



# Science Diplomacy to Promote Industrial Development in Cambodia



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## Introduction

Cambodia is officially known as the Kingdom of Cambodia, and Phnom Penh is the capital of the country. Head of State is His Majesty Samdech Preah Baromneath Norodom Sihamoni and Head of Government is Samdech Akka Mohasenapadei Techo Hun Sen.

Cambodia was colonised by France and became independent in 1953. The official name of Cambodia has changed several times, following the troubled history of the country. The following names have been used since 1953-Kingdom of Cambodia under the rule of the monarchy from 1953 through 1970; Khmer Republic under the Lon Nol led government from 1970 to 1975, Democratic Kampuchea under the rule of the communist Khmer Rouge from 1975 to 1979; People's Republic of Kampuchea under the rule of the Vietnamese sponsored government from 1979 to 1989; State of Cambodia under the rule of the United Nations transitional authority from 1989 to 1993; and Kingdom of Cambodia again after the restoration of the monarchy in 1993.

If we look at the education sector of the country, we understand that the Royal University of Phnom penh first opened its doors as the Royal khmer university on 13 January 1960. The language of instruction was French during this period. Between 1975 and 1979, the khmer Rouge regime eliminated formal education. Schools and universities were closed and destroyed and teaching services were decimated. The Khmer Rouge targeted the educated, and many of the University's staff were killed.

In 1993, the country held its first national election; however the khmer Rouge existed till 1998. Since 1998, the country has enjoyed full peace and development.

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## Cambodian Economy

The Cambodia's industrial sector contributed remarkably to country's GDP, which accounted for 26.2 per cent in 2006. Afterwards, this sector experienced a slight drop, and stabilised at 22 per cent in lieu of the changes in the global economic crisis. In 2013, the sector could result in around 24 per cent of the GDP. Over the past 15 years (1998-2013), the average annual growth rate of the sector was around 12 per cent; ahead of the agriculture (4.7 per cent ) and the service sectors (8.5 per cent). The industrial sector plays a prominent role in helping country accomplish highest growth (Cambodia's Industrial Development Policy (IDP), 2015).

The industrial sector mainly creates jobs for many Cambodian people. In 1993, the total labour force in the agriculture sector made about 72 per cent while for industrial sector it was 5 per cent. In 2008, the industrial sector accounted for 8.6 per cent of the total employment and in 2012 the total jobs in the sector were 18.6 per cent (IDP, 2015).

It is noticed that the country's economic growth does not really depend on the investment, implying that there is still possibility for more investments. For example, over 70 per cent of growth of GDP depends on private consumption, 21 per cent on investments, 12 per cent on public expenditure, and exports take over the charge of the rest. By the standard of developing countries, the rate of investments should be between 30 per cent and 40 per cent or higher to boost economy to jump to the next level of development. But Cambodia's economic growth depends immensely on the garment, tourism, construction and agriculture . This indicates that more investment is crucial to boost economic growth (IDP, 2015).

## Cambodia's Science, Technology and Innovation

Cambodia has done well in economic and social developments in the last few decades, but it still has not fully achieved knowledge-based development.

However, changes are happening. Cambodia's draft National Policy on Science, Technology and Innovation was developed with inputs from different ministries and civil society. UNESCO's Phnom Penh office helped Government to formulate the policy. The draft policy outlines five strategies, involving plans for human resources, infrastructure and institutional development, encouraging research and establishment of a Ministry of Science, Technology and Innovation (IDP, 2015).

The Cambodia's National Science and Technology Master Plan 2014-2020 was launched in October 2014 by the Ministry of Planning with the support from the Korea International Cooperation Agency (KOICA). The industrial innovation is a key focus, particularly in the areas of agriculture, primary industry and information and communication technology (ICT). The Cambodian ICT Masterplan 2020 was also launched in 2014. The plan aligns with the ASEAN ICT Masterplan 2015 to focus on human resources, training and enhancement of digital literacy (including rural people), computer access for government employees, expanded ICT infrastructure, cyber security and more. Specific goal includes that 70 per cent of Cambodian people should be able to access internet by 2020 (KOICA Cambodia, 2014).

Presently, Cambodia also has an Institute of Technology of Cambodia (ITC), which has full capacity to develop human resource in the fields of engineering, technique, science and technology. The institute is working on establish a Science Research Center within its campus of national and international repute for encouraging and supporting research activities, enlarging and strengthening cooperation on research field with Government and private institutions and partner universities, leading and conducting priority research projects, strengthening and expanding capacity of scientific researchers, and offering job opportunities to research professors and students by involving them in research project or offering research partners with the ITC.

Cambodia also has National Council for Science and Technology (NCST), established on 8 September 2014. The NCST plays a crucial role

in the development of science and technology in Cambodia. Its establishment underlies the ambition to get the country to be at the same level as the other countries of the region and of the world in terms of scientific and technological developments. NCST is chaired by the Prime Minister, and consists of various Vice-Chairs and members from different ministries and institutions and academies and Cambodia Chamber of Commerce (Darwin Institute for Scientific Research and Development, 2014).

## **Cambodia's Industrial Development Policy**

The Royal Government of Cambodia (RGC) has prepared and adopted the Industrial Development Policy. It is considered to promote country's industrial development, which can maintain sustainable and inclusive economic growth through economic diversification, strengthening competitiveness and promoting productivity.

Implementation of the policy reflects the necessity and the urgency to start a new growth strategy. The policy has been designed to meet structural transformation of domestic economy and changing regional and global economic architectures. The adoption of this policy is fostered by following considerations: (i) the favourable geopolitical alliances in terms of linking Cambodian economy and its industry to the region, especially within the ASEAN Economic Community and regional economic liberalization frameworks; (ii) potential role of industrial sector in promoting growth and creating new jobs in the context of an open economy, a demographic dividend and with major structural changes, which are conducive for industrial growth; (iii) critical role as a policy tool to enhance performance of core economic sectors, like agriculture and services, which would further contribute to boosting economic growth; and (iv) importance of the industrial sector as a focus for initiating structural reforms and governance reforms of key national economic institutions aiming at boosting economic productivity in a long term and backstopping of falling into the "middle income trap" (IDP, 2015).

Cambodia's industrial sector remains weak as most manufacturing activities are still family-based and do not have the capacity to compete in the international market. The weakness can be identified as the lack of diversity in industrial base; an informal and missing middle structure, a weak entrepreneurship; an urban-centered industry; a low value-addition and low-level of technology. Micro-enterprises which make up over 97 per cent do not create many jobs creation and generate only 12 per cent of the total turnover. Large enterprises, which make up only of 0.6per cent create, on the other hand, maximum percentage of jobs and generate 76 per cent turnover. The number of informal enterprises is excessive. Entrepreneurship remains weak and urban-centered; since 2008, over 42 per cent of enterprises have been established. More than 63 per cent of large manufacturing enterprises are in the form of foreign direct investment and are export-oriented. Sixty eight per cent of large manufacturing enterprises are located in Phnom Penh and 13 per cent in Kandal province (IDP, 2015).

Development of the industrial sector is confronted with five key obstacles-(i) lack of leadership, coordination and effective decision-making, especially on all important issues related to inadequate supply of electricity, infrastructure and logistics, human resource and skills as well as other supporting infrastructures; (ii) scarcity of basic technical knowledge and skills crucial to transform an unskilled labour-force into a skilled labour force with the capacity new and high value technical and technological skills; (iii) inadequate preparation of the necessary industrial infrastructure, especially as related to insufficient coordination in physical infrastructure investment such as supply of electricity, clean water, telecommunication network, sewage and public service provision; (iv) limited financial market development that checks financing industrial projects and lack of proper financing mechanism for public and private sector projects; and (v) issues related to labour market and industrial relations, which are important for labour market stability, increase in productivity and better livelihood of workers (IDP, 2015).

The RGC's vision is to transform and modernize its industrial structure from a labour-intensive industry to a skill-driven industry by 2025, through connection with regional and global value-chain; integration of regional production networks and developing interconnected production clusters along with the efforts to strengthen competitiveness and enhancing productivity of domestic industries; thus moving towards developing a technology-driven and knowledge-based modern industry. The realization of this vision would contribute to national economic development, sustainable and inclusive high economic growth, employment creation, increasing value addition and increasing income of the people (IDP, 2015).

### **Target for Realization on the vision of IDP:**

- to increase the GDP share of industrial sector to 30 per cent by 2025 (24.1 per cent of GDP in 2013) with manufacturing sector growing from 15.5 per cent in 2013 to 20 per cent in 2025;
- to diversify export of goods by increasing export of non-textile to reach 15 per cent of all exports by 2025 while still promoting export of processed agricultural products to reach 12 per cent of all exports by 2025; and

to encourage formal registration of 80 per cent of small enterprises and 95 per cent of medium enterprises, and to ensure that 50 per cent of small enterprises and 70 per cent medium enterprises have proper accounts and balance sheets (IDP, 2015).

To realise the above vision and targets, the RGC has embraced four strategies: mobilise and attract foreign investments as well as private domestic investments by focusing on large industries; expanding markets and enhancing more technology transfer to develop and modernise small and medium enterprises (SMEs) (expanding and strengthening manufacturing base, modernising registration of enterprises, ensuring technology transfer and industrial linkages); revisiting regulatory environment to strengthen country's competitiveness (investment

climate and trade facilitation, market information dissemination and informal fees reduction); and coordinating supporting policies (development of human resource, technical training, improvement of industrial relations, development of support infrastructure such as transportation/logistics and information and communication system (ICT), supply of electricity and clean water, and public, social and financial service) (IDP, 2015).

The strategic approach of the Industrial Development Policy (IDP) is to promote development of manufacturing sector and agro-processing industry through integration of regional and global production chain; positioning of the development industrial zones to ensure critical mass, economic linkages and competitiveness; development of economic corridors streamlining operational procedures for Special Economic Zones (SEZs); and developing new industrial parks and industrial clusters. The scope and key priorities include: new industries or manufacture which can break into markets providing high value-addition, innovation and competitiveness; promoting SMEs across all sectors; increasing agricultural production to serve to both export and domestic markets; encouraging various support industries for agriculture, tourism and garment sectors in as much as for industries, which are part of the global production value chain; and fifth support industries important for regional production chain and those which are strategic for nurturing future industries (IDP, 2015).

With this strategic approach, the RGC has instituted comprehensive and interconnected policy measures and action plans with well-defined responsible institutions to lead implementation process. These policy measures and action plans actively encompass and promote FDI focusing on improving investment climate, development of SEZs and preparation of industrial zones; strengthening and modernising SMEs, including focusing on their formalisation and provisions for incentives; encourage proper bookkeeping and accounting practices; promoting agro-industrial sector; improving regulatory environment, focusing on trade facilitation measures and export



promotion, strengthening of industrial standards and industrial property rights, facilitation of payment of tax obligations, establishment of the labour market and industrial relations; and coordination and integrate supporting policies, focusing on skills and human resource development, science, technology, and innovation promotion, industrial infrastructure build-up and financing measures (IDP, 2015).

In addition to the above policy measures and action plans, the RGC has adopted four key concrete measures to be accomplished by 2018, which form its core strategy to implement the IDP, particularly for enhancing Cambodia's competitiveness and attractiveness. These measures are reducing cost of electricity for targeted industrial zones as well as expanding transmission coverage and improving supply reliability; preparing and implementing a master plan to develop a multimodal transport and logistic system; developing and strengthening a mechanism to manage labour market and skill development; and developing and transforming Sihanoukville Province into a multi-purpose Special Economic Zone (IDP, 2015).

In term of implementation, the RGC would take up multiple roles as strategist, facilitator, supporter and initiator with high integrity and responsibility to arrange and develop mechanisms to lead, coordinate and implement the IDP through a comprehensive reform of the Council for Development of Cambodia (CDC), whereby the institution is fully mandated and is provided with essential functions to make policy decisions; and to prepare and implement plans as well as to address emerging challenges (IDP, 2015). These reforms encompass the following

First relates to strengthening the role of policy leadership of CDC by way of providing guidance and approval in as much as monitoring achievements in the implementation of industrial development plan in coordination with the "Committee for Economic and Financial Policy", the "Private Sector Development Steering Committee" and other relevant specialized institutions, including the establishment of an "Advisory Council for Industrial Development

of Cambodia"; second is revising functions and strengthening capacity of the Cambodia Investment Board (CIB) with additional mandate to promote industrial development; third is streamlining functions of the Cambodia Rehabilitation and Development Board (CRDB) to support industrial development in the framework of development cooperation and public investment planning; and fourth is strengthening and streamlining the Government and Private Sector Forum mechanism to publicize information and encourage private sector participation in the industrial development process. The last is to ensure steady progress and effectiveness of the IDP. The Royal Government has developed a monitoring evaluation mechanism by tasking the CDC to prepare and coordinate the following: a quarterly and annual reporting system, and in particular submitting a report to the Council of Ministers every three months on the progress and challenges and needed measures required for immediate implementation; an industrial dispute, resolution mechanism; and an evaluation of the progress and achievements of the implementation of the IDP's four key concrete measures to be realized by 2018 and a comprehensive and broad based mid-term evaluation by 2020 as a basis for review and readjustment for the next phase implementation.

## **Cambodia's Science Diplomacy to Promote IDP**

To promote fruitful implementation of the IDP, Cambodia has been seeking and has achieved various collaborations with its stakeholders, which are discussed as follows.

India has contributed in capacity building of Cambodia by setting up in Phnom Penh in February, 2006 a Cambodia-India Entrepreneurship Development Centre (CIEDC and Cambodia-India Centre for English Language Training (CICELT) in August 2007. Cambodia is a major recipient of India's ITEC programme and has utilized around 1000 civilian training slots and about 100 defence training slots till date. Taking note of the increasing demand for civilian training courses, slots for Cambodia under ITEC have

been enhanced to 100 from 2011-12. In addition, 15 education scholarships are also offered every year (Ministry of External Affairs of India, 2013). According to Pankaj Jha, Research Director, Indian Council of World Affairs in New Delhi, India, there exists scope to develop manufacturing in the CLMV (Cambodia, Laos, Myanmar, and Vietnam) countries. Mr Sandeep Majumdar, Vice President, Indian Chamber of Commerce in Cambodia pointed out that earlier Indian companies traditionally focused on exporting pharmaceutical products to Cambodia. At present they are beginning to export other items and invest in a broader array of industries. New delegations from India looked for opportunities in Cambodia to invest in textiles, renewable energy, infrastructure and agriculture. The new Indian companies opening in Cambodia promise to provide Cambodian employers with opportunities for vocational and IT trainings (Parikh. T, 2015)

The United States is helping Cambodia to build a stronger capacity in science and technology (S&T). For instance, USAID's newly established development Innovation Lab is playing its role to promote both academic and professional activities in information technology and providing training for consultancy services and project development assistance to Cambodia entrepreneurs and civil society organizations. Additionally, the US government-sponsored academic exchange programme like fullbright programme are bringing American science and technology experts to teach at Cambodian universities and allowing Cambodian students to pursue graduate degrees in computer science, mechanical engineering and agricultural technology at the US schools (*The Cambodia Herald*, 2014).

### **Visiting Math Lecturer Programme**

The U.S. National Academies of Sciences, Engineering and Medicine in cooperation with partners in France and Japan also help build capacity in mathematics education through its Visiting Lecturer Programme. The programme provides advanced undergraduate-level courses and foster productive interaction between

mathematics community of the developed world and the developing world (*The Cambodia Herald*, 2014).

In March 2016, Cambodia and China signed a Memorandum of Understanding on Cooperation in Science and Technology. The deal was signed by Tung Ciny, chairman of the Cambodia's Science and Technology Commission, and Lin Xuwei, Secretary General of the S&T Commission of China's Shanghai Municipality in the presence of Cambodian Minister of Industry and Handicraft. The MoU is valid for three years under which the Chinese side would help train Cambodian officials in science, technology and innovation, which are important for economic development (ASEAN-China Center, 2016).

The Ministry of Planning (MoP) and the Korea International Cooperation Agency (KOICA) have officially launched the "Cambodia National S&T Master Plan 2014-2020" in a ceremony held on 7 October 2014. The Master Plan, the final product of US\$3.5 million grant aid from the Republic of Korea, was handed over from Ms Baek Sook Hee, Representative of KOICA Cambodia Office, to H.E. Chhay Than, Minister of MoP. Under the title of "Project for Cambodia's National Science and Technology Master Plan 2014-2020", Korean experts from academies and private sectors, including those at Korea Institute of S&T Evaluation and Planning (KISTEP), worked with their counterparts at MoP since the last three years from the signing of the agreement in 2011. The Master Plan aims industrial innovation through securing of Science and Technology foundation. Three core industries have been selected for the investigation and analysis - agriculture, primary industries and ICT. Ms Baek Sook Hee said that "this project will provide a lot of benefit for the HRD and capacity building of S&T in Cambodia after the S&T Masterplan has been disseminated". She added that "S&T competitiveness is crucial and Cambodia government needs to pay more attention on it. Through this National S&T Masterplan, Cambodia can further develop and implement the S&T development projects more effectively" (KOICA Cambodia, 2014).

To ensure that Cambodia develops in a balanced manner with stable economic growth, the JICA is focusing its support on strengthening economic base by promoting agriculture, improving infrastructure, enhancing social development through health care and education, and by strengthening governance through legal reform (JAICA Japan, 2012).

## Conclusion

Science Diplomacy is an approach of diplomatic relations which focuses significantly on bilateral, regional and multilateral cooperation and partnerships among states in the fields of Science, Technology and Innovation to address mutual challenges regarding development, trade, investment, and technology and South-South Cooperation. As a matter of fact, this training course provided important themes which reflected the real work conducted in India. The themes encompassed research work in science and technology in agriculture and health sectors, climate change, and the role of Science Diplomacy in accomplishing sustainable development goals, technology transfer, South-South Cooperation and blue economy.

For Cambodia, Science Diplomacy is playing a vital role to engage country with other countries via promoting cooperation and partnership in the field of science, technology and innovation to support implementation of the country's industrial development policy which focuses on building human resource, formulating policy, establishment concerned institutions, strengthening the existing institution capacity, and creating exchange programmes on the field and so on.

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