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Ministry of Industry,
The Republic of the Union of Myanmar

Myanmar

Strategic Directions for Industrial Development
Summary of Industrial Development Strategy 2017

INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

This is a technical project report based on the UNIDO Project "Support to the Government of Myanmar in the preparation of its Industrial Strategy and Policy."

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Overview of Myanmar's Development Status & Challenges

The Government of the Republic of the Union of Myanmar is in the midst of democratic transition and, at the same time, accelerating its economic reforms to reconnect with the international community as the largest country in mainland Southeast Asia. After decades of isolation, Myanmar is now experiencing impressive growth. Another factor that sparked Myanmar's rapid industrial development was the lifting of sanctions from the West, providing Myanmar's economy with an opportunity to quickly integrate into regional and global networks.

Myanmar is endowed with abundant natural resources and has a comparative advantage of low-cost labor. Moreover, Myanmar has great growth potential due to its advantageous geographical location. Myanmar is located at the juncture of the Association of Southeast Asian Nations (ASEAN) and borders the world's most dynamic and fast-growing countries, China and India. Ever since the economic liberalization in 2011, Myanmar has recorded skyrocketing growth. The Gross Domestic Product (GDP) grew by an annual 5 – 8 percent, over the last five years. With the inauguration of the new democratic government, further reforms to promote economic development are expected.

Despite some impressive progress, Myanmar is still in the early stages of industrialization. Rapid industrialization is underway, but the industrial base is still weak. Currently, around 57 percent, the majority of the total population, is employed in the agricultural sector. Labor force statistics show that Myanmar is still an agrarian economy. Rice is the most important product. Other major crops include beans, pulses and sesame. Nonetheless, it is important to note that the agricultural sector has low value-added activities and low labor productivity. The primary sector had a 29.5 percent share of the total GDP in 2013-14, as demonstrated in Table 1. The industrial sector took up 32.4 percent during the same fiscal year, while the manufacturing sector trailed with a share of only 19.9 percent. It is evident that the manufacturing sector has grown rapidly up to 2010/11. Since then, however, there has been stagnation of growth.

Recently, Myanmar has recorded a trade deficit. It is especially apparent since 2012/13, as illustrated in Table 1.2. Trade is largely concentrated in the ASEAN regions and not globalized yet. Most of Myanmar's exports are directed at China, India and especially Thailand, where over 40 percent of the exports go. Currently, the export level is very limited. Myanmar is high-

Table1.1 **Sectoral shares in the GDP at current prices (%)**

Sectors	2000-01	2005-06	2010-11	2011-12	2012-13	2013-14
Primary	57.3	46.7	36.8	32.5	30.6	29.5
Agriculture	48.8	38.4	27.9	24.0	22.1	21.2
Livestock	7.9	7.7	8.5	8.1	8.1	8
Forestry	0.6	0.6	0.4	0.4	0.4	0.3
Industry	9.7	17.5	26.5	31.3	32.4	32.4
Manufacturing	7.2	12.8	19.9	19.7	20.1	19.9
Construction	1.8	3.7	4.6	4.7	4.9	5.3
Services	33.0	35.8	36.7	36.2	37.0	38.1
Transportation	5.7	10.4	11.5	11.9	11.9	11.9

Source: CSO

Table 1.2 **Value of Trade ($ million)**

	2005-06	2010-11	2012-13	2013-14	2014-15	2015-16 (Apr-Jan)
Exports	3,558.0	8,861.0	8,977.0	11,204.0	12,523.7	8,898.2
Imports	1,984.4	6,412.7	9,068.9	13,759.5	16,633.2	13,737.9
Trade Balance	1,573.6	2,448.3	-91.9	-2,555.5	-4,109.5	-4,839.7

Source: CSO

Table 1.3 **Myanmar Exports 1995-2013**

Main Exported Goods (HS2)	Share of Exports (percent)				
	1995	2000	2005	2010	2013
Mineral products (most petroleum gas)	2.3	8.1	49.0	43.0	44.0
Textiles	10.0	53.0	12.0	10.0	12.0
Vegetables products (most dried legumes)	29.0	10.0	13.0	19.0	12.0
Wood Products	37.0	5.1	7.2	13.0	12.0
Precious stones, pearls, metals	1.0	0.6	1.2	0.6	10.0
Animal products (most crustaceans, fish, others)	15.0	13.0	8.8	7.1	4.0
Rubber and plastic	2.9	1.1	1.5	3.2	2.1
Footwear and headwear	0.1	1.2	1.2	1.5	1.3
Metals	0.3	3.1	3.6	0.9	1.2
Other products	2.5	4.8	2.5	1.7	1.4

Source: Observatory of Economy Complexity (2016) and UN Comtrade

ly dependent on exports of natural resources like natural gas and agricultural products, a few primary commodities and labor-intensive manufacturing products with low value-added.

The challenges facing Myanmar, on its current industrial development path, can be divided into three aspects; 1) industrial structure, 2) business-enabling components and 3) institutional capabilities and governance mechanism within the government.

1. Myanmar's **industrial structure** is not diversified. As already mentioned above, Myanmar's current industry is highly focused on limited sectors such as agriculture, natural resources and some labor-intensive manufacturing industries. The majority of the manufacturing industries are labor-intensive, low-technology industries engaged in relatively low value-added activities like textiles/garments. Very little has been invested in the manufacturing sector, partly because of import restriction and also due to the overall absence of a favorable climate for investment. Consequently, Myanmar shows significant import dependency in many industrial materials and parts. Clearly, Myanmar needs to produce higher-value commodities in order to eventually achieve **industrial diversification in the manufacturing sector**, which should stimulate long-term economic growth.

   Another aspect of the industrial structure that is hindering Myanmar's industrial development is **the inefficiency of state-owned enterprises (SOEs).** Currently, SOEs cover a wide range of sectors including extraction of natural resources, power, telecommunications and industry. SOEs dominate the industrial sector in Myanmar. Most of them are inefficient, poorly managed and have low productivity. It is crucial to reform the SOEs in Myanmar. In addition to this, **the development of small and medium-sized enterprises (SMEs)** to complement the current SOEs-centered industrial structure also poses a big challenge. In contrast to the SOEs, the SMEs have a disadvantage in terms of receiving government support.

   Also, there are **growing rural-urban disparities** in Myanmar. There is significant rural poverty and income inequality between urban and rural areas. Rural areas mostly rely on agricultural employment with low productivity. It is likely that rural communities may become direct suppliers of resources to industrial companies in the urban area. So it is equally important for rural communities to benefit from economic growth and industrial development.

2. Myanmar has a very weak **business-enabling infrastructure** because, currently, most of the major supportive factors driving industrial development are absent or limited. Reasons for this are insufficient access to finance, poor logistics and electrical power infrastructures, limited human resources development and a lack of skilled workers, etc. These are significant deterrents for industrial development in the country and demand appropriate policy measures be introduced immediately.

3. A **poor institutional policy framework and a non-existing governance mechanism** are also huge challenges for industrial development and need to be addressed and overcome effectively. Although the government has been introducing a series of policies, Myanmar still lacks the necessary legal/institutional framework and policy mechanism needed to accelerate the growth of industries. So, industrial policies neither meet the demands of businesses nor conform to regional or global standards and best practices. Many laws and legislations are obsolete, stemming from military regimes. Some have been newly drafted, but many have not been enacted yet. For example, the current Intellectual Property (IP)-related laws are ineffectual and extremely outdated. And the Foreign Investment Law and the State-Owned Economic Enterprises Law are still in effect despite the fast-changing business environment in Myanmar. Also, due to the fragmented administrative structure, there is some complex legislation regarding questions of land, with more than 70 different laws.

Moreover, the structure within the government is complex and highly fragmented. There is a lack of effective inter-ministerial coordination over policy issues assigned to different ministries. Also, the reality, due to long years of military rule and isolation, is that many policy makers and government officials simply do not have the relevant expertise needed to design and implement industrial policies.

In short, although the recent economic growth of Myanmar and the government efforts for its economic reforms are impressive, Myanmar is still entrenched in an agro-based economy. The early stages of industrialization present quite a few challenges for industrial development. By successfully addressing these demanding tasks, Myanmar has the opportunity to transition to a more efficiently industrialized economy.

Keeping all that in mind, this Myanmar Industrial Development Strategy 2017 has been formulated by the United Nations Industrial Development Organization (UNIDO) to provide comprehensive and detailed strategy directions and policy recommendations in different industrial priority sectors.

2

Myanmar's Development Plans

Since the economic liberalization in 2011, the Government has introduced a series of economic reforms and policies to promote industrial development with the support of the international community. The reforms, combined with the below-mentioned plans, show the Government's strong determination and commitment to accelerate economic development towards a democratic market-oriented system. In the last years, the Government has formulated some significant development plans and set forward national priorities. The existing plans include the following:

- National Comprehensive Development Plan (NCDP)
- Myanmar Industrial Development Vision (MIDV)
- National Export Strategy (NES)
- The Industrial Policy Paper
- 12-point Economic Policy

National Comprehensive Development Plan (NCDP)

The NCDP is a comprehensive 20-year vision and a national development plan that was formulated after the transition to civilian rule. It is intended to guide the strategic direction for development until 2030. The NCDP has a goal of establishing "*Myanmar as a prosperous nation, integrated in the global community*." There are two strategic long-term goals. First, to build a growing, diversified and sustainable economy. The report emphasizes the significance of implementing de-concentration and de-centralization processes to achieve comparative advantages. Second, it's objective is to ensure and promote inclusive growth and human-centered development. The long-term goals are supported by a framework of seven strategic thrusts (ST) as illustrated below:

ST1. Strengthening Public Institutions & Governance

ST2. Creating and Enabling an Environment & a Strong Enterprise Base

ST3. Expanding Domestic & Global Connectivity and Economic Integration

ST4. Fostering Internationally Competitive Sectors & Industries

ST5. Developing Local Economic Potential & Reducing Regional Disparities

ST6. Promoting Human Development

ST7. Safeguarding the Environment & Resource Base

Understandably, most of these strategies are closely linked to promoting the industrialization of Myanmar. ST1 encourages updating the legislative base and regulatory framework and developing the public sector institutional capacity and necessary reform of SOEs. ST2 is also tied to this, as it emphasizes strengthening FDI systems, increasing access to capital for productive enterprises & projects and developing private sector capabilities. ST3 emphasizes linking national and international connectivity and facilitating trade. ST4 is directly tied to stimulating industrial development by encouraging diversifying & upgrading production; adding value to primary goods exports; strengthening domestic SME export potentials; establishing production links & enterprises clustering; supporting domestic innovation and green technologies. ST5 promotes industrial growth through regional & state development and the build-up of cross border economic zones. Finally, ST7 is related to sustainable environmental management in the industrialization process.

The implementation of the NCDP is divided into a set of four Five-Year Plans until 2030/31.

The First Five-Year Plan focused on reforms undertaken by the government and the realization of "quick win" initiatives.

The second Five-Year Plan of 2016/17-2020/21 has two key objectives, which are (1) encouraging the private sector-led industrial development and (2) promoting value-added products. During the second Five-Year Plan, the main efforts will concentrate on agriculture modernization to boost regional and states development through comparative advantage. Also, the development of first level processing of primary goods and labor-intensive industry would add value to primary goods exports and foster competitiveness.

The goal of the third Five-Year Plan during 2021/22-2025/26 will be 1) promoting export-oriented products and 2) developing medium-technology industries.

Finally, the fourth Five-Year Plan during 2026/27-2030/31 will focus on 1) accessing the regional production network and global value-chain and 2) introducing new high-technology industries.

Myanmar Industrial Development Vision (MIDV)

The MIDV has two main objectives: (1) to elaborate projection of Myanmar's staged industrial development that simultaneously achieves geographically balanced development, "Urban-Rural Synergy," and sustainable economic growth and (2) to clarify priority industrial policies to be implemented for the next five years. Furthermore, this vision stresses the importance of increasing international competitiveness and establishing a stable macroeconomic base. Some of the priority industrial policies highlighted in the MIDV are: improving infrastructure and connectivity to boost industrial development and improving institutions to create efficient business environments. Finally, the MIDV will concentrate on upgrading human resources and realizing high-value added in agriculture, fishery and forestry industries.

The National Export Strategy (NES)

The vision of the NES is to achieve "*sustainable export-led growth and prosperity for emerging Myanmar*." The NES highlights the importance of export development to accelerate economic activity and industrialization. A coherent short-term trade strategy is presented and the NES is composed of seven priority sector analysis and four cross-sector functional strategies. The seven priority sectors are: 1) rice, 2) beans, pulses and oilseeds, 3) fisheries, 4) textiles and garments, 5) forestry productions, 6) rubber and 7) tourism. The four cross-sector strategies aimed at strengthening the business environment are 1) trade facilitation and logistics, 2) quality management, 3) access to finance and 4) trade information and promotion.

The Industrial Policy Paper

The Industrial Policy Paper was formulated by the Myanmar Ministry of Industry, in August 2015. The paper emphasizes Myanmar's vision, missions and plans for industrial development. The goal of the State is "to establish a new peaceful and modern developed democratic nation" and the objective of this Industrial Policy Paper is to "establish a new modern industrial nation." The Paper examines the structural challenges and potentials of Myanmar. The overarching goal of this report is to show the need to transform Myanmar's industrial structure from an agricultural country to an industrial country. The Industrial Policy Paper is very important in many ways, because it offers the Government's view and direction for Myanmar's industrial development. The Industrial Policy Paper molds Myanmar's future without delivering specific implementable policies and Action Plans.

12-Point Economic Policy

The most recently released 12-point economic policy of the new government emphasizes how vital it is to develop a market-oriented system and put national reconciliation as its top priority. The Government expressed commitment to financial sector reform in order to create an attractive international business environment. This translates into opportunities of greater regional cooperation and bigger growth potentials. Also, the government aims to reform SOEs and support SMEs to improve the ease of doing business in Myanmar. Emphasis is on supporting competition to create a vibrant private sector. Furthermore, the government prioritizes the development of an effective basic infrastructure including transportation and access to electricity. Through modernization and development of the agriculture sector, Myanmar expects to promote inclusive growth, bolster industrial and service sectors and, ultimately, increase exports.

3

Vision & Objectives for Myanmar's Industrial Development

In order to promote and accelerate inclusive and sustainable industrial development, the vision is to "*establish a new modern industrialized nation*." More specifically, Myanmar is encouraged to build a share of the industrial sector up to 40 percent of the GDP by 2030/31, in which the manufacturing sector should reach approximately 27- 28 percent.

The following objectives are recommended to promote "Inclusive and Sustainable Industrial Development (ISID)" in Myanmar:

- Successful industrial diversification and upgrading based on both agriculture modernization and higher value-addition & introduction of new technology in manufacturing industries
- Promotion of gradual integration into regional production network and global value-chain
- Realization of balanced development between SOEs and SMEs/private sectors as well as SOEs' high efficiency
- Development of high-skilled human resources and creation of more employment opportunities with quality jobs through industrialization
- Reduction of rural poverty and disparities between rural and urban areas by promoting industrial production with value-addition by rural areas

4

Strategic Directions for Myanmar's Industrial Development for the Next Five Years

The strategic directions and policy priorities for industrial development need to be set up, taking into careful consideration Myanmar's industrial development objectives, as well as, resource availability, potential, feasibility, urgency, etc. in the country. In general, given the limited capabilities that developing countries will inevitably face in the process of industrialization, the strategy of selection and concentration is an absolute must. As mentioned already, the National Comprehensive Development Plan (NCDP) of Myanmar has specified key development goals for every five years, with short-term goals to be applied from 2016/17 to 2020/21, in order to encourage the private sector led-industrial development and to promote value-added products. With this goal and the industrial development objectives suggested in this Industrial Development Strategy 2017 taken into account, the strategic directions for the short-term period need to be well defined. In other words, the Government is encouraged to formulate more strategic development directions, focused and feasible policies to achieve successful industrial development within the next five years. This Industrial Development Strategy puts forward, in two sectors at large, the cross-sector industrial policies and the short-term priority industries proposed by the Ministry of Industry of Myanmar.

1. Cross-Cutting Policy Sectors

Direction One

The top priority should be to **ensure a business-enabling environment** so that companies can expand their businesses and navigate the complicated context in Myanmar more efficiently, the emphasis being on financing, infrastructure, tax and procedure relief, and foreign direct investment issues. This can be done by:

a) **Creating easier access to finance:** It is of paramount importance to continuously reform the financial sector to more effectively support industrial development, especially SMEs.

This could be realized through 1) introducing **non-collateralized loans**, 2) establishing **an institutional and legal framework to ease companies' financial burden** needed for investment in machinery and equipment such as passing a "Law for Leasing and Hire-Purchase Contracts" and inviting foreign export credit agencies (ECA), 3) providing **financial products innovation** through a set of suitable financial services required by companies at any stage of industrial development, from an idea to growing production in a high-tech environment, and 4) offering **non-discriminatory access of local companies** to financial products. Collaboration and technical assistance from international development partners are highly recommended in financial reforms.

b) **Exploring development potentials of infrastructure for industrial use:** Every infrastructural component in Myanmar such as roads, railways, waterways and sources of energy remains largely underdeveloped despite its potentials. Currently, Myanmar has very complex and highly fragmented policy governance without effective coordination mechanisms between ministries.

To begin with, the government needs to strengthen the inter-ministerial coordination mechanism. It can do this by establishing **an independent coordination body** with the mandate of determining infrastructural priorities and defining required standards for the construction and maintenance of the infrastructure.

Then, it needs to build **excellent networks in the infrastructural sub-sectors for industrial use** with the focus on short-term solutions. Let us take the energy infrastructure as an example, here a short-term solution would be to formulate a plan for immediate action to rehabilitate and upgrade existing generation capacity and to accel-

erate the development of non-controversial sources of renewable energy (e.g. small-scale hydropower plant, solar-powered facilities). As for the roads, it would be wise to prioritize the upgrade of rather long sections, in a topographically uncomplicated terrain, that can be realized within a tight budget and time-frame to ensure a smoother flow of traffic. In executing infrastructure projects, rather than defining one particular model of a private-public partnership (PPP), the government should decide, on a project-by-project basis, how to engage the private sector in an optimal way. In general, competitive tendering processes and an internationally advised formulation of a PPP comprehensive framework is required.

c) **Accelerating tax reform and procedure relief:** The Government should maintain a tax reform policy as an integral part of a business-enabling environment.

First, the creation of **a tax system conforming to international standards** is most important. For this, the suggestion is to replace the current commercial tax with the value-added tax system. For corporate or business income taxes, rational income-based tax allowances need to be offered to encourage the formalization of companies. At the same time, a progressive income tax system needs to be introduced to ensure sustainable fiscal incomes.

Second, **an improvement of special tax regimes** is required. In order to improve the current incentive schemes mainly focused on Foreign Direct Investment (FDI) and Special Economic Zones (SEZs), a more favorable tax structure should be designed, regardless of the location (outside the SEZ) so that SMEs can enjoy general incentives through helpful new tax benefits.

Third, highly **complex and time-consuming procedures need to be immediately streamlined.** The creation of "One-Stop Services" is encouraged to support business startups and new investments. This center must have the authority to approve different permits or directly liaise with the responsible government institutions for approvals of other issues that need to be followed up.

d) **Improving the business environment for Foreign Direct Investment (FDI):** The Government should draft an attractive policy **allowing foreign investment in all sectors** without any ceiling limit or insistence on local partners, except a restrictive list of strategic sectors for national security concerns. And, the Government should establish a **more rational governance scheme** in approving investment projects, by gradually moving from a system based on discretionary powers by the Myanmar Investment Commission (MIC) to one founded on clear and transparent criteria.

On top of this, it would be good to enhance **incentive schemes** for FDI, in order to host foreign firms' branches or representative offices for Southeast Asia in Myanmar and promote R&D activities. In addition, there is an urgent need to establish an **Alternative Dispute Resolution (ADR) system**, complying with the internationally accepted principles, and to set up a separate regulatory framework to resolve Investor-State disputes, as confidence building measures for foreign investors.

Direction Two

The second priority should be to **develop human resources and upgrade technology,** as this is integral in directly enhancing industrial competitiveness and productivity. This can be done by:

a) **Developing skilled human resources:** Low-level training provided by public institutions is currently prevalent in Myanmar. Completion rates of secondary and tertiary education are low. This has led to a significant mismatch between workforce demand and supply, with a big shortage in skilled and semi-skilled labor.

The first step is for Government **to increase the current very low budgetary spending** in public education (of only 0.8 percent of the Gross Domestic Product (GDP) in 2011) and look into the possibilities of establishing a human resource development fund based on e.g. natural resource revenues.

The second step involves strengthening **overall human resource development initiatives** as feasible approaches to meet industry's demands. In this regard, the Government can consider introducing policies to encourage private investment in education, internationalization, modernization and specialization. In particular, a strong reform to update the respective educational sub-sectors is crucial. In higher education, new programs/syllabus are required and an adjustment of the enrolment quota in universities for the industries, where demand of skilled human resource is growing in the foreseeable future. Since the current training level is generally lower than required by industry, TVET (Technical and Vocational Education and Training) should be upgraded and customized. For this, the Government may establish a central body under the Ministry of Education to enhance the cooperation of ministries, identify skills gaps in the industry and develop frameworks for curricula comprising the needed skills.

b) **Establishing a strong base for facilitating research & development and innovation:** There is an urgent need to address the "lack of technology," recognized as one of the biggest obstacles facing manufacturers in Myanmar. The Government should promote **national R&D and innovation initiatives** for industrial development by establishing a "National Committee for Technology Development and Innovation".

On top of this, the Government can set up **R&D programs and incentive schemes** for product development and quality control, targeted at the priority industry sectors. It is necessary to build up the **institutional infrastructures** for systematic advancements in science and technology, such as the National Technology Development Institute, the National Productivity Center and the National Center for Technological Innovation. In terms of promoting **open innovation** to ensure cooperation among industry, university and research institutes and international partners, it would be a good idea to organize a regular technology consulting fair to actually help explore cooperation opportunities. As intellectual property rights (IPR) protection is an important component in encouraging technology transfer and innovation, the enactment of **a law for the protection of patents and copyrights** is required.

Direction Three

The third priority should be to take strategic steps to **expand the market** in order to facilitate the integration of Myanmar's economy into the global markets beyond the current intra-ASEAN oriented trade tendency.

Initially, one could establish an **export-friendly business environment** 1) by increasing the presence of foreign banks and insurance companies in the country in order to expand the base of the financial services for trade; 2) by releasing trade licenses and eliminating export tax; and 3) by developing an e-custom platform. Then, one would need to build up the capacity of international trade operations for enterprises and entrepreneurs. And, in terms of improving the **institutional capabilities** in export promotion, the creation of a Trade Promotion Agency should be a priority. Finally, the government should enhance support for enterprises in **exploring new markets** beyond the neighbors. It is important to have stronger trade promotion activities, including promoting the value of *"Made in Myanmar"* through the creation of a fund. This fund should subsidize the cost of exhibiting goods manufactured in Myanmar. Conformity to international standards is also crucial in the current context of Myanmar, hence, the government should make it obligatory for domestic manufacturers to comply with international standards and laws on standards that the government is currently developing. To support this, the Government needs to establish testing and certification laboratories in major industrial areas.

Direction Four

And last but not least, the fourth priority, in line with the development goal of private sector led-industrial development, is implementing a **privatization policy** to reform the SOEs in Myanmar that are mostly not profitable in spite of the better business environment that SOEs enjoy over private enterprises. The **"Privatization Commission"** as an independent institution needs to be established to exhibit a political commitment of the government for undertaking reforms. The Commission should conduct objective evaluations for the feasibility of all SOEs and identify restructuring possibilities. To facilitate this, **an inter-ministerial technical body** under the Commission needs to be set up. It should look into all issues related to legal, financial and operational aspects, as well as come up with a process for restructuring of the SOEs. Privatization is primarily aimed at eliminating any incentives that insulate the SOEs from the impact of poor performance. However, successful privatization of SOEs requires fiscal and other **incentives** for the initial period of its operation including a tax holiday for a fixed period (e.g. for five years), secured access to finances, tariff relaxations over technology imports in the form of capital equipment and spare parts, simplification of legal requirements and incentives for workforce restructuring.

2. Short-Term Priority Industries

The following ten industries were selected as short-term priority industries by the Ministry of Industry of Myanmar.

1) **Textile & Garment Industry;**
2) **Food Processing & Packaging Industry;**
3) **Plastic Processing Industry;**
4) **Construction Materials Industry;**
5) **Labor Intensive CMP Industry;**
6) **Machine, Tools & Parts Industry;**
7) **Chemical Industry;**
8) **Tire & Rubber Industry;**
9) **Pulp, Paper & Paper Products Industry;**
10) **Pharmaceutical Industry**

Considering the development strategy and policy for the ten short-term priority industries, some **common strategic demands** in many of the industries were identified. The most representative overarching strategy recommendations suggested in the Industrial Development Strategy are for example; value & supply chain improvement, cluster formation, capacity building for human capital, technology upgrade, consolidation of SOEs, import substitution, compliance to international standards & norms and environmental sustainability.

a) **Value & supply chain improvement:** The current low value-adding oriented development status needs to be transformed towards a higher local value-addition and a greater supply chain in the respective industries. This

could be realized through investments in more diversified sub-sectors within specific industries, development of parts & materials and the creation of strong forward and backward linkages.

b) **Cluster formation:** The Government is urged to establish cluster-based industrial parks, as an effective, inclusive and sustainable industrial development strategy. This will undoubtedly create synergy and increase productivity on the road to development. Given the high importance of cluster-based industrial development on a countrywide scale, the following aspects are to be elaborated on to further clarify concept and approach: 1) industrial focus areas and locations, 2) reducing national disparities and increasing trans-national cooperation, 3) private sector integration in the establishment of industrial cluster parks, 4) inclusive and sustainable industrial development and 5) transformation of the current industrial structure.

c) **Capacity building for human capital:** As mentioned in the section on "Strategic Directions in Cross-Sector Industrial Policy," capacity building initiatives need to be undertaken straightaway, through education and TVET, to meet the specific demands of the workforce capacity from the respective industries.

d) **Technology upgrade:** In view of developing high quality products, enhancing production efficiency and eventually moving up the value chain, a technology upgrade is an essential strategy for most industries. Based on an assessment of national capabilities and practical needs, introducing new technologies into the priority industries needs to be undertaken by the Government, enterprises, universities and research institutions.

e) **Consolidation of SOEs:** In some priority industries, the consolidation of SOEs through privatization or strategic alliance needs to be promoted as a development strategy. In this context, it would be beneficial to start restructuring SOEs in those sectors that can improve efficiencies once a balanced and transparent disinvestment policy is arranged at a national level.

f) **Import substitution:** Given the current broad imports of manufactured products, especially in parts and components, resulting from the weak manufacturing competitiveness of Myanmar, the Government should promote import substitution by setting up specific targets for local contents and incentivize it with diverse policy tools such as fiscal incentives, tariff barriers or import quotas.

g) **Compliance to international standards and norms:** As a fundamental base for local industries to successfully explore foreign markets as well as compete with foreign companies in domestic markets, compliance with international quality standards and norms is a must. Above all, respective quality assurance systems for the industries where quality is a key issue need to be clearly designed. This should include standards on the quality of materials, component design and technology used.

h) **Environmental sustainability:** Given the inadequate environmental management practices in Myanmar, it is necessary to ensure environmental sustainability in the industries that pose a threat to the environment. To effectively address this issue, it would be prudent to; establish a specific governmental entity responsible for the approval and monitoring of environmental impact assessment process; enhance environmental regulations; raise awareness of key stakeholders on the possible environmental impact; and open the lines of communication between local communities and investors to prevent conflicts.

Taking this into account, **the development strategy for the priority industries** can be applied to some groups based on the industrial development objectives of Myanmar as well as strength and potentials of the respective industries.

1. To begin with, as emphasized in the National Comprehensive Development Plan (NCDP), the Government needs to develop **first level processing industries of primary goods to add value**, which includes the **food processing & packaging industry and the plastic processing industry**.

   In order to secure Myanmar's competitive advantage in **agro-related industry**, the priority should concentrate on all three stages of the value chain, namely (i) Upstream Stage (increasing the agricultural production and diversifying into high return products) (ii) Midstream Stage (upgrading food processing capabilities) and (iii) Downstream Stage (developing food packaging technology, lowering logistics cost, and improving market extension and support systems). Thus, the development target will focus on production, diversification and value addition with the vision of "Increase Output, Move-Up the Value Chain & Diversify Portfolio.''

   To fulfil this vision, the following development strategies are suggested:

   The expansion of **institutional contract farming** to increase the overall farm output and productivity can be a sound development strategy. For this strategy to work there needs to be a legal framework and governance scheme for contract farming, i.e., a proactive contract farming policy and a law for enforcement and dispute resolution of contracts. The strategy of the **cluster formation** for secondary and tertiary processing, and complementing packaging sector would be applicable. The Government is urged to enact a Special Purpose Vehicle (SPV) to implement the basic operational framework for cultivating an agro-processing cluster zone, where secondary and tertiary processing facilities could be developed for value addition. Also, setting up a Technology Incubation Center (TIC) for the packaging sector, could lead

to a transformation of the nascent packaging sector into a sophisticated technology driven sector in Myanmar.

The development target in the **plastic processing industry** will focus on improving competitiveness of local plastic production by taking the strategy of creating **strong forward and backward linkages**, and promoting technology upgrade. To implement the strategy of creating strong linkages in the supply chain, a coordination body between the demanding industries (e.g. agro-industry) and the plastic industry could be established that facilitates the sharing of knowledge about the expected quantity and quality requirements on the demands of new products. Also, providing incentives, in the form of commercial tax cuts, to industries using regional plastic products can be a useful policy option for stimulating local plastic production.

2. The **labor-intensive industries** that can benefit from the comparative advantage of low-cost labor also need to be advanced towards **creating high added value and moving up the value chain**. The **textile & garment industry and the labor intensive CMP (cut-make-pack) industry** are the ones this applies to in Myanmar.

   The textile & garment industry in Myanmar aims to produce high quality and value-added products in an ethical and sustainable manner. In order to reform the garment sector into a socially and environmentally sustainable and inclusive growth industry, the following development strategies should be considered:

   One, there is a need to drive **strategic initiatives to ensure responsible growth and modernization** of the overall garment sector; by providing full support to the implementation of the 10-Year Garment Sector Development Strategy through allocating ministerial support to the Garment Project Management Unit; by undertaking capacity building initiatives to enhance productivity; and by establishing dedicated industrial parks for garment factories, etc.

   Two, strong **garment supply sub-sectors and domestic value chains** need to be developed; by promoting vertical integration of value-added production areas to move from CMP to FOB production; by establishing a large-scale textile cluster park in Central Myanmar ensuring environmentally sustainable textile production; and by supporting the emergence of national fashion brands and specialized brands through the academic and professional training of fashion designers.

   Besides the textile & garment industry, **labor intensive CMP** industries such as light manufacturing industries and cottages industries are also expected to have potential for development in Myanmar. This will contribute to absorbing a significant workforce. The **light manufacturing industries** should prioritize key sectors that already have the necessary prerequisites: production of wooden components and the production of footwear. As a core strategy, it is important to take into account the **entire value chain for the promising sub-sectors**. So the Government should try to attract and tailor the supplying industries (upstream) according to the actual labor-intensive production step by exempting them from taxes and duties on inputs. And, the **cottage industries** are to be made **more competitive as international small-scale industries** for the production of cultural and traditional artifacts and products of traditional livelihoods. A first step can be to enhance the overall sector structure because only parts of Myanmar's handicraft producers are organized in the Myanmar Arts and Craft Association. Then, the Government should set up particular training courses suited to the needs of companies and independent producers to generate technological and managerial skills. Also, it is important to increase the share of value-added production through processing of available natural resources and materials (jade, gold, etc.).

3. **Resource-intensive industries** such as **the rubber & tire industry and pulp, paper & paper products industry** can be significantly developed if the respective challenges are overcome successfully.

   In the **rubber industry,** the **improvement of value chain capabilities** should be the number one goal. Warehouse centers should be established in strategic locations, promoting respect for technical norms and quality certificates. The warehouses will facilitate the supply chain and the trade mechanisms. Besides, the assessment of the product's quality and classification according to norms and market demands will also be possible at the warehouse. Such an infrastructure could be built through private-public partnership (PPP) models, whereby the government provides land while the private investors build the warehouse centers.

   Another strategy is to promote **sector transformation and scale-up in rubber plantation** by introducing a collaborative production system. In this system, scattered micro-producers will be organized as "one collaborative enterprise" that aims to increase the economies of scale and productivity, as well as to achieve quality standards. The Government should enact a new law recognizing the "Collaborative Enterprises" as a type of private company, owned by the same micro-producers, selling their goods to the collaborative enterprises.

   In the **pulp, paper and paper products industry**, despite the availability of the raw materials, there is an unstable supply of pulp and recycled waste paper which prevents a stable production environment. Thus, along with the **privatization of SOEs** of this industry, it is essential to ensure a **stable supply of materials** for production. To begin with, the expansion of tree plantations and pulp plants should be promoted. This calls for an evaluation of the current and future demand for pulp. Then, incentives should be offered for investments in the two SOEs

in Tharbaung and Yeni, which suffer from frequent standstills in pulp mills. Privatization of SOEs will allow a more stable supply of pulp for paper production. And, as recycled waste paper reduces harm to the environment, the Government should promote the increased use of recycled paper through local programs to improve recycling practices. Funding should be allocated for local programs to collect waste papers from households. On top of this, as sector specific needs, some environmental regulations to control disposing wastewaters by paper enterprises need to be enhanced.

4. An **import substitution** strategy needs to be adopted in the **machinery industry and chemical industry**. **SOEs** in both sectors should be **privatized or consolidated.** Together with this strategy, the Government is urged to promote and provide incentives to the **local value-addition** of the motorcycle and agricultural machinery industry as well as the chemical industry. Increasing local value-addition can be stimulated through programs, which may include specific targets for components of import substitution. For instance, in the case of the motorcycle and agricultural machinery industries, the current status is to assemble CKD vehicles where most of the parts are imported. Then, the target for local content can be established to ensure increasing local value addition. Eventually, one can expand the local production of components including engines. In the chemical sector, it is necessary to review the policies for extending incentives for import substitution to attain a critical mass by erecting tariff barriers or quotas on certain imported commodities and granting re-imbursement of tax, then setting up a local industry to produce these goods. In addition, considering that tariffs on finished product are lower than those on raw materials in the chemical sector, the current tariff policy should be reviewed to eliminate any inverted tariff structure in the chemical sector. The Government needs to raise tariffs selectively on basic chemicals, agrochemicals and industrial chemicals to remove any price advantage enjoyed by imported chemicals.

5. Ultimately, it would be good to develop **traditionally competitive industries,** like the **natural medicine sector,** with a cluster approach. Myanmar has indigenous knowledge and heritage accumulated through studies on botanical resources. It has specialized institutions devoted to research & education. And they are already exporting natural medicine products. To **promote industrialization and commercialization** of natural medicines, resources should be invested in specialized universities and research centers devoted to natural medicines and a pharmaceutical cluster should be established. The cluster could be formed under a private-public partnership, with the collaboration of the stakeholders: private enterprises and their associations, universities, and the central and local authorities. Moreover, one would need to enhance **human capital**, especially in pharmaceutical engineering and natural medicines. Currently, pharmaceutical engineers cannot be educated in Myanmar due to the absence of such programs. Consequently, universities must update and introduce a program for pharmaceutical engineers. And, it is necessary to provide capacity building programs concentrated on generating skills and knowledge to deliver natural medicines on an industrial scale.

5

Development Strategy & Policy Recommendations for Industrial Priority Sectors

1. Cross-Sector Industrial Policy

1.1. Human Resource Development

Current Status & Key Issues

As demands for high-skilled and well-trained human resources are generally high and increasing in the process of industrialization, substantial improvement of the education sector is required to accomplish Myanmar's vision of an industrialized state. Myanmar's education system is still underdeveloped in terms of the physical infrastructure available for teaching as well as applied teaching methodology that mostly has not changed or developed over the past decades. Thus, the need for specialized training, in addition to high-quality education, is offset by low-level training provided by public institutions that is currently the rule in the country. Completion rates of secondary and tertiary education are low. Public expenditure on education in Myanmar has remained low with the country spending only 0.8 percent of GDP in 2011. Moreover, funds are concentrated on primary education, which takes up over half of the education budget, leaving 24 percent and 19 percent for the secondary and tertiary levels, respectively.

A study, conducted by McKinsey in 2013, revealed a significant mismatch between workforce demand and supply due to the low level of qualification of the available workers. There was also a big shortage in skilled and semi-skilled labor supply, while low-skilled labor was being oversupplied.

Various issues were identified in the public and private education, and vocational training system: In the education system in general, 1) insufficient spending and outdated teaching methods in public education system led to the low quality of teaching; 2) most of the diplomas and degrees awarded from private sector were still not officially recognized by government or industry; and 3) current vocational training was mostly related to basic skill developments and did not meet industrial demand.

Therefore, some changes are required: 1) employable skills and interdisciplinary studies need to be provided for students to enter the labor market. In technical and vocational education and training, 2) Myanmar needs a nationwide system defining standards and a basic framework.

Policy Directions & Recommendations

First, it is necessary to develop the present education system in Myanmar to correspond to the demands for improvement of educational institutions. In order to effectively address the requirements of educational institutions, which may range from expansion of school buildings to the need for additional teaching aids, the Government is urged to increase budgetary spending in public education by establishing a human resource development fund based on e.g. natural resource revenues. At the same time, the Government should also look into meaningful solutions for educational improvements, independent of the governmental budget or available at minimal costs, such as online and other media education.

Second, overall human resource development initiatives need to be strengthened by promoting private investment, internationalization, modernization and specialization to unleash industrial development. An assessment of future demands for skilled human resource in the priority industry sectors should be an initial step. Based on the results of the assessment, respective feasible approaches to meet the demands of the industry need to be arranged and implemented.

The Government is urged to invite and facilitate the private sector to engage in education related service and investment and undertake the following measures; 1) Propose education-related investments with a robust framework for quality assurance and standardization in terms of government-recognized degrees; 2) design a national framework for requirements and standard procedures for internship (or apprenticeship) programs; 3) organize guest lectures by company executives or technical experts at universities; and 4) provide obligatory vocational training programs supported by employers for employees, which might be encouraged through tax cuts to cover parts of the training costs for internally and externally arranged courses. Also worth considering is attracting international expertise by integrating the foreign experts, academics, teachers, professors and researchers into the education sector.

The following measures to enhance the inclusion of international best practices in human resources development as well as industrialization should be considered; 1) including foreign expert volunteers (e.g. retired persons) in advisory and teaching roles; 2) establishing mutually beneficial academic exchange programs for students and professors, as wells as scholarships; and 3) designing modern curriculum according to international standards. A strong reform to modernize the respective educational sub-sectors is crucial. In higher education, new education programs/syllabus should be introduced and enrollment quota in universities adjusted for the industries where increased demand for skilled human resources is foreseen in the future. Moreover, establishing a National Polytechnic University that can offer online teaching courses is also a viable option. It is vital to upgrade and customize training programs in the field of TVET (Technical and Vocational Education and Training). The current level of TVET is generally lower than required by industry. The Government could establish a central body under the umbrella of the Ministry of Education to enhance the cooperation of various ministries focusing on education, with the goal of identifying gaps in skills and developing a framework for curricula comprising the skills industry demands.

1.2. Development of Technology & Innovations

Current Status & Key Issues

According to the Technology and Innovation Index as part of the Global Competitiveness Report 2014-15, the values of Myanmar's "Technological Readiness" and "Innovation Potential" are very low, although the Government has been aiming to extend the national capacity in scientific research and introduce modern production technologies. In most indicators, Myanmar ranks as one of the lowest among 144 countries, coming in last place in "availability of latest technologies" and "firm-level technology absorption". Myanmar Business Survey conducted by OECD-UNESCAP-UMFCCI in 2014 reconfirms this deficit. "Lack of technology" is recognized as the second biggest obstacle faced by manufacturers in Myanmar. Key issues in R&D sector can be largely identified in two aspects. In regard to policy and governance, the Government's R&D policy objectives and priorities are not clear enough to connect with national development plans and strategies. Public R&D resources are spread thin without any inter-institutional or inter-ministerial linkages and synergies (weak efficiency and fragmentation). And, it appears that Myanmar lacks a legal framework to effectively protect intellectual property rights and has no policy mechanism to promote technology transfer. In view of R&D resource constraints, Government R&D expenditure in Myanmar is very low with only 0.042 percent of the GDP in FY 2012-13. According to the above survey almost 56 percent of companies do not invest to innovation at all.

Policy Directions & Recommendations

To begin with, it is necessary for the Government to promote national R&D and innovation initiatives for industrial development. To ensure systematic R&D policy at national level, explore research synergies and align industrial R&D activities, a *"National Committee for Technology Development and Innovation"* needs to be established under the Ministry of Education and other related ministries. On top of this, the Government should set up R&D programs and incentive schemes for product development and quality control targeting the priority industry sectors. For the sake of promoting R&D investment of private sectors, the government may consider a regulation for mandatory spending of, for example, at least 2percent of the annual turnover on R&D by large enterprises. In addition, direct and indirect incentives for private R&D and innovation investment may be granted through legal means like tax deductions, duty exemptions on imported research materials, etc. In terms of the implementation modality of R&D programs as well as basic principle for the innovation activities of the economic bodies, open innovation to ensure

cooperation among industry, university and research institute along with international parties should be pursued from the earliest stage. Organizing a regular technology consulting fair to actually help explore cooperation opportunities is an example of a platform for open innovation. As intellectual property rights (IPR) protection is an important component in encouraging technology transfer and innovation. The enactment of a law for the protection of patents and copyrights is required.

Furthermore, it is necessary to build up the institutional infrastructures for a systematic advancement in science and technology such as the National Technology Development Institute, the National Productivity Center and the National Center for Technological Innovation. As a research-focused institution in Myanmar, the National Technology Development Institute may centralize expertise, and provide R&D assistance to effectively support the structural transformation of Myanmar to an industrialized state. The National Productivity Center could continuously improve value creation in all sectors of the economy, whose mandates are to identify fundamental problems, negative practices and inefficiencies that affect productivity and international competiveness of Myanmar. It could initiate fundamental change for productivity enhancement. In conjunction with activities of the National Productivity Center, the National Center for Technological Innovation could conduct technological benchmark studies and a non-targeted "Innovation Scan" as well as a targeted "Innovation Hunt". In addition, it could, among other things, promote frugal innovations, provide one-stop service for innovation and diffuse technology and innovation.

1.3. Financing Policy

Current Status & Key Issues

The Government of Myanmar has shown valuable commitment to the development of SMEs including the creation of access to debt financing. The Government has also implemented a comprehensive set of reform measures to stabilize and liberalize the financial sector. Only recently, the Central Bank of Myanmar (CBM) has made the transition from a dual exchange rate system for the Myanmar Kyat (MMK) to a currency float. However, the financial sector is not able to effectively support industrial companies. From supply perspectives, banks and non-bank financial institutions are not in the position to offer a sufficiently large portfolio of well-defined products to address the need of companies in Myanmar. This insufficient access to finance is a central obstacle articulated particularly by SMEs. On the demand side, industrial finance is not systematically oriented towards supporting the natural growth process of micro enterprises to small-scale industries and beyond. Also, Myanmar companies have a disadvantage, compared to foreign-invested companies in Myanmar, when it comes to access to finance. Companies seeking debt-finance in Myanmar face the standard loan terms including obligatory collateral, limited loan maturity (1 year) and interest rates set by the CBM without taking into account market realities, the inflation rate or the risk for default associated by the respective loan.

Policy Directions & Recommendations

First, financial sector reforms should be continued so as to more effectively support industrial development. Adverse restrictions on the financial sector need to be lifted immediately to unleash economic growth. In particular, there is an urgent need to introduce the concept of non-collateralized lending. And the legal framework for "Leasing and Hire-Purchase Contracts" for industrial machine and equipment purchases will open up important new opportunities. The Government is also advised to invite foreign export credit agencies (ECA) to extend government-insured foreign currency finance in the case of the import of machinery and equipment for industrial purposes under a leasing agreement.

Second, financial products innovation is necessary for industrial growth through modernization and internationalization. A set of suitable financial services required by companies at any stage of industrial development should be defined and delivered, in collaboration with development partners active in the financial sector. Financial services are to support the road to development – from an idea to production in a high-tech environment. This should enable project financing, modernization and expansion, promoting trade and improving day-to-day business operations. Furthermore, given the fact that the scope of unavailable financial products to local companies is still significant (e.g. syndicated loans offered by foreign bank branches in Myanmar), non-discriminatory access of local companies to financial products should be provided. Meanwhile, severe deficits of the insurance sector need to be addressed particularly for foreign companies entering the market in Myanmar.

Third, it is crucial to strengthen financial administration in the private and financial sector. The lack of a credit bureau, recording a client's credit history in Myanmar, is a principal reason why the risk-averse financial sector only awards fully collateral-backed loans. In this sense, a credit bureau and a credit registrar need to be established to allow financial institutions to engage in risk management. At the same time, membership organizations in the industrial field (i.e. Myanmar Industries Association, UMFCCI) or certified private service providers should offer high-quality courses to enhance the private sector capacity in financial accounting and business planning.

1.4. Infrastructure Development Policy

Current Status & Key Issues

It is clear that every infrastructural component in Myanmar such as roads, railways, waterways and power is facing a challenging situation. The energy infrastructure is still underdeveloped in terms of generation of power, transmission and distribution. In 2013, electricity consumption was only 156 kWh per-capita compared to Viet Nam with 1,285 kWh and Malaysia with 4,345 kWh. In industrial zones, electric power is not supplied to companies uninterruptedly. The quality of a majority of the highways is inferior. Certain roads are seasonally impassable. Logistics costs are high due to frequent toll gates. Despite promising initiatives, the potential of the railway system for facilitating industrial growth in Myanmar has not been sufficiently explored. Feasibility studies for transnational railway linkages have been conducted, but none of the respective transnational connectivity projects have been launched as of yet. The possible role of domestic waterways as part of the national logistics infrastructure for industrial growth remains largely unexplored, despite the potential to bridge important gaps. The current focus on only one port location with significance in international trade needs to be shifted to a system of multiple ports closely integrated into domestic logistics networks. In general, infrastructures in industrial zones do not meet all the needs of the tenant companies. The establishment of the SEZ in Thilawa, Dawei and Kyaukphyu demonstrates the effort of the Government of Myanmar to create a business-enabling environment to attract investment. Currently, Myanmar has very complex and highly fragmented policy governance in this field, but there are no specific effective coordination mechanisms between ministries to assure the timely and appropriate provision of infrastructure to companies and industrial zones.

Policy Directions & Recommendations

First, it is necessary to build excellent networks in the infrastructural sub-sectors for a strong industrial sector in Myanmar. In the energy infrastructure, as a short-term solution to rapidly growing electricity demand, the Organization advises the government formulate a plan for immediate action to rehabilitate/upgrade existing generation capacity and to accelerate the development of non-controversial power sources (e.g. small-scale hydropower plant, solar-powered facilities). As a long term solution to guaranteeing a sufficient and reliable supply of electricity, the government should integrate the existing comprehensive power development plans from development partners such as ADB, World Bank Group etc. Based on the resulting map of the energy requirements throughout the country, the government should create a long-term new "National Power Plan" corresponding to the targeted scenario of industrial growth in Myanmar. This plan should explicitly include possible and suggested locations for investments into the energy infrastructure. It should determine the desired energy mix and comprise a clear timeline, as well as a streamlined process for achieving full electrification of Myanmar by 2030. In the roads sector, in terms of harnessing the potential of Myanmar's road infrastructure through "quick wins," the priority should be to upgrade rather long road sections in topographically uncomplicated terrain. This can be accomplished within a comparatively tight budget and timeframe and greatly help to improve the flow of traffic. The upgrade of structures requiring complicated engineering work (e.g. bridge construction, construction in mountainous terrain) is to be undertaken at a later stage.

The Government is advised to develop a priority list with road improvement projects in line with an industrial and trade development plan; to set a clear and reliable timeline serving industrial investors. As for the railway network, the best possible options for establishing a well-developed railway network in Myanmar should be explored to facilitate the flow of cargo for industrial use. Moreover, given that the meter spacing of the rails being currently used in Myanmar is incompatible with the standard gauge used in China as well as the broad gauge in India, the Government is also urged to establish a system with multiple gauges that would allow cargo trains to pass Myanmar. This would significantly move forward the realization of concepts of UNESCAP for a Trans-Asian Railway System. For the waterways, the government needs to develop inland channels, ports and coastal shipping as axes of transportation. Cargo traffic volumes along the major river systems of Ayeyarwaddy River and Chindwin River currently still remain unexplored. There is also a lack of river ports with cargo handling facilities. Establishing new freight routes via the river systems and along the coastal routes would allow increased connectivity of the industrial locations Pathein, Pyay, Pakokku, Mandalay, Monywa, Kalewa and Mawlamyine, and expand to international ports in the future.

In executing infrastructure projects, rather than defining one particular model of PPP, the Government has to make decisions on a project-by-project basis. They must find an optimal way to engage the private sector. In general, competitive tendering processes and an internationally advised formulation of a PPP comprehensive framework is required.

Second, Myanmar's infrastructure is to be managed and governed in the best possible way through efficient governance, market-based pricing and intermodal transport. To begin with, the Government needs to strengthen the inter-ministerial coordination mechanism by establishing an independent coordination body with the mandate of determining infrastructural priorities and defining required standards for the construction and maintenance of the infrastructure. This body may include permanent members from different ministries along with temporarily participating representatives of the private sector such as logistics companies, distributors and manufacturers. Then what is needed, is to provide in-

frastructural services at appropriate prices reflecting market conditions. In infrastructural sectors, prices for the use of services are currently fixed by the government at a comparatively low rate. Technical assistance should be provided to different line ministries in charge of infrastructural sub-sectors to offer guidance in determining an ideal pricing structure that balances affordable service provision and covers needed investments for modernization. And finally, containerization, to allow intermodal transport, needs to be encouraged in Myanmar. The lack of standard containers in Myanmar hampers the introduction of intermodal transport on a larger scale. Technical assistance in terms of capacity building should be provided to relevant private sector stakeholders in order to promote the use of standard containers on a countrywide scale. Ultimately, it is pertinent to establish research and central data collection in the field of logistics. Technical assistance should be provided to the Ministry of Transport or UMFCCI so that the different datasets can merge into one database, and infrastructural bottlenecks can be avoided. It is also important to determine the logistics costs along major economic corridors and synergies between different modes of transport.

1.5. Market Expansion Policy

Current Status & Key Issues

Myanmar has a greater share in intra-ASEAN trade than with the rest of the world. Its commerce with other ASEAN members accounts for around 50 percent of total exports and around 40 percent of its total imports. In previous years, Myanmar has rapidly increased its integration into the global markets. The trade growth is impressive, as exports rose about 65percent and its imports about 298 percent from 2009 to 2014. However, the trade deficit has grown as well since 2012. The most significant challenge facing current commerce in Myanmar is a weak financial system and insurance services for trade. Presently, there is no government structure to provide export credit, insurance and guarantees. In addition, quite a few trade barriers also restrict the expansion of Myanmar's exports.

The first concern is export procedures; they are highly complex and require various documentations that take a long time.

The second concern is export tax. Myanmar carried out export tax reforms in 2011. At the moment, the commercial tax is levied on the exports of five commodities to preserve natural resources. However, it is still regarded as a counterproductive policy in market expansion. In addition, a cess is collected by Customs on four products.

The third concern is export prohibition and licensing. Exports of some products (arms and ammunition; pornographic articles; antiques; all kinds of narcotic drugs and psychotropic substances; crude oil; and raw logs) are prohibited by law. In 2013, export license requirements were completely removed from 152 goods. For others goods, exporters must apply for an export license. The time required to obtain a permit depends on the type of commodity, but in general it is a very restrictive and time consuming process.

Policy Directions & Recommendations

First, it is necessary to establish an export-friendly business environment. The presence of foreign banks and insurance companies in the country must be increased in order to expand the base of financial services for foreign trade. This implies offering more flexible regulations and opening the market to private investments specialized in supporting international banking operations. And trade license and export tax need to be released, so that the cost of doing business can be reduced. Myanmar is categorized as a cash-based country, which greatly hampers the efficiency of customs operations. For this reason, it is necessary to reinforce the development of an e-custom platform.

Second, capacity building for enterprises and improvement of institutional capabilities to promote export are needed. The Government is urged to set up a training system including an on-line training program for enterprises and entrepreneurs in international trade operations.

Some of the training areas should focus on 1) export mechanisms, incoterms, customs and shipping procedures, 2) financial and insurance services for international trade and 3) technical norms and certifications. And in terms of improving the institutional capabilities in export promotion, the creation of a Trade Promotion Agency should be a priority.

Third, the Government needs to increase support of enterprises exploring new markets beyond its neighboring states. There should be stronger trade promotion activities that include providing the necessary advice and information to stakeholders. One way is to promote the value of *"Made in Myanmar"* by creating a fund. This fund should support and subsidize the cost of exhibiting goods manufactured in Myanmar. Compliance to international standards is also crucial in the current context of Myanmar. The adoption of internationally recognized standards, quality management system, certification and testing are big challenges for businesses in Myanmar. Currently, Myanmar has very weak key elements of a national quality infrastructure from legal metrology to standards and regulations to certifications.

Thus, the Government should make it obligatory to comply with international standards for domestic manufacturers in regard to the law on standards that the Government is now developing. To support this, the Government needs to establish testing and certification laboratories in major industrial areas. The National Standards Council, expected to be

created by the Government, should recommend innovative schemes for the manufacturing sector to conform to adopted international standards. The Government is also encouraged to partially reimburse the expenses for ISO quality assurance certification by domestic manufacturing units.

1.6. Tax & Procedure Relief Policy

Current Status & Key Issues

Tax revenues in Myanmar come from three main sources: commercial tax, income taxes (converging two sources: corporations and individuals) and tariffs, stamp duties and the lottery among others. Currently, Myanmar's tax revenue is largely dependent on commercial tax (39 percent) and income tax (36percent). Tax reform is an on-going process that is expected to continue in the forthcoming years. The most recent tax reforms took place in 2015, where tax harmonization between resident and foreign companies took place. One of the main problems facing Myanmar is the commercial tax that is applied to any type of commercial activities in Myanmar. It does not represent a Value Added Tax and the VAT is absent in the current tax regime. This, of coupe, is not in sync with international standards and best practices. Commercial tax is applied at a standard rate of 5 percent. However, there are some higher commercial tax rates that range from 8 percent to 50 percent for some goods. Income tax covers corporate and individual taxes with 25 percent of the applied standard rate for all companies.

Recently, there have been new modifications in reducing the discriminatory income tax rates between the resident and non-resident taxpayers. This is a huge progress since the tax rate for non-resident used to be around 40percent. In Myanmar, the investors in the SEZ (Special Economic Zones) can obtain strong tax cuts and reliefs. Also, there are exemptions and reliefs on import taxation. Foreign Investment Law is another cross-sector law that aims to promote foreign investments within the State by granting cuts or relief from taxes to investors. In 2015, Myanmar had the lowest tax revenue-to-GDP ratio, among ASEAN countries, with only 8.2 percent. Now, the Ministry of Finance and Revenue (MoFR) has set a target for achieving a 10 percent tax-to-GDP ratio by 2018. As for procedure regulations, there are some major regulations that hinder industrial development in Myanmar, especially investment activities and access to property. Procedures for industrial investment are complex due to the fragmented administrative structure. Access to property is one of the most complex legislations with more than 70 different laws. Despite the various initiatives to streamline business registration and procedures including One-Stop-Shop under Directorate of Investment & Company Administration (DICA), the current system remains cumbersome and multi-layered, with investors needing multiple contacts with different ministries and local authorities.

Policy Directions & Recommendations

First, there needs to be a tax system coherent with international standards to ensure a more adequate and transparent tax environment for industrial operations. In this sense, the current commercial tax could be replaced with a value-added tax system and export taxes eliminated. In addition, corporate or business income taxes should encourage the formalization of companies with rational tax allowances linked to the income generated to reduce the large shadow economy of Myanmar. At the same time, this should ensure sustainable fiscal incomes with the introduction of a progressive income tax system corresponding to the turnover size of the companies, as has been adopted by many advanced economies.

Second, an improvement of special tax regimes is required to support industrial development. In order to improve the current special tax schemes, mainly focused on Foreign Direct Investment (FDI) and Special Economic Zones (SEZs), the Organizations advises designing a more favorable tax structure regardless of the location (outside the SEZ). The SMEs can enjoy general incentives through the introduction of appropriate tax incentives directly linked to industrial development. These incentives can be categorized as the following tax benefits: Tax allowances on pre-operative expenses, special regimes for accelerating depreciation of assets, tax incentives on R&D and innovation and tax incentives for investment in strategic infrastructures for industrial development. And meanwhile, given the fact that Myanmar's economy and the Government's fiscal revenues are highly dependent on non-renewable resources, we recommend levying a special tax on non-renewable resources to support industrial development. A portion of the income from the special taxes can be transferred to create an "Industrial Development Fund", which can be used to support industrial diversification of the country.

Third, procedures need to be improved to support industrial investments. With regard to the operation of the current one-stop-shop, DICA will require a widespread decentralization drive along with an extensive reduction of paperwork. In this sense, the one-stop-shop needs to have the authority to approve different permits or directly liaise with the responsible government institutions for approvals of other issues that need to be followed up. Also, some relevant procedures should be outsourced by the business association to save time, reduce coordination costs and bring them closer to the enterprises. The Government may also consider introducing a law of "Administrative Silence" or "Tacit Acceptance Procedure" to industrial investment projects. The enactment of this law will make it possible to automatically consider the request as positive after an indicated maximum period of time if the authority has not yet delivered acceptance or observed the permit request.

1.7. Foreign Direct Investment Policy

Current Status & Key Issues

As of Oct 2013, Myanmar approved an FDI of $43,902 million. Oil and gas, energy (hydroelectric dams) and mining accounted for 83 percent of the FDI. Manufacturing and services sectors have, so far, received very little investment, partly because of import restrictions in key markets such as the US or EU, but also because of the overall absence of a favorable investment climate. China, Thailand, Hong Kong and Republic of Korea have dominated the foreign investment approvals in Myanmar. Together with Hong Kong, Chinese firms represent 61 percent of the realized investment or almost half of the total approved investment. Up until 2009, the FDI inflows into Myanmar were less than $1 billion. In 2010, Myanmar experienced a sharp surge, when the FDI inflow breached the $2 billion mark. Since 2010, the FDI inflows have had repeated sharp drops and surges with $1 billion in 2014. There are immediate challenges for Myanmar's FDI policy in the aspects of macro-level business environment and operational environment.

At a macro-level business level, Myanmar faces enormous challenges in terms of attracting foreign investments, which include i) weak public institutions; ii) narrow economic structure; iii) inadequate connectivity of transportation and telecommunication; iv) under-developed private sector; v) lack of skilled human resources; and vi) little access to credit.

The operational environment should be improved by addressing major issues such as the complex and opaque regulatory framework on FDI, restrictions on foreign investment and inadequate protection of intellectual property rights (IPR). The needs to be protection against expropriation and a non-discrimination principle in place. In particular, regarding the regulatory framework, the enactment of the Foreign Investment Law in 2012 marked a milestone towards a more open and secure legal environment for investment. However, the law still left many questions unanswered, most notably with respect to investor protection and the criteria for admitting foreign investors. The mechanisms for enforcing contracts and property rights and for settling disputes remain weak. In addition, the current regulatory framework is complex with half a dozen laws regulating the entry of investors depending on the sector and location of the investment and on whether or not the investor is foreign. The approval process is equally complicated and not very transparent. Moreover, the associated rules list extensive sectors in which foreign investment is either prohibited or restricted.

Policy Directions & Recommendations

First, it is vital to upgrade the legal and institutional framework for foreign investment. A new "Regulatory Commission" should be entrusted with the responsibility of charting the roadmap for legislative reforms. It will not only recommend the repeal of antiquated laws, but also advise the government on enacting new laws to establish an attractive and secure business environment for foreign investments. And, as it seems the process of screening of investment projects is exposed to significant preferences by government entities, the government needs to gradually move from a system based on discretionary powers by the Myanmar Investment Commission (MIC) to one based on clear and transparent criteria for approval of investment projects. It will require restructuring the existing systems and decentralizing procedures, while increasing efforts to strengthen the capacity and legitimacy of the MIC. On top of this, the Government must draft an attractive new investment law that complies with the national treatment principle. It should allow foreign investment in all sectors without any ceiling limit or insistence on local partners, except for a list of strategic sectors that are restricted for national security reasons.

Second, the Government should reform other complementing policies for investment as well as enhance incentives for foreign investors.

To begin with, there should be a coherent non-discriminatory mechanism for granting land ownership rights to foreign investors, for example, granting long term leases, i.e., a free hold lease of 99 years. And the existing policy for granting public land has a variety of zoning restrictions and minimum acreage ceiling limits on foreign investment, which could direct the flow of foreign investment. These restrictions should be eliminated or must be applied to all parties without discrimination.

Then, foreign investments need to be protected against expropriation. Myanmar's current legislation is silent on the issue of administrative and judicial recourse for investors if their properties have been seized. It is crucial to improve and clarify the rules for expropriation and compensation. Three, incentives for foreign investment need to be enhanced in order to make Myanmar an attractive destination for FDI. One of the major strategies adopted to generate investment was based around SEZs. However, SEZs alone are not an appropriate substitute for improving the general investment climate.

Some specific incentives for foreign companies need to be introduced: a) currently, there is a tax holiday of five years for foreign companies registered under Myanmar Investment Law – a definite incentive for foreign investors. However, there is no clarity on the tax regime for the post-tax holiday period, which seems to be quite unpredictable in the present regime. To make it more transparent and appealing to investors, foreign firms that establish their Southeast Asian branch or representative office in Myanmar should be entitled to receive a 10 percent corporate income tax on net profits after

the tax holiday period; b) at present there is a provision of 25 percent tax on royalties collected by foreign firms in Myanmar, which is considerably higher than its immediate neighbor Thailand (15%). Therefore, it is recommended that a 10 percent rate of tax on royalties received from its affiliates may be set to promote technology-driven industrialization; and c) to make it more attractive for investment in R&D, an initial 25 percent allowance for immovable property acquired by the foreign company should be offered if the company carries out R&D activities on the premises. In fact, the latest incentive for attracting FDI in Thailand in specific and AEC in general also include some of the above stated measures.

Third, the government needs to ensure access to justice and alternative dispute resolution for investors. Companies undertaking business in Myanmar are not yet permitted to conclude arbitration agreements for potential disputes arising out of their business activities to be submitted before an arbitral tribunal held outside of Myanmar. Even though the Alternative Dispute Resolution (ADR) system is recognised at many levels, the framework is still not in place in Myanmar. There is an urgent need to establish an ADR system that complies with the internationally accepted principles. And it is also necessary to set up a separate regulatory framework, maybe under arbitration law, to resolve dispute between investors and the state, as a measure to build up the confidence of foreign investors.

1.8. Privatization & Restructuring Policy

Current Status & Key Issues

After Myanmar's tryst with democracy, the private sector is now permitted to enter into a number of industries. But SOEs are still the major contributors to the GDP. Although SOEs typically enjoy lower cost structures and better public services than private enterprises (e.g. preferential land allocation, discounted utility prices, a stable electricity supply, soft loans from development banks and quick licensing), the majority of SOEs are not profitable but drain on scarce government resources. This deficit structures strongly suggests that many SOEs require reforms. This might include restructuring, management changes, capacity building and the adoption of corporatization strategies. The past government in Myanmar was seriously committed to carrying out the SOE reforms, including corporatization and in some cases privatization. More than 700 SOEs have been privatized since the late 1990s. All in all, presently, there are only 44 SOEs. However, the remaining SOEs are still very large and cover a wide range of sectors including extraction of natural resources (almost half of total SOE activity), energy, telecommunications and industry.

Privatization of the SOEs has been one of the Thein Sein government's top priorities, but its implementation was inconsistent. Every part of the government was actively engaged in privatization activities, but individual stakeholders did it their own way. No common policies or procedures existed. Therefore, the key challenges of privatization of SOEs revolve around the weak state capacity, i.e., the capacity of the government to formulate and implement sound policies.

Besides, some of global observations on challenges in SOE sector reform are equally relevant to the challenges faced by Myanmar: 1) Interest groups have been resisting changes in the status quo. Politicians are always struggling with commercial/economic decisions and political cost; 2) Myanmar still needs to create a 'level playing field', a balanced legal and institutional framework for good corporate governance and an effective and efficient monitoring and evaluation system for the SOEs.

Policy Directions & Recommendations

First, it is necessary to establish an independent institution for the privatization of SOEs. The "Privatization Commission" needs to be set up as a corporate body under the act of parliament to exhibit political commitment of the government for undertaking reforms. The law should spell out clearly its role and responsibilities. After the Commission's objective evaluation for the feasibility of all SOEs, each identified SOE for restructuring shall have an independent mode and process of restructuring in legal, financial and operational aspects. To facilitate this, an inter-ministerial technical body under the Commission needs to be formed to look into all these issues and prescribe the process of restructuring of the SOE.

Second, the Government needs to provide an economic environment conducive to obtaining desired gains from the privatization of SOEs. To begin with, SOEs operations should adhere to Competition Law. Then, the Companies Act of 1914 needs to be revamped. Private businesses today operate under the Companies Act of 1914 in Myanmar, which is currently in the process of being rewritten so as to be relevant in the 21st century. It should allow the SOEs to engage in fair competition with private players.

The Government also should attempt to incorporate internationally accepted principles of corporate governance within the new Companies Act. Ultimately, even though privatization is primarily aimed at eliminating any incentives that insulate the SOEs from the impact of poor performance, successful privatization of SOEs requires fiscal and other incentives for the initial period of its operation. This includes a tax holiday for a fixed period (e.g. for five years), secured access to finance, tariff relaxations over technology imports in the form of capital equipment and spare parts, simplification of legal requirements and incentives for workforce restructuring.

1.9. Land Policy

Current Status & Key Issues

All land in Myanmar is owned by the State and, with the exception of some freehold titles mainly in urban areas, the remaining land parcels in the country (except forest land, grazing land, land held in cantonment and monasteries) are rented out to individuals and companies through grants, leases or licenses. This gives the State considerable leverage over how land is used, who uses it and for how long it is used. The legal framework for land in Myanmar, comprised mainly of at least 73 laws that overlap, is conflicting and does not refer to preceding laws. As the Myanmar economy continued to pursue the path of liberalization, within the established legal and regulatory environment, it became clear that the current legal framework was unable, in its present form, to adequately protect the full spectrum of land-related rights of citizens, businesses and communities. Poor records and antiquated regulations resulted in the vagueness of land ownership rights, which made it hard for businesses to identify adequate building sites.

In determining the comprehensive position of law on the specific question of land governance, the following laws, in particular, are of central relevance: The Farmland Law (2012), The Management of Vacant, Fallow and Virgin Land Act (2012), The Special Economic Zone Law (2014), The Foreign Investment Law (2012), and The Yangon City and Mandalay City Development Laws. The Special Economic Zone Law addresses the question of land acquisition, places the burden on 'developers' and 'investors' to transfer and pay compensation costs associated with land-based investments. The Foreign Investment Law explicitly addresses land questions in several of its key clauses.

Policy Directions & Recommendations

First, the Government should ensure efficient land administration and regulated land markets. It is very important to legally protect land tenure. In this sense, a framework that allows households or individuals to obtain and possess secure rights to the land has obvious benefits. Some of these are: enhanced investment incentives, reduced potential for conflict and the use of land as collateral. The establishment of such a framework requires legal recognition of land tenure rights; institutional reforms including setting up an independent body for monitoring land-related public institutions to ensure transparency and efficiency in land administration system; and incentive structure to manage conflicts over land. It is also necessary to increase access to land and land use. Great emphasis should be placed on mechanisms to transfer land in ways that eases the burden on the buyer. In the land sales market, as most restrictions on land sales tend to undercut tenure security and investment incentives, we recommend that all land related measures be weighed carefully, taking into account not only the conceptual justifications of the regulation, but also the ability to enforce the law and the costs of compliance. For the land rental market, the government can encourage a more open and competitive rental market by; educating people about types of rental contracts and the obligations they involve; reducing the cost of establishing rental contracts through standardized contracts; and making information on rental prices more widely available to potential tenants. Ultimately, land-related fiscal policy for efficient land administration needs to be introduced. Greater reliance on fiscal instruments such as fees and taxes or tradable permits can help reduce the difficulties involved in monitoring and supervision of land administration and management.

Second, it is necessary to continue and enhance land reforms. Most importantly, adoption of appropriate land-use regulations is crucial for land reforms. The new 2012 laws have been criticized for failing to resolve weaknesses of outdated regulations in previous legislations and for not adequately protecting all land users. Therefore, zoning and other land use regulations that promote relevant land uses should be supported by careful assessments of the nature and distribution of costs and benefits, the local conditions, and the implementation capacity available.

Third, it is important to establish a land acquisition and a dispute resolution system. Myanmar's current legal framework provides only general authorizations on expropriation "in the public interest" with no further procedural or substantive restrictions. The Government is urged to announce a new Land Expropriation/Acquisition Policy, which must coherently spell out the process of acquisition and compensation in a transparent and time-bound manner. Dispute resolution is also an important component. Farmland Management Bodies (FMBs) under the Ministry of Agriculture, Livestock and Irrigation are responsible for resolving disputes, but there are no provisions for appealing land disputes through the judicial system. There is an immediate need for the law makers to institute a dispute resolution mechanism, which is independent and entrusted with adjudicating powers.

1.10. Competition Policy

Current Status & Key Issues

The Competition Law of Myanmar was enacted in 2015, which will come into force in Feb 2017. Though, the legislation covers wide areas of anti-trust principles, it is arguably muddled in framing the exact scope and the relevant legal tests. For example, although the law prohibits abusing the dominant position of one's own business in the relevant market, it does not elaborate on the words 'abuse' and 'dominant position'.

Also, a business or businessperson cannot conduct any activities which causes a 'market monopoly,' that term however being undefined. Secondary legislation may clarify things, but a lot of the work is likely to be left to the new Competition Commission to create a robust anti-trust regime.

The most significant challenges for Myanmar in a competition regime are as followings: 1) the judiciary has so far remained subservient to the executive and it will be difficult to suddenly assume a position of independent and fair judiciary. 2) As a regulatory body, the role and responsibility of the Competition Commission is not quite clear. Competition Law falls short of vesting quasi-judicial powers to the Commission, as it is only authorized to carry out investigations. Competition Law also makes the Competition Commission subservient to the Ministry of Commerce, which implies lack of independence. In addition, the main concern for businesses could be regarding the Commission's overly wide discretionary powers. 3) UNIDO suggests curbing the occurrence of anti-competitive practices that inhibit investment in a particular economy along with institutionalizing competitive neutrality. 4) There is lack of specialized human capital within agencies and complementary educational and professional institutions resulting in extreme human resource constraints.

Policy Directions & Recommendations

First, the Government is urged to set up an independent, quasi-judicial regulatory body to oversee the market operations. For this purpose, the statutory status of the Competition Commission of Myanmar needs to be enhanced.

The Competition Commission should act as 1) an independent regulator, an impartial independent statutory authority responsible for the implementation of competition policy administration and enforcement; 2) a quasi-judicial body which has powers and procedures resembling those of a court of law or judge. There is a need to set up processes and protocols within the rules so that any aggrieved or likely to get injured party due to anti-competitive practice can approach the Commission for justice and relief. Moreover, the regulatory body must ensure competitive neutrality, which means that significant government business activities that are in competition with the private sector should not have a competitive advantage or disadvantage simply by virtue of government ownership and control.

Second, the Government needs to make sure that enabling government policies can allow a free and fair market by pursuing trade liberalization, industrial openness, privatization of SOEs, consumer protection policy, etc.

Third, it is essential to build up domestic capacities for the stakeholders involved. Myanmar should work closely with other ASEAN member states to improve the domestic capacity of law officers, government officers and the general public. For instance, building capacity to conduct a detailed assessment of the net benefits from a competition policy regime; providing advice on how competition policy can help achieve other policy objectives. It is also necessary to foster the technical (legal and economic) skills needed for the establishment and implementation of a national competition policy, such as, the technical assistance to build skills in legislative drafting, formulating guidelines and resources required to promote a culture of compliance, investigative techniques, and the building capacity of judiciary to handle competition cases. Besides, the competition regulatory body also needs to have a sound outreach program to raise public awareness.

2. Short-Term Priority Industries

2.1. Textile & Garment Industry

Current Status & Key Issues

Garment manufacturers in Myanmar are currently, in great part, only performing CMP (cut-make-pack) production on behalf of international brands. In principle, this means that garment factories in Myanmar are exclusively performing some of the lowest value-adding labor-intensive steps in the garment value chain. The current production volume is 66,000 tons of seed cotton, 25,000 tons of lint cotton or 188 million meters of woven textiles. The number of workers in the garment field is around 260,000, mostly women. In the light of the growth prospects for the garment sector in Myanmar, this figure may grow substantially in the coming years, as garment exports have increased significantly from $53 million in 1995-1996 to $1,022 million in 2014-2015. According to "the 10-Year Garment Sector Development Strategy", exports in this sector are projected to grow from $912 million in 2012 to $8-10 billion in 2020, employing up to 1-1.5 million workers.

Together with the Myanmar Garment Manufacturers' Association (MGMA)'s ambitious vision of manufacturing high quality and value added products in an ethical and sustainable manner, Myanmar's garment producers need to enhance competitiveness and productivity levels to sustain lasting cooperation with international brands. Particularly in distinction and addition to current industrial development plans (i.e. National Export Strategy and 10-Year Garment Sector Development Strategy), the focus of policy recommendations in this sector is directed at an ideal garment industrial structure based on criteria related to macro-economic and social sustainability, inclusiveness and people-centrism.

Development Strategy & Policy Recommendations

In order to reform the garment sector into a socially and environmentally sustainable and inclusive growth industry, the following development strategies are suggested, along with respective policy recommendations.

First, strategic initiatives should be taken **to ensure responsible growth and modernization of the overall garment sector** by; fully supporting the implementation of the 10-Year Garment Sector Development Strategy by allocating ministerial backing to the Garment Project Management Unit; undertaking capacity building initiatives for enhancing productivity; establishing dedicated industrial parks for garment factories according to the highest standards with exemplary factory designs, housing and recreational facilities; and structurally improving the working conditions in existing industrial parks.

Second, it is important to **encourage the development of strong garment supply sub-sectors and domestic value chains** by; promoting vertical integration of value-added production areas to move from CMP to FOB production; establishing a large-scale textile cluster park in Central Myanmar ensuring environmentally sustainable textile production; and supporting the emergence of national fashion brands and specialized brands through the academic and professional training of fashion designers.

Ultimately, it is necessary to **enhance the social and environmental sustainability of the garment production** by; accomplishing the full registration of workers for assessing, monitoring and better understanding the working constraints in the garment industry; developing a roadmap for an enhancement of knowledge, competences and qualification of workers in the garment field; enforcing strict compliance by instituting legal proceedings against factory operators violating human, labor and other rights and principles of the conservation of nature; and raising awareness of key stakeholders of the garment sector on the possible environmental impact of the garment industry.

2.2. Food Processing & Packaging Industry

Current Status & Key Issues

Myanmar is one of the world's "food surplus" countries, producing between 60 and 80 million tons of agro-foods per year. It is the world's second largest exporter of dry beans, peas, pulses and lentils. It also exports fish and seafood. However, agriculture development in Myanmar is largely an unexploited opportunity so far. Per capita agriculture income averages around $200 annually, which is almost 30-50 percent less than that of its neighbors, like China or Thailand. Despite the availability of raw material and adequacy of the market, many factors have contributed to the long-standing weaknesses of Myanmar's economy. Most noteworthy are low productivity and weak export realization in the food sector on account of poor quality seeds, lack of institutional credit for small hold farmers, lack of technological support, and limited funding and support for post-harvest technology. The food processing and beverage sector is the most common form of business in Myanmar. There are 1,371 listed establishments in the food and beverage category, almost 18percent of the total registered businesses in Myanmar. This sector employs 43,684 workers and emerges as the second largest employer with a share of 12.27 percent, after the manufacturing of textiles.

In order to secure Myanmar's competitive advantage, the main focus should cover all three stages of the value chain, namely (i) Upstream Stage (increasing the agricultural production and diversifying into high return products) (ii) Midstream Stage (upgrading of food processing capabilities) and (iii) Downstream Stage (developing food packaging technology, lowering logistics cost, and improving market extension and support systems).

Development Strategy & Policy Recommendations

Thus, the development target will center on production, diversification and value addition with the vision to ''Increase Output, Move-Up the Value Chain & Diversify Portfolio''. To fulfil this vision, three development strategies are suggested, below, together with respective policy recommendations.

First, the **expansion of institutional contract farming to increase the overall farm output and productivity** can be one of the development strategies for Myanmar. To carry out this strategy, UNIDO recommends establishing a legal framework and governance scheme for contract farming, i.e., a proactive contract farming policy and a law for enforcement and dispute resolution of contracts. Contract farming can enhance productivity by addressing issues such as developing high quality seeds, providing institutional credit, and promoting mechanization and technological support.

Second, it is necessary to have a strategy to **form clusters for secondary and tertiary processing, complementing the packaging sector.** A Special Purpose Vehicle (SPV) should set the basic operational framework for an agro-processing cluster zone. In this zone, secondary and tertiary processing facilities should be developed for value addition. Also the establishment of a Technology Incubation Center (TIC) for the packaging sector is expected to transform the budding production into a sophisticated technology driven domain in Myanmar.

Finally, the strategy of **trade prioritization to provide an outlet for surplus production** should be considered. There is a need to diversify into 'cash crops' that offer high return prospects or confer strategic benefits such as palm oil, rubber, fruits and vegetables, dairy, meat and fisheries. And government can improve market support and extension services for trade prioritization by forming an "Expert Group'' to examine and research market news and innovations.

2.3. Plastic Processing Industry

Current Status & Key Issues

The plastic industry in Myanmar is made up exclusively of private enterprises. Based on the 30 surveyed key plastics companies, 66.7 percent of the examined companies operate in the packaging sector, which holds the largest market share in the Myanmar's plastics industry. Other sectors include housewares (16.7%) and filament (6.7%). The production and sales of Myanmar's plastic processing and production industry is approximately $100 million. Consumption of plastic is growing by a yearly average of 10 percent in Myanmar as the local demand for packaging and household plastic products increases and PP woven bags are widely used in packaging export products such as farm products, forest products, marine products and others.

However, the local plastics supply is insufficient to meet regional demands, leading to significant imports to supplement local production. The main plastic imports are polymers of propylene and polymers of ethylene. Plastics exports are very low compared to the high degree of imports, resulting in a large negative trade balance. The key issues in this sector are outdated and old machinery. The low technology affects the competitiveness of products. Also basic raw materials for plastic production such as resins are imported despite the fact that plastic resins can be produced in Myanmar with the

significant reserves of gas and oil. They can be manufactured in this country by developing a petrochemical industry. In addition, it must be noted that Myanmar does not have proper regulations and technology standards that ensure the quality and standard of their domestic products.

Development Strategy & Policy Recommendations

The development target will focus on improving competitiveness of local plastic production by creating strong forward and backward linkages, and promoting technology upgrades of the plastic industry. To implement the strategy of **creating strong linkages in the supply chain**, a coordination body needs to be set up between the demanding industries (e.g. agro-industry) and the plastic industry. This will allow shared knowledge about the expected quantity and quality requirements and about the demands of new products. Providing incentives as commercial tax reduction for the use of local plastic products by the different industries can be a useful policy option for stimulating local plastic production. Meanwhile, allocating areas for plastic industries in SEZ in close proximity to demanding industries can have many advantages such as lower transportation costs, easy access to information of the demanding industry, and easier coordination between both parties. Ultimately, development of upstream industries including refineries and plastic resin factories for plastic production is also crucial in ensuring competitiveness and a full-fledged domestic value chain in the plastic industry, considering the abundant reserves of oil and gas resources in Myanmar.

In order to **promote technology upgrades of the plastic industry**, the most important step should be to introduce technological standards for the sector. Currently, plastic factories in Myanmar are using inferior technologies for manufacturing. The result is low quality and productivity. In order to address this issue, there needs to be a broadening of existing mechanical engineering and machine-operating training programs for the domestic workforce. The other issue is insufficient investments resulting in low technology in the sector. Establishing tax incentive schemes for technology upgrade investments can be beneficial. A tax deduction for machinery investments in the plastic industry can be a significant incentive to modernize and upgrade the technological level of the industry. This can be accompanied by other promotion measures such as reducing tariffs levied on imported machinery.

2.4. Construction Materials Industry

Current Status & Key Issues

The structure of the construction materials industry is complex and made up of a wide range of components. Due to the complicated nature of the industry, this paper will mainly focus on two specific construction materials, steel and cement. The construction industry shows the largest demand for steel in Myanmar and its use of steel represents 65 percent of the total steel consumption. Currently, there are about 100 private steel companies in Myanmar and their steel production has been rapidly growing, increasing by 40 percent between 2012 and 2014. According to recent statistics from 2015, iron and steel as construction materials ranked sixth in the top ten import items in Myanmar. The country has a high dependency on steel imports and presently iron and steel imports come from China. Meanwhile, there is a clear dependency on imports of cement as well. Myanmar ranked 12th among the world largest importers of cement in 2014, which represented a remarkable demand. In 2015, Myanmar's main sources of cement were China (37.1%) and Malaysia (34.7%). However, the share of domestic production has declined in the past years because the current state owned industrial structure is not able to take advantage of the increasing demand in Myanmar. The key issues in this sector are outdated technology, particularly among the SOEs where the average equipment is 20 to 30 years old, and the lack of a structured energy grid which is essential to energy intensive industries.

Development Strategy & Policy Recommendations

The first development strategy for the two prioritized sectors should focus on **the conversion of technology and products toward high efficiency and value-addition**. In order to enhance the efficiency of cement production, UNIDO recommends converting wet process cement plants to dry process. The cement output using the dry process is five to six times more effective than the wet process and it is much more economical, especially in terms of energy consumption. For the value-addition to steel, it is important to identify the type of goods that represent more growth potential and investment opportunities in technologies for the downstream steel products.

Steel industries are essential in supporting industrialization strategies. Its development can positively impact the economic diversification and value added capabilities. With the aim of achieving a spillover effect that can also support the diversification of the steel industry and promote the emergence of more complex industrial products, it is necessary to

form a cluster of steel industries to increase productivity and industrial diversification.

Last but not least, to secure the sustainability of these industries, it is necessary to **promote good practices in environmental management** because cement and steel-based industries can be detrimental to the environment if inadequate environmental management measures are applied.

2.5. Labor Intensive CMP Industry

Current Status & Key Issues

Industries based on rural livelihoods (agriculture, forestry/livestock and fisheries) have the potential to expand with an effective industrialization strategy. However, at the moment, there is systematic disintegration of rural livelihoods, logistics, rural finance and rural industries. A substantial share of the population is in the rural areas, so it is important to add-value to agricultural production. Also, Myanmar possesses fertile land and a broad range of climate zones, which allow for the cultivation of a variety of crops. However, considerable areas are already covered by crops that do not lead to sufficient rural incomes. Mostly, this is due to the poor quality seeds. There is also a lack of modern machinery and proper storage capacity, as well as a low level of knowledge related to principles of integrated agriculture. Hence, it is crucial to begin to immediately structurally improve and transform rural livelihoods based on market perspective and criteria of environmental and social sustainability. Also, loan schemes of the Myanmar Agricultural Development Bank only support small-scale farmers in a purely agricultural field (paddy cultivation). The rest of farmers, earning other types of livelihoods, do not have access to loan schemes. An intensification of agriculture through mechanization and sustainable fertilizer as well as expansion of irrigation systems will open up significant potentials to increase rural incomes.

Labor-intensive light manufacturing industries (production of toys/shoes, manufacturing of soccer balls or assembling of electronics) also offer great opportunities to absorb workforce. At the moment, the majority of goods are being imported from China and not manufactured in Myanmar to any extent. Ideally, the light manufacturing industries require input from various supportive industries and logistics services. However, Myanmar does not have any established facility for the supplying industries. While the garment sector is currently dominating the labor-intensive light industry, footwear, toy production and other sectors do not yet possess representative structures.

Cottage industries (handicraft) possess exceptional potential, because Myanmar is rich in terms of different cultural groups with valuable traditions and cultural artifacts, which are unique and typically produced in cottage industries. As a country endowed with natural resources, it would be make sense to use the natural resources, precious metals and gemstones (gold, silver and jade) to benefit rural communities. Instead, the extraction of such natural resources has been dominated by informal economic activities. Encouraging growth towards internationalization and competitive product quality will enhance job opportunities in rural areas and also help maintain valuable cultural practices.

Development Strategy & Policy Recommendations

First, it is important to maintain and develop rural livelihoods in agriculture, forestry, livestock and fisheries. First of all, an agricultural map of Myanmar should be created that visualizes which crops are suitable in a particular region. Based on this information, rural agricultural crop zones could be formed that would gradually expand to the rest of the country. On top of this, broadening the system of agricultural and providing rural education is an urgent priority. Ultimately, as the capacity of the Myanmar Economic Bank in providing financial resources for the lending operations of Myanmar Agricultural Development Bank is limited, the government is advised to create another development bank to expand agricultural financing with international technical assistance. It may operate at international standards with international capital access and with lending/borrowing at market rates.

Second, it is necessary to develop a diversified portfolio of light manufacturing industries to substitute current imports and to explore further domestic/international market potentials. In particular, key sectors should be prioritized that already have the necessary prerequisites: production of wooden components and the production of footwear. It is important to realize the entire value chain for the promising sub-sectors. The Government should make an effort to draw the supplying industries (upstream) towards actual labor-intensive production by exempting them from taxes/duties on inputs.

Ultimately, the Government should support cottage industries to be more competitive and promote international small-scale industries to produce cultural and traditional artifacts and make products of traditional livelihoods. The initial step can be to support the overall sector organization. Only parts of Myanmar's handicraft producers are organized in the Myanmar Arts and Craft Association and other individual producers are in women organizations. With a view of addressing the lack of technology and management skills, the Government needs to set up specific training courses tailored to the needs of the companies and independent producers to obtain technological and managerial skills. Also, it will be

important to increase the share of value-added production through processing of available natural resources and materials (jade, gold, etc.).

2.6. Machinery, Tools & Parts Industry

Current Status & Key Issues

At present, a total of 111 enterprises are registered; 20 of them are SOEs and 91 are private enterprises. Available data confirms an unstable trend in the production volume of the majority of commodities, with an overall decrease of quantities. The cause of these instable production quantities is the failure of SOEs. With poor management and low productivity, SOEs have shown inconsistent profit structures and investment plans. They have low technology levels that results in low competitiveness. At present, there is an increasing demand for agricultural machinery, despite the overall decreasing trend in production volume. Also, the motor car industry has also experienced growth due to the increased number of registered vehicles in recent years. The most rapid increase was noticed in motorcycle utilization. The categories mentioned above: motorcycles, agricultural machinery & equipment and parts of vehicles like battery and oil filters – have been identified as the industry's priority sub-sectors. Myanmar's trade balance in this industry is strongly negative and relies heavily on imported goods with exports being almost negligible. On the bright side, domestic demand for machinery and vehicles continues to expand, due to economic growth. International companies are showing an interest to invest in Myanmar's MT&P industry.

Development Strategy & Policy Recommendations

First, the Government is urged to promote private investment through privatization of SOEs and strategic alliances. A roadmap should be designed with a schedule of privatization process for the SOEs, which must also include preferred privatization options. It should have a flexible approach, so that negotiations can be opened to meet the needs of both private and national interests. In order to promote private investment in the SOEs, an advertising campaign in foreign countries can be launched.

Second, imports should be substituted and the domestic market expanded. The Government needs to promote and incentivize local value-addition for motorcycle and agricultural machinery industries. This can be encouraged through programs, which may include specific targets for components of import substitution. For instance, in the case of the motorcycle and agricultural machinery industries, the current status is to assemble CKD vehicles where most of the parts are imported. One goal would be to create the local content, thereby ensuring an increased local value addition, which could eventually be expanded into the production of components including engines. And in order to broaden domestic markets, rental services of agricultural machinery could be introduced. This would help create a strong demand for agricultural machinery. It is important to encourage CKD (Complete Knock-Down) imports for the development of car assembly factories. Importing CKD creates more jobs and it is economically cheaper than CBU (Completely Built Unit). The action plans like giving tax incentives for import of machinery and raw materials should be implemented to support the CKD model. Moreover, given the hot climate and poor road conditions in Myanmar, there is a huge demand for spare-parts such as batteries and oil filters. In this sense, the development of the car-parts sector through joint-ventures is also promising for Myanmar.

Ultimately, it is vital to enhance the quality of products through the establishment of a quality assurance system. Quality assurance is a key matter in any industry but for motorcycles, machinery and cars, it is essential for safety reasons. In order to develop an effective quality assurance system in MT&P industry, standards need to be established regarding the quality of materials, component design and technology used. In addition, testing the materials, components, and functionalities of vehicles requires locally set up specialized services.

2.7. Chemical Industry

Current Status & Key Issues

The chemical industry in Myanmar has not been classified as an independent economic sector, it is divided among an array of industry categories. According to the Ministry of Labor (2015), there are 232 registered chemical industrial establishments in Myanmar which include State Owned Enterprises (SOEs), Joint Ventures, MSMEs, etc. This sector employs less than approximately 10,000 workers. It is evident from the share of chemical producing establishments (3.05%) among all enterprises and its share of employment (2.79%) that the industry as a whole is at infancy level. The chemical industry sector has not attained a critical mass to ensure servicing of local demand at good quality and competitive price. The demand side is forced to rely on imports. A large part of current production is comprised of limited variants of chemical industry. Moreover, the current tariff structure in the chemical sector is inverted because the tariff on finished products is lower than the raw material one. All in all, the chemical industry in Myanmar exhibits a strange paradox, i.e., the up-

stream supply chain remains weak and largely untapped. The mid-stream sector is dominated by the inefficient SOEs. The downstream linkages are almost non-existent. Domestic chemical producers remain perennially dependent on raw material imports.

The identification of a specific priority sector must be aimed at strengthening the supply sides and focus on import substitution of the three stages of the value chain, namely (i) Upstream (ii) Midstream and (iii) Downstream. At the upstream supply side stage, there is potential for vertical Integration for Natural Gas Cracking Plant and Oil Refinery-Petrochemical Plant. At the mid-stream supply side stage, caustic soda, chlorine and sulfuric acid are chosen as priorities. For downstream linkages, agrochemicals, plastics, textiles, food processing, construction & building material, paper & pulp industry, and packaging material could be priorities.

Development Strategy & Policy Recommendations

In order to attain a critical mass to influence the overall chemical sector in Myanmar, the Government will be required to adopt a multi-pronged strategy based on (1) Consolidation of SOEs on the supply side, (2) Set up of a chemical sector agglomeration as a pilot project, and (3) Incentivizing import substitution.

1. **The consolidation of SOEs on the supply side** should be promoted as a development strategy. In this context, it UNIDO recommends developing a balanced and transparent disinvestment policy for improving efficiencies in the SOEs, e.g. the Myanmar Oil and Gas Enterprise (MOGE). After bifurcation of the MOGE into two independent institutions of oil and gas respectively, the government may initiate proceedings for strategic sale or joint venture operation with successful MNCs. The downstream SOEs, Myanmar Petrochemical Enterprise (MPE) and the Myanmar Petroleum Products Enterprise (MPPE) can be offered for strategic sale to major international players in the sector so that the enterprise can secure a competitive advantage by introducing new technologies. Also, the existing restrictions to deter foreign investments in the petroleum and natural gas sector need to be made more attractive to draw foreign inflows into this sector.

2. For the chemical sector **agglomeration** strategy, it is necessary to develop and implement a pilot chemical sector project of setting up a chemical industrial complex in Thilawa or Dawei SEZ. The agglomeration or cluster shall house chemical industries from the supply and demand side of manufacturing sectors. Through a Special Purpose Vehicle (SPV), the cluster should provide world class infrastructure, formation of vibrant labor market, establishment of market extension services, strengthened institutional frameworks, connectivity through multi-modal transport systems for competitive logistics operations.

3. Finally, the strategy of **incentivizing import substitution** should be promoted. It is necessary to review the policies for extending incentives for import substitution in the chemical sector to attain a critical mass by erecting tariff barriers or quotas on certain imported commodities and granting re-imbursement of tax, then setting up a local industry to produce these goods. In addition, the current tariff policy should be looked into, so as to eliminate any inverted tariff structure in the chemical sector. The Government needs to raise tariffs selectively on basic chemicals, agrochemicals and industrial chemicals to remove any price advantage enjoyed by imported chemicals. Also, the Government should wave off the custom duties on inputs, machines and other equipment imported inside the chemical cluster.

2.8. Rubber & Tire Industry

Current Status & Key Issues

In the past decade, the rubber & tire industries have grown very fast in the Asian market. This dynamic has been driven mainly by the rapid growth of the Asian automobile sector. In the last ten years, Myanmar's rubber plantations have almost tripled. This rapid development is due to the increase of international rubber prices and particularly, the expansion of rubber demand from China. Despite the accelerating production volume, Myanmar is struggling to expand exports as Myanmar relies heavily on ASEAN countries, China and Malaysia. The rubber market faces challenges caused by rapid growth in such a short time period, oversupply & excessive rubber plantations and low quality of rubber. Also, Myanmar has low productivity per acre of production.

Two main causes of low productivity are 1) the inferior quality of planting materials and 2) outdated technology. In addition, the rubber supply chain has inadequate logistic facilities for rubber warehousing and transportation. The tires industry is unique because it is dominated by a few corporations globally, so there is a high level of competition in the local market led by the dominant global players. Myanmar's tire market has been growing as well, which is strongly linked to the development of the automobile market. In the recent years, Myanmar's total number of registered vehicles has more than doubled. The increasing domestic demand for cars/buses is raising the opportunity of expanding the tire industry in the country. Since the 1980s, Myanmar has had the skills and experience to produce tires. Currently, there are four tire factories, but only one factory is able to export and the quality fails to meet international standards.

Development Strategy & Policy Recommendations

First, the rubber industry must improve the value chain capabilities. The Government is urged to support the creation of warehouse centers in strategic locations and promote the usage of technical norms and quality certificates. Rubber producers require better facilities to increase the storage capacity. The warehouse will facilitate the supply chain and the trade mechanisms. Besides, the assessment of the product's quality and classification according to norms and market demands will be possible at the warehouse too. Such an infrastructure should be built through private-public partnership (PPP) models, whereby the government provides land while the private investors build the warehouse centers. At the same time, it is essential to provide capacity building to increase the overall productivity in both the rubber and the tire sectors. The objective would be to provide rubber and tire production techniques and training programs to different groups at different levels in vocational training centers and universities.

Second, it is necessary to promote sector transformation and a scale-up by introducing a collaborative production system. In the rubber plantation, scattered micro-producers will be organized as "One Collaborative Enterprise" that enables economies of scale because larger amount of commodities can be managed together. This collaboration aims to increase the economies of scale and productivity, as well as achieve quality standards and build capacity in the value chain. Thus, introducing a collaborative production system will boost competitiveness in this agro-based supply chain. The Government should enact a new law to recognize that the "Collaborative Enterprises" is a type of private enterprise, owned by same micro-producers, selling their goods to the collaborative enterprises. In addition, the transformation of the tire sector should gradually be carried out by improving technology, innovation and market capabilities. The Government should consider re-shaping the tires industry in Thaton as a pilot-project.

2.9. Pulp, Paper & Paper Products Industry

Current Status & Key Issues

The pulp and paper industry is among the most resource-intensive and highly polluting industrial sectors. This industry was established in the early stages of industrial development in Myanmar. Some of the major types of fibrous raw materials needed for the PP&P industry are bamboos, tropical hardwoods and agricultural residues. Despite the availability of the raw materials, there is an inconsistent supply of pulp and recycled waste paper which hinders a stable production environment. The domestic production of paper was 71,175 tons in 2015. Over 60 percent of this paper production comes from private factories, while SOEs produce less than 40 percent. However, the domestic supply has not been able to meet the domestic demand because domestic consumption – about 178,500 tons annually – significantly exceeds domestic production. Hence, Myanmar relies on imports to complement the domestic supply. The PP&P Industry of Myanmar is comprised of four SOEs and 274 private enterprises. The chief difference between their operations is that the main raw material for private enterprises is recycled waste paper while SOEs mostly use virgin pulp. Also, SOEs have more complicated production processes. Currently, SOEs suffer from financial losses due to frequent closures, low volumes of production and weak management systems.

On the bright side, there are increasing foreign interests to invest in Myanmar's PP&P industry. The rising demand in global paper consumption, particularly from China is another opportunity to establish cooperative policies to attract private investment. Establishing strong foundations for SMEs to foster productivity and competitiveness is pivotal in meeting the growing demands in global markets. Additionally, careful environmental regulations are required in order to prevent ecological harm. The main priority products in Myanmar are pulp & folding paper. Pulp is vital to the production cycle with backward linkages to forest production and forward linkages to the paper production industry. Folding paper has diverse uses in other sectors like commerce and industries like food processing.

Development Strategy & Policy Recommendations

First, it is essential to privatize the SOEs in the pulp, paper and paper products industry. A program needs to be initiated to privatize SOEs. A similar strategy that was employed in the "Machinery, Tools and Parts Industry" could be applied. On top of that, environmental regulations must be enhanced – because paper enterprises have been violating certain regulations by disposing wastewaters directly into the river without proper treatments.

Second, ensuring a stable supply of materials for production is vital. To begin with, the Government should promote the expansion of tree plantations and pulp plants based on the evaluation of the current and future demand for pulp. This diagnosis also should consider the existing and potential locations for paper production enterprises and the production capacities. Then, incentives should be offered for investments in the two state-owned pulp mills in Tharbaung and Yeni. Privatization of SOEs will allow a more stable supply of pulp for paper production. Ultimately, the Organization encourages supporting an increased use of recycled paper through local programs to improve recycling practic-

es. The government needs to allocate funding for local programs to collect waste paper from households.

Ultimately, the technological infrastructure and workforce capacity building should be strengthened. For the PP&P industry, technology upgrade mainly requires the acquisition of new modern machinery in order to replace the old and technologically outdated equipment. Specific supportive programs for technology renewal may include facilitation and simplification of regulations, financial facilities to undertake the necessary investments, and temporary tax benefits. Tax incentives may include elimination of the commercial taxes and tariff reductions for new machinery investments. The government can also provide guidance on international quality standards of technological infrastructure. In terms of workforce capacity building, there need to be Industrial Training Centers that provide specific courses for the PP&P industry. At present, there is no specific training for this sector in the already existing Training Centers. Qualification training courses at level 1 (semi-skilled) and 2 (skilled) need to be created.

2.10. Pharmaceutical Industry

Current Status & Key Issues

At present, Myanmar's pharmaceutical market is underdeveloped. Myanmar is heavily dependent on imports; as more than 5,000 types of medicines are imported. It is estimated that the local production only supplies about 5 percent of the domestic demand. In 2013, more than half of the total imports were from India, Thailand and China. Despite the limited local production capacity, there are numerous factories operating under the Ministry of Industry. Also in recent years, many foreign companies have expressed an interest in Myanmar's unexploited pharmaceutical market. The underdeveloped structure of the pharmaceutical industry can be explained by the existing demand-side and supply-side bottlenecks. The demand side hold-ups are related to the poor healthcare system in Myanmar. It has failed to stimulate the growth of the pharmaceutical industry. Also, the pharmaceutical market is not market-driven but guided by public procurement. There are two government entities that control public procurement but, both suffer from budgetary constraints. They cannot meet the pharmaceutical needs of neither public nor the military hospitals. In the supply side, Myanmar's pharmaceutical production is fundamentally stuck due to the absence of basic requirements: modern factories with updated technology. There are five state-owned pharmaceutical factories in Myanmar, which have not been upgraded in the last 50 years. Also, the development of the sector has become a real challenge due to Myanmar's geographical proximity to the two major producers, India and China. Myanmar faces severe competition from these countries.

Based on Myanmar's circumstances, there is potential in natural medicines. Myanmar has 1) indigenous knowledge and heritage accumulated over centuries and through the study of botanical resources, 2) existing specialized institutions devoted to research/education and 3) natural medicine industries that are already exporting.

Development Strategy & Policy Recommendations

First, it is important to set up Good Manufacturing Practice (GMP) facilities and enhance capacity building in GMP to support local companies' quality assurance. GMP facilities should be established, where all firms can have access at low prices. Also, the GMP capacity should be enhanced. Through these GMP facility, the government can help companies meet international standards and achieve GMP certification. Currently, Myanmar is not able to export any products due to the fact that Myanmar FDA's GMP accreditation is below the international level. Therefore, it is important to improve GMP accreditation of Myanmar's FDA to meet international standards and facilitate access to the global market. Ultimately, it is necessary to improve production and certification of legal medicines and strongly block the commercialization of adulterated medicines. In this respect, it is important to introduce new drug law to meet new market demands, assure adequate distribution of medicines and enforce proper use of prescriptions. Also, the illegal cross-border transport of medicines into Myanmar needs to be reduced.

Second, the natural medicine sector should be promoted with a cluster approach to expand Myanmar's pharmaceutical industry. Currently, only a few firms have managed to industrialize and commercialize natural medicines. So, it is important to invest in specialized universities & research centers devoted to natural medicines, while simultaneously establishing a pharmaceutical cluster. The cluster of pharmaceutical industries should be near universities, research centers and enterprises. For this to work, the presence of anchor institutions, such as universities is crucial, so that they can generate spillover-effects. The presence of SMEs is essential in promoting the emergence of complementary services around large companies. The clusters should be formed under a private-public partnership (PPP), with the collaboration of three main stakeholders: private enterprises and their associations, universities, and the central and local authorities.

Finally, it is vital to enhance human capital, especially in pharmaceutical engineering and natural medicines. Currently, pharmaceutical engineers cannot be educated in Myanmar due to the absence of such programs. Consequently, universities are encouraged to update and introduce programs for pharmaceutical engineers. Also, in order for Myanmar to deliver the rich natural medicine they are endowed with to the market under industrial standards, it is absolutely necessary to provide capacity building programs focused on generating skills and knowledge to deliver natural medicines on an industrial scale.

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