



# Food Security and Nutrition Roadmap

**Bangsamoro Autonomous Region  
in Muslim Mindanao**

October 2020



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# FOREWORD—MAFAR MINISTER

*Assalamu alaikum warahmatullahi wabarakatuh!*

Indeed, we are at a crossroads – an opportune one. As we transition into becoming the Bangsamoro Autonomous Region in Muslim Mindanao, as promulgated through the Republic Act 11054 or the Bangsamoro Organic Law, we have the heavy, yet noble responsibility to truly effect change in the lives of our people.

For decades, the Bangsamoro people have been flanked by many challenges and hardships caused by natural hazards and armed conflicts that have left inter-generational setbacks in their lives. They have lost homes, livelihoods, families, and even lives and opportunities. These have negatively impacted the food security and nutrition of the population, which has also contributed greatly to the deceleration of progress in the region. Thus, the need to champion our advocacy and promotion of food security and nutrition is evident now, more than ever. Food is our most basic need in order to survive. To make sure that everyone has access to clean, affordable, and nutritious food, we need to pave the way through policies that will identify strategies and activities into our plan. This will not be an easy task. We need to put our hands together and develop a multi-sectoral approach to address our multi-sectoral challenges. Hence, the need for this Food Security and Nutrition Roadmap.

The Food Security and Nutrition Roadmap will not only outline policies and strategies but will also endeavor to shift mindsets towards the achievement of #ZeroHunger. The Ministry of Agriculture, Fisheries, and Agrarian Reform recognizes and reiterates the importance of delivering basic services such as education, health, and livelihood through evidence-based approaches. We need to develop this roadmap to implement 2021-2022 strategies that will prioritize farmers and fisherfolks in order to uplift their living conditions and their ability to innovate, earn, save, and be economically secure. We also need to support our former combatants so we can welcome them back to society as productive members. As in most cases, it is always the poor and food insecure that are left behind in the society on accessing the basic services. We should change this. We will change this.

As in the old adage, the road is long. There are still lots of things we have to do. But hopefully, we look at this crossroad as one that is necessary to take to put an end to the decades-long poverty and malnutrition in the region and provide the services that will open doors of possibilities for the people, towards a stronger, healthier Bangsamoro!



**Minister Mohammad Yacob**  
**Ministry of Agriculture, Fisheries, and Agrarian Reform**

# FOREWORD—BARMM CHIEF MINISTER

*Bismillahir Rahmanir Raheem*

*Assalamu Alaykum Wa Rahmahtullahi Taala Wa Barakatuh*

Let me begin by extending my gratitude to the team that made this roadmap possible — the Ministry of Agriculture, Fisheries and Agrarian Reform headed by Minister Mohammad Yacob, PhD, to our dear partners from the World Food Programme, Food and Agriculture Organization of the United Nations, our very own Bangsamoro Planning and Development Authority and to everyone who, in one way or another, made significant contributions in crafting this substantial document. Thank you for sharing your time, expertise, and most importantly, your heart for the Bangsamoro!

It is unfortunate that we have to finalize this document during these unprecedented times in the middle of a pandemic. However, if we look things on a more positive note, this roadmap comes at a precise timing. Precise, in a sense, that during the pandemic, the country saw how important food security is and witnessed the incredible service provided to the community by our dear farmers. The consciousness towards food security and nutrition has become apparent in the entire archipelago.

The Bangsamoro, of course, as an agricultural hub in the Philippines has its own share of unlimited potential and probable challenges when it comes to food security. We hope to tap some of these potentials as we move along with the ongoing transition period in the regional bureaucracy. The Government of the Day assures that not only do we share the direction set forth by this document, we will also embed its importance in all various spectrums of the young yet vibrant Bangsamoro Autonomous Region in Muslim Mindanao, be it in our legislative work or through the work that we do in the executive. We also acknowledge that during this process, we will encounter hiccups especially in presenting sustainable innovations to our rural communities who are accustomed to traditional methods in agriculture and by extension, nutrition.

The journey towards this roadmap will be rocky, but with the competence and vision of the team that crafted this substantial document, it can be done, *In shaa Allah*.

Finally, I thank our dear farmers and farmworkers who, day in and day out, are out there providing us what literally helps us to survive — food. When all is said and done, I hope that this document eventually echoes recognition to the unsung heroes of food security and nutrition. I am optimistic that this is the first towards a Bangsamoro that leads the country in food security and nutrition.

Thank you so much and *Wassalam*.



**Chief Minister Ahoo "Al Haj Murad" Balawag Ebrahim**  
**Bangsamoro Autonomous Region in Muslim Mindanao**

# MESSAGE from WFP

As the Philippines marked its feat of ending decades-long conflicts and building a more peaceful south through the ratification of the Bangsamoro Organic Law, a new chapter of opportunities awaits for the newly established Bangsamoro Autonomous Region of Muslim Mindanao (BARMM). Immense challenges may present itself along the way, but with the collaboration and partnership among stakeholders, no obstacle is too difficult to overcome.

In 2006, WFP re-established its presence in the country at the Government's to support the ongoing peace process in Mindanao region. Since then, WFP and the regional government have forged stable partnership throughout the years towards progress in Mindanao. Amidst the transition to BARMM, WFP expressed its support through a Framework Agreement that will identify the organization as one of their key partners towards enhancing regional, provincial, and municipal programmes on food security, nutrition, and disaster risk management.

With decades of instability brought by protracted armed conflict and worsened by natural hazards, the population had endured the deterioration of their living standards. These circumstances reverse decades of progress and efforts put into fighting hunger. WFP firmly believes that having access to nutritious food is a foundation of a full and dignified life. Hence, ensuring food security and nutrition are not mutually exclusive in any scenario. Setting policies and strategic plans in place, along with multipronged approach is one contributing factor to ensure equal access to basic human need.

In the formulation of the Food Security and Nutrition Roadmap, WFP joined several Ministries of BARMM to develop a guide that will pave the way in uplifting the lives of Bangsamoro People to achieve food security and nutrition towards sustainable development in the region. This document will serve as a stepping stone in this journey as BARMM ventures more in partnerships for improved implementation of FSN programmes in the coming years in order to build a sustainable food system by 2030.

The real work is just starting in this long course towards the holistic development of the community. In this partnership that had been tested through time, WFP continues to support the Government in ensuring that no one gets left behind in a self-reliant, food secure, and resilient Bangsamoro.



**Mats Persson**  
**Officer-in-Charge and Deputy Country Director**  
**World Food Programme**

# MESSAGE from BPDA

*Bismillahir Rahmanir Raheem*

*Assalamu Alaykum Wa Rahmatullahi Wabarakatoho*

My warmest greetings and appreciation to the core group of the Food Security and Nutrition Roadmap led by the Ministry of Agriculture, Fisheries, and Agrarian Reform (MAFAR), and to the unwavering support of our development partner, the World Food Programme, in making this plan realized.

It is overwhelming that we have arrived in the formulation of the Food Security and Nutrition Roadmap with our aim to improve the food sufficiency and security of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) through sustainable food system.

During the crisis that our region has faced, our economy was caught in a bottleneck, challenging the region in the food insecurity of its populace. The impacts of this crisis were observed in the living condition of our people and a long-term predicament that the Bangsamoro Government must overcome.

Crafting the Food Security and Nutrition roadmap serves as the initial step in addressing the prevalence of malnutrition and food insecurity in the Bangsamoro region.

In the 1<sup>st</sup> Bangsamoro Development Plan (BDP) 2020-2022, the matter on Food Security has been mainstreamed. It aims to increase production of staple and other nutritious food by boosting the food production viable in our region, given our agricultural potential. It is also aligned to the 12-Point Priority Agenda of the Bangsamoro Government, along with the four key areas being promoted by the Chief Minister such as social services, health, education, and strategic infrastructure.

The Bangsamoro Planning and Development Authority (BPDA) is privileged to be part of this historical process of formulating the roadmap on Food Security and Nutrition.

Hopefully all local plans will highlight the food security and nutrition plan that will contribute to the goal to be a self-reliant, food secured, and resilient Bangsamoro.

*In Shaa Allah*, may this serve as our reference and our direction towards overcoming the food insecurity and insufficiency of the BARMM and contribute to the overall goal of the Bangsamoro Government in uplifting the lives of the Bangsamoro people through moral governance.



**Engr. Mohajirin T. Ali**  
**Director General, BPDA**

# MESSAGE of support from FAO

*Greetings of Peace!*

On behalf of the Food and Agriculture Organization of the United Nations (FAO), I profoundly congratulate the Ministry of Agriculture, Fisheries and Agrarian Reform (MAFAR) of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) team for the completion of the Food Security and Nutrition (FSN) Roadmap for BARMM – a key milestone towards setting the direction of food and nutrition security in the Bangsamoro Region and its people. We at FAO are deeply honoured to have supported the crafting of this strategic document through the contribution of technical expertise and advice.

The FSN Roadmap for BARMM is a very timely and significant accomplishment given the challenges to food security and food systems brought about by the current COVID-19 pandemic and the natural- and human-induced disasters that perennially hit the region.

We recognize that BARMM continues to be challenged by persistent malnutrition. In the 2015 National Nutrition Survey (NNS), the Food and Nutrition Research Institute (FNRI) has indicated that BARMM has the highest prevalence of stunting in the country at 44.9%, which increased from 42.6% in 2013. Relatedly, the region continues to suffer from chronic malnutrition, with a prevalence rate of 45.2% in 2015. We are indeed grateful to be a partner of MAFAR in addressing these challenges to the Bangsamoro people. Achieving food security and nutrition for all is at the heart of FAO's efforts, especially as we work towards achieving Sustainable Development Goal (SDG) 2 on attaining Zero Hunger.

Through FAO's Technical Cooperation Programme, we will provide technical assistance to MAFAR to bolster its nutrition-sensitive interventions and contribute towards supporting BARMM and the Philippine Plan of Action for Nutrition (PPAN) 2017-2022. Likewise, FAO is supporting the regional government in strengthening its legislations that will ensure the appropriate implementation of laws and policies relevant to improving food security and nutrition through the FAO Legislative Advisory Group in BARMM (FLAG-BARMM).

FAO's Country Programming Framework (CPF) 2018-2024 is also deemed aligned with the FSN Roadmap, as the former defines the technical cooperation priorities of the partnership between FAO and the Government of the Philippines and our updated Mindanao Strategic Programme for Agriculture and Agribusiness, which aims to contribute in reducing poverty, enhancing food and nutrition security, and increasing employment in the region.

FAO assures MAFAR and BARMM of its commitment and cooperation to support the implementation of the FSN Roadmap and the realization of its vision of a healthy Bangsamoro Region that actively contributes to a peaceful and prosperous Philippines.

*Inshallah!*



**Xiangjun Yao**

**Representative, ad interim, in the Philippines**

**Food and Agriculture Organization of the United Nations**



# Acronyms

ARMM – Autonomous Region in Muslim Mindanao

BDRRMC - Bangsamoro Disaster Risk Reduction and Management Council

BPDA – Bangsamoro Planning and Development Authority

BARMM – Bangsamoro Autonomous Region in Muslim Mindanao

CCC – Climate Change Commission

CLUP – Comprehensive Land Use Plan

FAO – Food and Agriculture Organization of the United Nations

FSN – Food Security and Nutrition

GAD – Gender and Development

LGU – Local Government Unit

MAFAR – Ministry of Agriculture, Fisheries, and Agrarian Reform

MENRE – Ministry of Environment, Natural Resources, and Energy

MILG – Ministry of Interior and Local Government

MOH – Ministry of Health

MOST – Ministry of Science and Technology

MSSD – Ministry of Social Services and Development

MTIT – Ministry of Trade Investment and Tourism

PAGASA – Philippine Atmospheric, Geophysical, and Astronomical Services Authority

PDPFP – Provincial Development and Physical Framework Plan

PPA – programs, projects, and activities

PSA – Philippine Statistics Authority

R&D – Research and Development

TESDA – Technical Education and Skills Development Authority

UN – United Nations

VCA – Value Chain Analysis

WFP – World Food Programme

WHO – World Health Organization

# INTRODUCTION

The Bangsamoro is heavily dependent on agriculture as one of its sources of livelihood. The region covers 11,608 km<sup>2</sup> or 4 percent of the country's land area, with 4.12 million population. According to the Philippine Statistics Authority-BARMM, about 53 percent families in the region are poor and 29.1 percent of them were not able to meet their basic food needs during the first semester of 2018.

The Bangsamoro, a newly created autonomous region in the part of Mindanao Island in the Philippines, strives to resolve the alarming problem on food insecurity and malnutrition among its people especially in the rural areas. This is through and guided by the first-ever set of plans and strategies crafted through strong partnership between and among its ministries and the supporting development agencies.

The region just represents, on a smaller scale, the world that is also beset by the increasing trends of food insecurity among millions of people these days. For decades, the number of hungry people had been declining but this is not true anymore as stated in The State of Food Security and Nutrition in the World 2019.

The Global Strategic Framework for Food Security and Nutrition declares that close to 925 million people in the world today, suffer from hunger and more than 200 million children under five years of age suffer from malnutrition. Causative to this phenomenon according to the Committee on Food Security (CSF) is the food crises of 2007-2008, followed by the financial and economic crisis in 2009 that continued until 2012.

These situations have escalated the challenges faced by millions of families around the world in overcoming hunger and poverty and ensuring steady livelihoods that can provide a just and dignified way of life thereby making them food secured.

Every country, every region strives for nothing but sustainable peace, development, and progress for its people. Prerequisite to this is the realization of a food secured and healthy citizens who can in turn help in advancing the economy of the state.

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 (FAO, 1996).

Secure access to food produces wide range of positive impacts that include economic growth and job creation, poverty reduction, trade opportunities, increased global security and stability, and improved health and healthcare among other (USDA).

However, the road to realizing the state of food security in the world and in every country is considered painstaking as it requires time, concerted efforts, commitment, and investment in all forms not just from the government but from the public and all stakeholders.

Looking at the Strategic Review on Food Security and Nutrition in the Philippines, hunger remained high especially among those in the first two income deciles, and malnutrition continues to persist and even worsened in recent years despite the country's sustained economic improvement. Consequently, it is also

stated that the country missed the Millennium Development Goals (MDG) target of decreasing childhood malnutrition by at least 50% in 2015. Additionally, among children 0-5 years, prevalence of stunting has fallen albeit quite slowly since the 1990s and has disturbingly risen by 3.2 percentage points over the period 2013-2015. More than 3.7 million or 33.4 percent of the 11.2 million children aged 0-5 years in 2015 are stunted.

In the case of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), the poverty incidence among individuals in 2018 increased and was estimated at 61.3 percent compared with poverty incidence recorded in 2015 at 53.7 percent (PSA-BARMM). This means that six out of 10 Bangsamoro lives below the poverty threshold that can have impact on every child's health and education. The risk of poor health is more predominant among people living in poverty.

According to the Philippine Statistics Authority, 31.4 percent of children belong to poor families in 2015. Hence, attention must be focused to look after their needs, health, education, living conditions, and welfare and development. As emphasized in the Philippine Nutrition Facts and Figures 2013: Anthropometric Survey, undernutrition among pre-school children (0-5.0 years old) is still a public health concern, particularly underweight and stunting which remained high in magnitude and severity based on World Health Organization cut-off points. This situation intensifies in major regions like the BARMM.

Malnutrition, especially among children, is strongly linked with higher rates of disease and premature death. It also has adverse effects on crucial stages of child development, leading to cognitive and behavioral deficits, learning disability, and ultimately to an uncompetitive workforce, as elaborated in the Food Security and Nutrition in the Philippines Strategic Review.

Food insecurity and malnutrition represent serious impediments to sustainable development, poverty reduction, equity and achievement of the development goals. Food security is a key factor in good nutrition, together with health, sanitation and care practices that are all prerequisites to progress in a certain region.

The BARMM is now almost a year in its solid advocacy for moral governance. Its struggle to implement this prioritizes the improvement of the lives of its constituents by bringing the government closer to the communities through the delivery of the needed assistance and services direct to the people.

For the past decades, the Bangsamoro has been beset by recurring and increasing cases of poverty and malnutrition and this calls for aggressive, efficient, and effective convergence among government agencies and institutions for feasible, viable, and sustainable realization of a self-reliant, food-secure, and resilient Bangsamoro. Hence, this BARMM Food Security and Nutrition (FSN) roadmap is a need and will serve as main foundation.

# EXECUTIVE SUMMARY

The Bangsamoro people are at a crossroads faced with both **challenges and opportunities**. As it had been legally reconstituted with expanded autonomy and resources cascaded from the national government as the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), this pivotal transitional period is crucial in the life of the Bangsamoro people.

For more than four decades, the region had been embroiled in unrest caused by armed clashes. Through it all, it was the poorest of poor that are rendered most vulnerable and impacted. Oftentimes and repeatedly, they have been displaced and stripped off their livelihoods, and their children continue to be disadvantaged in terms of health, nutrition, and education. This whirlwind of unfortunate events has turned into a cycle of intergenerational poverty where poor people remain poor, if not poorer. Added to these are several natural hazards such as typhoons and earthquakes, and slow onset disasters like drought, that exacerbate their condition and reverse the work that the government and humanitarian and development actors have done in the past decades.

In order to act on these challenges, it is important to take stock of the current situation in the region by reviewing the emerging issues it is faced with. The transitional government, along with the ministries involved in improving and managing local governance, agriculture, environment, education, and other related sectors, carry the responsibility of formulating sustainable solutions that will, once and for all, address the region's decades-long challenges. ***Thus, a convergence between government agencies makes a world of difference in effecting real change in BARMM.***

As a first step, it is imperative to acknowledge and accept that food security and nutrition is the cornerstone of healthy, happy, and prosperous people. When food systems are stable and nutritious food are accessible and affordable, the rest will follow. Hence, the need for a strong policy to champion this. ***This is where the Food Security and Nutrition Roadmap comes in. This body of work is the foundation that will connect the dots into lines; and transform plans to actions.***

## **Challenges and Opportunities**

### **Improve livelihood, with a focus on agricultural productivity**

As an agricultural region, BARMM has an abundance of arable lands that can be transformed into rich and cultivated lands. Centuries of traditional farming activities has also made it a region with a great number of farming households and communities. However, this is not without shortcomings. Most recently, the growth of farmer communities had been on a decline. An aging pool of farmers means there is a need for a new generation of young farmers to sustain the cultivation of land and continue productivity. However, this has been met by lackluster interest in the activity as many youngsters seek jobs outside farming. One glaring reason for this is the lack of safety net and capital for farmers that hinder the activity from having higher yields. Ironically, those who produce food are poor.

The lack of modernized technologies and techniques in farming also set the farmers back. They continue to be behind major players and investors in the market who can deliver faster and bigger yields. The lack in

farming equipment and technology know-how have stuck smallholder farmers to smaller deals and lesser income.

On the other hand, BARMM's vast fresh and marine waters are also in crisis. Coastal and habitat degradation, exacerbated by illegal fishing and overfishing, are among the culprits of reduced catch. Paradoxically, BARMM has the highest fishery production yet also the highest poverty rates among its fisherfolk.

Structural transformation involving planning, financing, policymaking, and implementation of programs, projects, and activities is imperative. To boost overall agricultural productivity among farmers and fisherfolk, consolidation of all existing efforts is necessary. Modernizing the technologies used in agriculture activities will also help drive productivity. There must also be an entity/agency that will be tasked to regulate the development activities in significant natural resources. BARMM will establish offices such as Lake Lanao Development Authority and Ligawasan Marsh Development Authority that will regulate development activities on natural resources.

For the farmers, strengthening the irrigation system and improving access to credit and subsidies will pave the way for more efficient farming activities with higher yields. To end intergenerational tenancy among farmers, giving them access to land ownership based on existing land reform laws will have to be reinforced.

One way to address the challenge on aging population and to encourage the next generation of young Bangsamoro to engage in and take pride in developing a career in agriculture by integrating agricultural knowledge in basic education.

### **Increase Resilience of Vulnerable Populations**

BARMM, like the rest of the country is susceptible to the impacts of geophysical disturbances such as earthquakes and volcanic eruptions. It also experiences meteorological and hydrological events such as typhoons and floods. Increased heat and droughts, caused by climate change, are also felt in the region. These occurrences contribute to reduced agricultural yields, which in turn has an impact on the health and nutrition of the populace.

This roadmap encompasses measures to mitigate the impact of extreme weather events, especially to the most vulnerable and poverty-stricken workers in the agricultural sector. The ability to adapt to these changes and anticipate and prepare for climactic and environmental shocks will help reduce its socio-economic impacts to the agriculture sector.

Access to science-based information such as forecasts and early warning systems are necessary to support the region's decision-making relevant to its value chain activities. Investing in technological solutions that are tailored to the local conditions will protect the livelihoods of many and will enable climate-adaptive practices.

A risk-informed, shock responsive social protection system (RISR SP) uses existing well-established systems to help build the resilience of households – with special attention on poor and vulnerable households – through timely and effective support for them to enhance resilience to disasters and shocks. Establishing RISRSP system relates to preparedness, response, and recovery from a disaster.

## **Improve Information System, Research, and Innovation for Agriculture and Nutrition**

Farming is a knowledge-intensive industry. Within it are specialized set of skills and expertise that are fast-changing and evolving driven by new technologies that enable increased and improved productivity. In BARMM, the farming community's agricultural productivity is partially hindered by the lack of agricultural information systems due to insufficient support to research and development efforts. The need for an improved information system, research, and innovation in BARMM's agricultural practices is evident in the insufficient financial, climactic, technical and entrepreneurial information that are accessible to smallholder farmers. Their practices remain largely manual and traditional and are sparse in enabling technologies.

To address this, this roadmap envisions strategies that will give new life to research and innovation practices in the region. These includes investments in establishing science and development centers for crop protection and management and financing high-level research on crops, fisheries, livestock, and environment, and operationalizing. Other strategies include establishing modernized halal zones, ecotourism and science learning centers, and processing zone for priority food commodities. Assessments are also necessary to establish baselines on the status of crops, fisheries, livestock, and other natural resources. Evidence-based information will help facilitate accurate planning and project implementations.

## **Expand Markets and Value Chains Management**

Creating opportunities is the lifeblood of improving any value chain. When people are aware and informed of the opportunities that they have, they will be more willing to venture outside the traditional farming practices and into the entrepreneurial side of agriculture. This is what BARMM envisions for its agriculture sector. The lack of farm-to-market roads and opportunities are caused by limited knowledge on commercializing their practice. Farmers and fisherfolk tend to stay as farmers and fisherfolk for the longest time, and it is high time that BARMM pave the road to competitiveness and increase yields and profits.

One strategy to realize this goal include implementing buy-back schemes to ensure a market for the farmers and fisherfolk's commodities. BARMM will also engage the private sector in helping build the capacity of smallholder farmers and fisherfolk, especially in knowledge transfer in the areas of market knowledge, product handling and storage, food safety, and comprehensive business advisory. These strategies can be jumpstarted once a value chain analyses have been conducted to recognize the activities that need improvement in order to gain competitive advantage.

## **Improve Policies and Institutions for Food Security**

Constantly changing priority platforms in between different administrations affect the continuity of programs, projects, and activities (PPAs) directed towards improved food security and nutrition. It also effectively compromises the objectives and sustainability of efforts if targeted beneficiaries are not consistently supported long enough to see lasting results.

Thus, it is necessary to have a well-aligned and focused approach to harmonizing and implementing PPAs. This roadmap will help chart the path towards a concentrated approach by establishing an entity that will concentrate on nutrition and agricultural convergence among government agencies and other actors. BARMM also endeavors to create a food authority and an agri-fishery development center that will have strategic investment and financing. Other planned activities include strict implementation of Comprehensive

Land Use Plans, promotion of the halal industry, and inviting investors without compromising the livelihood of smaller players in the region.

### **Enhanced Nutrition and Dietary Intake**

BARMM continues to lag behind the country in terms of combatting malnutrition. Despite having policies in place to address inadequate nutrition among the Bangsamoro people, a huge proportion of the population remain undernourished and severely and chronically food insecure. However, as a dominantly Muslim region with huge portions of land allotted to food production, it holds high potential in being a center for halal food industry in the country. The development and promotion of organic agriculture and halal food industry requires huge support from the regional government to sustain the momentum on the high number of businesses that are halal certified and accredited.

To foster this growing industry, the regional government plans to adopt and integrate halal and organic food program regulatory framework. This framework will lead to development of halal and organic agriculture and fishery production and establishment and upgrade of halal infrastructure. On the other hand, BARMM will also support food diversification programs, ensure staple food sufficiency, and integrate measures to improve the nutritional value of food produced on the region's backyard.

BARMM will also promote behavioral caring and feeding practices for infants and young children and promote nutrition-sensitive interventions towards sustainable food systems at the community level.

### **Enhance Management of Natural Resources and Adaptation to Climate Change**

Utilization of natural resources in BARMM are both drivers of conflict (competing land ownership) and opportunities (safe, responsible, and sustainable exploitation of resources). The natural environment, with all its forms and spaces, is central to the economic and cultural identity of the Bangsamoro. Many of its peoples' identity are deeply associated and named after their surrounding environment. Its rich and thriving forest and water resources in the region are threatened by the damage brought by armed conflicts, settlement encroachment, illegal logging, land conversion, pollution from agriculture and industrial wastes, and weak enforcement of protection laws and policies. The maltreatment of natural resources that should otherwise be used for the betterment of the lives of the Bangsamoro people also contribute to the impacts of climate change. Thus, the need to adapt and mitigate these vulnerabilities that have compounded throughout the decades.

To address resource mismanagement, BARMM aims to establish a climate change commission and a disaster risk reduction and management council that will have similar mandates to their national counterparts. As is already done in the present through convergence initiatives, the region targets to strengthen the communities' participation in natural resources management and protection while also taking part in income-generating livelihood activities.

## **Improve Gender Equality and Women's Empowerment**

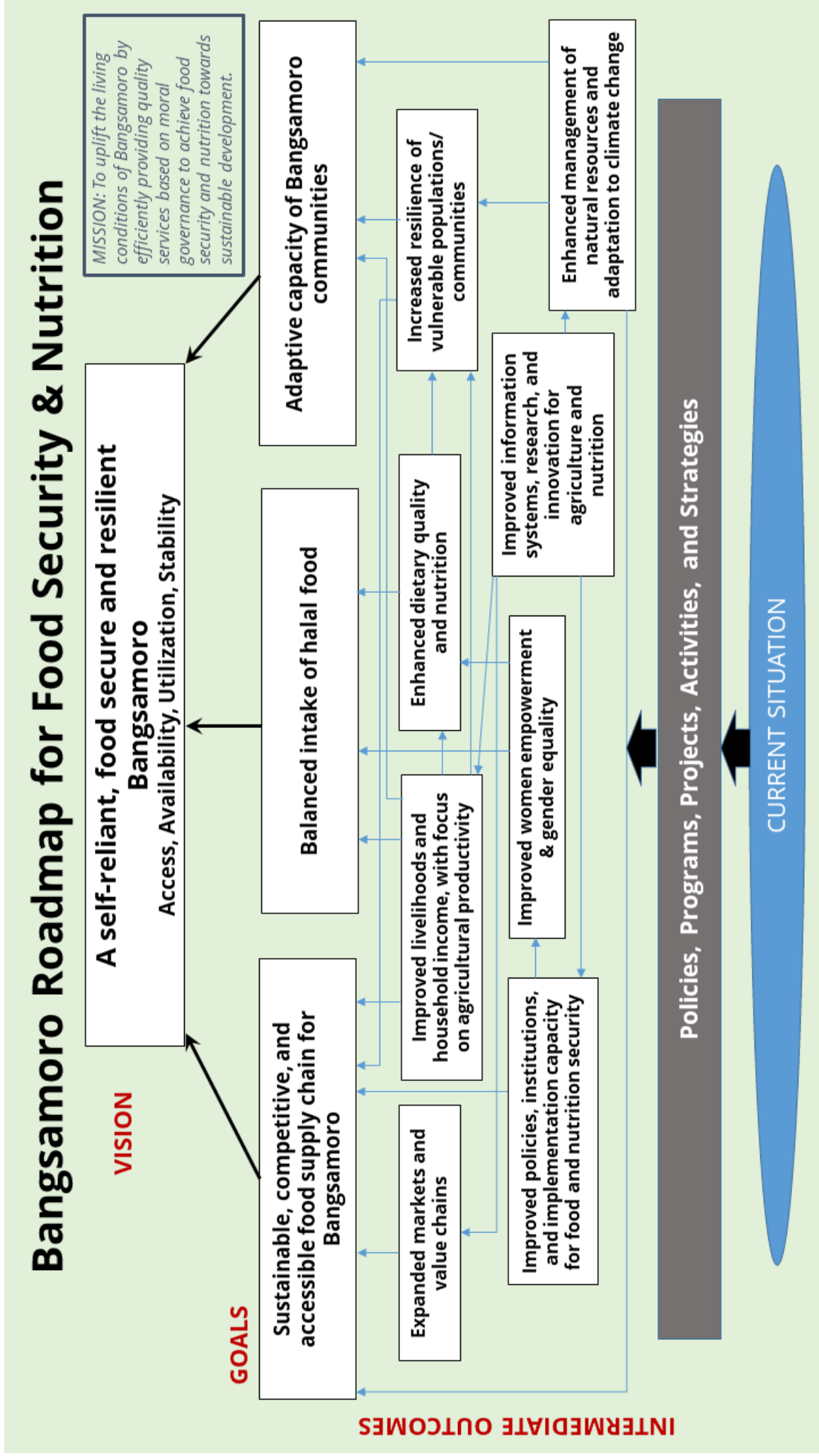
Ensuring the participation of all genders and marginalized groups is key to having an all-inclusive approach to food security and nutrition. It warrants the understanding that various groups and peoples are differently affected by different circumstances. Women in BARMM continue to suffer from marginalization and gender inequality that include child and forced marriage, gender-based violence and discrimination, gender-biased policies, and barriers in education and employment participation. If not prevented and acted upon, these will lessen the chances of successfully closing the gender gap in the region and puts women and other groups at more risk.

To address these, BARMM will adopt policies to ensure the protection of women and enhance implementation of social protection programs. Women will be encouraged to participate in value chain of agriculture and other income-generating activities. The government will also integrate Gender and Development (GAD) in community development programs and will target unemployed women in appropriate interventions.

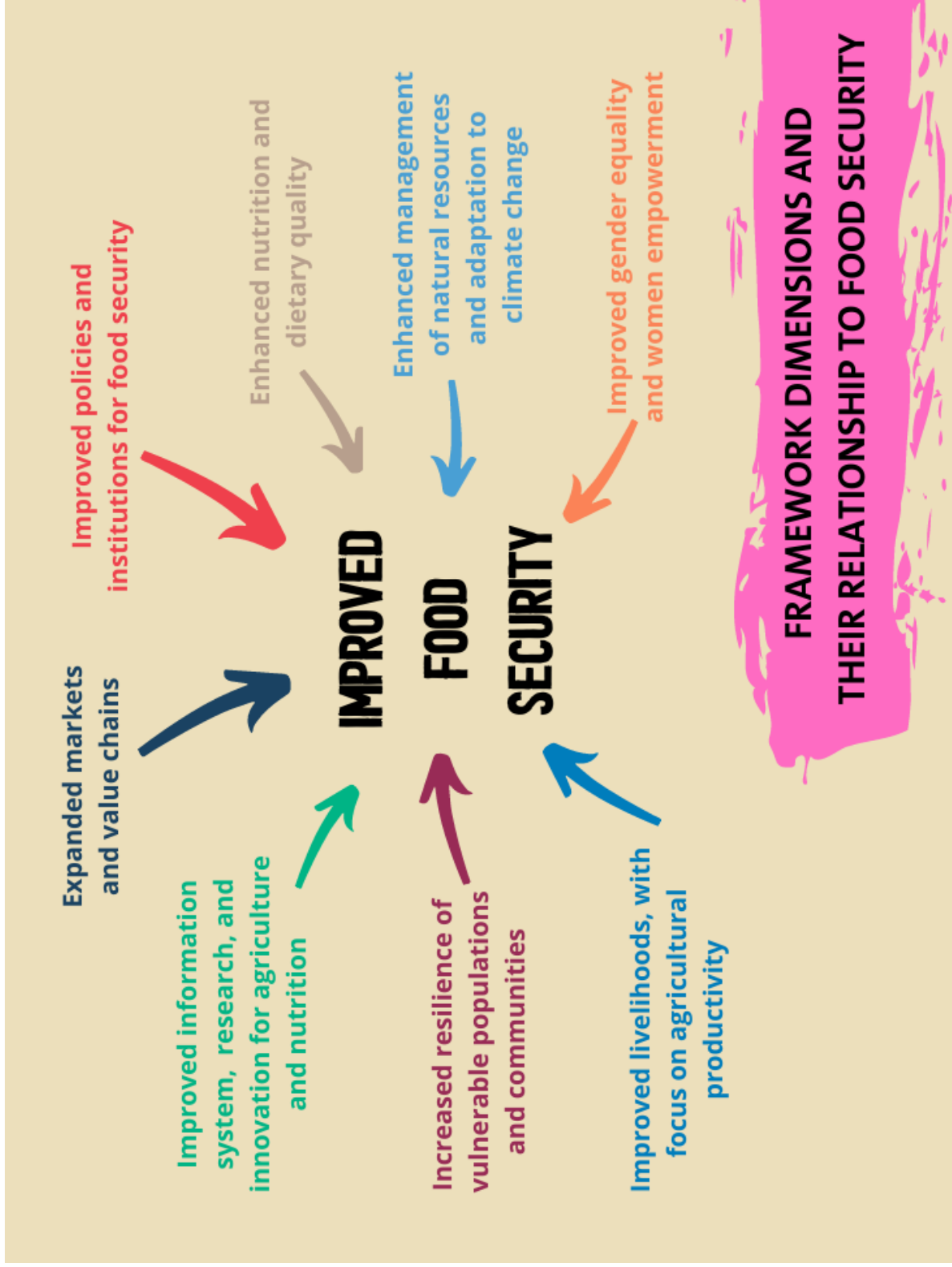
As BARMM endeavors to address these issues through various strategies outlined in this roadmap, its ministries are implementing initiatives towards ending hunger, improving food security, and promoting sustainable food systems. It recognizes the need to set up inter-agency strategic mechanisms that are responsible in looking at how the FSN Roadmap will be implemented. It will prioritize the formulation and implementation of policy reforms and programs and ensure strategic planning and financing. BARMM will also promote linkages with the national government, development partners, and international funding institutions and align stakeholders' initiatives within the region. To mitigate risks related to natural hazards, the region will also consider the establishment of strategic food reserves so that food security will not be compromised in times of emergencies. Lastly, the region, through this roadmap, will aim the expansion of market and value chain programs that will incentivize local farmers and fisherfolk.



# MISSION, VISION, GOALS, and OUTCOMES



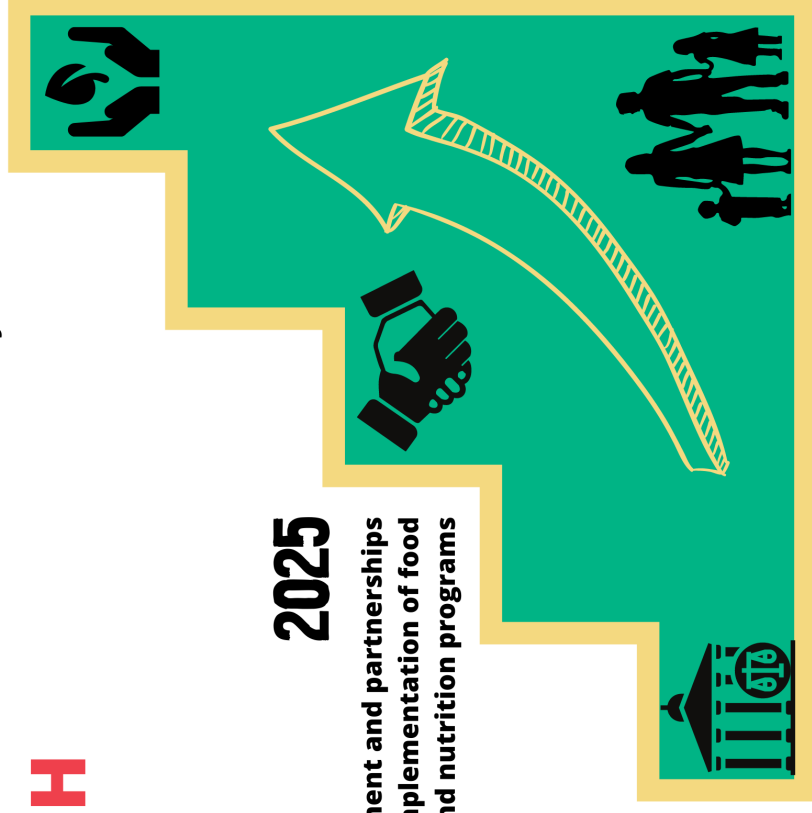
# FRAMEWORK DIMENSIONS



# FSN ROADMAP DIAGRAM

## **BARMM Food Security and Nutrition Roadmap TEN-YEAR PATH**

**2030 AND BEYOND**  
Sustainable food  
systems are established



**2025**

Increased investment and partnerships  
for improved implementation of food  
security and nutrition programs

**2020-2022**

BARMM food security and nutrition  
institutions, convergence, policies/  
legislation set-up

# **Emerging Issues and Gaps**

# **Dimension 1: Improve Livelihood, with Focus on Agricultural Productivity**

Agricultural productivity is one aspect of measuring the growth in agricultural production system that influences land, labour, capital, and other resources. A thriving agricultural production system can contribute to increased rural income, poverty reduction, and results in a sustainable food security in the community.

BARMM is confronted with several issues and challenges which affects the growth in its agricultural production and poverty incidence. These include lack of focus in existing government programs for the improved productivity of small-scale fisherfolk and farmers, coupled with unsustainable practices.

## **Fisherfolk Community**

BARMM is surrounded with vast fresh and marine water, composed of two types of fishing areas: (1) the coastal and marine water such as seas, bays, and straits; and (2) the inland water such as lakes, marshlands and rivers. Sulu Sea, Celebes Sea, and Moro Gulf are the major fishing grounds in the region for commercial fishing operations, the rest are generally coastal communities located within the municipal waters. Overfishing, illegal fishing, coastal and habitat degradation combined with increased demand for fish due to population growth continue to decrease the fisheries production rates in the country, especially in BARMM. These resources are in crisis as evidenced by the declining fish catch, sizes, and species composition around the country. Considering that BARMM is one of the top regions in terms of fisheries production, the poverty incidence among fisherfolk remains high at 43.5 percent or about 270,089 fisherfolk.

## **Smallholder Farmers**

According to a 2017 survey of the Department of Agriculture, the average age of farmers in the Philippines is 60 years old. It was also shown in the 2017 Philippine Statistics Authority's Labor Force Surveys that the age trend of farmers has been increasing since 2008. Thus, an aging pool of farmers and fisherfolk warrants transfer of knowledge and development of skills among the younger generations to continue and promote innovation in this sector. But with the lack of general interest among younger generation, urban migration, and community stereotypes associated with agriculture jobs, these pose a lingering effect on the sustainability of agricultural activities. The lack of social safety net, capital, and crop insurance among farmers hinders them to venture in innovative opportunities that can lead to higher yields.

The potential irrigable areas of BARMM is estimated at 165,000 hectares. If fully irrigated, these areas could yield a surplus of rice supply in the region and help boost the country's rice production program. Unfortunately, the Kabulnan and MalMar irrigation systems, along with other existing irrigation facilities, can only serve about 25 percent of the overall potential irrigable areas in the region.

BARMM is also confronted with injudicious use of pesticides and other chemical products and agents used in agriculture that influence productivity in both plants and animals. The development and escalation of antimicrobial resistance (AMR) and pest resistance do not only decrease agricultural production but is a serious public health threat and can cause environmental hazards. AMR is a condition when microorganisms

like bacteria, fungi, and parasites develop resistance to antimicrobial drugs such as antibiotics, antifungals, antivirals, antimalarials and anthelmintic. As a result, the use of antimicrobials drugs for treating livestock, poultry, and aquaculture health problems become ineffective and poses a serious threat to global public health and overall food security. Excessive and inappropriate use of chemicals and fertilizers in crop soils cause land degradation and soil infertility. In addition, toxic pesticide residues can also pollute bodies of water and aquatic organisms. Pesticides can provoke acute and chronic toxic effects in humans.

Currently, the Food and Agriculture Organization of the United Nations (FAO) is supporting about thirty (30) countries including Philippines with funding support from the Fleming Fund of the Department of Health of the United Kingdom in the development and implementation of their multi-sectoral national action plans against AMR.

In this time of modernization and industrialization, smallholder farmers and fisherfolk are further marginalized due to their limited resources, hence, they cannot equally compete with major players and investors in the market. If more smallholder farmers are equipped with more postharvest facilities such as rice milling centers and warehouses, then they will have increased agricultural resources potential. Nonetheless, local government units should further strengthen their capacity to support farmers and fisherfolk to form cooperatives.

To further involve and open opportunities to smallholder farmers and fisherfolk in the value chain, the availability of farm-to-market roads is essential in the process. However, this remains as one of the major challenges in this sector in the region.

The effects of climate change also result to a significant amount of agricultural losses. By developing and adopting location-specific technologies, the impacts of climate change can be mitigated to safeguard the productivity and strengthen the resiliency of the agricultural sector.

## **Dimension 2: Increase Resilience of Vulnerable Populations and Communities**

The Philippines is an archipelagic nation located west of the Pacific Ring of Fire and sitting along the typhoon belt. Owing to its geographical location, it is one of the most disaster-prone countries in the world. At least 60 percent of the total land area of the country is exposed to multiple hazards. As a result, 74 percent of its population are vulnerable. These hazards ranges from the most active and deadliest volcanoes, destructive storms, and susceptibility to landslides and tsunamis that are intensified by man-made activities.

According to the 2019 World Risk Index, the Philippines ranked 5<sup>th</sup> among countries most affected by extreme weather events and with highest weather-related losses in a twenty-year span from 1998-2017. Moreover, based on the climate projections for 2050 and 2100 of the Philippine Atmospheric, Geophysical, and Astronomical Services Authority (PAGASA), rainfall will lessen during the dry season but increase in the wet season, bringing more devastating and intensified droughts and floods. The production of crops will decline with the likely occurrence of pests, diseases, and accelerated land degradation. Rise of seawater temperature, water levels, and acidity will affect fisheries and aquaculture production.

The impacts of climate change affect various sectors, particularly the poor and subsistence producers considering their limited capacity to adapt to the changes brought about by climate hazards. In Mindanao, more frequent weather disturbances such as typhoons and drought were experienced in the past years. The El Niño phenomenon in 2016 has pushed the local government of the provinces of Maguindanao, Cotabato, South Cotabato, Cotabato City, and Zamboanga City to declare a state of calamity.

These extreme weather changes have also been a cause for alarm especially for the vulnerable and poverty-stricken farmers in Mindanao. The agriculture sector has not been yielding good returns due to low-fertility, toxicity, and salinity caused by the rapidly changing environmental conditions.

The economic losses incurred from the onslaught of natural disasters were even worsened by armed conflicts which affects the social fabric in the region. The lingering effects continue to hamper the growth of the affected sectors, disrupt the agricultural food supply and value chain, shift in jobs, and displacement. In an instance of a more protracted situation, these may result in chronic acute food insecurity in households of the affected populations. When livelihoods are compromised, food supply, income, and access to basic and nutritious diet will be affected that will lead to higher rates of malnutrition.

## **Dimension 3: Improve Information System, Research, and Innovation for Agriculture and Nutrition**

The availability of timely and accurate information system and effectual research and innovations are crucial in building a productive, sustainable, and nutrition-sensitive agricultural undertakings. Reliable information is essential in effective planning, programming, and creating policies to bring further developments in the agriculture sector.

Without credible agricultural information system, the agricultural stakeholders and policy makers rely on any available data or information sets, that may lead to imprecise and ineffective planning, targeting, and implementation.

Farming is a knowledge-intensive industry. The farmers need to analyze different information which are financial, climatic, technical, and regulatory in nature, to better manage their farms. Information within the hands of the farmers means empowerment through control over their resources and decision-making processes (Maningas et al, 2000).

The primary role of agriculture is to grow food for human consumption, and the sector had been producing sufficient food to meet the energy (or caloric) needs of the rising global population. However, with the prevalence of undernutrition, and food and nutrition insecurity due to both natural and man-made hazards, more work needs to be done to ensure equitable access to a diversified and nutritious diet (FAO, 2015). As agriculture research did not translate as expected into better nutrition outcome, research needs a shift to focus on understanding consumption and improving diet quality (John McDermott).

In the Philippines, agriculture has the potential to build on multi-sectoral nutrition-sensitive development strategies and programs. The country's agriculture sector is made up of four sub-sectors: farming, fisheries, livestock, and forestry, all of which are present in BARMM.

With the region's huge population rate, poverty level, and subsistence incidence, there is an evident need for agricultural productivity and nutrition-sensitive measures.

The agricultural productivity in the BARMM is hampered by limited access to credit and agricultural insurance, low farm mechanization and inadequate postharvest facilities, inadequate irrigation, scant support to research and development (R&D), instable extension service, incomplete agrarian reform program implementation, and aging farmers and fisherfolk.

Policymakers in the region experience difficulty in crafting evidence-based plans and strategies to increase agriculture productivity and improving the nutritional status of the communities due to lack of robust information system and databases on agricultural statistics and nutritional status at the village or barangay level that LGUs and decision makers at the local level can use for targeting, planning, and implementing programs.

Various initiatives in agriculture have been designed to have an impact on nutrition outcomes. Former government programs such as Food Always in the Home (FAITH) which advocates for home gardening for



family consumption; Accelerated Hunger Mitigation Program under the Arroyo Administration; and the current Enhanced Partnership Against Hunger and Poverty under the Duterte's Administration served as motivation in developing some regional initiatives. However, beyond the well-known agricultural interventions, there are more local and grassroot-led innovations in agriculture and fisheries production that do not have necessary evidence yet based on their impact on nutritional status that would justify their upscaling and broader implementation. To pursue sustainable agricultural development, the focus should not be on material inputs, but instead on human resources by increasing knowledge and information sharing on agricultural production, communication methodologies, channels, and tools (FAO, 2015).

Despite the efforts of the government in increasing the yield and production level of the farmers, their average remains relatively low caused by high prevalence of pests and diseases infestation, lack of essential laboratories conducting agriculture analysis, and insufficient extensive analysis services offered in existing regional agencies. Research and development play a huge potential in contributing to the improvement of this aspect. For instance, pest prevention can be strengthened with the help of a Crop Protection Center wherein in-depth research on pests and diseases are conducted and further identify control mechanisms. With the meager budget allotted by the central government in agricultural research, these institutions are not strengthened or well supported in terms of provision of necessary modern and quality facilities as well as in the improvement of the technical capacities of the scant workforces and researchers.

There are agricultural research institutions in the BARMM that were attached to the then Department of Agriculture and Fisheries-ARMM, now merged under the Ministry of Agriculture, Fisheries, and Agrarian Reform (MAFAR) under the BARMM government. These institutions are the Bangsamoro Autonomous Region in Muslim Mindanao Integrated Agricultural Research Center (BARMMIARC) and the provincial Research Outreach Stations (ROS) in Maguindanao, Lanao del Sur, Basilan, Sulu, and Tawi-Tawi.

Moreover, there is also insufficient human resource to conduct research, laboratory testing, and other technical jobs as data from the Philippine Statistics Authority shows that only 0.43 percent, or 114 personnel out of the total 26,495 of the country's research and development workforce, is present in the region.

The region does not have a regional crop protection center, soil testing centers, and other agriculture-related laboratories. Hence, several farming requirements are still done in areas outside the region.

Moreover, farmers and other stakeholders in the region are heavily dependent on interventions extended by the government and other development partners, which sometimes limit innovative initiatives that may improve their farming status.

The Bangsamoro Planning and Development Authority (BPDA) with its document titled 1<sup>st</sup> Bangsamoro Development Plan (BDP) 2020-2022, Chapter 8 "Harnessing Technology and Innovation to Increase Socioeconomic Opportunities and Improve Government Services," identified and presented the gaps in agricultural R&D. These include low productivity in research and innovation and inadequate investment on Science Technology and Innovation, inadequate R&D and Science and Technology infrastructure, and insufficient human resource and capacity building,

## Dimension 4: Expand Markets and Value Chains

Achieving food security requires a multi-pronged strategy. Agricultural production, marketing and consumption patterns are rapidly changing worldwide. This requires deeper understanding and analysis in linking the producers to the consumers and ensuring that its economic, social, and environmental implications will contribute in the food security and nutrition without compromising the resources for future generations. Sustainable food systems ensure that it is not only profitable, but it has broad-based benefits for the society and has a positive or at least neutral impact on the natural environment.

To increase the productivity of the agricultural sector, it is crucial to look for opportunities and expand access to markets and value chain. The farmers' and fisherfolk's participation in the value chain is hampered by lack of modern facilities such as postharvest technology, access to farm-to-market roads (FMRs), storage space, quality and standards know-how, certifications, and policies.

In the existing and potential market area for fisheries commodities, the establishment and construction of good roadway and bridges, complete infra-facilities inside airports and seaports, and an efficient roll-on/roll-off (RORO) transport system are crucial for timely products delivery and reduce spoilage rate. Major RORO ports under the Road and RORO Transport System (RRTS) is particularly important to the island provinces in the BARMM, including Remote Island RORO ports, in support to market development and enhancement of socioeconomic activity.

Despite the immense agricultural land in BARMM, the production in agriculture and fishery is still far from addressing the food insecurities and malnutrition. Smallholder farmers are still facing challenges towards becoming food secure and resilient. There are two factors that can be attributed in this scenario: (1) the peace and order situation in the major parts of the region remains volatile which affects the entry and implementation of development activities; and (2) forced engagement in agriculture and fishery industry which is not directly contributing to local food system sustainability.

Lack of farm-to-market roads, especially in far flung areas or *sitios* poses a challenge to the farmers in delivering their fresh produce to the consumers. According to a 2018 food basket survey conducted by WFP in Maguindanao, only 30 percent of farm areas are connected to farm-to-market roads. Farm areas that has no access to farm-to-market-roads bears additional cost for the transport of commodities. The farmers normally transport their crops by boat, through the use of draft animals and/or tractor. Meanwhile, existing FMRs need further improvements and rehabilitation to ensure that it will remain passable despite the changing of weather.

Irrigation facilities influences the entire growth process of the produce from seedbed preparation, germination, root growth, nutrient utilization, plant growth, yield, and quality. Irrigation allows the producers/farmers to grow more crops and pastures and meet market and seasonal demands despite the occurrence of drought. BARMM is among the top four regions with biggest estimated total irrigable areas but in terms of irrigation development, it is at the lowest rank.

By producing high quality commodities, the farmers can sell their produce at a competitive price in the market. But to have quality produce, essential postharvest facilities such as solar dryer, storage areas, and food terminals are needed. The government has put significant effort for the constructions of postharvest facilities; however, proper maintenance of the facilities is lacking. Farmers and fisherfolk still face challenges in drying, processing, and storing which resulted to 16 percent losses in their production.

Access to credit facilities is one of the constraints in the value chain. The main sources of credit farmers and fishers has been farm-inputs stores and trader-financiers located in their respective communities, because the completion of documentary requirement in securing credit from the formal banking sector can be tedious. However, these non-traditional credit option only offers limited capital and not considered as Shari'ah-compliant banking facilities.

Farmers are also confronted with limited exposure and knowledge on crop diversification as part of integrated pest management and climate change adaptation strategies. They generally get technical information and training from various institutions, but sometimes it was not clear how they make use of these information. Despite the availability of modern technologies, the adoption of it in terms of production is low due to weak link between farmers and fisherfolk and technology producers.

Policies play a critical role in determining the interaction of food systems in the region. These policies govern the operations of food system such as mapping of commodities, enhancement of the breeding of certain crops, resource regulations, and market supply and demand. Power relations also influence this system and affects how local producers bargain their goods at a competitive price. Having awareness in the existing policies and its impartial implementation, local producers, market players, technology producers, and consumers will be safeguarded.

## Dimension 5: Improve Policies and Institutions for Food Security

The attainment of food security and nutrition goals require a coordinated multi-sectoral approach and involves the efforts of different government agencies. However, the integration of food security and nutrition (FSN) in programs and policies remains as a challenge in the national, regional, and local government, considering the dynamics in each government agency and other related sectors working on the implementation of various government programs in grassroots level. The constant change of priority platforms in every administration transition under a democratic government can also influence the harmonization of FSN integration amongst different levels. Targeting of beneficiaries in programs tends to be influenced by local political leaders which can compromise the objectives and sustainability of the program.

Hence, it is necessary to have strong, well-aligned, and sustainable policies to effectively implement the programs, activities, and projects of the government that respond to the basic needs of the community. An institution that will oversee and assess the compliance of the government agencies and the LGUs towards the convergence approach in the implementation of their programs is likewise needed to achieve a sustainable food system in the BARMM.

In BARMM, the Office of the Interim Chief Minister issued Memorandum Order No. 311 series of 2019 dated 21 June 2019 directing the agencies to align their plans, programs and projects to the 12-point priority agenda of the interim chief minister, which includes focus on improving the food security and nutrition in the region:

**No.4:** *Set up and implement programs and projects that will respond to the pressing social and economic challenges in the Bangsamoro such as poverty, education, health, access to clean water and electricity, job opportunity, agricultural productivity, and access to capital market. "These must be complemented with responsive strategic infrastructure in the region such as ports, road network, flood control, and logistics and communication facilities;*

**No. 7:** *Develop policy environment on transparency, accountability, and prudent fiscal policy as well as improvement on revenue generation; and*

**No.12:** *Explore and harness economic potentials and comparative advantages to include Halal Industry, the Ligawasan Marsh, watersheds, potential tourist destinations and other natural resources to boost economic development in the Bangsamoro.*

The 12-point priority agenda of the Interim Chief Minister was then adopted in drafting the 1<sup>st</sup> BDP 2020-2022 , a comprehensive and coordinated plan among BARMM ministries with emphasis on the programs to be implemented according to the mandate of each ministry and anchored with the overall goal of BARMM towards *"upliftment of the lives of the Bangsamoro and establishment of the foundations of self-governance through moral governance."*

In response to the issues on health and poverty in the country, relevant laws have been enacted and complemented with government programs for the poor and vulnerable sectors affected by the incidence of poverty and malnutrition. However, despite the laws and policies intended to protect and uplift the lives of the underprivileged, a lot of work still needs to be done towards achieving zero hunger.

Several emerging issues on food security and nutrition in the Bangsamoro Region were identified by the participants during the drafting of the 1<sup>st</sup> BARMM FSN Roadmap, as follows:

- Lack of awareness on the relevant laws on food security and nutrition due to absence of community consultation results to poor implementation of the existing policies on FSN.
- Lackluster involvement and participation of the private sector and/or stakeholders due to the government's less incentives to those engage into food production, healthcare, and nutrition services.
- Lack of support from the local government unit (LGU) as evidenced by its limited allocation of funds for agriculture and fishery in their own locality. Limited studies on the prevalence of malnutrition by the local nutrition committee and how to address the same also indicates the LGUs' weak mobilization for nutrition programs.

Unharmonized plans and programs between and among government agencies. This is due to absence of an entity/institution which will ensure the adoption of convergence approach and set guidelines for an effective harmonized planning and implementation of the government's various programs.

## **Dimension 6: Enhance Nutrition and Dietary Intake**

Nutrition is a critical part of health contributing to overall human development. Adequate nutrition and food security are important outcomes of development in as much as they are also vital contributors to development. The broader concept of food security was reflected during the World Food Summit in 2006, stating that 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 preferences for an active and healthy life (FAO, 1996). When Food security coupled with favorable sanitary environment, adequate health and care services as well as suitable feeding practices in order to ensure a healthy life for all members of the household, then, nutrition security is achieved. The conceptual framework of malnutrition state that the poor dietary intake of individual and the Household are underlying causes of malnutrition and immediate causes of diseases (source: UNICEF Food Security and Nutrition Conceptual Framework.)

Combating malnutrition in all its forms remains as a challenge that countries are facing at this age. This is very critical in the first 1000 Days of Life (from conception until the age of two years old), early childhood and during adolescence period. Malnutrition includes undernutrition (wasting, stunting, underweight), inadequate vitamins or minerals, overweight, obesity, and resulting diet-related non-communicable diseases. Among the different forms of malnutrition, stunting is the biggest concern in BARMM, followed by wasting. Stunting indicates that children are too short for their age due to long term undernutrition. Stunting results from a multitude of causes, but it is immediately and largely influenced by poor diet, poor caring practices and diseases and is directly linked to poverty in the region context. Meanwhile, wasting in children indicates that their weight is too low for their length or height.

Lackluster commitment to nutrition across government agencies hampers implementation, despite a relatively strong nutrition policy framework. (source: Fill the Nutrient Gaps findings by WFP and UNICEF 2018). Financial incapacity is the biggest barrier to accessing basic and nutritious food. The purchasing power is one of the inevitable concerns of the people particularly living in rural areas.

Children's undernutrition is largely influenced by poor maternal health and nutritional status, poor infant feeding practices and food insecurity.

### **Children's Nutritional Status**

According to the 2015 National Nutrition Survey in ARMM (now BARMM), the prevalence of stunting was at 45.2 percent among children under five years old and 44 percent among children age 6-10 years old, and these are very high base from the WHO cut-off scores. Meanwhile, the wasting prevalence among children under-5 and 6-10 years old was 8.2 percent and 6.3 percent, respectively, also considered at the medium level but this can potentially increase during emergencies and calamities. From the 2013 National Nutrition Survey, the prevalence of Vitamin A deficiency among children aged 6 months to 5 years old was 22 percent.

## **Maternal Nutritional Status**

There were still 19.5 percent nutritionally-at-risk pregnant women and 10.9 percent chronically energy deficient lactating mothers. These undernourished pregnant women will give birth to low birth weight and stunted infants.

## **Infant and Young Child Feeding**

### ***Breastfeeding***

The infant and young child feeding practices in BARMM still needs improvement. Only 58.9 percent of children age 0 to 23 months have been initiated to breastfeed within one hour of delivery. Within the same age range, significantly one out of three infants were given prelacteal feeds. Among children age 0 to 5 months, only 59.3 percent were exclusively breastfed, and 57 percent continued to be breastfed until they reach their first birthday. This figure continues to significantly drop as only 26 percent of infants continued to receive breastmilk until they reach age two. Ideally, an infant age 0 to 6 months should exclusively receive breastmilk, and should continue breastfeeding until one to two years, with complementary food introduced at six months of age. However, the mean duration for exclusive breastfeeding is only at 4.7 months and continued breastfeeding only at 8.9 months. On one hand, the proportion of bottle-fed infants age 0 to 23 months is considerable at 34.8 percent.

### ***Complementary Feeding***

The National Nutrition Survey 2015 also noted that only 78.1 percent of infants age 6 to 8 months were introduced to complementary feeding foods. This is low considering that all children beginning at the 6 months of age should already be introduced to complementary food. The minimum diet diversity, an indicator that measures the proportion of infants age 6 to 23 months who receive food from four out of seven food groups, is also very low at 12.2 percent. The minimum acceptable diet, a composite indicator that measures minimum diet diversity and minimum meal frequency, is also very low and alarming at just 7.2 percent. Minimum Diet Diversity and Minimum Acceptable Diet are also influenced not only by the populations' practices and attitude that determines food consumption and utilization but also by food access, availability and stability.

Looking through the nutrition lens in analyzing climate change, global agricultural production could fall by 2 percent per decade through 2050 based on projections of staple food grain yields and livestock output, according to a study published by Global Panel on Agriculture and Food Systems for Nutrition. The largest growth in demand will be occurring in low income countries which are likely to be most affected by losses in food quality and quantity through the value chain.

Besides affecting food supply, climate change may also affect diversity and nutritional value. For instance, El Nino was experienced in most parts of the country, with Mindanao absorbing the most debilitating impacts. According to the 2016 Emergency Food Security Assessment (EFSA) conducted by WFP and former ARMM during the occurrence of drought, it was found out that there were increases in market prices. Hence, with the majority of households relying on market as source of their food, it makes them

susceptible to price volatility. Increase in prices of food items have an impact on the food and nutrition security of the household as it may decrease the amount and variety of food consumed.

Meanwhile, changes in temperature, rainfall and crop and animal diseases environments will affect agricultural output in different ways. In general, nutrient-rich foods that are currently in short supply in many low-income settings are particularly susceptible to water constraints, pests and diseases, and temperature fluctuations. Essential sources of micronutrients are animal-based foods including milk, meat, eggs and fish, as well as vegetables, fruits and pulses/legumes. Therefore, climate change is expected to have particular impacts on the diets of poor population in low- and middle-income regions.

Small-scale fisheries are major source of animal protein for millions of people. Fish accounts for more than 50 percent of the total animal protein intake for many least developed countries including Philippines. It is also the most important source of essential fatty acids, and a unique source of micronutrients often deficient in diets of vulnerable populations. Low awareness of fisheries productivity and food security due to overpopulation cause the micronutrients deficiency of rural coastal communities.

Based on the National Nutrition Council report on Chronic Food Insecurity (CFI) Analysis conducted in January 2015, Lanao del Sur and Sulu were classified at Severe CFI Level 4, where about 15.0 percent to 30.0 percent of total households are severely chronically food insecure.

Development and promotion of organic agriculture program and halal food industry development program as it is anchored in the Republic Act 10068 also known as the "Organic Act of 2010" and Republic Act 10817 or the "Philippine Halal Export Development and Promotion Act of 2016" play an important part in attaining the organic and halal food industry in BARMM. Approval of the Halal certification standards that will be observed in the Bangsamoro region strives to penetrate global market for halal products. The region also had a comparative advantage over other region's in the country. BARMM plans to produce a niche market of Halal certified products for the Muslim and even non-Muslims due to high quality, hygiene and nutritious value.

The Regional Halal Food Industry Development Plan in BARMM states that "based on the present combined data from DTI-BNR and RBOI-ARMM, there are 1,026 registered number of business establishments in the BARMM that are potential for halal certification or accreditation. Out of this total, 97.66 percent (1,002) is BN registered establishments that are under the micro-level category. The remaining 2.34 percent (24) belongs to large scale enterprises registered in the RBOI-BARMM.



## **Dimension 7: Enhance Management of Natural Resources and Adaptation to Climate Change**

Ensuring food security and sustainable livelihoods is affected by the exploitation of the natural resources base – land, coastal and marine, and forest ecosystems - more so in areas where majority of inhabitants rely on subsistence farming for a living. Abuse of natural resources resulting from population growth, weak enforcement of environment and natural resources management policies and programs to protect and conserve the natural resources which pose serious ecological threats that affect food security and nutrition. In the agriculture sector, climate change adaptation can go along with risk mitigation. Climate change adaptation and risk mitigation measures need to be integrated into the overall development approaches and agenda.

Moreover, the two mainlands of the BARMM are part of the Mindanao River Basin (the second largest basin in the Phil. that causes recurring flooding affecting agricultural areas) climate are classified as Types 3 and 4 under the modified Corona Climate Classification System of the PAGASA.

Natural resources can be both drivers of conflict as well as opportunities for peace in transition settings. It is critical to understand issues on land ownership and resource management and how it can constitute risks for conflict relapse.

The natural environment, with all its forms and spaces, is central to the economic and cultural identity of the Bangsamoro. Many of its peoples' identity are deeply associated and named after their surrounding environment.

The 4,273,149 hectares of land in the Bangsamoro is characterized by rich in agriculture and fisheries resources present in its rivers, lakes, seas, forests, wetlands, and marshlands. About 665,000 hectares are legally classified as forestland and inalienable in Bangsamoro territory; and 35 percent of these is under the National Integrated Protection Area System (NIPAS). The Bangsamoro territory is home to 11 of the 228 Key Biodiversity Areas (KBAs) in the Philippines, including areas of global ecological significance.

Considered its rich and thriving forest and water resources in the region are threatened by the damage brought by armed conflict, settlement encroachment, illegal logging, land conversion, pollution from agriculture and industrial wastes, and the myriad of weak enforcement of protection laws and policies.

The continuous destruction of forest can be attributed to several developmental activities being implemented in the region. These evolving issues were land conversion, plantation, illegal logging, timber poaching, road construction, dam construction, mining and other activities that exploits natural resources. The damage in the upper streams affects the upland ecosystem, lower stream, and the wetland ecosystem which includes the coastal resources. Some of the identified issues in the coastal and marine areas of BARMM are Illegal, Unreported, Unidentified Fishing (IUUF), overfishing, unprotected coral reefs, seagrass beds and marine sanctuary, siltation, mangrove deforestation, aquaculture development, lack of awareness on the effects of climate change, poverty, and weak enforcement of fishery laws that ensure protection and conservation of the coastal resources.

An existing provision on the protection and conservation of coastal resources is stipulated under the Local Government Unit Code of 1991 or Republic Act 7160 and Republic Act 8550 or the Philippines Fisheries Code of the Philippines. But given that the impacts of climate change to the coastal resources is inevitable, more actions need to be taken to mitigate the damage and address issues affecting these resources.

Social protection also plays significant role in managing the risk of climate change to the most vulnerable communities. It will reduce vulnerability and reliance to negative coping strategies of the affected communities and help minimize the impacts of coping measures on the natural resource base. Currently, several social protection programs are implemented in BARMM, including the *Pantawid Pamilyang Pilipino* Program (4Ps) which is a conditional cash transfer program for poor families. Likewise, the national government also implements the sustainable Livelihood Program to support livelihood enterprises of vulnerable families. The Senior Citizen Unconditional Cash Transfer Program is also implemented in BARMM. The key challenge is to work on the linkage of existing social protection programs and other development interventions of national and local governments to maximize its impacts towards poverty reduction.

Major gaps on mainstreaming climate change adaptation measures are associated to coordination problems in bridging policies, plans and actions across scales and sectors considering the presence of the current framework of collaboration and the institutions involved in setting policy, oversight, regulation and providing specialized support functions.

There is also absence of an overarching authority with the capacity to mobilize leadership and resources, develop legal and regulatory frameworks for adaptation, and plan for long time horizons in response to issues of climate change.

## Dimension 8: Improve Gender Equality and Women Empowerment

Gender equality and women empowerment can be integrated in formulating program objectives for initiatives on hunger reduction and improved food security. It is widely recognized that women play critical role in agriculture, yet they continue to face social and economic constraints that hinder them to fully participate, grow, and experience equality in the sector.

According to the 2011 State of Food and Agriculture report, closing the gender gap and providing women with the same resources as men could increase individual yields by 20-30 percent. We need to better understand how promoting commercialization of agricultural products impacts women and men differently, influences gender equality, and explore more approaches to value chain methods that can contribute in achieving gender equality and women empowerment.

The complex humanitarian situation in BARMM is a result of various factors related to armed conflict, health-related shocks, weather disturbances, and other disasters that led to repeated displacements of people. These various types of risks affect people's livelihood and well-being. Among the most affected are the sectors with inherent vulnerabilities. These include women, children, persons with disability, indigenous people (IPs), overseas Filipinos and their families, older persons, and the poor.

Women in BARMM continue to suffer from marginalization and gender inequality that include child and forced marriage, gender-based violence, gender-biased policies, barriers in education and employment participation.

**In terms of education, literacy rate is slightly higher among women (97.2 percent) than men (97 percent). Those who are able to read and write a simple message in any language or dialect are considered literate. Also, more women hold an academic degree and further pursued post-baccalaureate studies at 51.62 percent. However, more women were not able to complete high school and post-secondary education.**

Although there are more qualified and eligible women for higher positions in employment, these are likely to be obtained by men. Women continue to experience employment marginalization partly due to double burden attributed to household tasks. Men tends to be preferred over women in jobs with more physical activity or jobs in the field. Despite that women participation in organizations, industries, and various sectors is one of development indicators corresponding to gender equality as stipulated in the Government's Harmonized Gender and Development Guidelines, this remains to be challenged.

More women in ARMM are empowered in making valuable decisions in households and taking charge in the career/ profession that they want to pursue, despite the societal construct of binding women to household work and gender roles, according to the National Demographic Health Survey (NDHS).

Considering that farm work is considered as a male dominated activity, women in the region are gradually participating in agricultural work at 16.92 percent, which is evident in the PSA 2018 Gender Statistics in ARMM on Labor and Employment. Despite that women farmers face greater disadvantages in accessing agricultural and rural advisory services, their increasing participation in the sector is manifestation of gender development.

Meanwhile, more women are also migrating overseas or to urban areas to seek decent paying jobs, partly because of the available employment opportunities offered to women in the country. Among the overseas workers, 64.1 percent were women. About 44,000 came from BARMM; about 49,000 from Zamboanga region and about 58,000 from Northern Mindanao. Hence with their immense number, it makes labor migration and other issues of illegal recruitment, trafficking, and the abuses, violence and labor exploitation of Overseas Filipino Workers (OFWs) especially women and domestic workers to be among top national priority concerns. BARMM will likewise be susceptible to these challenges, being one of the source communities of domestic workers and migrant workers.

**In terms of health and maternal mortality**, 94.2 percent of women in the region experienced problems in accessing health care services due to financial constraints, cultural constraints, and means of access to health facilities.

Maternal Mortality Rate (MMR) is the annual number of maternal deaths per 100,000 live births. The MMR reflects a woman's health and nutritional status pre and during pregnancy, including post childbirth. In the former ARMM, the MMR had always been lower than the national MMR. But in the latest data available, a significant increase was observed from 71.0 in 2014 to 102.0 in 2015. The provinces of Basilan, Sulu, and Tawi-Tawi have consistently reported the highest MMR among the five provinces from 2014 to 2018, while Lamitan City and the provinces of Lanao del Sur, and Maguindanao showed significant decrease from 2014 to 2018 (source: FHSIS, BARMM-MOH).

The lack of financial intermediaries to provide services to farmers, fisherfolk, and small and medium enterprises cause women in the region to have low access to and availability of financial services including investment financing such as startup capital, due to unfavorable investment climate. Regardless of the availability of funds, there is still a lack in provision of financial services and better access for different socioeconomic groups in BARMM. There is a need for capacity building initiatives for the people to address financial illiteracy, limited knowledge on accessing formal or bank financing, arranging documentary requirements, and dealing with limited collateral. Often, women who aspire to build business are hindered by these challenges.

Lastly, in access to land use, the population experience limited access and the burden of lengthy processing of land acquisition and distribution (LAD). Most farmers and other beneficiaries, such as women, are yet to be awarded with their own land title due to the rigid requirements needed for processing and acquisition. Hence, the small farmers including women living in these lands remain as tenants. They can only take home a portion of their income which may not even be enough for their families. With the current land arrangement, majority of the families of farmers are discouraged to take agriculture and fishery studies due to low income and low land acquisition and distribution.

# **Strategies and Actions**

# **Dimension 1: Improve Livelihood, with Focus on Agricultural Productivity**

A structural transformation is imperative to achieve a flourishing production system, which will need a shift in perspective as to how farming and fishing are perceived and understood. It is crucial to know that there is an entire value chain system involved in delivering goods from farm to tables. Thus, these systems entail strategic approach in terms of planning, financing, policymaking, and application across levels to have a transformative effect on food insecurity and poverty.

Raising productivity is essential in advancing the overall agricultural productivity and crucial to the achievement of the region's food security. Public and private investments on policies, agricultural inputs, and facilities for irrigation, extension, and research and development should be appropriate, effective, and innovative.

## **Adopt policies that facilitate increased agriculture and fisheries productivity in the Bangsamoro.**

There are existing laws that would help to promote and improve the productivity of farmers and fisherfolk. The adoption of Republic Act (RA) 11307, institutionalizing of a national school feeding program for undernourished children, and RA 11321, or the Sagip Saka Act, and RA 10654 or the Philippine Fisheries Code, can facilitate the initiatives towards agricultural development and enterprises for farmers and fisherfolk. Part of this strategy is the creation of an entity that will focus on consolidating all the efforts particularly from smallholder farmers and fisherfolk enabling to market access to government's institutional feeding programs. BARMM will also strengthen government-to-government partnerships (G2G) through a policy that will consolidate all the efforts of agencies involved in working towards sustainable food systems. The public-private partnerships should be strengthened to enable bigger market access and product promotion particularly "*Halal Industry*" as comparative advantage of the Bangsamoro region.

## **Create an office/entity that will regulates the development activities for significant natural resources.**

The development initiatives in BARMM should take into consideration the ecological balance and natural resources therein to ensure that the needs of the future generations will not be compromised. It is also crucial to ensure effective use of economic resources while gearing towards sustainable development that facilitates growth and protection of natural resources and the environment. In line with the provision stipulated in Article XII, Section 30 and Article XIII, Section 8 of the Bangsamoro Organic Law, the creation of an Office such as Lake Lanao Development Authority and Ligawasan Marsh Development Authority can be beneficial in regulating development activities on natural resources.

## **Establish accessible and modernized technology demonstration farms and learning sites.**

The model site/area is for demonstrating modernized agriculture and should be conducive for learning agriculture and fisheries development. The area will be developed to apply knowledge and skills of new technologies from the whole farming system and management. It will be accredited and/or partner with state universities and colleges, as well as other research-based institutions where the students studying Agriculture and Fisheries courses can learn the whole system of Agri-Fisheries development. The BARMM

can also increase the scholarship programs to agri-fisheries and environmental science courses through government-government and/or private school/universities, as well as exchange studies program both in foreign and local. The scholars are required to have a return service to utilize the skills and knowledge they gained in the demonstration and model farms established.

**Integrate knowledge, modules, lectures, and applications of Agri-fisheries and environmental sciences in K-12 general education curriculum and at the National Service Training Program (NSTP) for the tertiary level.** There is an existing curriculum incorporating the study of agriculture through technical courses from TESDA and Dep-Ed, however, progressive learning should encourage greater interest in agri-fisheries study at an academic level. The use of mobile applications such as Automatic Feeder and other digital technologies for young people will encourage them to learn and study agri-fisheries and environmental science courses. This will create a paradigm shift among younger generation on the importance of sustainable agriculture which is essential in ensuring food security of the nation.

**Sustainable access to land property and rights.** Enable the access of land titles and stewardship of landless farmers, indigenous peoples (IPs), internally displaced persons (IDPs), former combatants, and informal settlers preferably on their places of origin. The government will acquire lands based on existing laws and coupled with livelihood packages to regain sustainability and productivity. It will be reinforced with policies on Comprehensive Agrarian Reform Program to increase access of farm tenants and landless agricultural workers to productive opportunities. Government-owned lands (GOLs) which are devoted to or suitable agriculture but are no longer actually, directly and exclusively used for the purpose of which they had been reserved should be identified, validated and distributed to qualified beneficiaries.

**Enable access to government credit and subsidies.** This entails reactivation and operationalization of Philippine Crop Insurance Corporation (PCIC) in BARMM. This is to provide insurance and protection of farmers against losses arising from natural calamities, plant diseases and pest infestations. Creating social protection programs for farmers and fisherfolk during calamities. The government will provide subsidies for agri-fisheries inputs to improve productivity through systematic means and ways. This includes assistance to small holder farmers and fisherfolk in planting, crop management and post-production (whole value chain). Introduce social protection programs such as through conditional cash transfers (i.e Cash for Work) to support the farmers and fisherfolk to improve self- productivity amidst trying times triggered by natural and armed-conflict crisis.

**Strengthen the irrigation system.** Provide quality irrigation facilities based on standards and certifications. Promote modern techniques and to improve overall irrigation performance (e.g agronomic and economic performance, wastewater reduction, etc). To consider the quality control design, inclusive operational adaptation to local field conditions and the quality control of procedures for disseminating information to users. There is increase investment to establish wider irrigation areas.

**Adopt and integrate Antimicrobial Resistance (AMR) and Pest Resistance Core Group.** Creation of antimicrobial resistance and pest resistance executive committee, technical working group, secretariat and focal persons. One of the functions of the core group is to promote innovation and research and development on AMR. (*Source: Administrative Order No. 42, s. 2014, Creating and Inter-agency committee*

*for the formulation and implementation of a national plan to combat antimicrobial resistance in the Philippines.)*

**Advocacy and Promotion on Insect Resistant Management and Integrated Pest Management.**

Conduct of training, seminars, and radio advertisement regarding the responsible usage of chemical products and chemical agents. Regulate and promote the rational use of antimicrobials. Improve awareness and understanding of antimicrobial resistance through effective communication and education.

**Commit and adopt the Philippine Action Plan through multisectoral engagement and accountability.** With emphasis on One Health Strategy/ One Health Approach, adaptation to this action plan in collaboration with MOH, MOST, MTIT and MILG.

**Strengthen surveillance capacity.** Detecting and controlling antibiotic resistance requires the adoption of a "One-Health" approach to disease surveillance that recognizes that resistance can arise in humans, animals and the environment.

**Ensure uninterrupted access to safe and quality-assured antimicrobials.** Strengthen community dialogue on prudent use of antimicrobial. Promotion of animal husbandry practices and good agricultural practices. Reduce incidence of infection through sanitation, hygiene and infection prevention and control across all settings

**Strengthen and reinforce the implementation of policies stipulated in Presidential Decree (P.D) No.135.** The creation of the Fertilizer and Pesticides Authority mandated to assure adequate supplies of fertilizer and pesticides at reasonable prices; rationalize the manufacturer and marketing of fertilizer; protect the public from the risks inherent in the uses of pesticides; and educate the agricultural sector in the use of these inputs. This entity is the catalyst to empower farmers and fisherfolk by helping them become better informed and conscientious in the management of their plant nutrition and crop protection and preservation of marine aquatic resources to increase agricultural productivity.



## **Dimension 2: Increase Resilience of Vulnerable Populations and Communities**

The foundation to achieving the economic and food security goals of the Bangsamoro is the ability of the agriculture and fishery communities to adapt to existing and anticipated climatic, environmental, and socio-economic shocks and stresses, while reducing exposure to hazards by strengthening the resilience of natural ecosystems. The increased adaptive capacity of the people contributes to reducing the vulnerability of the agriculture and fisheries sectors to risks and enable them to grow and take advantage of the opportunities. These sub-outcomes have been identified:

- Improved decision-making through access to and utilization of reliable and timely specific and risk-based environment, social, and economic information
- Increasing adaptive technologies and adoption of climate resilient and sustainable agriculture and fishery practices
- Increased access to social protection, risk transfer, and financial services
- Diversified sources of income for farmers and fisherfolk
- Improved adaptive capacities in supporting

With the multitude of risks confronting the agriculture and fishery communities and the sector, access to science- and risk-based information, including early warning systems, is necessary to support their decision-making for production and other value chain activities. This will be combined with access to and adoption of technologies that are climate-adaptive and support sustainability of natural ecosystems, tailored to the local conditions and preferences. To reduce the agriculture and fishery communities' vulnerability to environmental and socio-economic shocks and enable them to take economic risks and shift to more sustainable practices, it is crucial for them to have access to social protection and financial services and have a diversified income base, including on-farm and off-farm opportunities.

To achieve this, the institutions are required to be adaptive and responsive to the needs of the sector, especially in times of shocks. The poorest and most vulnerable population in BARMM are not able access and benefit from timely delivery of social protection programs, specifically social assistance, and are further disadvantaged as they are unable to manage the impact of extreme natural hazard and human induced disasters.

A risk-informed, shock responsive social protection system (RISR SP) uses existing well-established systems to help build the resilience of households – with special attention on poor and vulnerable households - through timely and effective support for them to enhance resilience to disasters and shocks. Establishing RISRSP system relates to preparedness, response, and recovery from a disaster.

## **Dimension 3: Improve Information System, Research, and Innovation for Agriculture and**

BARMM needs to maximize research and innovation initiatives to increase production and productivity, research and innovation, develop new programs, and expand existing ones to improve research and innovation productivity. Majority of farmers and fisherfolk in the region have yet to be capacitated on emerging technologies in sustainable farming and fishing that may have contributed to the low productivity of the sectors.

With these underlying problems and inadequacies in the Bangsamoro Region, the following are the major strategies or approaches that need to be secured in order to advance the information systems, R&D, and innovations in agriculture and nutrition.

**Establish a center for science, technology, and innovation, and crop protection center for food security and nutrition in the region.** To improve the generation of new and location-specific technologies so with recommended crop management, research centers that cater different studies on varied crops should be installed in the region. Such centers are so far present in the other regions and they prioritize on addressing local research concerns. Crop protection Centers with complete facilities and packages should also be established as they will respond appropriately and rapidly on emerging pest and diseases in different crops.

**Sustain investment and financing for high-level research and development on crops, fisheries, livestock, and environment.** Meager funds are allotted to research endeavors as its essence is underrated by certain institutions. High level research and development in all sectors of the production system is required to reach and ensure optimum productivity in agriculture and fisheries. Realizing this, demands continued and adequate allocation funds from every respective agency for sustainability. This should also be considered during planning and budget hearings.

**Adopt modules/lectures on science, technology and innovation for crops, fisheries, and livestock on secondary and tertiary curriculum.** Courses or subjects on agriculture and fisheries technology and innovations should be included or integrated in the prospectus in senior high school, secondary, and college.

**Establish, promote, and operationalize eco-tourism and learning centers on science, technology, and innovation for crops, fisheries, livestock, and forestry.** In strategic areas, farm learning centers and farm tour villages should be established, maintained, and should be well-supported by the government. Farmer-owners should be capacitated as to how they can sustain the operations of the farm. These will serve as tourist destinations and learning sites at the same time. Students and other partakers can be brought to these farms for actual and more effective learning process to happen.

**Establish modernized halal zones with complete facilities.** Production and certification of halal commodities and goods is essential in the BARMM. Halal zones or centers in suitable locations should be

established and its operations should be ensured by providing complete facilities and well-capacitated workforce.

**Conduct assessment and studies to establish baseline data and status of crops, fisheries, livestock, soils and minerals, and forestry.** Information system and base is crucial in effective and precise planning for improvements and development in the agriculture and fisheries sectors. Complete baseline data as to number of farmers and fishers and crop and aquaculture profiles can be established through the conduct of massive assessment and studies with subsequent analysis, interpretation, and data management and updating.

**Establish processing zone of priority food security and nutrition commodities in each province.** After securing increased production across domains, processing zones should be put in place to ensure availability and accessibility of preferred and needed commodities and products for food security and nutrition. Proper and particular zoning and clustering must be done first in collaboration with the LGUs and farmers organizations.

**Establish land classification that includes appropriate agriculture and fisheries use with the existing utilization and planning recommendations.** There is a need to intensify the enforcement and monitoring of DILG's Memorandum Circular No. 172 released on October 17, 2019 requiring all mayors, DILG field officers, and all others concerned, to prepare/update the CLUPs and CDPs. Under the Section 6 or the Network of Areas for Agricultural and Agro-Industrial Development of the Republic Act No. 8435 otherwise known as the Agriculture and Fisheries Modernization Act of 1997, there is a need to identify the strategic Agriculture and Fisheries Development Zones (SAFDZ) within the network of protected areas for agricultural and agro-industrial development to ensure that lands are efficiently and sustainably utilize for food and non-food production and agro-industrialization.

## **Dimension 4: Expand Markets and Value Chains**

To move forward in expanding the market and value chain, series of actions should be done with investment on technologies, empirical studies, and establishment of new facilities that will promote and sustain involvement and inclusiveness for increased productivity.

**Conduct food security and nutrition related value chain analyses (VCAs).** This aims at ensuring sustainable food systems within the community and the Bangsamoro as a whole, learning from the Philippine Rural Development Project (PRDP), that had rolled out the use of VCAs and Provincial Commodity Investment Plans (PCIPs) in prioritizing support investments and services for specific segments of the value chains.

**Enforce the implementation of R.A. 11037 and R.A. 11321.** Through these laws, the government will implement the regularization of a "buy-back scheme" to normalize the prioritization of produce from local farmers and fisherfolk. It also aims at encouraging the clustering of farmers and fisherfolk, and even enterprises to allow product consolidation, expand supply to existing markets and open up new markets in the Bangsamoro region.

**Engage the private sector as commodity champions** and in capacity building of local farmers, fisherfolk and SMEs, especially on understanding markets, undertaking proper product handling and packaging, and ensuring quality and safety. It also includes the provision of technical and business advisory services including adoption of new technologies and conduct of research and development in order to strengthen agriculture, fisheries and forestry extension system.

**Provide operational market infrastructure, market research, market matching, financing and private sector investment promotion services.** Under this, it aims at facilitating the access to market, technologies and financing through new and innovative approaches through private public partnership. It also includes the creation of market-related information system at the local, provincial, regional and national level and establish appropriate market and value chain facilities. The enhancement of road transport, inter-island water transport and other appropriate logistics system towards economic corridors to serve as link production areas to markets are indispensable. Moreover, the establishment of halal compliant processing zones is vital.

## **Dimension 5: Improve Policies and Institutions for Food Security**

Policies are essential in addressing the food security and nutrition; but in absence of systematic, comprehensive, relevant, participatory, and harmonized plans and programs for FSN in the Bangsamoro, policies solely cannot decrease the poverty and malnutrition incidence in the region. Policies on FSN has to be adopted and implemented both by the government agencies and local government unit to effectively contribute in improving the living conditions of the poor.

**Establish a regional entity/agency focused on nutrition and agriculture convergence.** This entity will oversee the nutrition interventions that will further bridge the fragmentation in agriculture initiatives and food security and nutrition outcomes.

**Improve, create, and implement enabling laws and policies for an improved food security and nutrition within the Bangsamoro.** This may be done through drafting and executing POLICY INSTRUMENTS that support and promote food security and nutrition such as council for resolution of local laws, ordinances and resolutions, executive orders, and memorandum of agreement.

**Establish Bangsamoro Food Authority (BFA) and Bangsamoro Agri-Fishery Development and Enterprise Center (BAFDEC).** The BFA as Government Owned Controlled Corporation (GOCC) will focus on the BARMM food system and value chain of food industry towards modernization. While, the BAFDEC is an expansion of the GOCC (from BFA to BAFDEC) to cater other Agri and Fisheries commodities that are comparative advantage with BARMM Region i.e. Bangsamoro Halal Industry and long term economic development/opportunity of BARMM.

**Create convergence policies.** Effective coordination, cooperation, mutual assistance and networking among relevant national, provincial, and municipal government agencies, people's organization (POs), non-government organization (NGOs), and development partners have to be ensured for the alignment and development of standardized guidelines and instructional materials in order to guarantee the widespread participation during program formulation, implementation and monitoring.

**Ensure strategic investment and financing for BAFDEC.** This values reorientation, information and education on Islamic financing to support and sustain the agri-fishery production in the Bangsamoro region.

**Issue policies on promotion of Halal Industry.** Bangsamoro Halal Office has to be created and institutionalized to set standards and guidelines for a uniform production and processing of foods and products. The Office shall oversee, assess, and certify the Halal products in BARMM.

**Establish mandatory registration and profiling of farmers and fisherfolk.** Database for farmers and fisherfolk's profile is needed to serve as baseline information to improve and strengthen the current programs of the government in addressing food security.

**Issue policies on the harmonization of food security plans from municipal, Provincial with the regional level.** This may be done through passage of ordinances by the local technical committee and their provincial, municipal, city councils relating to the approval of the FSN plan specifying the steps for its realization, as well as appropriating funds therefor.

**Formulate and implement Comprehensive Land Use Plan (CLUP) in all cities and municipalities in BARMM (zoning ordinance, limiting land conversion); Provincial Development and Physical Framework Plan (PDPFP); and priority food security commodities investment plan.** Food security plan should be mainstreamed, interfaced or integrated in the CLUP, PDPFP and investment plans of the Local Government Units.

**Formulate enabling mechanism for private sector/investors friendly environment without compromising food security and livelihood of the Bangsamoro.** This may be done by formulating policy mandating private sectors and/or investors to comply with major environmental laws in addressing the BARMM food security and nutrition.

**Establish and institutionalize Animal Diagnostic Laboratories and mobile veterinary clinics at the regional and provincial level.** This may be done through passage of local laws, ordinances and resolutions that support and promote establishment of Animal Diagnostic Lab and mobile veterinary clinics, and provision of paravets in the community, as well as adoption of Revised Animal Welfare Act of 2019.

# Dimension 6: Enhance Nutrition and

## Dietary Intake

**Adopt and Integrate Halal and Organic Food Program Regulatory System/Framework.** Creation of Halal and Organic Executive Committee, Technical Working Group and Focal Persons. *(Source: Amendment of Special-Order No. 853 Series of 2014)*

**Development of Halal and Organic Agriculture and Fishery Production.** Continuous activities in organic and halal farming and fishing in BARMM. Establish halal multiplier farms, organic farming and its facilities. Intensify the assistance to strengthen *Gulayan sa Paaralan* of providing good quality of seeds, crop cultural management, and post-harvest handling and processing. Included the supply chain of the variety of vegetables and cropping cycle.

**Establishment/Upgrading of Halal Infrastructure.** Upgrading of Halal slaughterhouse from “AA” to “AAA” in Cotabato City in partnership with the local government unit, establishment of halal slaughterhouses in suitable areas of BARMM.

**Establish program components and strategic directions.** The BARMM adopts the establishment of Halal food program regulatory framework, Halal standards and enabling regulations, Halal Agri-fishery production, Halal infrastructure, Capability building activities and development of IEC materials and quad-media promotions on Halal, Halal linkage and networking, Halal food products promotion and Halal research and development. Mainstream community awareness on organic and halal food by conduction orientations, massive and regular campaign and information dissemination in partnership with MSSD, MBHTE, MPW, MILG, LGUs/NGOs, and other development partners.

**Intensify Organic Agriculture (OA) program.** The BARMM adopts the following OA programs such as Institutional development and strengthening, R&D, Production and technology support, Extension and capability building, Promotion, advocacy, and education, Market Development and Results-based monitoring and evaluation.

**Support program of partner agencies.** Fortification of staple foods to all the government institutional feeding programs like school-based feeding program of MBHTE and Supplementary feeding of MSSD to daycare centers, support iron and zinc fortification and feeding program of partner agencies, increase the number of Barangay Nutrition Scholars program of Office of the Provincial Governor. Support backyard farming in collaboration with MSSD and MAFAR (Collaboration through 4Ps programs) and promotion of FAITH concept “Food Always In The Home” and provide supplementary foods to malnourished children (MAFAR and MOH collaboration).

**Promote crop diversification using locally adopted and climate smart varieties.** Establish sustainable agriculture system. Increase production of nutritious food and divers staple food source such as root crops and corn aside from rice as main staple food source. Promote soil specific crops based on land suitability.

**Ensure staple food sufficiency.** Staple foods must be enhanced in terms of climate adaptation, seed quality (high yield, nutrient dense) and crop management such as promotion of bio-fortified rice variety and postharvest fortification. Efficiency along supply chain from conservation, processing and packaging.

**Integrate measures to improve nutritional value.** Ensure the adaptability of crop and livestock sources of important nutrients and their production system. This is through establishment of nutritious food processing and dairy production, enhancement of storage facilities and marketing.

**Promote the generation of evidence outcomes and use of food value chain.** Coherent research and establish diet quality indices and surveillance system. Conduct study on how agriculture can deliver positive nutrition outcome from food production to consumption. This includes technology and improved good quality of inputs.

**Promote behavioral change, caring and feeding practices.** Promotion and intensification of infant Young Child Practices and demand generation and production of nutrient-dense (fortified) food products (such as but not limited to iron fortified rice, etc) through social behavioral change communication strategies (such as different media) addressing direct influencers such as child caregivers, in-laws, media, support groups, social service workers, producers and private sector, and policy-makers with massive information dissemination campaign

**Development and implementation of strategies, policies and guidelines for improved maternal and child dietary intake.** Full implementation of related laws such as the First 1000 Days Law (RA 11148) and the National Feeding Program Law (RA 11037), development of guidelines for the dietary supplementation of pregnant and lactating mothers and complementary feeding of children 6-23 months; emergency food pack designed for the needs of pregnant and lactating women and children under-five especially the undernourished.

**Intensify coordination and referral mechanism and monitoring of services for women and children.** Establish and enhance convergence of multisectoral supports to improve maternal and child health and nutrition by establishing an effective and efficient referral mechanism intra and inter-agency such as: focusing livelihood assistance, agricultural support and other social safety net and social services to poor households especially if with pregnant and lactating women, young children, and more importantly if suffering from undernutrition.



## **Dimension 7: Enhance Management of Natural Resources and Adaptation to Climate Change**

Governance structures and mechanisms for climate change are still evolving in the region considering that the government is still under transition. Several governance mechanisms that can be considered by BARMM to enhance climate change governance are listed as follows:

- Establish BARMM Climate Change Commission

Similar to its counterpart in the national government, the Climate Change Commission acts as the lead policy-making body of the BARMM government to coordinate, monitor, and evaluate government programs and ensure mainstreaming of climate change in national, local, and sectoral development plans towards a climate-resilient and climate-smart Bangsamoro.

- Establishment of the Bangsamoro Disaster Risk Reduction and Management Council (BDRRMC), with the power and functions that shall be defined by the Parliament in a law providing for disaster preparedness and responses, as stipulated in RA 11054 or BOL, Article XIII Section 7.

In the 1<sup>st</sup> BDP 2020-2022, to strengthen the Bangsamoro DRRM Council, the Bangsamoro government will facilitate the preparation of its own DRRM law and policies which will institutionalize DRRM systems in all levels of government and bureaucracy. The Bangsamoro government will also reinforce existing laws and regulations and issuances on DRRM and Climate Change Adaptation (CCA). The existing data and information management center/hub in the region will also be strengthened.

- Strengthen the local government units' capacity by providing technical assistance in the development of strategic plans mainstreaming climate change governance by mainstreaming climate change.
- Initiate studies on watershed management to ensure the stability of water resources for household, agriculture, and commercial/industry purposes. Moreover, the "ridge to reef" perspective to environmental management and protection must be the key LGU approach in sustainable management of its natural resources.

### **Strengthen community/people's participation in natural resources management and protection.**

Community-based management of natural resources – be it marine or land – is a proven strategy for management and protection of natural resources. The community-based integrated natural resources management approach puts equal emphasis on environmental sustainability, stabilizing yields and reducing vulnerability among the large number of smallholder farmers and fisherfolk who live in marginal, degraded and fragile ecosystems. One of the key elements of this approach is the setting up of community-based organizations to manage natural resources in a sustainable manner.

Community-based organizations play a pivotal role in the empowerment of local people and building their capacity and awareness to manage and utilize their natural resources in a sustainable way. Some of the fundamentals in a community-based approach are having all various groups of the communities represented and participate in all decision-making processes while upholding the principle of self-reliance and sustainability. Such community and local institutions, if strengthened and empowered could be strategic in translating macro-policies into local actions, reducing “risk aversion” behavior among farmers, facilitating training and human development, and encouraging its members to adopt innovative practices for sustainable natural resources management.

The creation of *Bantay Dagat* and *Bantay Gubat*, community-based volunteer groups supported by the local government, are strong foundations of a community-based natural resource management approaches.

## Dimension 8: Improve Gender Equality and Women Empowerment

The following strategies will support to achieve on improving gender equality and women's empowerment:

**Adopt regional policies designed to protect the rights of women.** Despite the existence of the various policies protecting the rights of women at the national level, violation of this sector's rights persists. This may be attributed to the non-localization of issuances and low awareness on the existence of such laws. Hence, the adoption of local laws that are more responsive to the realities of women sector in the region must be pursued.

**Enhance the implementation of social protection programs.** The BARMM will improve the implementation of the existing social protection programs. To advance the implementation of these programs, trainings and orientations embedded in the program design will be capitalized. In addition, a consultative and participative processes involving different vulnerable sectors in planning and implementation of programs shall be utmost integrated. The Bangsamoro government should establish required social welfare services, and fully supported by the existing regional programs.

**Establish policies and implement programs that encourage women to participate in the value-chain.** Strategies to increase labor participation of women include the formulation of policies that encourage women to participate, especially in value chain. These policies also include promoting work-life balance and re-training services for women returning to the workforce. Provision and access to entrepreneurial opportunities should be improved. All of these will be complemented with the enhancement of maternal and paternal benefits. The Ministry of Labor and Employment will ensure vulnerable sectors including but not limited to differently abled people, indigenous peoples, and elderlies are recipients of programs, projects, and activities that will be implemented by the Ministry including training and seminars.

**Ensure integration of GAD in the community development programs.** Development of community-based interventions with interconnection of gender issues on population issues as recognized in GAD. As such, women empowerment and gender equality and equity will continuously be integrated and treated as cross sectoral principles.

**Integration of women beneficiaries into existing development process.** The basic entrepreneurial development courses to be conducted to high hunger risk and malnutrition communities in the BARMM; and the technology entrepreneurship, the knowledge economy, the production, application and dissemination of knowledge are activities that flow through the entire complex network of economic process, procedures, relationship and structure should consider women as beneficiaries of these economic projects. These activities and interrelation when observed from the market perspective reveal many opportunities that alert entrepreneur especially among women in the business sector.

**Strengthened the implementation of feeding programs.** This strategy will encourage the women involvement in the continuous execution of nutrients supplication. Public School pupils fed within the 120 feeding days to improve school-based nutrition program and increase the percentage in classroom attendance. The Ministry of Basic, Higher, Technical, and Education will expand the school-based Feeding Program in BARMM by increasing the coverage by school.

**Conduct and sustain functional literacy trainings in areas with high rate of malnutrition, as well as series of trainings on agri-enterprise development, targeting high participation of the unemployed women.** Life skill training that deals with issues such as self-awareness, self-esteem, personal development, goal setting, reproductive health, and ways to budget one's own money are often crucial parts of these successful programs. Vocational Training – training often implemented in conjunction with the other services, to provide participants with opportunities to use newly learned skill and knowledge. These are production-oriented training and entrepreneurship development training.

**Provide opportunities in micro-financing, MSME development program to women sector.** Established and enhanced access to micro-financing because more women are engaging into micro-small -and medium-scale enterprises. This will be done by supporting the development of linkages between MSMEs and large corporations; developing more business models and social enterprise; and establishing domestic economic zones for MSMEs.

# CALL TO ACTION

Improving the food security is a top priority of the BARMM government. This is manifested by the creation of Food Sufficiency Task Force to facilitate the convergence of different ministries within BARMM. This is also evident in the formulation of the Bangsamoro Food Sufficiency Plan (BFSP) that outlines regional priorities based on the comprehensive understanding of the problems related to accessibility, availability, and utilization of food. It includes initiatives for ending hunger, improving food security, and promoting sustainable food systems. The Ministry of Agriculture, Fisheries, and Agrarian Reform has tweaked strategies and effected implementation reforms for an improved food security in the region as follows:

- Integrated approach to agriculture and fisheries to support attainment of food security and local livelihood.
- Promoted using appropriate and updated technology in partnership with research institution, academe and other agencies.
- Mainstream convergence initiative between and amongst ministries in the BARMM
- Intensified IEC activities on good agriculture and aquaculture practices through tri-media and providing support thereof for local advocacy initiatives
- Improve agriculture and fisheries research to have a results-based planning and policy making.
- Strengthen/ facilitate/ capacitate organization of registered farmers and fisherfolk cooperatives and associations to enhance access to financial services and livelihood opportunities and other purposes.
- Call support for the realization of gaps and challenges in agri-fishery production, processing and marketing of local products underscoring agri-enterprise concept.
- Intensify promotion of value-chain and local industry products with relevant ministries.
- Call support from BTA on filing of Bills on Food Security and Nutrition in the Bangsamoro
- Actively encourage and engage women and youth in agri-fisheries sector to sustain economic growth in the region. Empower unemployed young people to improve their lives that will contribute to a wider regional development, peace and stability.
- Support the programs of MOH and MBHTE through establishing strong region-wide partnership and cooperation.
- Call for a long-term convergence and co-management of natural resources and adaptation to climate change.
- Strengthen Local DRR program and mainstreaming convergence initiative region wide.

The BARMM government acknowledged that the above actions are not enough in ensuring the food security of the Bangsamoro people. It recognizes the need to set up inter-agency strategic mechanisms that is responsible in looking at how the FSN Roadmap be implemented, making food security a high priority

that include articulating food security challenges and emerging issues; formulating and effecting policy reforms and programs; ensuring strategic planning and financing. Thus, it is imperative to immediately consider the call for the following actions for the realization of the Bangsamoro Food Security and Nutrition Roadmap:

- Set up or strengthen inter-agency mechanisms that is responsible for making food security a high priority that involves effecting policy reforms/legislations and programs. The mechanisms should be established and coordinated at a high level of government involving agencies related to food security and nutrition, including agriculture, social protection, health, infrastructure, education, environment and natural resources, finance, industry, science and technology, governance and others as deemed necessary.
- Establish or strengthen coordination strategies and actions with local government levels. This includes setting up of multi-stakeholder platforms and frameworks at local level for the design, implementation and monitoring of food security and nutrition strategies, legislations, policies and programs. Stakeholders should include but not limited to as appropriate: local government units at municipal and provincial levels, civil society organizations, farmers and fishers' organizations/cooperatives, women and youth associations, donors and development partners.
- Develop and or strengthen mapping and monitoring mechanisms for better coordination and harmonization of actions by different stakeholders and promote accountability.
- Promote linkages with the national government agencies, development partners, international funding institutions, and donor agencies. Reinforce alignment and coherence of the technical and financial contributions for an improved food security in the region.
- Consider the need for the establishment of strategic food reserves for emergency and humanitarian purposes, social safety nets or other risk management instruments or programs that promote food security.
- Strengthen mechanisms for the implementation of expanded market and value chain programs that provide incentives to local food producers most especially the small-scale farmers and fishers.

# KEY RESULTS AREAS

To ensure the attainment of the vision of a self-reliant, food secure, and resilient Bangsamoro, it is very important for the different ministries, offices, and agencies within the BARMM to work together and have consolidated actions through the following **key result areas**:



# GLOSSARY

**AA Slaughterhouse** refers to slaughterhouse with required facilities and operational procedures to serve local markets within the country

**AAA Slaughterhouse** refers to slaughterhouse with required facilities and operational procedures to serve any market

**Adaptation** refers to the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities

**Agricultural information system** consists of components (subsystems), information related processes (generation, transformation, storage, retrieval, integration, diffusion and utilization), system mechanisms (interfaces and networks) and system operations (control and management)

**Agroforestry** is the management and integration of trees, crops and or livestock on the same plot of land and can be an integral component of productive agriculture. It may include existing native forests and forests established by landholders.

**Agriculture and Fisheries Modernization** refers to the process of transforming the agriculture and fisheries sectors into one that is dynamic, technologically advanced and competitive yet centered on human development, guided by the sound practices of sustainability and the principles of social justice.

**Agricultural Lands** refers to lands devoted to or suitable for the cultivation of the soil, planting of crops, growing of trees, raising of livestock, poultry, fish or aquaculture production, including the harvesting of such farm products, and other farm activities and practices performed in conjunction with such farming operations by persons whether natural or juridical and not classified by law as mineral land, forest land, residential land, commercial land, or industrial land.

**Agricultural Productivity** refers to the varying relationship between the agricultural output and the major inputs. Long term productivity growth reflects improvements in farmers' production efficiency and technological progress. Improving productivity on farms contributes to profitability and inclusiveness because it allows farmers to produce more output using fewer inputs.

**Anti-microbial Resistance** threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi. Antimicrobial resistance happens when microorganisms (such as bacteria, fungi, viruses, and parasites) change when they are exposed to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics). Microorganisms that develop antimicrobial resistance are sometimes referred to as "superbugs". As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others.

**Bantay Dagat** is a community-based law enforcement institution in the Philippines that engages fisherfolk in coastal villages or barangays on a volunteer basis to support the detection and enforcement of illegal fishing in coastal waters

**Bantay Gubat** volunteer indigenous forest defenders who have been monitoring forest condition and acting to prevent forest degradation and deforestation.



**Climate Change** refers to a change in climate that can be identified by changes in the mean and/or variability of its properties and that persists for an extended period typically decades or longer, whether due to natural variability or as a result of human activity

**Comprehensive Land Use Plan** is a planning document prepared by LGUs to rationalize the allocation and proper use of land resources. It projects public and private land uses in accordance with the future spatial organization of economic and social activities

**Disaster Risk Reduction** refers to the concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events

**Farm-to-Market Roads** refers to roads linking the agriculture and fisheries production sites, coastal landing points and post-harvest facilities to the market and arterial roads and highways

**Fisherfolks** are the people directly or personally and physically engaged in taking and/or culturing and processing fishery and/or aquatic resources.

**Fisheries Sector** is the sector engaged in the production, growing, harvesting, processing, marketing, developing, conserving, and managing of aquatic resources and fisheries areas.

**Fishing** refers to the application of techniques using various gear in catching fish and other fisheries products.

**Food Security** is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life

**Food System** encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and parts of the broader economic, societal and natural environments in which they are embedded. The food system is composed of sub-systems (e.g. farming system, waste management system, input supply system, etc.) and interacts with other key systems (e.g. energy system, trade system, health system, etc.).

**Gender and Development** refers to the development perspective and process that are participatory and empowering, equitable, sustainable, free from violence, respectful of human rights, supportive of self-determination and actualization of human potentials.

**Gender Equality** refers to the principles asserting the equality of men and women to enjoy the equal conditions in realizing their full human potentials and benefits from the results of development, and with the state of recognizing that all human beings are free and equal in dignity and rights.

**Halal** is an Arabic term which means permissible or lawful in Islam. In reference to food, it is the Islamic dietary standard, as prescribed by Shari'ah (Islamic Law).

**Irrigable Lands** refer to lands which display marked characteristics justifying the operation of an irrigation system.

**Irrigated Lands** refer to lands serviced by natural irrigation or irrigation facilities. These include lands where water is not readily available as existing irrigation facilities need rehabilitation or upgrading or where irrigation water is not available year-round.

**Irrigation System** refers to a system of irrigation facilities covering contiguous areas.

**Market** refers to the set of all sale and purchase transactions that affect the price of a commodity. In other words, it is an interaction between demand and supply of a good or service and it entails consumers, suppliers, transactions and the factors that affect them.

**Nutrition** - a critical part of health and development. Better nutrition is related to improved infant, child and maternal health, stronger immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity.

**Organic Agriculture** includes all agricultural systems that promote the ecologically sound, socially acceptable, economically viable, and technically feasible production of food and fibers.

**Provincial Development and Physical Framework Plan** is a document that identifies strategies and corresponding PPAs that serve as primary inputs to the provincial investment programming, budgeting and implementation. The PDPFP also serves as a key vertical influence in linking provincial development objectives with local, regional and national policies and priorities

**Pesticide resistance** describes the decreased susceptibility of a pest population to a pesticide that was previously effective at controlling the pest. Pest species evolve pesticide resistance via natural selection: the most resistant specimens survive and pass on their acquired heritable changes traits to their offspring. Resistance is the genetic ability of some individuals in an arthropod (insect or mite) pest population to survive an application or applications of pesticides (insecticides or miticides). In other words, the pesticide(s) no longer effectively kills a "high" number or percent (>90%) of individuals in the insect and/or mite pest population. Resistance develops at the population level and is an inherited trait.

**Postharvest Activities** include, but is not limited to, threshing, drying, milling, grading, storing and handling of produce and such other activities as stripping, winnowing, chipping and washing.

**Postharvest Facilities** include, but is not limited to, threshers, moisture meters, dryers, weighing scales, milling equipment, fish ports, fish landings, ice plants and cold storage facilities, processing plants, warehouses, buying stations, market infrastructure and transportation facilities.

**Resilience** the ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and function

**Small Farmers and Fisherfolk**" refers to natural persons dependent on small-scale subsistence farming and fishing activities as their primary source of income.

**Social Protection** is defined as the set of policies and programs designed to reduce poverty and vulnerability by promoting efficient labor markets, diminishing people's exposure to risks, and enhancing their capacity to protect themselves against hazards and interruption/loss of income.<sup>1</sup> Social protection consists of five major elements: (i) labor markets, (ii) social insurance, (iii) social assistance, (iv) micro and area-based schemes to protect communities and (v) child protection.

**Value Chain** refers to the production, upgrading, trading and marketing of a commodity or good, from the acquisition of inputs to the purchase by the end consumer. It shows how a good acquires value and how actors and institutions interact to distribute profits and supply goods to markets.

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