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RESEARCH PAPER

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Impact of Floods on Food Security in Myanmar

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Abbreviations

AEZs	Agro-Ecological Zones
CBD	Convention on Biological Diversity
CFSAM	Crop and Food Security Assessment Mission
CIP	Country Investment Plan
CSA	Climate Smart Agriculture
FAO	Food and Agriculture Organization of the United Nations
FSPSG	Food Security Policy Sub Group
FSWG	Food Security Working Group
GDP	Gross Domestic Product
GHS	Greenhouse Gasses
MCCA	Myanmar Climate Change Alliance
MoAI	Ministry of Agriculture and Irrigation
MoNREC	Ministry of Natural Resources and Environmental Conservation
NFP	National Food Security
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
WFP	World Food Programme

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1. Introduction

Flooding is one of the major hazards in Myanmar.[1]According to the United Nations Framework Convention on Climate Change (UNFCCC), *"Climate change means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."*[2] This means that climate change is defined as variations in weather patterns caused by humans. Myanmar is the second most vulnerable country in the world in respect of climate change according to the 2015 Global Climate Risk Index.[3] There have been negative effects in terms of natural hazards such as cyclones, heavy rains, floods, extreme temperatures[i],[4] droughts, and the rising sea level.[5] Climate change induced flooding impacts the coastal and delta areas, and intense rain fall contributes to soil erosion and crop damage.[6]

The World Food Programme (WFP), the Food and Agriculture Organization of the United Nations (FAO) and the Government of Myanmar have indicated in their 2015 report that floods can be a major obstacle to food security, defined by the FAO as safety from threats to the food supply or to the danger that people will have insufficient access to safe and non-hazardous food.[7]

This is important because Myanmar's population is growing every year which has implications for food security. In addition, the population suffers from economic inequality, rural poverty and malnutrition, lack of access to technology and investment, and poor policy implementation. In 2015, flooding had a devastating impact on agricultural livelihoods and food security.[8]In the monsoon season, floods destroyed paddy rice, and were responsible for damaging 89 percent of crops, overall.[8] The frequency and levels of flooding in Myanmar are increasing, with worrying consequences for food security in some Regions and States.[9]

This research paper aims to identify mitigation and adaptation options to ensure sustainability for food security by reviewing the impact of floods and the various government climate change policies that have been adopted in Myanmar, particularly to address the problems posed by floods on food security. The public policy options adopted in other countries facing the same challenges are also examined.

2. Background and geographical vulnerability

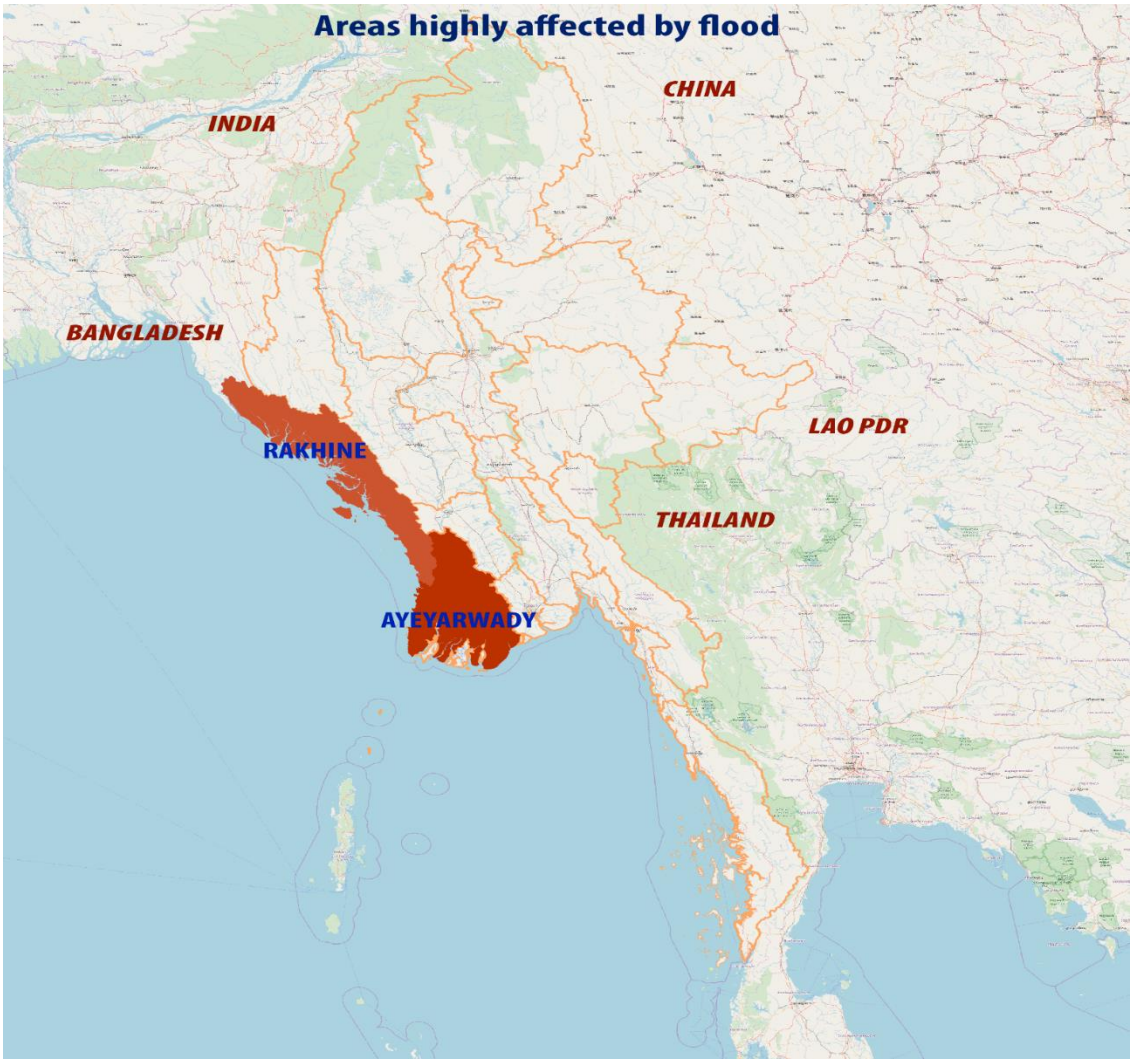
Myanmar has a total land area of 676,577 square kilometres [10] and is bordered by Bangladesh, China, India, Lao PDR and Thailand. According to the UN Department of Economic and Social Affairs, the country has a population of nearly 54 million people.[11] Myanmar's economy is predominately based on agriculture, which accounted for 30 percent of the GDP in 2014 (although agriculture was responsible for 45 percent of the GDP in 1995, this percentage subsequently decreased until 2014) [11]. It also accounted for 11 percent of export earnings, and employed 63 percent of the labour force.[10]

[i] El Niño was the cause of the highest temperature of 47.2 degrees Celsius in 2010.

Myanmar has four major agro-ecological zones (AEZs): the deltaic zone; the coastal zone; the central dry zone; and the mountain zone. Annual rainfall varies significantly across the country, with levels of up to 5500 mm per year in the mountain, coastal and deltaic zones, and only 600 mm in the central dry zone.[11]

According to the joint WFP/FAP report mentioned above, the main flood affected areas are Ayeyarwady, Rakhine, Yangon, Bago, Chin, Sagaing and Magwe, which are located in all four AEZs. This research particularly focuses on Ayeyarwady and Rakhine, which are in the coastal and delta zones, because they are the ones that are most affected by the floods.[12]

Figure 1 shows Myanmar with Rakhine State and Ayeyarwady Region



Source: created by PIC

2.1. Coastal (Rakhine State)

Among the areas affected by floods, Rakhine is one of the worst, especially in Minbya, Ann, Mrauk-U and Kyauktaw Townships. According to the Rakhine State Government, 24,306 people were displaced in 2016.[13]As reported by MoAI, Agricultural Land Management and Statistics Department, 117,070 hectares of agricultural land in Rakhine were flooded in 2015, and 29,737 hectares were damaged (meaning that output decreased by at least 30 percent). A total of 86,748 hectares of the damaged land was replanted, while only 585 hectares (around 5 percent of the total flooded area) were completely destroyed by the floods.[8]

Table 1: Total number of hectares of crops flooded and percentage of flooded cultivated land that was replanted, destroyed and damaged in 2015

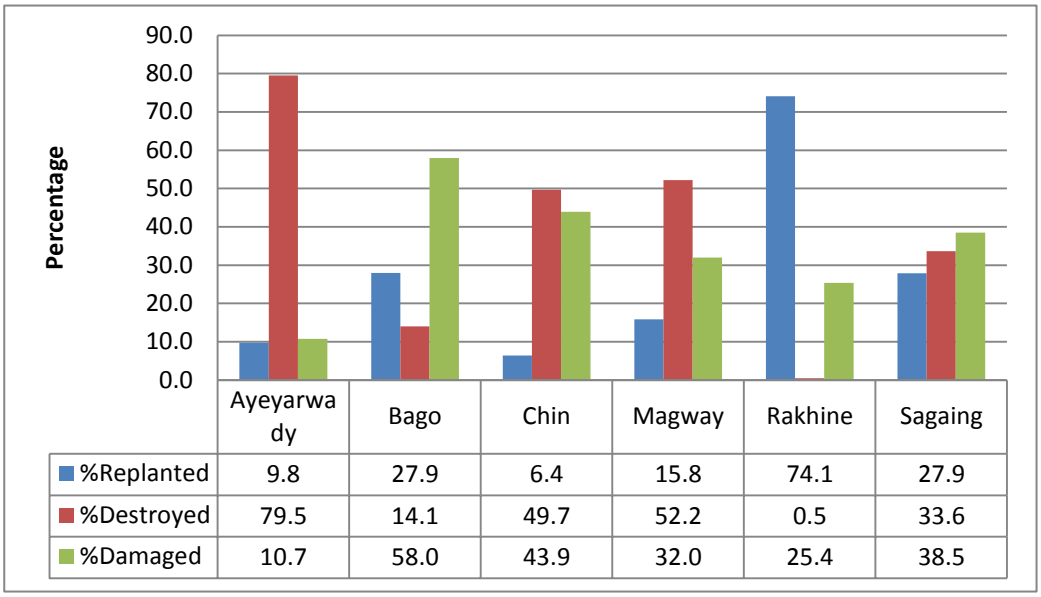
States/Regions	Flooded Area	Replanted	Destroyed	Damaged
Ayeyarwady	128,053	12,506(9.8%)	101,814 (79.5%)	13,732 (10.7%)
Bago	151,331	42,282 (27.9%)	21,278 (14.1%)	87,771 (58%)
Chin	2,332	150 (6.4%)	1,158 (49.7%)	1,024 (43.9%)
Magway	38,932	6,166 (15.8%)	20,309 (52.2%)	12,457 (32%)
Rakhine	117,070	86,748 (74.1%)	585 (0.5%)	29,737 (25.4%)
Sagaing	89,880	25,035 (27.9%)	30,219 (33.6%)	34,627 (38.5%)
Grand Total	527,598	172,887	175,362	179,349

Source: MoAI, Agricultural Land Management and Statistics Department, 16 September 2015

In Table 1 above, 'damaged' areas are those in which the yield of crops was reduced by at least 30 percent compared with a normal year. Destroyed areas are those where all cultivated crops were washed away by the floods and renewed production was impossible.[8]

Table 1 shows the flooded agricultural land in six Regions. It reveals that Ayeyarwady was most affected in terms of agricultural loss as 101,814 hectares of cultivated land were totally destroyed and 13732 hectares were damaged. Next was Bago where 87,7771 hectares of cultivated land were destroyed and then Sagaing where 30,219 hectare of cultivated land were destroyed.[8]

Figure 2:Proportion of crops destroyed, damaged and replanted as a percentage of the overall land flooded in 2015



	Ayeyarwady	Bago	Chin	Magway	Rakhine	Sagaing
%Replanted	9.8	27.9	6.4	15.8	74.1	27.9
%Destroyed	79.5	14.1	49.7	52.2	0.5	33.6
%Damaged	10.7	58.0	43.9	32.0	25.4	38.5

Source: MoAI, Agricultural Land Management and Statistics Department, 16 September 2015

In Rakhine State 74 percent of crops were replanted after flooding, but in such replanted areas the Myanmar Ministry of Agriculture reported that the yield is likely to be lower due to the different planting techniques used.[8] In most areas in Rakhine, the water had dispersed so replanting of new crops was possible.

2.2. Delta (Ayeyarwady)

As shown in the Table 1 above, the Ayeyarwady delta is one of the regions most affected by floods as it is located in a low lying area.[1] In Nyaungdon Township, 140 villages were inundated by floods in 2016. Likewise, in Maubin District, Patanaw Townships experienced flash floods.[14]Ayeyarwady is the region most affected in terms of destroyed crops with more than 100,000 hectares of cultivated land demolished (more than 79 percent of the total flooded area), 13,732 damaged, and 12,506 hectares replanted. When comparing the Ayeyarwady and Rakhine Regions, it seems that much of the crop damage stems from the fact that it took much longer for the water to recede in Ayeyarwady than it did in Rakhine, where replanting was possible after the water receded.[8] In Ayeyarwady only 10 percent of the crops were replanted because most of the land was still flooded and there was little access to irrigation systems to boost agricultural production.

3. Flood impact on food security

As discussed above, and according to the FAO, food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". In other words, food security has the three dimensions: food availability; food access; and food utilization. In Myanmar, rice and other crops are the backbone of agriculture production. Most people rely on agriculture, especially those

who are living in rural areas. During the last few decades, natural hazards have affected rice production and other cultivated crops in the country and this has negatively affected food security.[15]

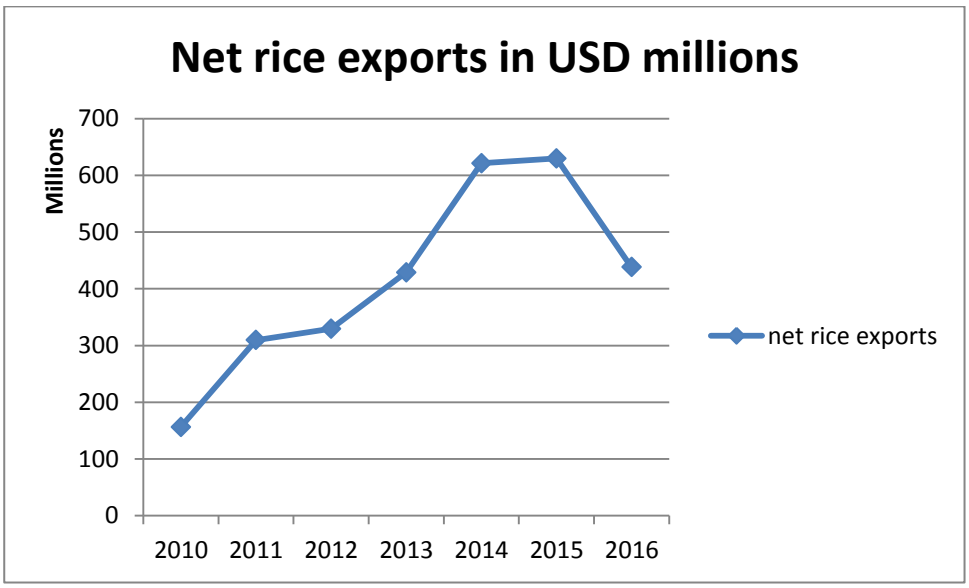
Myanmar is self-sufficient in food production at the national level. However, food and nutritional insecurity exist at the household level in some areas due to low incomes.[15]

3.1. Impact on food availability (output and net exports)

The Crop and Food Security Assessment Missions (CFSAM) conducted by the Food and Agriculture Organization of the United Nations (FAO) and the World Food Programme (WFP) estimated that the national paddy production of rice was reduced by 3 percent in 2015 and 2 percent in 2014.[16] Despite that decline in domestic rice production, Myanmar continued to be a net exporter of rice in 2015 and 2016 (see Figure 3).[17] There is conceivably enough rice available domestically to ensure households have a secure food supply. Therefore, the impact of floods on household food security flows less through the availability dimension and more through other dimensions, most likely accessibility. It should be noted, however, that these two are closely linked.

Indeed, transportation difficulties (accessibility) cause food prices to rise, and access to fall, as will be seen in the next section. An assessment by the FAO after the 2015 flood found that the number of people who went to the market decreased by 40 percent in all of the affected areas during the time of assessment in 2015. The decrease was strongest in Ayeyarwady (50 percent) and Rakhine (40 percent).[8]

Figure 3: Net rice exports in millions of USD



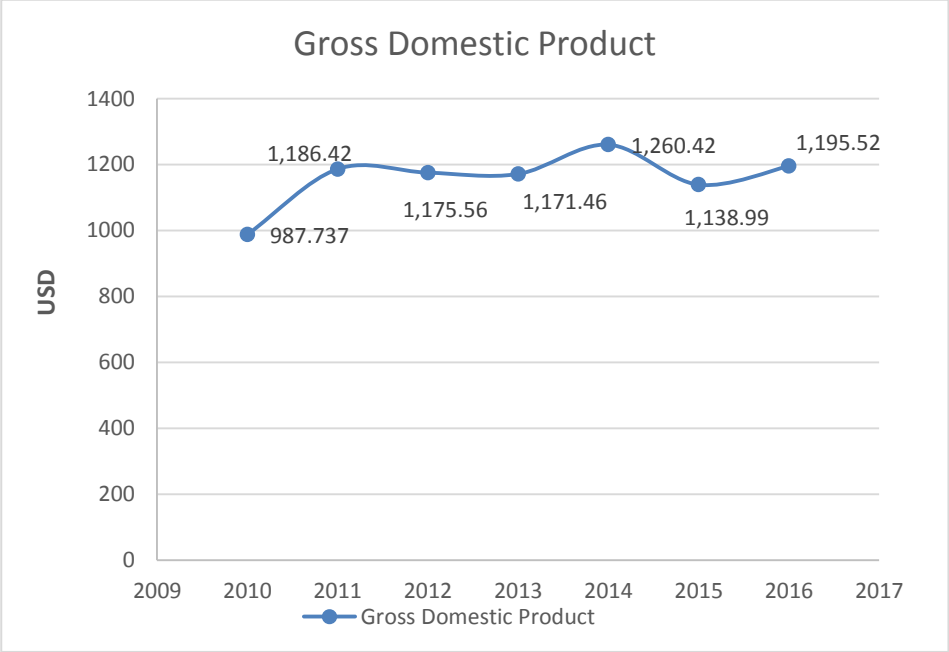
Source: Compiled by PIC with data from UN COMTRADE and Dartmouth Flood Observatory [17, 18]

3.2. Impact on food access (incomes and prices)

In 2015, flooding had a negative impact on both agricultural and non-agricultural incomes in regions hit by the floods.[9]

However, overall incomes in Myanmar, as measured by GDP per capita, continued to rise (see Figure 4 below). Therefore, for Myanmar as a whole, floods did not seem to have a significant impact on incomes.[19]

Figure: 4 Gross Domestic Product of Myanmar in USD



Source: World Bank Data [19]

The floods did, however, have a significant impact on rice prices and consumer prices more generally.[16] Therefore, the most significant impact of floods is likely to be their effect on prices and the affordability of rice and agricultural products. As prices increase, Myanmar households find it more difficult to afford enough food.

According to a report from the Ministry of Agriculture and Irrigation, households headed by women were particularly affected by floods because the sales of fish and vegetables, which are their primary sources of income, decreased. Furthermore, increasing prices and reduced sales after the 2015 flood had a negative effect on the economic situation of women at the local market.[8] In addition, demand for all livestock and agriculture products fell in all areas, except for rice which increased in demand. Based on the same Ministry report, it seems that wholesalers were not affected as strongly as retailers. In other words, the village level markets were more affected than those at township level especially in the Ayeyarwady Region.[8] Based on interviews with retailers, it seems that the price of food commodities increased by 20 percent, and agriculture and livestock input prices increased by 11 percent due to floods in 2015. Furthermore, the floods also affected rice prices in the whole country, with domestic rice prices increasing from 5 to 10.5 percent.[20] Villages in Rakhine experienced the highest price increases of between 25 and 35 percent.[8]

3.3. Impact on Food Utilization

Flooding impacted children's nutritional status in a number of ways. Women and children are the most vulnerable to the effects off flooding and the most vulnerable households were those which were both landless and did not have any assistance from relatives abroad. There were limited changes in breastfeeding and supplementary feeding practices.[9] However, around 150,000 children under the age of 5 as well as 62,000 pregnant and lactating women were affected by the 2015 floods. Malnutrition was a major concern in some areas due to floods, especially in Ayeyarwady Region.[21] According to a survey by the Crop and Food Security Assessment Mission, (CFSAM),nutritional problems due to floods mostly affected children in villages. In Rakhine State, the FAO and the World Food Programme found that 40 percent of the children could be perceived as undernourished. For example, the quantity of complementary food available for children aged between 6 and 23 months decreased by 18 percent in Ayeyarwady.[11]

3.4. Preliminary findings

While many regions are affected by floods, Rakhine and Ayeyarwady, the coastal regions, are the ones that suffer the most. Floods exert a negative impact on agriculture and food security. In Rakhine, many people were displaced and floods affected crop production as the yield decreased. In Ayeyarwady, most crops were destroyed and replanted, but the effectiveness of replanting was low in part due to the lack of irrigation systems. The impact of floods on household food security is related to accessibility rather than availability, as food availability at the national level is theoretically adequate to supply every household with sufficient food. However, the floods had a significant impact on rice prices and consumer prices. Therefore, the most significant impact of floods is likely to be their effect on prices and the affordability of rice and agricultural products. Due to the increased prices, Myanmar households found it more difficult to afford enough food. Furthermore, floods particularly affected children and women in Rakhine and Ayeyarwady, as they led to undernourishment.

4. Legal framework and government policies

4.1. International conventions

Myanmar is a State-party to all three Rio conventions which are: the United Nations Framework Convention on Climate Change (UNFCCC); the Convention on Biological Diversity[ii] (CBD); and the United Nations Convention to Combat Desertification (UNCCD).

The UNFCCC aims to *"stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic[iii] interference with the climate system*".[22] The CBD objective is the conservation of biodiversity, so it is not directly related to floods.[23] As for the UNCCD, this is intended to improve the conditions of both ecosystems affected by desertification and the

[ii]Biodiversity translates into a range of ecosystem services that are essential for sustainable development. These services address a variety of human and ecosystem needs while helping to maintain a more stable climate.

[iii] Made by humans

people living in them, creating worldwide benefits and establishing cooperation between national and international stakeholders.[24]

4.2 Climate Change Policy

Increased temperature trends and extreme temperatures cause heat waves, sea level rise, droughts and floods,[25] which are likely to have a serious impact on the country's economic growth.

In response to the UN "Earth Summit" in Rio de Janeiro in 1992, Myanmar developed a "plan of action", called Agenda 21, in 1997. This plan of action, modelled on the UN Summit guidelines, was to establish sustainable development in the 21st century. The key points in Myanmar's Agenda 21 were:

(i) Improving water management and paddy rice planting strategies;
(ii) Promoting organic farming;
(iii) Stimulating research in order to develop crop varieties more resilient to climate change. [15]

In May 2014 at the ASEAN Summit, the Myanmar President signed the agreement to adhere to the Climate-Smart Agriculture (CSA) strategy and to contribute to regional food security. Then, in 2016, the Myanmar Climate Change Alliance (MCCA)[iv] Technical Working Group, and high level representatives of States and Regions, were involved in drafting the National Climate Change Policy.

The purpose of the climate change policy was for implementing the long-term plan, including the government, civil society and the private sector, to promote activities relating to climate change adaptation and mitigation priorities in all sectors for the benefit of all the people in Myanmar.[25]

In order to develop the agricultural sector towards the priority of food security and rural poverty reduction, the government of Myanmar has enacted several policy initiatives towards sustainable development, conservation of natural resources and disaster risk reduction, especially through the following legal framework:

- In July 2013, the Disaster Management Law was enacted at the national, Region and State levels;
- Other laws related to climate change mitigation or reduction of GHG emissions and pollutants are the: the Forest Law Act (1992); the Wildlife Act (1994); and the Protected Areas and Forestry Policy Statement (1995).[15]

[iv]MCCA is a program implemented by UN-Habitat, the United Nations Environment Program (UNEP) based within the Myanmar Ministry of Natural Resources and Environmental Conservation.
See: http://myanmarccalliance.org/en/about-mcca/ (last accessed on 10 January 2018).

In Myanmar, the Food Security Working Group (FSWG), was established in 2003 in order to "support and coordinate activities relating to food production, producer representation, and food laws"[v]. This working group involves national and international non-governmental organizations (NGOs and INGOs), and private-sector and individual members, to address and improve practices related to food security. FSWG provides grants, training and research, and its Food Security Policy Sub Group (FSPSG) is advocating for policies in these matters[vi].

However, at present, a food security national level policy framework has not yet been adopted. Nevertheless, the Ministry of Agriculture and Irrigation is implementing food security related policies and laws in the Agriculture sector[26] as follows:

- Plant Pest Quarantine Law in 1993;
- law amending the National Food Law in 2013;
- law amending the Fertilizer Law in 2015;
- law amending the Seed Law in 2015; and
- law amending the Pesticide Law in 2016.[26]

However, effectiveness of these flood and food security related policies and laws remains unclear as enforcement and oversight mechanisms are weak.

4.3. Climate-smart agriculture, fisheries and livestock for food security

Agriculture, fisheries and livestock are essential sources of livelihoods and food security in Myanmar. This is the reason why, according to the Ministry of Natural Resources and Environmental Conservation (MoNREC), it is imperative that Myanmar improves its agricultural practices by incorporating new technology and changing the technology currently in use. The reason MoNREC proposes the use of more technology is not only to increase productivity, but also, to reduce the emission of greenhouse gasses (GHG) and to make agriculture more adaptable to possible changes. The use of this modern technology is referred to as "climate-smart agricultural practices".[27] Therefore, MoNREC has been urging the use of technology and the promotion of "resource-efficient and low-carbon practices" as a sectoral outcome.[27, p 50]

By achieving the anticipated outcomes, Myanmar aims to reach its adaptation and mitigation goals. The three sectoral outcomes to be achieved are:

- to integrate the agriculture, fisheries and livestock sectors into climate change and relevant policies, planning and budgeting procedures;

[v] https://www.myanmarfswg.org/en/about-us (retrieved on 12 January 2018).

[vi] FSPSG has recently been established to address related food security matters through discussions with stakeholders, to make changes and develop policy in this area.

- the development of climate-resilient adaptation technologies and climate-smart management practices in the agriculture, fisheries and livestock sectors with financial support from international and national institutions;
- to encourage institutional cooperation and coordination between international and national stakeholders to develop climate-smart activities in the agricultural, fisheries and livestock sectors.[27]

4.4. Preliminary findings

The Myanmar government implemented three strategies concerning the agricultural sector (Myanmar's Agenda 21) in order to mitigate the negative effects of climate change and improve food security. Furthermore, the government has enacted flood and food security related policies and laws in the agricultural sector, but how effective the implementation of these policies remains unclear as enforcement and oversight mechanisms are lacking. Finally, the government has an implementation plan in order to reduce the impacts of climate change on agriculture, fisheries and livestock.

5. Best Practices

5.1. Bangladesh

5.1.1. Best practices relating to flood policy

Dedicated departments and institutions within the Bangladesh government Ministries have been established and coordinated into a clear institutional framework which aims to address natural disaster issues, especially in respect of flood, in an effective and timely manner.

Moreover, the Bangladesh government understands that it needs to monitor the climate to predict flood risks. Information gathered is analysed for the authorities to make a better and more appropriate response to floods when they happen, and warning messages are disseminated efficiently.

Finally, the Bangladesh government has a national recovery preparedness plan with clear procedures, tools and a resource mobilization strategy.

5.1.2. Best practices relating to food security

Bangladesh is one of the most vulnerable countries in the world and it is the country most affected by climate change: it has experienced six severe floods in the last 25 years. The government of Bangladesh has implemented some key sectoral policies, such as the National Food Policy (NFP) and Country Investment Plan (CIP).The CIP sets priorities for food security investments and integrates them among different sectors. It is based on national legislation and streamlines previously drafted policies. One of the main aims is to implement the NFP, which is a food and nutrition security policy with three objectives:

(i) to make sure that there is a stable supply of adequate food;
(ii) to increase purchasing power and access to food for Bangladeshi people;
(iii) to ensure that there is sufficient nutrition for everyone, but especially for women and children.[28]

In its 2011-2015 plan, the Bangladesh government focused on the implementation of policies to:

- enhance the Public Food Management Systems for public food stocks and improve its impact on price stabilization;
- encourage investment in social protection, agriculture and price policies to support better supply access;
- improve the market access knowledge for the producer and marketing groups;
- maintain the future food stock market in order to improve food security during crises and disasters;
- ensure an affordable food supply through production, distribution and trade, investment in agricultural research and new technologies, enhancing the availability of fertilizer, pesticides and irrigation equipment;
- improve seed quality (standards for domestically developed and imported seeds were redefined and other seed quality characteristics were included).[28]

5.2. Vietnam

Vietnam is also one of the countries that is severely affected by climate change as the rising sea levels cause floods and can destroy crops and food sources as well as seeds, fertilizers and other resources in vulnerable areas of this country.[29]Climate change has a negative impact on food production in Vietnam and thus the government has attempted to boost rice productivity and to generate income from the rice sector through the policies and initiatives listed below.

The Vietnamese government has:

- promoted new “hybrid” types of rice (crossbreeds of existing rice types) that have a higher yield per acre;
- made investments in new irrigation systems in paddy rice fields;
- invested in roads and infrastructure in order to ease transportation;

- established a contract farming system that supports the involvement of big companies in order to facilitate access to technical support for rice farmers to improve the output of individual rice growers and ensure a high quality of rice;
- removed all taxes on farming machines;
- subsidised loans for smallholder farmers;
- established an “export promotion fund” and a (government run) marketing team specifically aimed at promoting Vietnam’s rice products in other countries;
- cut the variety of seedlings, chemical fertilizers, and chemical pesticides available. The aim of this policy has been to improve the quality of the rice produced, thus raising the profit.[30]

6. Conclusion

This research paper has explored the current situation in respect of flood impact on food security in Myanmar and government policies.

The coastal region of Rakhine and Ayeyarwady are the most affected by floods which have a negative impact on food security. In these places, crop production has been affected by floods, and yield has declined. In Ayeyarwady most crops have been destroyed by floods and replanted, but this remedial activity has not been effective in part due to the lack of irrigation systems. The impact of floods on agriculture in these two regions has led to food insecurity in the whole country.

Myanmar has ratified the most important international climate change conventions and these have prompted the government to set up Myanmar’s Agenda 21 which aims to improve water management and paddy rice planting strategies, to promote organic farming, and to stimulate research in order to develop crop varieties that are more resilient to climate change.

In 2014, the Myanmar President signed an ASEAN agreement to adhere to the Climate-Smart Agriculture strategy, contributing to food security in the region. Moreover, as the government encourages institutional cooperation and coordination between international and national stakeholders, Myanmar authorities, with the main stakeholders, drafted the National Climate Change Policy. Following this, the central government enacted several policy initiatives towards sustainable development, conservation of natural resources and disaster risk reduction, and also developed the legal framework. In addition, the government adopted new technology to support the implementation of climate-smart agricultural practices.

However, this research has identified key remaining challenges relating to flood and food security for the country which are:

- a lack of specific legislation relating to food safety although food laws have been enacted. However, government institutions are cooperating with national and international civil society organizations and various multi-stakeholders to address the challenges of food security;

- the reduction in the availability of food and rice in the market that leads to an increase in prices and food imports from other countries. This places Myanmar in a position of dependence on other countries;
- a lack of technical knowledge and skills in agricultural techniques;
- a lack of access to irrigation systems;
- difficulties with transportation between traders and villagers in getting food to market;
- limited breastfeeding for young children which has led to nutritive deficiencies. This is exacerbated by floods as women are less likely to breastfeed when they face food shortages after a flood.

To address these challenges, the paper presented a series of best practices from other countries, or that have been suggested by expert organizations, so that Myanmar decision-makers can consider policy options.

For example, the flood response of Bangladesh could provide an example for Myanmar to follow because flood response in Myanmar does not include a predetermined plan. In Bangladesh, different line Ministries safeguard stock assets (in case of a flood) by maintaining security and the rule of law in case of a disaster which limits the damage caused by disasters. In Bangladesh, there are government investments in agricultural research and new technologies, enhancing fertilizers, pesticides and irrigation equipment in order to assist climate change adaptation. In Myanmar, these investments have not yet been made, but they could be useful as they would help to alleviate the problems caused by a lack of technical knowledge and access to irrigation systems. Bangladesh also implements price policies related to agricultural products, and monitors the price of services for consumers in order to ensure food security for people during crises and disasters. It has also improved seed quality standards so that they are more resilient to climate change.

In Vietnam, the government has established a contract farming system for rice farmers and individual rice growers with the involvement of large companies who provide technical assistance to enable farmers to offer rice of a high quality. Furthermore, Vietnamese authorities have removed all taxes on farming machines, subsidised loans for smallholder farmers, and invested in paddy rice fields.

Appendices

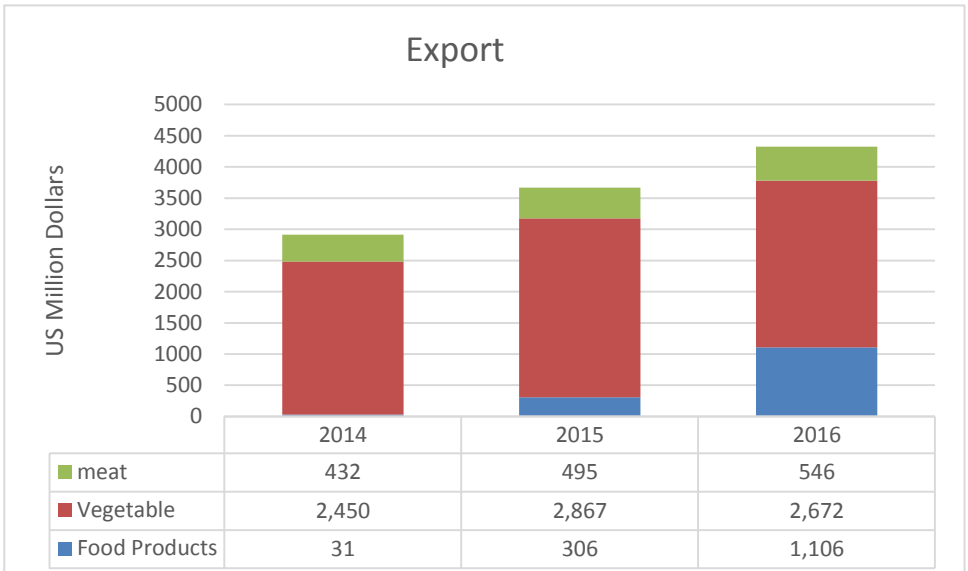
Appendix 1: Product groups of export (USD Million)

Although the government had a plan to grow nearly 7 million hectares (16 million acres) of monsoon paddy in 2015-2016, only 5 million hectares (10 million acres) were planted by the end of July 2015.

In response, the government instituted a temporary export ban in 2015.[31]

Figures A and B below give World Bank data on export and import trends of food products, meat and vegetables from 2014 to 2016. They show that vegetables account for more exports than other food products.[32, 33, 34] While food products have accounted for a very small percentage of agricultural exports, the share has risen sharply, and accounted for over a quarter of agricultural exports in 2016.This increase in the export of food products is entirely due to sugar exports to China, which rose by a factor of 52 over the period 2014-2016. This was the result of decreasing domestic sugar production in China.[35] However, about two thirds of the increase in sugar exports are re-exported (i.e. imported from other countries first), so are not indicative of Myanmar's domestic production.[36]

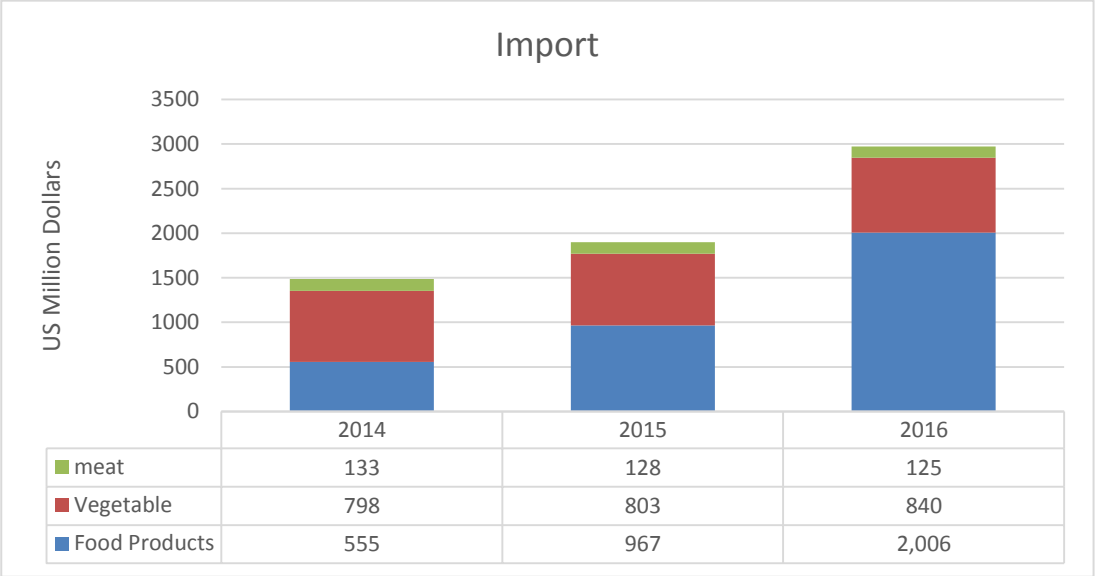
Figure A: The product groups of exports (US$ Million)



	2014	2015	2016
meat	432	495	546
Vegetable	2,450	2,867	2,672
Food Products	31	306	1,106

Source (WB): World Bank Group of United Nations Conference on Trade and Development (UNCTAD)

Figure B: The product groups of imports (USD Million)



	2014	2015	2016
meat	133	128	125
Vegetable	798	803	840
Food Products	555	967	2,006

Source (WB): World Bank Group of United Nations Conference on Trade and Development (UNCTAD)

Myanmar is an exporter of rice, and in the market year 2014-2015 it exported 1.6 million tonnes. However, the projected rice exports were 4 percent below the level of 2014 because of flooding in the 2015 monsoon. This reduced the output of rice. As a result, Myanmar imported wheat from other countries in order to feed its people.[9]

Myanmar's economic situation has declined because of flooding. In 2013 and 2014, economic growth was 8.5 percent per year but in 2015 and 2016 it declined to 7 percent. Prices increased sharply because of the floods in 2015, which led to inflationary pressure and deteriorating household income.[37]

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