parks.

In addition to the Xiamen Fair, UNIDO organized trade fairs in the Yanbian Free Trade Zone (Jilin Province), Yingkou (Liaoning Province) and Kunming (Yunnan Province); the China International SME Fair in Guangzhou Province; and the Northwest Investment Association Fair in Shaanxi Province and Eurasia Expo in Xinjiang Uyghur Autonomous Region – all of which have considerably promoted the growth of regional industrial parks.

## **5. UNIDO's contribution to knowledge sharing of China's SEZs and IPs**

UNIDO has established a Cross-Departmental Task Force on Industrial Parks to coordinate its activities in developing international guidelines on industrial parks, an industrial park knowledge platform and has conducted case studies on industrial park experiences of developing countries since 2016. In the past four decades, UNIDO has promoted knowledge sharing of the experiences of SEZs and IPs through the publication of handbooks and guidelines, has organized training workshops and carried out global surveys/evaluations (see Table 1).

---

<sup>19</sup> The average investment value per industrial project in 1994 was USD 909,000. The bulk was invested by companies in Hong Kong (SAR) in export-oriented, small-scale manufacturing projects.

<sup>20</sup> <http://www.chinafair.org.cn/china/index/index.aspx>

**Table 1 The milestones of UNIDO’s knowledge sharing on SEZs and IPs**

<b>Year</b>	<b>Event/activity/publication</b>	<b>Outcome</b>
1970	Conducted a global survey of industrial free zones	Assessment of the status of various SEZs and IPs
1972	Organized an international training workshop on export processing zones (EPZs) at the Shannon Free Airport Development Corporation (SFADCo)	UNIDO and the Shannon Free Zone developed a long history of successful and impactful cooperation
1975	UNIDO and the Swedish International Development Authority (SIDA) initiated a joint programme to evaluate the effectiveness of industrial estates as an instrument of industrial development	The International Centre for Industrial Studies of UNIDO was established and adopted industrial parks as part of its work programme and brought this initiative closely in line with the Lima Plan of Action
1976	First Handbook on Export Processing Zones	A comprehensive guide to establishing an EPZ, a “model law” for setting up an EPZ
1978	First Guidelines for the Establishment of Industrial Estates in Developing Countries	Provided guidance to developing countries in setting up industrial estates
1988	UNIDO issued specifications for the construction of small-scale industrial estates	Provided guidance to developing countries in setting up small-scale industrial estates
1996	Publication of “Export Processing Zones: Principles and Practice”	Sharing knowledge and experiences of the EPZs
1997	Publication of “Industrial Estates: Principles and Practice”	Sharing knowledge and experiences of industrial estates
2018	Publication of “ <a href="#">An International Framework for Eco-Industrial Parks</a> ” jointly with the World Bank Group, UNIDO and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	Combined the experiences of various types of industrial parks to explore standardized and efficient park development and operation models, and proposed relevant policy guidance for industrial parks in developing countries

UNIDO launched the Programme for Country Partnership (PCP) as a new business model in 2014 to accelerate inclusive and sustainable industrial development. The PCP focuses on priority industrial sectors or areas that are essential for the national development agenda, which combines UNIDO's advisory and normative services, technical assistance and convening function to deliver an integrated service package to Member States. SEZs and IPs are always considered priority development tools in PCP. The PCP has been implemented in six countries in the Africa, Latin America and Asia regions. In 2019, UNIDO initiated the formulation of new PCPs for Côte d'Ivoire, Egypt, Rwanda and Zambia. Currently, integrated IPs and SEZs have been reflected in the PCPs of Senegal, Ethiopia, Peru, Cambodia and Morocco.

When China joined the World Trade Organization in 2001, the government accelerated incentives and programmes to help Chinese enterprises globalize. A few years later, the Ministry of Commerce initiated a programme to support the establishment of up to 19 foreign economic cooperation and trade zones in other countries where six such zones are being built, namely in Africa (Ethiopia, Egypt, Nigeria (2x), Mauritius and Zambia) with a focus on manufacturing (Deborah Brautigam, Xiaoyang Tang, 2013). According to the OECD, for every 1 per cent rise in China's growth, some 7.7 million people outside China were being lifted out of poverty (Garroway, Hacibedel, Reisen & Turkisch, 2012).

The Chinese government has increased its voluntary contribution to UNIDO since 2014, focusing on SEZs and IPs in Latin America, Central Asia, South East Asia and Africa. Some financial institutions in China have also assisted UNIDO in carrying out trilateral cooperation in this field. To share China's development experience in SEZs and IPs, the Center for International Knowledge on Development (CIKD) in China has been cooperating with international organizations such as the World Bank Group, UNIDO and the European Bank for Reconstruction and Development (EBRD) to conduct studies on the best practices of China's industrial park development and management.

Ethiopia is one of the first PCP pilot countries. The PCP for Ethiopia brings together development partners, UN agencies, financial institutions and the business sector under the leadership of the national government to achieve the goals set out in the country's industrial development strategy and Growth and Transformation Plan II (GTP II, 2015-2020). The PCP of Ethiopia focuses on three light manufacturing sectors: 1) agro-food processing; 2) textiles and apparel; and 3) leather and leather products. These industries were chosen due to their prospects for job creation, strong linkages to the agricultural sector, high export potential and capacity to attract private sector investment. They will act as a springboard for the transformation of Ethiopia's economy from one based on agriculture to one driven primarily by light industries.

The country is targeting USD 1 billion of annual investments in its industrial parks<sup>21</sup> over the next decade to boost exports and become Africa's top manufacturer. The Government of Ethiopia plans to establish 30 industrial parks (15 private and 15 public ones) by 2025.<sup>22</sup>

Hawassa Industrial Park (HIP), an African textile industrial park of the highest standards in terms of speed of construction, size and planning, is the third government-sponsored industrial park, located 275 km south of Addis Ababa. The HIP was designed and constructed by the China Communications Construction Company. It was also briefly operated by a Chinese company. In addition to government-sponsored IPs, several private foreign-owned industrial zones (IZs) have been established. The largest one, Ethiopia's first industrial park, is the Chinese-owned Eastern Industrial Zone (EIP) in Dukem, some 40 km east of Addis Ababa. Another type of industrial park established in the country is the Integrated Agro-Industrial Park (IAIP) which aims to revolutionize the agriculture sector. IAIP is a geographic cluster of firms grouped together and share infrastructure to exploit opportunities for joint buying, selling, training, extension services and other synergies. The business model of the IAIPs promotes efficiency of the commercial food supply chain. The development of IAIPs is the pillar project of the PCP for Ethiopia. They can further develop Ethiopia's agricultural sector, which supports the livelihoods of the majority of Ethiopians.

The following general lessons can be drawn from China's practice on the development of SEZs and IPs, which were reflected in the UNIDO working paper 'Study of Industrial Parks in Ethiopia' (Xiaodi Zhang et al., 2018): firstly, industrial park development cannot succeed without full government commitment and support. The government's role is to provide incentives, to create an enabling environment and to coordinate with various stakeholders. Secondly, China has deliberately used IPs and SEZs not only as a way to garner foreign knowledge and capital, but also as a platform to experiment with reforms and new policies. Thirdly, China's experience clearly demonstrates that substantial local autonomy was crucial for the success of industrial parks. Local autonomy is necessary to administer the parks, introduce new regulations and laws, generate finance, benefit from tax collection, etc. Furthermore, continuous upgrading efforts are another crucial factor for the transformation of IPs from low value added activities to high-tech industries, innovation and R&D, as well as high-end services.

---

<sup>21</sup> The Industrial Parks Proclamation 886/2015 of Ethiopia stipulates three mechanisms for the construction IPs/SEZs: (a) fully developed by the federal or regional government; (b) developed by public-private partnerships (PPPs) with the IPDC; and (c) by private developers only.

<sup>22</sup> More information on industrial park development in Ethiopia available at <https://www.unido.org/api/opentext/documents/download/10694802/unido-file-10694802> and [www.ipdc.gov.et/](http://www.ipdc.gov.et/)

Currently, UNIDO, in cooperation with the Royal Government of Cambodia, is working on the development of a master plan on the SEZ in Sihanoville within the framework of PCP in Cambodia with a focus on agro-industry, sustainable tourism and diversification of industrial development by drawing on the experience of Shenzhen SEZ in China.

## **6. Conclusion**

In this working paper, we reviewed the evolution and role of SEZs and IPs as special institutional arrangements for the economic development of a country or region. We recapped UNIDO's involvement in the establishment of SEZs and IPs in developing countries by providing policy advice, engaging in best practice sharing and compiling hand books and guidelines. We also assessed UNIDO's intervention in the development of SEZs and IPs in China since the 1980s in policymaking, human resource development, investment and technology promotion and the sustainable development of TVEs and EIPs. Finally, we touched upon UNIDO's facilitating role in experience sharing for the development of SEZs and IPs in developing countries initiated by China, in particular in Ethiopia within the framework of PCPs.

## References

- Brautigam, D. and Xiaoyang, T. (2013) “Going global in Groups”: structural transformation and China’s Special Economic Zones Overseas
- Chungaung, Y. (2010), Industrial cluster-oriented industrial park formation mechanism and strategic design research, Central South University
- Gertler, N. (1995) Industry ecosystems: developing sustainable industrial structures. Massachusetts Institute of Technology
- Gibbs, D. (2007), Reflections on implementing industrial ecology through eco-industrial park development. *Journal of Cleaner Production*, 15 (17): 1683–1695
- Huang, B. et al. (2018) Review of the development of China’s Eco-industrial Park standard system
- Keijiro, O. and Tetsushi, S. (2018), The role of human capital in cluster-based industrial development
- Koenig, A. (2005) Quo Vadis EIP? How Eco-industrial Parks are Evolving. *Journal of Industrial Ecology*, 9 (3):12–14
- Lulu, B. (2018), Research on the Development and Planning of International Cooperation Parks in China, *Urban Planning International*
- Malecki E. J. (1995), “Flexibility and Industrial Districts”[J]. *Environment and Planning A*, 1(27):11-14
- Thieriot, H. and Sawyer, D. (2015), Development of Eco-Efficient Industrial Parks in China: A Review
- Oh, D S, Kim, K B and Jeong, S Y. (2005), Eco -Industrial Park Design: a Daedeok Technovalley case study. *Habitat International*, 2005 (29):269-284
- Pereira, A. A. (2004), “State, entrepreneurship and regional development: Singapore’s industrial parks in Batam and Su Zhou[J]. *Entrepreneurship & Regional Development*, 2(16):129-144
- Popescu, R.F. (2008), *Industrial Ecology and Eco-Industrial Parks: Principles and Practice*. Ssrn Electronic Journal
- Roberts, B.H. (2004), The application of industrial ecology principles and planning guidelines for the development of eco -industrial parks: an Australian case study. *Journal of Cleaner Production*, (12): 997–1010
- UNIDO and Economist Intelligence Unit (1996), *China: managing investment-led growth*
- UNIDO (2018), *Eco-Industrial Parks: achievements and key insights from the global RECP programme 2012-2018*
- UNIDO (2018), *Strategic Framework for Leveraging a New Generation of Industrial Parks and Zones for Inclusive and Sustainable Development*
- UNIDO (2019), *Brochure on Programme for Country Partnership, April 2019*

- UNDP and International Poverty Reduction Center in China (2015), Comparative study of non-Chinese special economic zones
- Wei, H. (2017), Research on Innovation Ideas of Investment Promotion in Industrial Parks Based on Internet, Shandong Normal University
- Xiaodi, Z. (2018), Industrial Park Development in Ethiopia Case Study Report, UNIDO
- Xuecheng, L. (2016), Research on the Impact of Industrial Parks on Regional Economic Development, Modern Economic Information
- Ying, G. (2008) Globalization and industry agglomeration in China
- Yong, G. et al. (2008), Assessment of the national Eco-Industrial Park Standard for Promoting Industrial Symbiosis in China, Journal of Industrial Ecology
- Yunlong, L. (2018), The impact of the creation of the United Nations Green Industrial Park on the development of regional green industries, Management & Technology of SME
- Zeng, D. Z. (2011) How do Special Economic Zones and Industrial Clusters drive China's rapid development?
- Zeng, D.Z. (2015) Global Experiences with Special Economic Zones – With a Focus on China and Africa



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION

Vienna International Centre · P.O. Box 300 9 · 1400 Vienna · Austria  
Tel.: (+43-1) 26026-0 · E-mail: [info@unido.org](mailto:info@unido.org)  
[www.unido.org](http://www.unido.org)