



Draft Report
Transformation Pathways
to
Sustainable Food System of Myanmar
Member State Dialogue



July 2021

ACTION TRACK-2

SHIFT TO SUSTAINABLE HEALTHY CONSUMPTION PATTERN

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2.1 Introduction

As increase in global population and greater per capita incomes, global food demand is rapidly increasing. More intensive use of existing agriculture lands could contribute to the increase of production needed to meet such demand, but agriculture has major global environmental impacts: such as biodiversity, global greenhouse gas emissions, and climate change¹.

A growing population, a degraded natural resource, food loss and waste, climate change, together with unsustainable trends in food consumption, combine to present a serious threat to the global food system. Therefore, Action Track 2 focuses on shifting sustainable and healthy consumption pattern to achieve the 2030 Agenda sustainable development goals (SDGs).

Current population of Myanmar is about 54 million and Gross National income(GNI) per capita US dollar \$1079. In 2019-20, Myanmar's agriculture sector contributes 21.9 % of the Gross Domestic Product and 26.62 % of total export earnings. The total sown area of paddy was 17.2 million hectares, production was 28.01 million metric ton (MT). The sown area of Beans and Pulses was 4.06 million hectares and its production was 5.25 million metric ton (MT) and 0.016 million metric ton (MT). Therefore, Myanmar is a food sufficient country in terms of rice and food crops production. However, food gap is significant in some remote and conflict areas. Besides, Myanmar's agriculture sector is the source of livelihood for nearly 70 percent of the population. It is a leading sector of employment for the poor, with 85 percent of the rural population with more members engaged in agriculture. Hence, Myanmar has enough potential to foster diversification and boost agriculture sector productivity and improve quality and access to market of agricultural products and food commodities. However, Myanmar's agriculture potentials are challenges with insufficient and imbalanced investments. The Republic of Union of Myanmar renewed and reinvigorated attention to agricultural and rural development, responsive to domestic food and nutrition security².

¹Godfray HCL, elal.; 2010; The Government Office for Science 2011; Dirzo R., Taven PH , 2003.

² Myanmar agriculture sector in Brief, 2019

2.1.1 Goal

Action Track 2 aims to shift sustainable and healthy consumption pattern through changes in food policy, food environments, and consumer behavior. A transition towards diets from nature positive food system which are healthier, safer and economically equitable and socially desirable.

2.1.2 Objectives

- (1) Create Enabling Food Environment
- (2) Raise awareness about sustainable consumption pattern
- (3) Halve food waste at food service, retail and household levels

2.1.3 Structure

The work of Action Track 2 is divided into three workstreams:

- 1. **Food environments:** To create healthy, safe and sustainable food environments to enable people to adopt and maintain healthy dietary practices.
- 2. **Food demand:** To improve the product of safety, healthier and more sustainable food and improve consumers' motivation.
- 3. **Food waste:** To reduce food waste occurring at household, food service and retail level.

2.2 Food Environment

2.2.1 Current situation (Existing situation, challenges, opportunities, future trends)

Food and Nutrition Security describes the food environment as consisting of four components that shape food purchasing decisions: (i) availability and physical access (proximity); (ii) economic access (affordability); (iii) promotion, advertising and information; and (iv) food quality and safety.

In the past, little attention was given to the food environments low- and middle-income countries (LMIC) but there has been an increased interest in capturing food environments in these contexts in recent years, particularly as the prevalence of overweight/obesity and diet-related non-communicable diseases rise in these countries³.

³ Asia and Pacific Regional Overview of Food Security and Nutrition, 2020

In Myanmar, low quality of the diet is contributing to a triple burden of malnutrition (under 5 stunting, micronutrient deficiencies and obesity) resulting in enormous short and long-term human and economic consequences. According to World Bank, the number of undernourished people in Myanmar declined gradually from 30.5 in 2005 to 14.9 in 2019. Among children under five years of age in Myanmar, the prevalence of stunting (children who are short for their age) due to chronic under-nutrition declined from 35.1% in 2010 to 29.2% in 2016 and to 26.7% in 2018; that of wasting (thin for their height) due to acute under-nutrition fell from 7.9% in 2010 to 7% in 2016 and to 6.7% in 2018; and the proportion of children underweight (thin for their age) declined from 22.1% in 2010 to 19.1% in 2018 respectively⁴.

The Agricultural Development Strategy of MoALI also highlighted several challenges which need to be taken into account in terms of modernizing Myanmar food systems. The key among them are,

- (1) the occurrence of land grabbing;
- (2) the unsustainable use of natural resources which might result in environmental damage and land degradation;
- (3) the natural disasters faced by Myanmar;
- (4) the pace of Human Resource Development (HRD) is too slow to sustain rapid economic reforms;
- (5) the slowing down of reform process and increasing social economic unrest; and little preparedness of Myanmar to face competition from more competitive ASEAN neighbors in the presence of ASEAN Economic Community (AEC).

Urgent actions should be taken by various stakeholders from the government, international community, academia, non-governmental organizations (NGO), etc. to coordinate future activities on issues related to Myanmar's food systems⁵.

⁴World Bank Report, 2019

⁵ Agriculture Development Strategies, 2018-19 to 2022-23

2.2.2 Potential Solutions

2.2.2.1 Food System Framework

Myanmar Sustainable Development Plan prioritizes and recognizes that “food security” is a broad agenda that is beyond making food available, and that for example, it entails the complex interactions of the evolving economic, social and environmental contexts. The Myanmar Sustainable Development Plan explicitly mentions those critical areas such as nutrition, food safety, and the role of the private sector.

The Agriculture Development Strategy (ADS) is supportive of the development of Myanmar’s food system emphasizing enhanced productivity, diversification, food safety, nutrition, environmental sustainability, and private sector participation.

Specifically, the Agricultural Development Strategy (ADS) of the Ministry of Agriculture, Livestock and Irrigation (MOALI) highlighted several opportunities that could potentially alter the way Myanmar’s food system will evolve. These opportunities are:

- the growing demand for safe, convenient, and processed food in urban Myanmar,
- the growing export demand for several products where Myanmar has comparative advantages,
- the growing interest of domestic and international investors given the increasing regional integration with Greater Mekong Sub region (GMS) and Association of South East Asian Nations (ASEAN) and increasing ICT connectivity and economic corridors; and Last
- the high potential for competitive exports in several value chains: rice, pulses, fruit, vegetables, shrimp, cattle, maize, cassava, rubber, etc.,

Ministry of Agriculture, Livestock and Irrigation (MoALI), Ministry of Health and Sport (MoHS), Ministry of Education (MoE) and Ministry of Social Welfare, Relief and Resettlement (MoSWRR) jointly developed Multi-sectoral National Plan of Action on Nutrition (MS-NPAN) together with development partners. The Myanmar MS-NPAN creates the space for major progress on setting criteria to target the most vulnerable to maximize the impact of agriculture interventions for nutrition, to mobilize

resources to improve service delivery. Overall goal of the MS-NPAN is to reduce all forms of malnutrition in mothers, children and adolescent girls with the expectation that this will lead to healthier and more productive lives that contribute to the overall economic and social aspirations of the country⁶.

MS-NPAN planning documents for 5 States and Regions (Shan, Ayeyarwady, Kayin, Kayah, Chin) have been developed and finalized. MS-NPAN costing exercise has been done only for Kayin State.

Moreover, the Nutrition Sector Reform Contract (NSRC) is envisaged to contribute to the reduction of all forms of malnutrition in women of reproductive age, infant, and under-five children. It will be achieved through six Specific Objectives:

- (i) improved food diversity in households and local markets (availability),
- (ii) increased access to diversified diets through improved incomes (access),
- (iii) improved safety along with food supply and value chains to enhance access to safe and nutritious food,
- (iv) improved access to potable water in rural areas and of vulnerable groups,
- (v) empowerment of women to actively participate and/or make informed decisions in agricultural/livestock production, value chain and household dietary intake, and
- (vi) institutional capacity strengthening of MoALI.

2.2.2.2 Education (National Education Strategic Plan (2016-2021)

Myanmar's most invaluable asset is human capital. Strengthening human capital will be essential for national development and ensuring the sustainability of economic growth. Human resource development focuses primarily on improving quality and access to social services, such as education and health. The inclusion of nutrition education as part of the primary school curriculum has been an important step in the right direction and will be leveraged moving forward.

However, Myanmar has not yet developed a comprehensive national curriculum for youth covering food systems on health, climate, biodiversity and environment. This has resulted in a lack of knowledge across society regarding the

⁶ Multi-sectoral National Plan of Action on Nutrition(MS-NPAN), 2018-19 to 2022-23

impacts of dietary choices, and the importance of shifting consumption to meet planetary health goals. While education alone has not been identified as a strong determinant of behavior change, it has been shown to correlate with other sectors such as health, climate, biodiversity and environment, etc.

The Government of Myanmar clearly sets out in the National Education Strategic Plan (2016-2021) to promote more equitable access and higher quality outcomes for students-commitments. The Government recognizes that structural reforms are required in order to ensure that basic education not only delivers literacy and numeracy, but also contributes to students' overall development in ways that allow them to realize their full potential⁷.

MS-NPAN is a comprehensive nutrition related strategy to address various forms of malnutrition in mothers, children and adolescent girls. The key results of MS-NPAN will bewell- nourished and optimal nutrition behaviors to all students, especially girls who will complete secondary education.

Ministry of Education (MoE) will use schools as a platform for the delivery of nutrition-specific interventions to reach school aged children and adolescents who are difficult to access through healthy system.

In Myanmar, pilot activities of school feeding in Putao and KaunglanPhoo in Kachin State, Ton Zan in Chin State have been carried outby MoE and MoSWRR(2018-19), which expands to 115 townships in 2020-21 fiscal year. World Food program (WFP) is also implementing the school feeding program in 49 townships of five State and Regions (Chin, kachin, Magway, Rakhine, Shan &Wa), (1855) schools in 2015-16⁸. In Myanmar, school feeding programs should be scaling up and out to cover 330 townships. Resource mobilization from development partners and national budget allocation should be taken into account to expand across the country.

Moreover, Livestock Breeding and Veterinary Department (LBVD) under Ministry of Agriculture, Livestock and Irrigation (MoALI) has initiated the school milk program since 2012 implementing in (3729) schools in 2019-20 to fulfill the nutrition gap for students⁹.

⁷National Education Strategic Plan (2016-2021)

⁸ World food program: School feeding WFP Myanmar, 2016

⁹ Livestock Breeding and Veterinary Department, 2019

MoE will encourage the Parent Teacher Associations (PTA) in all schools to ensure that parents have increased awareness of good practices for health, nutrition and hygiene.

European Union (EU) provides Euro 175 million, through direct financial transfers to the MoE budget, for the improvement of secondary education and technical and vocational education and training (TVET), as well as public finance management. A further Euro 46 million is allocated for technical expert assistance to the government in achieving these improvements, total of Euro 221 million¹⁰.

2.2.2.3 City region food strategies

Healthy diets are unaffordable for many household particularly for the poor. Many studies recognize the importance of city region food strategies in all regions of the world, where policy and programme initiatives are being undertaken in various fields related to urban and periurban food production and supply. Even though the ingredient of healthy and sustainable diets is available, accessible and affordable in local markets, it is struggled to create the food environment due to lack of knowledge for healthy diet, and limited availability of fresh, safe and healthy foods.

Population of Myanmar is about 54 million people according to the census of 2014, 15 million of the people is living in urban areas. Yangon is Myanmar's metropolitan city and has about 5.15 million residents, almost 10% of Myanmar's total population. Mandalay, with 1.3 million people, is the country's second-most populous city and the only other city with a population above 1 million.

According to Central Statistics Organization (2020), National poverty accounts for 24.8% whereas poverty in urban is 11.3% and in rural 30.2%. The average per adult equivalent daily consumption in urban was 3475 MMK/day and in rural 2286.4 MMK/day, food shares 50.8 % of total expenditure (42.7 % in urban and 55.7 % in rural area). Per capita consumption for meat, milk and egg are 18.37 kg, 37.44 kg and 52 eggs respectively.

In Myanmar, wholesale markets such as BayintNaung, ThiriMingalar and Da NyinGone are located in Yangon which is managed by the Yangon city development committee (YCDC). Eleven jetties are located in Yangon for fish supply. Fresh water

¹⁰ Education Sector Reform Contract (EU Press Release,2018)

and marine fish supply in Yangon are (0.255) million MT (2018). In Mandalay, there are two big wholesale markets (Thiri Malar and Kaingdan) which also managed by Mandalay city development committee (MCDC). Food supply for both big cities comes from different states and regions such as Bago, Ayeyarwady, Sagaing, Shan, Naypyitaw and Mandalay. They are contributing for local consumption and export. However, the wholesale markets started their operations at the end of 2016 or early 2017, a detailed wholesale market management plan is still lacking. The Vegetables Sector Acceleration Taskforce (VAST) under Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) commissioned a study with the objectives to develop guidelines for the wholesale markets aim to contribute for the development and innovation in the sector by introducing new trade standards, facilitating value-adding activities and creating more transparency and efficiency in trade and supply arrangements .

Normally, People in Myanmar purchase daily food products at traditional markets but the hygiene condition of traditional market is not good in general. The reason for poor hygiene is the poor process of handling from production to processing and end users. In the livestock sectors, slaughtering improvement has only just started in Mandalay city, a modern slaughtering system was introduced in 2018 for cattle and pig. It is necessary to expand this system in Yangon and other cities for hygienic and safe food production.

To strengthen the city region food systems, promote network of sustainable urbanization and food systems across different contexts is necessary. Urbanization affects not only the structure of the agricultural sector and food systems, but also the larger non-farm economy. Recognizing the diversity of urbanization processes and rural linkage dependencies is essential.

Therefore, Myanmar needs to streamline the Periurban agriculture development to contribute social, economic and ecological objectives of the sustainable urban development. For Periurban agriculture development, urban planning and policy making should be integrated under the specific urban contexts. Government of Myanmar should invest more economic oriented Periurban agriculture with the inclusion of small holders.

Development of resilient cities and city region food systems requires both political will and the use of available policy and planning instruments: infrastructure and logistics, public procurement, licenses, and land-use planning.

Currently, Ministry of Agriculture, Livestock and Irrigation is collaborating and participating for ASEAN food safety policy (2016) and Myanmar will sign the regional ASEAN Food Safety Regulatory Framework Agreement and apply to access food safety for our consumers.

For developing the city region food strategies, Myanmar needs to enhance food safety measures such as strengthen food inspection body, raise awareness programme, upgrade food testing laboratory, modernized local market system and infrastructure (road, electricity, clean water and sanitation, slaughter house, warehouse, cool storage).

2.3 Food Demand

2.3.1 Current situation (Existing situation, challenges, opportunities, future trends)

Global food demand is increasing rapidly due to increase global population. More intensive use of agriculture lands could increase agriculture production to meet such food demand. Sustainable food is that food with low environmental impact which contributes to foods and health security and to healthy life from presence and future generation. Food demand focuses not only increase production, but also food safety for consumers.

Unhealthy diets are the top leading causes of disease, death, under-nutrition and obesity. Food labeling is an important policy tool for countries to help consumers make healthier food choices. A large part of the population today has access to a huge variety of foods and drinks high in fats, sugars and salt/sodium. However, it is not easy for consumers to decide and differentiate what should be part of a healthy and sustainable diet. Nutrition information is often presented in confusing and unhelpful ways with attractive packaging (often targeted at children or mothers). This approach to packaging causes unhealthy products to be more desirable, especially in contrast to unbranded healthier options such as fresh fruits and vegetables or breastfeeding.

2.3.2 Potential Solutions

2.3.2.1 Labeling

In Myanmar, the National Food Law which was promulgated in 1997, is the most important law relating to food safety. In the region, ASEAN Strategic Action Plan on Consumer Protection (2016-2025) was developed. In Myanmar, the consumers are protected by Consumer Protection Law, which was enacted in 2019. Therefore, these two legal framework should be harmonized and compliance to each other. The objectives of Consumer Protection Law (2019) are to protect and to assist with consumer rights claims, to make system effective, to relay the appropriate information to the consumers, to take action for the protection of consumers, to ensure the high quality for safety, health and satisfaction of the consumer.

According to the Consumer Protection Law (2019), eight facts regarding the labeling of goods based on types of goods are provided: (a) the trademark of goods, (b) the type, size, quantity, net amount, storage guidelines and usage method of goods, (c) the manufactured date, expired date and serial code number, (d) the name and address of the importer, the name of the manufacturer and address if the goods is imported, (e) the origin of manufacturing or repacking address of the imported goods, (f) the names of ingredients and its quantity and ratio contained in goods, (g) the precautions and warnings about allergies and side effects, (h) the facts prescribed by the relevant government departments to be stated.

Among the above mentioned facts, the type, size, quantity, net amount, storage guidelines and usage method of goods and the precautions and warnings about allergies and side effects must be described in Myanmar language or Myanmar language and other language in combination with one or more in the labeling.

2.3.2.2 Breastfeeding

Breastfeeding practice is important for maternal and child health. Nearly half of all diarrhoea episodes and one-third of respiratory infections would be prevented with improved breastfeeding practices in low-and middle-income countries. Breastfeeding also brings benefits to women, including prevention of breast and ovarian cancer and diabetes.

Longer breastfeeding durations are associated with higher scores on intelligence tests—that translates into stronger economic success through improved academic performance, higher earning potential and productivity. Countries lose more than \$300 billion annually because of low rates of breastfeeding (0.49 percent of gross national income;GNI)¹¹.

Globally, 44% of newborns are put to the breast within the first hour after birth even though early breast feeding targeted is 70%. However, this average covers dramatic disparities in breastfeeding rates across countries. Of the 129 countries with data available, only 22 currently meet this target. The overall rate of exclusive breastfeeding for infants under six months of age is 40%. Only 23 countries have achieved at least 60% of infants less than six months being exclusively breastfed.

In Myanmar, breastfeeding is practiced universally and although 90% of mothers were aware of breast-milk benefits and 76% fed breast-milk to their newborn within one hour after birth, only 24% of babies under six months of age were perceived Early Breast Feeding (EBF). Myanmar has the second lowest EBF rate in South-East Asian countries, behind Thailand. Though the government has made several efforts to improve infant feeding practices in Myanmar, it is a challenge to find reliable data to inform the health program design.

Under-nutrition is the underlying cause of estimated 45% of deaths among under-five children in middle and low income countries including Myanmar. Government reported that 23% of under-five children in Myanmar were underweight and 35% were stunted, which exceeded the global average of 25%. The high stunting rate in Myanmar might contribute to the high infant and under-five child mortality rates in Myanmar (41 and 52 deaths per 1000 live births).

Scaling up breastfeeding could save 823,000 lives per year among children ages five years old and younger. Breastfeeding reduces the risk of non-communicable diseases and decreases the prevalence of overweight and/or obesity later in life.

The Ministry of Health and Sports (MoHS), together with UNICEF and other partners, implemented a National Strategy for Infant and Young Child Feeding (IYCF)

¹¹Internationalbreastfeedingjournal,

from 2011 to 2016 in order to improve the nutritional status, growth and development, health, and survival of Myanmar children. Most prominent interventions under the strategy are behavior change communication, revitalization of the Baby Friendly Hospital Initiative (BFHI), and policy advocacy for breastfeeding.

In order to identify concrete measures to scale up breastfeeding protection, promotion, and support programs and increase the country's breastfeeding rate, in March 2017, Myanmar committed to piloting the Becoming Breastfeeding Friendly (BBF) Initiative, and was the first country in Asia to do so. The first BBF assessment was conducted between January to August 2018.

Ministry of Health and Sports (MoHS) signed up to the global scaling Up Nutrition (SUN) Movement in 2013, issued the Order of Marketing of Formulated Food for Infant and Young Child in 2014, and increasing the duration of maternity leave for the private sector (from 12 to 14 weeks) and in the public sector (from 12 weeks to 6 months), also in 2014.

Recognizing that breastfeeding is an essential component of the country's universal health care policy, Myanmar has included counseling on IYCF as a part of the Essential Health Package of Services under the National Health Plan (2018–2022) and explicitly included breastfeeding support in the new guidelines for antenatal care. Under the National Strategic Plan for Newborn and Child Health and Development (2015–2018), Myanmar has committed to increase the coverage and quality of essential IYCF services and set ambitious targets for increasing the prevalence of exclusive breastfeeding among infants less than 6 month to 60% and the early initiation of breastfeeding to 80%.

Upgrading of First human milk bank from Yangon Central Women's Hospital to international best practices in 2020 to cultivate an enabling environment for breastfeeding¹².

¹²Myanmar-first-human-milk-bank,

2.4 Food Waste

2.4.1 Current situation (existing situation, challenges, opportunities, future trends)

Currently, one third of the food produced in the world for human consumption every year gets lost or wasted; approximately 1.3 billion tones that enough to feed 3 billion people. Economically, it results nearly 1 trillion/year of economic losses across the supply chain. This amount consumes $\frac{1}{4}$ of the world's fresh water use by agriculture, occupies farmland areas greater than the size of China. Food loss and waste also amount to major squandering of resources, including water, land, energy, labor and capital and needlessly produce greenhouse gas emissions, contributing to global warming and climate change. Current amount of food waste accounts for 4.4 giga tones or 8 percent of global greenhouse gas emission per year¹³.

According to the estimation of FAO (2018), 5.3 billion tonnes of food was produced available globally, and comparing this with the food waste suggested that 17 percent of food available was wasted in the three main sectors; 11 percent in household, 5 percent in food services and 2 percent in retail. The FAO State of Agriculture Report 2019 estimated that among 14 percent of global food production is lost during supply chain stages. Increasing this understanding to a wider range of countries would allow stronger strategies and programmes of work to minimize waste of valuable food resources in these sectors¹⁴.

In developing countries food waste and losses occur mainly at early stages of the food value chain and can be traced back to financial, managerial and technical constraints in harvesting techniques as well as storage and cooling facilities. Strengthening the supply chain through the direct support of farmers and investments in infrastructure, transportation, as well as in an expansion of the food and packaging industry could help to reduce the amount of food loss and waste.

In medium- and high-income countries food is wasted and lost mainly at later stages in the supply chain. Differing from the situation in developing countries, the behavior of consumers plays a huge part in developed countries.

¹³ Food and Agriculture Organization

¹⁴ UNEP: Food Waste Index Report 2021

Lack of coordination between actors in the supply chain is a contributing factor. Farmer-buyer agreements can be helpful to increase the level of coordination. Additionally, raising awareness among industries, retailers and consumers as well as finding beneficial use for food that is presently thrown away are useful measures to decrease the amount of losses and waste¹⁵.

In September 2015, the United Nation adopted the UN Sustainable Development Goals (SDGs), among them the UN SDG 12.3: by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses. Although SDG Target 12.3 calls for cutting food waste rates by 50 percent and reducing food loss by 2030, the world is not yet on track. By 2050, the world population will reach 9 billion. By then, food production must be increased by 70 percent to meet global food demand.

2.4.2 Potential Solution

The food losses and waste in Myanmar is not yet very well studied and documented. There is no accurate and reliable data on food waste generating in Myanmar. According to the United Nations Environment Programme (UNEP) Food Waste Index Report 2021, household food waste generation in Myanmar estimates 4,666,125 tonnes per year, with per capita waste generating totaling 86 kg/capita/year¹⁶.

M49 code 1	Country	Household food waste estimate(kg/capita/year)	Household food waste estimate(tonnes/year)	Confidence in estimate
96	Brunei Darussalam	80	34 742	Very low confidence
116	Cambodia	86	1423397	Very low confidence
360	Indonesia	77	20938252	Medium
418	Lao People's Dem. Re	86	618994	Very low confidence
458	Malaysia	91	2921577	Medium
104	Myanmar	86	4666125	Very low confidence
608	Philippines	86	9334477	Very low confidence
702	Singapore	80	465 385	Very low confidence
764	Thailand	79	5 478532	Very low confidence
626	Timor-Leste	86	111643	Very low confidence

¹⁵ United nations environment programme 2019: Worldwide food waste

¹⁶ United nations environment programme: Food Waste Index Report 2021

704	VietNam	76	7346717	Medium
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Household food waste estimates in the Southeast Asia region

Source: UNEP Food Waste Index Report 2021

To reduce food waste, there are various approaches to focus on specific areas of the supply chain, national policies, education programmes, and developing governmental regulations.

In 2018, the National Waste Management Strategy and Master Plan for Myanmar was developed, led by the Ministry of Natural Resources and Environmental Conservation (MONREC) with the participation of relevant governmental agencies at national, regional/state and township levels, private sectors, industries, academia and civil society groups. It aims to build capacity for sustainable waste management and promote development of a conducive policy framework and strategies¹⁷.

To scale up the implementation of this Strategy and Master Plan for food waste, it should use these two most common methods for food waste recycling;

- Composting: A treatment that breaks down biodegradable waste by naturally occurring micro-organisms with oxygen, in an enclosed vessel or tunnel.
- Anaerobic digestion: A treatment that breaks down biodegradable waste in the absence of oxygen producing a renewable energy (biogas) that can be used to generate electricity and heat.

However, like a developed and industrialized country- United State, only about 3 per cent of food waste is recycled throughout the country, mainly through composting. Composting provides an alternative to landfill disposal of food waste, however, it requires large areas of land, produces volatile organic compounds and consumes energy. Anaerobic digestion has been successfully used in several European and Asian countries to stabilize food waste, and to provide beneficial end-products. So that, policy makers should take into account above ways to control food waste in Myanmar.

¹⁷ The National Waste Management Strategy and Master Plan for Myanmar: 2018

Households are the most generating one along food waste lines, than food service and retail level. To reduce food waste in these levels, the government needs to develop National Food Waste Reduction Strategy, launch public awareness campaigns to encourage consumer food waste reduction, get food companies to follow the “Target-Measure-Act” approach: set a reduction target, measure food loss and waste to identify hotspots, and take action to reduce the food loss and waste hotspots, connect with private sector/ NGOs to find possible solutions, and monitor the progress. On the other hand, food waste can be used and recycled as feed ingredient for animal feed and aquaculture feed and fertilizer.

Food waste issue cannot be tackled only with the leading of government side. All stakeholders along the supply chain from farm to fork may take respectively their responsibilities to be better world.

2.5 Cross Cutting

2.5.1 Awareness Raising

2.5.1.1 Current situation (existing situation, challenges, opportunities, future trends)

Awareness is the most important and basic issue in order to realize the value of food for sustainable and healthy consumption pattern. Current consumption pattern in Myanmar is going alongside improper habits on food consumption. In addition, the availability of unhealthy fast food in the food market has largely affected on community's health concerns. On the other hand, we need to consider the impact of consumers' choice on social, economic and environmental safety of the communities. In this regard, more efforts are demanded not only to avail healthy diets in daily life for all levels of livelihoods but also to reconcile our lifestyle to the nature. This would be the way forward to sustainable and healthy consumption pattern by 2030.

People's poor knowledge about healthy lifestyle and the importance of ecosystem is the major challenge among others. Awareness raising on consumer behavior change is a must for sustainable and healthy consumption. Community's knowledge on food system require to be increased by informing the public through various activities such as public speaking, media campaigns, trainings, participation

in the community events. Then they will recognize how to change their behaviors on consumption, choice of food, and food waste minimization in their daily life.

2.5.1.2 Potential Solutions

The following efforts should be built and promoted in order for the effective change in consumer behavior by explaining how certain behaviors and best practices help them in both their personal and professional life:

Effort 1

- Establish a national network of activists who understand the issues (food environment, food demand, and food waste reduction) and what needs to be done, and this cohort will perform in connection with each local network of activists.
- Activate them through empowering in order to drive cultural relevant behavior change of the local communities, resulting in right choice of healthy food, the social norming of not wasting food, and the awareness on health of both human and ecosystem, and in the long term, recognizing how to harmonize the ecosystem and resources to human health and animal welfare.
- Let them aware of the value of food and the transformation of food waste or almost-wasting food by reuse or recycling them into fertilizers and animal feeds through community trainings. It engages and empowers people at a local level to bring about solutions which they own e.g. changing shopping and cooking habits, building culinary skills, growing own food, increasing sharing and redistribution etc.

Effort 2 - Coordination and Planning

- Awareness raising could not have been done by public sector alone; thus coordination and cooperation among all stakeholders is essential throughout food value chain to the management of food waste.
- Special organizations involved in this effort are mainly business sector, activists, youths, and civil society organizations (CSO).
- Inter-ministerial coordination is essential to promote the mainstreaming of sustainable consumption and production at the national level.

- May help to strengthen the mandate of the mechanism, especially as a strong coordinating body with competent authority and resources essential to developing more integrated and effective actions through the mandate policies.
- To ensure effective coordination and planning, which can potentially be a role for the awareness on sustainable food consumption.
- The network would collaborate and leverage social media, sharing best practice and celebrating success and progress.
- The end goal is to shift the social norms so it is no longer culturally acceptable to waste food.

Effort 3- Awareness on information on processed food in the supermarkets

Research activities to evaluate the progress and effectiveness of awareness raising by the target years. **Major limitation** is the fund supports for awareness raising projects as a whole country.

2.5.2.Women empowerment

2.5.2.1 Current situation (existing situation, challenges, opportunities, future trends)

Women's empowerment within their households and communities is essential to inclusive food systems. However, women's access to assets like credit, land owning, training, and decision making are limited, which in turn limits their ability to engage in more larger-scale activities. Women's empowerment in food system decision-making can be supported by enhancing their negotiating powers, and shifting traditional gender norms.

In Myanmar culture, women play a crucial role in household food consumption. The availability of healthy, safe and diverse food for the family in the daily diet mainly relies on women. They strive to ensure nutritional needs within their families¹⁸. Therefore, women should have a proper knowledge concerning with food choice without wasting, good practices for food preparation and food waste management. The level of women knowledge is necessarily promoted by fostering sustainable consumption practices that contribute to diverse and nutritional diets

¹⁸ International Institute for Sustainable Development (IISD)

and promoting women's financial decision making and independence since higher income links to healthy lifestyle.

In Myanmar, the ratio of female to male labor force participation rate (%) as the national estimate was 61.73% in 2017, 62.92% in 2018, and 60.97%¹⁹.

2.5.2.2 Potential Solutions

The following three main actions should be implemented in order to promote women empowerment in food system development:

- (a) Institutional support; reinforcing institutional capacities to develop efficient, gender-sensitive agri-food value chain at National Level,
- (b) Capacity development; strengthening the productive and entrepreneurial capacities of women operating along selected value chains, and
- (c) Knowledge products; documenting and sharing promising practices and successful approach across nation to increase knowledge and evidence-base on gender and food system.

¹⁹ World Bank, 2019: Ratio of female to male labor force participation rate

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