



### Land Bank of the Philippines



Japan International Cooperation Agency

### Format of the Reports

### The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

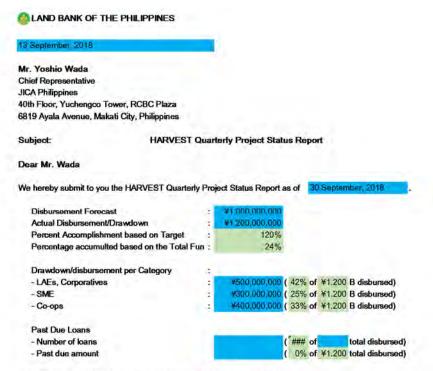
Technical Assistance Team

Nomura Research Institute, Ltd.

NTC International Co., Ltd.

Oriental Consulting Global

### Quarterly Report Format



The KPIs for the HARVEST project will be reported in the Annual Report.

(Additional number of employment, Number of newly developed PTMAs, Growth in sales of SME sub-borrowers, Number of end-borrower, Amount of investment supported by HARVEST, Total amount (in Philippine Peso, and in number of eub-loans), New borrowers (1st Harvest Ioan, 1st Ioan ever), Female employees and beneficiaries.)

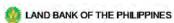
Likewise, the matrix of HARVEST performance against technical assistance deliverables of the consultants for the above quarter is presented as follows:

Task	Outguts	Status 2017/4Q
Component A Establishment and capacity enhancement for Corporative	Outputs	
1 Corporative model refinement Corporative		
1-1Review the FELDA and FELCRA Model and extract lessons learnt.	Study tour to Malaysia Description in Progress Report	
1-2 Review previous efforts in the Philippines similar to the FELDA and FELCRA Model and extract lessons fearst.	Description in Progress Report	
1-3 Consider mechanisms for providing social services to farmer communities (ex.Establishment of Farmers Cooperative)	Description in Progress Report	Discussed the concept of Corporative model in the meeting with the President of LBP.
1-4 Refine the "Corporative Model" based on the above reviews	Description in Progress Report	

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ank you. orly truly yours,			

EMELLIE V. TAMAYO
First Vice President,
Lending Program Management Group (LBP)
Land Bank of the Philippines

### Annual Report Format (1)



### 15 January, 2019

Mr. Yoshio Wada Chief Representative JICA Philippines 40th Floor, Yuchengco Tower, RCBC Plaza 6819 Ayala Avenue, Makati City, Philippines

Subject:

**HARVEST Annual Project Status Report** 

### Dear Mr. Wada

We hereby submit to you the HARVEST Annual Project Status Report as of 31, December, 2018. Below is the summary of the said report, to wit:

2018/12/31

No.	KPI	December, 2018.	Goal 2024
1	Additional number of employment generated by LAEs, and MSMEs.		1,800
2	Number of newly developed PTMAs or Business linkage		1
3	Growth in sales of SME sub-borrowers		1,136
4	Number of end-borrower (co-op members, farmers/fishers) accessed to		360
5	Amount of investment supported by the eligible sub-borrowers through		2,947
6	Total amount (in Philippine Peso)		2,358
6	Total amount (in number of sub-loans)		169
7	New borrowers -1st Harvest loan		164
'	New borrowers -1st loan ever		25
8	Female employees and beneficiaries		2,046

### Challenges:

Thank you.

Verly truly yours,

EMELLIE V. TAMAYO
First Vice President,
Lending Program Management Group (LBP)
Land Bank of the Philippines

### Annual Report Format (2)

(Appendix) KPI Breakdown (December, 2018.)

Additional number of employment generated by LAEs, and MSMEs.  Number of newly developed PTMAs or Business linkage Growth in sales of SME sub-borrowers farmers/fishers) Amount of investment sub-borrowers through Total amount (in Philippine Peso) Total amount (in Philippine Peso) Total amount (in New borrowers 1-1st Harvest loan New borrowers 1-1st loan ever 1-1st	beneficiaries
Business SME	
Type Co-ops	
ARMM	
Business REGION IX	
address, REGION X	
region,	
province REGION XII	
REGION XIII	
Others	
Cacao	
Cassava	
Cavendish Banana	
Coconut	
Coffee	
Corn	
Business Durian	
product Palm Oil	
category Rice	
Rubber	
Sardines	
Seaweeds	
Tuna	
Vegatables	
Others	
Farming/Fishing	
Business (nost harvest) Processing	
function Trading	

# Technical Assistance Deliverables (1)

Task	Key deliverables	Status 2017/4Q	Status 2018/1Q	Status 2018/2Q	Status 2018/3Q	Status 2018/4Q
Component A Establishment and capacity enhancement for Corporative Outputs	Outputs					
1 Corporative model refinement Corporative						
1-1Review the FELDA and FELCRA Model and extract lessons learnt.	Organiza study tour to Malaysia Description in Interim Report		Organized study tour to Malaysia and reported the implications for Corporative model.			
1-2 Review previous efforts in the Philippines similar to the FELDA and FELCRA Model and extract lessons learnt.	Description in Interim Report		Studied on projects such as CARP, AICCEP, etc.			
1-3 Consider mechanisms for providing social services to farmer communities (ex.Establishment of Farmers Cooperative)	Description in Interim Report	Discussed the concept of Corporative Elaborated elements of social model in the meeting with the services based on studies on President of LBP.  Makysia	Elaborated elements of social services based on studies on Malaysia			
1-4 Refine the "Corporative Model" based on the above reviews	Description in Interim Report			Discuss and agreed on Corporative model, as required elements to benefit farmers		
Mobilize farmers who participate to the Corporatives: Revised Only 2 "Site Selection and Attain in-principle agreement from local leaders" for government owned land project						
2-1 Identify at least 3 potential locations for applying the "Corporative Model".	Support LBP in organizing meetings with local governments and investors Description in Interim Report		Shortising candidates of potential locations. Organized meetings with representative of Agasan del Norre and leader of Botech Farms which are candidate of pilot projects.	At JCC, discussed and agreed on 3 Interpreted to a service of the project keeps of LASBUENASCAR in algorithm of the John Charles of the John Charl		
2-2 Site Selection and Attain in-principle agreement from local leaders	Support LBP in organizing meetings with beal governments and investors Agreement in JCC, Monthly meetings Study for investors			Organized meetings with representative of local government and eached to agreement to continue cooperation for Corporative pilot project of CMDCA and LASBUEINASCAR. Also had a meeting with Batech Farms on specific support by HARVEST.		Draft MOU among LBP, OPAPP, PGADN DENR, and NCIP for LASBUENASCAR project is drafted.
2-3 Develop social marketing plan, info campaign material for the promotion of the corporative" to target stakeholders	Suppot meetings with Investor SampleSocial Marketing Plan				Drafted sample social marketing plan	
2-4Conduct seminars to the farmers of the potential locations	Sample PR tool for farmers				Created sample flyer	
2-5 Identify famer-participant to the "corporative" program and secure their commitment through the signing of a participant's agreement or similar document	Sample PR tool for farmers				Created sample flyer	
3 Investors are mobilized						
3-1 Identify potential investors (such as Agricultural Processing Corporations) to Corporative	Support meetings Description in Interim Report	Interview with LAE in Davao to measure their interests and requirement to Corporative model	Organized meetings with local LAEs in Davao, CDO, and foreign investors associations.			
3-2 Conduct seminars to the potential investors and collect their comments Support seminars	Support seminars			Organized meetings with potential investors for LASBUENASCAR		
3-3 Improve the "Corporative" model based on the investors' comments	Description in Final Report				Compiled refined Corporative model in DFR	

# Technical Assistance Deliverables (2)

	Task	Key deliverables	Status 2017/4Q	Status 2018/1Q	Status 2018/2Q	Status 2018/3Q	Status 2018/4Q
Com	Component A Establishment and capacity enhancement for Corporative Outputs	Outputs					
4	Corportaives are established						
4 9	4-1 Assist establishment of corporative preparation team (task force) for each potential corporative.	Support LBP in organizing meetings with local governments and investors.  Draft in Final Report			Organized meetings with representative of beal government and reached to agreement to continue cooperation for Corporative pilot project of CMDCA and LASBUEINASCAR. Also had a meeting with Backet Farms on specific support by HARVEST.		
4	4-2 Assist development of Business Plans of corporatives.	Study for investors			Develop a preliminary version of presentation on LASBUENASCAR and ARMM for investor seminar	Proposed template for profit sharing and conduct feasibility study for Biotech Farms.	
4 3	4-3 Assit drafting of documents necessary for corporative registration (company charter, etc.) Revised: Business Plan and Agreement	Sample MOA				Developed sample Memorandum of Agreement	
4 1 3	4-4 Assist drafting of human resources plan including necessity, Identification, selection and negotiation with Third Party management contractor Revised: Business Plan and Agreement	Sample MOA				Developed sample Memorandum of Agreement	
Com (SM. finan	Component B Capacity Building of Other Potential Project Beneficiaries (SMEs.Cooperatives, Producers' Associations, etc.)Strengthening financial access from SMEs and agricultural Corporatives	sındıno					
S S	The capacity of other potential project beneficiaries is strengthened. Support Activities for expanding outreach by LBP						
S Si tx	5-IDevelop marketing plans/kits on information dissemination strategies/activities such as posters, flyers, leafler/brochure. Developing PR tools	Established cooperation network w Described in Interim Report and Final government agencies and business Report	it	Started sub-contract for producing promotion tools to be used in HARVEST promotion including roadshows	Complete promotion tools and deliver them to LBP.		
A B	5-2 Corduct seminar, stakeholder meetings and road shows in the target area.	Support organization of roadshows			Organized roadshows in General Santos, Kidapawan, Butuan, Cagayan de Oro, and Zamboanga City		
v ∓ ö	5-3 Develop market database (producers, buyers, processors, integrators, traders/exporters, suppliers and service providers including their products, capacity, size,etc.)	Market Database			Start Market Database Survey by a contractor and received preliminary dataset.	Complete Market Database Survey and report.	
2 4 11	5.4 Selection of excellent companies (identify priority areas, products, potential project beneficiaries and assist facilitation and sustenance of market faitages).	List of companies Final Report			Based on Market Database and other data source, selected tentatively excellent cooperatives and SMEs for recommendation.		
5 II	5-5 Conduct training needs assessment and develop training plan and modules	TNA Report			Started Training Needs Assessment (TNA) by selected contractor. Collect data and information of agricultural cooperatives from LBP.	Complete TNA. Discussed in PMU and Landbank Countryside Development Foundation, Inc.(LCDEI) on training plan.	
ഗ ஏ ஜ்	5-6Conduct trainings and provide on the job trainings to support establishment of market incluses between small farmers groups buyers/processors/manufactures.	Organże trainings Final Report				Organized capacity development for SMEs and agricultural cooperatives in Davao City and Zamboanga City.	
5	5-7 Assist the development of project proposals/business plans.	Organiza trainings				Organized capacity development for SMEs and agricultural cooperatives in Davao City and Zamboanga City.	

# Technical Assistance Deliverables (3)

Task	Key deliverables	Status 2017/4Q	Status 2018/1Q	Status 2018/2Q	Status 2018/3Q	Status 2018/4Q
Omponent A Establishment and capacity entancement for Corporative Outputs  A Commentations and activities of the Corporation of Corporation of Corporations and Corporation of Corporation	Outputs					
corporators envectoronness en experimental envector en	Support LBP in organizing meetings with local governments and investors. Draft in Final Report			Organized meetings with representative of local government and reached to agreement to continue cooperation for Carporative pibt project of CMDCA and LASBUERASCAR, Also had a meeting with Botech Farms on specific support by HARVEST.		
4-2 Assist development of Business Plans of corporatives.	Study for investors			Develop a preliminary version of presentation on LASBUENASCAR and ARMM for investor seminar	Proposed template for profit sharing and conduct feasibility study for Biotech Farms.	
Component C Strengthening operation and monitoring function of LBP for HARVEST						
6 LBP's capacity of program implementation and monitoring is strengthened						
SMF).	Submit Comments Discussion in PMU meeting Description in FR	Reviewed draft OPG and submitted comments.  Reviewed ESMF.	Created flowchart of Environmental and Social Management Final Reportameworks(ESMF).	Discussed and confirmed technical definition of eligible sub-projects under draft OPG.		
6-2 Based on the business plans of the corporatives, develop the implementation program of HARVEST including disbursement forecast, output and outcome indicators, monitoring mechanism, etc	Proposed KP1 setting/definition, and working excel sheet Final Report		Reviewed original KPI indicators	Discussed and agreed on KPI in JCC.		
6-3 Corduct baseline surveys of the project output and outcome indicators. Baseline Report	Baseline Report			Conduct base line survey based on data of LBP portfolio, data from Market Database, and available statistics.	Submitted Baseline Report	Agreed on target level of KPI in JCC.
6-4 Conduct needs assessment of the Lending Centers and other nelvem LBP support units then develop action plans for their strengthening.	Meeting with LBP, JCC and PMU meetings Final Report			Visused with right and LLs on training meds. Prefirming yet training subjects such as E&S extension, montering of key performance indicators (CPI), and general understanding of Islamic manner.		
6-5 For Corporatives, identify 3 commodities and develop its commodity investment modules. For SMEs, identify 3 investment targets and develop their investment modules.	Final Report Commodity Investment Module for 6 crops					Developed commodity investment modules on rice, oil palm, coffee, caeao, rubber and coconut.
6-6 Prepare the template for capturing non-credit indicators of sub-projects (ex. Credit Facility Proposal (CFP), Subsidiary Loan Agreement (SLA), etc. for the project).	Monitoring template sheet				Developed monitoring template	
6-7 Prepare the HARVEST Monthly/Quarterly reports	Report Format				Proposed reporting format.	
6-8 Conduct trainings based on needs assessment of 6-4, including environmental and social safeguards policies (perhaps including trainings on Project effect/impacts)	Organize trainings Final Report				Organized training on E&S evaluation, KPI monitoring for staffs of LCs at Davao City.	
6-9 Support appraisal on social and environmental considerations (Support Inpact Assessment Reports, Social Inpact Assessment Reports, and Privonment Inpact Assessment Reports, and Privonmental Imagenent Paus for sub-projects under IARN'EST particularly those projects that would fall as Cangony A under the ESMF of the program.) Add initial field survey of pilot corporative locations.	Check Ist. Interim Report Baseline Information on the Existing Natural and Social Environment in ARMM Outline of LasBach/sacCar Corporative Environment and Social Constructure Preliminary Screening Scoping Report		Discussed with LBP on Initial Study for pits betation of Condended in the motel as a part of friended of supporting sub-projects because of Agosan del Norte as initial E& delayed finalization of OPC . Studied study for LASBUEN-ASCAR. LASBUEN-ASCAR.	Collected information and data in Agusan del Norte as initia l'E&S study for LASBUENASCAR.		
6-10 Darlt PDM for the 2nd pluse (Consider and impérment towards the establishment of a necessary mechanism for collaboration on providing training and solving etchnical issues of the project detail as full filling. I market thickage etc.) among IBP and refevant sakeholders in ARMM such la securital and regional offices of BOI, DTI, DAR, DADAF, DENR, CDA, NCIP, OSCC etc.)	Dscussion in PMU meetings Final Report				Drafted draft PDM for the 2nd phase.	

- 11. Commodity Investment Module
  - 11\_1\_Rice Investment Module



### Land Bank of the Philippines

### Japan International Cooperation Agency

### Commodity Investment Module (Rice)

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

Technical Assistance Team

Nomura Research Institute, Ltd.

NTC International Co., Ltd.

Oriental Consulting Global

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### I. Overview

- Rice belongs to a grass *Oryza sativa*. It is monocotelydonous angiosperms, normally grown as annual plant. It can grow to 1 to 1.8 m tall. It has long and slender leaves. Its flower is small wind-pollinated produced in a branched arching to pendulous inflorescence. The seed is edible called caryopsis or grain (IRRI, 2009).
- Rice grows in a wide range of environment classified as irrigated, rainfed lowland and irrigated upland environment. Majority of the world production is in irrigated lowland environment accounted to 75%. Several rice varieties were bred and were found suitable in the Philippines and Mindanao (Appendix 1 and 2). Varieties were classified as inbred or hybrid.
- It is the most important staple food in Asia wherein 90% of the world rice is grown and consume in Asia (Guyer et al, 1998). In 2012, it was accounted that more than 3 billion people relied on rice daily (IRRI, 2018). Rice provides 20% of the worlds dietary supply but it is higher in Asia which accounts to 35-60% (Guyer et al, 1998).
- Every Filipinos consumed around 107.84 kg of milled rice per year. The country's total rice consumption is steadily growing. In 2017 alone, Filipino have consumed around 13,200 thousand tons of rice. This is equivalent to 2.3% increased compared to the annual consumption in 2016.
- Around 40% of Filipino family income is allocated for food consumption (PSA, 2017). Rice
  is indeed an important crop of the Filipino as this is present in every basket of Filipino
  family.

### II. Production

### i. World Production

Production of paddy rice in past five (5) years have experienced a sluggish growth of around 0.16% average annual growth rate (AAGR). In 2017 total production of paddy rice in the world reached a record of around 740,961.4 thousand tons. This is a slight improvement after experiencing a slump in production between year 2014 and 2015 (figure \_).

The sluggish growth could be attributed to the gradual reduction of areas devoted for rice farming. From 2012 to 2016, area harvested for paddy rice is decreasing at an average annual rate of 0.36%. In 2015 to 2016 alone, area harvested for paddy rice went down by 0.59% from 160,762 to 159,808 thousand hectares, respectively. A significant reduction in

the past five (5) years was experienced between year 2014 and 2015, wherein a reduction of around 1.32% was recorded.

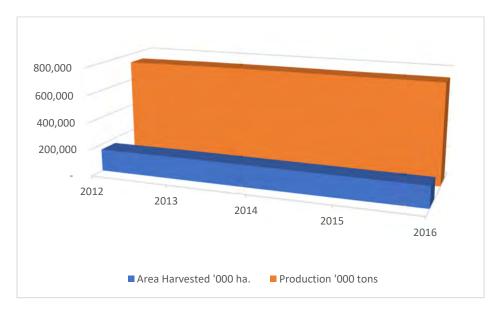


Figure 1. World rice production 2012-2016

Source of data: FAOStat, 2018.

Leading producer of paddy rice is China with a production of around 209,503 thousand tons of paddy rice in 2016. India comes next with a production of 158, 756.9 thousand tons, followed by Indonesia, Bangladesh and Viet Nam. Similar to the global trend, China, India, Indonesia and Bangladesh are experiencing an increase in paddy rice production. On the other hand, Viet Nam, Myanmar, Thailand, Philippines, Brazil, and Pakistan recorded a reduction of around 3.4%, 2.8%, 22.5%, 7.1%, 12.8%, and 0.9%, respectively (Table \_).

Table 1. Top Rice-producing countries in 2016

Rank	Country	Volume '000 tons	Growth Rate (vs. 2014)
1	China	209,503.0	1.5%
2	India	158,756.9	1.0%
3	Indonesia	77,297.5	9.1%
4	Bangladesh	52,590.0	0.5%
5	Viet Nam	43,437.2	-3.4%
6	Myanmar	25,672.8	-2.8%
7	Thailand	25,267.5	-22.5%
8	Philippines	17,627.2	-7.1%
9	Brazil	10,622.2	-12.8%
10	Pakistan	10,412.2	-0.9%

Source of data: FAOStat, 2018

### ii. Domestic Production

Philippines is the top 8<sup>th</sup> rice-producing country in the world and accounted for around 2.38% of the world's total production. The country's growth in paddy rice production is pacing at 1.3% in the past five (5) years (2013 to 2017). The meager growth could be attributed to the very low expansion rate of production area (0.39%). Significant reduction in area harvested for paddy rice was observed in 2015 and 2016 at a rate of 1.76% and 2.15%, respectively. Consequently, this has pulled down the total annual volume in the said years by around 4.3% and 2.9%.

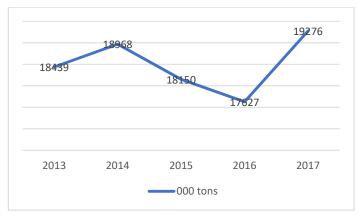


Figure 2. Paddy Rice Production in the Philippines

Source of Data: PSA Countrystat, 2018

In 2017, the Philippines paddy rice production reached a record of around 19,276 thousand tons. Leading producers are the provinces of Nueva Ecija, Isabela, Pangasinan, Cagayan, Iloilo, Camarines Sur, Tarlac, North Cotabato, Leyte and Negros Occidental (Table \_). Consequently, these provinces are also the top provinces in terms of area devoted for rice farming. In 2017, the total area harvested for rice is around 4,811,807.77 hectares wherein 55% are located in Luzon, 24% in Mindanao and, 21% in Visayas.

Table 2. Top Rice-producing provinces in 2017

Rank	Province	Volume ('000 tons)
1	Nueva Ecija	1,884.1
2	Isabela	1,285.7
3	Pangasinan	1,125.1
4	Cagayan	1,006.1
5	Iloilo	937.3
6	Camarines Sur	683.4
7	Tarlac	579.0
8	North Cotabato	500.2
9	Leyte	481.5
10	Negros Occidental	474.9

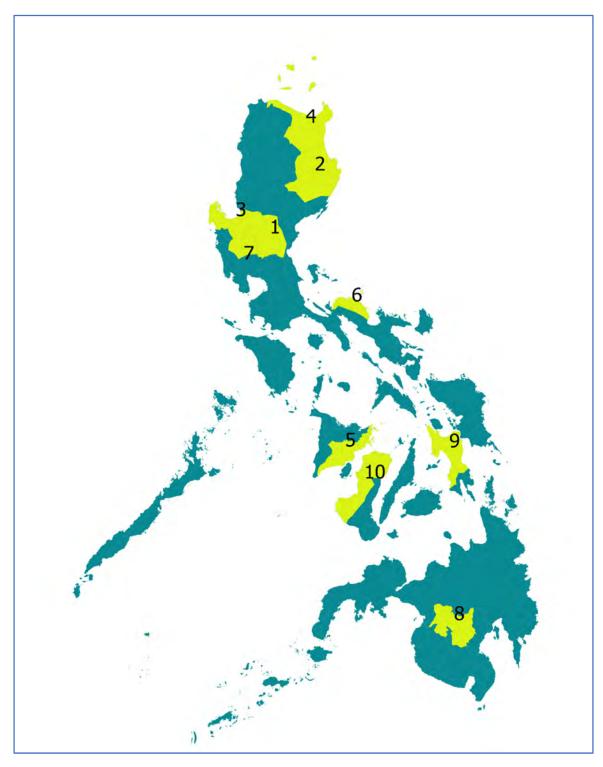


Figure 3. Top rice-producing province in the Philippines in 2017 Source of Data: PSA Countrystat, 2018

### III. Strategic development

### i. Value Chain

### Input provision

The necessary inputs in rice farming are the seeds, fertilizers, and pesticides/ herbicide. Irrigation water is equally important especially during land preparation and from vegetative to reproductive stages of the plant. Other input that will ensure productivity and quality of produce are financing, good agriculture practices (GAP), equipment, infrastructure and logistics support system.

Farmers are buying farming inputs in nearby retail stores or get their input (in kind and/or cash) from a trader or cooperatives through a financing scheme. Some commercial banks are also offering production loan, but usually to a group/ cluster of farmers.

### **Farming**

Activities includes; land preparation, planting, maintenance and harvesting. Farms are usually classified according to elevation (lowland or upland farms); according to water source (irrigated and rainfed farms); and according to type of seed (Inbred or hybrid. Irrigated farms can usually have two (2) cropping per year while rainfed farms usually have one (1) cropping in a year during the rainy season. Among other factors, lowland irrigated farms are more manageable for farming.

Irrigated areas can be intensively farmed throughout the year especially those areas with private irrigation system. However, the deployment/release of irrigation water in irrigated areas under the national and communal irrigation system are managed according to the agreed cropping schedule/ batch. This is to ensure synchronized planting in a cluster of areas and to maximize the use of irrigation water. (see chapter IV for the technical details)

### **Local Trading**

Farmers sell their produce as fresh to local buyers or cooperatives. Some farmers, who are members of NFA-accredited cooperatives, are also selling dried paddy rice to National Food Authority. Most of the farmers are retaining around 15-20% of their harvest for family consumption.

### **Processing and Marketing**

After harvesting, paddy rice will be dry up to 14% MC for milling then polishing if necessary. Dried paddy rice can be processed into a regular-milled rice, well-milled rice, premium rice (variety with good eating quality and polished) and special rice. Milling of poorly dried paddy rice will result to broken grains. Recovery from milling is rated at around 65 to 72.5%. Each variety has specific milling recovery.

Local buyers of paddy rice are either engaged in buying of paddy rice alone or engaged in both buying and milling as well as marketing of milled rice. Some are engaged in milling of paddy rice alone and some are engaged in both buying and milling of paddy rice and they are offering their facilities for a fee to local buyers for the processing of the consolidated paddy rice they bought from farmers.

After milling and sacking, the wholesaler will transport the rice in sacks to its warehouse for subsequent distribution to various retailing stations. However, some retailers shoulder the cost of transport of rice from the warehouse of wholesaler to their retailing areas.

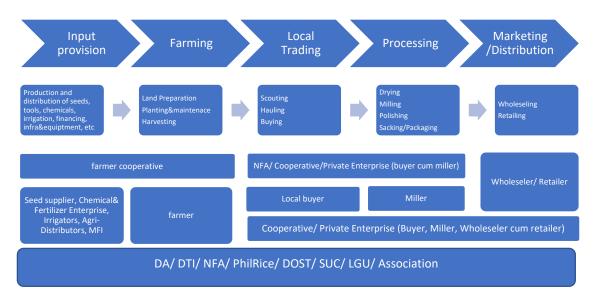


Figure 4. Typical Value Chain Map of Rice Industry

### ii. Market

### World market trend

The leading markets for rice are China, Cameron, Mexico, Senegal and South Africa. Imports of these countries in 2017 grew by 13%, 137%, 27%, 21%, 10%, respectively, from their quantity of imports in the previous year. In 2017, the combined imports of the top twenty (20) rice importing countries have reached around 18,597.5 thousand tons (18,597,465 tons). Philippines is among the world's top importer of rice after South Africa (Table \_\_\_).

Rice are traded in the form of paddy rice, husked (brown) rice, milled rice, broken rice, groats and meal.

Table 3. Top Rice-importing countries in 2017

Rank	Country	Volume (Thousand ton)	Value (MillionUS\$)
1	China	3,993	1,828
2	Cameroon	1,457	633
3	Mexico	1,182	408
4	Senegal	1,181	429
5	South Africa	1,055	513
6	Philippines	877	358
7	USA	837	728
8	Brazil	835	320
9	Ghana	820	402
10	Sri Lanka	748	301
11	Malaysia	733	344
12	<b>United Kingdom</b>	710	547
13	Nepal	637	247
14	Kenya	625	259
15	Madagascar	596	251
16	Belgium	565	302
17	Rep. of Korea	452	298
18	Japan	437	359
19	Germany	437	353
20	Sierra Leone	421	193

Source of data: UN Commodity Trade Statistics, 2018

Domestic Market Trend: Widening gap between supply and consumption of rice in the Philippines

In 2017, the country has produced around 12,300 thousand tons of milled rice while consumption have reached 13,200 thousand tons. The deficiency in supply was augmented by importing around 863 thousand tons of milled rice from Viet Nam, Thailand and other countries (see figure 5).

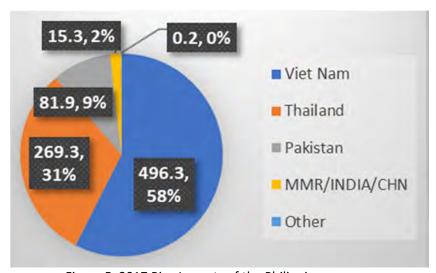


Figure 5. 2017 Rice Imports of the Philippines

Source of data: UN Commodity Trade Statistics, 2018

The gap between domestic supply and consumption of milled rice have started in 1991 with 321 thousand tons deficit in supply. Since then, the country has experienced a shortfall in annual supply of milled rice ranging from 160 to 3,353 thousand tons.

From 1991 to 2017, the country's growth in the production of milled rice have outpaced by the growth in domestic consumption. The annual production of milled rice registered an average annual growth rate of around 2.6% which is below the 2.94% growth in annual consumption.

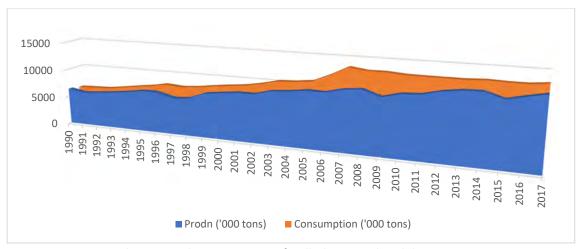


Figure 6. Production and Consumption of Milled Rice in the Philippines, 1990-2017 Source of Data: IRRI World Rice Statistics, 2018; ricestat.irri.org:8080/wrsv3

### Spatial Variability of Rice Supply in the Philippines

Being an archipelago, regions in the Philippines varies in terms of its productivity in producing rice and securing the desired supply of rice. Regions or provinces with comparative advantage among others in producing rice as well as those that are proximate to the production areas are likely to have greater access in terms of supply at a competitive price. Among others, available rice supply is determined by the total area devoted for rice farming and cost of production inputs in a certain region/ location.

### iii. Constrain and Opportunity

Performance of the rice industry value chain was constrained by various limitations. Among the most important issue besetting the industry is the clear-cut policy on the domestic supply of rice. The present move of the government to reduced tariff barriers and restrictions to the importation of rice would likely lower the retail price of rice in the domestic market but it will likewise create a disproportionate burden to local rice farmers. In addition to this, are the lack of institutional and other services support to various players of the industry.

Aside from policy and structural issues, there are notable constrains that directly affects the production of rice in the country. In a study of Arida (2009), common problems encountered by rice farmers were: high cost of inputs, low price of palay, lack of capital, labor problem, lack of postharvest facilities, pest and diseases and irrigation system. Results of the study showed that lack of capital and pests and diseases infestation significantly affects production. This implies that an increase in these factors would considerably reduce the output.

Financing is a critical input in rice production, thus an effective financing scheme will surely have a significant impact in addressing the constrains of the industry. An effective financing program could also set a platform that will facilitate the consolidation of fragmented production areas to attain economies of scale, sound market leverage and better quality of produce.

### IV. Technical Requirement

### i. Suitability

Rice grows best is level (0-3%) to soil with nearly level (3-8%) slope, imperfect or moderate drainage and a heavy clay to sandy loam texture. Soil depth must be 90 to >120cm. Soil must have optimum fertility level indicated by neutral pH (6 to 7.5), high basic cations (BS 50 to >80%) and CEC of 2.8 to >4 cmol $_c$ /kg soil. Salinity must be low (0 to 2 dS/m). The subsoil must have low water infiltration rate which should be less than 0.1 cm/hr and presence of groundwater within 50cm from the soil surface (Sys, 1993).

### ii. Planting Calendar

Crop calendar will be used for proper timing and planning of farm activities. Date of planting is based on the availability of irrigation (rain or irrigation system) and the variety of plant. In Mindanao, Rice varieties usually takes 50 to 55 days from panicle initiation to harvest and vegetative stage depends on the type of plant whether it is a short (100-120 days), medium (120-140 days) or long (160 days or more) duration varieties.

### iii. Planting materials

Presented in the Appendix 1 is the identified rice variety (PhilRice, 2018) which is suitable in Mindanao Region. In flood-prone areas of Agusan, Maguindanao and Cotabato provinces, long duration (160 days or longer) and tall (1.4 m or taller) varieties are recommended. For rainfed and irrigated farms, medium-duration (120-140 days) and short (less than 1m height) varieties are recommended. In drought-prone areas, short duration varieties (less than 120 days) are recommended. High quality seeds must be used in order to have good produce and yield performance. Characteristics of a qualities seed are: free from impurities such as weed seeds and gravel; contains only one variety; and free from pest and diseases.

### iv. Land Preparation

The field is prepared by repeated plowing and harrowing of the wet land to remove weeds and break clods. Field bunds is also weeded and mice holes are destroyed. Then field is levelled to provide good water coverage in the area. This can be done by using mechanized or animal-drawn equipment. Earth dikes and drainage canals should also present in the field to ensure the management of water.

### v. Planting

Planting of rice can be done through direct seeding and transplanting. In direct seeding method, wet (pre-germinated) or dry seeds are directly broadcasted in the prepared field. Wet direct seeding methods ensures germination of seeds by soaking seeds in water for a day and placing it in a shaded cool area for effective germination. The pre-germinated seeds are broadcasted at a rate of 100kg seeds per hectare. Flooding will commence 10 to 15 day or at 2-3 leaf stage. For dry-direct seeding method, 100 kg of dry seeds per hectare is broadcasted in the field. The seeds can be coated with fertilizer as a medium for nutrition. After 15 days, or when 2 leaves emerge, the field should be flooded.

For transplanting method, seeds are pre-germinated and broadcasted in a nursery site prepared. Nursery site should be 1/10 of the intended planting area. The rate of seeds for transplanting is lower than the direct seeding which is 30 to 40kg seeds per hectare. Short-duration varieties needs 20 to 30 days before transplanting while 20 to 40 days is needed for long duration varieties.

### vi. Irrigation and drainage

Water should be available for the plant throughout its growing period. The level of water in the field should be reduced (2mm) only during tillering stage and withdrawn/ drained 7-10 days before harvest. Irrigation water is important in keeping the soil moist for good root anchorage and availability of fertilizers applied as well as in restricting the emergence of weeds.

### vii. Fertilization

Rice removes 75 to 100 kg/ha nitrogen (N), 25 to 50 kg/ha phosphorus (P) and 25-50 kg/ha potassium (K) in a 3.4 tons/ha yield in each growing cycle. Fertilization must depend on the soil fertility status that will be determined through soil testing analysis and the

expected yield of the plant variety. IRRI recommends 20kg/ha N and 5 kg/ha P in clay loam type soil with 2 tons expected yield.

Application of fertilizers can be done in 2-3 splits, wherein, more splits are recommended for varieties with longer duration. First top dressing should be done 10-14 days after transplanting (DAT). Succeeding fertilizer application can be done during panicle initiation stage of the plant. Basal application of Nitrogen is recommended only if the soil is low in fertility.

### viii. Crop Protection

The estimated lose in yield in rice pest and disease attack is 37% in average. Proper planting calendar, timing and prevention of these pests is the best control. One of the effective measures is to choose resistant varieties and planting materials that are free from pest infestation. Synchronous planting is practiced to prevent the cycle and recurrence of pests. Follow proper fertilization as over or under- fertilization may result to pest outbreak.

Practice of natural pest management methods such as the use of natural pest enemies are encouraged. Application of pesticide is the last recourse to control pest. Pesticide application must be done when crop is capable for recovery or 40 days after planting. In the application of pesticides, follow the appropriate chemical for specific pest and the recommendation (dosage, method, timing) and precautions therein.

### ix. Harvesting

Harvest is determined 30 days after flowering or the grain moisture is between 20-22%. Harvesting is done manually or using mechanical harvester. Panicles are threshed to separate the economical part of the plant (grain).

### x. Postharvest and Processing

If used as a planting material (seed), rice grain must be stored in dry place where moisture will be maintained at 12%. For milling, a safe storage system will prevent grain from quality deterioration. Milling of paddy rice grain is best at 13 to 14% moisture and grain temperature should not exceed 45°C during the process. Milling recovery and eating quality depends on the variety which is presented in appendix 1.

Chemical Characteristics of good rice quality-Amylose content must be within 21 to 24% which for intermediate stickiness and volume expansion during cooking.

### V. Financial Requirements

Table 4. Establishment Cost Per Hectare Basis (Inbred and Hybrid Rice)

Particular	Unit/ Description	Unit	Ir	nbred	I	Hybrid
	Cos		Qty	Cost	Qty	Cost
A. LABOR INPUT						
Land prepration						
Plowing	MD/ha./cropping	250	2	500	2	500
Horrowing/ Rotavation	MD/ha./cropping	200	3	600	3	600
Field levelling	MD/ha./cropping	250	1	250	1	250
Dike and drainage repair	MD/ha./cropping	250	1.5	375	2	500
Planting & Maintenance				0		0
Seedbed & seedling preparation	MD/ha./cropping	250	0.5	125	0.5	125
Pulling/ bundling & tying of seedling/ Transplanting	MD/ha./cropping	250	18	4500	27	6750
Weeding	MD/ha./cropping	250	1	250	2	500
Herbecide application	MD/ha./cropping	250	1	250	1	250
Insecticide application	MD/ha./cropping	250	4	1000	6	1500
Fertilizer application	MD/ha./cropping	250	2	500	4	1000
Harvesting						
Harvesting	MD/ha./cropping (25:2 sharing scheme)	355	18	6400	34	12000
Threshing	MD/ha./cropping (3:1 Sharing scheme)	267	8	2133	15	4,000
Hauling	Pakyaw/ Php10 per sack	10	80	800	150	1500
Subtotal				17,683		29,475
B. MATERIAL INPUT						
Seed	kilogram	35/ 300	80	2800	25	7500
Herbecide	Quart	750	2	1500	2	1500
Insecticide/ Pesticide	Quart	500	4	2000	6	3000
Fertilizer						
Complete fertilizer	Bag at 50 kilos per bag	110 0	4	4400	8	8800
Urea	Bag at 50 kilos per bag	105 0	1	1050	2	2100

Particular	Unit/ Description	Unit	Ir	nbred	Hybrid	
		Cost	Qty	Cost	Qty	Cost
Ammosul	Bag at 50 kilos per bag	600	2	1200	4	2400
Plastic twine	roll	50	10	500	20	1000
Sacks	pcs	10	10	100	20	200
Subtotal				13,550		26,500
C. SERVICES EXPENSES						
Rotavator	Contract/ha/day	100 0	2	2000	2	2000
Carabao	Pakyaw/ha/day/plowin	100	2	2000	2	2000
	g of field	0			_	
	contract/ha/day/leveli ng of field	750	1	750	1	750
Thresher	25:2 Sharing scheme/ha	426 6/8 000	1	4267	1	8000
Irrigation	Based on Countrystat data/ha/cropping			1100		1100
Subtotal	, , , , ,			10,117		13,850
D. OTHER EXPENSES						
Depreciation (Sprayer, cutting tools, pail, etc)	Based on Countrystat data			584		584
Land rental	Based on sharing scheme (15% of the net harvest, incl tax)			9930		18600
Guarantee fee (2.35%)	, , , , , ,			1053		1743
Administrative (10% of the Direct Cost)				4135		6982.5
Subtotal				15,702		27,909
TOTAL COST				57,052		97,734
LOANABLE AMOUNT (80%)				46,000		77,000
FARM YIELD						
Average volume, in kilogram				4000		7500
Average price per kilogram,	in Peso			20		20
GROSS SALE				80,000		150,000

Table 5. Cost and Return Analysis

Table 5. Cost and Return A	Inbred	Hybrid
I. INCOME STATEMENT		•
Gross Revenue	80,000	150,000
Less: Cost of Production	57,052	97,734
Labor inputs	17,683	29,475
Material Inputs	13,550	26,500
Services Expenses	10,117	13,850
Other Expenses	15,702	27,909
Net Operating Income	22,948	52,266
Less: Other Costs	3,841	6,430
Insurance Premium (2.35%)	1,081	1,810
Interest (1 year at 6.00%)	2,760	4,620
NET INCOME	19,107	45,836
II. PROJECTED CASH FLOW		
Cash Inflows	126,000	227,000
Harvest Income	80,000	150,000
Production Loan	46,000	77,000
Cash Outflows		
Productiion Expenses	57,052	97,734
Net Cash Flow Before Debt-Servicing	68,948	129,266
Less: Debt-Servicing	48,760	81,620
Principal	46,000	77,000
Interest (1 year at 6.00%)	2,760	4,620
	,	,
Cash End	20,188	47,646
III. FINANCIAL HIGHLIGHTS		
Return on Investment (Net Income/Production Cost)	33%	47%
Break Even Yield, in Kilograms	2,853	4,887
Break Even Yield, in Pesos	12.00	11.43
Debt Service Cover (Net Cash Flow/Debt Servicing)	1.41	1.58

### VI. References and Appendices

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### Appendices

Appendix 1. Suitable varieties in Mindanao (PhilRice, 2018)

REGION				Newly-registered	
			Existing adaptable varieties	varieties tested in the	
			in the region	region	
Region 9			NSIC Rc 224	NSIC Rc 354	
			NSIC Rc 358	NSIC Rc 400	
Region 10			PSB Rc 18	NSIC Rc 354	
		NSIC Rc 158	NSIC Rc 400		
Region 11			PSB Rc 18	NSIC RC 302	
			PSB Rc 82	NSIC Rc 308	
Region 12			NSIC Rc 158	NSIC Rc 354	
			NSIC Rc 226	NSIC Rc 308	
Caraga			PSB Rc 18	NSIC Rc 354	
			PSB Rc 82	NSIC Rc 400	
Autonomous	Region	in	PSB Rc 18	NSIC Rc 308	
Muslim Mindar	nao		NSIC Rc 224	NSIC Rc 400	

Appendix 2. Rice varieties agronomic characteristics, grain quality, and reaction to pests and diseases.

Characteristics
Average yield: 6 t/h a
Maximum yield: 8.1 t/ha
Maturity: 113 days after seeding
Height: 94 cm
Reaction to pests & diseases: Intermediate reaction to blast,
bacterial leaf blight, green leaf hopper, and tungro. Moderately
susceptible
to brown plant hopper. Resistant to white stem borer.
Grain size: Long
Milling recovery: 68.0%
Eating quality: Medium
Average yield: 5.8 t/ha
Maximum yield: 9.1 t/ha
Maturity: 111 days
Height: 104cm
Reaction to pests and diseases: Intermediate reaction to blast.
Susceptible to tungro and bacterial leaf blight.Moderate

Variety	Characteristics
	resistantance to green leafhopper. Intermediate reaction to
	brown planthopper.
	Eating quality: Medium
NSIC Rc 226 (Tubigan	Average yield: 6.2t/ha (Transplanted); 5.4t/ha (Direct seeded)
20, Inbred)	Maximum yield: 9.8t/ha (Transplanted); 8.5t/ha (Direct seeded)
	Maturity: 112 days (Transplanted); 104 days (Direct seeded)
	Height: 102cm
	Maturity: in 104 days
	Height: 102cm
	Reaction to pests and diseases: Moderate resistance to brown
	planthopper and green planthopper. Susceptible to blast,
	tungro and bacterial leaf blight.
	Eating quality: Medium
NSIC Rc 302 (Tubigan	Average yield: 5.1 t/ha (Direct Seeded); 5.7 t/ha (Transplanted)
25, Inbred)	Maximum yield: 9.5 t/h (Direct Seeded); 10.4 t/h (Transplanted)
	Maturity: 106 days after seeding (Direct Seeded); 115 days
	(Transplanted)
	Height: 96 cm (Direct Seeded); 100 cm (Transplanted)
	Reaction to pests & diseases: Nasa gitna ng matibay at mahina
	sa blast, bacterial blight
	Mahina sa sheath blight at tungro (Direct Seeded). Medyo
	mahina sa BPH at GLH. Nasa gitna ng matibay at mahina sa blast,
	bacterial blight Mahina sa sheath blight at tungro. Medyo
	mahina sa BPH at GLH (Transplanted)
	Grain size: Extra-Long
	Milling recovery: 68.5%
	Eating quality: Medium
NSIC Rc 308 (Tubigan	Average yield: 5.8 t/ha
26, Inbred)	Maximum yield: 10.9 t/ha
	Maturity: 111 days after sowing
	Height: 99 cm
	Reaction to pests & diseases: Moderately resistant to white
	stem borer and green leaf hopper
	Grain size: Long and slender grains
NSIC Rc 354 (Tubigan	Average yield: 5.4t/ha
28, Inbred)	Maximum yield: 9.0t/ha
	Maturity: 112 days after seeding
	Height: 95 cm
	Milling Rcovery: 69.9%
	Grain size: Long

Variety	Characteristics
	Reaction to pests & diseases: Resistant to Stemborer at GLH
	Intermediate reaction to Blast and BLB. Susceptible reaction to
	Sheath Blight, Tungro and BPH.
	Eating quality: Medium
NSIC Rc 358 (Tubigan	Average Yield: 5.4t/ha
30, Inbred)	Maximum Yield:9.2t/ha
, ,	Maturity:114 days after seeding
	Height: 98cm
	Milling Recovery: 72.4%
	Grain Size: Long
	Reaction to Pest and Diseases: Intermediate to BLB, BPH and
	stemborer. Susceptible to blast, sheath blight, tungro and GLH.
	Eating Quality: Medium
NSIC Rc 400 (Inbred,	Average yield: 5.3 t/ha
•	Maximum yield 11.3 t/ha
Tubigan 35)	•
	Maturity: 113 days
	Height: 98 cm
	Reactions to pests and diseases: Intermediate reaction to BPH
	and GLH. Susceptible to BLB, sheathblight, and tungro Grain
	size: Long
	Milling recovery: 71.4%
	Eating quality: Moderately soft
PSB Rc 18 (Ala, Inbred)	Average yield: 5.1 t/ha
	Maximum yield: 8.1 t/ha
	Maturity: 123 days after seeding
	Height: 102 cm
	Reaction to pests & diseases: Moderately susceptible to stem
	borer; intermediate reaction to blast, bacterial leaf blight,
	tungro, brown planthopper, and green leafhopper
	Grain size: Long
	Milling recovery: 65.34%
	Eating quality: Medium
PSB 82 (Penaranda,	Average yield: 5.4 t/ha
Inbred)	Maximum yield: 12 t/ha
	Maturity: 110 days after seeding
	Height: 100 cm
	Reaction to pests & diseases: Resistant to blast. Intermediate
	reaction to bacterial leaf blight, brown planthopper and stem
	= ' !!
	borer. Moderately susceptible to green leafhopper. Susceptible
	borer. Moderately susceptible to green leafhopper. Susceptible to tungro.

- 11. Commodity Investment Module
- 11\_2\_Palm Oil Investment Module



### Land Bank of the Philippines

### Japan International Cooperation Agency

### Commodity Investment Module (Palm Oil)

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

Technical Assistance Team

Nomura Research Institute, Ltd.

NTC International Co., Ltd.

Oriental Consulting Global

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### **ACRONYMS**

ABERDI	A. Brown Energy Resource Development Inc.
AICCEP	ARMM Industry Cluster Capacity Enhancement Program
ARMM	Autonomous Region for Muslim Mindanao
BAS	Bureau of Agricultural Research
CARP	Comprehensive Agrarian Reform Program
CLOA	Certificate of Land Ownership Award
СРКО	Crude Palm Kernel Oil
СРО	Crude Palm Oil
DA	Department of Agriculture
DAR	Department of Agrarian Reform
FFB	Fresh Fruit Bunches
FGD	Focus Group Discussion
HARVEST	Harnessing Agribusiness opportunities through Robust and Vibrant Entrepreneurship Supportive of peaceful Transformation
JICA	Japan International Cooperation Agency
KIDI	Kenram Industrial Development Inc.
KII	Key Informant Interview
LBP	Land Bank of the Philippines
MinDA	Mindanao Development Authority
MLGU	Municipal Local Government Unit
MRDP	Mindanao Rural Development Project
NICCEP	National Industry Cluster Capacity Enhancement Program
PCA	Philippine Coconut Authorities
PDP	Philippine Development Plan
PKC	Palm Kernel Cake
PLGU	Provincial Local Government Unit
PNLP	Plant Now Pay Later
PNTC	Plant Now Take Car
PPDCI	Philippine Palm Oil Development Council
PRDP	Philippine Rural Development Project

RSPO	Roundtable Sustainable Palm Oil	
USDA	United State Department of Agriculture	

## PALM OIL INVESTMENT MODULE

# Chapter 1 Overview of the Palm Oil Industry

#### A. Philippine Development Context

The Philippines has been producing and processing palm oil in the past four decades. The high commercial value of Crude Palm Oil (CPO) and the rising demand for the product has driven the growth of the local palm oil industry. When provided with the necessary assistance in improving the productivity levels of the palm oil farms, the resulting higher yield will generate increased income for the farmers. And considering the growing demand in the local market for

Figure 1. Existing Palm Oil Mills in the country by location and capacity

Palm Inc. Agumil Palm Oil Mill 20MT, FFB hr Ubay, 30T,FFB/hr Bohol ABERDI PO MIII Univanich Palm Oil 10 MT, FFB/hr MIII 30T, FFB Iv npasugong. BKN Carmin N. Cotabato FPPI Palm Oil Mill AC Garcia Palm Oil 40 T. FFB/hr Mill 20-40T, FFB/hr ZonaeugA,oinaeol Tacurong N.Cot. Buluan Palm Oil Mill 30T.FFB/hr Bulusn Agumil Palm Oil Mill Maguindnao Trento, Agusen DS KENRAM Ind. Palm. OII MIII 30MT, FFB/br leulan, S. Kudarat

Source: Philippine Palm Oil Development Council

palm oil, which is partly triggered by the country's continually growing population, upgrading the local palm oil value chain will significantly contribute to poverty reduction and economic development, particularly in the rural areas where the palm oil farms are located.

Oil palm growers normally converge in areas close to the oil mills for two reasons: (i) to save on transportation expenses, which are substantial; and, (ii) to be able to produce good quality CPO by complying with the time required for the harvested fresh fruit bunches (FFB) to get milled (i.e., within 24 hours after harvest).

The oil palm farms are mostly located in Mindanao (89%) with relatively smaller ones in the provinces of Bohol and Palawan. To-date, there are nine palm oil mills with an aggregate capacity of about 240 metric tons FFB per hour. (Fig. 1) Seven (7) of the CPO mills are located in

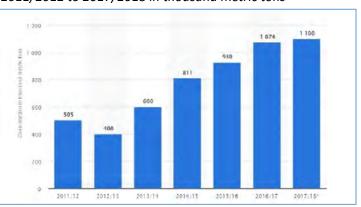
Mindanao; there is one in Palawan with a capacity of 30MT FFB per hour and another in Bohol with a capacity of 20 MT FFB per hour capacity. With the palm oil refinery located in Agusan del Sur and operated by the Filipinas Palm Oil Plantation, Inc, (FPOPI) as the only one in Mindanao, crude palm oil are normally transported to Cebu and Metro Manila via Cagayan de Oro City for refining.

The domestic palm oil production in 2016 was reported at around 89,000 metric tons (PPDCI 2017) while consumption was at 1,074,000 metric tons (USDA 2018). The local consumption has almost doubled from 505,000 metric tons in 2012 (Fig. 2). This consequently shows a volume for importation of about 985,000 MT in 2017 and could mean a supply gap; thus, presenting an opportunity for Mindanao's agricultural sector to fill in. Worth noting is the capacity of the local palm oil industry to produce and move towards import substitution, in as much as the needed support (e.g., access to farming technology, human resources, technical knowledge and management expertise) are available.

In early 2000, the Philippines has embarked in expanding oil palm production as a means to reforest areas that have been affected by illegal logging, to mitigate the impact of climate change aside from increasing the income of families in rural communities.

The government can leverage this demand for palm oil to develop Mindanao and achieve peace and order therein. Indeed, the existing

Figure 2. Palm Oil Consumption in the Philippines from 2011/2012 to 2017/2018 in thousand metric tons



Source: United States Department of Agriculture

supply gap has presented an opportunity to scale up the oil palm value chain and encourage investments in additional mills in Mindanao.

The programs implemented by the Philippine government supportive of palm oil development include the JICA-assisted ARMM Industry Cluster Capacity Enhancement Program (AICCEP), the Philippine Rural Development Program (PRDP) supported by World Bank and the Rural Agro-Enterprise Partnership, among others. Under these programs, even smallholders were enticed to engage in oil palm production; they got organized as cooperatives, trained and equipped with a progressive mindset. Securing long-term sustainable income for the beneficiaries is foremost in the goals of these programs.

## B. Objectives of the Study

The goal of the HARVEST Project is to create employment in the ARMM and conflict-affected areas along with outside areas following the value chain concept by supporting agribusiness and agri-related investments to contribute in improving the peace and order environment in the area. In line with this, the palm oil industry development will contribute to the project goal through the following specific objectives:

- a) To contribute to jobs generation and to enhance livelihood activities in the Mindanao (2019-2023) by encouraging and supporting about 2,000 farmer-cooperators who will be participating in the palm oil industry program.
- b) To develop training modules and facilities for SMEs and cooperatives in all the Oil Palm regions.
- c) To develop rural oil palm-growing communities to have long term and sustainable family income that is above poverty threshold.

## C. The Global Palm Oil Industry Outlook

Palm oil is at least five times more productive in terms of vegetable oil per hectare than other oil bearing crops and has the lowest requirement for inputs of fuel, fertilizers and pesticides per ton of production (according to the World Bank and IFC Study 2011). About 80 percent of current world palm oil production is consumed in the form of food. Rising food demand coupled with growing non-food uses is likely to sustain the continued rapid growth for palm oil.

The program of increasing the productivity of palm oil plantations with good governance, access to market and finance will help create the environment to benefit the smallholders and the local communities. It has succeeded in wiping out poverty in Malaysia thru its FELDA and FELCRA business models. It has established dominance among consumers in the food industry as a cheap cooking oil.

Palm oil is said to be the largest contributor in the vegetable oil market, comprising more than 50% of the global supply. It produces high-quality oil used primarily for cooking in developing countries. It is also used in food products, detergents and cosmetics. It has a good impact on employment, estimated at 6 million people worldwide and generates more jobs per hectare

than other large scale farming operations. It is largely driven by private sector investment and includes a large number of smallholder farmers. (WB Study 2011).

The plantations are expanding across Asia, Africa and Latin America. Such expansion, however, is said to have contributed to deforestation and greenhouse gases emission in some countries. Oil palm expansion was perceived to cause destruction of tropical forests which serve as a lifeline for some communities and are critical habitats for many endangered species. (WB Study 2011)

The top producing countries of palm oil in 2016 is by led Indonesia and Malaysia. (Table 1.1)

Table 1 Top Exporting Countries, 2016

Ran	T TOP EXPORTING COUNTRIES, 2010		
	Country	Volume (Kg.)	Value (US\$)
k	,	(187)	(004)
1	Indonesia	22,759,304,544	14,365,422,161
2	Malaysia	13,814,190,291	9,064,286,309
3	Netherlands	1,331,992,325	1,072,009,337
4	Guatemala	687,536,529	377,838,540
5	Germany	445,215,197	357,628,095
6	Honduras	383,063,502	270,150,330
7	Colombia	373,315,718	245,547,299
8	Ecuador	312,803,080	228,150,740
9	Costa Rica	150,944,261	101,547,845
10	Ghana	127,119,438	82,668,390

Source: HS1511- Palm oil and its fractions; whether or not refined, but not chemically modified)

Meanwhile, India, China, Pakistan, Netherlands and Italy are the top 5 countries buying palm oil in 2016. (Table 1.2)

Table 2 Top Importing Countries in 2016

Rank	Country	Volume (Kg.)	Value (US\$)	
1	India	8,252,606,082	5,641,651,925	_
2	China	4,478,024,446	2,865,459,925	
3	Pakistan	2,603,180,902	1,701,167,685	
4	Netherlands	2,343,846,634	1,593,298,154	

5	Italy	1,521,560,628	1,043,264,743
6	Spain	1,503,991,355	1,036,024,703
7	Germany	1,376,051,506	1,024,158,573
8	USA	1,003,501,438	891,908,748
9	Russian Federation	885,117,434	646,999,814
10	Japan	647,482,287	450,861,701

Source: HS1511- Palm oil and its fractions; whether or not refined, but Not chemically modified)

## Chapter 2 PALM OIL PRODUCTION AREA

#### A. Oil Palm in Mindanao

The first oil palm plantation in Mindanao was established in Basilan - ARMM by Menzi Agricultural Corporation sometime in the 1950s. Kenram Industry converted their ramie plantation in Sultan Kudarat to oil palm in 1966/67. They started the oil palm plantation with and 1,100 hectares of nucleus farm and 3,000 hectares of out grower farms to support the operations of their 20 MT/h capacity crude palm oil (CPO) mill. In the 1980s, National Development Corporation and Malaysian-based Guthrie Corporation developed 8,000 hectares of oil palm in San Francisco and Rosario of Agusan del Sur, which subsequently became Filipinas Palm Oil Plantation, Inc. This was followed by the Singapore and Malaysian partnership Agumil in 2000 with its initial operations in Maguindanao, ARMM using outgrowership as its flagship program. Seven years later, Agumil established a palm oil milling in Buluan, Maguindanao.

The prime areas for oil palm plantations are those located within 5 degrees of the equator. But still considered best growing areas are within  $10^0$  of the equator. The latest information is that oil palms are now spreading to dryer areas up to  $15^0$  from the Equator.



Figure 3. Palm Oil Growing Regions in the World

Source: PPOIDR, 2014-2023

The most strategic part of the Philippines within the range is Mindanao including the Province of Bohol and part of Palawan. Mindanao is geographically located in the palm oil belt, with the appropriate climatic and soil conditions for the production of palm oil. (PPOIDR)

In 2013, 77% of the 53,849.00 hectares of oil palm plantations in the Philippines was contributed by Mindanao. Caraga and SOCCSKSARGEN comprised 64% of the hectarage planted to oil palm while Bohol had the third largest area devoted to oil palm followed closely by Palawan. Northern Mindanao ranked fifth and Davao the smallest in area.

Table 3. Area Planted to Oil Palm in The Philippines (in hectares), 2013			
Region	Area Planted	% to RP	
Luzon (Palawan)	5,840	11%	
Visayas (Bohol)	6,500	12%	
Mindanao	41,509	77%	
Zamboanga Peninsula	3	0%	
Northern Mindanao	4,260	8%	
Davao Region	807	1%	
SOCCSKSARGEN 17,125 32%		32%	

CARAGA	17,374	32%	
ARMM	1,940	4%	
Philippines	53,849	100%	
Source: BAS/PSA			

SOCCSKSARGEN and CARAGA regions were leading the palm oil plantation as well as FFB production in 2013 with the former showing higher productivity shown in Tables 6 and 7.

Table 4. Breakdown of Fresh Fruit Bunches Production (in MT) in the Philippines, 2013			
Region/Area	Region/Area Volume (in MT)		
Luzon	14,283.27	3%	
Visayas	34,405.98	7%	
Mindanao	424,726.96	90%	
Northern Mindanao	35,180.00	7%	
Davao Region	2,974.99	1%	
SOCCSKSARGEN	143,673.52	30%	
Caraga	136,370.72	29%	
ARMM	106,527.73	23%	
Philippines	473,416.21	100%	
Source: BAS/PSA			

Mindanao regions contributed significantly of the 473,416.21 MT of Fresh Fruit Bunches produced nationwide accounting for 90% of the production. The top 3 oil producing regions in 2013 were SOCCSKSARGEN, Caraga, and ARMM, with a consolidated share of 82% of total Fresh Fruit Bunches production.

Table 5. Top Five Oil Palm producing Provinces in The Philippines, 2013					
Top 5: Proc	luction Volum	ne	Top 5: Average Yield		
Province Volume Ave		Province	Ave Yield	Area	
	(MT)	Yield		(MT/ha)	(Hectare)
		(MT/ha)			
Agusan del Sur	134,303.69	8.19	Maguindanao	54.91	1,940.00
Maguindanao	106,527.73	54.91	Bukidnon	18.76	1,470.00
Sultan Kudarat	84,431.21	8.62	Davao del Norte	8.89	72.00
North Cotabato	51,121.25	8.89	North Cotabato	8.89	5,750.00
Bukidnon	27,580.00	18.76	Sultan Kudarat	8.62	9,800.00
Source: BAS/PSA	Source: BAS/PSA				

## B. Potential Expansion Area

According to the Mindanao Development Authority (MinDA), 959,000 hectares of land in Mindanao have been identified to be suitable for oil palm plantation and of which 177,000 hectares are said to be already under negotiation for palm oil development. Majority of the areas under negotiation are located in the ARMM and Caraga.

The potential for oil palm expansion is high in Mindanao. According to the Mindanao Development Authority (MinDA), there are about 959,000 hectares of land in Mindanao that were identified to be suitable for oil palm plantation, 177,000 hectares are said to be already under negotiation for palm oil development and majority of the areas under negotiation are located in the ARMM and Caraga.

Table 6. Potential Expansions Areas in Mindanao for Oil Palm Cultivation		
Location Potential Areas (in hectares)		
Zamboanga Peninsula	102,000	
Northern Mindanao	154,000	
Davao Region	104,000	
Soccsksargen	112,000	
Caraga	384,000	
ARMM 103,000		
Total 959,00		
Source: Mindanao Development Authority, 2014		

## Chapter 3 STRATEGIC DEVELOPMENT FRAMEWORK

The palm oil value chain is based on a market-driven approach and the prevailing opportunities as well as challenges in the industry, the cost implications and incentives for development. The market information is obtained from the key players like the President of the Philippine Palm Oil Council (PPOC), Mr. Erwin Garcia and service providers from the government and private players.

#### A. The Palm Oil Value Chain

A value chain is defined as a sequence of related business activities (or functions) that starts from the provision of specific inputs for a particular product to the primary production, transformation, marketing, and ends at the point of the final sale of the particular product to consumers. This description provides the functional view of a value chain. (ValueLinksManual.giz)

#### **Input Provision**

Pre-germinated seeds are imported and allowed to grow and are nurtured in nurseries for 6-8 months before planting. Irrigation, fertilizers and pesticides are important. Application of good agriculture practices for farmers and workers are essential at the nursery level.

## **Farming and Farm Management**

Getting the farm ready starts with the land preparation, (e.g., clear the land and remove the tree stumps). Then sow the cover crop and dig holes in the plantation. Take the seedlings out of the nursery, carry them to the plantation for planting. Farming starts with land preparation, planting, maintenance then harvesting. Seedlings are planted from 9.5m by 9.5m between palms. One hectare can accommodate about 130 palms. Fertilization is every 3 months in the first year and every 4 months once it is fruiting. Harvesting starts before 3 years and high productivity starts on the 7<sup>th</sup> year. With proper care, one hectare farm yield is at 25-30 metric tons FFB/year.

## Milling and Refinery

Once the fruit bunches have been collected from all over the plantation, the trucks go to the mill. Mills buy the FFB at PhP 4.00 per kg delivered within 24 hours from harvest.

- FFB are weighed and then they drop off their loads. Trucks dump the fruit bunches into containers, a little like a garbage skip, which then move along to the sterilizer station for some steam cleaning.
- The fruit bunches from the sterilizer station have softened, loosening the fruit. The threshing machine does the rest of the job, completely separating the parts of the fruit bunch.
- The leftover fiber and shells are used as fuel, powering the mill as well as all other electricity needs on the plantation.
- The empty fruit bunches are used as organic fertilizer and the fruit is taken to the press where the oil is squished out to make the oil. (TFT 2013)

There are two types of oil:

- 1. Palm oil (Crude Palm Oil CPO) made from the pulp of the fruit. It's edible and used in food products like biscuits, instant noodles, bread and many other food items.
- 2. Palm kernel oil made from the seed of the fruit. It's used mainly in cosmetics and shampoos, etc.
- The crude palm oil is pumped into trucks and then taken to the bulking station which are essentially just enormous holding tanks.
- These trucks are unloading crude palm oil at the bulking station. The oil is pumped into the tanks; held, waiting, ready to be sent to the refinery. Apparently the oil can't be stored for too long as it doesn't quite go off, but it isn't as fresh.
- Weighing in at the refinery. This is where crude palm oil goes to be refined,
   bleached and deodorized resulting in Refined Bleached Deodorized palm oil.

 And the refined oil is pumped back into a truck ready to go back to storage to be traded; bought by those who will turn it into food, cosmetics and biodiesel. (TFT 2013

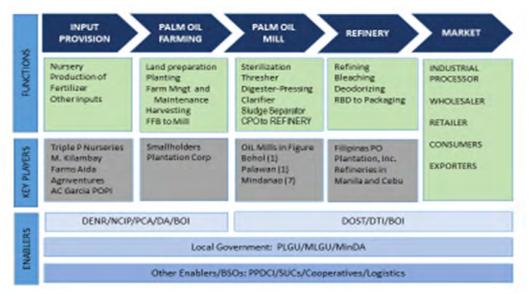


Figure 4. Palm Oil value chain map

## B. The Philippine Palm Oil Market

#### 1. Export Market

Figure 5. Export Performance of Philippine Palm Oil, 2012 to 2016 (Value in US\$)



Source: UN Comtrade, International Trade Statistics Database

The Philippine exports of CPO to India was about 28,298 MT in 2013 with a total value of US\$ 22,054,000. Average export price per MT was at US\$ 779.35. In 2016, the country's export

to India was 28,300 MT with a value of US\$15,876,857 or an average price of US\$561.02 per metric ton. This shows about 28% slump in the buying price which has pushed the farm gate price of FFB to P3.00 per kg. The smallholders are losing their income but are hoping to gradually recover by increasing their farm productivity.

The annual average growth rate is computed at 7% in terms of volume and 2% in terms of value from 2012-2016.

Table 7. Export Market of the Philippine Palm Oil in 2016				
Rank Country Volume (kg.)		Value (US\$)		
1	India	28,300,000	15,876,857	
2	Singapore	1,800,000	1,116,000	
3	Pakistan	809,796	111,206	
4	Portugal	518,920	315,016	
5	China	225,510	113,706	
6	Malaysia	62,400	56,160	
7	USA	770	772	

Source: UN Comtrade, International Trade Statistics Database

## 2. Import Export Performance

The Philippine palm oil imports went up in 2015 at US\$ 88,894,782 and but drastically dropped in 2016 (US\$30,690,576) while consumption is perceived to have gone up in 2016. The research on this may be pursued to validate the suspect of smuggling palm oil through the backdoors. Meantime, increasing the local production of palm oil would be a prudent approach to curtail or minimize imports.

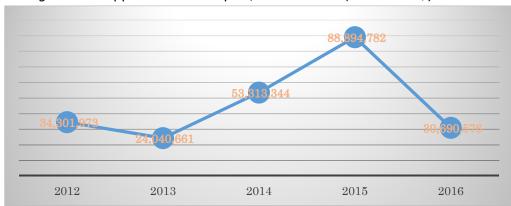


Figure 6. Philippine Palm Oil import, 2012 to 2016 (Value in US\$)

Source: UN Comtrade, International Trade Statistics Database

Table	Table 8. Import of the Philippines in 2016			
Rank	Country	Volume (kg.)	Value (US\$)	
1	Indonesia	19,241,329	17,979,473	
2	Malaysia	18,779,398	12,447,563	
3	Singapore	249,508	244,466	
4	USA			
		15,881	16,954	
5	United Kingdom			
		797	654	
6	Spain			
		787	1,274	
7	Other Asia, nes			
		328	192	

Source: UN Comtrade, International Trade Statistics Database

The annual average growth rate in the palm oil import is reported at 32% in terms of volume and 23% in terms of value from 2012-2016.

# Chapter 4 TECHNICAL REQUIREMENTS

#### A. Suitability

Palm Oil is one of the six (6) priority commodities or crops selected for the HARVEST project focus area using the stratified-deductive approach. The long list has been finally trimmed down to six, namely - coconut, cacao, coffee, rubber and oil palm and rice. Palm oil was unanimously supported by the regional heads of the ARMM Economic Cluster, led by RBOI Secretary Ishak Mastura during the Focus Group Discussion (FGD) held on 02 February 2018 in Davao City. This is also consistent with the ARMM Industry Cluster Capacity Enhancement Project Reports of the Japan International Cooperation Agency (JICA) and is recommended by the government and its partners.

In terms of agro-climatic requirements, oil palm thrives well at a temperature of 22-32 °C; not less than 2000 mm of rainfall that is evenly distributed throughout the year; sunlight of 5 hours per day or 2000 hours annually. Ideal soil type is flat, heavy and water-retaining alluvial soil. Oil palm is slightly affected by season and weather. (Dr. Pablito Pamplona, PPDCI). Meanwhile, the soil analysis may be undertaken during the feasibility study preparation and can be done in the HARVEST Phase II.

## B. Farming Method

In the Mindanao area, the key players in the palm oil industry are familiar with the growership and land leasing arrangement. In recent years, however, they have started adopting innovative business models which are geared towards reducing poverty through increased productivity. The more popular farming schemes are the following:

- a) The North Cotabato LGU's Plant-Now-Take-Care (PNTC) program which is patterned after two successful foreign government programs (b) and (c) on poverty alleviation.
- b) The Indonesian Nucleus Estate (INE) program where the smallholders within the 30-km radius from the big plantations plant oil palm on out-growership and pay later upon harvest.
- c) The Krabi, Thailand Oil Palm Planting (KTOPP) program where smallholders are assisted by the Krabi provincial government to plant oil palm on idle lands or crop lands with low productivity for high income.

In the KTOPP program, the smallholder farmers are provided with quality planting materials and inputs on credit payable upon harvest. Moreover, the government construct cemented farm-to-milling roads to facilitate the delivery of the FFB. As outcome of this program, Krabi once a depressed province with many poor farmers, hotbed of Muslim and communist rebellion is transformed into what is now a progressive province – among the centers of tourism in Thailand. The province is so peaceful, the tourists mingle with the populace at night time without fear of being molested.

The modification made by LGU North Cotabato was deemed an improvement of the foreign program from plant-now-pay-later (PNPL) to Plant-Now- Take-Care (PNTC). The latter offers incentives for farmers to get exempted from paying back the cost of seedlings if they have at least 20% survival of the seedlings planted. It encourages more farmers' participation,

motivates farmers to take care of their plants so as to be exempted from paying the cost of the planting materials. In this program the recipient farmers are also provided with technical services to ensure high seedling survival during the first year of planting and for the plants to become productive within 26 months after planting. With the threshold of 20% survival, the farmer is exempted from paying the cost of seedling. Below the threshold, the farmer will have to buy his own seedlings for replanting.

In agriculture, the most important stage of production is Nursery, particularly, seed selection. For oil palm, the country is now enjoying the use of hybrid pre-germinated seeds imported from Thailand, PNG and more recently from Malaysia. The identification of land area and preparation are equally important. Once the oil palm seedlings are planted, fruiting starts in the 3<sup>rd</sup> year. Good agricultural practice, (e.g., proper use of fertilizer) oil palm productivity will be increasing from 3 to 7 years and up to 25-30 years producing 20-25 tons/ha/year with continuing fertilization. According to Dr. Pablito Pamplona of the PPDCI, oil palm farmers should allot about 20-25% of gross income for the cost of fertilizer to sustain a 30-year productive life.

The first harvest of oil palm is estimated 2.2 years after planting. Harvesting is done every 10-15 days. The fresh fruit bunch weighs about 10-25 kg per bunch with 1,000 fruits at the average. The average crude oil yield is about 4.5 tons per hectare per year and 300-500 kg of palm kernel oil per hectare per year. One advantage of oil palm over other crops like rubber, coconut, etc. is it's being less prone to pilferage.

## C. Processing Technology

The palm oil FFB is 67% fruit producing the crude oil (43%) and the kernel oil after the milling process. The palm oil mills in the country are using the processing technology being used by the ASEAN countries. A processing breakdown for FFB is shown below.

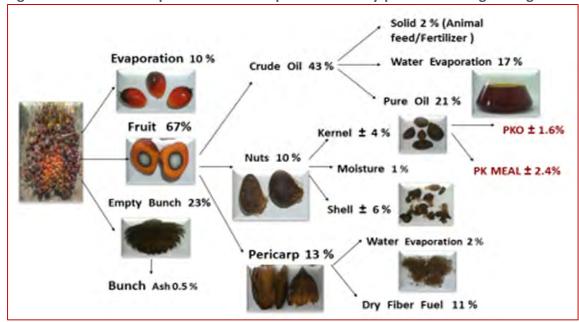


Figure 7. Breakdown of palm oil nuts into products and by-products during milling

Source: Philippine Palm Oil Roadmap, 2014-2023

Other important technical information on palm oil is shown as Annexes, such as:

Annex 1: Production Processes at the mill for Crude Palm Oil (CPO) and Palm Kernel Oil (PKO)

Annex 2: Uses of Oil Palm By-products and Biomass in Food and Manufacturing

Annex 3: Processing Breakdown of FFB

Annex 4: Palm Oil Refinery Process Flow

## D. Constraints and Opportunities

This section will contain a more localized approach for the Province of Maguindanao due to the following reasons and justification:

- a) The province is part of ARMM and is a potential area for the CMDCA Pilot Corporative;
- b) Palm Oil Industry Cluster is a priority of both AICCEP and the Provincial Investment Commodities Plan;

- c) It offers an environment that is ready to scale-up considering the first 5,000-ha palm oil plantation and an existing 30-T FFB/hr Palm Oil Mill; and,
- d) Land area for expansion is available.

Tal	Table 9. Constraints and Opportunities			
	Constraints	Opportunities/Measures		
	50.000.00.00	Сррозовина с развителни в применения в приме		
N	High acquisition cost of planting materials. PHP 250/seedling will cost the farmer PHP 31,750/ha for seedling alone.	<ul> <li>The availability of HARVEST Fund for lending to agri-cooperatives and SMEs in developing plantations.</li> </ul>		
U	Lack of access to financing programs for	<ul> <li>Availability of incentives from Board of Investment - ARMM</li> </ul>		
R S	agricultural projects.  Lack of accredited nurseries resulting to substandard planting material	<ul> <li>Piloting an existing Nursery as showcase for training providers, e.g., TESDA, DA to build up its technical know-how/skills using GAP and high yielding variety of oip palm seedlings to increase yield and oil</li> </ul>		
R	Lack of discipline/knowledge on cost- benefit among farmers	content.  O Maguindanao can benchmark from the existing nurseries like Univanich on how		
Y	Lack of supply of good quality planting materials of high yielding variety at affordable cost	to make seeds/planting materials more affordable.		
Р	Lack of access to soil and leaf analysis services as basis for fertilizer application.	<ul> <li>Technology for production of organic fertilizer using palm oil waste is available.</li> <li>Use of organic fertilizer and proper</li> </ul>		
R	Limited availability and commercial distribution of organic fertilizer and inputs specific for oil palm.	nutrient management can contribute to yield improvement at reduced financial and environmental cost		
O D	Relatively costly chemical inputs to the farmers as well as the environment	<ul> <li>Access to supply of planting materials of Mucuna bracteata for cover crop in oil palm plantations can reduce the use of</li> </ul>		
U		inorganic fertilizer by about 50%.		

С	Difficulty in understanding and appreciation of good agricultural practices/ sustainable farming practices among smallholders due	o Creation of public-private sector Board for the Palm Oil Industry (or a Body) to extend technical assistance to farmers
Ι	<ul> <li>Poor information dissemination/promotion of GAP.</li> <li>Lack of benchmarking for the</li> </ul>	<ul><li>and SMEs in order to improve their awareness and appreciation of GAP.</li><li>Promotion of the HARVEST financing to motivate them to work and achieve</li></ul>
0	smallholders, e.g., visit to demonstration farms showcasing	increased productivity in the palm oil industry with the end view of creating
N	<ul> <li>good agriculture practice.</li> <li>Limited access to capital</li> </ul>	jobs and sustainable income.
Р	Deterioration of quality after harvest causing price reduction of the FFB.	<ul> <li>Installation of the system for the proper handling of fruit bunches and conveyance to the Palm Oil Mill within 24 hours after</li> </ul>
R		harvest to avoid quality deterioration.  O Appropriate GAP training for the
0		operatives and strict compliance to procedures from harvesting to milling.
С		Maybe recommended in the HARVEST Phase II
E	Poor road condition from the farm to the	<ul> <li>Organized farmers/cooperatives making</li> </ul>
S	market limiting access to oil mills	representation with the LGU to prioritize construction/upgrading and maintenance
S		of their farm-to-market roads
I	Difficulty in complying with certification requirements	<ul> <li>Achievement of sustainable certification to improve the competitiveness of</li> </ul>
N		Maguindanao in the oil palm market and reduce risks of market exclusion in the
G		near future  Sustainable production and processing system in the palm oil industry can reduce the environmental risk and enhance productivity in the whole value chain.

Technical smuggling of Palm Oil products	o Potential revenue for the Philippine
into the country	Government once rectified or corrected
Land tenure disputes. Multiple claimants may arise after a plantation is established. Oil palm plantation expansion is hampered by land use conflict, as well as social and environmental issues  Security also poses a constraint in inviting	<ul> <li>Conduct of thorough "due diligence" before a plantation is established.</li> <li>Existence of the Polloc Ecozone in Maguindanao as ready location for the oil refinery plant</li> <li>Effective programs on jobs creation and income like the HARVEST Project</li> </ul>
investors to the ARMM area.  Lack of capacity to invest among local	Creation of public-private sector Board
population to undertake value addition and to manage the investment promotion.	for the Palm Oil Industry (or a Body) to extend technical assistance to farmers and SMEs in order to improve their awareness and appreciation of GAP and  Promotion of large-scale investment projects like the Crude Palm Oil Production: A Business Model. It's an integrated plantation with Palm Oil Mill and Refinery using an innovative business model illustrated in Figure 9.

## D-1 The Crude Palm Oil Production: A Business Model

■ The alternative business model shown in Figure 9 is designed to benefit rural communities. It is recommended for the palm oil plantation as this is deemed effective in helping eradicate poverty among indigenous peoples.

- Proposed plantation size is 5,000 ha with 5 ha land per family and to be developed in 3 phases, as follows:
  - Phase I 1<sup>st</sup> 1,500 ha
  - Phase II 2<sup>nd</sup> 1,500 ha
  - Phase III 2,000 ha
- There are 5 identified key players in the business model, namely:
  - o Financing Provider, (i.e., Land Bank of the Philippines);
  - Local Government Unit, who can serve as the Regulatory Body or the Palm Oil Board or an investor in the Oil Mill;
  - o Farmers Association/Cooperatives as plantation owner or grower;
  - o Farming Corporation or a Technical and Management Consultancy Firm; and
  - State University to provide the R&D support and sustainability studies.
- As soon as the land preparation and plantation development commence, the growers begin to earn through the development investment thereby addressing directly the poverty incidence. The prospect of 5,000 hectares plantation could significantly impact directly and indirectly 2,000 to 3,500 households. In addition, one social benefit includes the provision public service facilities such as housing, roads, light and water, that comes along with the plantation development for a plantation township. The government services can also be easily accessed with this set-up through health, education and other ministerial government service agencies. (Palmarina Proposal)
- The plantation design may include surrounding areas with reforestation of native tree species, fruit trees and reintroduction of important endemic species to damaged forest areas. DENR has included palm oil tree as reforestation species. The land area development for palm oil and associated reforestation will mean sustainable income to the farmers in the long term and addressing poverty in the short run and once harvesting begin. (Palmarina Proposal)

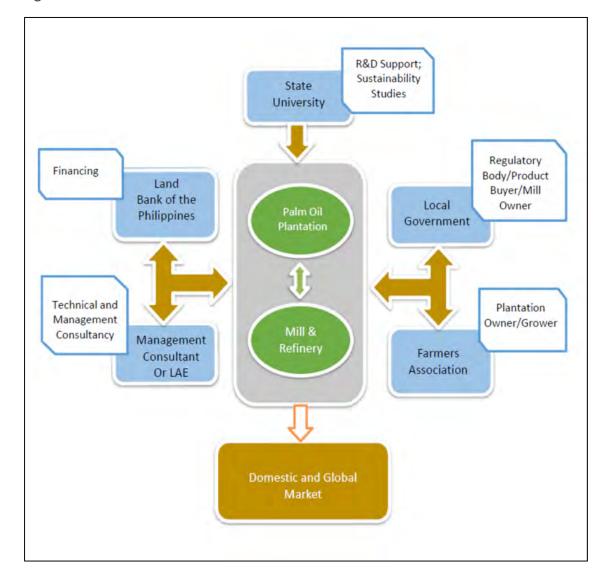


Figure 8. Refined Palm Oil Production Business Model

Source: Palmarina Consultancy, Inc. (with modification)

- It is critical for the oil palm industry to have a regulatory Body as a Board based on the learnings from FELDA structure in Malaysia. The proposed Local Government Unit (LGU) can be further studied to be part of the proposed structure.
- It is in this context that the business model is presented for further study. A full blown feasibility study might be necessary.

The following financial pre-feasibility estimates are derived from this proposal.

## Chapter 5 FINANCIAL REQUIREMENTS

## A. Financial Pre-Feasibility Estimates

This section presents the pre-feasibility estimates based on the proposed business model shown in Figure 9 to provide an indicative prospect of project viability. The main assumptions include:

- (1) Establishment of one crude palm oil mill with the capacity of 30Tons/hour proximate to the plantations;
- (2) Fully planted 5,000 hectares of F1 hybrid oil palm;
- (3) Financing from LandBank (HARVEST)
- (4) Palmarina Consultancy is willing to participate in palm oil project in Mindanao.

The calculations are based on the 7<sup>th</sup> year matured cropping. However, harvesting already begins two years after planting.

Table 1 presents the investment costs associated with palm oil plantation development and construction of oil mill facility. It is a total of PhP1.615 Billion investment from PhP500 Million for the oil mill and PhP1.125 Billion for the palm oil plantation development. This investment will be spread over 5 years at an average of PhP325 Million investment per year.

Table 10 Oil Mill and Plantation Investment Cost

Components	Description	Estimated Cost
Palm Oil Mill	Land acquisition (15 hectares)	PhP500,000,000.00
	Oil Mill Construction (Design and Build)	
Refinery	Land acquisition (15 hectares)	PhP337,500,000.00
	Oil Mill Construction (Design and Build)	
Plantation	5,000 hectares, terracing, land	PhP1,125,000,000.00
Development	preparation, planting. Development	
	cost at USD 4,500/ha	
Total		PhP1,962,500,000.00

Assumption: Investment spreads over 1 to 2 years for the Oil Mill acquisition and 3 to 4 years in plantation development.

Table 11 Oil Mill Annual Income (Mature Production)

Components	Gross	Operational	Net Income (60%) (PhP)
	Income	Cost	
Mill Processing	84,000,000.00	33,600,000.00	50,400,000.00
By-products	14,424,000.00	5,769,600.00	8,654,400.00
Crude Palm Oil Income	131,901,600.00	52,760,000.00	79,140,960.00
Total			138,195,360.00

Assumptions: PhP700/ton processing charge; 24 Tons FFB/Ha; 5,000.00 hectares; OER at 23%; Indicative payback period: 3.61 years (on oil mill investment).

Table 11a Oil Mill Annual Income Projection

Year	FFB/ha	Mill Processing	By-Products	Crude Palm Oil	Total Income
1	0	-	-	-	-
2	0	-	-	-	-
3	0	-	-	-	-
4	5	10,500,000.00	1,803,000.00	16,487,700.00	28,790,700.00
5	7	14,700,000.00	2,524,200.00	23,082,780.00	40,306,980.00
6	11	23,100,000.00	3,966,600.00	36,272,940.00	63,339,540.00
7	15	31,500,000.00	5,409,000.00	49,463,100.00	86,372,100.00
8	18	37,800,000.00	6,490,800.00	59,355,720.00	103,646,520.00
9	21	44,100,000.00	7,572,600.00	69,248,340.00	120,920,940.00
10	24	50,400,000.00	8,654,400.00	79,140,960.00	138,195,360.00
11	24	50,400,000.00	8,654,400.00	79,140,960.00	138,195,360.00
12	24	50,400,000.00	8,654,400.00	79,140,960.00	138,195,360.00
Total		312,900,000.00	53,729,400.00	491,333,460.00	857,962,860.00

Note: Constant prices. Bank Loan (PhP500M) Future Value at 3.5% per annum for 12 years: PhP755,534,328.67

Table 11b Oil Mill Annual Income Projection (Inflation Adjusted)

Year	FFB/ha	Mill	By-Products	Crude Palm	Total Income
1	0		-	-	-
2	0	-	-	-	-
3	0	-	-	-	-
4	5	11,473,633.50	1,970,186.78	18,016,554.96	31,460,375.24
5	7	16,544,979.51	2,841,009.34	25,979,872.25	45,365,861.09
6	11	26,779,231.12	4,598,376.54	42,050,278.94	73,427,886.60

7	15	37,612,647.34   6,458,628.87   59,061,528.15   103,132,804	.36
8	18	46,489,232.11 7,982,865.29 73,000,048.79 127,472,146	.19
9	21	55,864,560.59 9,592,743.12 87,721,725.30 153,179,029	.01
10	24	65,760,568.46   11,292,029.04   103,261,002.35   180,313,599	.86
11*	24	67,733,385.52   11,630,789.91   106,358,832.42   185,723,007	.85
12	24	69,765,387.08   11,979,713.61   109,549,597.39   191,294,698	.09
Total		398,023,625.23 68,346,342.50 624,999,440.55 1,091,369,40	08.2

Note: At 3% inflation rate. Bank Loan (PhP500M) Future Value at 3.5% per annum for 12 years: PhP755.5M. (\*) Payback Year

Table 12 Plantation Income on Fresh Fruit Bunch

Components	Gross	Operational	Net Income (50%) (PhP)
	Income	Cost (50%)(PhP)	
Fresh Fruit Bunch	720,000,000.00	360,000,000.00	360,000,000.00

Assumption: 120,000 MT/ha-year; at PhP6,000/MT; Indicative payback period: 3.12 years (on plantation development investment)

Table 12a Plantation Income on Fresh Fruit Bunch Annual Projection (5,000 ha)

Year	FFB/ha	Gross	Operation	Net Income	Income/ha
			al Cost		
1	0	-	-	-	
2	0	-	-	-	
3	0	-	-	-	
4	5.00	150,000,000.0	75,000,000.00	75,000,000.00	15,000.00
5	7.00	210,000,000.0	105,000,000.0	105,000,000.0	21,000.00
6	11.00	330,000,000.0	165,000,000.0	165,000,000.0	33,000.00
7	15.00	450,000,000.0	225,000,000.0	225,000,000.0	45,000.00
8	18.00	540,000,000.0	270,000,000.0	270,000,000.0	54,000.00
9	21.00	630,000,000.0	315,000,000.0	315,000,000.0	63,000.00
10	24.00	720,000,000.0	360,000,000.0	360,000,000.0	72,000.00
11	24.00	720,000,000.0	360,000,000.0	360,000,000.0	72,000.00
12	24.00	720,000,000.0	360,000,000.0	360,000,000.0	72,000.00
			Total	2,235,000,000	

Table 12b Plantation Income on Fresh Fruit Bunch Annual Projection (5,000 ha, inflation adjusted)

Year	FFB/ha	Gross	Operation	Net Income	Income/ha
			al Cost		
1	0	-	-	-	
2	0	-	-	-	
3	0	-	-	-	
4	5.00	163,909,050.0	81,954,525.00	81,954,525.00	16,390.91
5	7.00	236,356,850.1	118,178,425.0	118,178,425.0	23,635.69
6	11.00	382,560,444.5	191,280,222.2	191,280,222.2	38,256.04
7	15.00	537,323,533.4	268,661,766.7	268,661,766.7	53,732.35
8	18.00	664,131,887.3	332,065,943.6	332,065,943.6	66,413.19
9	21.00	798,065,151.2	399,032,575.6	399,032,575.6	79,806.52
10	24.00	939,436,692.3	469,718,346.1	469,718,346.1	93,943.67
11*	24.00	967,619,793.1	483,809,896.5	483,809,896.5	96,761.98

12	24.00	996,648,386.9	498,324,193.4	498,324,193.4	99,664.84
			Total	2,843,025,894	

Note: At 3% inflation rate. Bank Loan (PhP1.5B) Future Value at 3.5% per annum for 12 years: PhP2.26B. (\*) Payback Year

- Table 2 and 3 presents the rough income projections from the <u>plantation and oil mill</u> (Net Present Value calculations will be considered in the formal feasibility study).
- The <u>oil mill income projection</u> is about <u>PhP138 Million per year</u> at matured cropping stage while the plantation earns up to PhP360 Million per year at matured cropping. In this scenario, the estimated payback period would be at least 4 years for both investments.

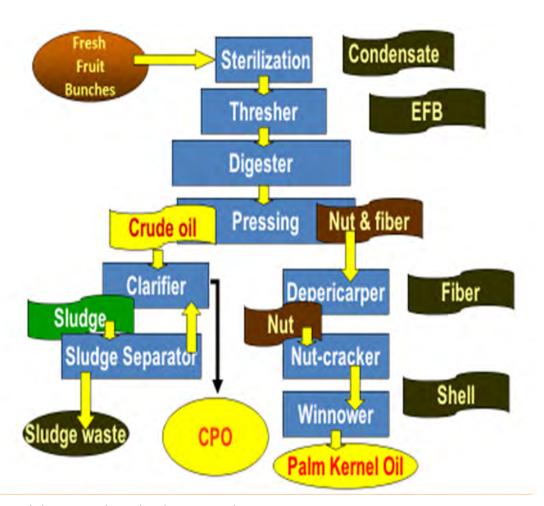
Table 13 Refinery Cash Flow

						CPO RE	CPO REFINERY PLANT						
						PROJECTI	PROJECTION OF CASHFLOW						
							Years						
Description	MoO	0	1	2	8	4	5	9	7	80	6	10	Total
Raw Material													
PK	mt		30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	150,000
Production													
CPKO	mt		15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	75,000
PKC	mt		14,100	14,100	14,100	14,100	14,100	14,100	14,100	14,100	14,100	14,100	70,500
Investment													
Capital Investment	Php	351,000,000				-							351,000,000
Total	Php	351,000,000											351,000,000
Cash Inflow													
CPKO Sales	Php	-	000'000'099	000'000'099	000'000'099	000'000'099	000'000'099	000'000'099	660,000,000	000'000'099	000'000'099	000'000'099	3,300,000,000
PKC Sales	Php	-	202,600,000	507,600,000	507,600,000	507, 600, 000	507,600,000	507,600,000	507,600,000	507,600,000	507,600,000	507,600,000	2,538,000,000
Total	Php		1,167,600,000	1,167,600,000	1,167,600,000	1,167,600,000	1,167,600,000	1,167,600,000	1,167,600,000	1,167,600,000	1,167,600,000	1,167,600,000	5,838,000,000
Cash Outflow													
PK Purchase	Php	-	000'009'066	990,600,000	000'009'066	000'009'066	990,600,000	000'009'066	990,600,000	990,600,000	990,600,000	990,600,000	4,953,000,000
Power Consumption Cost	Php	-	29,952,000	30,850,560	31,776,077	32,729,359	33,711,240	34,722,577	35,764,254	36,837,182	37,942,297	39,080,566	159,019,236
General Cost	Php	-	31,200,000	32,136,000	33, 100, 080	34,093,082	35,115,875	36,169,351	37,254,432	38,372,065	39,523,227	40,708,923	165,645,037
MaintenanceCost	Php		18,720,000	19,281,600	19,860,048	20,455,849	21,069,525	21, 701, 611	22,352,659	23,023,239	23,713,936	24,425,354	99,387,022
Operation Cost	Php	-	10,920,000	11,247,600	11,585,028	11,932,579	12,290,556	12,659,273	13,039,051	13,430,223	13,833,129	14,248,123	57,975,763
PKC Transport Cost	Php	-	14,664,000	15,103,920	15,557,038	16,023,749	16,504,461	16,999,595	17,509,583	18,034,870	18,575,916	19, 133, 194	77,853,168
Total	Php	-	1,096,056,000	1,099,219,680	1,102,478,270	1,105,834,619	1,109,291,657	1,112,852,407	1,116,519,979	1,120,297,578	1,124,188,506	1,128,196,161	5,512,880,226
Account Balance													
Account Balance Sheet	Php	(351,000,000)	71,544,000	68,380,320	65,121,730	61,765,381	58,308,343	54,747,593	51,080,021	47,302,422	43,411,494	39,403,839	325,119,774
Accumulation	Php	(351,000,000)	(279,456,000)	(211,075,680)	(145,953,950)	(84,188,569)	(25,880,226)	28,867,367	79,947,388	127,249,810	170,661,304	210,065,143	

## VI. References and Annexes

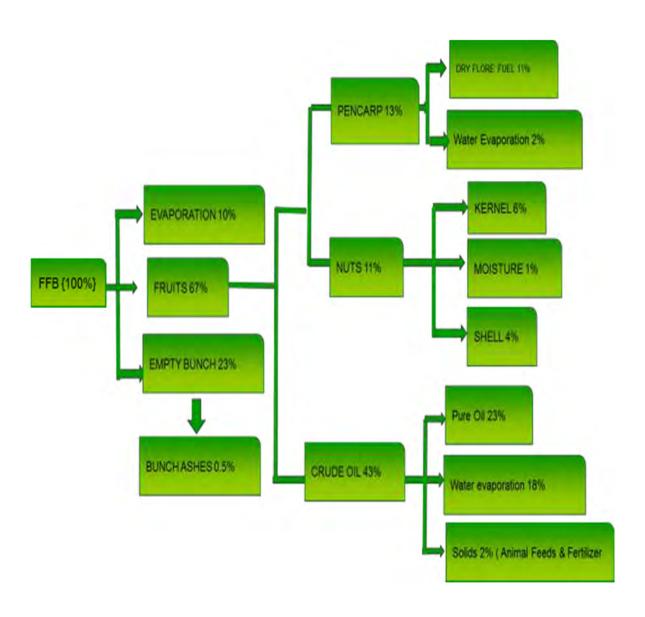
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ANNEX 1
CPO and PKO Processes at the Mill



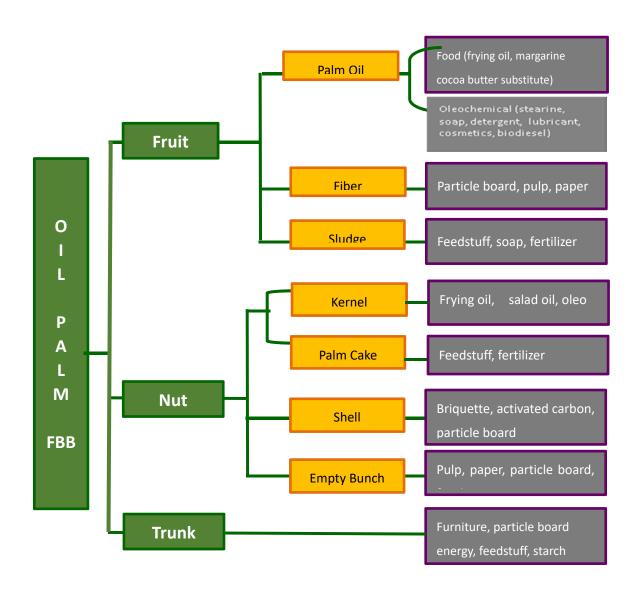
Source: Philippine Palm Oil Industry Roadmap, 2014-2023

ANNEX 2
Processing Breakdown of FFB



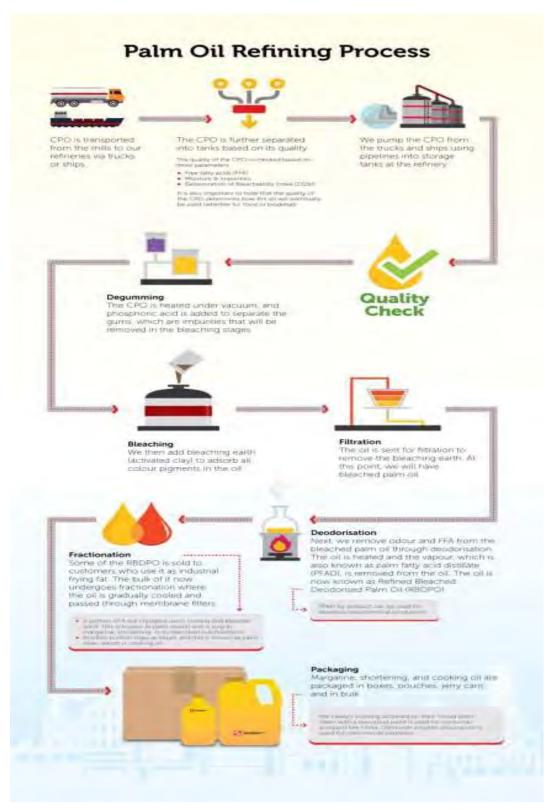
Source: Palmarina Consultancy Proposal

ANNEX 3
Uses of Oil Palm By-products and Biomass in Food and Manufacturing



Source: PRDP Value chain analysis: Palm Oil Mindanao

Annex 4
Palm Oil Refinery Flowchart



**Source: Palmarina Consultancy Proposal** 

## List of businesses

Bulls Burgers of refined	a Jallihaa Faads
Bulk Buyers of refined	o Jollibee Foods
palm oil	o McDonalds
	○ Gensan KCC
	CDO Supermarkets
Institutional Buyers of	Phil Refining Company
Palm Kernel in Manila	o Proctor and Gamble
and Davao	<ul> <li>Universal Robina Corporation</li> </ul>
	Pacific Oil Mills in Davao & General Santos City
Plantation/Processing	Agusan Plantations Group of Companies, Maasin, Brooke's Point,
	Palawan
	○ Agumil Philippines, Inc. (AGPI)
	○ Agusan Plantations, Inc. (API)
	○ Palawan Palm & Vegetable Oil Mils, Inc. (PPVOMI)
	o Philippine Agriculture Land Development and Mill, Inc. (PALM,
	Inc.)
	AC Garcia Palm Oil Plantations, Tacurong, Sultan Kudarat
	AC Garcia Palm Oil Mills, Inc.
	ABERDI Palm Oil Mill, Inc., Impasugong, Bukidnon
	Buluan Palm Oil Mill, Inc., Buluan, Maguindanao
	Filipinas Palm Oil Plantation, Inc., Agusan del Sur
	Filipinas Palm Oil Mills, Inc., Agusan del Sur
	KENRAM Industrial Palm Oil Mill, Isulan Sultan Kudarat
	Palm Inc., Ubay, Bohol
	Univanich Palm Oil Mill, Carmen, North Cotabato
Nursery	Triple P-Farms
	Kilambay Farms,
	Aida Agri-ventures
	Univanich
	·

Source: KII

## The Philippine Coconut Authority (PCA) Regional Operations Report, 2017:

Sun Valley, Vegetable Cooking Oil Tingub, Manduae City N/A Pio Castillo Jr. regulatory\_ipi@yahoo.com 4127772, 2312129

Ricor Mills Corporation Oil Miller RBDO, Palm Oil Purok 6, Tablon, Cagayan de Oro City, Mis. Oriental N/A Jethru P. Ranopa (088) 855-2902/ (088) 855-2900

C & G Philkor Resource Trading Exporter/Trader CPO, Palm AcidOil, Palm Fatty Acid Oil B18L5 Phase 1B Villa Trinitas, Bugo, Cagayan de Oro City N/A Nestor D. Babol (088) 850-0323

A. Brown Energy and Resources Dev. Inc. Oil Palm Miller Refinery CPO, Palm Olein, Palm Stearin Oil Upper Balulang, Xavier Estates, Cag. De Oro City Sitio Malubog, Pob., Impasugong, Bukidnon Elmer P. Pabatao (088) 858-8580

Pacific Oil Farmers, Inc. Manufacturer/Exporter Palm Generated Nursery KM 23, Banawan, Davao City N/A Jose Diomedes Delima 236-0057/ 236-0392

Aida's Agro-Industrial Ventures Oil Palm Nursery Oil Palm Seedlings Sto. Niño, Kidapawan City N/A Renfreda Embalzado N/A

Kilambay Farms Agri Buy N Sell Oil Palm Nursery Oil Palm Seedlings Poblacion, Carmen, North Cotabato N/A Jerry John Taray N/A

Univanich Carmen Palm Oil Corporation Palm Oil Miller and Exporter Crude Palm Oil, Palm Kernel Brgy. Tacupan, Carmen, North Cotabato N/A Patrick Francis Saltiga N/A

AGUMIL Philippines, Inc. N/A Oil Palm Seedling Nursery Crude Palm Oil & Palm Kernel Oil Palm Plantation/Production Brgy, Manat, Trento, ADS N/A Engr Arthur Paul P. Elecanal Plant Manager 9189791168 (082) 291-5825

Agumil Philippines Inc. Manufaturer/Producer Crude Palm Oil & Palm Kernel/ Mill Manat, Trento, Agusan del Sur Manat, Trento, Agusan del Sur Engr Arthur Paul P. Elecanal Tel No. 082-291-5825 '09189791168

Agusan Plantations, Incorporated Trader Oil Palm Plantation/Production Manat, Trento, Agusan del Sur Manat, Trento, Agusan del Sur Jundril N. Verano/ Mr. Ang Cheng Gian - Plant Manager/President Cel No. 09189791178

Filipinas Palm Oil Plantations Manufaturer/Producer Oil Palm Plantation & Crude Palm Oil Producer Mate, San Francisco Agusan del Sur Mate, San Francisco Dennis T. Villareal /Anecito B. Ortiz, President/Plant Manage Tel. No./Fax No. 082-221-8224

Caraga Oil Refining, Inc. Crude Palm Oil Manufacturer Manufacturer of RBD Palm, Oil, Palm Olein, RBD Palm

Stearin, Palm Fatty Acid, etc. Mate, San Francisco Agusan del Sur Mate, San Francisco, Agusan del Sur Dennis T. Villareal/ President Tel. No./Fax No. 082-221-8224

XIII Caraga Oil Refining, Inc. Crude Palm Oil Manufacturer Exporter of RBD Palm Oil, Palm Olein, RBD Palm Stearin,

Palm Fatty Acid, etc. Mate, San Francisco, Agusan del Sur Mate, San Francisco, Agusan del Sur Dennis T. Villareal/ President Tel. No./Fax No. 082-221-8224

- 11. Commodity Investment Module
- 11\_3\_Rubber Investment Module



## Land Bank of the Philippines

## Japan International Cooperation Agency

# Commodity Investment Module (RUBBER)

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

Technical Assistance Team

Nomura Research Institute, Ltd.

NTC International Co., Ltd.

Oriental Consulting Global

## **TABLE OF CONTENT**

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## Chapter 1 Overview of the Commodity

Natural rubber is a globally traded commodity. It is widely used as raw material for almost undetermined number of industrial and household products. Seventy to eighty percent (70-80%) of natural rubber goes to tire manufacturing companies as raw material component and twenty to thirty percent (20-30%) goes to non-tire rubber and rubber based products such as industrial and surgical gloves, condoms, rubber bands and strips, sport wares shoes, boots, balls, balloons, rubber hoses, floor mats, insulators, waterproofing sheets and pads, shock absorbers and many more.

The demand for natural rubber and rubber based products continue to rise both in domestic and international markets. As published in the Rubber World magazine, the world demand is forecasted to reach to 31.7 million tons in 2019.

Natural rubber is harvested from a rubber tree which is scientifically known as Hevea Brasilienses. It is mainly grown for its latex which is process to produce centrifuge latex and rubber sheets or crumb. Centrifuge latex is used as raw material for medical gloves and other highly sensitive rubber based products. Rubber sheets and crumbs is used as raw material for tires and non-tire industrial and household rubber and rubber based products.

It has great applications in making life comfortable for human beings in the area of household equipment, clothing such as shoes, foam mattresses, raincoats and blending with other additives for cosmetic works. The heat reduction behaviour of rubber has been a tremendous achievement for production of foam mattresses due to the ability of natural rubber to store strain energy. New products and uses of rubber are being continuously explored as natural rubber is indispensable in the modern world. This is how significant the rubber tree is to our daily routines.

Investing in rubber tree plantation instead of other crops maybe a better option for investors considering that rubber tree is not difficult to grow and manage. Rubber tree plantation does not require repetitive planting and needs minimal irrigation only if none at all. It has a commercial productive life of twenty five(25) years. Senile trees (usually above 25 years old) and less productive trees can be process into lumber and is said to be comparable to teak wood in character. Furniture items using rubber wood is incredibly lightweight and is more durable as rubber trees is known to have high speck intensity. It is also highly resistant to fungus attacks. Accordingly, furniture items made of rubber wood is very popular in North America because of its very unique qualities.

Rubber trees when properly planted and taken cared of usually are ready for tapping five years after planting to produce latex. Latex is a milky white liquid substance that is produce from rubber trees when the bark is cut through what is called tapping. The liquid substance or latex is collected using cups. This is either harvested as latex to be processed as rubber sheets or cuplumps to be sold to crumb rubber processors or traders.

The quality of cup lump is determined in terms of dirt content as well as dry rubber content. Local traders usually give cash advances to farmers while waiting for the farmers to deliver their products. This is a common marketing practice in the industry. This assures the buyers for a regular or captive supply of rubber from farmers due to the cash advance

Rubber plantations are predominantly owned by small holders with land area of 3 hectares and below. Land area with more than 3 hectares planted to rubber are considered commercial scale plantations. These are owned by individuals, corporations and cooperatives.

## Chapter 2 Rubber Production Area

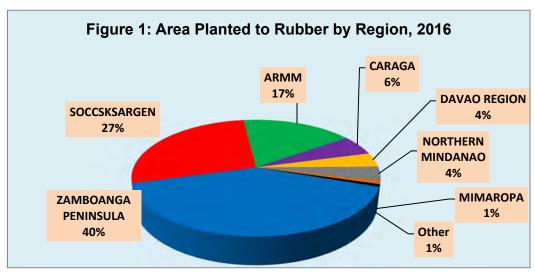
#### A. Area Planted

Based on the Philippine Statistics Authority (PSA) data, area planted to rubber in the Philippines continuously increasing from 2012-2016 by 47,039.17 hectares or an average growth rate of 5.34%.

Among regions, Zamboanga Peninsula recorded the largest area planted to rubber in 2016 with 90,297 hectares or 40% of the total area of 223,283.17 hectares. Next is SOCCSKSARGEN with 61,026 hectares (27%), ARMM with 38,315 hectares (17%), and CARAGA with 12,519 hectares (6%). The rest of the regions registered an area of less than 10,000 hectares planted to rubber or less than 5% of the total area planted to rubber.

Some industry players questioned the accuracy of the data presented by PSA, but in the absence of an industry study or primary data on the actual hectarage planted to rubber, this document

relies plainly on the official statistics published by PSA. This is also for consistency purposes since the same data is also being supplied by PSA to international organizations like ANRPC and IRSG.



Source: Philippine Statistics Office (2017)

Table 1: Area Planted to Rubber by Region, 2012-2016 (in hectares)

Regions	2012	2013	2014	2015	2016
1. Zamboanga	80,375	86,033	86,452	89,837	90,297
Peninsula					
2. SOCCSKSARGEN	36,713	40,916	60,516	60,966	61,026
3. ARMM	32,079	34,115	38,115	38,275	38,315
4. CARAGA	11,528	11,548	11,837	12,450	12,519
5. Davao Region	6,693	3,533	8,518.30	8,872	8,831.96
6. Northern Mindanao	6,851.25	6,929.20	8,876.31	8,776.31	8,776.21
7. MIMAROPA	741.75	766	1,766.25	1,778.25	1,876
8. Central Visayas	1,015	1,018	1,018	978	966
9. CALABARZON	221	435	435	435	435
10. Cagayan Valley		152	122	203	210
11. CAR	27	27	27	27	27
12. Bicol Region		4	4	4	4
PHILIPPINES	176,244.00	185,476.20	217,686.86	222,601.56	223,283.17

Regio	ns	2012	2013	2014	2015	2016
Percentage	Increase	9.09%	5.24%	17.37%	2.26%	0.31%
(Decrease)						

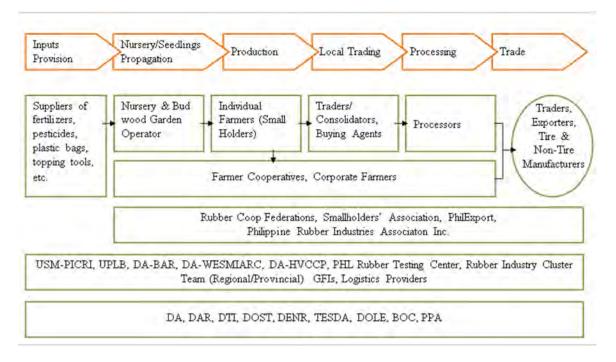
Source: Philippine Statistics Authority, July 2017 (PSA)

## Chapter 3 Strategic Development Framework

#### A. Rubber Industry Value Chain Map

Figure 2 presents the value chain map of the natural rubber for domestic and export markets

Figure 2. Rubber Value Chain Map



#### 1. Inputs provision (Fertilizers and Pesticides)

Inputs provision in the value chain include suppliers of fertilizers, pesticides, plastic bags, farm tools, equipment among others. These are necessary inputs to establish a rubber nursery.

#### 2. Nursery/ Seedlings Propagation

Seedlings serve as one of the critical inputs in the rubber value chain. These are propagated in the rubber nurseries. Seedlings or planting material are budded using recommended high yielding clones to ensure the quality of rubber trees when planted in the field. In the nursery, seeds are germinated and budded using superior quality clones planted in the bud wood garden and after about eight to ten months, the seedling are now ready to be planted in the field.

The estimated cost of establishing a nursery that will be sufficient to serve the requirement of 100hectare rubber plantation is placed at P 1,000,000.00 (Refer to Table 1 for the computation.) A rubber nursery can be a lucrative enterprise given the growing market for quality planting materials.

Table 2. Estimated Cost of Nursery Establishment

Particulars	Cost
Assets:	
Water Pump(5hp)	P35,000.00
Plastic drums	7,500.00
Wheelborrow	2,800.00
Shovel	1,750.00
Sprayer	15,000.00
Budding knife	6,250.00
Lagaraw	1,750.00
Water hose(100 meters)	17,500.00
Water tank	30,000.00
Green House	300,000.00
Sub total	P417,550.00
Working capital(6 months)	
Farm Inputs	P100,000.00
labor	450,000.00
Overhead expenses	20,000.00
Operating expenses	12,000.00
Sub total	P 582,000.00
TOTAL	P999,550.00 or P1M

(Source of Particulars, DTI XII)

## 4. Production (Rubber Farms)

The activities in developing rubber farms will include land clearing of standing plants, planting, care and maintenance as well as tapping. The estimated cost to develop a hectare of rubber farm up to the time of harvest is placed at P223.490.00 (refer to Table 2 for the estimated cost)

Table 3. Establishment Cost for One (1) hectare (From Year 1-5)

Particulars	Amount
Land Development Cost	
LAND PREPARATION	
Labor	13,400.00
Sub-total	13,400.00
PLANTING COST	
Rubber Seedlings	30,000.00
Direct Labor	9,600.00
Sub-total	39,600.00
GESTATION PERIOD COST	
Farm Inputs	35,900.00
Direct Labor	43,800.00
Farm Overhead	77,500.00
Sub-total	157,200.00
Grand Total	210,200.00
Farm Tools	5,600.00
Sub-total	215,800.00
Working Capital (One Month)	
Farm Inputs	900.00
Direct Labor	4,700.00
Farm Overhead	1,500.00
Selling and Administrative Expense	590.00
Sub-total	7,690.00
Total Project Cost	223,490.00

Source: Key players in Philippine Rubber industry

#### 5. Land Clearing and Preparation

Land clearing and preparation are among the labor-intensive tasks in rubber farming. This involves under brushing, clear cutting using chainsaw and other farm tools and equipment, sticking and holing. One (1) hectare plantation needs about four seasonal workers and eight days to complete the task.

For large scale plantations, applying the modern or scientific technology, clearing and preparing the plantation would require heavy equipment such as bulldozer ripper, tractors with auger and back hoe.

#### 6. Field Planting, Upkeep and Tapping

The field planting activities involve hauling of seedlings from the nursery to the field and planting the seedlings to the holes made during the land preparation. This can be done by four (4) workers in two (2) days. One (1) hectare rubber plantation can be planted with five hundred (500) trees as a standard practice.

In family-based farming models, family members attend to the upkeep of the rubber trees until they are ready to be tapped. Newly planted rubber trees usually reach this level of maturity in five years. Tapping is then outsourced to independent tappers or is done by the farmers themselves. The tappers are compensated for their labor by giving them a share (i.e., 30% to 40%) in the generated revenues.

Starting the sixth year when the trees are ready for tapping, less labor for the upkeep and maintenance of the farm is needed. Tapping, in turn, will require only 10 man-days per hectare per month. A tapper can then cover three hectares or opt to work in three one-hectare farms each month. On the other hand, the non-tappers may prefer to work on other crops.

#### 7. The Rubber Postharvest Phase

The required postharvest facility for rubber includes a shelter for the storage of the latex coagulums, and the loose cup lumps. The loose cup lumps and coagulums are stored in a dry and covered place for at least 15 days before being delivered to the trader and or processors.

#### 8. Rubber Processing

Rubber farmers with small landholdings can engage on a value added activity that will enable them to produce air dried sheets instead of selling cuplumps. A few number of so called village level rubber processing plant producing air dried sheets and or unsmoked sheets are operating in some parts of the country. One such processing plant is located in Tulunan , North Cotabato operated by New Caridad United Farmers Association. The plant was set up sometime in 2016 with an investment of around P500,000.00. Refer to Table below for computation.

Table 4. Estimated cost of village level processing plant.

Particulars	Cost
Building	100,000.00
Rubber sheeter with engine	250,000.00
Dryer Shed	50,000.00
Coagulating tanks	50,000,00
Weighing scale	25,000.00
Mechanical baling press	25,000.00
total	500,000.00

Source, DTI XII

#### 9. Trading

The local rubber industry operates in an open-competition type of market but is largely dependent on global pricing. Some farmers, though, end up selling their produce at steep discounts. These farmers are those who have borrowed working capital from traders in exchange for future production at prices that bestows plenty of gains for the latter.

#### B. Market (Global and Local)

#### 1. Demand

The demand for rubber can be determined by the global trade performance and Philippine export performance of the natural rubber.

The world natural rubber consumption records have reflected yearly increased from 9.513 million tons in 2006 to 12.167 million tons in 2015. However, in 2009, world consumption have declined compared to 2008 record which was attributed to the economic crisis that hit the world in that year. In 2010, consumption again increased and continued to exhibit a yearly positive growth reaching 12.167million tons in 2015. China is reportedly the major consumer of natural rubber. In 2015, China rubber consumption was estimated at 4.8 million tons. India and USA are the other major consumers of natural rubber.

The rising world rubber consumption is attributed to the increasing volume of motor vehicles production and the growing numbers of developing countries posting higher economic growths. A study made by Research thinker which was published in Rubberworld magazine (March 2016) indicated that the world demand for natural rubber will grow yearly at 3,9 % or 31,7 million MT by 2019. The growth in manufacturing activities will drive demand for rubber and Asia Pacific region is forecast to post the fastest growth in consumption by 2019.

Table 4 shows the world consumption of natural rubber from 2006 to 2015 in 1000 tons presented by Malaysia Rubber Board, while Figure 3 presents a line graph to show the trend of natural rubber consumption using the same data.

Table 4. World Consumption of Natural Rubber

Year	Consumption('000 MT)
2007	10,138
2008	10,187
2009	9,289
2010	10,759
2011	11,034
2012	11,046
2013	11,370
2014	12,137

Year	Consumption('000 MT)
2015	12,167

Source: Philippine Statistics Authority

y = 299.03x - 590436  $R^2 = 0.8346$ — Consumption, MT
...... Trendline

Figure 4 . World Annual Rubber Consumption

While the Philippines is producing natural rubber, there are still few local manufacturers who are sourcing their natural rubber requirement from other countries. In 2006, Philippine importation of natural rubber was reported at 40,148.423 metric tons with a value of USD 74,616,599. The volume of imports increased to 48,597.290 metric tons in 2007 with a value of USD 87,573,351. In 2008 the volume of importation started to decline and in 2014 the volume significantly reduced to 13,953.543 metric tons with a value of USD 28, 774,664.

Table 5. Philippine Natural Rubber Imports

Year	Quantity (kg)	Value (USD)
2006	40,148,423	74,616,599
2007	48,597,290	87,573,351
2008	46,925,435	119,154,292
2009	24,469,078	37,177,757

Year	Quantity (kg)	Value (USD)
2010	14,195,101	24,214,041
2011	15,705,475	34,897,723
2012	17,259,966	35,378,913
2013	18,099,233	32,515,419
2014	13,953,543	28,774,664

Source: Philippine Statistics Authority

y = -4.4061x + 8882.9  $R^2 = 0.6946$ Year

Figure 4. Philippine Annual Rubber Imports (in thousand MT)

## 2. Supply

The world rubber production was reported at 9.8 million tons in 2006 and rose to 12.3 million tons in 2015. Except for year 2009, the ten year record reflected a yearly increase in the volume of production. On the average, world production of natural rubber have increased by 3% annually.

Table 6. World Natural Rubber Production

Year	World Production of Natural Rubber (MT/1000)
2006	9,850

2007	10,057
2008	10,098
2009	9,723
2010	10,403
2011	11,239
2012	11,658
2013	12,281
2014	12,115
2015	12,314

Source: Natural Rubber statistics 2016, and Malaysia Rubber board

The Philippines yearly contribution to world natural rubber production is estimated at only 1%. In 2006, the volume of production was recorded at 351,556 MT. It posted yearly increases at average growth rate of 2% from 2006 to 2015, except in 2009 where a slight decline in production was reported. Area planted to rubber in 2006 was recorded at 94,347 hectares planted with 30,123,884 trees. The area increased to 226,300 hectares with 56,917,639 trees in 2017 or annual growth of 10%. Table 7 shows the Philippine production of rubber from year 2006 to 2017.

Table 7. Philippine Natural Rubber Production

Year	Area Planted (ha)	No. of Trees	Production (MT)
2006	94,347	30,123,884	351,556
2007	110,972	35,034,731	404,072
2008	123,259	37,030,656	411,044
2009	128,376	37,212,359	390,962
2010	138,709	39,369,228	396,237
2011	161,565	42,063,221	425,703

Year	Area Planted (ha)	No. of Trees	Production (MT)
2012	176,244	43,550,204	442,998
2013	185,476	47,377,468	444,818
2014	217,686	52,457,749	453,052
2015	222,602	56,257,678	398,137
2016	223,300	56,605,728	362,626
2017	226,300	56,917,639	406,984

Source: Philippines Statistics Authority

Table 8. Philippine Exports Data

Year	Quantity (kg)	Value (USD)
2006	34,902,947	46,721,696
2007	32,926,855	42,093,384
2008	37,480,955	53,331,550
2009	27,336,568	27,230,003
2010	37,834,851	56,476,605
2011	43,483,284	80,470,178
2012	39,482,988	62,075,241
2013	69,928,241	76,970,633
2014	85,834,881	79,625,293

Source: Philippines Statistics Authority

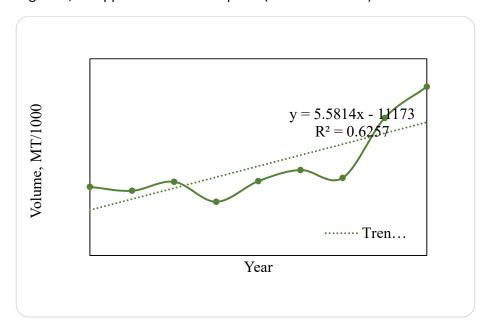


Figure 4, Philippine Annual NR Exports (in thousand MT)

#### 3. Competitive Analysis

The statistics from 2006 to 2015 on the world natural production and consumption shows that production always exceeded consumption as shown in production and consumption trends in Figure 5. The trend may indicate the not so impressive prospects for the natural rubber at an instance.

However, looking at the Philippine export performance (Table 8) will show brighter prospects still for natural rubber producers. As it is, exports continue to reflect a positive growth of 16 percent.

## 4. Competitive Position of Natural Rubber

The importance of rubber industry and its role in modern civilization prompted much interest in discovering its chemical composition in order to synthesize its products.

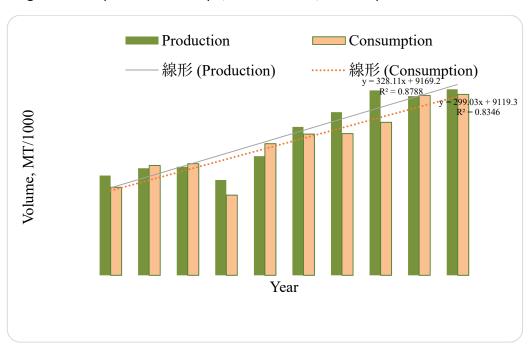


Figure 5. Comparative Bar Graph, Production vs, Consumption

Source: Rubber Industry, DTI, September 2012

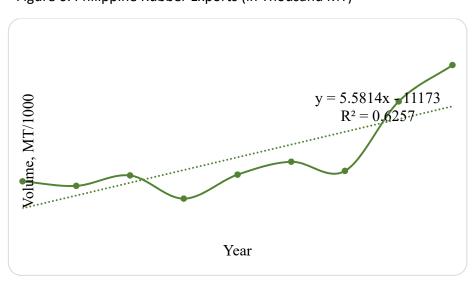


Figure 6. Philippine Rubber Exports (in Thousand MT)

Through research projects, Synthetic rubber is produced artificially from polymers in different varieties to mimic the properties of natural rubber.

Natural rubber has a high tensile strength and is resistant to fatigue from wear such as chipping, cutting or tearing. However, natural rubber has only moderate resistance to damage from exposure to heat, light and the ozone in the air. Natural rubber also has tack, which means that it can adhere to itself as well as other materials. It adheres particularly well to steel cord which make it excellent material for use in tire.

Synthetic rubber on the other hand, offers better resistance to abrasions than natural rubber as well as superior resistance to heat and the effects of ageing. Many types of synthetic rubber are flame-resistance so it can be used as insulation for electrical devices. It also remains flexible at low temperature and is resistant to oil and grease.

The major advantage of natural rubber which make it dominant in many engineering applications is its dynamic performance. It has a low level of damping and its properties remain fairly constant over the range 1 to 200Hz and show only slight increase in 1000Hz. Its combine dynamic properties generally outperform any synthetic rubbers on combination available to date.

Despite the proliferation of general and specific purpose synthetic rubber, natural rubber still holds a significant market share of 30 to 40 percent. Despite the competition of synthetic compounds, natural rubber continues to hold an important lace in the consumption. In particular, the superior tear strength and excellent resistance to heat makes it better to suited for high performance tires used for racing cars, trucks and buses and aircrafts. In these applications, the potential of switching from natural to synthetic is quite limited given the clear cut technology advantage of natural rubber. Over all, the combined properties of natural rubber outweigh synthetic rubber or combinations of synthetic rubber available.

#### 5. **Price**

The selling price of rubber is dictated by the buyers. At present, the buying price for cup lumps or wet rubber ranges from P18,00 to P28.00 per kilo..

In 2017 the average buying price is P22.00 per kilo reflecting a 17% increased as compared to the 2015 price. Table 9 presents the ten-year trend on the price of natural rubber (cup lump)

Table 9. Rubber (Cup lump) Farm Gate Prices ,Php per kg)

Year	Philippines
2006	36.02
2007	38.29
2008	40.44
2009	31.76
2010	61.49
2011	75.42
2012	50.06
2013	40.35
2014	26.32
2015	20.31
2016	22.33
2017	22.00
AVERAGE	38.73

Source: Philippine Statistics Authority

## **Chapter 4**

## **Technical requirements**

#### A. Suitability

Rubber plantation requires distributed rainfall of 200 cm to 300 cm with a humidity of about 75%. Rubber plant best grow in temperature of 20 - 35 degrees centigrade and requires at least 5 -6 hours of sunlight. Areas with strong winds are not suitable for rubber plantation. Rubber trees require highly deep weathered soils. It grows best in well drained and porous soils with soil acidity of 5-6ph.

#### **B.** Farming Method

To establish a rubber farm, the field should be cleared and prepared for planting. Rubber planting depends on the type of land. Square planting is suitable for level areas, while rectangular planting is recommended for slope lands. In hilly areas, recommended across the slope along the contour lines. Planting density is usually 500 trees per hectare. Planting is best done during the rainy season.

#### C. Constraints and Opportunities

The Department of Trade and Industry - Rubber Industry Core Group conducted a workshop and identified the following challenges and opportunities faced by the industry:

#### 1. Constraints

- -Lack of quality planting materials deterring efforts in production expansion;
- -Low productivity due to obsolete production technology;
- -Low quality of natural rubber non-adoption of Philippine National Standards for NR;
- -Non-recognition of Standard Philippine Rubber (SPR) in the international market;
- -Processors are not ISO aligned or certified (only 5 crumb rubber (CR) processors are ISO certified out of 21 CR processors)

- -Low price of natural rubber
- -Lack of updated Rubber Industry Data
- -Lack of marketing research and assistance for rubber products;
- -Lack of Promotional activities for rubber products both in the domestic and international markets;
- -Logistics and Tax Concerns;
- -Lack of public/private institution or body promoting and protecting the interest of the rubber industry;
- No policy in place defining the development direction and strategy for the rubber industry.

#### 2. **Opportunities**

- -Establishment of commercial bud wood gardens and nurseries
- -Establishment of rubber-based products manufacturing in Mindanao such as bicycle tires, rubber-based automotive parts, footwear and sport items
- -Manufacturing of bridge and seismic bearings
- -Manufacturing of rubberized asphalts for road pavements and construction
- -Manufacturing of rubber mats
- -Production and marketing of centrifuged latex both for export and domestic market
- -Manufacturing of latex-based products
- -Trading of pantation inputs and supplies
- -Supply and fabrication of rubber processing & manufacturing equipment
- -Processing of rubberwood furniture and other wood-based products
- -Export of natural rubber to emerging markets like Turkey, Israel, Iran, etc.

## **Chapter 5 Financial Requirement**

## A. Establishment Cost and Income per hectare

Table 10. Establishment Cost for a One (1) hectare Rubber Plantation

Total Establishment Cost (From Year 1-5)	
Particulars	Amount
Land Development Cost	
LAND PREPARATION	
Labor	13,400.00
Sub-total Sub-total	13,400.00
PLANTING COST	
Rubber Seedlings	30,000.00
Direct Labor	9,600.00
Sub-total Sub-total	39,600.00
GESTATION PERIOD COST	
Farm Inputs	35,900.00
Direct Labor	43,800.00
Farm Overhead	77,500.00
Sub-total Sub-total	157,200.00
Grand Total	210,200.00
Farm Tools	5,600.00
Sub-total	215,800.00
Working Capital (One Month)	
Farm Inputs	900.00
Direct Labor	4,700.00
Farm Overhead	1,500.00
Selling and Administrative Expense	590.00
Sub-total	7,690.00
Total Project Cost	223,490.00

Table 11. Projected Income Statement (1-hectare plantation)

B. Projected Income Statement						
PARTICULARS	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	
Sales	140,400.00	147,400.00	154,800.00	162,500.00	170,700.00	
Less: Production Cost						
Farm Inputs	10,900.00	7,000.00	7,300.00	7,600.00	8,000.00	
Direct Labor	56,900.00	61,800.00	64,800.00	68,000.00	70,500.00	
Farm Overhead	24,940.00	26,190.00	27,500.00	28,930.00	30,340.00	
	92,740.00	94,990.00	99,600.00	104,530.00	108,840.00	
Gross Profit	47,660.00	52,410.00	55,200.00	57,970.00	61,860.00	
Less: Selling and Administrative Expense	7,020.00	7,370.00	7,740.00	8,130.00	8,540.00	
Net Profit	40,640.00	45,040.00	47,460.00	49,840.00	53,320.00	

PARTICULARS	YEAR 11	YEAR 12	YEAR 13	YEAR 14	YEAR 15
Sales	174,070	177,552	181,103	184,725	188,419
Less: Production Cost					
Farm Inputs	0	0	0	0	0
Direct Labor	66,146.68	67,469.62	68,819.01	70,195.39	71,599.30
Farm Overhead	31,770.00	33,420.00	35,090.00	36,800.00	38,700.00
	97,916.68	100,889.62	103,909.01	106,995.39	110,299.30
Gross Profit	76,153.54	76,662.01	77,193.65	77,729.32	78,119.91
Less: Selling and Administrative Expense	8,970.00	9,420.00	9,890.00	10,400.00	10,900.00
Net Profit	67,184.00	67,242.00	67,304.00	67,329.00	67,220.00

PARTICULARS	YEAR 16	YEAR 17	YEAR 18	YEAR 19	YEAR 20
Sales	192,188	196,031	199,952	203,951	208,030
Less: Production Cost					
Farm Inputs	0	0	0	0	0
Direct Labor	73,031.28	74,491.91	75,981.75	77,501.38	79,051.41
Farm Overhead	40,600.00	42,600.00	44,800.00	47,000.00	49,300.00
	113,631.28	117,091.91	120,781.75	124,501.38	128,351.41
Gross Profit	78,556.30	78,939.43	79,170.22	79,449.62	79,678.62
Less: Selling and Administrative Expense	11,400.00	12,000.00	12,600.00	13,200.00	13,900.00
Net Profit	67,156.00	66,939.00	66,570.00	66,250.00	65,779.00

PARTICULARS	YEAR 21	YEAR 22	YEAR 23	YEAR 24	YEAR 25
Sales	212,191	216,434	220,763	225,178	229,682
Less: Production Cost					
Farm Inputs	0	0	0	0	0
Direct Labor	80,632.44	82,245.09	83,889.99	85,567.79	87,279.14
Farm Overhead	51,800.00	54,300.00	57,100.00	59,900.00	62,900.00
	132,432.44	136,545.09	140,989.99	145,467.79	150,179.14
Gross Profit	79,758.19	79,889.35	79,773.14	79,710.60	79,502.81
Less: Selling and Administrative Expense	14,600.00	15,300.00	16,100.00	16,900.00	17,700.00
Net Profit	65,158.00	64,589.00	63,673.00	62,811.00	61,803.00

## C. Return On Investment

Table 12. Estimated Return on Investment

YEAR	NET INCOME
6	40,640.00
7	45,040.00
8	47,460.00
9	49,840.00
10	53,320.00
11	67,184.00
12	67,242.00
13	67,304.00
14	67,329.00
15	67,220.00
16	67,156.00
17	66,939.00
18	66,570.00
19	66,250.00
20	65,779.00
21	65,158.00
22	64,589.00
23	63,673.00
24	62,811.00
25	61,803.00
TOTAL	1,223,307.00
AVERAGE NET INCOME	61,170.00
ROI: AVERAGE NET INCOME/ COSTOF INVESTMENT	61,170.00/223,490.00
RETURN ON INVESTMENT	27%

## D. Supporting Computations

## **Summary of Farm Inputs Expense**

Particulars	Year 1	Year 2	Year 3	Year 4
Rubber Seedlings	30,000.00			
Fungicide	3,000.00	3,200.00	3,400.00	3,600.00
Fertilizer	400.00	700.00	1,100.00	2,000.00
Insecticide	2,200.00	2,300.00	2,400.00	2,500.00
Total	35,600.00	6,200.00	6,900.00	8,100.00

Note: Farm Input Cost on fungicide and insecticides is assumed to increase by 5% annually.

## **Summary of Farm Inputs Expense**

Particulars	Year 7	Year 8	Year 9	Year 10
Rubber Seedlings				
Fungicide	4,200.00	4,400.00	4,600.00	4,800.00
Fertilizer				
Insecticide	2,800.00	2,900.00	3,000.00	3,200.00
Total	7,000.00	7,300.00	7,600.00	8,000.00

Note: Farm Input Cost on fungicide and insecticides is assumed to increase by 5% annually.

## **Rubber Seedlings Expense**

Particulars	Quantity	Unit	Unit Cost	Total
Rubber Seedlings	500	pieces	50.00	25,000.00
Freight Charge	500	pieces	10.00	5,000.00
Total			60.00	30,000.00

Note: There are 500 hills in a hectare

## **Fungicide Expense Annually**

Particulars	Quantity per Hectare	Unit	No. of Hecatre	Unit Cost	Frequency of Application	Total Cost
Fungicide (Dithein Powder)	0.52	kilogram	1	480.00	12	3,000.00

NOTE: 1.maximum of eight (8) tablespoon of dithein powder is required per napsack sprayer.

- 2. Five (5)napsack sprayer is required per hectare. Thus, forty (40) tablespoon is required per hectare or equal to (0.52) kg.
- 3. It is applied monthly from planting and unit cost is projected to increase 5% per annum

## **Fertilizer Expense**

## **FERTILIZER (YEAR 1)**

Particulars	Quantity	Unit	No. of Hecatre	Unit Cost	Frequency of Application	Total Cost
Amonium Phosphate	0.09	sack	1	1,200.00	4	400.00

NOTE: amonium phosphate is applied on the first two years of application and replaced with 17-0-27 on the 3rd year upto 6th year.

## **FERTILIZER (YEAR 2)**

Particulars	Quantity	Unit	No. of Hecatre	Unit Cost	Frequency of Application	Total Cost
Amonium Phosephate	0.13	sack	1	1,260.00	4	700.00

## **FERTILIZER (YEAR 3)**

Particulars	Quantity	Unit	No. of Hecatre	Unit Cost	Frequency of Application	Total Cost
17-0-17	0.20	sack	1	1,365.00	4	1,100.00

## **FERTILIZER (YEAR 4)**

Particulars	Quantity	Unit	No. of Hecatre	Unit Cost	Frequency of Application	Total Cost
17-0-17	0.30	sack	1	1,435.00	4	2,000.00

## **FERTILIZER (YEAR 5)**

Particulars	Quantity	Unit	No. of Hectare	Unit Cost	Frequency of Application	Total Cost
17-0-17	0.44	sack	1	1,505.00	4	2,700.00

## **FERTILIZER (YEAR 6)**

Particulars	Quantity	Unit	No. of Hecatre	Unit Cost	Frequency of Application	Total Cost
17-0-17	0.66	sack	1	1,580.00	4	4,200.00

	**FERTILIZER REQUIREMENT									
YEAR	GRAMS		NUMBER OF HILLS PER HECTARE	QTY REQUIRED IN EVERY APPLICATION PER HECTARE (GRAMS)	KILOGRAMS PER HECTARE	SACK PER HECTARE(50KG / SACK)				
1	8.75		500	4,375.00	4.38	0.09				

2	13.13	500	6,562.50	6.56	0.13
3	19.69	500	9,843.75	9.84	0.20
4	29.53	500	14,765.63	14.77	0.30
5	44.30	500	22,148.44	22.15	0.44
6	66.45	500	33,222.66	33.22	0.66

NOTE: qty. Of fertilizer required per hill will increase by 50% per annum.fertilizer application is conducted quarterly until sixth (6th) year from planting and unit cost is projected to increase 5% per annum.

## **Insecticide Expense**

Particulars	Quantity	Unit	No. of Hecatre	Unit Cost	Frequency of Application	Total Cost
Insecticide	1	quart	1	550.00	4	2,200.00

NOTE: application of insecticide is conducted quarterly from planting.

## **Summary of Direct Labor Expense**

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
LAND PREPARATION	13,400.00				
PLANTING	9,600.00				
GESTATION	9,000.00	8,800.00	9,500.00	7,800.00	8,700.00
TAPPING					
MAINTENANCE					
TOTAL	32,000.00	8,800.00	9,500.00	7,800.00	8,700.00

## **Summary of Direct Labor Expense**

Particulars	Year 6	Year 7	Year 8	Year 9	Year 10
LAND PREPARATION					
PLANTING					
GESTATION	2,900.00				
TAPPING	54,000.00	56,700.00	59,500.00	62,500.00	65,600.00
MAINTENANCE		5,100.00	5,300.00	5,500.00	4,900.00
TOTAL	56,900.00	61,800.00	64,800.00	68,000.00	70,500.00

## **Land Preparation**

Particulars	No. of Worker per Hectare	No. of Working Days	Rate		Total
UNDER BRUSHING	4	1	300.00	per day	1,200.00
CLEAR CUTTING (USE OF					
CHAINSAW WITH OPERATOR AND				per	
HELPER)	4	1	5,000.00	hectare	5,000.00
STICKING	4	1	1,200.00	per hectare	1,200.00
HOLING	4	5	300.00	per hectare	6,000.00
Total			6,800.00		13,400.00

NOTE: CLEAR CUTTING, STICKING AND HOLING IS PER HECTARE BASIS. NUMBER OF HILLS PER HECTARE IS 500.

## <u>Planting</u>

Particulars	No. of Worker per Hectare	No. of Working Days	Rate		Total
HAULING	4	2	2,400.00	per hectare	4,800.00
PLANTING	4	2	2,400.00	per hectare	4,800.00
Total	8	4	4,800.00		9,600.00

NOTE: hauling and planting is per hectare basis. Number of hills per hectare 500.

## **Gestation Period**

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
RING WEEDING	1,800.00	1,900.00	2,000.00			
PRUNING			600.00	600.00	600.00	600.00
BRANCH INDUCTION	300.00	300.00				
FERTILIZER						
APPLICATION	1,200.00	1,300.00	1,400.00	1,500.00	1,600.00	1,700.00
UNDER BRUSHING	600.00	600.00	600.00	600.00	600.00	600.00
SPRAYING (FUNGICIDE)	3,600.00	3,800.00	4,000.00	4,200.00	4,400.00	
SPRAYING						
(INSECTICIDE)	900.00	900.00	900.00	900.00	900.00	
GIRTH RECORDING	600.00				600.00	
Total	9,000.00	8,800.00	9,500.00	7,800.00	8,700.00	2,900.00

Note: Labor Costs are assumed to increase by 5%

## **Gestation Period**

Particulars	No. of Worker per Hectare	Rate per Day	No. of Working Days	Work Frequency per Year	No. of Hectare	Total
Ring Weeding	1	300.00	1	6	1	1,800.00
Pruning	1	300.00	1	2	1	600.00
Branch Induction	1	300.00	1	1	1	300.00
Fertilizer Application	1	300.00	1	4	1	1,200.00
Underbrushing	1	300.00	1	2	1	600.00
Spraying (Fungicide)	1	300.00	1	12	1	3,600.00
Spraying (Insecticide)	1	300.00	1	3	1	900.00
Girth Recording:						
Sizing and Girdings	1	300.00	1	1	1	300.00
Marking and Installation	1	300.00	1	1	1	300.00
Total	9	2,700.00				9,600.00

NOTE: ring weeding is done every two months from 1st year upto 3rd year from planting prunning is done trice in year one branch induction is done once on second year spraying fungicide is done monthly from 1st year until 5th year while spraying insecticide is done quarterly sizing, girding, marking and installation are conducted once before the 1st year of harvest (6th year)until 6th year.

## Tapping Expense

Particulars	No. of Worker per Hectare	Rate per Day	No. of Working Days	Work Frequency per Year	No. of Hectare	Total
Tapping	1	150.00	30	12	1	54,000.00

NOTE: tapping is done every other day in a month or 15 days in a month, starting the 6th year.wage for tapper is expected to increase by 5% per annum.

## Maintenance Expense

Particulars	Year 7	Year 8	Year 9	Year 10
Underbrushing	600.00	600.00	600.00	
Spraying (Fungicide)	3,600.00	3,800.00	4,000.00	4,000.00
Spraying (Insecticide)	900.00	900.00	900.00	900.00
Total	5,100.00	5,300.00	5,500.00	4,900.00

Note: Labor Cost for maintenance is expected to increase by 5% annually.

## Maintenance Expense\_

Particulars	No. of Worker per Hectare	Rate per Day	No. of Working Days	Work Frequenc y per Year	No. of Hectare	Total
Underbrushing	1	300.00	1	2	1	600.00
Spraying (Fungicide)	1	300.00	1	12	1	3,600.00
Spraying (Insecticide)	1	300.00	1	3	1	900.00
Total	3	900.00				5,100.00

NOTE: underbrushing is done twice a year after harvest. Spraying fungicide is done monthly while spraying insecticide is done quarterly after harvest.

## Farm Overhead Expense

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Utilities	7,020.00	7,370.00	7,740.00	8,130.00	8,540.00
Indirect Labor	7,000.00	7,350.00	7,720.00	8,110.00	8,520.00
Total	14,020.00	14,720.00	15,460.00	16,240.00	17,060.00

Particulars	Year 6	Year 7	Year 8	Year 9	Year 10
Utilities	8,970.00	9,420.00	9,890.00	10,400.00	10,900.00
Indirect Labor	8,950.00	9,400.00	9,870.00	10,400.00	10,900.00
Total	17,920.00	18,820.00	19,760.00	20,800.00	21,800.00

NOTE: utilities & indirect labor is 5% of sales and assumed to incrase by 5% annually.

## Selling Expense\_

Particulars	Year 6	Year 7	Year 8	Year 9	Year 10
Selling Expense	7,020.00	7,370.00	7,740.00	8,130.00	8,540.00

NOTE: selling and admin. Expense assumed at 5% of sales and to increase by 5% annually.

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- 11. Commodity Investment Module
- 11\_4\_Coconut Investment Module



## Land Bank of the Philippines

## Japan International Cooperation Agency

# Commodity Investment Module (Coconut)

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

Technical Assistance Team

Nomura Research Institute, Ltd.

NTC International Co., Ltd.

Oriental Consulting Global

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## **Chapter 1**

## **Overview of the Coconut Industry**

#### A. Philippine Development Context

Dubbed as the "tree of life", the coconut has given rise to a value chain that generates various products ranging from food items to bio-diesel chemicals (See Figure 1). The coconut meat is processed into desiccated coconut, coconut milk and cram, coco chips and coco flour. It is also the basic ingredients for coco pastries (e.g., "buko" pies). The coconut sap, in turn, is extracted to produce coco sugar and jaggery, nectar, vinegar, wine and other alcoholic beverages (e.g., "lambanog").

The coconut water and pith are also used to make juice, wine, vinegar, dextrose and "nata de coco" (or coconut gel). In countries like Venezuela, coconut water is widely attributed with anti-viral and anti-bacterial properties (The Economist 2014).

On the other hand, the coconut meat has led to the production of coco bio-diesel, virgin coconut oil, cooking oil, crude coconut oil and other coco-based chemicals, with "copra" meal – a staple in swine diets – as a by-product. Meanwhile, the coconut husk is used to make biologs, geotextiles, particle boards, ropes, mattresses, doormats, baskets, organic fertilizers, roofing materials and horticulture pots.

The coconut wood is used to make handicrafts, furniture and lumber. The coconut shell is processed into activated carbon, coco shell charcoal and briquettes and coco shell powder and is widely used as a component of fashion accessories, belts, buttons and handicrafts. Even the leaves, leaf sheaths, fronds and stipules of coconut trees are not put to waste and are used to make hats, slippers, baskets, bags and handicrafts.

Prices of coconut oil in the global markets, however, have fallen over the past year together with other edible oils (e.g., soybean oil and palm oil). This is largely due to the increased production brought about by the 2017-2018 season. (The Economist 2018) On the other hand, the global market for coconut water is expected to grow at a compound annual growth rate (CAGR) of about 14.4% over the next five years. Global sales are expected to increase to US\$13.8 billion by 2023, a figure that is 124% higher than the equivalent US\$6.15 billion-sales of 2017. (Reuters 2018)

In addition to the bright global prospects of coconut water, a significant boost in the sale of the same product has transpired in the Philippine domestic market since the issuance by the Department of Education (DepEd) of its Department Order No. 13. As part of its mandate, the DepED sets the "Policy and Guidelines on Healthy Food and Beverage Choices in Schools and in DepEd Offices" and, in 2017, implemented its Department Order No. 13, which requires the promotion of healthy eating habits among the youth and the agency's own employees. Compliance with this order pushes for the availability and accessibility of affordable nutritious food and drinks in all schools and DepEd offices across the country. The coconut juice, hence, has become one of the most saleable drink products in the country.

It totally makes sense to engage in coconut production and processing in a conflict-afflicted area like the LASBUENASCAR, where coconut already is established as a suitable farming commodity together with oil palm, banana cardava and coffee. And among the viable coconut-based businesses to choose from, it also makes sense to seriously consider the production of coconut water for the business operations of a corporative that will be formalized as a partnership between a farming corporation and an organized group of farmers in the LASBUENASCAR area.

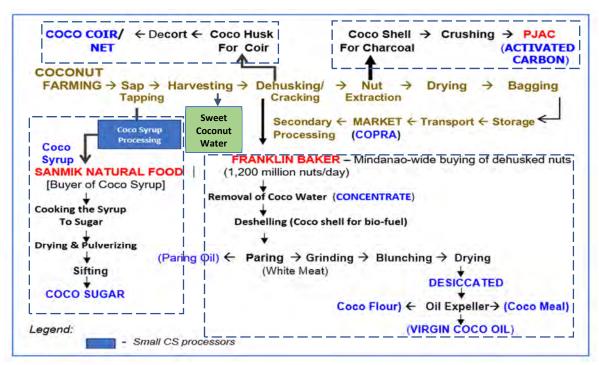


Figure 1: Mapping the Integrated Coconut Production and Processing

# Chapter 2 Production Area

#### A. World Production

Across the globe, the Philippines has the second biggest total land area planted to coconut. Next to Indonesia with its 3.571 million hectares, the Philippines has 3.517 million hectares dedicated to coconut farming. While India lags behind with its 1.975 million hectares planted to coconut, it is ahead both the Philippines and Indonesia in terms of production (in nuts) and yield (in huts per hectare). In 2016, India produced 10,439 nuts per hectare compared to 4,190 in the Philippines and 4,293 in Indonesia. In 2015, India's production reached 20.440 billion (30% of the world's total production) nuts while the two countries with more land planted to coconut trees, the Philippines and Indonesia, produced only 14.735 billion (22%) and 15.330 billion (22.86%), respectively. (UCAP 2018) (See Table 1)

Table 1: World Production of Coconut

	AREA (Million has)	PRODUCTION (Billion nuts)	YIELD (nut/ha)
Philippines	2 3.517	3 14.735	3 4,190
	(3.502)	(14.696)	(4,196)
Indonesia	3.571	15.330	4,293
	(3.610)	(16.354)	(4,530)
India	1.975	20.440	10,349
	(2.141)	(21.665)	(10,119)
World	11.988	67.042	5,592
	(12.196)	(68.506)	(5,617)

Source: Philippine Statistics Authority

#### **B.** Domestic Production

In 2016, the Philippines landed the second rank among the top coconut-producing countries of the world with a total production volume of 13.83 billion nuts. In that same year, the distribution of coconut areas and production across the Philippines is outlined as follows (UCAP 2018):

Table 2: Distribution of Coconut Areas & Production, 2016

Region	1000 has	% share	million nuts	% share
CALABARZON	485	13.6	1,517	11.0
MIMAROPA	215	6.0	759	5.5
BICOL	454	12.7	1,081	7.8
Other Luzon	56	1.6	219	1.6
LUZON	1,210	33.9	3,576	25.9
Western Visayas	75	2.1	311	2.2
Eastern Visayas	320	9.0	1,073	7.8
Central Cisayas	79	2.2	262	1.9
VISAYAS	474	13.3	1,646	11.9
Zamboanga Penuinsula	424	11.9	1,530	11.1
Northern Mindanao	303	8.5	1,802	13.0
Davao Region	357	10.0	1,895	13.7
SOCCSKSARGEN	191	5.4	958	6.9
CARAGA	193	5.4	775	5.6
ARMM	332	9.3	1,377	10.0
Negros Island Region	80	2.2	267	1.9
MINDANAO	1,880	52.7	8,604	62.2
TOTAL PH	3,565		13,826	

Source: Philippine Statistics Authority

Mindanao yields more coconut and has bigger land areas planted to coconut, compared to Luzon and Visayas. It has a total of 1.8 million hectares that represents 50.20% of the entire area planted to coconut in the country, while Luzon and Visayas have 1.2 million hectares (or 33.95%) and 554,000 hectares (or 15.55%), respectively. (See Table 2)

In 2016, the Philippines' 339 million coconut trees delivered a total of 13.8 million nuts. That year, total coconut export reached US\$1.702 billion. Of this total sales, US\$1.511 billion or 88.88% was for coco meat; US\$107 or 6.29% for the coconut shell; US\$68 or 4.0% for coconut water; and, US\$14 or 0.82% for coconut husk. (UCAP 2018)

## **Chapter 3 Strategic Development Framework**

#### A. Value Chain (Functions)

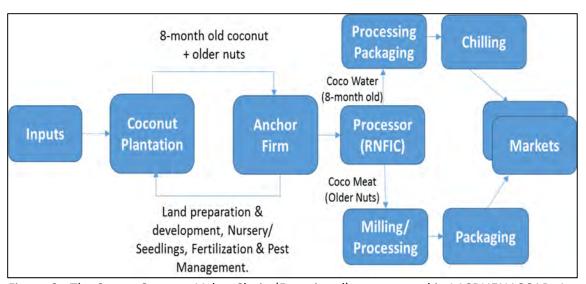


Figure 2: The Sweet Coconut Value Chain (Functional) as proposed in LASBUENASCAR, Agusan del Sur

The value chain for the coconut water production covers the entire gamut of coconut farming activities in the plantation that will deliver the nuts to the processing sites that will transform parts of it into products that are to be packaged or chilled (as applicable) and then forwarded to both the local and export markets (See Figure 2).

The same value chain involves a farming corporation that will serve as the anchor firm as well as the farmers of LASBUENASCAR whose own lands will make up the coconut plantation to be managed under a Farm Management and Marketing Agreement (See Figure 3). As part of the implementation by the Land Bank of the Philippines (LBP) of the HARVEST Project in partnership with the Japan International Cooperation Agency (JICA), loans can be made available to the organized coconut farmers and the anchor firm. These loans will finance the envisaged coconut water production venture to be set up in LASBUENASCAR.

Other participants in the coconut water value chain include the Philippine National Government as well as the Agusan del Norte Provincial Government as enablers that will provide the necessary support for both the farmers and the anchor firm (See Figure 3).

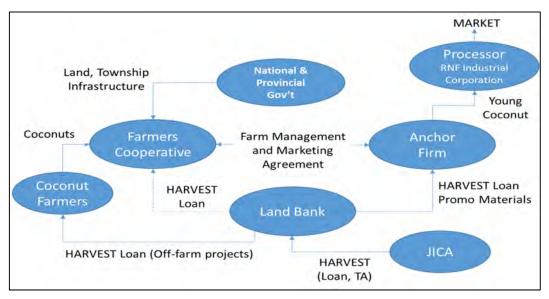


Figure 3: The Sweet Coconut Value Chain participants as proposed in the LASBUENASCAR, Agusan del Sur

#### **Input Provision**

The inputs in coconut farming are the seedlings, fertilizers and the necessary pesticides. Research and development breakthroughs in the coconut industry also can help improve production together with a sound fertilization pest management for the farm. Equally important are the farmers' ready access to credit, capacity building on good agriculture practices and applicable technologies. Infrastructure such as farm-to-market roads together with logistical services will, in turn, further enable the farmers to establish well-managed and productive farms. These roads are crucial in delivering seedlings and supplies to the farms, in later hauling the produce from the farm, and in giving service providers from both the public and private sectors access to the farms to conduct inspection, data-gathering and evaluation, among others.

In sourcing the seedlings for the farms, it is important to go for the specific varieties that yield sweet water. Among these are two drawf coconut varieties — Nam Wan and Nam Hom. The Nam Wan variety is known to produce no less than 150 nuts per tree per year. The sweetness of its coconut water can range to 6.5 brix. Its nuts can each produce 2-3 seedlings. Meanwhile, the Nam Hom variety produces coconut water that is less sweet as compared to the Nam Hom variety. Nonetheless, this variety is a good source of quality sweet coconut water. It produces bigger nuts, up to 100 of them per tree per year.

#### **Farming**

Activities includes; land preparation, planting, maintenance and harvesting. In the proposed project site in LASBUENASCAR, coconut trees thrive in almost the entirety of the area. A large portion of these sites are planted to the tall varieties of coconut and are currently on their productive years (10-15 years old) still. A few areas are planted to the dwarf varieties and currently are on their early fruiting stage (4-7 years old). Maintenance and harvesting keep the farmers busy throughout the year.

#### **Local Trading**

At present, mature dehusked nuts from the LASBUENASCAR farms are commonly traded at prices ranging from Php4 –5 per kilo. Buying stations are located in almost all of the covered barangays. The dehusked nuts bought by traders from the farmers in the barangays are typically sold consolidators at a mark up of PhP0.50 per kilogram (kg). These consolidators buy nuts from all the municipalities of LASBUENASCAR as well as Butuan City.

Coconut consolidators sell the dehusked nuts to other traders and to coconut processors in Gingoog City and Cagayan de Oro City. Their usual mark up amounts to PhP0.60 per kilo (kg). The dehusked nuts that have been damaged or that cracked during transport, together with other nuts that are classified as rejects (e.g., overly small nuts and germinated nuts) are processed into copra and then sold at approximately PhP22 per kg.

There are currently two coconut consolidators in the area, as follows:

Name: Broadway Enterprises
Market: Gingoog City
Address of Buying station:
Purok 5. Poblacion, Buenavista
Butuan – CDO road, Nasipit
Distance to farm areas
18 km from Brgy. Lower Olave,
Buenavista (via Buenavista-Bunaguit
Road)

21 km from Brgy. Simbalan, Buenavista (via Buenavista-Bunaguit Road)



Name: Margaret Pegenia
Market: Gingoog City
Address of Buying station:
Poblacion, Buenavista
Distance to farm consolidation areas
17 km from Brgy. Lower Olave,

17 km from Brgy. Lower Olave, Buenavista (via Buenavista-Bunaguit Road)

20 km from Brgy. Simbalan, Buenavista (via Buenavista-Bunaguit Road)



The selling activities regularly undertaken by the LASBUENASCAR coconut farmers would turn out to be significantly affected by the establishment of the corporative and the Farm Management and Marketing Agreement to be forged between them and the anchor firm.

While the LASBUENASCAR coconut farmers will be unable to directly sell their produce to the traders and consolidators when they become legally bound by the signed agreement, it would still be prudent to not completely exclude traders and consolidators from the picture as they still might end up as buyers of the coconuts that do not meet the specific requirements of the coconut water production and would, therefore, have to be rejected.

#### **Processing and Marketing**

The harvested coconuts are systematically transported to the coconut water production facility. The coconuts with no cracks, holes or other defects are segregated for processing. They are initially washed with tap water and are next sanitized with chlorinated water.

Each coconut is then cut halfway through its crown to allow the insertion of the lid that keeps the coconut water intact inside the shell.

The batches of nuts are stored in coolers or refrigerators. Prolonging the shelf life of the product would require techniques such as the use of ultra high temperature, cold preservation and microfiltration. (PCA 2018)

The nuts are delivered to distributors and wholesalers, who, in turn, take care of marketing and selling the products. Marketing coconut water leverages the current preference of consumers for healthy and fresh fruit-based drinks. Across the globe, health-conscious drinkers have been dumping soda and other sugar-rich concoctions and have been touting their resolve to take only healthy drinks. There are a number of health benefits attributed to drinking the coconut water. The product has been known to effectively provide the body its needed hydration, clean the digestive tract, remove toxins from the body, lower blood sugar levels and aid digestion.

Drinking coconut water, likewise, is considered a treatment for kidney problems and uretral stones as well as a preventive measure against viruses and fungi.

#### B. The Coconut Market

#### World market trend

The United States of America (USA) and the European Union (EU) are the world's biggest markets of coconut products. In 2016, coconut imports of USA and the EU reached US\$595 million and US\$678 million, respectively, while imports of other countries (including China and Malaysia) reached US\$382 million. The global market for coconut continues to grow, driven up the consumers' preference of natural, organic, and plant-based products.

The Philippines exported 1.464 million and 1.489 million metric tons (MT) of coconut in the years 2014 and 2015, respectively. Almost 90% of the coconut export revenue generated arises from the coconut meat, which makes up 30% of the weight of the coconut.

The Philippines' export markets for its coconut water are the USA, Australia, the EU, China and Singapore. Export sales of coconut water has significantly grown from 2013 to 2016. In 2013, the country's coconut water exports reached 7,445 MT, which amounted to PhP431.46 million. The biggest shares in this total volume exported went to USA (43.9%) and Australina (12.3%). In 2015, the exported volume of coconut water increased over sixfold to 50,480 MT, which amounted to P3,692.44 million. The major buyers were USA (50.4%) and United Kingdom (30.7%). The country's exports of coconut water further increased In 2016 albeit less significantly. In that year, the total exported volume of coconut water was recorded at 60,459 MT, which is 19.77% higher than the previous year's equivalent. Sales generated then increased to P4,029.25 million. Similarly, the biggest shares of the bulk were exported to USA (69.7%) and United Kingdom (14.4%). (PSA 2018)

#### Domestic Market Situation/Balance Between Supply and Demand

Domestic consumption of coconut in the country reached 0.758 million and 0.835 million MT in 2014 and 2015, respectively. These figures are significantly smaller than the country's exported volumes of coconut.

In the LASBUENASCAR area, the Celebes Agricultural Corporation stands to be the major player of the local coconut industry. Based in Butuan City, the company produces desiccated coconut, frozen coconut meat, coconut cream, coconut milk, coconut juice, coconut water, flour, VCO, coco sugar, charcoal and coconut oil. After acquiring third-party certifications from USDA

Organic, EU organic, British Retail Consortium food (BRC), Japan Agricultural Standard (JAS), Kosher and Fair Trade, Celebes has been exporting to 49 countries worldwide and its major markets are Japan, USA and Europe. To meet its production targets, Celebes buys coconut from farmers in the area.

According to interviews with farmers and local consolidators in LASBUENASCAR, Celebes tends to take advantage of its market dominance in the area. The company's buying price for dehusked nut is less competitive compared to the prices offered by other big processors and traders in Gingoog and Cagayan de Oro City. As a result, most traders in LASBUENASCAR have opted to partner with and sell their coconuts to processors located outside the Agusan del Norte Province.

## Chapter 4

## **Technical Requirements**

#### A. Suitability

Coconut trees are most suitable to the areas with a highly adequate and well-distributed supply of rainfall all year round for a sustained supply of nuts. Incidentally, the Agusan del Norte Province is one of the 29 provinces of the country that have been identified by the Philippine Coconut Authority as highly suitable for coconut production. (PCA 2018)

#### **B.** Farming Method

#### 1. Planting Calendar

A calendar detailing information on the planting and harvesting periods of the coconut farms will help work out the increased yield and productivity in the farm.

The best tine to plant seedlings in the farm is at the start of the rainy season. Normally cultivated in hot and wet tropical countries likes the Philippines, the coconut trees need both warmth and moisture to grow and bear fruit.

#### 2. Planting Materials

The coconut seedlings to be used for planting should be carefully selected. Each seedling should be pest- and disease-free and should manifest good germination and vegetative development. Every population of seedlings should be checked; those that have multiple shoots and those that are thin, withered and devoid of chlorophyll should be culled.

The seedlings to be planted should be eight to ten months old but six-month-old seedlings can be planted if the prevailing season-related circumstances warrant it. This is true when seedlings will reach their eighth month at the start of the dry season yet. In this case, the farmers would opt to start planting the six-month-old seedlings.

#### 3. Land Preparation

Land preparation is vital in achieving a healthy condition and optimum yield of the coconut trees. Before planting the seedlings, the land should be cleared of thick vegetation, felled trees, shrubs, stumps, weeds, debris and other obstruction so as to avoid leaving breeding sites for the destructive rhinoceros beetle and other pests. After clearing the land, it should be plowed and harrowed to improve the soil tilth. Then staking is done to lay out the spots for planting the seedlings. (PCA 2018)

#### 4. Planting

The planting of the seedlings is done based on the planting plan or map that ought to be finalized right after land preparation. Seedlings that come in polybags should first be free of these materials, which will hinder its healthy growth and development. Seedlings are to be planted without these polybags.

After the seedlings are planted in holes dug at 50 X 50 centimeters (cm), the holes are next covered with loose topsoil that is slightly firmed at the base of the coconut crown. The top of the coconuts that go with the seedlings should be 5 to 8 centimeters (cm) below the ground level to avoid either suffocating the bud or causing the seedling to bend, sway or lean in the aftermath of heavy rains or windy days.

The distance between the seedlings should be around 7 X 7 meters to achieve a population density of 200 trees per hectare.

#### 5. Irrigation and Drainage

Coconut trees require irrigation. Sprinkler irrigation is commonly done in coconut farms with intercrops albeit there have been new types of irrigation systems now available. One of these is the solar-powered irrigation system, which uses solar panels to capture the sun's energy that, in turn, operates the pump that draws water from bodies of water and other sources.

Surface drainage is, on the other hand, essential to avoid water-logging (i.e., the saturation of soil with water).

#### 6. Fertilization

Without fertilization, the yield of coconut trees would be low or marginal at 10 kilograms (kg) per tree per year (or 1.23 MT of copra per hectare of 123 trees). In contrast, fertilized coconut trees can reach up to 25 kg per tree per year (or 3.07 MT of copra per hectare of 123 trees). (PCA 2018)

Among the fertilizers applied to coconut trees are the common salt (NaCl) and multinutrient fertilizer 14-5-20 (MNF). These can be applied on a per-tree basis or on a per-hectare basis so as to fortify the coconut trees against droughts, pests and diseases. (PCA 2018)

On a per-tree basis, the recommended application of the common salt as a fertilizer is 2.0 kilogram (kg) per tree per year for the first three years and 1.0 kg of the same per tree per year in the fourth and fifth years. Taking the MNF fertilizer option, on the other hand, would require applying 3.0 kg, 2.0 kg and 1.0 kg of it for the first year, second year and third to fifth years, respectively. (PCA 2018)

On a per-hectare basis, the recommended application of the common salt as a fertilizer is 246 kg per hectare per year for the first three years and 123 kg per hectare per year for the next two years of the five-year cropping period. Taking the MNF option would require applying the following quantities per year per hectare: 369 kg in the first year, 246 kg in the second year and 123 kg for the third, fourth and fifth year. (PCA 2018)

#### 7. Crop Protection

Coconut trees have to be protected from pests and diseases as part of good farm management practices duly adopted to ensure the production of healthy nuts in abundant quantities. The application of the needed fertilizers also increases the resistance of the trees against these pests and diseases.

Natural calamities take a toll in the production of nuts and there is little to protect the coconut trees from the ravages of super typhoons. The super typhoon Haiyan (Yolanda) in known to have damaged around 15 million coconut trees in the Visayas in 2013.

#### 8. Harvesting

Coconut trees start to produce fruit 3-5 years after planting. Since then, the trees become productive throughout the year. A tree normally produces one harvestable bunch almost every month. In a year, the tall variety of coconut trees can yield about 14 bunches; the drawf variety, about 15-18 bunches with 8-13 nuts per bunch.

The timing of the harvests depend on the specific use of the nuts. For optimum taste and quality of the coconut water, farmers wait for 7-9 months from the time the tree flowers start to open. In a typical farm, young coconuts are harvested every 20 days or 18 times per year.



Figure 4: The Nam Wan variety of dwarf coconut currently growing in some parts of Mindanao.

Harvesting is commonly done by cutting off the whole bunch of coconuts from the tree with the bunch tied with a rope to prevent it from dropping to the ground with its nuts

damaged as a result. The harvested bunches of nuts are placed in water prepared for cleaning them.

#### 9. Postharvest and Processing

The harvested coconuts are normally transported by the farmers to buying stations where consolidators, traders or processors purchase them in bulk.

Once the LASBUENASCAR farmers' agreement with the anchor firm takes effect, all the produce of their land will be used in the production and processing activities of the corporative. The coconuts would then be harvested for the production of coconut water; the whole nuts would be delivered to the processing site.

Trimming and dehusking the nuts decreases their weight and saves transportation costs. Young coconuts harvested at 8 months of age would normally have a diameter of 10 centimeter. The weight of its flesh can reach 100 grams; and its shell, 120 grams. The total weight of the whole peeled coconut is around 500 grams.

#### C. Constraints and Opportunities

At the onset, the lack of access of the farmers to credit and capacity building on good agricultural practices (GAP) renders their poor knowledge of beneficial farming methods understandable. The LASBUENASCAR farmers tend to just leave their coconut farms without productive care and intervention thereby failing to optimize the quantity and quality of their coconut trees. Likewise, their inability to afford regular application of fertilizers results to the ineffective fertilization of their farms altogether. Failure to adopt intercropping and, more importantly, to replace senile coconut trees with seedlings of high-yield varieties significantly lower the productivity of the farms. Through it all, the threat of insurgencies in the area is a constant worry for the farmers.

Notwithstanding the identified constraints, a number of projects may be visualized across the coconut value chain ranging from the nursery for high-yield coconut varieties to the promotion of the conversion of wastes and by-products (e.g., tufted coir mats) into a market-driven innovative production. On top of the food sector products that coconut gives rise to, non-food products born of the coconut husks and other parts of the nut also have growing markets, both local and global. In Mindanao alone, there is a huge demand for coco "coir-peat-net", which is utilized in the application of the "Triple Armor" technology (PCA 2011) for soil stabilization in the mining areas in Mindanao.

Other investment opportunities in the coconut industry beckon in the following components of the value chain:

- Nursery for seedlings of high-yield varieties of coconut
- Plantation expansion and rehabilitation of senile coconut trees
- Good Agricultural Practices (GAP)-related activities (e.g., fertilization & pest control)
- Crushing facilities
- Inter-island transportation (e.g., barge)
- Hauling service-providers
- Consolidation and buying stations
- Oil mill operations
- Coco coir and geo-net processing
- Farm-to-market road construction (as a Public-Private Partnership venture)

For the business operations that the LASBUENASCAR corporative will engage in, however, the viable option to be taken is the production of coconut water.

# Chapter 5 Financial Requirements

The farmers in the proposed project in LASBUENASCAR are members of a tribe that holds a Certificate of Ancestral Domain Title (CADT). This dispels the need for capital for land acquisition and instead raises the need mostly for operating capital.

The Total Project Cost (See Appendix I), Cost & Return Analysis (See Appendix II), Projected Cash Flow (See Appendix III) and the Amortization Schedule (See Appendix IV) of the proposed PhP200,000.00 loan for each 1-hectare coconut farm are based on the following assumptions:

Spacing	7.0 m x 7.0 m
Planting Material	Seedlings
Land Area (hectares)	2,000
Plant Population (trees/ha)	200
Planting Material (cost/seedling)	400.00

Labor (daily wage)	305.00
Interest Expense (annual)	6%
Selling Price of Coconut	P5.00

On the whole, a 1-hectare farm to be provided with a capital of P200,000.00 in the form of a 6-year loan with a two-year grace period and an interest rate of 6% per annum can be viable and is projected to generate an aggregate income of over PhP800,000 in its first 10 years.

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#### **Appendices**

Appendix I – Project Cost (For 1-hectare Coconut Farm)

Appendix II – Cost & Return Analysis (1-Ha Coconut Farm)

Appendix III – Projected Cash Flows (1-Ha Coconut Farm)

Appendix IV – Amortization Schedule of the P200,000-Loan per Hectare

APPENDIX I: PROJECT COST (FOR 1-HECTARE COCONUT FARM)

TEM OF EXPENDITIBE					YEAR	ıR					TOTAL
A LIVE   OIL	_	2	3	4	2	9	7	80	6	10	<u> </u>
Planting material including 10% casualty replacement in second year	80,000.00	8,000.00	,	,		,			-		88,000.00
Mucuna establishment	8,480.00			ı	-		'				8,480.00
and preparation (Clearing)	7,500.00				1		1	1			7,500.00
and preparation (Harrowing)	3,660.00				1		1	1	1	1	3,660.00
Road construction	5,400.00		1		1		1	1	1	1	5,400.00
-ay-outing and staking	610.00		1		1	1	,	ı	ı	ı	610.00
	2,000.00	200.00	1	•	1	1			i	i	2,200.00
Planting and basal application	1,000.00	100.00	1		1	1	1	1	1	1	1,100.00
	108,650.00	8,300.00									116,950.00
Fertilizer application	6,675.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	114,675.00
Pesticide application	2,000.00	2,000.00	1	-	1	1	1	1			4,000.00
	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	20,000.00
	18,820.00	2,440.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00	31,020.00
ransportation (farm to plant)	1		1	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	302,400.00
	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	50,000.00
nterest Expense	1	12,000.00	12,720.00	13,483.20	00.000,6	00.000,9	3,000.00	,	ı	1	56,203.20
	34,495.00	35,440.00	32,940.00	76,903.20	72,420.00	69,420.00	66,420.00	63,420.00	63,420.00	63,420.00	578,298.20
	143,145.00	43,740.00	32,940.00	76,903.20	72,420.00	69,420.00	66,420.00	63,420.00	63,420.00	63,420.00	695,248.20

APPENDIX II: COST & RETURN ANALYSIS (1-HA COCONUT FARM)

					YEAR	2				
•	_	2	3	4	2	9	7	8	6	10
REVENUE										
Nut Yield Per Tree (bunch)				18	18	18	18	18	18	18
Nut Yield Per Tree (12pcs/bunch)				216	216	216	216	216	216	216
Nut Yield Per Hectare (200 trees)				43,200	43,200	43,200	43,200	43,200	43,200	43,200
Total Revenue (P5 per coconut)			•	216,000.00	216,000.00	216,000.00	216,000.00	216,000.00	216,000.00	216,000.00
EXPENSES										
Planting material including 10% casualty	00 000 08	00 000 8								
replacement in second year	00.000,00	0,000.00								
Mucuna establishment	8,480.00									
Land preparation (Clearing)	7,500.00									
Land preparation (Harrowing)	3,660.00									
Road construction	5,400.00									
Lay-outing and staking	610.00									
Hole digging	2,000.00	200.00								
Planting and basal application	1,000.00	100.00								
Fertilizer application	0,675.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00
Pesticide application	2,000.00	2,000.00	-		-	-	-	-		
Maintenance	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00
Labor	18,820.00	2,440.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00	1,220.00
Transportation (farm to plant)				43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00
Land rental	2,000.00	5,000.00	5,000.00	5,000.00	2,000.00	2,000.00	5,000.00	2,000.00	2,000.00	5,000.00
Interest Expense	-	12,000.00	12,720.00	13,483.20	9,000.00	6,000.00	3,000.00	-	-	-
Total Expenses	143,145.00	43,740.00	32,940.00	76,903.20	72,420.00	69,420.00	66,420.00	63,420.00	63,420.00	63,420.00
ANNUAL NET INCOME (LOSS)	(143,145.00)	(43,740.00)	(32,940.00)	139,096.80	143,580.00	146,580.00	149,580.00	152,580.00	152,580.00	152,580.00
CUMULATIVE NET INCOME (LOSS)	(143,145.00)	(186,885.00)	(219,825.00)	(80,728.20)	62,851.80	209,431.80	359,011.80	511,591.80	664,171.80	816,751.80

APPENDIX III: PROJECTED CASH FLOWS (1-HA COCONUT FARM)

					YEAR	'R				
	_	2	3	4	2	9	7	80	6	10
Cash inflows										
Revenues				216,000	216,000	216,000	216,000	216,000	216,000	216,000
Proceeds of a loan	200,000									
Total inflows	200,000.00	•		216,000.00	216,000.00	216,000.00	216,000.00	216,000.00	216,000.00	216,000.00
Cash outflows										
Operating expenses	143,145.00	31,740.00	20,220.00	63,420.00	63,420.00	63,420.00	63,420.00	63,420.00	63,420.00	63,420.00
Cost of financing (interest expenses)				38,203.20	00.000,6	6,000.00	3,000.00			
Amortization of the loan				20,000.00	20,000.00	20,000.00	20,000.00			
Total outflows	143,145.00	31,740.00	20,220.00	151,623.20	122,420.00	119,420.00	116,420.00	63,420.00	63,420.00	63,420.00
Net cash flow	56,855.00	(31,740.00)	(20,220.00)	64,376.80	93,580.00	96,580.00	99,580.00	152,580.00	152,580.00	152,580.00
Add: Cash, beginning balance		56,855.00	25,115.00	4,895.00	69,271.80	162,851.80	259,431.80	359,011.80	511,591.80	664,171.80
Cash, ending balance	56,855.00	25,115.00	4,895.00	69,271.80	162,851.80	259,431.80	359,011.80	511,591.80	664,171.80	816,751.80

APPENDIX IV: AMORTIZATION SCHEDULE OF THE P200,000-LOAN PER HA

				S				
PARTICULARS	200,000.00 Loan availment	212,000.00  No payment of principal & interrest	224,720.00 No payment of principal & interrest	150,000.00   Payment of 1st amortization + interest for 1st 3 yrs	100,000.00 Payment of 2nd amortization + interest for 4th yr	50,000.00   Payment of 3rd amortization + interest for 5th yr	Payment of 4th amortization + interest for 6th yr	
ENDING BALANCE	200,000.00	212,000.00	224,720.00	150,000.00	100,000.00	50,000.00	-	
ANNUAL	-	-	1	88,203.20	29,000.00	56,000.00	53,000.00	256,203.20
NTEREST AMORTIZATION DUE PAID	•	-	-	00'000'09	20,000.00	20,000.00	20,000.00	200,000.00
INTEREST DUE	-	12,000.00	12,720.00	13,483.20	9,000.00	6,000.00	3,000.00	56,203.20
INTERES T RATE	%9	%9	%9	%9	%9	%9	%9	
BEGINNING INTERES BALANCE TRATE	200,000.00	200,000.00	212,000.00	224,720.00	150,000.00	100,000.00	50,000.00	
YEAR	1	2	3	4	2	9	2	TOTALS

- 11. Commodity Investment Module
  - 11\_5\_Cacao Investment Module



## Land Bank of the Philippines

## Japan International Cooperation Agency

# Commodity Investment Module (Cacao)

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018
Technical Assistance Team
Nomura Research Institute, Ltd.
NTC International Co., Ltd.
Oriental Consulting Global

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# Chapter 1 Cacao Industry Overview

#### A. The Philippine Development Context

In 2017, a sample of cacao (or "cocoa" in English) beans produced in Davao City, Philippines was among the best 50 declared by the Cocoa of Excellence Program after evaluating a total of 166 samples coming from 40 countries. (DTI 2018) The Cocoa of Excellence Program was founded in 2008 by global organizations and companies in the cocoa and chocolate industries to provide due recognition to producers of high-quality cocoa and to celebrate the diversity of cocoa flavors originating from various parts of the world. (Biodiversity International 2018) This was no small feat for the locally produced cacao, which sadly does not even figure among the country's top 20 exports. Notwithstanding the duly recognized good quality of its cacao, the Philippines imports more than US\$100 million worth of the commodity and exports only an equivalent of about US\$6 million.

This existing demand and supply gap of cacao beans in the country highlights the unfortunate failure of its local cacao industry to produce the needed volumes of the product and to engage in the value-adding business activities that would have delivered the processed cacao beans required by the local – and global – markets. Thus, data show that the country exports raw cacao beans and imports fermented cacao beans in much bigger volumes. (DTI 2018)

In continuing to work for poverty reduction and growth of the inclusive kind, which have both been elusive in spite of its attainment of sustained annual Gross Domestic Product (GDP) growths from 1998 to 2017, the Philippines should leverage opportunities such as those offered by the country's domestic and foreign cacao markets. Experts have posited that social progress and business success are connected. A multi-sector coalition composed of government agencies, non-government organizations, community developers and companies can deliver a collective impact that is far more significant than the result that individual parties can deliver. (Kramer & Pfitzer, 2016). The goal is the creation of shared value, which is achieved by generating economic value in a way that also produces value for the society. (Porter & Kramer, 2011)

Cacao production requires relatively smaller start-up capital, which, in part, explains why 90% of cacao growers are smallholders with little or no access to it. The early return of investment and the high profitability generated by cacao farming further make it a viable source of income for smallholders. Increased production of both raw and processed cacao beans will mean servicing a bigger share of the existing demand. And so upgrading the country's cacao value chain, with the cooperation of all stakeholders involved, can concretely contribute to poverty reduction and inclusive growth.

#### B. Government Support for the Cacao Industry

For several years now, cacao has been receiving massive support from the national government and the local government units. There are also other non-government organizations that have been extending technical and market services to help smallholder farmers increase their land area for cacao, improve their crop management techniques, expand market reach, enhance quality and cooperate to elevate industry-issues to the national and international levels.

The Department of Agriculture (DA), through its High Value Commercial Development Program (HVCDP), has been in the forefront of supporting cacao farmers and cooperatives, processors and exporters. DA provides funds to cooperatives for planting materials, post-harvest facilities (i.e. solar dryers and fermentation chambers), small-scale processing equipment (grinders and tablea makers), training and standards. DA also has the Philippine Rural Development Program which has infrastructure and rural enterprise components that are supportive of cacao. Bureau of Plant Industry, DA's attached agency, provides training and accredits nurseries to distribute quality planting materials. The Philippine Coconut Authority, still under DA, also promotes cacao as one of the recommended commodities for intercropping with coconut. Agencies under DA that support the local cacao industry are the Bureau of Agriculture and Fisheries Product Standards, for formulating and enforcing quality standards, among others; the Philippine Center for Post-Harvest and Mechanization (PhilMech), for research and development on farm equipment and machineries; and Agricultural Training Institute for training on production technology.

The Department of Agrarian Reform (DAR) has been implementing targeted support to agrarian reform communities. These communities, typically organized as cooperatives and those engaged in cacao production receive technical, organizational and marketing support to increase their cacao production, processing and marketing. Some of DAR's foreign-funded programs with cacao development involvement are the Agrarian Reform Community Connectivity and Economic Support Services (ARCCESS) and the Mindanao Sustainable Agrarian and Agriculture Development (MinSAAD) Project.

The Department of Trade and Industry provides shared service facilities for cacao fermentation to micro, small and medium enterprises. DTI is also the lead convenor of the cacao industry, ensuring that the different stakeholders are involved in setting the direction of the industry. DTI frequently highlights the cacao products through local and international trade fairs/exhibits.

Other government agencies involved in cacao development and promotion are the Department of Science and Technology (DOST) for technology support on quality and processing, and on design and fabrication of equipment; the Department of Labor and Employment (DOLE) for cooperative strengthening; the Cooperative Development Authority (CDA) for cooperative formation and strengthening, and Technical Education and Skills Development Authority (TESDA) for vocational skills development.

Selected local government units (LGUs) in Mindanao have also identified cacao as their priority product. As such, the farmers and the cooperatives also benefit from the support provided by their respective LGUs. Support come in the form of planting materials, fertilizer, farm machinery, marketing, and sometimes farm-to-market road in production sites.

The most active sectoral organization on cacao is the Cacao Industry Development Association of Mindanao, Inc. (CIDAMI), which is composed of farmers, farmer cooperatives, nursery operators, traders, processors, input supplies and the academe. CIDAMI often works with the government and non-government organizations in bringing the services closer to the cacao beneficiaries. CIDAMI has worked closely with organizations such as the ACDI-VOCA, Catholic Relief Services, Lutheran World Relief, Philippine Business for Social Progress, and Cocoa foundation of the Philippines, to name a few.

# Chapter 2 Cacao Production, Supply and Consumption

#### A. World Production

Global production of cacao beans is declining by 0.8% average annual growth rate (AAGR) from 2012 to 2015. Significant drop was experienced in 2013, wherein, production was reduced by 2.8% against 2012 record. The drop could be attributed to the shrinking of production areas by 0.01% from 10,207 thousand hectares record in 2012.

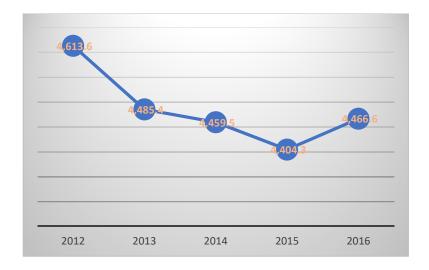


Figure 1: Total world production of cacao bean, in thousand tons, 2016

Source of data: FAOSTAT, 2018

However, world production of cacao bean in 2016 was slightly increased by 1.4% compared to the recorded production in 2015. The total world production of cacao bean in 2016 is 4,466.6 thousand tons (Figure 1).

The leading producer of cacao bean in 2016 is CÃ'te d'Ivoire with a production record of 1,472.3 thousand tons. This was followed by Ghana, Indonesia, Cameron, Nigeria, Brazil, Ecuador, Peru, Dominican Republic and Colombia (See Table 1).

Table 1: Top Cacao-Producing Countries, in thousand tons of cacao bean, 2016

Rank	Country	Production ('000 tons)
1	Côte d'Ivoire	1,472.3
2	Ghana	858.7
3	Indonesia	656.8
4	Cameroon	291.5
5	Nigeria	236.5
6	Brazil	213.8
7	Ecuador	177.6
8	Peru	107.9
9	Dominican Republic	81.2
10	Colombia	56.2

Source of data: FAOSTAT, 2018

#### **B.** Domestic Production

Production of the Philippines on cacao beans is steadily growing at 6.8% AAGR in the past five (5) years (2012-2016). This could be attributed to the massive expansion of production area from 2012 to 2016 which grew by 12.7% AAGR from 9,338 to 14,816 hectares, respectively.

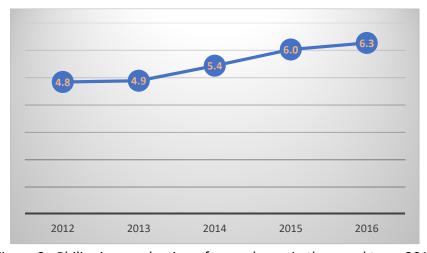


Figure 2: Philippine production of cacao bean, in thousand tons, 2016 Source of data: FAOSTAT, 2018

Leading cacao-producing province is Davao del Sur which accounted for 27% of the country's total production. This was followed by Davao City, Davao del Norte, Davao Oriental, Compostela Valley, Bukidnon, Aurora, Zamboanga del Norte, Cagayan, and Palawan (Table 2). Similarly, they are the leading provinces in terms of area in hectares allotted for cacao production (Figure 3).

Table 2: Top Cacao-Producing Areas in the Philippines, in Tons, 2016

Rank	Country	Volume (Tons)	
1	Davao del Sur	1,702.5	
2	Davao City	1,606.8	
3	Davao del Norte	945.3	
4	Davao Oriental	507.3	
5	Compostela Valley	311.9	
6	Bukidnon	106.0	
7	Aurora	83.8	
8	Zamboanga del Norte	83.2	
9	Cagayan	80.9	
10	Palawan	67.6	

Source: Country Stat, 2018

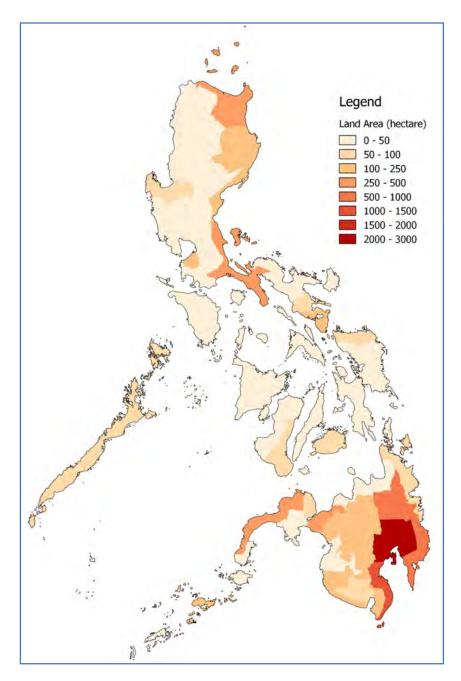


Figure 3: Areas of Cacao Production in the Philippines, in Hectare, 2016

#### i. Market driven

Cacao beans in the Philippines is processed into six (6) major intermediate products: cocoa nibs, cocoa liquor (tablea), cocoa cake, cocoa butter, cocoa powder, and chocolate confectionary blocks. Cocoa butter has several uses apart from the manufacture of chocolate; it is also used in soaps, shampoo and other pharmaceutical products.

In the Philippines, there are three (3) major cultivar groups of cacao: the Criollo, Forastero and the Trinitario. The most common clones planted by farmers in the country are UF18, PBC123, BR 125, K1, K2 and K9. (Department of Agriculture, 2017).

#### ii. Production Area

The Philippines devotes a little over 18,000 hectares of land for cacao, where majority (86%) of the area is contributed by Mindanao. In Mindanao, the primary production area is Davao Region, contributing 71.7% to the island's total land area.

Caraga Region's land area for cacao is only 5% for the entire island group while Agusan del Norte represents 4% in Caraga Region. Similar to coffee, cacao can be intercrop with coconut, banana and agro-forestry trees.

Table 3 shows that area planted for cacao in the province has been on a plateau since 2013, where the recorded cacao farm area remains between 35 to 36 hectares.

Table 3: Production area for cacao, in hectares, 2012-2017

Tuois 5. Troduction area for eaches, in nectares, 2012 2017						
	2012	2013	2014	2015	2016	2017
Philippines	9,338.73	9431.48	12034.79	13910.6	14815.54	18264.44
Mindanao	7,581.9	7413	10022	11771.5	12416.67	15774.9
Davao						
Region	5151	5193	7451	8938	9528.37	11317
CARAGA	585	570	701	735	741	849
<ul> <li>Agusan del Norte</li> </ul>	50	35	35	35	36	36
Agusan     del Sur	385	385	511	545	545	652
<ul><li>Dinagat Islands</li></ul>		5	5	5	5	6
<ul><li>Surigao del Norte</li></ul>	70	65	70	70	70	70
<ul><li>Surigao del Sur</li></ul>	80	80	80	80	85	85

Source: Philippine Statistics Authority, 2018

Cacao production in the Philippines has been steadily rising, particularly for the period 2012-2017, at an annual average rate of 15%. The biggest jump was recorded between the years 2013 to 2014, with an increase of 28%. The production of cacao is concentrated in Mindanao, with 80% coming from the Davao Region. CARAGA Region, on the other hand, was responsible for as little as 2% of the national output. (See Table 4)

The total number of cacao-bearing trees in 2017 was estimated at 4.996 million, producing 7,009 metric tons.

Table 4: Production volume for cacao, in tons, 2017-2017

	2012	2013	2014	2015	2016	2017
Philippines	4,831.34	4,875.82	5,427.66	6,023.34	6,262.77	7,009.10
Mindanao	4319.79	4366.52	4904.98	5463.16	5622.61	6362.92
Davao						
Region	3762.89	3844.3	4365.9	4920.27	5073.83	5752.99
CARAGA	112.42	100.64	105.05	106.68	116.74	146.67
Agusan     del Norte	63.44	57.84	59.4	60.31	65.31	80.71
<ul><li>Agusan del Sur</li></ul>	5.6	7.14	7.52	9.63	9.87	12.12
<ul><li>Dinagat Islands</li></ul>	31.88	25.11	29.83	30.72	36.97	49.7
Surigao     del Norte		2	1.31	1.56	1.76	1.35
<ul><li>Surigao del Sur</li></ul>	11.5	8.55	6.99	4.46	2.83	2.79

Source: Philippine Statistics Authority, 2018

Local cacao farmers need to increase the land harvested and the yield to cater to this particular demand alone.

#### C. Balance between Global Supply and Demand

Cacao production throughout the world has been fluctuating, where some two (2) consecutive years (2011/12 and 2012/2013; 2014/15 and 2015/16) in continued decline (See Table 5). Grindings (processing) was on a steady increase, except for years 2014/15 and 2016/17, where there was a contraction. There were also several periods when deficit of supply (against grinding) was observed.

Table 5: World cocoa bean production, grindings and stocks

Crop	Gross crop		Grindings		Grindings		Surplus/	Total	Stocks
Year	In	Year	In	Year	deficit	end-	to		
	thousand	on	thousand	on		of-	grinding		
	tons	year	tons	year		season	ratio		
		change		change		stocks			
2008/09	3592	-3.9%	3537	-6.3%	+19	1557	44.9		
2009-10	3634	1.2%	3737	5.7%	-139	1418	37.9		
2010/11	4309	18.6%	3938	5.4%	+328	1746	44.3		

2011/12	4095	-5.0%	3972	0.9%	+82	1828	46.0
2012/13	3943	-3.7%	4180	5.2%	-276	1552	37.1
2013/14	4370	10.8%	4335	3.7%	-9	1543	35.6
2014/15	4252	-2.7%	4152	-4.2%	+57	1600	38.5
2015/16	3997	-6.0%	4127	-0.6%	-170	1430	34.6
2016/17	4744	18.7%	4400	6.6%	+297	1727	39.3
Forecasts							
2017/18	4587	-3.3%	4531	3.0%	+10	1737	38.3

Source: ICCO Quarterly Bulleting of Cocoa Statistics, May 2018

Africa is the dominant producer of cacao, responsible for a little over three-fourths (76%) of the world's production (See Table 6). Cote D'Ivoire and Ghana are the top two cacao-producing countries in the world. In Asia, Indonesia is the largest producer, estimated at 260,000 metric tons, which is far cry from the Philippines' 7,002 metric tons for 2017.

Table 6: World production of cocoa beans, in thousand tons

Country	2015/16		Estimate 201	6/17	Forecasts 2017	//2018
	In thousand	%	In thousand	%	In thousand	%
	tons		tons		tons	
AFRICA	2923	73.1	3625	76.4	3490	76.1
Cameroon	221		246		240	
Cote	1581		2020		2000	
d'Ivoire						
Ghana	778		970		880	
Nigeria	200		245		240	
Others	153		145		130	
AMERICA	677	19.9	739	15.6	749	16.3
Brazil	141		174		170	
Ecuador	232		270		260	
Others	305		295		318	
ASIA and	397	9.9	379	8.0	349	7.6
OCEANIA						
Indonesia	320		290		260	
Papua New	36		40		40	
Guinea						
Others	41		49		49	
World Total	3997	100.0	4,744	100.0	4587	100.0

Source: ICCO Quarterly Bulletin of Cocoa Statistics, Cocoa year 2017/2018 (totals may differ from sum of constituents due to rounding).

Meanwhile, the biggest manufacturers of chocolate products in the world are located in USA, Italy, Japan and Switzerland. (See Table 7)

Table 7: Main manufacturers of chocolate in the world, 2017, net sales in US% millions

Company	Net Sales in US\$ millions
Mars Wrigley Confectionery, div of Mars Inc (USA)	18,000
Ferrero Group (Luxembourg / Italy)	12,000
Mondelēz International (USA)	11,560
Meiji Co Ltd (Japan)	9,652*
Nestlé SA (Switzerland)	8,818
Hershey Co (USA)	7,533
Chocoladenfabriken Lindt & Sprüngli AG (Switzerland)	4,106
Ezaki Glico Co Ltd (Japan)	3,242*
Arcor (Argentina)	3,100
Pladis (UK)	2,81

Source: International Cocoa Organization, February 2018 retrieved from https://www.icco.org/about-cocoa/chocolate-industry.html (\*includes production of non-confectionery items)

As highlighted in the Mindanao Jobs Report by the World Bank on cacao, the cacao beans in the country is sold in seven forms:

- Unfermented dried beans, sold to cocoa grinders to be produced in mass, cocoa butter and powder
- Fermented dried beans, with enhanced chocolate flavor and represents 20% of the beans produced in the country
- Roasted cacao/nibs, which are roasted winnowed or deshelled, and is the base for cocoa liquor, traded for niche market and can be consumed as snack food or additive to proceed food
- Cocoa liquor, grinded and becomes liquid or paste, tempered and molded, subsequently hardens when temperature is lowered and then commonly known as "tablea"
- Cocoa butter, comes from the cocoa liquor that is pressed and oil is extracted from the cake, typically used as ingredient in food products (chocolate), in cosmetics and pharmaceuticals
- Cocoa cake/power, comes from the cocoa butter that is grinded, and undergoes either alkalization process, producing both non-alkalized and alkalized powders; and lastly,
- Cocoa-using baked products and chocolates.

Listed below are some of the leading companies in the country that are buying cacao and the destination countries/markets of their cacao-based products.

Table 8: Philippine Cacao Buyers and their Markets, 2016

	,		
Company	Country of Destination/Market/Client		
1. Kennemer Foods	Malaysia, Singapore / Primarily for Mars		
2. CASCO	Singapore / Primarily for Barry Callebaut		
3. Chokolate de San Isidro	Europe / Primarily for Trading Organics		
4. Puentespina Farms	Malaysia, Singapore / Primarily for Armajaro,		
	Mars		
5. PhilCocoa	Malaysia, Singapore / Primarily for PT Olam		
6. Subasta Cooperative	U.S. / Askinosie Chocolate Factory		
7. JM Agro (Davao-based	Europe / Known to be exporting cocoa liquor and		
Grinder)	butter to Germany		
8. TP Foods (Manila-based	Market not known; Cocoa liquor and butter		
Grinder)			
9. Comfoods	Known to serve Local Market for powder (RICOA)		
10. FEDCO	Singapore / Primarily for ADM Foods		
11. Cargill	U.S.		
12. Flipinas de Oro	Manila-based; Will process beans into chocolates		

Source: Dante R. Muyco, Mindanao Jobs Report – Cacao, 2016

#### D. Cacao Consumption & Supply Utilization

Eating moderate amount of chocolate is believed to be good for the body, as it "helps in reducing blood pressure, improves brainpower and memory, decreases bad cholesterol, improves ability to absorb sugar, and facilitates digestion, and boosts levels of serotonin and endorphins". (Quinn 2016) The country with the highest per capita consumption of chocolate worldwide is Switzerland, with 8.8 kilos per person in 2017 (Statistica 2018). This is followed by closely by Austria at 8.1 kilos per person year, Germany and Ireland both at 7.9 kilos per year, and Great Britain at 7.6 kilos per person per year.

The Philippines, on the other hand, is far behind, with as little as 0.26 kilo per person per year in 2016 (see table below). In addition, it is estimated that chocolate confectionery segment in the Philippines is going to be worth US\$74 million and this is expected to grow annually by 6.1% (Chocolate Confectionary, Philippines 2018).

Table 9 shows that the Philippines is a net importer of cacao, with as much as 80% (in 2016) of its requirement is sourced from other countries. While the country still produces low compared to its need, there are also indications that some local cacao farmers and processors are finding their way to the international market. The export of

cacao, between 2012 to 2016, shows an increasing trend, from 2% of the gross supply in 2012 to 13% in 2016.

Table 9: Cacao supply utilization, 2012-2016, in tons

	2012	2013	2014	2015	2016
Production (supply)	4,831	4,876	5,429	6023	6,263
Imports (supply)	11,053	15,882	21,399	23,186	25,356
Gross Supply	15,884	20,758	26,829	29,209	31,619
Exports (utilization)	315	513	1820	2,297	4,109
Net Disposable Supply	15,569	20,245	25,007	26,912	27,510
Processing (utilization)	156	202	250	269	275
Total Net Food					
Disposable	15,413	20,043	24,757	26,643	27,235
Utilization per Capita					
kg/year	0.16	0.20	0.26	0.25	0.26

Source: Philippine Statistics Authority, 2018

## Chapter 3 STRATEGIC DEVELOPMENT FRAMEWORK

#### A. The Cacao Value Chain

Table 10: Cacao value chain activities and key actors

Table 101 Cacao value chant	Tuble 10. Cacao value chain activities and key actors				
Stage	Activities	Key Actors			
Inputs provision	Nursery construction	<ul> <li>Nursery operators</li> </ul>			
<ul> <li>Planting materials</li> </ul>	Seed selection	• Fertilizers and			
• Fertilizers and	Scion collection	pesticide suppliers			
pesticides	Grafting				
	Nursery maintenance				
Production	Farm layout	Independent			
	<ul> <li>Planting</li> </ul>	smallholders			
	Weeding	<ul> <li>Consolidated</li> </ul>			
	Pruning	smallholders			
	<ul> <li>Fertilization</li> </ul>	<ul> <li>Plantations</li> </ul>			
	<ul> <li>Harvesting</li> </ul>				
	Quality control				
Post-harvest	Farm level fermentation	<ul> <li>Cooperatives</li> </ul>			
	• Consolidation and	<ul> <li>Exporters</li> </ul>			

Stage	Activities	Key Actors
	fermentation	• Individual post-harvest
	Drying	operators
	<ul> <li>Storage</li> </ul>	
Processing	Small-scale/batch	• Small scale table
	processing	makers
	• Large-scale processing	<ul> <li>Grinders</li> </ul>
	(grinding)	
Marketing and trading	<ul> <li>Intermediary trading</li> </ul>	Bean traders
	Wholesale export	<ul> <li>Consolidator-exporters</li> </ul>
	• Wholesale and retail	<ul> <li>Food processors</li> </ul>
	domestic	Retailers

Source: Dante R. Muyco, Mindanao Jobs Report, 2016

#### i. Farm-level statistics

Majority of the cacao farmers are smallholders, with farm areas less than 2 hectares. In Davao Region, cacao trees are intercropped with coconuts and fruit trees. The average harvest per hectare ranges between 300 to 700 kilos per year.

#### ii. Yield and production

The national yield average of cacao for 2017 is 0.38 MT/hectare (See Table 11). The highest yield is attained by MIMAROPA Region at 0.7 MT/hectare, while the lowest yield per hectare is exhibited by farmers located in CALABARZON Region at 0.04 MT/hectare.

Table 1: Cacao average yield per hectare, in MT/hectare, 2017

Region	Production in MT	Area in ha	Yield MT/ha
Philippines	7009.1	18264.44	0.38
CAR	22.4	49.66	0.45
Ilocos Region	41.86	141	0.30
Cagayan Valley	111.71	656.6	0.17
Central Luzon	94.97	179	0.53
CALABARZON	18.88	444	0.04
MIMAROPA	84.84	121.98	0.70
Bicol Region	37.05	275	0.13
Western Visayas	73.98	129	0.57
Central Visayas	90.62	238.3	0.38
Eastern Visayas	69.88	255	0.27
Zamboanga			
Peninsula	144.57	641	0.23

Region	Production in MT	Area in ha	Yield MT/ha
Northern Mindanao	194.4	1051	0.18
Davao Region	5752.99	11317	0.51
SOCCSKSARGEN	109.27	1511	0.07
Caraga Region	80.71	849	0.10
ARMM	80.98	405.9	0.20

#### **B.** The Cacao Market

#### i. The Philippine Cacao Market

The Philippine market for cacao requires mostly processed products, the bulk of which is represented by chocolates and cocoa powder. On the other hand, the country exports chocolates as well together with its cacao beans, cacao butter, cacao powder and other cacao-based products. (See Tables 12 & 13)

Table 12: Philippine Import and Export of Cacao

Cocoa Products	Import Value (USD)	% Share	Export Value (USD)	% Share	
Chocolates	87,190,823	49%	12,478,001	59%	
Cocoa Beans	866,155	.8%	5,760,569	27%	
Cocoa Butter	186,527	.1%	2,237,349	11%	
Cocoa Powder	49,044,660	27%	367,456	2%	
Cocoa Paste	171,284	.1%			
Miscellaneous	41,353,705	23%	258,798	1%	
Total	178,813,154	100%	21,102,173	100%	
Source: Phil Statistics Authority (2015)					

Table 13: Philippine Cacao Export & Import by type of Commodity, 2016 Philippine Cacao Export by type of Commodity. 2016

Commodity Description	Volume (Kg.)	Value (US\$)
Cocoa beans; whole or broken, raw or roasted	2,493,295	7,391,402

Chocolate and other food preparations containing cocoa	2,166,947	5,072,656
Cocoa; powder, not containing added sugar or other sweetening		
matter	1,974,440	2,893,222
Cocoa; butter, fat and oil	602,424	3,533,492
Cocoa; paste; whether or not defatted	3,794	68,343

Philippine Cacao Import by type of Commodity, 2016		
Commodity Description	Volume (Kg.)	Value (US\$)
Chocolate and other food preparations containing cocoa.	31,762,506	183,692,667
Cocoa powder, not containing added sugar	23,599,568	61,162,580
Cocoa shells, husks, skins and other cocoa waste.	1,384,987	231,906
Cocoa beans, whole or broken, raw or roasted.	635,451	2,030,507
Cocoa paste, whether or not defatted.	634,186	2,047,271
Cocoa butter, fat and oil.	344,954	631,819

#### ii. The Cacao Global Market

The global demand for cacao has nearly tripled since 1970, increasing year-on-year at an average of 3%. This increase has been attributed to the rise of the middle class and their increasing discretionary household income, which spurred the innovative use of cacao in the food, cosmetics and pharmaceutical industries.

The top country-players in the cacao global market are provided in Tables 14 and 15. Germany and Netherlands have turned out to be the two biggest exporters, and the second and third biggest importers, respectively, with USA occupying the first rank.

Table 14: 2016 Top Exporting Countries		
Rank	Country	Value (US\$)
1	Germany	5,868,550,188

Rank	Country	Value (US\$)
2	Netherlands	5,168,159,657
3	Belgium	3,732,612,099
4	France	2,174,652,675
5	USA	2,032,712,002
6	Ghana	1,898,465,226
7	Italy	1,698,840,994
8	Poland	1,633,798,529
9	Canada	1,529,537,320
10	Malaysia	1,382,428,831
11	Indonesia	1,239,620,576
12	United Kingdom	951,005,358
13	Switzerland	873,716,893
14	Cameroon	777,411,795
15	Ecuador	750,030,158

Table 15: 2016 Top Importing Countries

Rank	Country	Value (US\$)
1	USA	5,208,688,179
2	Germany	5,003,776,414
3	Netherlands	4,701,782,243
4	France	3,367,824,169
5	Belgium	2,857,723,617
6	United Kingdom	2,517,448,880
7	Canada	1,547,158,668
8	Italy	1,269,314,848
9	Spain	1,193,346,313

Rank	Country	Value (US\$)
10	Poland	1,133,995,929
11	Japan	1,035,959,937
12	Malaysia	1,024,405,376
13	Russian Federation	971,057,002
14	Australia	686,032,661
15	China	685,520,593

While the Philippines has not made it to the lists of the world's top 15 cacao exporters and importers, it has its own export markets for its cacao products as shown in Table 16. On the other hand, the country imports processed cacao products from Switzerland, USA and Malaysia (See Table 17).

Table 16: Top Export Market of the Philippines in 2016

Rank	Country	Value (US\$)
1	Malaysia	9,285,722
2	USA	5,330,429
3	Viet Nam	786,317
4	Indonesia	754,120
5	Netherlands	695,217
6	Thailand	481,418
7	Rep. of Korea	346,506
8	Germany	275,884
9	China	191,459
10	Singapore	136,553

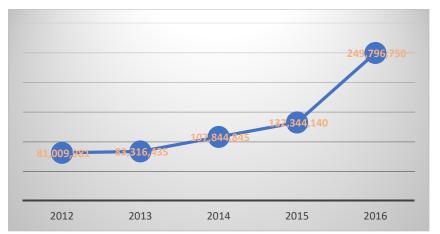


Figure 4: Philippine Importation of Cacao Beans (2012-2016), in US\$

Table 17: Top Import Market of the Philippines in 2016

Rank	Country	Value (US\$)
1	Switzerland	46,098,558
2	USA	44,540,521
3	Malaysia	35,095,190
4	Indonesia	31,046,297
5	Singapore	20,247,063
6	Australia	18,891,105
7	Netherlands	18,334,213
8	China	14,197,908
9	Japan	3,944,681
10	India	3,724,499

# Chapter 4 TECHNICAL REQUIREMENTS

#### A. Suitability

According to Sys (1993), cacao requires deep soil, greater than 150 cm depth, level or flat slope (0-8%), good drainage, fine to medium texture soil (clay to sandy lay), Low level of  $CaCO_3$  and gypsum (0-1 and 0-0.05%, respectively. Cacao requires high amount of water for its optimum growth. It is sensitive to water deficiencies in terms of soil moisture and relative humidity. Irrigation should be put in place in areas with annual precipitation below 1,200 mm with poor rainfall distribution (dry period more than 30 days) similar to cacao producing countries with only 700–800 mm annual precipitation (Snoeck et al., 2016). Threshold for pH in cacao is 5.1 to 7 or moderately acid to neutral.

The suitability of cacao as an intercrop for coconut and banana, the two-week harvest interval, and the early gestation period of 18 months are some of the most valued advantages of this high value crop.

#### **B. Farming Method**

The production of cacao takes several consideration and steps (See Table 18) that are taken from the joint publication of the Mindanao Productivity for Agricultural Commerce and Trade (funded by the US Department of Agriculture and implemented by ACDI-VOCA) and the CIDAMI called "Cacao Check".

Table 18: Cacao Production Technology

	Table 18. Cacao i foduction reciniology	
Stage	Consideration	
Site Selection	Soil	
	<ul> <li>Aggregated clay loam or sandy loan; pH 5.5 to 6.5; not in rocky soil</li> </ul>	
	Water source	
	<ul> <li>With good source of water and drainage; ideal annual rainfall of 1,300 -</li> </ul>	
	2,500 mm	
	Altitude and topography	
	<ul> <li>Ideal is at 300-800 meters elevation; gently sloping</li> </ul>	
	Climatic requirement	
	<ul> <li>Type IV; cacao grows well in areas with high humidity (100% at night; 70-</li> </ul>	
	80% at day)	
Soil sampling and	Collect soil sample and submit to the soil laboratory within one week	
analysis		
Selection of quality	Use grafted seedling, with at least 8 mature leaves. Use between 3 to 5 approved	
planting material	clones by National Seed Industry Council (NSIC). These are: UF18, PBC 123, K9,	
	K1, K2, UIT 1, P7, BR25, USM Chi1, USM Ch2, S5 and DR1.	
Land preparation	Lay-out and staking	

	Planting distance – recommended is 3 x 3 meters between hills and rows.
	Adequate space will prevent competition for sunlight, water and nutrients.
	Holes digging – 40 cm in diameter and 40 cm in depth
Field planting	Watering – recommended to plant at the onset or during rainy season. If there is
	impending dry spell, watering is essential.
	Pruning – remove unnecessary or unproductive branches, to allow sunlight
	penetration, air circulation, reduce pests and disease occurrence, allow bigger
	branches, among others.
Cultural	Steps include:
management	Round weeding – removing all weeds around the plant
	Platform making – leveling of soil around the plant canopy
	Chupon removal – removing sprouts or new branches below the grafted
	portion
	Cutting off of dominant branches
	Mulching – preserving moisture, preventing soil erosion and providing
	organic matter to the soil
	Drainage establishment – avoiding waterlogging
Harvest and post-	Harvesting cacao
harvest practices	Pods takes 5 to 6 months to mature. Mature pods turn into yellow or
	orange/light yellow.
	Pod storage
	<ul> <li>Pods are stored under shade for 3-5 days prior to breaking. Pods must</li> </ul>
	not touch the ground.
	Pod breaking and beans removal
	Pods are broken using pod splitter. Good beans are separated from the
	placenta and from pest-infested beans. Wet beans are drained 8-12
	hours before fermentation.
	Fermentation
	A process that allows naturally-occurring bacteria to make complex
	chemical changes, such as changing sugar into ethanol and carbon dioxide
	and breaking down of proteins into amino acids.
	Fermentation boxes are made from wood or rattan baskets, covered with
	clean jute sacks or banana leaves. Box standard dimension is 50 cm
	depth x 100 cm width, allowing 400-500 kilos.
	Drying
	Beans are dried under the sun, on an elevated bed, in a solar dryer or in a
	combined mechanical and solar dryer to reduce moisture content.
	Storage
	<ul> <li>Beans are stored in food-grade jute sacks or hermetically-sealed bags;</li> </ul>
	kept in cool, well-ventilated, dry storage area for not more than 3
	months.
	Bean grading
	Beans are graded to ensure they meet the minimum standards of the
	Philippine national Standard for Cacao (PNS/BAFS 58:2008)

Source: Cacao Check, published by ACDI-VOCA and CIDAMI, 2017.

The processing of cacao beans – usually in the form of chocolate – takes several steps, summarized below:

Table 29: Typical Steps in Cacao Processing

Step	Table 29: Typical Steps in Cacao Processing  Process
1 <sup>st</sup>	Cacao beans are cleaned to remove all extraneous material.
2 <sup>nd</sup>	Cacao beans are roasted. The temperature, time and degree of moisture involved in road depend on the type of beans used and the type of chocolate or product required from the process.
3 <sup>rd</sup>	<ul> <li>The beans are processed in a winnowing machine to remove the shells, leaving the cocoa nibs.</li> </ul>
4 <sup>th</sup>	<ul> <li>The cacao nibs undergo alkalization, usually with potassium carbonate, to develop flavor and color.</li> </ul>
5 <sup>th</sup>	<ul> <li>The nibs are milled to create cocoa liquor. The temperature and degree of million varies according to the type of nib used and the product required.</li> </ul>
6 <sup>th</sup>	Different beans are blended together to the required formula.
7 <sup>th</sup>	<ul> <li>Cocoa liquor is pressed to extract the cocoa butter, leaving a solid mass called cocoa presscake. The amount of butter extracted from the liquor is controlled by the manufacturer to produce presscake with different proportions of fat</li> </ul>
8 <sup>th</sup>	<ul> <li>The processing take two different directions: one, cocoa butter is used in the manufacture of chocolate; and two, the cocoa presscake is broken into small pieces to form kibbled presscake, which is then pulverized to form cocoa powder.</li> </ul>
9 <sup>th</sup>	<ul> <li>Cocoa liquor is used to produce chocolate through the addition of cocoa butter. Other ingredients such as sugar, milk, emulsifying agents and cocoa butter equivalents are also added and mixed. The proportions of the different ingredients depend on the type of chocolate being made.</li> </ul>
10 <sup>th</sup>	The mixture then undergoes a refining process by travelling through a series of rollers until a smooth paste is formed. Refining improves the texture of the chocolate.
11 <sup>th</sup>	<ul> <li>The conching, a kneading or smoothing process, further develops flavor and texture. The speed, duration and temperature of kneading affect the flavor. An alternative to conching is an emulsifying process using a machine that works like an egg beater.</li> </ul>
12 <sup>th</sup>	<ul> <li>The mixture is then tempered or passed through a heating, cooling and reheating process. This prevents discoloration and fat bloom in the product by preventing certain crystalline formations of cocoa butter developing.</li> </ul>
13 <sup>th</sup>	<ul> <li>The mixture is then put into molds or used for enrobing filings and cooled in a cooling chamber.</li> </ul>
14 <sup>th</sup>	The chocolate is then packaged for distribution to retail outlets.

The chocolate is then packaged for distribution to retail outlets.

Source: Processing Cocoa, International Cocoa Organization, retrieved from <a href="https://www.icco.org/about-cocoa/processing-cocoa.html">https://www.icco.org/about-cocoa/processing-cocoa.html</a>

#### 1. Planting Materials and Varieties.

In the Philippines, the registered and recommended cacao varieties by the National SeedIndustry Council are shown in Appendix I. Seedlings are grown and asexually propagated in nurseries. Seedling will be nurtured in nurseries for around 16 or 18 month before it can be planted in the field.

There are three (3) major cultivar groups of cacao currently used in the country: the Criollo, Forastero and the Trinitario. The most common clones planted by farmers in the country are UF18, PBC123, BR 125, K1, K2 and K9. (Department of Agriculture, 2017)

#### 2. Establishment of Cacao Farm.

Cocoa farms can be established either as a monocrop or intercrop with other suitable plants. In the Philippines, Cocoa farms are usually established by interplanting it between coconuts and other suitable crops.

#### 3. Shading.

In countries like the Philippines, shading is important in the establishment of cacao plants. According to Almeida and Valle (2007) there is a strong effect of light intensity during leaf development on the photosynthetic capacity of mature leaves. Shade leaves have greater total chlorophyll concentration than the sun leaves. The saturating irradiance (SI) for PS of a mature cacao leaf varies from 6% to 30% of full sunlight.

Permanent shade trees for cacao plants includes leguminous trees that grows quickly like *Leucaena leucocephala*, *Gliricidia sepium*, *Erythrina species*, *Albiza species*, *Parkia javanica* and other leguminous species. Temporary shades planted could be banana and plantains, *Manihot glazovii* and cover crops. Established planting pattern is shown in Figure 5.

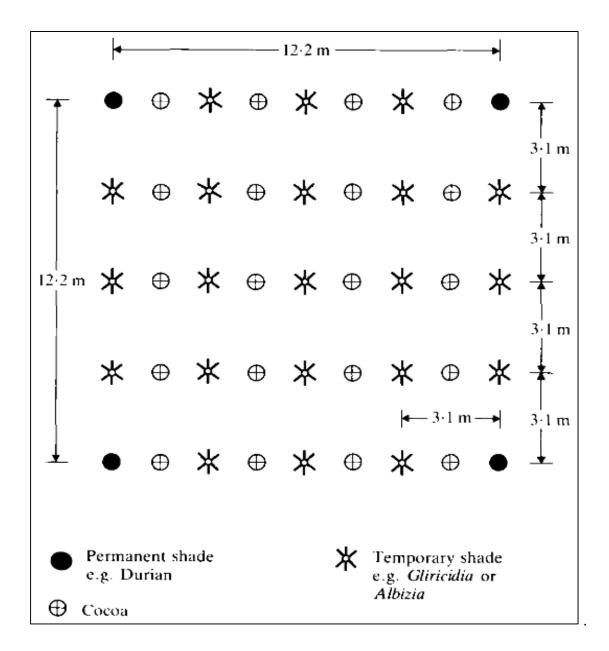


Figure 5: Cocoa spacing under permanent and temporary shade (Wood and Lass, 2008)

#### 4. Care and Maintenance

#### Weeding

Weeds around the stems should be removed manually. Management such as the use of cover crop and regular cutting/ clearing can be employed to control weeds in the farm.

#### **Fertilization**

Growth and vegetative development. Macronutrient N, P and K are essential for cacao growth and development. N, component of protein boosts the development of cacao branches and leaves. N use efficiency is facilitated by S through conversion of nitrate to ammonium in the amino acid production process. P promotes the development of roots, wood and young buds and K for physiological process for crop growth. Mg, Mn and Fe are essential in plants' photosynthesis through chlorophyll production and protein synthesis and metabolism. Micronutrient like B and Zn functions as component of cell walls in shoots and roots and as a cofactor of enzymes, respectively (Snoeck et al., 2016).

#### Flowering and fruit development.

Macronutrients NPK also functions in flower and fruit development of cacao. N extends leaf life influencing the number of flower and pods. P functions in the development of flower while K is essential in the development and maturation of cacao pods. Development of terminal buds and flower is a function of Ca and B in bean growth, formation and development (Snoeck et al., 2016).

#### Cacao bean yield and quality.

Bean size of cacao is affected by P and K applied together. Its weight is influenced by irrigation. Mg improves the chocolate taste by increasing the polyphenol and sugar contents in the beans. Zn contributes to an improvement of the fermentation through producing enzymes that can help cocoa bean fermentation (Snoeck et al., 2016).

For general recommendation or in the absence of soil analysis, annual recommended rate (RR) of fertilizer application is 40-40-46 grams /plant NPK. Liming should also be done for acidic soils in order to maintain the desired pH of the soil for cacao production (pH 5.1 to 7 or moderately acid to neutral).

#### Pruning

For convenience in the harvesting, highest branch should be cutted and maintained up to 4 meters height. Intermittent pruning should also be done by removing the low hanging/ dead/damaged branch and stem; and chupons on the stem as well as shoots and additional branches that are within 60 cm of the jorquette.

#### 5. Pest and Disease Management

Common pests of cacao in the Philippines are: Cacao Pod Borer, Vascular Streak Dieback, Helopeltis and Cacao Stem Borer. Other pest of cacao are: Thrips or aphids, Leaf eater and Sap sucker. Practical means to avoid pest infestation is the use of resistant varieties (See Appendix I), sanitation and pruning, and proper fertilizer application to enhance

plant health. The use of chemical pesticide could be the last option when infestations are foreseen to have significant effect in crop yield. Specific management measures for cacao pest are detailed in Appendix II.

#### 6. Pod and bean harvesting

Maturity of cacao pods varies according to variety (See Appendix I). Harvesting of premature or over-mature pod will affect the size and quality of the beans. To remove the bean from the pod, use a non-sharpened steel blade to crack and open the pod. Segregate the beans the will be subject for fermentation and drying and discard the damaged beans and parts.

Correct pod disposal is important to avoid pest and disease buildup. The safest ways are composting or burying after drying. Avoid leaving pod husks on the ground, as insects and diseases can spread from these pods.

#### 7. Bean fermentation, drying and storage

Fermentation is an important process in producing quality cacao products, thus following Market/ product standards for right process is significant to maintain good cacao quality. Equality important also is the appropriate drying of beans in solar drying houses, mechanical drying equipment, or cement drying beds and proper storage.

#### C. Potential for Production Expansion

#### i. Area

The Philippines devotes a little over 18,000 hectares of land for cacao, where majority (86%) of the area is contributed by Mindanao. In Mindanao, the primary production area is Davao Region, contributing 71.7% to the island's total land area.

Caraga Region's land area for cacao is only 5% for the entire island group while Agusan del Norte represents 4% of Caraga Region. Similar to coffee, cacao can be intercrop with coconut, banana and agro-forestry trees.

Table 20 shows that area planted for cacao in the province has been on a plateau since 2013, where the recorded cacao farm area remains between 35 to 36 hectares.

Table 20: Production area for cacao, in hectares, 2012-2017

	2012	2013	2014	2015	2016	2017
Philippines	9,338.73	9431.48	12034.79	13910.6	14815.54	18264.44
Mindanao	7,581.9	7413	10022	11771.5	12416.67	15774.9

	2012	2013	2014	2015	2016	2017
Davao Region	5151	5193	7451	8938	9528.37	11317
CARAGA	585	570	701	735	741	849
<ul><li>Agusan del</li></ul>						
Norte	50	35	35	35	36	36
<ul><li>Agusan del</li></ul>						
Sur	385	385	511	545	545	652
<ul><li>Dinagat</li></ul>						
Islands		5	5	5	5	6
• Surigao del						
Norte	70	65	70	70	70	70
• Surigao del						
Sur	80	80	80	80	85	85

Source: Philippine Statistics Authority, 2018

Cacao production in the Philippines has been steadily rising, particularly for the period 2012-2017, at an annual average rate of 15%. The biggest jump was recorded between the years 2013 to 2014, with an increase of 28%. The production of cacao is concentrated in Mindanao, with 80% coming from the Davao Region. CARAGA Region, on the other hand, was responsible for as little as 2% of the national output.

The total number of cacao-bearing trees in 2017 was estimated at 4.996 million, producing 7,009 metric tons (See Table 21).

Table 31: Production volume for cacao, in tons, 2017-2017

	2012	2013	2014	2015	2016	2017
Philippines	4,831.34	4,875.82	5,427.66	6,023.34	6,262.77	7,009.10
Mindanao	4319.79	4366.52	4904.98	5463.16	5622.61	6362.92
Davao Region	3762.89	3844.3	4365.9	4920.27	5073.83	5752.99
CARAGA	112.42	100.64	105.05	106.68	116.74	146.67
<ul><li>Agusan del</li></ul>						
Norte	63.44	57.84	59.4	60.31	65.31	80.71
<ul> <li>Agusan del</li> </ul>						
Sur	5.6	7.14	7.52	9.63	9.87	12.12
<ul><li>Dinagat</li></ul>						
Islands	31.88	25.11	29.83	30.72	36.97	49.7
•Surigao del						
Norte		2	1.31	1.56	1.76	1.35
•Surigao del						
Sur	11.5	8.55	6.99	4.46	2.83	2.79

Source: Philippine Statistics Authority, 2018

#### D. Constraints and Opportunities

Based on the Philippine Cacao Industry Roadmap, both constraints and opportunities exist on each stage of the value chain (See Table 22). The opportunities are created due to the increasing awareness of the Philippines as a source of cacao beans (i.e. such as Malagos Chocolates winning in European competitions), the vastly available land area (including inter-cropping with coconut), and the involvement of the different stakeholders in the development and promotion of the commodity. The constraints, on the other hand, are embedded in systemic inefficiencies at the farm level. Fortunately, both the government and the private sector are working together to address these limitations.

Table 22: Constraints and Opportunities in the Cacao Value Chain

Value Chain Activities	Constraints	Opportunities
Input provision	High cost of farm inputs	Presence of input suppliers
Nursery operation	<ul> <li>Inadequate supply of good quality seedling materials</li> <li>Limited access to high-yield scion/clone materials</li> <li>Proliferation of non-accredited nurseries</li> </ul>	<ul> <li>Extensive R&amp;D on varietal improvement</li> <li>Good germplasm</li> </ul>
Cacao production	<ul> <li>Inadequate fermentation facilities and skills on fermentation</li> <li>Low farm productivity level</li> <li>Local level of skills on Good Agricultural Practices (GAP)</li> <li>Inadequate post-harvest facilities and infrastructure</li> </ul>	<ul> <li>Premium price for fermented and certified cacao</li> <li>Large coconut and banana areas available for intercropping</li> <li>Availability of government support programs</li> </ul>
Local trading	Low level of consciousness on product quality and standards	<ul> <li>Presence of consolidators and exporters</li> <li>Entry of new players, encourage competition and pushes prices</li> </ul>
Processing	<ul> <li>Limited beans production</li> <li>Limited value adding activities</li> </ul>	<ul> <li>Underutilized capacity, presence of support facilities</li> <li>Increased demand for cacao processed products, i.e. chocolate</li> <li>Availability of support services</li> </ul>

Value	Chain	Constraints	Opportunities
Activities			
Exporting		High transport cost	<ul> <li>The domestic market is vastly undersupplied</li> <li>Impending global supply shortfall, demand on upward trend</li> </ul>

Source: Philippine Cacao Industry Roadmap, 2017

### **Chapter 5** FINANCIAL REQUIREMENTS

#### **Cost and Return Analysis**

In a study made for the Mindanao Jobs Report in 2016, which included in its scope the major cacao players of Mindanao (see Appendix III), a farmer with a hectare of cacao and planted with 600 trees may start earning on the third year after planting. Essentially, cacao starts bearing fruit 18 months after planting.

Materials cost makes up the 75% of the total cost on the initial year, and this gradually comes down to 49% on the  $4^{th}$  year of planting. Additional materials and labor (i.e. pruning) will be needed on the  $5^{th}$  year to improve the yield of the plants. Labor cost is seen to increase gradually from the initial year until the plants reach maturity.

For the cacao farmer to cash in on the market potential of cacao, he has to work on improving the yield of pods per tree.

Table 23: Cost and Return of a 1-hectare cacao farm, 2016 estimates

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Yield					
Trees per Hectare	600	600	600	600	600
Pods per tree	0	7	34	59	70
Total pods per Ha.	0	4,200	20,400	35,400	42,000
Pod Index	20	20	20	20	20
Wet beans (kg/ha)	0	630	3,060	5,280	6,300
Total Materials Cost	48,948.00	14,945.00	32,358.00	25,429.00	36,746.00
(Includes: Tools,					
Seedlings*, Dolomite,					

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Fertilizer, Agri.					
Chemicals, Herbicide,					
Plastic Sleeves, Harvest					
sacks					
Total Labor Cost	16,000.00	13,240.00	17,450.00	26,340.00	30,550.00
(Includes: Clearing,					
Layout/Staking, Holing,					
Planting, Weeding and					
Mulching, Spraying,					
Application of Fertilizers,					
Pruning, Pod Sleeving,					
Harvesting, Pod					
Breaking)					
Total Materials and	64,948.00	28,185.00	49,808.00	51,769.00	67,296.00
Labor					
REVENUES:					
WET BEANS (KG./HA.)	0	630	3,060	5,280	6,300
GROSS VALUE OF WET	0	18,900.00	91,800.00	158,400.00	189,000.00
BEANS (@PhP30.00/kg,					
as of 2016)					
NET INCOME	-	-9,285.00	41,992.00	106,631.00	121,704.00
	64,948.00				

Source: Mindanao Jobs Report – Cacao, 2016

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#### **Appendices**

Appendix I: Recommended Cacao Varieties in the Philippines (BAR AgFisTech, 2012; Cena RL, 2012)

Appendix II: Management Measures for Cacao Pests (BAR AgFisTech, 2012)

Appendix III: Major Cacao Players of Mindanao

Appendix I: Recommended Cacao Varieties in the Philippines (BAR AgFisTech, 2012; Cena RL, 2012)

#### BR25 (CC-99-05)



- Reddish (red with green) pod color when still young that turns yellow as it matures.
- Leaves are elliptical in shape with wavy leaf margins.
- Leaf length and width ratio is 11.0 cm is to 4.04 cm.
- First flowering starts at 16.12 months and fruiting follows at 17.70 months.
- Pod shape is AMELONADO characterized by an ovoid shape without a prominent point and with a diameter greater than 50% of the length.
- It has superficial ridges, and a usually smooth surface, although they can be rugose in some cases with a small bottleneck. Pod index is 23.1 pods/kg of dried beans. Pod length is 17.02 cm and has a width of 7.07. The number of beans per pod is 27 and violet in color
- Resistance to insect pests and diseases is moderate.

#### **ICS 40**



- Leaf shape is elliptical with wavy leaf margin.
- Leaf length and width ratio is 29.95 cm is to 10.01 cm.
- Starts to flower at the age of 17.63 months and fruiting follows at 19.63 months.
- Pod shape is Cundeamor describe as a variety with elongated cylindrical fruit with ridges, a rugose surface, pronounced bottleneck and sharp point.
- Pod length and width ratio is 16.02 cm is to 9.45 cm. Pod color is green when young and turns yellow when mature with wall thickness of 1.35 cm.
- Pod index is 16.2 pods/kg with 44 beans per pod. Canopy diameter is 195 cm. Bean is

#### striped.

Moderately resistant to insect pests and diseases

#### UIT 1 (CC-99-02)



- It has an elliptical leaf shape with wavy leaf margin.
- Leaf length and width ration 22.36 cm is to 8.13 cm.
- It flowers at the age of 16.80 months in the stage of first fruiting.
- Pod shape is Cundeamor. Pod length is 20.07 cm and width of 8.65 cm.
- Pod is yellow when old from the original color of green color of green when still young with wall thickness of 1.02 cm.
- Pod index is 21.69 pods/kg having 46 beans/pod. Bean is violet in color.
- Canopy diameter is 278 cm. Moderately resistant to insect pests and diseases.

#### K 1



- It has en elliptical leaf shape with smooth leaf margins.
- Leaf length is 31.31 cm with a mean width of 13.44 cm.
- It flowers at 23.20 months and bears fruit at 25.10 months.
- Pod shape is Amelonado with a superficial ridge and a smooth surface.
- Rugosity also appear in some cases. Pod index is 19.20 pods/kg of dried beans
- Pod length is about 17.97 cm and has width of about 8.67 cm.
- Pod is red in color while still young and becomes yellow/orange when mature.
- It has a pod wall thickness of around 1.80 cm.
   Bean color is violet and a hundred beans weigh about 182 grams. It is moderately resistant to known insect pests and diseases.

#### K 2



- Leaf shape is elliptical with smooth leaf margins.
- Leaf length is 32.73 cm with a mean width of 12.52 cm.
- It flowers at 21.10 months and bears fruit after three months or at 24.12 months.
- Pod shape is Amelonado and is red in color while still young and becomes yellow/orange when mature.
- It has a pod wall thickness of around 1.40 cm with 34 beans per pod.
- Pod index is 25 pods/kg of dried beans.
- It is moderately resistant to known insect pests and diseases.

#### S 5



- Productive Life span is 14-15 years
- Reproductive stage will start after 30 months
- Optimum Yield is 2413 kg/tree/year
- Pod length is 19.50 cm and width is 8.50 cm
- Leaf is acute and smooth
- Bean description: violet, 33 beans per pod
- Mildly susceptible to pod borer and dieback
- Mildly resistant to pod rot

**UF 18** 

- Productive life span is 20 years
- Reproductive stage will start after 29 months
- Optimum yield is 3,110 kg/tree/year
- Pod length is 19.75 cm and width is 9.63 cm
- Leaf is acute and smooth
- Bean description: violet, 41 beans per pod
- Mildly resistant to pod borer, dieback and



pod rot.

#### USM CH 2

- Productive life span is 9-10 years
- Reproductive stage will start after 25 months
- Optimum yield is 2,350 kg/tree/year
- Pod length is 17.82 cm and width is 7.96 cm
- Leaf is acute and smooth
- Bean description: violet, 30.67 beans per pod
- Mildly resistant to pod borer, dieback and pod rot.

#### Appendix II: Management Measures for Cacao Pests (BAR AgFisTech, 2012)

#### 1. <u>Cacao Pod Borer</u> (Conopormorpha cramelerella)

- Regular harvesting (weekly harvesting of all ripe pods) in order to break the lifecycle of the pest.
- Sanitation; which includes to bury all empty cacao pod husks, but also to remove all other diseased pods, black pods, and pods eaten by animals from the trees
- o Pruning; to increase the sunlight, which the pest does not favor.
- Bagging or sleeving of the young pods with newspaper and stapler (or plastic bag)
- Fertilizer; to increase the general health of the tree and in addition increasing cacao production.

#### 2. <u>Vascular Streak Dieback</u> (caused by *Oncobasidium theobromae*)

- Sanitation pruning cut off infected branches at 30 cm below the infected area, and burn the infested cuttings
- Nurseries should use polyethylene roofing to ensure spores cannot land on the seedlings
- o Shade on the cacao trees should be reduced to lower humidity
- Plant VSD tolerant varieties such as hybrids PA 173 x SCA 9, PA 138 x SCA 9, ICS 39 x SCA 6, PA 156 x IMC 67, PA 156 x SCA 9, ICS 95 x SCA 6, clones PBC 123, PBC 159, ICS 95 and others.

#### 3. Black Pod Rot and Canker Control Method (caused by *Phytophtora palmivora*)

- Frequent harvesting to avoid pathogen sporulation.
- Harvest all the infested, dead and mummified pods and ideally destroy or bury them.
- o Prune the cacao trees and shade trees to reduce humidity.
- Have a good drainage system so that the spores cannot spread in puddles of water.
- o Trees that have died due to tree canker should be cut down and destroyed.
- o Scraping off the bark from the infected area and put paint or soap on it.

#### 4. Helopeltis Control method (Helopeltis: a sap-sucking bud)

Typically, Helopeltis likes open canopies and sunlight penetration. Still, one should prune the trees carefully and reduce shade if it is too heavy - this is to allow better visibility on the disease and better application of control methods. (Note: if pruning is too rigorous, new chupons will grow which are a feeding ground for Helopeltis).

- General sanitation of farm
- Regular harvesting

#### 5. <u>Stem Borer Control Method</u> (*Zeuzera*)

- Cut off infested braches at 40 cm below the lowest larvae hole. These branches should be destroyed.
- After pruning of an infested tree, big branches, especially those with stem borer holes, should be burned.
- The hole can be covered or plugged with mud or wood to prevent the larva to come out, so that it cannot feed and hatch, or cannot breathe.
- Poking the larvae out with a piece of wire.
- Squirt some soap solution in the exit hole. After a while, the larva will emerge from the hole, probably driven out by the unpleasant soap fume. Catch and kill the Stem Borer.

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Subasta Integrated Farmer's MPC	Subasta, Davao City
Farmer's Development Cooperative	Cadalian, Davao City
TawanTawan MPC	Tawan-Tawan, Davao City
Malita Rural Workers Agrarian Reform Beneficiaries MPC	Lacaron, Malita, Davao del Sur
United CARP Agrarian Reform Beneficiaries MPC	Basyawan, Sta. Maria, Davao del Sur
Cabinuangan Coconut Farmer's Cooperative	Cabinuangan, New Bataan, ComVal
Mangal Agrarian Reform Beneficiaries Development Cooperative	Manggal, Sumisip, Basilan
Tayran Agrarian Reform	Tayran, Lantaran, Basilan

Beneficiaries MPC	
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Mayo BagongSilang Consumers Cooperative	Mayo, Mati, Davao Oriental
Sto. Niňo Women's Cooperative	Sto. Niňo, Arakan, North Cotabato
Kablon Farm	Kablon, Tupi, So. Cotabato

- 11. Commodity Investment Module
  - 11\_6\_Coffee Investment Module



## Land Bank of the Philippines

Japan International Cooperation Agency

# Commodity Investment Module (Coffee)

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

Technical Assistance Team Nomura Research Institute, Ltd. NTC International Co., Ltd. Oriental Consulting Global

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# **ACRONYMS**

ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Assistance
AICCEP	ARMM Industry Cluster Capacity Enhancement Program
ARMM	Autonomous Region for Muslim Mindanao
BAS	Bureau of Agricultural Research
BPI	Bureau of Plant Industry
CARP	Comprehensive Agrarian Reform Program
ConVERGE	Convergence on Value Chain Enhancement for Rural Growth and Empowerment
CRS	Catholic Relief Services
DA	Department of Agriculture
DAR	Department of Agrarian Reform
DENR	Department of Environment and Natural Resources
DOST	Department of Science and Technology
FGD	Focus Group Discussion
GAP	
GCB	Green Coffee Beans
HARVEST	Harnessing Agribusiness opportunities through Robust and Vibrant Entrepreneurship Supportive of peaceful Transformation
HVCDP	High Value Crops Development Program
JICA	Japan International Cooperation Agency
KII	Key Informant Interview
LBP	Land Bank of the Philippines
MinDA	Mindanao Development Authority
MLGU	Municipal Local Government Unit
MRDP	Mindanao Rural Development Project
PDP	Philippine Development Plan
PLGU	Provincial Local Government Unit
PCIR	Phil Coffee Industry Roadmap
PRDP	Philippine Rural Development Project
SOCCSKSARGEN	South Cotabato-Cotabato-Sultan Kudarat=-Sarangani-General Santos
4Cs	Common Code for the Coffee Community
PCC	Philippine Coffee Council
PEF	Peace and Equity Foundation

# **COFFEE INVESTMENT MODULE**

# **Chapter 1**

# **Overview of the Coffee Industry**

## A. Philippine Development Context

The Philippines produces four (4) varieties of coffee: Robusta, Arabica, Excelsa and Liberica. Among these varieties, Robusta contributes 69% of the production volume for 2017<sup>1</sup>, followed by Arabica with 24%, Excelsa with 6% and Liberica 1%.

Table 1. Coffee varieties produced in the Philippines

<b>Coffee Variety</b>	Production GCB (MT)	% share to total production			
Robusta	24,924	69			
Arabica	8,717	24			
Excelsa	2,273	6			
Liberica	257	1			
TOTAL	36,171	100			
Source: Philippine Statistics Authority					

Coffee as a beverage has noticeably become popular among Filipinos and is now considered a health drink with antioxidants that fight free radicals. For a farmer, coffee is a lucrative business and provides livelihood to many. They are generally smallholders having an average farm size of one to two hectares. Most farms are intercropped with vegetables, coconut, fruit trees and forest trees (especially in the case of Arabica coffee).

Some farmers adopt the innovative practices introduced by Nestle who has strong presence as market for dried Robusta coffee beans in southern and northern Mindanao. In a limited way, Nestle provides agronomists and contracted field staff providing knowledge to farmers and supports livelihood of IPs according to NGOs and LGUs. Nestle implements grading scheme and buys only Grades I to III (with price difference of PhP5 in between) and traders buy rejected beans, improve the quality by further drying the GCB to the desired moisture content (11%) and also sell to Nestle. (DAR, ConVERGE 2014)

Some farmers (medium-sized farm holders) put extra investment to improve quality by applying production/quality enhancing practices (pruning, weeding, rejuvenation, to washing and sorting of beans) deliver directly to Nestle's buying station. Small scale farmers who take their beans to traders for consolidation receive a little lower price. Rejected beans have to be sold to local processors nearby buying station for lower price.

<sup>&</sup>lt;sup>1</sup> Philippine Statistics Authority, retrieved <a href="http://countrystat.psa.gov.ph">http://countrystat.psa.gov.ph</a>.

There is an incentive for coffee growers once certified under Common Code for the Coffee Community, or commonly referred to as "4C". 4C certifies and gives fiscal incentives to stakeholders of the coffee value chain based on standards relating to improving economic, social and environmental conditions. Once certified, traders or cooperatives selling GCB will receive the additional Php 1.5/kg, of which Php 1 is supposed to go back to farmers, 50 cents to the cooperatives. (DAR, ConVERGE 2013)

Meanwhile, the Arabica variety contributes 24% to the country's coffee production (Table 1). Depending on the farming practices, Arabica yields an average of 500kg to 1,500kg of GCBs per hectare compared to Robusta's 1,500kg – 2,500kg. Access to quality Arabica seedlings is limited in Mindanao; there is one accredited nursery with Arabica seedlings in Mindanao (Bukidnon, 2014). The LGU of Polomolok is producing seedlings at their newly established nursery (50,000 seedlings capacity). Though Arabica self-pollinate unlike Robusta, access to quality seedlings is crucial to production. Mt. Matutum coffee is a unique variety of Mysore, which is different from other commonly planted varieties in other parts of Mindanao or the Philippines such as Catimore, Typica and Bourbon.

There are very few commercial scale coffee plantations in the country. Luckily, the Philippines is an ideal place to grow quality coffee. However, local coffee production is decreasing by 3.5% per year over the past 10 years¹ while the Philippines coffee consumption from 2014 to 2015 increased by 8.8%. According to the Philippine Coffee Industry Roadmap, there are several reasons for this contraction: coffee growers shifting to other crops, old age of trees with limited or no rejuvenation; poor farm practices – limited knowledge on appropriate coffee technology of farmers; aged farmers; limited access to certified planting materials, and limited access to credit. The document "The Philippines in the Coffee Global Chain²" acknowledges that while the country has a good history of being an exporter of coffee beans, its position is affected by several constraints, ranging from "coffee rust, shifting dynamics within the global industry, and the insufficient government support".

For these reasons, the government is working closely with the private sector to prop up the industry and reclaim its previous volume level<sup>3</sup>. An Executive Order creating the Philippine Coffee Council (PCC) is now for signature of President Rodrigo R. Duterte. The PCC is a private sector led body with government support to implement the Philippine Coffee Industry Roadmap, 2017-2022.

<sup>&</sup>lt;sup>2</sup> The Philippines in the Coffee Global Value Chain, Duke Center on Globalization Governance and Competitiveness, USAID-Philippines, April 2017.

<sup>&</sup>lt;sup>3</sup> In the database of the Philippine Statistics Authority, the level of production in the decade 1990-1999, the average was 199,055 metric tons, compared to the latest year of 2017 at 62,078 metric tons (a reduction of 48%).

## B. The Global Coffee Industry Outlook

There are three main factors in the international scene that is affecting the coffee industry. As explained by the Duke CGGC, the first feature in the world market is the "decommoditization of the coffee sector in the last two decades". Consumers do not only require "quality" from their coffee, they also want to know more about the "origin, type and flavor profile as well as the social and environment conditions for which it is produced". As such, coffee has branched out into different products. The second feature is that "instant coffee has been losing market share to fresh coffee in mature markets, leaving Asia as the key source of demand". The Philippines, together with the giant market China and Indonesia, are seen as important key emerging markets for instant coffee, hence possibly an increasing consumption in the next years to come. The third feature is that "traceability and sustainability has become increasingly important. This has given rise to "specialty coffee, where coffee is sold based on its specific origin and quality characteristics" and "certified coffee, where the product's value in in reassuring the consumer that it has been produced according to specific set of economic, social and environmentally sustainable norms" (Duke CGGC).

# Chapter 2 The Coffee Production

### A. Area and Production

The country devotes 112,843 hectares<sup>4</sup> for coffee in 2017, with 65% of this coffee-planted land found in Mindanao. In Mindanao, SOCCSKSARGEN region (23% of the country's production) has the largest share of coffee area, with Sultan Kudarat contributing the biggest expanse of land. On the other hand, CARAGA Region's share in the country's coffee production area is only 4% of the country in 2017, most of this land is located in Surigao del Sur. Agusan del Norte's land for coffee is 495 hectares, with only an addition of 19 hectares from its 2012 position. The province can easily increase its land area for coffee, looking at the possibility of inter-cropping it with coconut (the region has 196,774 hectares in 2017) or with rubber (the region has 12,651 hectares in 2017).

Table 2: Coffee area planted/harvested, 2012-2017, in hectares							
2012   2013   2014   2015   2016   2017							
Philippines	120,000	116,460	117,451	113,738	114,839	112,843	
Mindanao	81,370	77,877	78,804	75,066	74,960	73,618	
SOCCSARGEN Region	25,223	25,487	26,434	26,731	26,611	26,327	
CARAGA Region	4,368	4,368	4,397	4,417	4,486	4,486	
Agusan del Norte	476	476	476	476	495	495	
<ul> <li>Agusan del Sur</li> </ul>	1,480	1,480	1508	1528	1,528	1,528	
Dinagat Islands		0.75	1	1	0.75	0.7	
Surigao del Norte	12	11	12.25	12.25	12	12	
• Surigao del Sur	2,400	2,400	2,400	2,400	2,450	2,450	
Source: Philippine Statistics Authority, 2018							

Based on the latest information by PSA, there are 76.2 million coffee trees (all varieties) in the country. Together, these trees have produced 62,078 metric tons of coffee beans in 2017 (see table below).

With the land for coffee farming, Mindanao logically contributes the most in terms of harvest, with 82% of the production volume in 2017. In Mindanao, the SOCCSARGEN Region accounts for the highest (36% of the country) volume. On the other hand, the CARAGA Region lags fairly behind, contributing as little as 2% to the national production.

<sup>&</sup>lt;sup>4</sup> Interestingly, the level of land devoted to coffee has not changed as much, where the average between 1990 and 1999 was 140,249 hectares, while the 2017 was 112,843 hectares (about 20% reduction).

Table 3: Coffee production volume, in tons, 2012-2017						
	2012	2013	2014	2015	2016	2017
Philippines	88,943	78,634	75,454	72,342	68823	62,078
Mindanao	65,452	59,565	57,933	57,255	55,088	50,950
SOCCSARGEN	27,869	28,891	28,000	26,958	25,100	22,119
CARAGA Region	1,787	1,497	1,406	1,646	1,834	1,583
Agusan del Norte	88	66	71	80	90	85
Agusan del Sur	237	68	41	42	33	95
Dinagat Islands		0.21	0.15	0.08	0.09	0.06
• Surigao del Norte	7	5	3	2	2	2
• Surigao del Sur	1,454	1,359	1,290	1,521	1,709	1,401
Source: Philippine	Statistics /	Authority, 2	2018	1	<u> </u>	1

In the database of the Philippine Statistics Authority, the level of production in the decade 1990-1999, the average was 199,055 metric tons, compared to the latest year of 2017 at 62,078 metric tons (a reduction of 48%).

The continued decline of production can be traced to several factors, as highlighted in the Duke report. There is still an apparent *limited supply of quality seedlings*, as the DA's effort in seedling dispersal is not enough compared to the demand. Farmers without access to quality seedlings resort to planting deficient varieties. Secondly, farmers continue to practice outdated agricultural techniques, which is brought about by the *lack of extension services* and the age of the farmers (the average age of farmers is 57 years old, hence, the *reluctance to adopt new technologies*). In a way, the practice of Nestle Philippines (being the biggest market for Robusta variety) to accept lower-quality Robusta has not encouraged farmers to improve their production and post-harvest processing methods. It is therefore important for farmers to become aware of the benefits of improving quality, as single-origin and certified coffee can dictate higher price.

For more information on the dispersal of the Philippine Coffee, please refer to Appendix I.

# Chapter 3 Strategic Development Framework

#### A. Coffee Value Chain

The table below shows the different stages of activities and transformation involved in coffee value chain. To ensure that quality plant and beans are achieved by third year (where the plants have become really productive), it is important to have quality coffee seedlings. The government has several recommended clones, which farmers and cooperatives can access form government-accredited nurseries. Some non-government organizations (such as the ACDI-VOCA and the Catholic Relief Services) have also supported the establishment and maintenance of nurseries, which also offer quality seedlings.

At the production stage, activities such as the application fertilizers (organic fertilizers are recommended, which requires time to take effect) and the recommended dosage, regular weeding to allow coffee plants to mature with best nutrients, irrigation (when necessary during dry spell), and pruning will be needed to allow farmers attain good harvest.

Similarly, there are also recommended practices in harvesting and primary processing. In particularly, the selective picking of ripe coffee will provide farmers better profit. After the primary processing activities transform cherries into green beans, these beans are sold to local traders and local processors (i.e. roasters and food manufacturers). In turn, these roasted, ground and packed, to be sold to local coffee shops or direct to the consumers via stores, groceries or supermarkets.

Table 4: Coffee Industry Value Chain Matrix							
<b>Value Chain Stage</b>	Activities	Key Actors					
Nursery	<ul> <li>Propagation of plant varieties</li> </ul>	Suppliers of coffee beans					
	Sale of farm inputs and tools	Mother Plant Garden					
		<ul> <li>Agri-input retailers</li> </ul>					
		<ul> <li>Farm tools suppliers</li> </ul>					
Production	Area selection	Coffee farmers					
	• Land preparation and	• Government and non-					
	maintenance	government extension					
	Extension services	workers					
	<ul> <li>Planting, growing and</li> </ul>	Credit facility					
	harvesting of coffee berries						

Table 4: Coffee Industry Value Chain Matrix						
<b>Value Chain Stage</b>	Activities	Key Actors				
	Sorting and grading of beans					
	Storage					
Primary processing	Depulping	Farmers				
	<ul> <li>Fermentation</li> </ul>	Helpers				
	Drying					
	• Dehulling to green coffee					
	beans					
Trading of green	Trading of green coffee beans	Green coffee beans traders				
beans	<ul> <li>Handling, transport, and</li> </ul>					
	shipping					
	Storage					
Processing	<ul> <li>Roasting, grinding and</li> </ul>	Coffee processors				
	packing					
Commercial trading	Trading of instant or soluble	Local traders				
	coffee	Export traders				
Consumption	Brewing of coffee beans	Local market				
	• Consuming of instant or	Foreign market				
	soluble coffee					

As highlighted in the document "Philippine coffee Industry Roadmap", there are about 275,681 small coffee farmers in the country, with an average farm size of 1 to 2 hectares and planted with 79.4 million coffee trees.

Table 5. Coffee Yield per hectare, in MT/ha, 2017						
Region	Production in MT Area in ha		Yield MT/ha			
Philippines	62,077.95	112,843	0.55			
CAR	1,886.17	6,289.35	0.30			
Ilocos Region	158.74	737.25	0.22			
Cagayan Valley	776.94	3676	0.21			
Central Luzon	1,089.41	1474	0.74			
CALABARZON	2,109.27	13,319	0.16			
MIMAROPA	161.43	932	0.17			
Bicol Region	250.83	606	0.41			
Western Visayas	4,434.88	9,904.7	0.45			
Central Visayas	197.71	2,122.25	0.09			
Eastern Visayas	63.93	164.9	0.39			
Zamboanga						
Peninsula	513.77	903	0.57			
Northern Mindanao	5695.4	11,600.1	0.49			

Table 5. Coffee Yield per hectare, in MT/ha, 2017						
Region Production in MT Area in ha Yield MT/ha						
Davao Region	10,839.95	16344	0.66			
SOCCSKSARGEN	22,118.79	26,326.75	0.84			
Caraga Region	1583.2	4,485.7	0.35			
ARMM 10,197.53 13,958 0.73						
Source: Philippine Statistic Authority						

Based on the Roadmap, the average yield per hectare in the country is 0.30 tons per hectare. Computing the yield per region for all types of coffee varieties for 2017, the average yield per hectare has gone up to 0.42 MT/ha. Surprisingly, the year 2017 reveals that ARMM has the highest yield among all regions at 0.73 MT/ha, while the lowest yield is reported in Central Visayas with 0.09 MT/ha.

Function Produc **Proces** Final Provisi Trading Sale sing Provision of: Land Buying, Depulping, Activities MARKET FOR Preparation, Seedlings, Drying, Hauling, Re-GREEN COFFEE Organic Planting, drying, Sorting Dehulling, **BEANS** Fertilizers & Maintenance & & Classifying Classifying, Pesticides Harvesting Operators Suppliers: Farmers: Smallholders, CBFM, Nestle Phil, **Local Traders** Seedlings, Fert. Agrarian Reform Cooperatives, Commonwealth Cooperatives Pesticides Universal Robina Non-ARC Coops, Dehullers Corp, Monk's Blend, etc DENR, DA, BPI, DAR, LGUs DAR, DTI **Enablers** R & D Providers (State University), DOST **Nestle Philippines** 

Figure 1. Coffee Value Chain Map

#### **B.** The Coffee Market

#### 1. Coffee Trade Statistics

The Philippine Coffee Board revealed in December 2017 that the country's coffee consumption was costing the country about Php 7 billion<sup>5</sup> in imports. The country is importing its coffee supply from Vietnam and Indonesia (incidentally, the world's 2<sup>nd</sup>

<sup>&</sup>lt;sup>5</sup> Philippine Coffee Board, "Coffee Consumption Rising", December 2017, retrieved from <a href="http://philcoffeeboard.com/coffee-consumption-rising/">http://philcoffeeboard.com/coffee-consumption-rising/</a>.

and 4<sup>th</sup> largest producers). Much of the coffee imports are utilized by local roasters supplying the local supermarkets and groceries with their roasted whole and ground specialty coffee, ready-to-drink (soluble) and coffee extracts for industrial processing (e.g. candies). An official of the DTI on industry development added that the country's production is said to be only 7% of the country's annual consumption of coffee, equivalent to 4.775 million 60-kg bags<sup>6</sup>.

Coffee is one of the most-consumed beverages (outside of water) in the world. In fact, October 1 has been declared by member-countries of the International Coffee Organization as the "International Coffee Day".

The top 10 world's biggest coffee drinkers per capita are found in Northern Europe (please refer to the table below). In contrast, the Philippines consumption as of 2016 was at 0.42 kilo per person per year.

Table 6. World's Top 10 Coffee Per Capita Consumers, 2017					
Country	Consumption per person per year				
1. Finland	12				
2. Norway	9.0				
3. Iceland	9.0				
4. Denmark	8.7				
5. Netherlands	8.4				
6. Sweden	8.2				
7. Switzerland	7.9				
8. Belgium	6.8				
9. Luxembourg	6.5				
10. Canada	6.2				
Source: International Co	Source: International Coffee Organization				

In terms of movement of coffee, Brazil is the primary coffee-exporting country while European Union as a whole is noted as the top importing group. Please refer to the table below:

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<sup>&</sup>lt;sup>6</sup> Zac Sarian, "Philippines: Biggest Coffee Importer in the World", may 2017, retrieved from <a href="https://www.zacsarian.com/philippines-biggest-coffee-importer-world-p6-billion-worth-yearly/">https://www.zacsarian.com/philippines-biggest-coffee-importer-world-p6-billion-worth-yearly/</a>.

Tal	Table 7: Top 10 Exporting & importing countries, 2016-2017 in '000 60-kg						
bags							
<b>Exporting</b> Importing							
Top	10 Exporting	in thousand	Annual	Тор	10 Importing	In	Annual
cou	intries	60kg bags	growth	Cou	ıntries	thousand	growth
			rate (%)			60kg bags	rate (%)
1.	Brazil	21,225	1.9	1.	EU	42,620	0.9
2.	Indonesia	4,600	3.4	2.	USA	2578,0	2.6
3.	Ethiopia	3,725	1.6	3.	Japan	7,913	1.8
4.	Philippines	3,000	5.6	4.	Russian	4,638	5.5
ı					Fedn		
5.	Vietnam	2,400	6.3	5.	Canada	3,783	(0.2)
6.	Mexico	2,360	0.6	6.	South Korea	2,316	7.3
7.	India	2,300	3.1	7.	Algeria	2,223	1.2
8.	Colombia	1,736	5.7	8.	Australia	1,847	6.2
9.	Venezuela	1,650	0	9.	Saudi Arabia	1,430	2.7
10.	Thailand	1,300	2.7	10.	Turkey	1,378	15.6
Source: International Coffee Organization, July 2018							

Table 8. Top Import Market of the Philippines in 2016				
Rank	Country	Volume (kg)	Value (US\$)	
1	Viet Nam	40,874,450	72,828,777	
2	Indonesia	2,335,404	5,018,971	
3	Singapore	698,085	847,255	
4	Malaysia	503,502	3,736,441	
5 China, Hong Kong SAR 375,716 100,567				
Source: UN Comtrade, International Trade Statistics Database				

Table 9. Philippine Coffee Export by type of Commodity, 2016				
Commodity Description	Volume (kg)	Value (US\$)		
Coffee husks & skins; coffee substitutes cont.				
coffee in any proportion	24,180	63,995		
Coffee, roasted, not decaffeinated	11,573	63,864		
Coffee, not roasted, not decaffeinated	6,059	36,206		
Coffee, roasted, decaffeinated	18	179		
Source: UN Comtrade, International Trade Statistics Database				

Table 10. Philippine Coffee Import by type of Commodity, 2016				
Commodity Description	Volume (Kg.)	Value (US\$)		
Coffee, not roasted, not decaffeinated	43,254,696	77,030,115		
Coffee, roasted, not decaffeinated	1,630,375	5,702,821		
Coffee, roasted, decaffeinated	100,748	503,454		
Coffee husks & skins; coffee substitutes cont. coffee in any proportion	96,504	75,724		
Coffee, not roasted, decaffeinated	59,025	203,136		

Source: UN Comtrade, International Trade Statistics Database

Based on the ICCO report released July 2018, the price of coffee at the international market fell to "107.20 US cents/lb" (US\$2.36/kg), considered to be the lowest monthly average for the month of July since year 2007<sup>7</sup>. As a comparison, the annual price for dried Arabica beans in 2017 was Php 117.35 per kilo, the Excelsa was Php 88.37 per kilo, and the Robusta was Php 86.75 per kilo.

## C. Consumption

In general, the Filipinos' consumption of coffee is increasing, particularly for the instant coffee<sup>8</sup> (soluble) segment for the younger generations and specialty coffee for the more affluent Filipinos (the ubiquitous presence of Starbucks, Coffee Bean and Tea Leaf, UCC and Seattle's Best) in malls and high-end places, as well as the sprouting of home-grown coffee brands such as Bo's Coffee and Figaro Coffee.

The official figures below show that the country's reliance on coffee imports has been steadily increasing, from the rate of 55% of the total supply in 2012 to 68% in 2017.

Table 11: Coffee supply utilization accounts, 2012-2016, in metric tons					
	2012	2013	2014	2015	2016
Production (supply)	24,909	22,018	21,127	20,256	19,270
Imports (supply)	30,184	25,136	8,255	41,051	41,162
Gross Supply	55,088	47,154	29,382	61,307	60,432

<sup>&</sup>lt;sup>7</sup> Coffee market Report, International Coffee Organization, July 2018, retrieved from http://www.ico.org/documents/cy2017-18/cmr-0718-e.pdf

<sup>&</sup>lt;sup>8</sup> 90% of the coffee consumed in the country is reported to be instant coffee (DUKE CGGC).

Table 11: Coffee supply utilization accounts, 2012-2016, in metric tons					
	2012	2013	2014	2015	2016
Exports (utilization)	1	99	1	2	6
Net Disposable Supply	55,087	47,055	29,381	61,305	60,426
Feeds and Waste (utilization)	3,305	2,823	1,763	3,678	3,626
Processing (utilization)	12,670	10,823	6,758	14,100	13,898
Total Net Food Disposable	39,112	33,409	20,860	43,527	42,902
Utilization per Capita kg/year	0.41	0.34	0.21	0.43	0.42
Source: Philippine Statistics Authority					

Below are some of the buyers of coffee beans in the country:

- Nestle Philippines9
- Bote Central
- Commonwealth Foods, Inc.
- Goldshine Pharmaceuticals, Inc.
- Regent Foods Corporation
- Universal Robina Corporation
- Century Pacific Group Monk's Blend
- Coffee for Peace

-

<sup>&</sup>lt;sup>9</sup> Philippines' largest coffee importer, as it sources only 20% of its requirement from local producers, and this is equivalent to 70% of the country's production, and further, 80% of this came from SOCCSKSARGEN Region (Duke CGGC).

# Chapter 4 TECHNOLOGY REQUIREMENTS

# A. Suitability, Production and Processing Technology of Coffee

# The focus of the

Table 12A. Locational characteristics for Robusta coffee			
PARTICULARS			
Elevation (m)	0-7000		
Temperature	13-26°C		
Soil-Ph	5.5-5.6		
Soil Depth	1.5		
Organic Matter	Rich in OM		
Sunshine	Full		
Wind	Slight		
Relative Humidity (%)	75-85		
Rainfall (mm)	200		
Source: Department of Agriculture Cordillera Region Field Office			

Table 12B. Locational characteristics for Arabica coffee			
PARTICULARS			
Elevation (m)	1,000		
Temperature	15 to 24°C		
Soil-Ph	5.6 – 6.6		
Soil condition	Deep, slightly acid, friable, permeable, well-drained fertile clay loam		
Organic Matter	Rich in OM		
Sunshine	Thrives well in shaded area, forest		
Wind	Slight		
Rainfall (mm/year)	1,400 to 1,600		
Source: Sys, 1993			

Unlike Robusta, Arabica is suitable in elevated area, preferably above 1,000m where there is a large temperature gap between day and night. It also thrives well in shaded area, in forests, where there are abundant organic composite matter that can naturally fertilize trees. There are mountains in Mindanao that can cater to Arabica: Mt. Apo, Kapatagan, Kalamansig, Bukidnon, Mt. Matutum, Barirra-Buldon, South Upi, etc. Each area caters to specific characteristics of coffee, contributed by different variant of Arabica grown, soil, weather, etc. Therefore, it cannot have the same methodology to expansion to large areas as in the case of Robusta.

The information below is lifted from the Arabica Coffee: Agronomics, Harvesting and Post-Harvest Processing<sup>10</sup>. Please refer to Appendix II (Nursery) and Appendix III for Coffee Production, Processing and Marketing System by Nestle Philippines. It is developed to guide coffee producers and value chain actors.

Table 13. Coffee	Table 13. Coffee production and processing technology matrix			
Stage	Consideration			
PRODUCTION				
Site selection	Site preparation and out planting			
	<ul> <li>Partial removal or patch clearing of grasses and weeds</li> </ul>			
	<ul> <li>On sloping land, use contour planting/terracing or</li> </ul>			
	leguminous cover to control soil erosion and weeds			
	Shade and shade selection			
	Shade is beneficial to coffee plants as it helps retain			
	moisture, promotes biodiversity and slows weed growth			
	Planting distance			
	<ul> <li>For tall varieties, 1.3 x 2.5 meters distance, allowing 3,000</li> </ul>			
	plants per hectare			
	<ul> <li>For short varieties, 1 x 2.5 meters, allowing 4,000 plants</li> </ul>			
	per hectare			
Soil sampling	Soil sample is sent to the soil laboratory for full analysis. Samples			
	should be sent within a week from sampling.			
Field planting	Field planting requires digging of holes, at 40 cm wide and 60 cm			
	deep to accommodate the ball of earth with the coffee roots			
	intact.			
Nutrition and	The soil analysis of the farm provides information on the			
fertilizing	available nutrients and guidance on how to correct nutrition			

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<sup>&</sup>lt;sup>10</sup> Arabica Coffee: Agronomics, Harvesting and Post-Harvest Processing, published ACDI-VOCA and the Philippine Coffee Board, 2017.

Table 13. Coffee production and processing technology matrix				
Stage	Consideration			
	deficiencies. The amount and frequency of fertilizer application			
	vary per year.			
Pruning	Coffee has a two-year cycle, where the flower buds appear on the first year and turns into beans, maturing on the second year. Thus, pruning, which is the removal of conflicting wood and cutting back is necessary to stimulate the growth of new wood, to allow buds and flowers to form.			
Rejuvenation	Rejuvenation, also known as a systematic high pruning (3-yar cycle), cuts all the wood from the plant and lets three (3) shoots to regrow to carry the subsequent two-year crops and then the cycle is repeated.			
Harvesting	Coffee are ripe after 6 to 8 months after flowering. Selective picking or picking only the ripe cherry is recommended.			
Post-harvesting	<ul> <li>Cherry sorting or separation</li> <li>Ripe cherries are separated from over-ripe and underripe. Ripe cherries are processed using natural, semiwashed or washed method, which can be done by hand or in an appropriate machinery.</li> <li>Cherry flotation</li> <li>Cherries are poured into a large tank of water. Those that</li> </ul>			
DDOCESCING	sink are good cherries, which are collected for pulping.			
Processing	<ul> <li>Natural processing method</li> <li>After picking and sorting the cherries, these are spread on aerated surfaces to dry in the sun. Alternatively, these are raked and turned through the day and covered at night or during rain. It takes several weeks to reach the moisture content of 10-12%. When dried, the cherries are hulled to produce green coffee.</li> <li>Beans are dried to reach the 10-12% moisture content, using raised-table solar dryers with good ventilation.</li> <li>Fully washed processing method.</li> <li>Water is added to the fermentation tank, and then</li> </ul>			
	<ul> <li>water is added to the fermentation tank, and then drained.</li> <li>Second and third washing is done while vigorously stirring the beans, and then water is drained.</li> </ul>			

Table 13. Coffee production and processing technology matrix			
Stage	Consideration		
	Fourth washing requires water is poured to about 5 cm		
	above the beans, stirring to remove the floating or empty		
	beans, then water is drained.		
	The beans then go into sand-and-gravel filtration system.		
	Semi-washed (honey) processing method		
	Freshly harvested and sorted beans are placed in a pulper		
	and stripped of outer skin using little or no water. The		
	mucilage is allowed to remain after pulping.		
	During drying process, the parchment is dried together		
	with the mucilage.		
Drying the	The beans are dried using several methods:		
beans	Sun drying		
	Cement or patio drying		
	Raised drying tables with plastic cover or solar dryers		
	Mechanical drying		
Hulling	Hulling comes after drying, which separates the parchment from		
	the washed (wet) processed bean.		
Polishing	Polishing is an optional process where any silver skin that		
	remains on the beans after hulling is removed by machine.		
Sorting and	Sorting removes any undesirable foreign materials or broken		
grading	pieces of beans.		
	Grading sorts the beans by size and weight, and reviews for color		
	flaws or other imperfections.		
Storing	Dried green beans are stored in dried parchment stage to		
	prevent loss of flavor, aroma and color.		
Transporting	Coffee with moisture content in excess of 12.% must not be		
	shipped, due to high risk of condensation, resulting to fungi		
	growth.		
Source: Arabica Coffee: Agronomics, Harvesting and Post-Harvest P.			
Philippine Coffee Board and ACDI-VOCA, 2017.			

# **B.** Government Support (Enablers)

1. The Department of Agriculture (DA) takes the lead in helping the coffee farmers and producers' cooperatives/associations. Under its High Value Crops Development Program (HVCDP), the agency has included coffee under the

category of "industrial crops". As such, the HVCDP is implemented across the country, extending support in the areas of production (provision of seeds/planting materials, small farm equipment, small farm implements, and production facilities); market support (market studies and value chain analysis, market information, and market events); irrigation support (small-scale irrigation systems); and other infrastructure and post-harvest facilities (processing equipment, post-harvest equipment, and processing facility). The DA, through its regional offices and counterparts at the local levels, provide training, technology demonstration, and related information/advocacy materials).

- 2. The Department of Trade and Industry at the regional and provincial levels provide support in organizing and strengthening farmers and industry associations through trainings, market events, and investment roadshows. The agency supports farmers and groups, particularly on their processing and marketing needs.
- 3. Other government agencies extending support to coffee industry are the
  - a. Department of Science and Technology,
  - b. Department of Environment and Natural Resources, and
  - c. Department of Tourism.
  - d. Attached agencies of the DA such as the Bureau of Plant Industry, Philippine Center for Postharvest Development and Mechanization also support the coffee farmers and cooperatives.

From the ranks of the private sector, various organizations are also providing support to the Coffee Industry, to include the following:

- 1. Philippine Coffee Board is active. This organization represents the numerous actors along the value chain. It is focused on repositioning the country as a specialty coffee producer for Arabica and Fine Robusta.
- ACDI-VOCA is a non-government organization that has implemented several coffee-related projects. The most recent, which has already concluded, was the Mindanao Productivity for Agricultural Commerce and Trade, funded by the US Department of Agriculture.
- 3. Other non-government organizations involved in coffee are (a) the Peace and Equity Foundation (PEF), (b) the Catholic Relief Services (CRS)

# C. Opportunities and Constraints

From the Philippine Coffee Industry Roadmap and KII, the following are the opportunities and constraints:

Table 14. Constraints and Opportunities in the Coffee Industry				
Stage	Constraints	Opportunities		
Input supply	<ul> <li>Insufficient supply of quality and/or certified planting materials</li> <li>Lack of accredited certified mother clonal garden and nurseries</li> <li>Lack of trained propagators</li> <li>High cost of farm inputs</li> </ul>	<ul> <li>Investment opportunities in Nursery and Clonal/Mother Plant Garden. The technology and BPI certified coffee varieties are available.</li> <li>Can be an area for Business Support Organizations, (e.g., TESDA, etc.) to develop training modules and offer on-the-job trainings for the human capital/cooperatives</li> <li>Loan from LBP using the HARVEST Fund</li> </ul>		
Production	<ul> <li>Low yield due to increasing number of old trees that need to be rejuvenated or replaced</li> <li>Strict farm credit/lack of access to financing</li> <li>Poor farm management practices</li> <li>Poor quality of Green Coffee Beans</li> <li>Unpredictable changes in rainfall and temperature</li> </ul>	<ul> <li>Access to the HARVEST Fund with LBP for replanting and/or rejuvenation of the senile coffee trees.</li> <li>Availability of idle lands suitable for coffee production.</li> <li>Initiation of farmers into Good Agriculture Practices (GAP) thus increasing productivity per year and improving quality of green coffee beans.</li> <li>Availability of climate change index based insurance</li> </ul>		
Post- harvest/Proces sing	<ul> <li>Inadequate post-harvest facilities (e.g. drying, milling, roasting and grinding)</li> <li>Low utilization of processing facilities</li> </ul>	<ul> <li>Availability of coffee milling facilities in large coffee producing provinces</li> </ul>		

Table 14. Constr	aints and Opportunities in the Coff	ee Industry
Stage	Constraints	Opportunities
Stage	Lack of standards for appropriate post-harvest machinery and equipment for coffee	Access to new processing technologies catering to smallholder/coffee farmers  Promotion for expansion of production to improve scale thus improve the utilization of unutilized capacities  Good challenge for the Philippine Coffee Council to induce the interests of both the investors and enablers.  Heighten awareness of the coffee farmers to develop an entrepreneurial mindset and adopt successful business models. This will facilitate the growth/enhancement of the Coffee Value Chain - for a
Marketing		sustainable income for smallholders and all the players.  Philippine coffee is known, accepted and traded worldwide  High demand for coffee products (e.g. specialty coffee). Improve the market value of Philippine Coffee via Branding and Certification.  Possibilities for new "blends", branding and more engaging packaging (with stories to tell); and for farmers to become aware of the benefits of improving quality, as single-origin and certified coffee can dictate higher price.

Table 14. Constra	aints and Opportunities in the Coff	ee Industry
Stage	Constraints	Opportunities
Cross-cutting concerns	<ul> <li>Inadequate farm-to-market roads in key production sites</li> <li>Inadequate market intelligence on coffee</li> <li>Limited Research and Development</li> </ul>	A timely advocacy from the existing (interim) leadership of the Phil Coffee Council to push for the integration of Coffee Roadmap infrastructure priorities (i.e., Farm to Market Roads) in the Budget Proposal of relevant government organizations like DA, DTI, DOST, etc.

# Chapter 5 Financial Requirement

## A. Cost and Return Analysis

Based on data availability and the industry performance of the Coffee Industry (shown in foregoing chapters) the two leading varieties of coffee planted in the Philippines are Robusta and Arabica. Thus the Financials will focus on the Farm Cash flows typical for Robusta and Arabica coffee farms. For purposes of comparison, a cost and return analysis for the two varieties will be lifted from the Phil Coffee Industry Roadmap, 2017-2022.

#### 1. Robusta

The FS is using the averages of five areas planted to Robusta. With planting density of 850 trees (with intercrop) per hectare, the average production cost amounted to about PhP37.33 per kg and the average processing cost is PhP 5.50/kg. Labor costs accounted for about Php 12.84/kg.

Using an assumption of PhP80/kg as average price of green coffee beans, the average profit margin is Php 34.95/kg for a hectare farm planted to Robusta.

Refer to Table 15.1 for the Cost and Return Analysis of Robusta coffee production in one (1) hectare area.

#### 2. Arabica

The production cost for a typical one hectare Arabica farm averages at about PhP 55.33/ha and processing cost of about PhP 8.08/kg. Labor cost is about PhP 41.01/kg.

The input costs are as low at Php 1.51 because it does not require fertilizers and pesticides. For modern farming, however, where fertilizers and pesticides are applied, Arabica's cost is about PhP20.29.

A typical farm starts harvesting on the second year while a modern farm on the third year. The typical farm sells dry parchment while the modern farm sells green coffee beans.

A profit margin for the modern farm is at PhP 146.58/kg while for the typical farmer it is only about 40% at PhP 60.93. The typical Arabica farm needs about five years to recover its initial investment (in Year 1) while a modern farm takes a little over four years to recoup its initial investment (in Years 1 & 2).

Refer to Table 15.2 for the Cost and Return Analysis of Arabica coffee production in one (1) hectare area.

Table 15.1 COST AND RETURN ANALYSIS OF ROBUSTA COFFEE PRODUCTION IN ONE (1) HECTARE AREA

													As of 12.02.17	02.17
					S	STS AND RET	<b>URN ANALYS</b>	SIS OF COFFEE	PRODUCTIO	COSTS AND RETURN ANALYSIS OF COFFEE PRODUCTION IN A HECTARE AREA	RE AREA			
		Unit	Yea	Year 1	Ϋ́	Year 2	Ye	Year 3	Ye	Year 4	Yea	Year 5	Year 6	ر و
ITEM	Chit	Cost (PhP)	Ωty	Cost/ Value	Qty	Cost /	Qty	Cost/ Value	Qty	Cost /	Qty	Cost /	ΛţΌ	Cost/ Va
GROSS INCOME: Sales of Green Coffee Beans	kilo	100			350	35,000	834	83,400	1,250	125,000	1,667	166,700	1,667	166,70
EXPENSES:														
Labor: Clearing/Brushing/ Contouring	sa.m.	0.30	10.000	3.000										
Field Layout/Staking Holing (75 holes/md)	holes	3.00	1.667	1,800										
Basal Fertilization & transplanting	pm	300	7.25	1,450										
Replanting (5%)	pw	300.00	2.5	200										
Ring weeding/Underbrushing (2-4x)	tree	1.50	6,668	10,002	899'9	10,002	3,334	5,001	3,334	5,001	3,334	5,001	3,334	5,001
Side dress Fertilization (2x)	tree	1.25	3,334	4,168	3,334	4,168	3,334	4,168	3,334	4,168	3,334	4,168	3,334	4,168
Foliar Fertilizer Spraying (4x)	pw	300	8	2,400	8	2,400	8	2,400	8	2,400	8	2,400	8	2,400
Bio-Pest Control (4x Spraying)	рш	300	8	2,400	8	2,400	8	2,400	8	2,400	8	2,400	8	2,400
Bending/Training of Coffee Multiples	hill	0.50	1,667	834		0								
Pruning (Formative/Phytosanitary)	pm	300		0			5	1,500	6.0	1,800	0.9	1,800	0.9	1,800
Harvesting	pw	300		0	7	2,100	15	4,500	20	6,000	25.0	6,000	25.0	11,80
Floating/ Drying (Dry Processing)	рш	300		0	2	009	2	1,000	10.0	2,000	15	3,000	19.50	3,900
Drying, Dehulling, Cleaning and Bagging	pm	300		0	1	300	3	550	8	2,400	10.0	3,000	10.00	3,000
Sub-Total			31,	31,555	22	22,870	21	21,519	76	26,169	27,	27,769	34,469	69
Inputs: Stakes	рс	0.25	1,667	417										
Planting Materials: Coffee Seedlings	рd	25	1,667	41,675										
Organic Fertilizer (0.5kg/hill), 834 kg	kg	7	5,838	2,940	1,667	11,669	3,334	23,338	3,334	23,338	3,334	23,338	3,334	23,33
Foliar (Organic) Fertilizer (Based on leaf analysis)	liter	250	4	1,000	4	1,000	8.0	2,000	∞	2,000	∞	2,000	8	2,000
Bio-Control repellants	liter	150	8	450	3	450	9	006	9	006	9	006	9	006
Pruning Shear	bc	250			1	250	3	750						
Knapsack Sprayer	unit	2,700	1	2,700	1	2,700								
Plastic Container for Harvesting	od	20			3	150	3	150	3	150	3	150	9	300
Drying Trays	рс	300			2	009	3	006	3	006	2	009	4	1,200
Jute Bags for Storing Coffee Berries	bc	20			2	250.00	9	300	ĸ	150	m	150	4	200
Sub-Total			49,	49,182	17	17,069	78	28,338	72	27,438	27,	27,138	27,934	34
TOTAL EXPENSES			.08	80,736	36	39,939	49	49,857	23	53,607	54,	54,907	62,403	.03
NET INCOME				(80,736)		(4,939)	33	33,543	71	71,393	111	111,793	104,297	297
CUMULATIVE NET INCOME			(80,736)		(14,307)		19,236		90,629		202,422		306,719	

Estimated Percentage of Harvest in Kilo per Tree	21%	20%	75%	100%	100%
(conservative estimate based on GAP organic technology)					
ROI (%):		11.27	133.17	203.60	167.13

	31,555 22,870 <u>21,519</u> 75,944	170,532 Loanable Amount without Labor Counterpart 75,944 45%	94,588 Loanable Amount with Labor Counterpart
Expenses as Farmer's Counterpart (For 1667 Seedlings)	Labor	Total Accumulated Expenses for 3 Years without Labor Counterpart less: Total Labor Expenses can be Farmer's Counterpart	Total Amount that can be borrowed from Farmer's Counterpart

# As of 12.02.17

Table 15.2 COSTS AND RETURN ANALYSIS OF <u>ARABICA</u> COFFEE PRODUCTION IN ONE (1) HECTARE AREA

					5	OSTS AND RET	URN ANAL	COSTS AND RETURN ANALYSIS OF COFFEE PRODUCTION IN A HECTARE AREA	PRODUCTIC	IN A HECTAE	RE AREA		3	
	:	Unit	Ye	Year 1	Ye	Year 2		Year 3	٨	Year 4	χ	Year 5	Ye	Year 6
ITEM	n C	Cost	ΛŧΌ	Cost/Val	Qty	Cost/Valu	Qty	Cost/Value	Qty	Cost/Valu	Qty	Cost/Value	ΛţΌ	Cost/Value
		(PhP)		ne		ө		(PhP)		e ·		(PhP)		(PhP)
<b>GROSS INCOME:</b> Sales of GCB	kilo	150			400	000'09	1,000	150,000	1,500	225,000	2,000	300,000	2,000	300,000
EXPENSES: Labor: Clearing/Brushing/ Contouring	.m.ps	0:30	10,000	3,000										
Field Layout/Staking	pw	300	9	1,800										
Holing (75 holes/md)	holes	3.00	2,000	000′9										
Basal Fertilization & Transplanting	pm	300	10.00	3,000										
Replanting (5%) 100 pcs	pш	300.00	2.5	200										
Ringweeding/Underbrushing (2-4x)	tree	1.50	8,000	12,000	8,000	12,000	8,000	12,000	4,000	6,000	4,000	6,000	4,000	6,000
Sidedress Fertilization (2x)	tree	1.25	4,000	000′9	4,000	000′9	4,000	000′9	4,000	000′9	4,000	000′9	4,000	000′9
Foliar Fertilizer Spraying (4x)	pw	300	8	2,400	8	2,400	8	2,400	∞	2,400	8	2,400	8	2,400
Bio-Pest Control (4x Spraying)	pw	300	8	2,400	8	2,400	8	2,400	8	2,400	8	2,400	8	2,400
Bending/Training of Coffee Multiples	NA													
Pruning (Formative/Phytosanitary)	pw	300		0	3	006	5	1,500	0.9	1,800	0.9	1,800	6.0	1,800
Harvesting	pw	300		0	7	2,100	15	4,500	20	000′9	25.0	7,500	25.0	7,500
Floating/ Drying (Wet Processing)	pw	300		0	2	009	2	1,500	10.0	3,000	15	4,500	15.00	4,500
Drying, Dehulling, Cleaning & Bagging	pw	300		0	2	009	4	1,200	9	1,800	10.0	3,000	10.00	3,000
Sub-Total			37	37,100	22	27,000	m	31,500	2	29,400	33	33,600	33	33,600
Inputs: Stakes	рс	0.25	2,000	200										
Planting Materials: Coffee Seedlings	рс	25	2,000	20,000										
Organic Fertilizer (0.5kg- 2kg/hill), 1000-	kg	7	5,838	2,940	1,667	11,669	3,334	23,338	3,334	23,338	3,334	23,338	3,334	23,334
Foliar (Organic) Fertilizer (Based on leaf analysis)	liter	250	7	1,000	4	1,000	8.0	2,000	8	2,000	8	2,000	8	2,000
Bio-Control repellants	liter	150	3	450	3	450	9	006	9	006	9	006	9	006
Pruning Shear	рс	250			1	250	3	750						
Knapsack Sprayer	unit	2,700	1	2,700	П	2,700								
Plastic Container for Harvesting	рс	20			3	150	3	150	8	150	3	150	9	300
Drying Trays	рс	300			2	009	3	006	3	006	2	009	4	1,200
Jute Bags for Storing Coffee Berries	bc	920			2	250.00	9	300	3	150	3	150	4	200
					•	•	•				_			P

Sub-Total	57,590	17,069	28,338	27,438	27,138	27,934
TOTAL EXPENSES	46,946	45,755	49,857	53,607	54,907	62,403
NET INCOME	(46,946)	14,245	100,143	171,393	245,093	237,597
CUMULATIVE NET INCOME	(46,946)	(32,701)	67,442	238,835	483,928	721,525
Estimated Percentage of Harvest in kilo per tree fronservative estimate based on GAP organic technology		20%	20%	75%	100%	100%
	ROI (%):		201%	320%	446%	381%
Expenses a	Expenses as Farmer's Counterpart	rt (For 1667 Seedlings)	(s)			
	Year 1					
2046			37,100			
	Year 2					
Labor	•		27,000			
	Year 3					
Labor			<del>31,50</del> 0			
Total Labor Expenses as Farmer's Counterpart			009'56			
Total Accumulated Expenses for 3 Years Without Labor Counterpart	Labor Counterpart		85,928	Loanable An	Loanable Amount without Labor Counterpart	ounterpart
less: Total Labor Expenses as Farmer's Counterpart	unterpart		<u>95,600</u>			
Total Amount that can be borrowed with Farmer's Counterpart	's Counterpart		181,528	Loanable Am	Loanable Amount with Labor Counterpart	erpart

Table 15.3. Updated Average Production Costs and Returns for Coffee

	2013	2014	2015	2016	2017
COFFEE					
CASH COSTS	21027	21639	22513	23871	25737
Fertilizer	5542	5158	4970	5761	6695
Pesticides	162	162	161	162	158
Hired Labor	12177	13010	13975	14423	15184
Land Tax	644	650	657	664	670
Rentals	47	51	54	55	61
Fuel and Oil	266	274	250	239	255
Transport of Inputs	175	177	177	178	184
Interest on Crop Loan	747	822	904	994	1094
Food Expenses	668	715	734	753	781
Repairs	599	620	631	643	655
NON-CASH COSTS	1059	1088	1134	1116	1204
Hired Labor Paid in Kind	225	223	240	247	260
Landlord's Share	22	26	27	27	31
Harvester's Share	587	598	616	588	620
Lease Rental	225	241	251	254	292
IMPUTED COSTS	8241	8387	8930	9244	9986
Operator and Family Labor	4930	4907	5271	5431	5718
Exchange Labor	115	122	131	135	142
Depreciation	360	396	436	480	528
Interest on Operating Capital	1030	1014	1066	1147	1241
Rental Value of Owned Land	1806	1948	2026	2051	2357
ALL COSTS	30327	31114	32577	34231	36927
GROSS RETURNS	48290	49492	51001	48645	51330
RETURNS ABOVE CASH COST	27263	27853	28488	24774	25593
RETURNS ABOVE CASH & NON-CASH					
COSTS	26204	26765	27354	23658	24389
NET RETURNS	17963	18378	18424	14414	14403
NET PROFIT-COST RATIO	0.59	0.59	0.57	0.42	0.39
Cost Per Kilogram in Pesos	44.93	48.46	51.22	57.12	67.12
Yield Per Hectare in Kilograms	675	642	636	599	550
Farmgate Price in Pesos/kg	71.54	77.09	80.19	81.17	93.3

# Cost and return analysis (based on PSA data)

Table 15.4 shows the average cost and return analysis for a one-hectare coffee farm prepared by the Philippine Statistics Authority. It does not make any distinction on the variety, in 2017 a farmer earned PhP 48,675 per hectare of coffee, from a harvest of 599 kilos (NOTE: In the

roadmap document, the national average of coffee yield per hectare was about 300 kilos). Excluding the cost of production (cash and non-cash), this only left a farmer as little as Php 14,979 from a 1-hectare lot (on the 5<sup>th</sup> year of operation).

Table 15.4: Cost and Retu	rn, 1-hec	tare coffee	farm		
COFFEE					
	2012	2013	2014	2015	2016
CASH COSTS	20,720	21,027	21,639	22,513	23,500
Fertilizer	5,989	5,542	5,158	4,970	5,761
<ul> <li>Pesticides</li> </ul>	152	162	162	161	162
Hired Labor	11,548	12,177	13,010	13,975	14,042
Land Tax	638	644	650	657	664
Rentals:	44	47	51	54	54
Fuel and Oil	266	266	274	250	250
Transport of Inputs	174	175	177	177	178
Interest on Crop Loan	679	747	822	904	994
Food Expenses	650	668	715	734	752
Repairs	580	599	620	631	643
NON-CASH COSTS	1,033	1,059	1,088	1,134	1,110
• +	213	225	223	240	241
Landlord's Share	20	22	26	27	27
Harvester's Share	593	587	598	616	588
Lease Rental	207	225	241	251	254
IMPUTED COSTS	7,772	8,241	8,387	8,930	9,086
• Operator and Family Labor	4,676	4,930	4,907	5,271	5,296
Exchange Labor	109	115	122	131	132
• Depreciation	327	360	396	436	480
<ul> <li>Interest on Operating Capital</li> </ul>	999	1,030	1,014	1,066	1,126
Rental Value of Owned     Land	1,661	1,806	1,948	2,026	2,052
ALL COSTS	29,525	30,327	31,114	32,577	33,696
GROSS RETURNS	48,750	48,290	49,492	51,001	48,675
RETURNS ABOVE CASH COST	28,030	27,263	27,853	28,488	25,175
RETURNS ABOVE CASH AND NON-CASH COSTS	26,997	26,204	26,765	27,354	24,065 <b>14403</b>
NET RETURNS	19,225	17,963	18,378	18,424	14,979
NET PROFIT-COST RATIO	0.65	0.59	0.59	0.57	0.44
Cost Per Kilogram in Pesos	39.85	44.93	4,8.46	51.22	56.23

Table 15.4: Cost and Retu	rn, 1-hecta	re coffee fa	rm		
COFFEE					
	2012	2013	2014	2015	2016
Yield Per Hectare in Kilograms	741	675	642	636	599
Farmgate Price in Pesos Per Kilogram	65.79	71.54	77.09	80.19	81.22
Source: Philippine Statisti	cs Authorit	y, 2017	•	•	•

In contrast, in the costs and return analysis highlighted in the Philippine Coffee Industry Roadmap, the net income of the farmers for a one-hectare coffee farm is more optimistic. Understandably, these computations have different assumptions. Nonetheless, to show another viewpoint on the net income, please refer to the table below (selected items only).

Table 1 <b>5.5</b> : Costs & Ro	eturn Analys	is coffee	production	on, 1-hec	tare, Robi	usta and
Arabica varieties						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	(planting)					
A. Robusta coffee						
Kilos of green beans sold		350	834	1250	1,667	1,667
Value in PhP		35,000	83,400	125,000	166,700	166,700
Total Expenses in PhP	80736	39,939	49,857	53,607	54,907	60,403
Net Income	(80,836)	(4,939)	33,543	71,393	111,793	104,297
B. Arabica						
Kilos of green beans sold		400	1000	1500	2000	2000
Value in PhP		60,000	150,000	225,000	300,000	300,000
Total Expenses in Php	46946	45,755	49,857	53,607	54,907	62,403
Net Income	(46,946)	14,246	100,143	171,393	246,093	237,525
Source: Philippine Cof	fee Industry	Roadma	o (2017)			

Given the varying projected profit or loss levels for the first five or six years of a one-hectare farm, it will be prudent for the farmer to project his or her income and loss figures based on more specific assumptions thereby generating estimated figures that would be closer to the actual ones. Notwithstanding the foregoing, the projected financial performance of a one-hectare farm to be planted to Robusta or Arabica coffee, given that they have been culled from more than one source and viewpoint, delivers a viable picture of the operation. Growing the profit and reducing the costs further can only serve to improve the estimated profitability, shorten the payback period and increase the returns on assets and equity of the farms.

# 6. References and Appendices

#### A. References

Philippine Coffee Industry Roadmap (2017)

Philippine Statistics Authority

Department of Agrarian Reform (DAR), "Coffee Feasibility Study", Convergence
On Value Chain Enhancement for Rural Growth and Empowerment, 2013

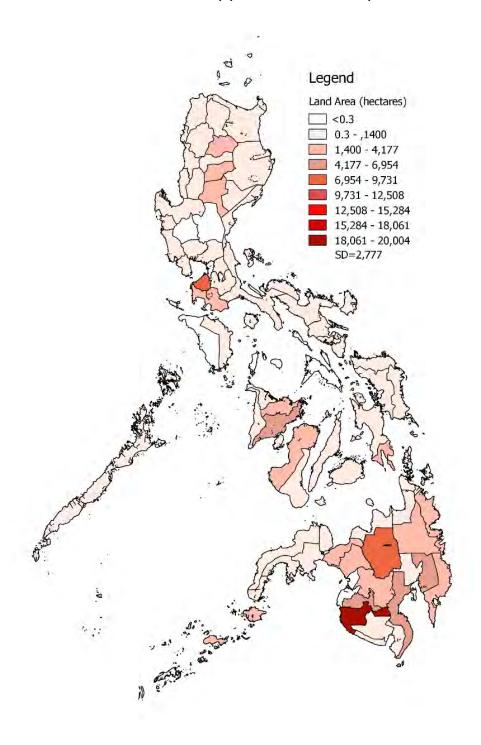
UN Comtrade (2018). *UN Commodity Trade Statistics. Retrieved from*<a href="https://comtrade.un.org/data">https://comtrade.un.org/data</a> on 30 September 2018

ACDI-VOCA, 2017 and Philippine Coffee Board "Arabica Coffee: Agronomics, Harvesting and Post-Harvest Processing", 2017

# **B.** Appendices

Appendix I	The Philippine Coffee Map by location
Appendix II	Nursery with Mother Plant Garden, Nestle Model at the
	Nursery Center, Davao del Norte
Appendix III	Coffee Production, Processing and Marketing System

Appendix I The Philippine COFFEE Map



# Appendix II Nursery with Mother Plant Garden, Nestle Model Nursery Center, Davao del Norte



# **NOTES:**

- 1. Mother Plant Garden supplies the planting materials for the Nursery.
- 2. Nursery where seedling are nurtured for 6 months before it is transplanted in the farm.
- 3. The Nursery shown in Figure features the 2- and 5-month old Robusta coffee seedlings cultivated from the cuttings from the Mother Plant Garden.

# Appendix III Coffee Production, Processing and Marketing System

Activity	9	Sep	t 2	01	9-N	/lay	y 2	02	0		Jui	า 2	020	D-F	eb	20	21	1	Ma	r 2	02	1-1	lov	/ 20	)21	L
Prepare & establish Nursery																										
Reception & sowing seeds																										
Prick seedling in Nursery																										
Plant temporary shades																										
Continue to grow cash crops											Pla				ultiv	atio	on									
Prepare planting holes										L			01 (	coff	ee											
Plant six-month old seedlings																										
Bend seedlings/prune		PI	anr	ning	yo	ur c	off	ee																		
Fertilize (Urea)				_	, , farn																					
Select 4 sprouts							l		-																	
Fertilize NPK																										
Select final 3-sprouts																			Jar	100	tine	g &	Dro	000	cinc	_
Spreading																		- '	ıaı	ves		s ∝ coff		ces:	אווופ	,
Fertilize																										
Flowering																										
Harvesting																										
Processing (Drying, Dehulling, Grading)																										
Bagging & Delivery																										

<sup>a</sup>Coffee Technologies & Funds to Fuel Economic Empowerment (CoFFEE)
CoFFEE is a pilot project implemented by Nestle Philippines, Inc., in partnership with
Mabuhay Kahayagan Coffee Growers Cooperative (MKCGC), Tagbina, Surigao del Sur. This
was jointly funded by Deutchelnvestitions-und Entwicklungsgellschaff (DEG) and Asia
Society for Social Improvement and Sustainable Transformation (ASSIST), 2013-2015

#### **Coffee Varieties:**

- The four major varieties of coffee are Robusta, Arabica, Excelsa and Liberica. Arabica and Robusta are the large-scale commercially viable species. There are thousands of coffee varieties, but only these four are commercially grown varieties and cultivars.
- Usually a high-yielding variety, Robusta is used in espresso and instant mixes. Arabica which grows well in high altitudes is the most expensive. Excelsa with berries bigger than Arabica but smaller than Liberica is more drought and pest resistant than other varieties. Lastly, Liberica, also known as Kapeng Barako has a strong flavor and sharp aroma.
- Robusta was the dominant variety with 69 percent or 24,293 tons of GCB in 2015. It was followed by *Arabica* with 24 percent or 8,717 tons of GCB, *Excelsa* with six percent or 2,273 tons of GCB, and *Liberica* with one percent or 257 tons of GCB.
- Furthermore, Robusta was also the main variety planted at 75 percent (85,683 ha) of all areas in 2015, followed by Arabica with 15 percent (18,768 ha), Excelsa with 7 percent (8,007 ha) and Liberica with 1 percent (1,280 ha).

#### **List of Businesses**

Table . Partial List of Coffee Processors in the Philippines by Location

<b>Coffee Processors</b>	No. of Processors	Selected Players	Capacity (kg GCB)
NCR	Many	Bote Central	
		Century Pacific Group (Snow Mountain Dairy	
		Corporation)	
		Commonwealth Foods, Inc.	
		Goldshine Pharmaceuticals, Inc.	
		Regent Foods Corp.	
		Universal Robina Corp.	
CAR			
Kalinga	9	Nor-Ref Food Products	60 kg/day
		Our Tribe Food Products	270 kg/day
		Magallaya Mountain Specialty	(1,350 kg/week)
		Coffee	48 kg/day (240 kg/week)
		Balawag MPC	
		Gawidan Farmers	

### Dengon"s Coffee Marketing Mananig MPC

CALABARZON	at least 15	Cavite State University Café Amadeo Development Cooperative Gourmet Café Silka Merlo Agricultural Corp. Anca Trading Courage Ivory	50 kg/day (1 ton/month) 5 tons/day 70 kg/day 250 kg/day
10	4 (2 major, 2 small)	Nestle Philippines Monk"s Blend Balay Mindanao LGU Maramag	125-150 kg/day (2.5 – 3 tons/month) 3-5 kg/day 3-5 kg/day
11	7 (small processors)	Coffee for Peace Davao Best Others	20 kg/day (100 kg/week)
12	5	Sultan Coffee Green Tropics North Valley Browncup Kulaman Tricom	25 kg/day (6,000 kg/year)

Source: Philippine Coffee Industry Roadmap, 2017-2022

### 12. Orientation for the HARVEST Key Performance Indicators



### Republic of the Philippines The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

### Orientation for the HARVEST Key Performance Indicators

August 2<sup>nd</sup>, 2018

Japan International Cooperation Agency Nomura Research Institute, Ltd.

### **Table of Contents**

- I. Overview of the KPIs
- II. Clarification and Monitoring Method of KPIs (#1~#9)
- III. KPI Template Sheet

### I. Overview of the KPIs

### Objective of HARVEST and Key Performance Indicators/Output to be monitored

Objective of the Project	Key Performance Indicators (#) and Outputs.	
Create employment in the areas within the ARMM and other	#1: Additional number of employment generated by corporatives, LAEs, and MSMEs	
conflict-affected areas in Mindanao along with outside areas following the value chain concept	#2: Number of newly developed PTMAs or Corporate/Business linkage by corporatives or LAEs with farmers' organizations	
Process of the Project	Key Performance Indicators (#) and Outputs.	
To be achieved by supporting agribusiness and agribusiness-	#3: Growth in sales of SME sub-borrowers and micro enterprise end-users	
related investments which will largely contribute towards	#5: Amount of investment supported by the eligible sub-borrowers	
improving the peace and order	#6: Total amount and number of sub-loans extended	
environment	#7: Total number of sub-borrowers extended credit	
	#4: Number of end-users that were extended credit by co-ops or farmers' organizations	
(Improving financial access)	#8: Total number of new sub-borrowers or new loan accounts generated by LANDBANK	
Copyright(C) Nomura Research Institute, Ltd. All rights reserve	#9: Number of women that were employed or have benefitted	

### I. Overview of the KPIs

### **List of Key Performance Indicators (KPI)**

- Base figures for the year before loan was disbursed and the estimated base figure is required for March 2023, when the HARVEST loan is expected to be completed (end of the Japanese Fiscal Year for 2022).
- It is expected that after April 2023, JICA shall commence a verification survey on the accuracy of the initial estimates, and method to revise it, if necessary.

No.	Key Performance Indicators (KPI)
1	Additional number of employment generated by LAEs, and MSMEs.
2	Number of newly developed Production Technical Marketing Agreements (PTMAs) or Corporate/ Business linkage
3	Growth in sales of SME sub-borrowers
4	Number of end-borrower (co-op members, farmers/fishers) accessed to credit.
5	Amount of investment supported by the eligible sub-borrowers through HARVEST
6	Total amount (in Philippine Peso) and number of sub-loans extended
7	Total number of sub-borrowers extended credit through HARVEST
8	Total number of new (sub-)borrowers with new loan accounts generated through HARVEST
9	Number of women that were (newly) employed / benefitted (through HARVEST)

### KPI-No.1: Additional number of employment generated by LAEs, and MSMEs.

HARVEST requires realistic figures of jobs generated, which may be different from other projects.

### Definition Clarification: Method for Monitoring ■ Additional employment ■ Number of additional employment generated should be ■ For the loan counted in terms of Full Time Equivalent Employee application, type in the generated by a Harvest loan (FTE). estimated (growth of) project, counted or employment to be > 1 FTE is equivalent to a full time regular employee working 8 calculated from basic hours day, six days a week, for a total of 312 days. generated by figures. HARVEST by the year If the above data is not directly available, estimate the additional ➤ Includes part-time/ temporary job employment from the labor expense budget which should be of 2022. provided in the details of Project Cost and divide it by the unit employment, where a 12 man-■ For the monitoring, labor cost (per man-hour/day) for the whole term of the project month temporary job should be record the number of If data for the above calculation is not available, then ask the counted as 1 employee. employees working in borrower, how many months are each part-time/ contractual 1) For target projection, number of the area/crop/division worker expected to work each year, on average. expected additional employment to be to be financed by the If the above is not available, then estimate the job generation from generated based on CFP at time of the area of land which will be used by the loan project and multiply HARVEST loan for credit approval for the end of project. the applicable standard FTE/ha. Refer to the commodity module each year (including 2) For actual number, revise whenever from LBP and assume the 1 man day is for 8 hours, if necessary. the year previous to actual figure largely deviates from A generated employment should be for ongoing loan disbursement). CFP or loan renewal, subject to employment opportunities, which occurs every year, on validation by field survey (random ■ Revise the growth average up to 2022 and generated in Mindanao. sampling, during or after Ph.2) estimate if necessary.

For example, if there are 5 part-time/temporary/contractual workers, working for 9 hours a day, but 60 days/year each, this would be equivalent to 5 part-timers who each work only 21.6% of a full timer, so, the total FTE is 1.08.

(9hr/day x 60day/yr)  $\div$  (8hr/day x 312day/yr) = (9/8) x (60/312)  $\div$  0.216; 5 part-timers x 0.216 = 1.08 FTE If only the man-months of part-timers are known, say 3 MM each, FTE is estimated as 5 x (3/12)=1.25

II. Clarification and Monitoring Method of KPIs

### KPI-No.2: Number of newly developed Production Technical Marketing Agreements or Corporate / Business linkage by corporatives or LAEs with farmers' organizations

Definition	Clarification:	Method for Monitoring
agreements, business linkage (with contract, not just a list of potential buyers) between corporative or LAE and cooperative/ SFFs' (farmers') organization, noted in the CFP for funding under Harvest loan.	■ Count newly developed Production and purchase (Marketing) Agreements/ Business linkage which guarantees the sale of the project products.  >PTMA/Business linkage should be a contract (not just a list of potential buyers), which assures the sales of the products produced by the loan project (not just assuring the provision of land or production). (Exclude Farm Management Agreements which are just for the use of land)  >Only the "newly developed" PTMA or similar instruments are counted. Renewed contracts or renewed Purchase Orders (for same/existing projects) should not be counted (cf. example).	<ul> <li>■ Record the number and name of the counterpart of the "newly developed" PTMA/Business</li></ul>
For example:	AA - Dusing a Links we say to at 20 at	0 0 0
Borrower/Producer PTMAs, Business Linkage contract, PO etc. Same Buyer/Purchaser		
PTMA, etc. No.1 2 3 4 5 ··· (renewed contracts)		
	Count only the first contract (PTMA, PO, etc.) which developed" because the HARVEST loan became av	were "newly

4

KPI-No.3: Growth in sales of SME sub-borrower

Definition	Clarification	Method for Monitoring
growth in annual	<ul> <li>■ True project sales growth which can be attributed to the loan project.</li> <li>■ Initial Growth figure should be estimated from the CFP and interviews with the borrower, by the account officer for the purpose of evaluating the risk of the project to be financed.</li> <li>➤ For growth figures, data submitted by subborrowers are not in question. The AOs, who know which figure is "dishonest", are asked to fill in their (AO) estimate of a more realistic sales figure, which we presume will be discussed within LBP when a CFP is appraised (for the purpose of evaluating the risk of the project to be financed).</li> <li>➤ If attribution to project is not possible, count the growth of sales of the entity.</li> <li>➤ Accuracy is required is only for the first two digits, latest project year, up to end of FY 2022 = March, 2023)</li> </ul>	■ Actual (audited) sales figure from the latest audited financial statements for each year (submitted to Bureau of Internal Revenue), should be requested to the borrower and recorded as part of the pre-release requirement and LBP's annual term evaluation.  ■ Growth estimate should be updated, based on the monitoring data.  ■ The actual sales growth, is expected to be verified by a JICA Ex-post Evaluation survey by checking the difference of the audited sales figures (from year before loan disbursement and to the end of FY 2022).

KPI-No.4: Number of end-borrower (co-op members, farmers/fishers) accessed to credit (for re-lending loan projects / 3 step loan).

Definition	Clarification	Method for Monitoring
<ul> <li>Number of re-lending loan projects and their possible/potential (not necessary actual) end-users (co-op members, farmers/fishers and micro entrepreneurs) that can be extended credit by the co-ops or farmers' organizations.</li> <li>Number of organization members as stated in the CFP or company profile.</li> </ul>	<ul> <li>Number of organization members as stated in the CFP or company profile.</li> <li>Note that the number of potential end-users (= total number of members) is the minimum requirement.</li> <li>This can be checked at Department of Agrarian Reform web-site, may need to contact DAR-ARMM )</li> <li>If LC is also collecting the actual number of end-borrowers to be newly generated from the JICA loan, this should also be recorded.</li> </ul>	<ul> <li>Actual number of members from the latest audited financial statements for each year, should be requested to the borrower and recorded as part of the pre-release requirement.</li> <li>Actual number of end-borrowers to be generated from the HARVEST loan should be recorded from the borrower list which is provided by the borrowing financial institution.</li> </ul>

### KPI-No.5: Amount of investment supported by the eligible sub-borrowers through HARVEST

Definition	Clarification	Method for Monitoring
■ Total investment amount for the project stated in the CFP for HARVEST, including borrower's equity (amount financed by own capital, other funds).	including the cost which cannot be financed by HARVEST (e.g, Land)	■ Record at time of loan approval



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### II. Clarification and Monitoring Method of KPIs

KPI-No.6: Total amount (in Philippine Peso) and number of sub-loans extended to Corporatives/LAEs/Micro, MSMEs/Cooperatives/ farmers' organizations through HARVEST:

Definition	Clarification	Method for Monitoring
■ Harvest sub-loan amount and number of harvest loans, disbursed to the following:	■ Include short term loan line, and term loan line, but only for total disbursed amount until 2022.	■ Record amount of each disbursed loan at time of disbursement approval (and aggregate)

KPI-No.7: Total number of sub-borrowers extended credit through HARVEST (for 2 step loan)

Definition	Clarification	Method for Monitoring
■ Sub-borrowers here includes farming members of Corporatives and Cooperatives, but only those who borrowed directly from HARVEST (2 step loan) excluding multiple availments of a single borrower		■ Just record the number of direct borrowers at time of disbursement approval (and aggregate).



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### II. Clarification and Monitoring Method of KPIs

KPI-No.8: Total number of new (sub-) borrowers with new loan accounts generated by LANDBANK through HARVEST

Definition	Clarification	Method for Monitoring
■ Excluding those:  >1. Previous LBP borrower for projects in Mindanao  >2.Who were able to receive a loan from any other financial institution, by checking the Credit Information and Background Investigation, before (OK for current project co-financing)	<ul> <li>■ Check CFP Summary Sheet-"Client Since"-"As borrower:" New or old</li> <li>➤ If new, check for other FI</li> <li>➤ If existing, check if it was for project (s) out of Mindanao</li> <li>➤ (Note: count only the first time borrower from a bank)</li> </ul>	■ Check the Credit Information and Background Investigation system to verify the first time borrower at time of disbursement approval.

### KPI-No.9: Number of women who were newly employed / benefitted (through HARVEST)

Definition	Clarification	Method for Monitoring
■ Include both the employed and credited as benefitted women, including female members of borrowing-cooperatives/associations, and those employed by SMEs, LAEs, etc.	<ul> <li>Number of women in KPI-No.7 &amp; 8 (cf. borrower name)</li> <li>Number of female members in KPI-No.4, for cooperatives, may not be currently available for rural banks, MIFIs.</li> <li>AO should ask the FIs to include the gender in the new borrower list.</li> <li>If this is not possible, AO should estimate the female percentage in the borrower list. (Cooperatives have statistics on gendera which can be checked at DoA Reform web-site, use region wide %)</li> </ul>	Record female borrowers at time of loan approval.

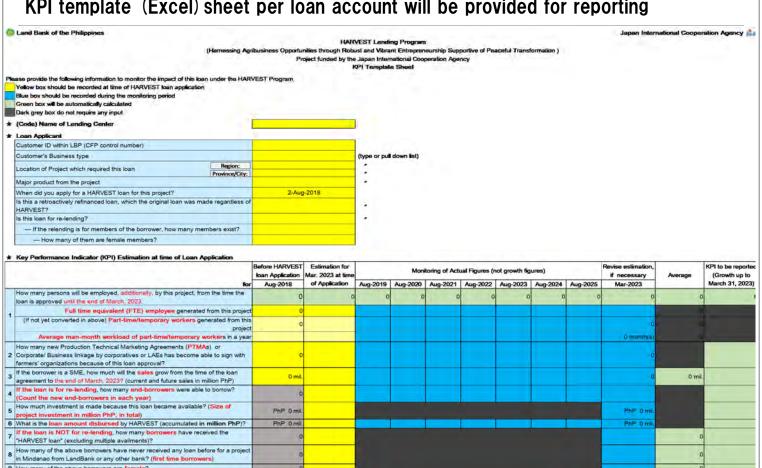
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### III. KPI Template Sheet

9 How many of the above borrowers are fe

### KPI template (Excel) sheet per loan account will be provided for reporting



### Clarification of Output Indicators and Monitoring Method

Output Indicators-No.1: Increase in provision of credit assistance to the agribusiness sector in ARMM area along with areas outside the region following the value chain concept.

Definition	Clarification	Method for Monitoring
■ Credit amount from LBP, if the project has a PTMA with a Harvest borrower, not necessary using HARVEST funds. (NOT including credit from non-banks or other commercial banks).	■ LBP loan amount of projects which is not directly financed by HARVEST, but has a PTMA with a HARVEST borrower who is on the same value chain.	■LBP HQ should check every borrower outside the region, against the PTMA counterpart list created by KPI-No.2 and count the credit amount.



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### Clarification of Output Indicators and Monitoring Method

Output Indicators-No.2: Additional/New sub-borrowers of agribusiness loans

	Definition	Clarification	Method for Monitoring
nec which proj	mber of LBP agribusiness loan (not essary a Harvest loan) borrowers ch borrowed for the first time for a ect with a PTMA with a Harvest rower	■ Number of the above borrowers who borrowed a LBP loan for the first time.	■ LBP HQ should check every borrower, against the PTMA counterpart list created by KPI-No.2, and check if the borrower was a first time borrower.

### **Questions for Account Officers**

### What clarification is further required

■ Which KPI needs further clarification?
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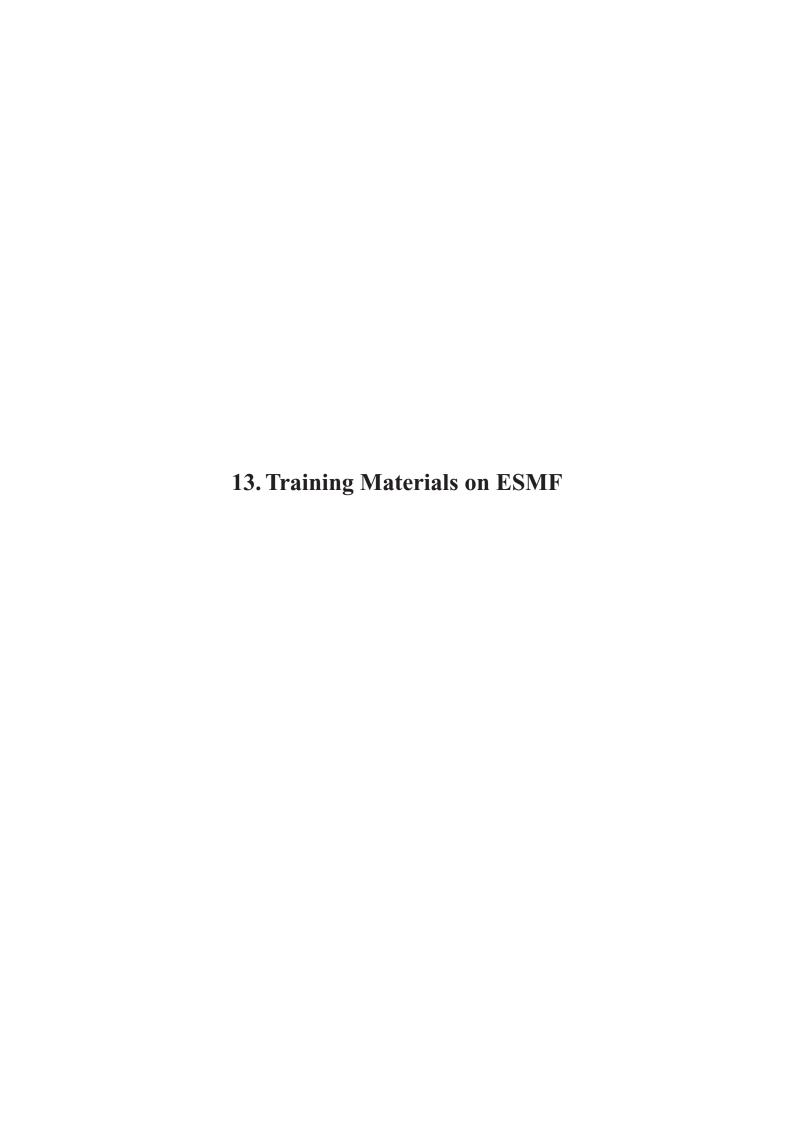
■ Are there still any KPIs which are difficult to find/monitor?

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## **HARVEST**

Harnessing Agribusiness Opportunities through Robust and Vibrant Entrepreneurship Supportive of Peaceful Transformation







### HARVEST

Harnessing Agribusiness Opportunities through Robust and Vibrant Entrepreneurship Supportive of Peaceful Transformation

A JICA-funded project of LANDBANK to provide credit and technical assistance to conscientes, liber agribbaness enterprises, CFB and SNEs in conflict-affected urass in Mindenko, specifically Angley, and collect areas with economic or commercial linkage to the region funcupin a value chain concept, to support its peace-building efforts and economic growth.

Region XIII Agusan del Norte
(Caraga)
\* From Office of the Presdextial Advisor

Sultan Kudarat



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HARVEST

2: Generate employment

Promote entrepreneurship and establish market linkages for ARMM and other conflict-affected areas in Mindanao

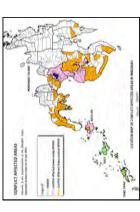
The Project shall be implemented up to June 2022.

Implementation Period

### Coverage Area

- ARMM;
   Other conflict-effected areas in Mindanao; and
   Areas outside of ARMM so long as the sub-projects are part of a value chain in the region.

(ই



## List of Conflict-Affected Areas outside of ARMM\*

gion IX	Zamboanga			Baliguian		Salug	Socon
	del Norte			Kalawit		Sibuco	Sirawai
				Labason			
	ebueoquez	Pagadian City		Aurora		Labangan	San Pablo
	del Sur			Dimataling		Lapuyan	Tabina
				Dinas		Margosatubig	Tukuran
				Kumalarang			
	Zamboanga		١.	Alcia	١.	Mabuhay	Roseller T.
	Sibugay			Bung		Malangas	Lim
				Diplahan		Naga	Slay
				Imelda		Olutanga	Talusan
				Ipi		Payao	Titay
				Kabasalan			Tungawan
y uoig	Lanao del		ŀ	Bacolod	ŀ	Munai	Salvador
	Norte			Balo-i		Nunungan	Sapad
				Kauswagan		Pantao Ragat	Sultan Naga
				Linamon		Pantar	Dimaporo
				Magsaysay		Poors	(Karomatan)
				Matungao		Piagapo	Tangcal
							Tagoloan



Kabacan Libungan M1ang Makilala

Region XI Comp. Valley
Davao dei Norte Tagum
Davao Oriental
Region XII Cotabato

List of Conflict-Affected Areas outside of ARMM\*, cont.



Eligibi	Eligibility Requirement	quirement	
Indicators	Newly Accessing	Existing Bank- Assisted Cooperatives 111	Cooperatives 21
Credit Rating	Prime, High Gra	Prime, High Grade, Good, Very Satisfactory, Satisfactory	ry, Satisfactory
Membership	At least 60	At least 100	At least 300
Paid-up Capital	At least P30,000 per coop	Average of P500 per member	At least P300,000 per coop
Core Management Team <sup>III</sup>	Complete and full time	Complete and full-time	Complete and full- time
Profitability	Break-even Level	Profitable	Profitable
Debt Equity Ratio	6:1	6:1	6:1
III must have PTMs and other s and release of loan proceeds III These can be new or existing III Composed of Manager, Booki	other similar instruments (e. socieds society including to Bookkeeper and Tressurer	Il must have PTM, and other simlar instruments (e.p. purchase order) as a pre-contiton for the approval and values of the proceeds.  Il have can be new or oskith purrower, techning those which predominant activity is credit operations.  Ill Compand of Manager, Bookleepper and Pressure.	lition for the approval is credit operations.



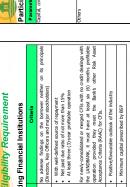
### Farmers Associations

- Pregionery with SCR, COL Edit of other approach agriculture in the SCR, COL Edit of the SCR of the

### a. Minimum Account Relationship Earning (ARE) of P20,000 and Account Profitability Rate (APR) of 3% b. Debt Equity Ratio of not more than 80:20 Small and Medium Enterprises The Professor (I've panel where (I') years a be to commente the panel where (I') years a three (I) years (I've panel where I've panel three (I) years (I've panel where I've panel where I've panel I'

**Eligibility Requirement** 

### With well-defined source of repayment Net past due ratio of not more than 15% At least three (3)-year profitable operation Positive/favourable outlook of the industry **Eligibility Requirement** Participating Financial Institutions Minimum capital prescribed by BSP









- Purpose of Loan: Agricultural production, working capital for trading operation, acquisition of farm machineries and equipment, post-harvest and processing facilities
  - Eligible Sub-Projects
- Agriculture/ Fisheries
   Food/Agro-fishery Processing
   Farm Machinery and Equipment
- 4. Agri-fishery-Related Services
  5. Product Distribution Packaging and Trading







General Eligibility Requirements:

Loanable Amount: Up to 80% of total project cost

Economically and financially viable;

2. Technically, environmentally, and socially sound;

3. Compliant with the Philippines' freewant laws and regulations, as well as AICN's Guidelines on Environmental and Social consideration;

- Interest Rate:
- For re-lending of conduits to end borrowers, the pass-on rate will be interest rate + Maximum spread of 9.00%. Cost of Funds + Applicable Spread based LANDBANK's prevaling policy

4. Subprojects which are outside ARMM and conflict-effected areas but are connected for them them through the value chain connected for fixed seas exclusion, more than 50% of former of inputs one manelals aloud define the sourced or traced from ARMM or other conflict-effected areas in Mindraw, as supported by Springd PMRs, or ARMM or other conflict-effected area of the conflict-effected area of the conflict-effected area of the conflict-effected areas in Mindraw, as supported by signed PMRs, or ARMM or other conflict-effected areas in Mindrawa, as supported by signed PMRs.

Sub-borrowers whose principal address is within the ARMM or conflict-affected areas in Mindanao are also eligible.

Loans can be peso or yen-denominated.



### HARVEST

### Requirements Documentary

### Corporations

- 1. SEC Registration
  2. Certified use copy of Aricles of Incorporation and By Laws
  3. List of Unitors and Directors as Certified by Corporate Secretary
  4. Berl Background of My Children and Directors
  5. Alen Registration Certificate of Foreign Officers
  5. Alen Registration Certificate of Foreign Officers
  6. Listed Certificate of Foreign Officers
  6. Listed Certificate of Foreign Officers
  7. Statement of Assets and Lisabilities of Owners/Officers (continue)
  8. Bound Reachers and Lisabilities of Owners/Officers (continue)
  9. Francial Statement (1943 years, Inhoneiguatries)
  11. Berl Interny of Operations
  12. The Virginian Officers (1943 years, Inhoneiguatries)
  12. The Virginian Officers (1943 years, Inhoneiguatries)
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  16. The Virginian Officers (1943 years)
  17. The Virginian Officers (1943 years)
  18. The Virginian Officers (1943 years)
  18. The Virginian Officers (1943 years)
  19. The Virginian Officers (1944 years)
  19. The Vi
- onmental Compliance Certificate, if applicable







Harnessing Agribusiness Opportunities through Robust and Vibrant Entrepreneurship Supportive of Peaceful Transformation

THANK YOU.









- 1. Certificate of Registration with DTI Bio-Date of Begistration with DTI Bio-Date of Behariness Proprieters/ Pertners 3. Neyvo's Permit (mark) From Teach (mark) Stemmer (1843 years) 5. Auction Teached Stemmer (1843 years) 7. Stemmer for Analysis Stemmer (1843 years) 7. Stemmer for Assessment of Newson Teached Stemmer (1843 years) 8. Bellef history of operations 9. Fully accomplished Besk Basiness Information 9. Fully accomplished Besk Basiness Information

## For Cooperative/ Association

- Contribute of Registration with CDA/SEZ/ DOLE-BRW
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   COST Activities of Companion (COC)
   COST Activities of Companion and By-Nam
   Updated Business Permit
   Companion on No. of Nembers (Indiane no. of regular and associate members).
  - Certified list of Board of Directors and Key Officers (Manager or Presi Treasurer/ Cashier and Bookkeeper) together with their Bio-data and TIN.
- The Religional operation of the Community of the Com











HARVEST TA Consultant supports the HARVEST Project through technical assistance comprising of 3 components

Republic of the Philippines
The Project for Capacity Building for Financial Access in Agribusiness
Phase I (Technical Assistance Grant for HARVEST)

Commodity Investments in Bangsamoro & Conflict-affected Areas

Greenkalf Hotel Gensan 01 August 2016 Jap an infernational Cooperation Agency (JICA) TA Consultant Team



Result of Research from <u>Centres of Excellence</u>. Academe and Development Institutes;

Criteria in Prioritizing Commodities for Developme

Demand driven (consumers, industrial inputs, with "big Brother", exports);

II. Overview on Value Chain & Industry Cluster Approach as Strategies in Investment Promotion

Unique in purpose/requirement:
 Prospects for success, e.g. availability of technology and skills;

 Outreach, contributes to the Regional Strength;
 Growth potential and competitiveness ■ Poverty reduction potentials, social benefits

OUTLINE OF PRESENTATION

I. Introduction and Objectives

## Why this capacity development initiative?



In general: To enhance the working knowledge of other BPL CT amen is the use of Value Chain and Industry Clustering approaches in investment planning and business development;

Specifically; (a) To enhance the capacity of PEPIL, C staff to manage the Environmental and Social Considerations processes and requirements under HARVEST ESMF;

To advance understanding on the current <u>environmental</u> managements system focusing on the laws and regulations covered in the granting of debarances and licenses to operate and implement agriculture projects; and

To provide a venue to clarify the key performance indicators (KPIs) set to evaluate performance of HARVEST.

### Why the HARVEST Project?



VALUE CHAIN

• Sequence of related activities (functions) from inputs ...processing ... product sale to consumers (functional).

- Set of enterprises (operators) performing these functions, i.e. producers, processors, traders and distributors.
   According to the sequence of functions and operators, VC consists of series of chain links (or stages).

First Sale	Specific consumer market	ions	Final Sales point/Retailer	
Tade	Transport Distribute Sell	Categories of Chain Operators and their relations	Traders	
in links) Transformation	Classify Process Pack	Dperators a	Logistics centers, industry	
Basic Functions (chain links) Provision of production Transingula materials	Grow Harvest Dry etc,	s of Chain C	Primary producers	
Basic Fund Provision of specific inputs	Provide - Equipment - Inputs	Categories	Specific Input pro viders	

VALUECHAIN

The Value-crainfighwor of a good from RM, production, production, and ultimately delivery to end of ultimately delivery to ends of consumers.

Industry Clusters are groups of competing, collaborating and interdependent businesses within a value chain.

### They learn collectively what it takes to be competitive

☐ Match initiatives to the level of government support & program

Development Guideline

Advantages

☐ Clear view of the goals

Players pursue joint solutions to common problems

They build on common labor pool, technology and infrastructure

### Industry Clustering

Key Strategy to enhance industry competitiveness: To develop and expand expands, generate investments and create <u>lobs</u>

- Industry Focus
- Private sector active involvement
- Convergence (shared vision & purpose)

Philippine Development Plan for 2017-2022... Mindanao 2020

✓ Increase productivity & efficiency of the industry and services Inclusive growth and poverty reduction goal

✓ Contribute more to economic growth & employment.



	Indu	Industry/Commodity	Maguin- danao	Lansodel Basilan Sur	Basilan	Sulo	Tawi-
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6	9. RUBBER	IER.	`		,		
0	LINE.	10. LIVESTOCK & POULTRY	`	`	`	`	>
Ė	11. FISHING	INC	`	>	`	>	`
12	12. SEAWEEDS	VEEDS				>	,
Ę,	13. RICE		`				
4	14. CORN	7	`				
Ш	П	AVCCEP (4)		ð	Cassava* To	AMM Economic Tear (All provincia)	
Щ		Mapping Sarvey on Agro-					

... modular value chain



## Agro-industry Value Chain Map











June 6, 2018
Japan International Cooperation Agency
TA Consultant Team
(Lead consultant Namura Researchinstus, Ltd.)



COMMODITY CHARGE Rec Con Abused Binana-acida Grawa Circum	CAR	FARMS	DATABASE
	,	> >	,
	>	,	,
	`		,
	>		,
5. Casava			,
7. Coconut	,		
8. Coffee	,		`
9. PalmOil	,		
10.Rubber			
11. Poultry Egg		,	
12. Seaweed			,



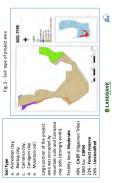






Municipalities: 4  Rarangas: 9			Count	Density (sq. km)	Population in 2022
	BJ entrivé sta	Gunibian	3,833	19	4340
		Lower Olive	1,688	×	1161
Implication: Area is rural		Ardung	3,815	8	6103
		Simbolian	4,138	g	4742
ADN Poverty: 27.7%	Carmen	Manolipso	1,356	51	1464
against 19.7%		Poblacion	S,988 H	141	6420
(Phill), 2012	Las Meves	Durlan	2,085	o	2248
ingliest poverty incuration.	Masipit	Acton	2,354	19	3465
Lowest in Nasipit (20.7%)		Arrontay	1,840 L	2	1919
for contract to the contract t	Total		27.0		

### LASBUENASCAR: Profile in brief... Soil analysis



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LANDBANK

## LASBUENASCAR: Profile in brief... Crops and Land Use Type (LUT) and Suitability Table 2- Suitability rating of crops in the project land unit

		Severe	Modera te
Abaca	B		Undustry to rolling stopic, Acidic soli (low soli p10) and low base situation.
Barana-Cardava	waters		Unditating to reling slope, Acid csol (low soil pH) and low base situration; moderate drain age
Cacao	B	Addic soll (low soil pH) and base souration	Statow soil depth, undulating stope, moderate drainage
Cassava	NJES		Unditable to refrig stope, Acidic sell (low soil pH) and fow base saturation; poor drainage
Cocons	AUS		Undidading to rolling slope and low findity level
Coffee-robusta	waters		Undiable to refine stope for fetally livel and poor drainings
Of Palm	AUS		Undutating to no lings top eard to wifer tility level
Rubber	SZW		Undulating to rolling skip e and polor dirainage
Mango	Silfe	Low soil fertility level and clayey soil test are	Low soil feetility level and . Unddating to rolling slope and poor drainage clavey soil to cure
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## LASBUENASCAR: Profile in brief... Crops and Land Use Type (LUT) and Suitability numerated LUT in the project area.

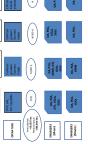
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	A 10 M 10		# 1	

## Recommended Crops/Commodities based on LUT & Studies



### Palm Oil Value Chain Map - Caraga





### Typical Value Chain of Palm Oil

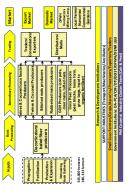
2. Mapping the Coconut Industry Cluster Value Chain integrated Coconut Production and Processing

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## Mapping the Coconut Industry Cluster Value Chain Integrated Coconut Production and Processing



## Mapping of Coco Coir Value Chain





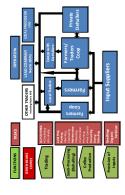
2		MARK (US, ME, Cr Force, Appear ASEAN
24,000 MT SABA/YR	50 CONTAINERS/MO	Target:
	And the second color of th	OI III



Industry/ Controdity  3. BANANA. Tissue Culture CANTADES H		Value Chain Stages/Products Post-tarvest Prof Transport & Ga Washing Pac	Processing -> Gasification & Packaging	Market Export
Rander	Harvesting Fresh Green V Barana (GB)	Ashed GB	Fresh Banana in Roses	• Ohins • Mil Damestic

- Farmers need to invest in their <u>irrigation systems</u> as irrigated farms turnout to be 5% mare productive and 40% more profitable compared to non-irrigated farms.
  - the increase in product ivity attributed to the installation of an irrigation s
    pegged at 30% (World Bank 2017).
- capital expenditures will be incurred in the establishment of post-harvest <u>packin</u> <u>facili thes</u> and the acquistion of <u>motarized carveyor systems</u> and <u>transportation</u> <u>equipment</u>:
  - Failure to access francing for all these will result to the production of poor-quality or badly handed bananas, and are consequently priced lowest in the market.

### COFFEE Value Chain Map



### Development Issues



## Project Goal & Objectives

□ To increase the income of the individual farmers and ARBs by 30% by 2019

- increment income hard wildow the ARBs to settle their poyables (e.g., and rows, farmers) and to direct the needs of their farmies.



To increase coffee production
 - through the rejuvenction of
 304 heat cres of the
 exting coffee plantalon;
 the expansion by 700
 heatcres; and improvement
 of productivity

### 2019 Targets



□ Increased volume of production of the BATA ARC Cluster from 740 MT/year to 1,001 MT/year; and

4,000 jobs generated in 2019.

## pping the BATA ARC CI

## Strategic Framework

Strategy 1

☐ Adopt the new production, r improvement] in the implem



### Strategy 3



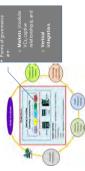
Consoldate the processing and marketing of GCBs and more value-adding along the chain, e.g. narsery and gro

Strategy 2





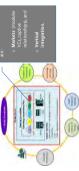
### Strategy 4

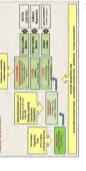


a	Robusta Coffee Mother Plant Garden and Nuis ery	- LADO - spare meter Markey with Mother Flant Government Socks MAX Rese.  The state of the supplied of optable by a veralling of the supplied	Project Contribition TACARTINE ensisted by MMCGC
4	<ol> <li>Intercop (Eucalyptus, Falcatta, Rubber)</li> </ol>	Provision of planting materials     Inter grop in coffee plantation	Projeorreside, Denit, Pos
占	Production of Robusta Coffee	<ul> <li>Polyworld on of 304 has starting. Am 2014 and Separation of 700 has starts in the 3th quarter of some year.</li> <li>Development Cost: PGO, DOD -70, DOD, has</li> </ul>	All POs, Project ConvERIGE, DA, LGUs
	4. Coffee Processing	The rich ridge regularity in Coape rate on P.C.  Sales Over, Sent 10 = 1731.003.  A bigle richt in, east and dry process – P120000 F00 Sen  Francis, Alle per louds, abunium cooking. – P120,000  Francis, Alle per louds, abunium cooking. – P120,000  - Grows, Alle per louds abunium cooking. – P120,000  - Forthas, Alle get from with apparature – P10,000  - Forthas, Alle get from with apparature – P10,000  - Forthas, Alle Get Forthas abunium cooking.	Project Confesse, Alinos Progressive ASB NP Coop
		Product Devel opment,     Bends ng and Certification (Gland UTZ), and     Local and Expert Promotion	Proj CorrueNSE, DT, IPP, PARSEMOD
	CapDev for ARBs/farmrs and coop eratives	CapDer for ARBs/farmrs - For outsourcing to business service providers, and coop eratives.	DAR, DA, DTI 9RA, Other training institutel/providen
4	7. FMRs, Driers, Water System	- Refer to Matrix on proposed infrastructure	DAR, LGUS

Investment Plan: Coffee Industry

Enhance <u>CAPACIIEs</u> and institutionalize the <u>CONVERGENCE</u> among cooperatives, and other enablers to strengthen the BATA ARC Coffee inclusive cluster feam.





CONTRACTOR OF THE PARTY OF THE

1 

□ Increased average yield of died coffee beans from 480 kilograms to 1,000 kilograms per hectore (improved productivity):

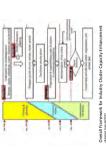
P725,000	2,680,000	1,450,000	14,600,000	200,000	P 19,995,000	43,700,000	P 63,695,000
Component I – Up-scaling of Production System	Component II - Provision of Postharvest Facilities	Component III - Market Promotion and Logistics	Component IV - Capacity Building & Insti Devt	Component V - Innovative Financing (Cost of FS)	SUB-TOTAL	ADD: Infrastructure (FMR and Water System)	GRAND TOTAL

### Technical Activities & Facilities, cont...

	t in existing re	MON	MOA	MOA	MON	MR Financing nendation	MON	
, means	As improvement in existing stucture	DA SDSSU TESDA DTI SWE Rowing Academy (SRA)	DA, DTSRA UPSS	DA, DTSRA PO	8940	PSO mill on for its plot run (DAR Financing Program)     Designed based on F5 recommendation (ploted in BVA ARC Cluster)	edit flucility 2 P.R.edows 1 hip	P310,000
COUNTER			Inkind			P50 millo Program)     Designedb (ploted in	Existing Credit facility     DAR Fund     SBC RANEP PRefores     M partnership	
TS you BATA AN		14,600,000	(parthysourced outfrom DTI CARP & SRA)			500,000 Full-blown FS		P 19,645,000
OSED PROJEC	200,000	So exec/mens	SHALL/XXM DS	Seatt/xxxd0S	SWITT/ SWIT CO.	10MHon	P 188ion	
TABLE 2. PROPOSED PROJECTS for BATA ARC CLUSTER, 2004-2015	19. Training Center & Audio- Visual Equipt	20. Technical/EntrepTmps Sem cam Production & Mkg., GAP, GAP, Branding, SCM	21. Organizations//h st Dev. Ting Seminars, e.g., VGA, Ind Guiter & Cosp Dev.	22 Couching & Merboring Methodologies	23. Managers Course (10)	24. Impovel w/5pl Branchig (Piple 9 Coffee Credit Line, deferred for 3y and piloted in qualified Coop)	25. Eksting Chalit Programs  • Working Capital  • Production Loan  • VCC commodity Loan	TOTAL
		LDING &	MCITY BUI			DNONYN	u TVIDIMS	

### Nursery Depulper Dehuller ties & Facilities - FMR & Irrigation

## Capacity Enhancement Support and Institutional Development Modules for BATA Coffee Cluster Activities



## Why this capacity development initiative?



In general: To enhance the working knowledge of the LBP LC Teams in the use of Value Chain and Industry Culstering approaches in investment planning and business development; Specifically: (a) To enhance the capacity of PIPICS and PIPICS set Environmental and Social Considerations processes and requirements under HARVEST ESMF;

To advance undesstanding on the current environmental managements, system (cours) on the laws and requisitors covered in the granting of clearances and icenses to operate and implement agriculture projects, and

To provide a venue to clarify the key performance indicators (KPIs) set to evaluate performance of HARVEST.



## What is the HARVEST OPG?

The OPG serves as basis for the implementation of the HAVGET Program, which contains the parameters, features, and procedures, including.

Osstof Flands

• Polject Implementation Structure

• Functions of Lending Units

• Distursements

- > Advance Procedure
  > Reimbursement Procedure
   Overall Process Flow

### Project Implementing Structure Joht Coordinating Committee (CCS Heef, XCA Page sentation, O'Agreentation) ighth 1.40% 0.25% 3.50% **5.15%** JICA Fixed Interest Rate Guarantee Fee Foreign Exchange Risk Cover TOTAL TOTAL \*\*CONTINUE OF TOTAL Cost of Funds

£ 111

## **Functions of Lending Units**

- The secolar function of the List shall be all delivers in the coordination with the regional promotal officer of coordinating agencies/ organizations of profitors of coordinating agencies/ organizations; and profitors of coordinating agencies/ organizations; and including a coordinating agencies organizations; and including a coordinating agencies or proceeds; account management/an appreciation; and proceeds; as support in the proceed of necessary facts an international control of support in the proceed of necessary facts an international forcess to a Submission to PADI (from the following force); submission to PADI (from the following force); submission to PADI (also do not continue for displace accounts for reinflusement of the PADI (or submission of reports).

The LUs shall also assist in the conduct of baseline survey and focused group discussions (FGD) by the PMO and in the conduct of mid-term and end of project assessments of market linkages between anchor firm and producers in their areas.

## **Disbursement Procedures**

- 1. Advance Procedure
- 2. Reimbursement Procedure

### 1. Advance Procedure

This procedure provides for advance disbursements substantiated by a financial forecast to be submitted to JICA, on a periodic basis.

### Documentary Requirements:

- For Initial Request:

   6-month Projected Releases;

- Subsequent Request/s:
   6-month Projected Releases;
   LG approval resolution;
   PTHA or PO;
   Proof of Release (e.g. promissory note)

### Process Flow for the Advance Procedure

LC to provide PMD1 with its 6-month disbursement forecast

PMD1 will request \_IICA for funds based on the consolidated (month disbursement forecast\*

Concerned LCs will facilitate loan packaging and approval of loan/s

Concerned LCs will submit to PMD1 copy of approved CPP, LAG resolution, PTMA/ PO, proof of release

Concerned LCs will facilitate proper tagging of the account in LOS/ SYMBOLS, and proper labelling of account folders

Republic Actific (Clean Ar Act of 1997) 17 18
Republic Act 1977 (Philypine Clean Water Act of 1997)
1004) 1004
Republic Act 1970 (Sologial Solad Water
Hampsoner Act of 1800)
Republic Act 1971 (Solvan metal Are serves to all Republic Act 1970)
Republic Act 1971 (Solvan metal Are serves to all Republic Act 1970)

**EMB MANDATES** 

Department of femous Section Co...

CURRENT PROCESSES AND PROCEDURES IN THE ISSUANCE OF ENVIRONMENTAL PROMITS/CIEARANCES

PERMITS/CIEARANCES

\*Utilization rate shall be at least 70% of requested amount

## 2. Reimbursement Procedure

This procedure is to be followed in cases where expenditures, eligible for HARVEST financing have already been incurred. LANDBANK shall request LIGA to make reinhusement for a sum not exceeding the amount actually released to eligible sub-bornowers.

Under the HARVEST Project, LANDBANK may implement retroactive financing to cover the loan releases already and/or to be made a year before the date of signing of the HARVEST Loan Agreement (1 January 2017).

- Documentary Requirements:

   Approved Credt Facilities Proposal;

   LAG approval resolution;

   PTMA or PO; and

   Proof of Release (e.g. promissory rote)

### Process Flow for the Advance Procedure

LC will submit accounts for enrolment, via memo to PMD1, the required supporting documents\*

PMO will re-evaluate the eligibility of the account based on the requirements of the HARVEST Project

PMO will endorse the account/s to JICA, for approval

Concerned LCs will facilitate proper tagging of the account in LOS/ SYMBOLS, and proper labelling of account folders

\*(e.g., approved CPP, LAG resolution, PTMA/ PO, proof of release)

### PRESENTATION OUTLINE

- Overview on PD 1586 and its Implementing Rules and Regulation
  Functionmental Complaines Certificate (ECC)
  Focasi Overview
  Foc

Precidental Decree no. 1586 was emblished to facilitate the attainment maintenance of rational and orderly balance between socio-economic develops and environmental protection.

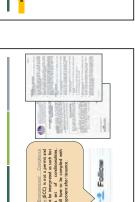


Thank you.









PROJECT THRESHOLDS FOR COVERAGE

CATEGORIZATION OF PROJECTS AND

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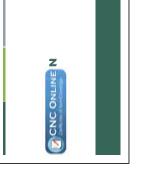


Public participation in the review and evaluation of the BA Report shall be required for projects that require an EIS.

PEIS, PERNPF and EIS-based EPRNP for EC. application per existing guidelines.

PUBLIS HED IN MANUATIMES ON JUNE 06, 2017 SIGNED BY REGINA PAZ LOPEZ, FORMER DENK SEGRETARY



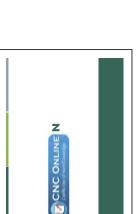




Project Lay-out
Government issued ID of the proponent
Bunk Receipt
- Processing Fee of Php 1,126 to be paid at any Landbank Branches

CNC Company

CNC APPLICATION (ONLIN













Responsibility is requested not only by the Project Proponents (Partner Countries etc.) but also by the donoy'agency side.

Projects aimed at development may also have a negative impact on the environment and society

1 (2) Necessity of the Guidelines



A: significant adverse impact is expected
B: Less adverse than category A project
Cy Minimum or less adverse impact is expected
f: Sub-projects cannot be specified prior to JICA's
approval of funding

conducting consideration and procedures according to the degree of environmental and social mpacts

2 (2) Process of ESCs

Categorization

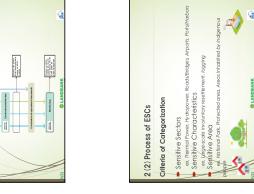


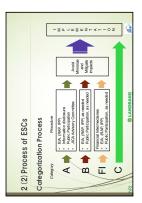




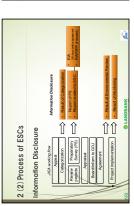
Exercises

| Compared | Compared











o make he results of the moraloring process:
if stock profess
sometimes point out, that BC are not being fully understeen
sometimes point out, that is a continued as are
not according to countermeasures are

(6) Monitoring

(3) Compliance with Laws, Standards and Plans

(4) Social Acceptability

Adequately coordinated so socially appropriate to the court Appropriate consideration must

2(3) ESC required for target projects

Requirements of Project Proponents

2 (3) ESC required for target projects

Requirements of Project Proponents (5) Ecosystem and Biodiversity









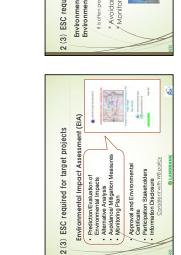


2(3) ESC required for target projects

Requirements of Project Proponents

(7) Involuntary Resettlement 

Avaid or minimize the impacts of linvol

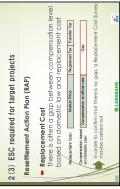




### 1. Project Outline 2. Environmental and Social Baseline Information 3. Environmental Laws. Policies and Regulations 4. Alterative Anolysis 5. Scoping and TOR of the Environmental Suvey 6. The result of Environmental Suvey (including predict Projection and TOR of the Environmental Suvey (including predict Revironmental Names) (including predict Revironmental Namagement Plan (EMP) 9. Environmental Namagement Plan (EMP) 10. Cost and Budget Analoging Flan (EMP) 11. The result of Stateholders Meetings 2(3) ESC required for target projects Table of Contents for EIA (sample)













LANDBANK & Administrative Order 26 s.2018

**Topics for Discussion:** 

E&S Documents under the HARVEST Program

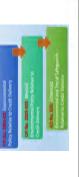
AO 26 s.2018 & the HARVEST Program ESMF

## LANDBANK and AO26 s.2018

Aims to enhance CPI 2009-002 (Revised Environmental Policy Relative to Credit Delivery)

Administrative Order 26 s. 2018

LANDBANK and



## LANDBANK and A026 s.2018

Includes environmental, climate change and social risks

Rating for Environmental Compliance (30%)
Rating for PAB and Other Environmental Cases (10%) Rating for Assessment of the Project Site (20%) Rating for Environmental Impact (25%)
Rating for Social Impact (15%)

## Follows the global best practice of Equator Principle

LANDBANK and A026 s.2018



the Equator Principles (EP) is a risk management framework, adopted by francial institutions, for displaying the managing environmental and social risk in opposite. It is principle in a minimum sandard for due provide a minimum sandard for due risk displayers are minimum sandard for due provide a minimum sandard for due risk designormalism erisk designormalism.

### · Covers all accounts/projects financed by the bank Category C – for further classification Category D – non-covered EMB MC 2018-005 Category B – E.C.A. Category A – E.C.P. LANDBANK and AO26 s.2018

## AO 26 s.2018 and the HARVEST Program ESMF

### • EMB MC 2014-005; • EMB MC 2014-005; Screening will be conducted by the Category D not covered; Lending Center AO26 s.2018 and the HARVEST ESMF Screening will be conducted by the Lending Center Category D not covered; Screening / Categorization

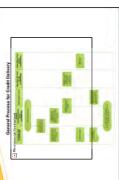
Note: EPMID (PMO) will validate results of the screening for HARVEST based on the Screening Checklist and Raport prepared by the Lending Center.

## AO26 s.2018 and the HARVEST ESMF

	AO26 s.2018	ESMF
Schedule of	<ul> <li>Category A</li> </ul>	Category A
Assessment	<ul> <li>Pre-approval of</li> </ul>	<ul> <li>Pre-approval of</li> </ul>
	Loan	Loan
	<ul> <li>Category B</li> </ul>	<ul> <li>Category B</li> </ul>
	<ul> <li>Post-release of</li> </ul>	o Pre-release of
	Loan	Loan

Note: For Category A, AO26 s.2018 implements a stricter guideline and is thus followed in implementing the preparation of the Environmental and Sodal Compliance Report.

## AO26 s.2018 and the HARVEST ESMF



## AO26 s.2018 and the HARVEST ESMF

	AO26 s.2018	ESMF
Document	<ul> <li>Lending Center</li> </ul>	<ul> <li>Lending Center</li> </ul>
Preparation	<ul> <li>ECC from Client and</li> </ul>	<ul> <li>Screening Checklist</li> </ul>
	Memo Request	and Report
	w/ESA Tool	Sub-Borrower
	EPMD (PMO)	o ESC Documents
	o ESCR and ESPMR	EPMD (PMO)
		O FSCR and FSPMAR

Note: ESC Documents for submission by the Sub-Borower will depend on the Polky Frameworks triggered by the project.

## AO26 s. 2018 and the HARVEST ESMF

	AO26 s.2018	ESMF
Monitoring	<ul> <li>Based on the risk</li> </ul>	<ul> <li>Annually (site or</li> </ul>
Schedule	rating (site or desk	desk review);
	review);	Until full payment
	<ul> <li>Until full payment</li> </ul>	of the Loan
	of the Loan	

Note: Copies of the Self-Monitoring Report (SMR), as required by DENN, will be included in the monitoring requirements for the financed project.

## Environmental & Social Documents under the HARVEST Program

## **ESMF Docus under the HARVEST Program**

		Guidance
Environmental Assessment /	Ensure Bank-financed     protects are environmentally	<ul> <li>Project screening using the ineligible subproject and activities list;</li> </ul>
JICA's Guidelines for	sound and sustainable; and,	<ul> <li>Screening for safeguards category of projects; and.</li> </ul>
Environmental and Social	improved through appropriate analysis of	Determining the safeguards     Instruments to be used including the
Corporations	environmental impacts	equipment and an income and an income
Pest	<ul> <li>Assist LANDBANK and Sub-</li> </ul>	<ul> <li>Pest and pesticide management</li> </ul>
Management	borrowers minimize	issues will be initially addressed in the
	environmental and health	Environmental Assessment (EA);
	hazards related to pestidde	<ul> <li>A separate Pest Management Plan</li> </ul>
	usage; and,	(PMP) will be developed when there
	<ul> <li>Ensure that pest</li> </ul>	are significant pest management
	management activities follow	issues as a result of project activities.
	an Integrated Pest	
	Management (IPM) approach	

## **ESMF Docus under the HARVEST Program**

Canadillo	Assessment or the potential impact of the potential impact of the project on forest and nearby local manuration of the potential for the introduction of the specimals for the introduction of invasive species, and, the government here private socies and feels government the private sector, and the local people.	Will apply to projects with the potential to cause significant convexion or degradation of natural habitas; and,     Will have a precautionary approach in determining its application.	
	Assist in harmessing the potential of foreists to reduce powerty in a sustainable manner, integrate forest effectively into sustainable economic development and potent the vital focal and poble enformmental services and values of foreests.	Natural Hobitides - Assist in supporting the protection, maintenance, and chabitidation of natural hobitides.	
	Forest	Natural Habitats	

## **ESMF Docus under the HARVEST Program**

Guidance	will apply to projects classified as Gategary A. er. B.	For subprojects that may involve inglation systems with potential dam construction and enhaltedion; and, For consideration of the following: a) Dam height and location; b) Dam design; and, c) Risk assessment of dam failure.
east of the second of the seco	A sessi for considering physical of - Will apply to proy catter recoursors in these convex and to enhance positive effects of the convex and to enhance positive effects of the convex and to enhance development activities	Asset in adopting and implementing dam selection implementing dam select constitutions for dams and reconstitutions for dams and reconstitutions associated works.
•	Physical Cultural Resources	Safety of Dams

## ESMF Docus under the HARVEST Program

Policy	Objectives	Approach and General Guidance
Involuntary Resettlement	<ul> <li>Should be avoided;</li> <li>Should be conceived and</li> </ul>	<ul> <li>Project screening for involuntary resettlement;</li> </ul>
/ JICA's Guidelines for	executed as sustainable development programs (if it	Preparation of a Resettlement Action Plan (RAP);
Environmental and Social	<ul> <li>cannot be avoided);</li> <li>Should have involve proper</li> </ul>	Review of RAPs; and,     Implementation of RAP.
Considerations	consultation and involvement of project affected persons; and,	
	<ul> <li>Should assist project affected persons improve their</li> </ul>	
	livelihood and standards of living.	

## **ESMF Docus under the HARVEST Program**

Approach and General Guidance
Determination of IP's presence;     Free and Pilor Informed Consent (PRICs)     Development of Indigenous People Plant; and,     Them, and,     Flant; and,     Flant; All Plant; All Plant;     Flant;     Flant;     Flant;







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Processes and Procedures Involved in Using ESMF

Penvironmental screening

Psup-project tategorization (& approaches in
determining sub-project category)

Vriggered safeguard policies

Screening formats & Items in the checklist

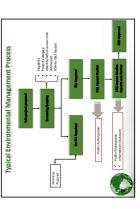
Environmental Management Process: quick review

➤ Significance of ESMF

Outline of Presentation













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| dentifying the most relevant EA instruments needed to address poental impacts and environmental issues associated with the sub-projects associated with the sub-projects indicate whether further environmental assessment is required for each sub-poigt, and it so, which environmental instruments, should be used.

 assigning an environmental category indicating the level of anticipated impact and corresponding level of environmental assessment required; process of identifying, as early as possible, the potential adverse environmental impacts of a proposed sub-

project;

E&S Screening of sub-project under ESMF







 Careful consideration based on laws and regulations of the Philippines Sensitivity of sector, characteristics of sub- projects and area and surroundings

Sub-project site/locationType of activities

Criteria Approach

- Activities listed under EMB MC 2014-005 - Illustrative List based on JICA Guideline 2010

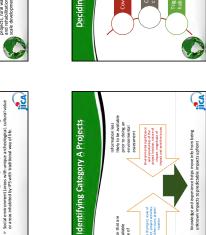
□ Project List Approach

Approaches in Sub-project Categorization



of Category B Projects

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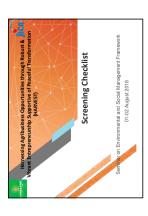
Information that are readily available at the time of screening











identifying the most relevant EA instruments needed to address potential impacts and environmental issues associated with the sub-projects.

process of identifying, as early as possible, the potential adversa environmental impacts of a proposed sub-project, assigning an environmental category indicating the level of anticipated impact and corresponding level of environmental assessment required.

Screening .....



On Briefly describe the relevant characteristics of the subproject or its environment and then consider whether any effort that is likely to result and is likely to be significant and the enter the response in Column 3 with a note of the leason.

Start by providing a brief description of the sub-project
 Using available information about the sub-project answer questions in Column 2

 $\dots$  is designed to help whether an EIA is required based on the characteristics of a project and its environment.

**Screening Checklist** 



scoping cnecklist
designed to identify the likely significant environmental and social impact of the a project during scoping
Steps:
☐ Identify all potential impacts
<ul> <li>Select those which are likely to be significant and therefore require more attention during assessment</li> </ul>
Useful way to of destrifting the potential impact of a project is to itemfy at the activities counced impact to council afront and to consider these alongshot the characteristics of the project environment than coun be affected. to destrify where there could be interactions between them.

Scoping Questions Yng Muhanam Wilkin demanderised for the the interval litery to the applicant Ynthry the applicant Ynthry and the different Ynthry the applicant Ynthry the appl	Scopin	Scoping Checklist	st	
		Yes/No/Unknown	Which characteristics of the erv could be affected?	is the impact likely to be significant? Why?

Which Characteristics of the Is the offset likely to be significant?  Why?  Why?	<ol> <li>Will the project time how any actions during construction, operation or deconmissioning which would next o change in the locality as a result of the nature, scole, form or purpose of the new development?</li> </ol>	Will require destrolition of 2 historic Yes - Buildings are nationally buildings	Will involve dardging of condito No -Cenal is regularly diredged create new waterfront anyway	Will the project use any natural resources, especially any resources which are non-renewable or in short supply?	The state of the system of layered or constrained and the state of the system of layered or constrained by the system of layered or layered or constrained by the system of layer and the state of the state of the system of layer or layer	
>>	during e natur	N N	M say	Sauce &	8	
	xtions it of th	Ā	Š.	list.	2	
Questions to be considered in Scoping	If the project involve any a es in the locality as a resul	Demolition works?	_@uddpoxQ	If the project use any nat u.	Aggrapa bes?	
Š.	L Wil	97	E	2 WI	ri In	

1.1	1		1 1	
commissioning?	No-there is a mple local waste management capacity	nces to air?	Yes - Habitat is internationally protected and vulnerable to dust deposition. Condition of hospital patients could be worsened by exposure to dust	
Will the peopet produce solid waxtes during construction or operation or decom-	New population will generate household and other wastes	Will the people d rely see ped betants or any ha zardous; toxic or noxious substances to a lift	Earth moving during construction could be dusty in dry climate and affect neighbouring habitats and residents	
it es du	Yes	or an	yes	
Vill the project produce solid wa	Municipal waste (household and or commercial wastes)?	Vill the peoje d release pollutants	Dust or odous from handling of materials including construct on materials, servage and waste?	
4	G.	8	8	



# Harnessing Agribusiness Opportunities through Robust and Vibrant Entrepreneurship Supportive of Peaceful Transformation (HARVEST)

HARVEST FORM A3

**Environmental and Social Screening Checklist** 

	BASIC INFORMATION	
Name/Title of Sub-project		
Location of Sub-project		
Name of Proponent and/or		
Contact Person		
Address of Proponent		
Contact Details		
Estimated Investment Required		
Status of the Proposed Sub- project	New On-going	Expansion
	VTI II BI I DE LE	
	305-TROSECT EFIGOBIETT	
<ol> <li>Is the sub-project or its activ</li> </ol>	Is the sub-project or its activities are included in the OPG List?	
Yes.	No	
If Yes, kindly check appropriate box.	rte box.	
Agriculture/Aquaculture		Food/Agroprocessing
Farm Machinery and Rquipment		Agri-culture related services
]		
Product Distribution/Packaging		Agri-related infrastructure
2. Is the subproject or its activi	Is the subproject or its activities are included in the Negative List based on defined exclusion criteria	ased on defined exclusion criteria
under OPG?		
Yes.	No	
3. Is the sub-project location a	Is the sub-project location are within the specified areas stipulated in the OPG?	d in the OPG?
ARMM	Conflict a OPPAP	Conflict affected areas confirmed by OPPAP
Within/part of the value chain	ie chain	

ENVIRONMENTAL AND SOCIAL CHECK ITEMS	10 Based on the thresholds and narameters contained in the revised enidelines for coverage screening	screening
Is the sub-project or its activities have the possibility to affect the quality of the environment within or its neighboring area?	and standardized requirements under EMB MC 2014, kindly check assessment of the sub-projects.	orojects.
Yes. No	Covered (Required to secure ECC)	
If Yes, kindly check appropriate box.  Ambient air quality  Mater quality of river, creeks & other  water bodies	Category A: ECP Category B: Non-ECP (EIS) Category B: Non-ECP (IES	Non-ECP (IE
Is there a possibility that the sub-project or its activities can cause or worsen soil contamination of irrigated lands by agrochemicals, heavy metals and other hazardous substances? Briefly describe.	Not Covered (may secure CNC)	
☐ Yes. ☐ No. ☐ to be determined/unclear	PD (Part 1 Only)	
Does the sub-project will affect ecologically valuable habitats or habitats of engagered plants and	SUB-PROJECT CATEGORY RECOMMENDATION	
animals' Briefly describe.	Category A Basis and Justification:	
roject site locat		
The facts of the control of the cont	Category B Basis and Justification:	
Is the sub-project or its activities will involve voluntary or involuntary resettlement?		
☐ Yes. ☐ No		
If yes, how people?	Category C Basis and Justification:	
Does the sub-project or its activities will have an impact on minorities and indigenous peoples? Briefly describe.		
. Yes. No	Prepared & Submitted by: Date	
If yes, how people? No. of HH		
If impact is expected, is the sub-project comply with the requirements of the Philippine law under Ethnic Minorities and Indigenous People's Rights?		
\$ \frac{1}{2} \text{A} \text{A}	Lending Units/Account Officer	
roject involve 1 re.	Pate: Reviewed & Verified by:	
☐ Yes. ☐ No If yes, how many hectares? Scale	EPMD	
Does the sub-project or its activities will include substantive use of pesticides?	Approved by:	
☐ Yes. ☐ No		
Is there a possibility that the sub-project or its activities will adversely affect the living conditions and well being of the people in the community? Briefly describe.		
S N	HARVEST PMO	

Category B: Non-ECP (IEE)

14. Orientation materials on Islamic Finance



### Republic of the Philippines

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

### **Developing Islamic Agriculture Finance in the Philippines**

September 17th, 2018

Japan International Cooperation Agency Nomura Research Institute, Ltd.

### Workshop on "Developing Islamic Agriculture Finance in the Philippines" Agenda and Time Table (Venue: New World Manila Bay Hotel - Malate)

Time	Agenda	Speakers		
12:00-13:30	Lunch @ Maket Café, 3 <sup>rd</sup> Fl.	_		
12.00-13.30	Registration @ Meeting Room 1, 3 <sup>rd</sup> Fl.			
		Ms. Charlotte I. Conde		
13:30-13:35	Opening remarks	First Vice President, Mindanao Lending Group (LBP)		
	Presentation:	Mr. Takeshi Murakami		
13:35-15:10	"Developing Islamic Agriculture Finance in the Philippines"	JICA Consultant, TA HARVEST, (NRI)		
15:10-15:25	Q&A, Discussion	All participants		
		Ms. Emellie V. Tamayo		
15:25-15:30	Closing remarks	First Vice President, Lending Program Management Group (LBP)		

### **Background**

### Relevance of Islamic Finance for LBP

- ■LBP (and HARVEST) has been targeting Mindano, where a significant portion of population in the targeted area are Muslim.
- ■There will be stronger demand for Islamic finance, as some of LBP's potential Muslim borrowers will prefer Islamic Finance over conventional finance.
  - It is difficult for the Muslim staff at the LCs in Mindanao to market conventional loans in the deeply religious segment in the Autonomous Region in Muslim Mindanao (ARMM).
  - Bangsamoro Organic Law (with sections on Islamic Banking) was signed by President (July 2018) and Lower House Approved a Bill on Islamic Finance (August 2018)
- ■Although LBP (and HARVEST) cannot provide Islamic finance under the current national regulation, LBP may start preparations early, if it is interested in providing Islamic Finance.
  - It will take time for preparations to accommodate Islamic Finance (e.g. development of LBP's internal systems; product development, marketing, accounting, supervision, IT).
  - LBP may need to provide Islamic Finance tools for their nation-wide customers and may be interested in issuing Sukuk (Islamic bonds) to finance its growth, including growth in Islamic Finance, in the future.



2

### **HARVEST**

### **Outline of the Islamic Finance Workshop**

### ■1. Objective

- Review the basics of Islamic Finance and current Philippines' regulation on Shariah Banking
- Discuss plans/roadmap to address the concerns of the Muslims in Mindanao.
- ■2. Target (type and size of) participants
  - A small group of staff within the LBP-HQ and a few Head of LCs who may be involved in the planning or developing of LBP's Islamic Finance service (e.g., from PMD1, Mindanano Lending Group, product development, legal, marketing dept.)
  - Capacity building of the LC may better take place in the future (Phase 2?), after LBP's plan for Islamic Finance products/Service program is developed (and regulatory requirements are cleared)

### ■3. Contents

- Review the basic concepts, products, infrastructure, regulation and applications for agriculture in Islamic Finance
- Discuss within the LBP-HQ staff and Head of LCs involved to figure out when and what kind of products/service can be rolled out for the Muslim customers in Mindanao.
  - e.g., (Shariah-inspired) Quasi-Islamic finance products (via Microfinance/Cooperatives/Finance co./Branch) vs Pure Islamic Finance Products; Islamic Banking Window vs Subsidiary Bank; Islamic Deposit vs Bond(Sukuk)

### What are we trying to accomplish through this short workshop:

- 1. What is Islamic Finance/Banking (and how is it different from conventional financial services)?
- 2. What are the Basic Islamic Banking products?
- 3. How is Islamic Finance used for agricultural finance in other countries? (Islamic Agriculture Finance)
- 4. Why Islamic Banking has not been successfully provided in the Philippines? (What infrastructure is missing?)
- 5. How can LBP provide "Islamic" Finance?
- Q. How do you evaluate the potential for providing Islamic Finance in Mindanao?

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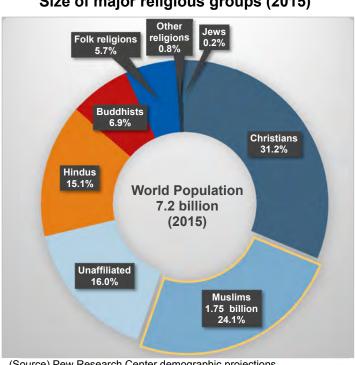
1. What is Islamic Finance/Banking > What is Islam?

Islam is the world's 2<sup>nd</sup> largest religion (and the fastest growing), with 1.8 billion followers (Muslims) or 24% of the global population.

### **Characteristics of Islam**

- Belief in the existence of, and worship of, only one God (Allah), as the Almighty creator of the world
- Originated in the early 7<sup>th</sup> century, by the prophet and messenger of God, Muhammad, in Mecca.
- The primary scriptures are the Qur'an (viewed by Muslims as the verbatim word of God) and Hadith (the teachings and normative example of Muhammad). Shariah, or Islamic law, is the religious law derived from the Qur'an and Hadith.
- Muslims are obliged to conduct the following:
  - Belief in the Six articles of faith:
    - Allah, Angels, Qur'an, Prophets, Day of Judgment, God's predestination
  - Mandatory acts of the Five pillars of Islam:
    - Declaration of Faith, Prayers (5 daily), Charity, Fasting, Pilgrimage to Mecca (Hajj)
- Other social rules forbids idolatry, consumption of pork and alcohol, but allows polygyny, etc.

### Size of major religious groups (2015)



(Source) Pew Research Center demographic projections "The Changing Global Religious Landscape"

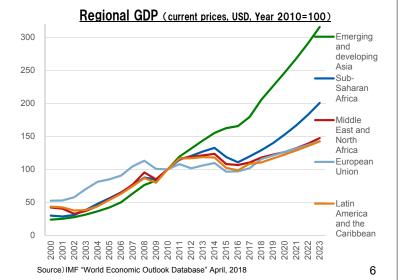
1. What is Islamic Finance/Banking > What is Islam?

### Most of the Muslims live in the fast growing Asia, Middle East, Africa regions and hence the Islamic Market has a large economic potential

- 97% of the Muslims live in Asia, Middle East and Africa.
  - The majority lives in Asia-Pacific (more than 60% of the Muslims live in Asia)
  - Middle East-North Africa has the highest concentration of Muslim (93% of the population in the region are Muslim)
- Muslims in Europe has been growing and reached around 6% of the population (cf. only 1% in North America)
  - Geographic proximity and historical interaction with the Middle East-North Africa has been driving the growth in Europe
- Regions where Muslims are living have been and will be enjoying a faster growth than advanced countries

Regional distribution of World's Muslim Population

Region	Total popu ( "A"; milli		Muslim por ("B"; millii		B / A (%)
Asia-Pacific	4,055	58.8%	986	61.7%	24.3%
Middle East - North Africa	341	4.9%	317	19.8%	93.0%
Sub-Saharan Africa	823	11.9%	248	15.5%	30.2%
Europe	743	10.8%	43	2.7%	5.9%
North America	345	5.0%	3	0.2%	1.0%
Latin America - Caribbean	590	8.6%	1	0.1%	0.1%
World	6,896	100.0%	1,600	100.0%	23.2%



Source) The Pew Research Center, 2015, The Future of World Religions Copyright (C) Nomura Research Institute, Ltd. All rights reserved.

1. What is Islamic Finance/Banking > What is Islam?

### In the Philippines, nearly a quarter of Mindanao Population is Muslim, but there are regions/cities with high concentration of Muslim population.

- **ARMM** has the highest concentration of Muslim population, where 9 out of 10 are Muslim.
- Although other regions have a concentration below 23%, within those regions outside of ARMM, there are cities/area which have a relatively high concentration of Muslim population, such as;

Cotabato City (76%), City of Isabela (64%), Lanao del Norte (44%) and Zamboanga City (35%).

### Total Population by Religious Affiliation, Region and Province: Mindanao, 2015

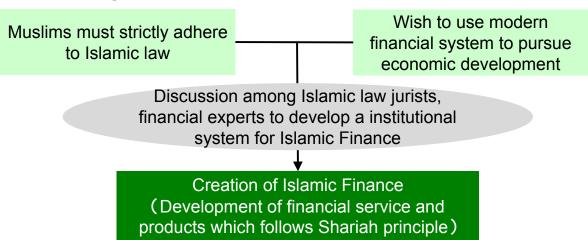
AREA	TOTAL (A)	ISLAM (B)	NON ISLAM	NO RELIGION	NOT STATED	Islam % (B/A)
MINDANAO	24,135,775	5,646,010	18,451,813	11,105	26,847	23.4%
Region IX	3,629,783	603,289	3,019,275	6,815	404	16.6%
Region X	4,689,302	378,019	4,309,731	1,294	258	8.1%
Region XI	4,893,318	167,879	4,721,292	516	3,631	3.4%
Region XII	4,545,276	1,032,824	3,505,354	598	6,500	22.7%
CARAGA	2,596,709	12,355	2,583,720	589	45	0.5%
ARMM	3,781,387	3,451,644	312,441	1,293	16,009	91.3%

1. What is Islamic Finance/Banking\* > Definition

# Islam Finance is a financial system developed to enhance economic activities by conducting modern financial transactions, while observing the Islamic law (Shariah)

- While designed to meet the requirements of the Shari'ah, Islamic finance is not restricted to Muslims or to Islamic countries. (The financial services provider and the client can be non-Muslims as long as they agree to abide by the requirement of the Shari'ah)
- Today, Islamic finance is a growing series of financial products developed to meet the requirements of a specific group of people, wherever there is a sizable Muslim community.

### **Background to the development of Islamic Finance**



(\*Note) Islamic banking is a synonym with Islamic finance or Islamic financial services.

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1. What is Islamic Finance/Banking > Definition

# Modern Islamic Finance is relatively new and global, as it has been rapidly developing globally, over the past 50+ years.

- Islamic finance has become an increasingly integral part of the global financial system.
  - Since the developments of the modern Islamic finance in the 1960s, the Islamic financial services industry has
    evolved from a "fringe industry" that catered to the specific banking requirements of the Muslim community to a
    global industry encompassing banking, insurance and capital market.
  - The Islamic financial landscape has now been dramatically transformed with more diverse players with an
    extensive range of financial products and services.

### Significant Developments in Islamic Finance

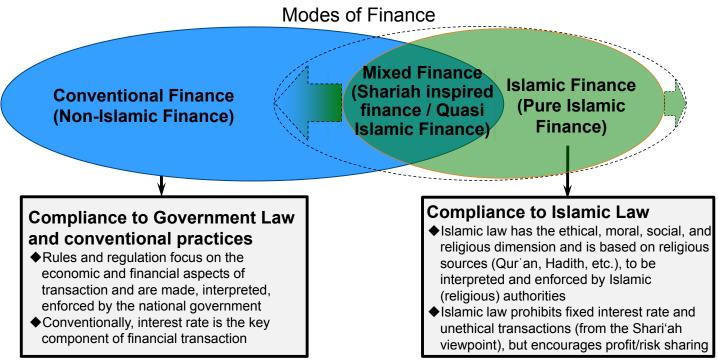
#### 1950-60s Early centuries-1970s 1980s 1990s Contemporary Primarily Retail Commercial Property Equity Funds Advanced Financial intermediaries Banking Finance and Banking Treasury for (sales) Syndication Leasing Services · Government banks: Experiments of finance based such as the Islamic savings bank based Balance Sheet • Islamic on risk sharing Islamic **Development Bank** on profit-sharing Management (mobilizing funds, (e.g.Pakistan 1950s, (1974 in Jeddah as Insurance Securitisation on profit-sharing inter-governmental Egypt 1960s) (Takaful) Innovative Asset basis, and bank to finance Management extending these development projects), Philippine funds to the users on the same basis) Amanah Bank (1973 in Philippines)

(Source) Islamic Development Bank (2010), "Islamic Finance and Global Financial Stability"

Munawar Igbal (2013), "Islamic Finance: An attractive new way of financial intermediation" (International Journal of Banking and Finance, Vol. 10, Iss. 2)

1. What is Islamic Finance/Banking > Definition

Depending on the interpretation of the Islamic Law, many Islamic Finance products can be developed to have an effectively equivalent conventional product.



(References) Zamir Iqbal (World Bank, Finance & Development / June 1997), "Islamic Financial Systems" World Bank (2016) "Developing Islamic Finance in the Philippines", Institute of Islamic banking and Insurance (http://www.islamic-banking.com/glossary\_of\_key\_terms.aspx)

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1. What is Islamic Finance/Banking > Definition

Islamic Banking is practiced through two channels: "Specialized (pure)" Islamic banks and Conventional banks with a "Islamic Window"

### Two types of Islamic Banks **Islamic Banking Institutions** (Islamic Banks, IBIs) Conventional banks with a Specialized (pure) Islamic banks

- Commercial and investment banks. structured wholly on Islamic principles
- Deal only with Islamic instruments
- · well positioned to attract deposits from Muslims, but have generally lacked technical ability to invest efficiently

## "Islamic Window"

- Special facilities offered by conventional banks to provide services to Muslims who wish to engage in Islamic banking
- · Both Western banks and banks headquartered in Islamic countries provide Islamic windows
- Swiftly and efficiently deploy funds into Islamically acceptable channels

(Source) Zamir Iqbal (World Bank, Finance & Development / June 1997), "Islamic Financial Systems"

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1. What is Islamic Finance/Banking > Definition

Islamic Finance Products/Services has been designed not to infringe on the Shariah prohibitions against the following financial activities.

### **Basic Principles of Islamic Financial System**

	Principles		Details	
တ	Haram: Prohibition of engagement in immoral or ethically problematic business	•	Haram, literally means unlawful. Investment/finance in business which the Qur'an explicitly prohibits are also prohibited. Prohibited/haram business include those related to pork products, alcoholic liquor, narcotics, pornography, casinos	
ital Prohibitions	Ribā: Prohibition of interest on transactions:	•	Riba, literally means "an excess" and is interpreted as "any unjustifiable increase of capital, not limited to usury. Any positive, fixed, predetermined rate tied to the maturity and amount of principal, regardless of the performance of invested business, is considered riba and is prohibited ("It may reward transaction which may not create any wealth, without any equitable risk sharing. cf. risk sharing).	
Fundamental	Gharar: No or minimal Uncertainty / No Exploitation, Fairness (Sanctity of contracts)	Gharar (in Arabic) literally means deceit, risk, fraud, uncertainty or hazard the may lead to destruction or loss. Ambiguity in a contract between 2 parties may be clarified to reduce risk of asymmetric information and moral hazard.		
ш.	Maisir: Prohibition of gambling/ speculative behavior	•	Maisir refers to easy acquisition of wealth by chance, whether or not it deprives the other's right. Islam discourages hoarding and prohibits transactions featuring extreme uncertainties, gambling, and risks.	
Encouragement	Materiality: Productive Economic Purposes / Adding value to real economy	•	Financing is based on real assets. Money is treated as "potential" capital and becomes actual capital only when it joins hands with other resources to undertake a productive activity, hence time value of money can be recognized.	
	Risk-sharing: Participatory finance or active participation in the business	•	Islam encourages earnings/profits from creation of additional wealth, by active participation in the business. Suppliers of funds become co-investors, not creditors, and share business risks in return for profit sharing with entrepreneurs.	
(Refe	(References) Zamir Iqbal (World Bank, Finance & Development / June 1997), "Islamic Financial Systems"			

1. What is Islamic Finance/Banking > Definition

A financial institution providing Islamic financial services must have shari'ah compliance approval on its services by a shari'ah supervisory authority (board)

#### What is a Shari'ah board?

- An authority, usually a committee of 2-5 Islamic scholars ("Ulama") who are of high reputation, well-versed and competent in Shari'ah and its approaches to economics and finance, appointed by an Islamic financial institution, which supervises and ensures both the Shari'ah compliance of new product development and the operations.
- The scholars should be independent and qualified to give rulings that pass moral judgment on proposed contracts and transactions as well as to ensure that business conducted is according to the requirements of the Shari'ah. The committee is commonly referred to as a Shari'ah Board or Shari'ah Supervisory Board and also known as a Shari'ah Committee.
- The Shari'ah board could be established within the financial institution, or outsourced to an independent specialized advisory company.

#### Role and function of the Shari'ah board

- The role of the Shari'ah board is ensuring that all aspects of the business operations of Institution offering Islamic Financial Services (IIFS) are in accordance with the Shari'ah principles.
  - > Compliance approval (or disapproval) of each service and project which the IIFS offers/engaged in.
  - > Shari'ah audit or compliant oversight/review from the Shari'ah viewpoint on the bank's operation at yearend.
  - Although this adds another level of oversight which inherently safeguards against irresponsible practices or the potential risks of financial stress arising from excessive leverage or speculative activities, the decision of the board does not have any conventional legal binding power, and its influence would be different for each IIFS.

#### Operation of the Shari'ah board

- Convened monthly or quarterly by the director of board, or by the management of the IIFS.
- After receiving a report from the operations division on the business outline of each project to be financed, board members will discuss the shari'ah compliance of each project (usually, compliance will be confirmed by a member at an earlier stage)
- Any project which cannot obtain approval from the board will be required to change its contractual contents.

1. What is Islamic Finance/Banking > Definition

### Both sides of the Balance Sheet of Islamic Banks must be based on distinct contractual relationships that are Shariah compliant.

#### Islamic Banking Balance Sheet: Islamic Rate of Return Management (Asset Driven) Return on Assets **Investment Returns** Assets Liabilities Distinct characteristic- Akin to demand **Current/ Demand Deposits** Inventory ownership of assets deposits but exhibit Real estates/Automobiles Wadiah (Safe custody) / Qard (Loan) differently as it Unrestricted Investment prohibits gifts upfront/ Asset-backed Transactions predetermined return Accounts Akin to loans but Murabahah (cost plus) / liarah Mudharabah (profit sharing and legal position of (leasing) / loss bearing) Akin to fixed lender & borrower is Istisna' (manufacture) / Salam deposits but uses Restricted Investment replaced by different (forward delivery) profit sharing basis contractual Accounts where return based relationship Mudharabah (profit sharing and Profit Sharing Transactions on performance of loss bearing) Mudharabah (profit sharing & loss assets bearing) /Musharakah (profit & loss Investor-Profit Equalisation Reserves sharing) Distinct entrepreneur characteristic as relationship Fee Based Services prudential tool Equity e.g. Ujr (fee) Return on Lending Cost of Funds

1. What is Islamic Finance/Banking > Difference with conventional finance > "Myths" of Islamic Banking

(Source) Islamic Development Bank (2010), "Islamic Finance and Global Financial Stability"

### Various misconceptions arises from the lack of contact with Islam community

### Common misperceptions of Islamic Banking/Finance

### Islamic finance is only for Muslims Due to restrictions by the Islamic religion, Islamic finance is not very convenient

Misperceptions

- Islamic finance has a long history as the religion of Islam itself
- As interest rate is forbidden, it is difficult to make profits by Islamic banking

#### Reality of the situation

- Non-Muslims also use Islamic Finance, not only in the middle east or in the Muslim communities in South East Asia, but in more than 100 countries around the world.
- Some projects combines Islamic finance with conventional finance
- Islamic finance is not only provided by Islamic banks. Some conventional banks are also providing Islamic finance
- Islamic finance is pursuing economic development by providing financial service to promote real productive activities. It prohibits derivatives with complicated structures and transactions where a large information gap exists between the buyer and seller, and intends to conduct only fair and clear transactions.
- As various Islamic finance schemes have been developed and many financial advisors and lawyers have been trained, it is no longer inconvenient.
- Modern Islamic financial system has been developed from 1960-70s and has started to take-off during the 1990s.
- Modern Islamic financial system has a relatively short history with some challenges to overcome, but are expected to grow (at least with the growth of the Islamic community)
- On the banks' liability side, funding cost from interest-free deposits is "zero", which makes easier for banks to make profits. Most of other liabilities are profit/risk sharing products, and does not have a "fixed cost".
- On the banks' asset side, Islamic banks do not have loans with fixed income, but do have income generating products such as leasing products, sales finance products, and investment fund products.

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#### 1. What is Islamic Finance / Difference with conventional finance

### Main Characteristics of Islamic Finance

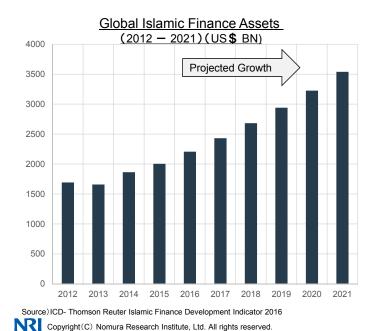
### Differences between Conventional and Islamic Banking:

	Conventional Banking	Islamic Banking
	Money is a commodity besides medium of exchange and store of value. Thus, it can be sold at a price higher than its face value and it can also be rented out.	Money is not a commodity though it is used as a medium of exchange and store of value. Thus, it cannot be sold at a price higher than its face value or rented out.
Value of money	Time value is the basis for charging interest on capital	Profit on trade of goods or charging on providing service is the basis for earning profit
	Interest is charged even in case the organization suffers losses by using banks' funds. Thus, it is not based on profit or loss sharing	Islamic banks operate on the basis of profit/loss sharing. In case the businessman has suffered losses, the bank will share these losses based on the mode of finance used (Mudarabah, Musharakah)
Link to	While disbursing cash finance, running finance or working capital finance, no agreement for exchange of goods & services is made	The execution of agreements for the exchange of goods & services is a must, while disbursing funds under Murabaha, Salam & Istisna contracts
real sector	Conventional banks use money as a commodity which may lead to inflation	Islamic banking tends to create a link with the real sectors of the economic system by using traderelated activities. Since the money is linked with the real assets it therefore contributes directly to economic development

#### 1. What is Islamic Finance / Global size of Islamic Finance Market

### Most of the Muslims live in the fast growing Asia, Middle East, Africa regions and hence the Islamic Market has a large economic potential

- Size of Global Islamic Finance Assets are about 2.5 trillion USD, and expected to grow 10% annually.
- Most of the Islamic Assets are located in the Gulf and Middle East region, but Southeast Asia is following, and Islamic Assets are also hold in Europe, Americas, etc.



# SouthEast Asia

Other Asia

Europe &

Americas

3%

Middle East (ex GCC) 23%

Islamic Finance assets by region (2015) Africa

Source) ICD- Thomson Reuter Islamic Finance Development Indicator 2016

GCC

#### 2. What are the Basic Islamic Banking products

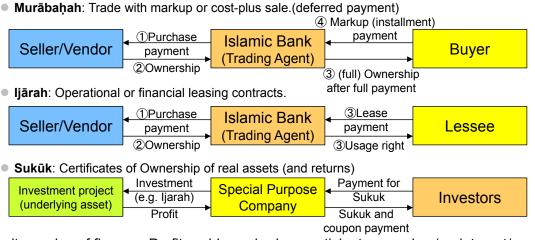
# A variety of Islamic Financial Schemes and products have been developed to provide services similar to conventional finance, while observing the Shariah laws

Category/Name		Function	Category/Name	Function
Mode of Fina	ncing		Certificate	
Participatory (Profit-loss	Mudaraba	Equivalent to a investment fund / Mutual Fund	Sukuk	Bond, akin to asset backed security
sharing of investment in a	Musharaka	Equivalent to a joint venture	Insurance	
certain	(Others)	Musaqat, Muzara'a,	Takaful	Insurance (Life / accident)
business)	(Others)	Mugharasa	Other concepts	
Rental based	ljara	Equivalent to Leasing		Commission based Agency contract
Trade based (Purchasing/	Murabaha	Equivalent to a sales/ purchasing/consumer credit	Wakalah	(such as a contract for mutual fund management)
Sales of a product on behalf of buyer/seller)	Istisna'	Equivalent to financing of contract manufacturing/ construction	Wadiah	Safe custody (e.g., bank may accept deposits ("Amanah") from customer as custodian, and offer
Sales	Bay' mu'ajjal	Deferred-payment sale Delayed payment is made in	made in	some gift ("Hibah") on a voluntary and non-guaranteed basis)
contracts		lump sum or installments		Loan which borrower is required to
(not necessary by a financial intermediary)		Deferred-delivery sale, Similar to a forward contract	Qard	repay only the principal on demand. (fixed maturity is "Salaf")
intermediary)		(upfront payment for future delivery of the product)	Qardhul Hasan	Interest-free loan
(Source) Zamir Iqbal (World Bank, Finance & Development / June 1997), "Islamic Financial Systems"  Munawar Iabal (2013), "Islamic Finance: An attractive new way of financial intermediation" (International Journal of Banking and Finance, Vol. 10, Ica.				all of Panking and Einange Val. 10, log 2)

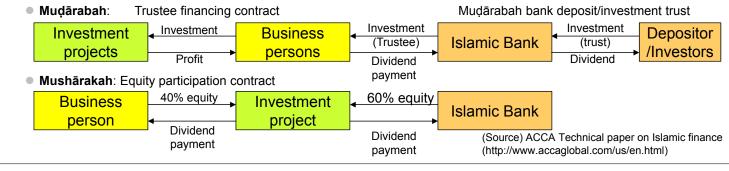
#### 2. What are the Basic Islamic Banking products

### Standard financial instruments in Islamic Finance

■ Fixed income modes of finance :Purchase and hire of goods or assets and services on a fixed-return basis



■ Equity modes of finance: Profit-and-loss-sharing, participatory modes (no interest/guarantee, share profit/loss)



#### 2. What are the Basic Islamic Banking products

### (Reference) Basic financial instruments in Islamic Finance

#### ■ Murābahah: Trade with markup or cost-plus sale.

• The purchase of an asset is financed for a profit margin which is disclosed to the client, with the asset purchased on behalf of client and resold at a pre-determined price. Payment could be in lump sum or in installments and ownership of the asset remains with bank till full payments are made.

#### ■ Ijārah: Operational or financial leasing contracts.

Bank purchases asset on behalf of client and allows usage of asset for a fixed rental payment. Ownership of
the asset remains with the financier but may gradually transfer to the client who eventually becomes the owner
(ijārah wa-iqtina').

### ■ Muḍārabah: Trustee financing contract

One party contributes capital while the other contributes effort or expertise. Profits are shared according to a
predetermined ratio and the investor is not guaranteed a return and bears any financial loss.

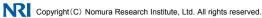
### ■ Mushārakah: Equity participation contract

 Different parties contribute capital and profits are shared according to a predetermined ratio, not necessarily in relation to contributions, but losses are shared in proportion to capital contributions. The equity partners share and control how the investment is managed and each partner is liable for the actions of the others.

#### Sukūk: Certificates of Ownership

Sukūk are certificates of equal value representing undivided shares in ownership of tangible assets, usufruct
and services, or (in the ownership of) the assets of particular projects. The returns on the certificates are
directly linked to the returns generated by the underlying assets.

(Source) World Bank Group, 2016, "Developing Islamic Finance in the Philippines"



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#### 3. Islamic Agriculture Finance > Typical Islamic finance products for Agriculture

### Many Islamic Financing instrument can be utilized for agricultural purposes

### ■ For Sales/purchase credit

- Salam is ideal product for financing of agricultural production, through which full payment is made in advance for specific goods (often agricultural products) to be delivered at a future date. Farmers can fulfill all the financial needs of the crop production cycle. e.g. seed, pesticide, fertilizer, harvesting, irrigation, market linkages.
- Murabaha can be utilized for Purchase of seed, fertilizer, harvesting and planting equipments, agri. Inputs, tractor, pesticides, farming goods, Solar Tube-wells etc.
- Istisna may by utilize for small manufacturing Business, dairy or Agri. production, Construction
  of warehouse and cold storage, Rural entrepreneur Development
- **Ijara** is good for Leasing of Tractors, Agri. Equipment, Threshers, Tub wells, small production unit lease, Sugarcane planter, Rice planter, harvesting vehicles etc.

### ■ For Agricultural Investment

• Musharaka, Mudaraba & Diminishing Musharaka can be utilized by Farmers for Rural housing, forest development, agricultural inputs, farming, sprinkler/drip/solar pumps, tube wells, Microenterprise & SME'S setup's, Agricultural Joint venture projects, Dairy and livestock development etc.

### ■ For Insurance

 Takaful (Islamic Insurance): To ensure the Risks of Agricultural and Livestock sector (risks of crops, livestock, orchids and different durable assets e.g. tractors, Agri-inputs, harvesting and other instruments etc.) 3. Islamic Agriculture Finance > Typical Islamic finance products for Agriculture

### Various types of Islamic Financing instrument can be utilized throughout the whole agricultural value chain

	Value Chain	Input Supply	Farming/Growin	g Intermediation	Post Harvest processing	Wholesale/ Export	Retail/Import /Logistics
Actors	Function	Suppliers	Producers	Traders	Processors	Wholesaler	Distributor
	examples	Fertilizer co. Seedling co. Machinery co.	Small farmer, Farmer group, Agri-Cooperatives	Local Collector, Village Trader	Post-harvest / food processing company	National trading co. Transportation/ Logistics co/Exporter	Retail CO-OPs, Supermarket, Importer
ιt	Objective	Upgrading pro	oductivity and proc	luct quality	Enha	ncing value added	
product	Area Expansion	<ul><li>Land use rights</li><li>Level, soil, irrigation, etc.</li></ul>					
Finance	Islamic	Musaqat, Muzara'a, Mugharasa					
Fin	Finance	Musharaka, Mu	ıdaraba & Diminis	shing Mushara	aka (Participatory: Pro	ofit-Loss sharing)	
^	Investment	automatic seedling machine, etc.	<ul> <li>Cultivator, tractor, etc.</li> <li>Greenhouse, irrigation system, air-conditioner</li> </ul>	Transportation vehicles (trucks, trolley, wagon,)	<ul> <li>Checking (residuals),</li> <li>Washing/cleaning,</li> <li>grading/sorting,</li> <li>bunching/packaging</li> <li>machine, refrigerator</li> </ul>	Specialized transportation vehicles/     (cool chain) Warehouses, etc.	• Same as wholesale?
Needs	Islamic Finance	liarah (Rental-hased) Murahaha Istisna' (Trade Rased)					
Financial	Working capital	<ul> <li>Spedlings/</li> </ul>	• Farm Labor, water, electricity, etc.	Harvested products	(Delivered) Harvested products	<ul> <li>Packaged "Agri- products", transportation cost</li> </ul>	<ul> <li>Delivered "Agri- products",</li> <li>air-freight cost</li> </ul>
Fi	Islamic Finance			Murabaha, Sa	lam (Trade Based)		
N	Copyright (C) Nomura Research Institute, Ltd. All rights reserved.						

### 3. Islamic Agriculture Finance > Working Capital

### Suggested Islamic Modes of Financing for Working Capital for purchase of inputs

Purpose	Suggested Islamic Modes of Financing	
Purchase of inputs for	Murabaha / Musawamah/ Salam/ Muzara'a	
<b>Crop production</b> i.e. seeds, fertilizers, insecticides, pesticides, herbicides, weedicides, manual sprayers etc.	Under Murabaha and Musawamah, the Islamic Banking Institution (IBI) buys these inputs from market and sells	
<b>Poultry farming</b> which includes Purchase of feed, birds/day old chicks, feed raw material, vaccination, vitamin and other medication for poultry birds, saw dust, wood, coal, water filter cartages, utensils for poultry bird feed, etc.	them to farmer on cost + profit basis. Preferably, this should be a direct sale and purchase i.e. the IBI purchases it from open market and sells it to customer. This may be done through arrangement with suppliers of the input. In case of difficulties in direct sale and purchase the Agency arrangement can be made under which the farmer (or any other person) will act as an agent of the IBI for purchasing the required goods.  In case of Salam financing for Crop Production purposes, IBIs can also use Salam as a buyer of output.  In case of Muzara'a financing for crop production purposes IBI can also have an arrangement of Muzara'a with farmer	
<b>Dairy Farming</b> which includes purchase and plantation of animal fodder and feeds, feed grinders, tokas, feed mixing machines and feed or milk containers; vaccinations, vitamins and other medications for animals; utensils for		
animal feeding, calf feeders, bangles, rope/iron chains, etc. $ \\$		
<b>Fish farming</b> includes purchase of fuel, ration and ice, packing/ processing/cleaning items required for export of fish.		
<b>Maintenance</b> of farm, machinery, implements and other working capital needs in terms of labor charges, water charges, utility charges, etc.	Salam Since these are running expenses and IBI may not be able to finance these directly, therefore, one of the possible modes is Salam. Under this mode, IBI buys the output to be deliverable in future against the full spot payment of the price which may be utilized by the farmer to meet his financing needs (incl. working capital for maintenance).	

### Suggested Islamic Modes of Financing for Term Financing - (1)

#	Purpose	Suggested Islamic Modes of Financing
1	Farm mechanization financing i.e. Purchase of agri. implements, equipments i.e. trailers & threshers, power tiller, power & boom sprayers, plough, cultivators, rigers/ drills, rotavators, driggers, cotton picker, saw machines for crate making, press machines for wheat straw and dry fodder, chiesel ploughs, potato planter, sugarcane planter, rice transplanter, self propelled reaper for harvesting wheat and rice crops, etc.	Murabaha / Ijarah/ Diminishing Musharaka (DM) Financing for these requirements can be provided under Murabaha (for small / light equipments or for short-term financing and Ijarah/DM for big / heavy equipments or long-term financing). IBI, in case of Murabaha, purchases these equipments from market and sells it to farmer on cost + profit basis.  In case of Ijarah, IBI acquires the required asset and rents it out to the farmer. The ownership remains vested with IBI during the period of Ijarah agreement besides ownership related risks and rewards.  In case of DM, IBI and farmer participate in the ownership of the required asset. The farmer contributes certain % of total price and the rest would be paid by IBI. IBI afterwards rents its share out to the farmer. Both parties share the risks on pro rata basis.
2	Transport Financing includes: Purchase of tractors, refrigeration vans, farm cooling tanks, motorcycles for milkmen, small pickups, mini trucks and chiller carriers, etc.	Ijarah/ Diminishing Musharaka (DM)/ Murabaha IBI acquires the required asset and rents it out to the farmer. The ownership related risks and rewards will be of the IBI. In case of DM, IBI and farmer participate in the ownership of the required asset. The farmer contributes certain % of total price and the rest would be paid by IBI. IBI afterwards rents its share out to the farmer. Both parties share the risks on pro rata basis.  Murabaha can also be used for these assets IBI, in case of Murabaha purchases the required equipments from market

(Source) Agricultural Credit Department, Islamic Banking Department, State Bank of Pakistan, "Guidelines on Islamic Financing for Agriculture"

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#### 3. Islamic Agriculture Finance > Term Financing

### Suggested Islamic Modes of Financing for Term Financing - (2)

#	Purpose	Suggested Islamic Modes of Financing
3	Livestock Financing includes: Purchase of mature milk yielding buffaloes or cows, replacement of existing buffaloes or cows, purchase of young buffaloes, cows, sheep and goats for rearing for meat production, milk storage chilling tanks, refrigeration plants and milk carrying containers, refrigerated meat storages and refrigerated containers, distribution vehicles such as motorcycles, pickups, refrigerated vans, etc.  Construction or procurement of permanent sheds, water tanks, water pumps, tube wells & generators, fencing & enclosures, establishment of slaughter houses (abattoirs), etc.	Murabaha/ Diminishing Musharaka (DM)/Istisna  Financing for these requirements can be provided under Murabaha (for small / light equipments or for short-term financing and ljarah/DM for big / heavy equipments or long-term financing). IBI, in case of Murabaha purchases, these equipments from market and sells it to farmer on cost + profit basis.  In case of DM, IBI and farmer participate in the ownership of the required asset. The farmer contributes certain % of total price and the rest would be paid by IBI. IBI afterwards rents its share out to the farmer. Both parties share the risks on pro rata basis.  In case of Istisna financing for assets (excluding livestock), IBI will be a seller/ manufacturer of the required assets (building, shed, storeroom etc.) and may appoint a builder/supplier to construct/supply the required asset for onward sale to the farmer.
4	Installation of Tube wells/Turbine, Sprinkle/Drip irrigation system, water management, solar energy plants, pumps for irrigation system, etc.	Ijarah/ Murabaha/ Diminishing Musharaka/Ijarah-al-Ashkhaas (Services Ijarah) may be used depending upon the nature of financing needs of the farmer.
	Lining of water courses cost of land leveling/development, etc.	Salam/ Istisna To meet these running expenses, Salam is a suitable Islamic modes of financing, whereby the IBI will buy the output deliverable in future against the full spot payment of the price. The amount received by the farmer as price for his produce/ output may be used to fulfill his financing requirements.  Istisna is also possible for financing the construction/lining of water courses artment, State Bank of Pakistan, "Guidelines on Islamic Financing for Agriculture"  25

(Source) Agricultural Credit Department, Islamic Banking Department, State Bank of Pakistan, "Guidelines on Islamic Financing for Agriculture

### Suggested Islamic Modes of Financing for Term Financing - (3)

#	Purpose	Suggested Islamic Modes of Financing
6	Forest development and enhancement.	Diminishing Musharaka/ Murabaha DM is suitable if the customer needs financing for purchase of land to develop forest. In case of DM, IBI and farmer participate in the ownership of the required asset. The farmer contributes certain % of total price and the rest would be paid by IBI. IBI afterwards rents its share out to the farmer. Both parties share the risks on pro rata basis.  DM on Sale and lease back basis should be approved specifically by the Shariah Advisor.  Murabaha can be used for financing of plants for growing forest and other inputs.
7	<b>Poultry Farming</b> which includes construction of broiler, layer, breeder & hatchery farms and feed mills, control sheds, automatic drinkers /tube feeders, generators, ventilators, table/ breeder eggs storage refrigeration plants, purchase of machinery/ equipment for poultry farm/hatchery/ feed mill, transport vans – eggs and poultry carrying van, distribution vehicles such as motorcycles &, pickups, deep freezers, slaughtering & de- feathering machine, etc.	Diminishing Musharaka For construction and acquisition of physical assets, DM is a suitable mode of financing. Murabaha/ Ijarah/ Istisna For physical assets' financing.

(Source) Agricultural Credit Department, Islamic Banking Department, State Bank of Pakistan, "Guidelines on Islamic Financing for Agriculture"

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#### 3. Islamic Agriculture Finance > Term Financing

### Suggested Islamic Modes of Financing for Term Financing - (4)

#	Purpose	Suggested Islamic Modes of Financing	
Fish Farming includes Purchase of motor boats/fishing trawlers. Purchase of marine engines (outboard and inboard), replacement of engines and spare parts, construction of cold storage by fishermen with the use of insulation material/sheets for walls/ roof, purchase of other deck equipments like winch, wire rope, gallows, net handler, navigational lights, communication equipments, radar, life jackets, life boats, anchors, direction finders (compasses), echo sounded (fish finders), life buoys, insulation materials, purchase of nets – trawlers net/purse-seine/grill nets, purchase of chilling/freezing plants, fish storage centre (distribution centre). Fish/shrimp hatcheries, purchase of mobile insulated, pickups/ vehicles etc.		All these are possible modes of financing of physical assets.	
9	Dairy Farming. (Milk Processing Plants, other machineries, etc.)	Ijarah/ Diminishing Musharaka/ Murabaha/ Istisna All these are possible modes of financing of physical assets.	
10 11 12 13 14 15	Construction of godowns and cold storages.  Development of Dairy and livestock farms.  Construction and improvement of livestock laboratories.  Setting up seeds processing and milk chilling units.	Ijarah/Diminishing Musharaka/ Murabaha/Istisna All these are possible modes of financing of physical assets.	

### 3. Islamic Agriculture Finance > Product Implementation

### Islamic Modes of Financing, Application and Procedure - (1)

Islamic Mode of Financing	Application	Procedure
MURABAHA:  Murabaha means a sale of goods by a person to another under an arrangement whereby the seller is obliged to disclose to the buyer the cost of goods sold either on cash basis or deferred payment basis and a margin of profit included in the sale price of goods agreed to be sold.	Murabaha is used for Credit Sale by the IBIs. The subject matter i.e. goods/assets are selected by customer and purchased by IBI and then sold to customer on deferred payment basis. The concept of agency is used in Murabaha. A third party or the customer is appointed as an agent to act on behalf of the IBI.	<ol> <li>Signing of Master Agreement for Murabaha Financing between the client and the IBI.</li> <li>Appointing an agent to purchase commodities on IBIs behalf by executing Agency Agreement, if required.</li> <li>Client gives Purchase Requisition to the IBI whenever a commodity is required.</li> <li>The IBI or the agent, as the case may be, purchases the commodity and takes possession.</li> <li>In case of the agent, the agent informs the IBI after purchase that he has purchased the commodity on its behalf.</li> <li>Physical inspection (if possible) by the IBI of the commodities.</li> <li>The client makes an offer to purchase the commodity from the IBI or the IBI offers to sell the same at an agreed price (i.e. Cost +Profit).</li> <li>Acceptance by the IBI/client and the sale is concluded. The ownership plus the risk of the commodity is transferred from the IBI to the client.</li> <li>The customer pays the price as per the agreed upon schedule of Payment</li> </ol>
MUSAWAMAH:  Musawamah is a general kind of sale in which price of the commodity to be traded is stipulated between seller and the buyer without any reference to the price paid or cost incurred by the former.	The application of Musawamah is almost similar to Murabaha. This mode is normally used in cases where it is difficult to determine the actual cost of the subject matter.	Signing of Master Agreement for Musawamah Financing between the client and the IBI.      Consider the Commodity from the IBI or the client makes an offer to purchase the commodity from the IBI or the IBI offers to sell the same at a mutually agreed price.      Society of Pakistan, "Guidelines on Islamic Financing for Agriculture"  28

### 3. Islamic Agriculture Finance > Product Implementation

### Islamic Modes of Financing, Application and Procedure - (2)

Islamic Mode of Financing	Application	Procedure
SALAM: Salam advance payment against deferred delivery of goods) means a kind of sale whereby the seller undertakes to supply specific goods to a buyer at a future date in consideration of a price fully paid in advance at the time the contract of sale is made.	Salam can be used for facilitating farmer customers who need working capital/ running finance. The purchaser has an advantage of purchasing particular commodity at a relatively lower price. On the other hand, the seller gets early price of those items / commodities which have not been produced yet. This may help him meet the working capital requirements, etc.	<ol> <li>The Salam Agreement is executed between the client as a seller of commodities and the IBI as a buyer of these commodities.</li> <li>The agreement describes complete specifications of the commodity, sale price and date and place of delivery.</li> <li>IBI pays the full sale price to client.</li> <li>Client after receiving advance payment can utilize the amount for his needs.</li> <li>At maturity, client delivers the commodities as per agreement.</li> </ol>
ISTISNA: - Istisna is a mode of sale, at an agreed price, whereby the buyer places an order to manufacture, assemble or construct, or cause so to do anything to be delivered at a future date.	Istisna is a mode of financing that may be used for assets/goods which require processing/ value addition. It may be used for financing for farm buildings, machinery, fabrication and other types of assets that are used in agriculture sector.  The payment of price will be as per mutual agreement e.g. full in advance, fully deferred to delivery, partially advance and partially at delivery, in tranches or full payment after delivery.	<ol> <li>The Istisna Agreement is executed between two parties, one as a seller/manufacturer of goods and the other as a buyer of these goods.</li> <li>The agreement describes complete specifications of the goods/assets or manufactured items sale price, date and place of delivery.</li> <li>IBI pays price as per mutual agreement.</li> <li>At maturity, client delivers commodities as per agreement.</li> </ol>

### 3. Islamic Agriculture Finance > Product Implementation

### Islamic Modes of Financing, Application and Procedure - (3)

Islamic Mode of Financing	Application		Procedure
IJARAH: - Ijarah a contract whereby the owner of an asset, other than consumables, transfers its usufruct to another person for an agreed period for an agreed consideration.	Contrary to trade-based modes of fir ljarah is an ongoing contract which is flexibility of increase in rental amount the tenure. Ijarah is a very useful modern financing specially for long term financing specially for long term financing with the option to change the rental a rules of Ijarah. Usually long-term as not feasible for trade based modes of the bench-mark changing scenarios affect the price in any manner, while be taken in consideration in Ijarah. I sector, the instrument of Ijarah can be for almost all types of machinery and equipments financing needs like tube tractor or building and land financing	as t during de of noing as per sets are ince do not it can n agri e used le-well;	<ol> <li>Signing of Undertaking to Ijarah according to which the client undertakes to take certain asset on lease from the institution upon arrival of the asset.</li> <li>If required, the IBI and the client may enter into an agency agreement according to which the client would purchase asset on behalf of IBI.</li> <li>After purchasing of a particular asset, the IBI and client execute an Ijarah Agreement in which they agree on rental and tenure.</li> <li>The IBI, after agreement delivers the asset to the client for use.</li> <li>At the end of lease period, normally the IBI and the client enter into a separate agreement of sale through which the leased asset is sold to the client against an agreed price.</li> </ol>
MUSHARAKA: - Musharaka means relationship established under a contract by the mutual consent of the parities for sharing of profits and losses arising from a joint enterprise or venture.	Musharaka can be used for financing from working capital to project financing from short term financing to term final Issuance of certificates and other kir financial needs can also be structure under this mode.	e, and ance. ds of	<ol> <li>One or more entrepreneurs approach an IBI for the required finance for a project.</li> <li>The IBI, along with other partners, provides complete or partial finance.</li> <li>All partners, including the IBI, have the right to participate in the management of project.</li> <li>Profits are to be distributed according to the agreed profit distribution ratio/formula, which needs not be the same as per their capital proportions.</li> <li>Losses, however, are to be shared on pro rata basis.</li> </ol>
(Source) Agricultural Credit Department, Islamic Banking Department, State Bank of Pakistan, "Guidelines on Islamic Financing for Agriculture"			6. At the end of the period, the principal with profit proceeds is to be distributed among the partners. 30

### 3. Islamic Agriculture Finance > Product Implementation

### Islamic Modes of Financing, Application and Procedure - (4)

Islamic Mode of Financing	Application	Procedure
MUDARABA: - Mudaraba means an arrangement in which a person participates with his money (called Rabbulmal) and another with his efforts (called Mudarib) for sharing in profit from investment of these funds in an agreed manner.	Mudaraba like Musharaka can be used for most of the financing needs.	<ol> <li>Two parties execute Mudaraba Agreement by way of which they decide that one party will provide Mudaraba capital and other party manages the capital for a particular period.</li> <li>Profit rate is to be decided as agreed between them.</li> <li>Mudarib has management rights and, therefore, he will utilize the partnership capital in an agreed manner.</li> <li>At the end of the tenor, Mudarib will return principal and preagreed share of the profit to the Rabb-ul-Maal.</li> <li>If the business incurs a loss, it will be borne by Rabb-ul-Maal if there happens no negligence on the part of Mudarib.</li> <li>Investor is not liable for the losses beyond the capital he has contributed.</li> </ol>
MUSAQAT *(Irrigation):- Musaqat (Irrigation) partnership is a partnership that depends on one party presenting designated plants/trees that produce usable products/items/ goods/output to another in order to work on their irrigation in consideration for a common defined share in fruits.	This mode is applicable in agriculture sector in a very effective manner, especially for orchard financing. A specific or predetermined share of the enterprise output (e.g. a third or a half, etc.) will go to the provider for labor and enterprise. This will be clearly positioned in the contract.	Under this mode, multiple options are available based on the ownership of land/orchard, rental arrangements, labor, etc. Therefore, defining particular steps would require inputs from the stakeholders.

#### 3. Islamic Agriculture Finance > Product Implementation

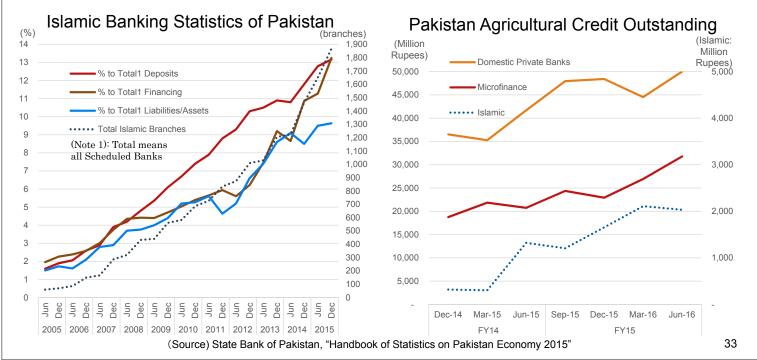
### Islamic Modes of Financing, Application and Procedure - (5)

Islamic Mode of Financing	Application	Procedure
Muzara'a (Sharecropping) is partnership in crops in which one party	Muzara'a is an acceptable legal contract suitable for financing agricultural operations. It can take several forms. (e.g., contract based arrangement can specify that land and other physical factors of production for the enterprise could come from one party while labor could be provided by the other party.) Incidence of a three-party Muzara'a partnership in which the first party provides land, the second provides a combination of required physical inputs, and the third provides labor.	For Muzara'a contracts to be legally viable, several critical conditions must be spelled out. They are as under:  1. The functions and obligations of each individual or party in the contract must be clearly and unambiguously defined.  2. The location and characteristics of the land to be cultivated under Muzara'a must be clearly identified and submitted to the party that is to implement the operation.  3. The production goal of the enterprise must be defined in terms of end products i.e. crops or live stock to be grown.  4. The period in which the Muzara'a contract is to be effective must be defined. Method of distribution of output must be stated clearly in the contract.
Mugharasa (agricultural) partnership is a partnership in which one party presents a treeless piece of land to another to plant trees on it on the condition that they share the trees and fruits in accordance with a defined percentage.	Mugharasa is a legal contract suitable for financing development of orchards/ trees. Under the arrangement, it is specified that land and other physical factors of production can come from one party while labor can be provided by the other party.	<ul> <li>Mugharasa contract requires following conditions to be followed:</li> <li>1. The functions and obligations of each individual or party in the contract must be clearly and unambiguously defined.</li> <li>2. The location and characteristics of the land to be cultivated under Mugharasa must be clearly identified.</li> <li>3. The production goal of the arrangement must be defined in terms of end products.</li> <li>4. The period in which the Mugharasa contract is to be effective must be defined.</li> <li>5. Method of distribution of output must be stated clearly in the contract.</li> <li>k of Pakistan, "Guidelines on Islamic Financing for Agriculture"</li> </ul>

3. Islamic Agriculture Finance > Example of a country developing Islamic Agriculture Finance: Pakistan

### Pakistan has been developing Islamic banking and Islamic Agriculture Finance

- Islamic Financing amount has been growing 34% annually for the past 10 years, and Islamic Agriculture Credit outstanding has been growing over 50% in 2015.
- Agricultural Credit Department and the Islamic Banking Department of the State Bank of Pakistan has published their "Guidelines on Islamic Financing for Agriculture" in 2008.



3. Islamic Agriculture Finance > Case study of a country developing Islamic Agriculture Finance: Pakistan

Middleman, providing most of Agriculture Credit, is the competitor for Islamic banks

### **Demand & Supply of Agriculture Credit in Pakistan**

	Characteristics	Details
Demand	Perceived Demand	Over 985 billion Rupees
		Increasing @ 14.6 percent annually
Supply	Total	
	Agriculture Credit	• 5.7 % of total lending
	Disbursements – Institutional	Approx. 39 % of Agriculture credit
	Public Sector Banks = 5	• 389 billion Rupees (30-Jun-2014)
	• Private sector = 22* (Islamic* = 5)	Increasing @ 8.6 percent annually
	• Foreign = 7	Outreach 2.1 million borrowers
	• Specialized = 4	against 8.3 million farm households
	Microfinance = 10	
	Disbursements - Non Institutional	
	Aarthi / middleman	Approx. 61 % of Agriculture credit

(Source) Akram Khalid, Vice Chairman, Federation of Pakistan Chambers of Commerce Industry (2015) "Promoting Agriculture Financing through Islamic Banks"

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3. Islamic Agriculture Finance > Case study of a country developing Islamic Agriculture Finance: Pakistan Middleman provide fast and convenient, but high cost, credit to small farmers

### Objective difference between Banks vs Middleman

Description	Institutional (Banks)	Non-Institutional (Aarthi / middleman)
Lending/credit share	39 percent	61 percent
Cost to farmer (Interest / Mark-up)	Up to 30 percent	Up to 80 percent
Security	Complete (legal) documentation plus collaterals	Negligible documentation. No security. In rare cases PDCs are required
Processing time	3 to 10 days	Immediate (mostly)
Default		Percentage is negligible compared to banks. But Aarthis normally do not initiate legal proceedings for recovery
Minimum Farm Size	12.5 Acre	1 acre

(Source) Akram Khalid, Vice Chairman, Federation of Pakistan Chambers of Commerce Industry (2015) "Promoting Agriculture Financing through Islamic Banks"

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3. Islamic Agriculture Finance > Case study of a country developing Islamic Agriculture Finance: Pakistan Easy and fast access is the key for the middleman's success over banks.

### Subjective difference between Banks vs Middleman

	Reason for preference	Example
Proximity	Aarthi is an integral part of the rural society; While Aarthi's decisions are motivated by profit, the comfort level of farmer makes him indispensible.	He is available to the farmer 24 hours just like a family member
	Personal Finance	He extends support on occasions of
	(Aarthi extends support to farmer not only in farming but also in routine daily life requirements)	marriage, funerals, Eid al-Fitr (Arabic for "the feast of the breaking of the fast"); even in buying clothing
9	Speed	Aarthi takes immediate decision when a farmer approaches him
Convenience	Flexibility	Aarthi is his own boss so he can bend his rules according to circumstances
Con	No collateral/documentation	Aarthi normally does not require documentation, nor any security. (For new farmers, he might obtain post-dated cheques)

(Source) Akram Khalid, Vice Chairman, Federation of Pakistan Chambers of Commerce Industry (2015) "Promoting Agriculture Financing through Islamic Banks"

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3. Islamic Agriculture Finance > Case study of a country developing Islamic Agriculture Finance: Pakistan The middleman can take more risk than banks

### Functional difference between Banks vs Middleman

Description	Institutional (Banks)	Non-Institutional (Aarthi / middleman)
Access to	Banks do not have a	Aarthi operates from the commodity market;
commodity market	commodity trading function	Aarthi is integral part of the wholesale markets system;
Sales credit	Banks cannot get involved in deals for supplying inputs	Distributors find it convenient to supply inputs on credit to the farmer at his farm;
Transport/ Logistical service	Banks have no role in logistical processes	Aarthi is involved in functions such as picking of crop (large farmers), storage, transportation, auction process, rate determination;
Know your customer	Banks do not have connection to customers over generations	Aarthi and farmer might know each other for generations;
Default process	Banks will take collateral, make it more difficult to continue/restart business	If there is a default, Aarthi would not let him die. He will extend more support to help him repay the loan

(Source) Akram Khalid, Vice Chairman, Federation of Pakistan Chambers of Commerce Industry (2015)
"Promoting Agriculture Financing through Islamic Banks"

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### 3. Islamic Agriculture Finance > Case study of a country developing Islamic Agriculture Finance: Pakistan

### New regulations against Aarthis business

### ■Punjab Government's Initiative

- Bill passed in the Punjab Assembly "Prohibition of Private Sector Money Lending Act 2007"
- Now private money lending has become a non-bailable offence with 10 years of imprisonment and Rs. 500,000 fine
- Some bankers are of the view that it will affect the Aarthis business
- But it is yet to be seen. If it does, it will adversely affect the farming community as well

(Source) Akram Khalid, Vice Chairman, Federation of Pakistan Chambers of Commerce Industry (2015) "Promoting Agriculture Financing through Islamic Banks"

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# 3. Islamic Agriculture Finance > Case study of a country developing Islamic Agriculture Finance: Pakistan Overview of Islamic Agriculture Banking in Pakistan

■ Basic Concept:

- Welfare & Share in Profit & Loss
- Risk averse in financing transactions
- LIBOR & KIBOR are used as benchmark for product pricing

### ■Islamic Financing Product

- Murabaha is a major lending product
- Ijarah is a hybrid model of the operating & finance lease
- Mudarabah & Musharika are considered by majority of ulema to be real financing modes
- Bai Salam (Bai Salam / Bai Salaf means "to give in custody").
  - It is said to be an approved form of Islamic financing for agriculture community
  - This product is said to be in line with the specific guidelines of the Holy Prophet
  - It is a sale transaction, where seller undertakes to supply some specific goods to the buyer at a future date
  - Advance price fully paid on spot
  - It is not Loan but a forward sale contract
  - Seller and buyer can agree on any price at their free will
  - Price in Salam can be lower than the spot sale price

#### 3. Islamic Agriculture Finance > Case study of a country developing Islamic Agriculture Finance: Pakistan

### Example of Cost Benefit Analysis of Bai Salam to Farmer vs Middleman finance

### ■ Example of Wheat Crop Production on 12.5 Acres

- Input Cost @ Rs. 15000 / Acre
- Gross Expenditure on cultivation of 12.5 Acres = Rs. 187,500
- Gross Production (12.5 acres@1400 Kgs per acre) = 17500 Kgs.
- Wheat Support Price of Govt. for 2013 is Rs.1250 per 40 kgs
- Therefore Gross value of production of 17500 Kgs. = Rs.546,875
- The above calculations show that a farmer investing inputs of Rs.187,500/= in his land will be able to get agri produce worth Rs.546,875/= after a period of 7 months.

### Under the Bai Salam contract:

- Suppose the Salam Bank contracts to purchase the produce for Rs.450,000/=,
- then it will be a WIN WIN situation for both the Bank as well as the Farmer -
- the Bank getting a phenomenal profit of around 36% (annual) on its investment and
- the farmer getting a net income of Rs.450,000/= as compared to Rs.337,500/= in case of Loan from Aarthi (Benefit of Rs.112,500/=) as detailed below:

### Under the Aarthi system

- the farmer will get a loan of Rs.187,500 for farm input and has to pay back Rs.375,000/ (100% interest rate)= PLUS 4% commission of Rs.21,875 on farm produce (4% of Rs.546,875).
- Therefore the farmer will be left with meager income of Rs. 337,500/= (Rs.546875+187500-375000-21875).

(Source) Akram Khalid, Vice Chairman, Federation of Pakistan Chambers of Commerce Industry (2015) "Promoting Agriculture Financing through Islamic Banks"

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#### 4. What infrastructure is missing

### Why Islamic Banking hasn't been successfully provided in the Philippines?

#### Current Status of Islamic Banking

- Al-Amanah Islamic Investment Bank of the Philippines, is the sole Islamic bank, state owned.
- Presently Amanah Bank predominantly provides conventional financial services. In 2014 Islamic deposits accounted for 25% of total deposits or about US\$1.5 million. The Bank provides no Islamic financing services.
- The Bank has not been financially viable:
  - Philippine Amanah Bank (PAB)
    - In 1972 Presidential Decree (PD) 264 established PAB "to promote and accelerate the socio-economic growth and development of Mindanao, particularly, the economically depressed provinces of Cotabato, Lanao del Sur, Lanao del Norte, Zamboanga del Sur, Zamboanga del Norte, and Sulu". PD 264 did not make explicit references to serving the Muslim population or applying Islamic finance practices in its operations. In 1974 PD542 revised the earlier statute stating that "it is necessary that the religious beliefs and practices of the Muslim citizens of the Philippines, be followed and respected, unless otherwise it is contrary to law, good morals and public policy" and formulating that "PAB shall be based on the Islamic Concept of Banking, following the no-interest and partnership principles".
    - Largely a political creation and operating with poor governance and management characteristic of the period, PAB failed.
  - Al-Amanah Islamic Investment Bank of the Philippines (AAIIBP)
    - AAIIBP was created in 1989 by the Republic Act No. 6848, repealing PD264 and PD542. AAIIBP was established as the sole Islamic bank in the country, with a primary purpose to promote and accelerate the socio-economic development of the AARM by performing banking, financing and investment operations based on the Islamic concept of banking. With a license of a universal bank, Amanah Bank was capitalized with PhP 50 million which were held mostly by the National Government, Social Security System, Government Service Insurance System, and the Development Bank of the Philippines (DBP, state owned).
    - In 2008, AAIIBP was acquired by DBP and recapitalized by an additional capital infusion of PhP 1.0 billion. A 5-year rehabilitation plan was put in place, but the legal framework for Islamic bank operations was not revised. Under the plan, it was envisaged that the bank will continue performing Islamic and conventional banking dealings before converting to a full Islamic Bank by end of 2014. From incurring staggering losses in the previous decade, losses were expected to decrease during the rehabilitation with the reintroduction of its financing services under the stewardship of DBP.

#### 4. What infrastructure is missing

### Fundamental regulatory and institutional weaknesses for Islamic Banking

- Legal and regulatory: Limited Scope of the Current Islamic Banking law
  - Applicable bank: only 1 specific bank; Al-Amanah Islamic Investment Bank of the Philippines (AAIIBP)
    - Islamic finance, or to be precise Islamic banking, in the Philippines is defined by the law adopted in 1990 establishing
  - Key market issues, such as Tax neutrality for Islamic and conventional products, are not addressed
  - Deposit guarantee/insurance by the Philippine Deposit Insurance Corporation is unavailable

#### Market instruments:

- The absence of Islamic trading accounts either for liquidity management or investment instruments affects the ability of Amanah Bank to attract Islamic funds.
- The BSP does not have a lending or repurchase facility for Islamic investments in the Philippines, regardless of tenor.
- There is also no clear framework on the treatment of Sukūk.

#### Institutional:

- Undercapitalization: Amanah Bank is grossly undercapitalized to be a universal bank.
- Technical capacity: the infusion made by DBP remained inadequate for rehabilitation efforts such as
  - hiring technical personnel, as well as
  - setting up of basic banking services such as automated teller machines, and strategic partnerships for foreign exchange remittance services.
  - In the effort to control risk, lending is constrained and the bank is slowly draining its capital on operating expenses.
- Shari'ah oversight/Expertise: the management and the workforce of Amanah Bank lacks technical Islamic finance expertise.

#### Market:

- Amanah bank is tasked to operate in the poorest and least banked region of the Philippines where persistent conflict severely constrains economic activity.
- Due to history of implementation of Islamic finance in the Philippines there is minimal public awareness and financial literacy for Copylslamic finance any enamons, the Muslim population). World Bank Group, 2016, "Developing Islamic Finance in the Philippines"

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#### 4. What infrastructure is missing > Legal and regulatory framework and supervision

### Progress in Legal and regulatory framework and supervision for Islamic Banking

- Amendment of the current Islamic Banking law (known as the Charter of Al-Amanah Islamic Investment Bank of the Philippines)
  - A draft bill amending RA 6848 and providing for the regulation and organization of an expanded Islamic banking system in the Philippines with a short title of "The Philippines Islamic Finance Act" was submitted to Congress in August 2015 (HB5989) and Senate in January 2016 (SB3150).
  - The Bill seeks to strengthen Al-Amanah Bank to service a broader market, while enabling both the establishment of other Islamic banks and engagement in Islamic banking arrangements by conventional banks under the supervision and regulation of BSP.
  - The proposed bill also mandates government to provide programs for increased consumer awareness and capacity building.
  - The bill provides BSP with the authority to authorize the establishment of Islamic banks or authorize banks providing conventional services to offer Islamic financial products and services through an Islamic banking unit or "window" within a bank. The BSP may also authorize Islamic banking operations by foreign banks in line with existing legislation on foreign banks operation in the Philippines. The bill envisages the establishment of Islamic banks with a range of functions and capitalization requirements in line with those of universal banks. BSP is tasked to issue implementing rules and regulations and provide necessary regulatory guidance for the establishment and operation of Islamic banks and windows
  - The bill includes an important provision on tax neutrality requiring the Government to ensure neutral tax treatment between Islamic banking transactions and equivalent conventional banking transactions. The bill empowers BIR to issue policies and guidelines to ensure tax neutrality.
  - The bill provides a basis for deposit insurance for Islamic banks through the establishment of an insurance mechanism on takaful principles.

#### BSP's guidance and capacity building

- BSP is working on identifying specific steps to enable effective implementation of the provisions of the proposed bill if passed into a law. BSP has already initiated work on drafting supervisory guidance within the existing legal framework for minimum prudential standards and expectations relative to Shari'ah compliant debt-type Sukūk investments of universal and commercial banks.
- The authorities intend to build on the international experience available to inform the development of regulatory framework and supervisory standards for Islamic finance in the Philippines. The BSP also plans to strengthen the capacity of the supervisory staff in terms of their understanding of Islamic finance concepts and supervisory practices to design and implement appropriate supervisory process for Islamic banking in the Philippines. The Philippines Government is asking ADB for technical assistance on this matter, to be implemented by December 2019.
- Such capacity building efforts would potentially involve engaging qualified international experts to work with BSP supervisory staff to develop implementing regulations, principles and supervision manual, attending training courses on Islamic finance supervision, and working with qualified experts to fine-tune supervisory practices once Islamic banks or windows are authorized to operate in the Philippines.
- National Commission on Muslim Filipinos (NCMF) and BSP have been and is organizing a number of learning events, including with experts from the World Bank, Islamic Development Bank. NCMF already plays an important role as a promoter and facilitator of Islamic finance through the organization of industry conferences and promotional events.

4. What infrastructure is missing > Legal and regulatory framework and supervision

# The Organic Law for the Bangsamoro Autonomous Region in Muslim Mindanao (OLBARMM or BOL) was ratified by Congress and signed by President (July, 2018)

- < ARTICLE XIII REGIONAL ECONOMY AND PATRIMONY>
- SEC. 31. Banks and Financial Institutions. The Bangsamoro Government shall encourage the establishment of:
  - a. Banks and financial institutions and their branches including an Islamic window in domestic and foreign conventional banks; and
  - b. Off-shore banking units of foreign banks within the Bangsamoro Autonomous Region, and in accordance with the principles of Islamic banking system.
- SEC. 32. Islamic Banking and Finance. The Bangsamoro Government, the Bangko Sentral ng Pilipinas, the Department of Finance, and the National Commission on Muslim Filipinos shall jointly promote the development of an Islamic banking and finance system, to include, among others, the establishment of a Shari'ah Supervisory Board and the promotion and development of Shari'ah compliant financial institutions. The Bangko Sentral ng Pilipinas shall determine the type of organizational structure to be created and its composition.
  - To facilitate the establishment of an Islamic banking and finance system, the Bangsamoro Government and the National Government shall review existing market environment policies, adopt measures to enhance the competitiveness of Islamic finance products, and ensure that Islamic financial players are not inhibited from introducing Islamic finance products. It shall further promote investor awareness and acceptance in order to build a broader customer and asset base.
  - The operation of Islamic banks, Shari'ah-compliant financial institutions and other institutions performing similar functions shall be subject to the power of supervision of the Bangko Sentral ng Pilipinas.
  - The Parliament shall enact laws that promote the growth of Islamic finance such as those that promote tax incentives and ensure tax neutrality of Islamic finance transactions in the Bangsamoro Autonomous Region.
- SEC. 33. Islamic Banking Unit in the Bangko Sentral ng Pilipinas. An Islamic banking unit shall, as far as practicable, be established in the Bangko Sentral ng Pilipinas which shall be headed and staffed by qualified Islamic banking experts.
- SEC. 34. Functions of the Shari'ah Supervisory Board and Qualifications of Its Members. Without prejudice to the crafting of the Bangsamoro Islamic banking and Finance framework by the Parliament, the following are the functions and qualifications of the Shari'ah Supervisory Board:
  - a. Functions. The Shari'ah Supervisory Board shall be responsible for monitoring the compliance of Shari'ah rules in banking and finance transactions and issuance of Shari'ah products. Furthermore, as a representative of the various Ulama (scholar), it shall have the authority to issue fatwas (authoritative legal opinion) regarding the products and practices employed by banks and other institutions.
  - b. Qualifications. Subject to other qualifications that the Parliament may enact, the members of the Board shall have the necessary knowledge of both Islamic jurisprudence and conventional banking and finance.

(Source) The Notre Dame Broadcasting Corporation (NDBC) (Sep 9, 2018), "Read: The Bangsamoro Organic Law (RA 11054) Part 4" https://www.ndbcnews.com.ph/news/read-the-bangsamoro-organic-law-ra-11054-part-4

4. What infrastructure is missing > Legal and regulatory framework and supervision

### Lower House Approved a Substitute Bill on Islamic Finance (13 August 2018)

- The Lower House committee on banks and financial intermediaries passed and approved an unnumbered bill on 13 August 2018, seeking the regulation and organisation of Islamic banks to promote greater financial inclusion, especially for the underserved Muslims.
- This complements the Organic Law for the Bangsamoro Autonomous Region in Muslim Mindanao (OLBARMM or BOL) which was ratified by both Senate and House and signed into law by the president in July, 2018.
- This unnumbered bill substituted;
  - House Bill No. 3975, intended to be the Philippine Islamic Financing Act of 2017 if enacted into law, and
  - House Bill No. 492, intended to amend the charter of Al Amanah Islamic Investment Bank of the Philippines as well as provide for the organisation and regulation of an expanded Islamic banking system in the Philippines, if enacted into law.
- Nonetheless, the approval of the bill by the Lower House does not automatically mean the conversion of the bill into law. The concurrence of the Senate is still necessary and the enactment of the bill into law also requires the signature of the President.

(Source) Zico Law (29 Aug 18), "Philippine Lower House Approves Substitute Bill on Islamic Finance" https://www.lexology.com/library/detail.aspx?g=58a4e5c1-bdd0-41f1-8222-a5fbbc208c19 44

4. What infrastructure is missing > Legal and regulatory framework and supervision

# The primary points of the bill seeking the regulation and organisation of Islamic banks (1)

- Definition of Islamic banking business
  - Islamic banking business is defined as a banking business whereby credit do not charge interest and whose business objectives, operations and transactions are in line with Islamic principles.
- Islamic banking unit to be separate from conventional banking
  - The Monetary Board ("MB") of the Bangko Sentral ng Pilipinas ("BSP") may authorize the creation of Islamic banks. It may also authorize conventional banks to engage in Islamic banking arrangements, including structures and transactions, through a designated Islamic banking unit within the bank, if the Islamic banking unit is separate from its conventional banking transactions.
- Foreign Islamic banks allowed
  - MB may authorise a foreign Islamic bank to establish banking operations in the Philippines under any of the modes of entry provided under Republic Act (No. 7721 or "An Act Liberalizing the Entry and Scope of Operations of Foreign Banks in the Philippines and for Other Purposes," as amended by Republic Act No. 10641).
- BSP as supervisory and main regulatory authority
  - BSP is mandated to issue necessary rules and regulations on Islamic banking. In relation to this, the BSP is the regulatory and supervisory government agency that shall oversee the operations of Islamic banks, which shall be licensed and regulated in the same manner as universal banks.
  - Islamic banks created under the Act shall comply and conform with pertinent laws, rules, and regulations
    applicable to private corporation engaged in banking, such as the Corporation Code, and the requirements of
    the relevant regulatory agencies.

(Source) Zico Law (29 Aug 18), "Philippine Lower House Approves Substitute Bill on Islamic Finance"

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4. What infrastructure is missing > Legal and regulatory framework and supervision

# The primary points of the bill seeking the regulation and organisation of Islamic banks (2)

- ■Services allowed (Islamic banks are allowed to perform the following services):
  - 1. accept saving accounts for safekeeping or custody with no participation in profit and loss unless otherwise authorised by the account holders to be invested;
  - act as correspondent of banks and institutions to handle remittances or any fund transfers;
  - 3. accept drafts and issue letters of credit or letters of guarantee, negotiate notes and bills of exchange and other evidence of indebtedness;
  - provide financing with or without collateral by way of leasing, sale and leaseback, cost-plus profit sales arrangements, and other Shari'ah-compliant financing contracts and structures; and
  - 5. other banking services as may be authorized by the MB.

(Source) Zico Law (29 Aug 18), "Philippine Lower House Approves Substitute Bill on Islamic Finance" https://www.lexology.com/library/detail.aspx?g=58a4e5c1-bdd0-41f1-8222-a5fbbc208c19

4. What infrastructure is missing > Islamic deposit insurance system

### Islamic deposit insurance system is not developed.

Islamic deposit insurance systems in various countries

Information	Sudan	Turkey	Malaysia	Indonesia
Name of deposit insurer	Bank Deposit Security Fund, Sudan (BDSF)	Savings Deposit Insurance Fund (SDIF)	Malaysia Deposit Insurance Corporation (MDIC)	Indonesia Deposit Insurance Corporation (IDIC)
Year of insurer establishment	1996	2001	2005	2005
Governance structure	The IDIS is established under specific legislation and administered by a government-owned deposit insurer	The IDIS is not established under specific legislation, and is administered by a government-owned entity	The IDIS is established under specific legislation and administered by a government-owned deposit insurer	The IDIS is not established under specific legislation, and is administered by a government-owned entity
Legal basis	Bank Deposit Security Fund Act 1996	Banking Act for deposit insurance	Deposit Insurance Corporation Act 2005	Deposit Insurance Law of 2004. IDIS governed by same legislation as conventional system, and administered by a government established independent institution
Shariah-based contract for IDIS	Yes	No	Yes	No

(Source) Deposit Insurance from the Shariah Perspective, Discussion Paper, Prepared by the Islamic Deposit Insurance Group of the International Association of Deposit Insurers, February 2010

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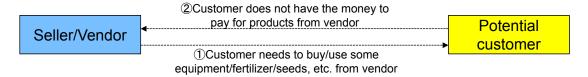
### 5. How can LBP provide Islamic Finance > Why LBP cannot provide Islamic Banking service to Muslim customers LBP lacks the infrastructure and technical capacity to provide Islamic Banking

- Lack of a clear and regulatory framework for Islamic banking and finance
  - Existing laws do not provide for the policy infrastructure needed to enable Islamic banking
  - Current tax laws also subject Islamic financing products to more taxes
- Lack or scarcity of experts on Islamic banking and finance
  - The workforce of LBP lacks technical Islamic finance expertise to develop and deliver products relevant for the Philippines market, that are shariah compliant.
  - The management of LBP lacks Shari'ah oversight/supervision capacity, as there is no Shari'ah advisory board in its charter, nor Shari'ah advisor(s) capable of Shari'ah compliance approval/clearance or Shari'ah audit.
- Lack or very low awareness and acceptance of Islamic banking by its target customers (in the past)
  - The main customers of LBP has not requested Islamic finance products and there was no need to develop Islamic banking capacity within LBP.
  - However, this situation may change as;
    - LBP is now targeting Islamic customers in Mindanao.
    - Potential target customers, in and out of Mindanao may become aware of the availability of Islamic financial products from LBP, as the regulatory framework for Islamic Banking is improving.
    - Bangsamoro Organic Law (with sections on Islamic Banking) was signed by President (July 2018) and Lower House Approved a Bill on Islamic Finance (August 2018)



### 5. How can LBP provide Islamic Finance > How can LBP provide (Quasi) Islamic Finance under the current regulation? Can LBP provide (Quasi) Islamic Finance for investment in Agribusiness?

Q1. How can LBP provide Islamic financial services to potential customers, in the following case (Purchase of input, equipment, etc.)?

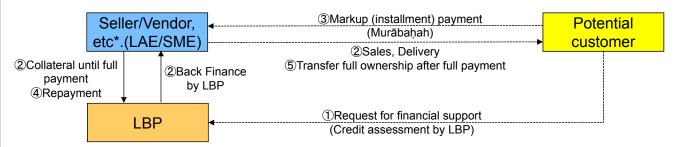


- 1. Until necessary regulation is established, LBP may provide finance to financing institutions (microfinance companies / credit cooperatives), which provide a guasi Islamic finance service (without direct interest payment, but lacking Shari'ah advisory board and government approval > cf.next page)
- 2. LBP may provide some Islamic Banking service through its leasing subsidiary, LBP Leasing and Finance Corporation (LFC), which can provide leasing, working capital and receivable discounting/purchase services, to in the mode of sales finance, (or through LBP branch) as follows:

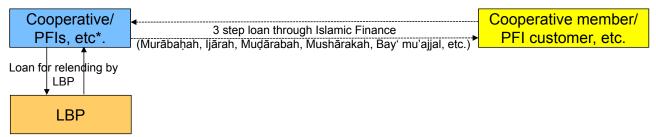
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- 5. How can LBP provide Islamic Finance > How can LBP provide (Quasi) Islamic Finance under the current regulation? (1) Provide conventional finance to a third party who can provide "Islamic" finance
- 1. Provide Back Finance to vendor who trade with markup or cost-plus sale (quasi Murābaḥah)



2. Provide back finance to eligible Cooperative/Farmers' Organization/PFI, etc. who can provide quasi Islamic Finance (in the mode of Sales finance, Loan or leasing)



Note: The above approach shall not face double sales tax, in contrast to Murabahaha/Ijara by LFC

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- 5. How can LBP provide Islamic Finance > How can LBP provide (Quasi) Islamic Finance under the current regulation?
- (2) Provide Sales Finance or Leasing service as a quasi Islamic Finance service
- 3. Provide Installment credit/sales on behalf of customer through LFC: Trade with markup or cost-plus sale (quasi Murābaḥah)



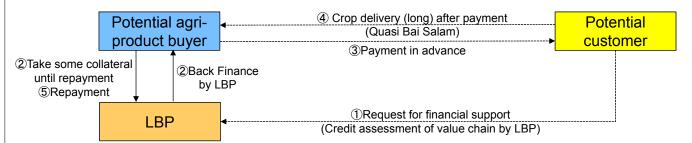
4. Provide operational or financial leasing contracts (quasi Ijārah) through LFC



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- 5. How can LBP provide Islamic Finance > How can LBP provide (Quasi) Islamic Finance under the current regulation? Can LBP provide (Quasi) Islamic Finance for working capital in Agribusiness?
- Q2. How can LBP provide Islamic financial services to potential customers, in the following case (working capital for seeds, fertilizer, (living expense?), etc.)?
- 1. Provide Back Finance to potential buyer of agri-products, who can make a purchase contract and pay in advance to the farmer (quasi *Bai Salam*)



2. If LFC can also conduct some trading business, then purchase the crop with payment in advance (if product can be sold easily in the market, such as rice or with a sales contract; quasi *Bai Salam*)

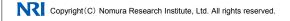


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# 5. How can LBP provide Islamic Finance > How can LBP provide Islamic Finance at a larger scale in the future? Start R&D on Islamic services and Sukuk for domestic/foreign customers

- ■LBP may need to provide "Islamic" Finance tools for their domestic and international customers in the future.
  - Growth rate of Islamic finance is exceeding conventional finance around the world, and non-Muslim persons/countries are also participating.
  - LBP may need to develop and deliver Islamic Finance solutions, other than the above suggested, to their customers in, and also out of, Mindanao, depending on their needs.
  - Depending on the level of shariah compliance, LBP may start offering Islamic "Inspired" finance products, until Islamic Banking is legally allowed in the Philippines.
- ■LBP may be interested in issuing Sukuk (Islamic bonds) to finance its growth in Islamic Banking business.
  - In order to have a full cycle Islamic banking operation, LBP may be interested in issuing Sukuk (Islamic bonds/certificates) to finance the growth in Islamic Finance, not only in Mindanao, but also for their Islamic customers, through out the Philippines.
  - This will further endorse LBP's commitment to serve the Muslim customers throughout the Philippines.



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6. How do you evaluate the potential for providing Islamic Finance in Mindanao?

### We welcome your input!

- How do you evaluate the demand for Islamic Finance in Mindanao?
  - Is pure Islamic finance necessary, or is quasi "Shariah inspired" Islamic finance sufficient?

Potential customer segment.

. .

Purpose of using Islamic finance

. .

Potential Islamic Finance product.

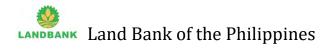
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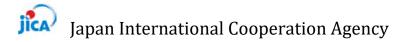
Other.

.

- Is there any Operational obstacles for providing (Quasi) Islamic Finance in Mindanao?
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15. Baseline Information on the Existing Natural and Social Environment in ARMM:33





# Baseline Information of The Autonomous Region for Muslim Mindanao

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

Technical Assistance Team

Nomura Research Institute, Ltd.

NTC International Co., Ltd.

Oriental Consulting Global

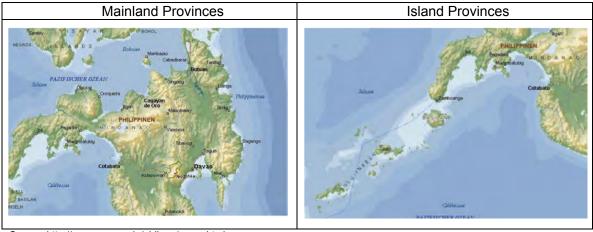
#### 1. Introduction

The baseline information regarding the overall natural and socio-economic condition of ARMM was being compile by the TA HARVEST Team aimed to provide and strengthen understanding about the area.

#### 2. Natural Environment

#### 2.1. Topography

The topography of the mainland provinces varies (Figure 2.1.1). Lanao del Sur has 40% plain and 60% sloping areas with the Bukidnon-Lanao highland area, highland basins, undulating hills and volcanoes. Lanao del Sur has many water bodies; the biggest rivers are: Masiu River, Taraka River, Rugnan River, Ramain River and Lalabuan River. Maguindanao has 45% plain and 55% sloping areas with mountains in the southwest. The southwest mountain cluster consists of the Binica and Blit Mountains. The biggest and longest river is the Rio Grande de Mindanao and flows through Liguasan Marsh before it flows into the Moro Gulf. The river meanders and during the rainy season develops an extensive delta. Several smaller streams and creeks are perennial, while the rest are seasonal<sup>1</sup>.



Source: http://www.rms-gs.de/phileng/mape.html

Figure 2.1.1 Topography in the Proposed Bangsamoro Area

The island provinces have a mixture of sloping and plain areas. Basilan is an island with several islets bounded by the Basilan Strait in the north (about 27 km to the Mindanao mainland at its narrowest point), Moro Gulf in the east and Sulu Sea in the west. The topography varies from 42% plain (nearly level and undulating to rolling) to 58% rolling. The Sulu archipelago has more plain areas than Basilan: 65% plain (nearly level to undulating to rolling) and 35% rolling. A number of mountain ranges traverse the mid-section of Jolo Island from east to west. Other islands are also hilly (Siasi Island), while others are coral formation with low, swampy, flat and forested areas. Many islands are volcanic in origin<sup>2</sup>.

-

<sup>&</sup>lt;sup>1</sup> Environmental and Social Safeguards Scoping Report for the Bangsomoro Fund Facility, draft 2014. Prepared by joint World Bank-JICA Environmental and Social Safeguards Scoping Team.

<sup>&</sup>lt;sup>2</sup>Regional Physical Framework Plan: 2000-2030. Regional Economic and Development Planning Board. ARMM. 2005.

#### 2. 2 Geology

Mindanao, the largest island in the southern Philippine archipelago, is a composite of at least two terranes; one with Eurasian affinity (western Mindanao) and the other belonging to the Philippine Mobile Belt (eastern Mindanao), of Philippine Sea plate affinity. The island is surrounded by three subduction zones that have been installed only in the past 4 million years. Prior to this, the two terranes were separated by an ocean that disappeared continuously by subduction of its two edges beneath western and eastern Mindanao. The suturing of the two terrains occurred at ca. 5 Million years. Following this major structural reorganization, abrupt changes are recorded in the old magmatism of the island.<sup>3</sup> The geological map of the Philippines indicates Quaternary sediments and Tertiary sediments and volcanic formations in the region.

Ancient magmatic arcs in the Mobile Belt are characterized by thick volcanic flows with pyroclastic and sedimentary rocks and intrusions. The sedimentary Cotabato basin is located between arcs<sup>4</sup>. Several active and inactive volcanoes are found within or close to the Bangsamoro area. Data from the Department of Science and Technology (DOST) identified some of the active volcanoes as Mount Makaturing and Mount Ragang in Lanao del Sur and Mount Bud Dajo in Jolo (Figure 2.1.1). There are also several volcanic formations classified as potentially active (morphologically young volcanoes but with no historical record of eruption) and inactive volcanoes within the proposed Bangsamoro region.

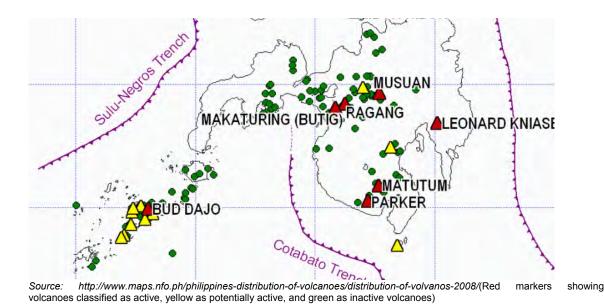


Figure 2.1.2. Volcanoes in the Philippines

Many active faults are present in the Philippines, including the Bangsamoro area (Figure 2.2.3). The Mindanao fault line traverses the region with northwest-southeast orientation. Two major fault zones are also present in the region – the Sulu Trench and the Cotabato Trench considered having moderate to high seismicity based on the historical catalog of

<sup>&</sup>lt;sup>3</sup>Sajona et al. 1994. Tectonophysics 237:47-72. http://www.sciencedirect.com/science/article/pii/0040195194901589 <sup>4</sup>http://kalibo.tukcedo.nl/geol\_minerals.pdf

earthquakes by the Philippine Institute of Volcanology and Seismology ((PHILVOLCS). The recent earthquake in 2002 in Southern Mindanao is considered to have originated from the Cotabato Trench. There are also some areas in the Bangsamoro region that are susceptible to earthquake triggered landslide.

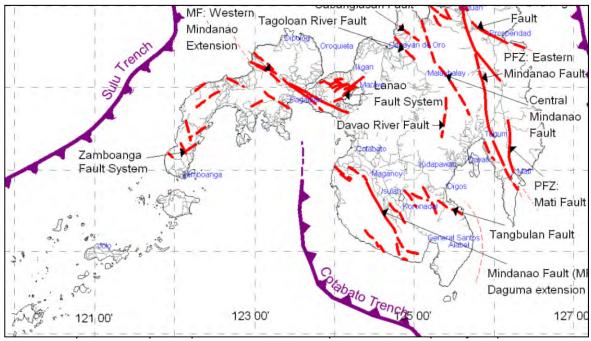


Figure 2.1.3. Active Faults and Trenches in the Philippines

#### 2.3 Soil Type

The soil types present in the Bangsamoro area are presented in Table 2.1.1

**Table 2.1.1 Soil Types in ARMM** 

Province	Soil	Location
Basilan	Alfisols, Inceptisols, Utisols	
Magindanao	Mountain soil, hydrosol, faraun soil, timaga clay loam, parang clay loam, longkon sandy, banga sandy loam, silty clay loam	Sandy and clay loam in southeastern and western municipalities. Silty clay, sandy and clay loam in northeastern and western municipalities
Lanao del Sur	Mountain soil, adtuyan clay loam, sinidayan silt loam, sandy, La Cartellana complex	Clay loam in Ramain, Bubong, Buadi Puso, Mulondo, Taraka, Tamparan, Poona Bayabao, Lumba Bayabo, Maguing. Adtuyan clay loam in Marawi City, municipalities of Saguiaran, Piagapo, Tugaya, Wao, Balindong, Bacolod Grande
Sulu	Alfisols, Inceptisols, Utisols	
Tawi-Tawi	Alfisols, Inceptisols, Utisols	Bongoa igneous rock of volcanic origin; smaller islands limestone

Source: Regional Physical Framework Plan: 2000-2030. Regional Economic and Development Planning Board. ARMM. 2005.

The definition of the Philippine soil orders is based on FAO and associated USDA (United States Department of Agriculture) classification. The soils are then grouped according to functional criteria:

· Soils good for agriculture:

- o Cambisols and Luvisols
- o Fluvisols, Gleysols and Vertisols
- Soils problematic for agriculture, which means that they require careful management and adaptation practices:
  - o Acrisols and Arenosols
  - Andosols and Nitosols

ARMM has many natural resources, including clay for making bricks, pottery and ceramics, limestone for brassware making and other mineral potential resources (Table 2.1.2)

Table 2.1.2. Reported Mineral Deposits in ARMM

Province	Location	Metallic	Non-Metallic	
Maguindanao	Buluan Copper, Manganese, Gold, Silver, Iron		-	
	Ampatuan	Iron, Copper Silver, Lead	Sand & Gravel	
	Dinaig	Gold, Silver	Guano, Clay	
	Parang	Gold, Copper, Silver, Nickel		
	Upi	Gold, Iron, Copper, Zinc		
	Sultan Kudarat	Sultan Kudarat		Gravel,
			Limestone	
	Datu Paglas		Sand & Gravel	
Sulu	Jolo		Sand & Gravel	
	Patikul		Sand & Gravel	
Tawi-Tawi	Maraning	Copper, Chromite		
	Languyan	Copper, Chromite		

Source: Regional Physical Framework Plan: 2000-2030. Regional Economic and Development Planning Board. ARMM. 2005.

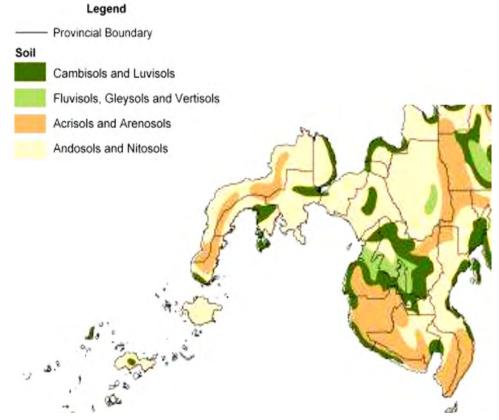
The generalized soil order map using the FAO classification is shown in Figure III-4. In ARMM, soils may be problematic for agriculture based on elevation/slope, low moisture or low growing degree days. The classification of suitability for agriculture is presented in Table 2.1.3 and Figure 2.1.4.

Earthquakes have the potential to cause soil liquefaction in areas which were known to have high potential to liquefaction - former river channels, abandoned meanders, wetlands, and ponds. These areas are characterized by the presence of loose saturated sandy deposits, which are susceptible to liquefaction. Liquefaction can cause extensive damage to residential houses and other infrastructures through lateral spreading, ground subsidence, and differential settlements. The areas susceptible to liquefaction are presented in Source: DOST/PHIVOLCS Liquefaction Susceptibility Map of the Philippines,

Data from the DOST's PHIVOLCS suggest that a few small localized areas in ARMM particularly in some portions of Maguindanao, North Cotabato, and Sultan Kudarat may be susceptible to liquefaction.

Table 2.1.3 Suitability of Soils for Agriculture in ARMM

Province	Suitable for Agriculture	Very Suitable for Agriculture	Careful Management	Very Careful Management
Basilan	0	0	1,040.0366	0
Lanao del Sur	519.7599	0	3,295.7625	38.5367
Maguindanao	3,048.959	0	1,038.1437	544.1955
Sulu	126 752	0	586 274	0
Tawi-Tawi	0	0	406.6048	24.3105



Source: http://hdn.org.ph/wp-content/uploads/DP\_14\_MO.pdf

Figure 2.1.4 Soil

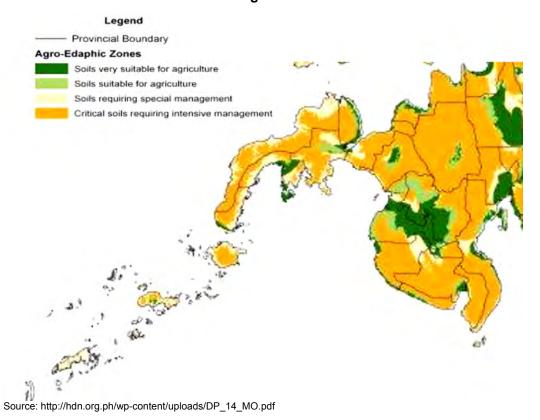
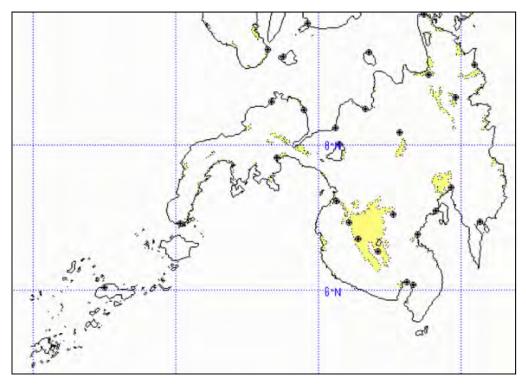


Figure 2.1.5. Suitability of Soils for Agriculture



Source:DOST/PHIVOLCS Liquefaction Susceptibility Map of the Philippines, http://www.maps.nfo.ph/wp-content/uploads/2011/02/Liquefaction-Susceptibility-Map-of-the-Philippines.gif

Figure 2.1.6. Liquefaction Susceptibility Map

#### 2.4 Climate

The ARMM area is generally characterized by moderate and even distribution of rainfall throughout the year, although there is a dry and wet season. Typhoons generally do not occur in the region. The Bangsamoro area falls within Climate Type II and IV of the Modified Coronas Climate Classification System (Table 2.1.4).

The characteristics of the two Climate Types are:

- Type III. Seasons are not very pronounced: relatively dry from November to April and wet during the rest of the year. Regions of this type are western parts of Cagayan, Isabela, and Nueva Viscaya; eastern parts of Mountain Province, southern Luzon, Masbate, Romblon, Panay, eastern Negros, central and southern Cebu; part of northern Mindanao; and most of eastern Palawan.
- > Type IV. Rainfall more or less evenly distributed throughout the year. Affects Batanes province, northeastern Luzon, southwestern part of Camarines Norte, western parts of Camarines Sur and Albay, Bondoc Peninsula, eastern Mindoro, Marinduque, western Leyte, northern Cebu, Bohol, and most of central, eastern, and southern Mindanao.

Table 2.1.4 Climate in the Bangsamoro Area

Province	Climate Type	Average Temp	Remarks	Annual Rain
Basilan	III			>70 mm avg monthly, Prevalent wind SE 3-4 knots
Lanao del Sur	IV	21	Dry season Jan-Mar; Max rain May-Oct	115 mm avg monthly
Maguindanao	IV	25.9-26.5	Hottest March-June; Coldest months Nov- Jan	>230 mm avg monthly
Sulu	III	18-30	Coldest month Feb	>70 mm avg monthly, Prevalent wind SE 3-4 knots
Tawi-Tawi	III	23-24	Max rainfall May-Aug	>70 mm avg monthly, Prevalent wind SE 3-4 knots

Source: Regional Physical Framework Plan: 2000-2030. Regional Economic and Development Planning Board. ARMM. 2005.

#### 2.5 Water

An important geographic feature of the Bangsamoro region is the river basins that encompass the area. River basins are composed of watersheds that collect and provide water to streams and rivers eventually draining to receiving bodies like lakes, marshes or the

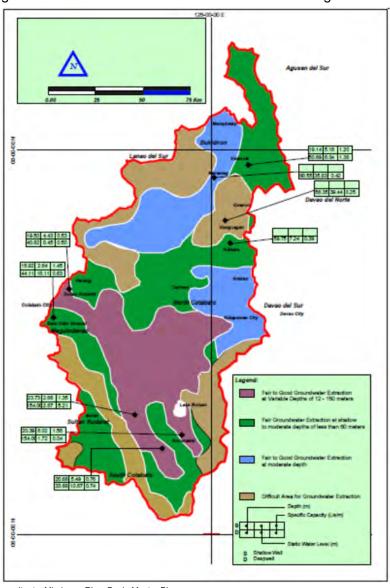
The mainland provinces of the Bangsamoro region are located mostly within the Mindanao River Basin with some portions in the Agus River Basin, two of the major rivers basins in the country that cover four regions in Central and Southern Mindanao including the Bangsamoro region. The river basins are the catchment areas of several river systems in region that include the Ambal-Simuay River System originating from Lanao del Sur and the Buluan-Malungon River, originating from the far southeastern portion of Mindanao. Figure 1.1.7 shows the water resources within the Mindanao River where most basin of the proposed Bangsamoro region is located.



Source: Woodfield Consultants, Mindanao River Basin Master Plan

Figure 2.1.7. Water Resources Map

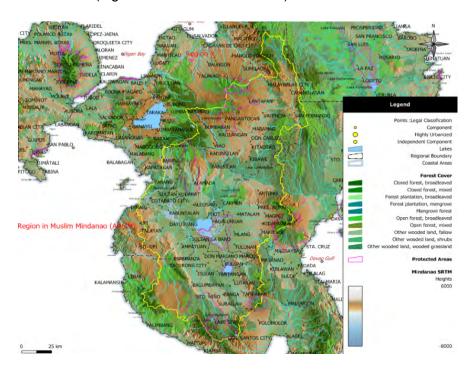
The River basin master Plan for the Mindanao River Basin indicated the characteristics of the available permeable layers or water-bearing formations in the region. These include the moderately thick cyclic layers of sand, silt and minor gravel deposits. The primary aquifer system of the tuffaceous rock units may indicate lesser degree of permeability due to clay and silt interbed in the entire sequence. The degree of permeability to transmit water into pumping may be limited due to the tight conglomeration of the plastics. There have been investigations on the alluvium in the southern section of the basin with reported thickness of more than 100 meters. In coastal areas, saline intrusion was observed and therefore needing careful abstraction of groundwater. The potential groundwater availability in the river basin was estimated at 4,956 MCM/year representing about two-third of the groundwater potential of Mindanao or around a third of the country. Groundwater in the region has varying degree of availability across the mainland areas of the proposed Bangsamoro region. Except for few areas, for the most part of the region, groundwater extraction is at varying depths. The region's groundwater resources in Mindanao are shown in Figure 2.1.8



Source: Woodfield Consultants, Mindanao River Basin Master Plan

Figure 2.1.9. Groundwater Availability Map of Mindanao River Basin including the proposed Bangsamoro Region

The mainland provinces of the Bangsamoro region are located mostly within the Mindanao River Basin and the Agus River Basin, two of the major rivers basins in Central and Southern Mindanao. The river basins are composed of watersheds that serves as the catchment areas of several river systems in region that include the Ambal-Simuay River System originating from Lanao del Sur and the Buluan-Malungon River, originating from the far southeastern portion of Mindanao (Figure 2.1.10 and Table 2.1.5).



Source: http://mpmc.minda.gov.ph:32906/SitePages/KP\_Maps\_Watershed.aspx

Figure 2.1.10. Watersheds in ARMM Mainland Provinces

**Table 2.1.5 Watershed Areas in ARMM** 

Watershed Area	Area (ha)	Location	Potential/Use
Lake Lanao Watershed	180,000	Marawi City & Lanao del Sur	Source of power generation of Maria Christina Hydroelectric Plants
Maganoy-Kabulnan Watershed	4,726	Maganoy, Mag.	Source of irrigation system for KIDP
South Upi Watershed Forest Reserve	1,894	Upu, Mag.	
Malitubog-Maridagao Watershed	57,000	Maguidanao&Region XII	Irrigation for Pagalungan & Pagagawan
Dimapatuy Watershed	3,765	D.O.S. Maguindanao	Source of water system for Maguindanao & Region XII

Source: Regional Physical Framework Plan: 2000-2030. Regional Economic and Development Planning Board. ARMM. 2005.

Watershed forest reserves are designated to rehabilitate watersheds in the country as they are the major sources of water for domestic use and for irrigation. As of 2009, there are 134 proclaimed watershed forest reserves covering an area of 1.56 million ha. The two largest are in ARMM:

Lake Lanao Watershed Reservation covering 180,460 ha in Marawi City, Lanao del Sur.

 Kabulnan River Watershed Forest Reserve covering 116,452 ha spanning the provinces of Sultan Kudarat, Maguindanao and South Cotabato<sup>5</sup>.

Some of the watersheds have been proclaimed as protected areas: the Lake Lanao Watershed Reservation with a total area of 180,460 hectares and the South Upi Watershed Forest Reserve with 1,894 hectares (Table 2.1.6). There are also other proclaimed watershed reservations that are not included in the protected areas system such as the Kabulnan Watershed and the Dimapatoy Watershed in Maguidanao.

Table 2.1.6. Watershed Forest Reserve in ARMM (2013)

Province	Name of Reservation	Area (ha)	Proclamation Date
Lanao del Sur	Lake Lanao Watershed Reservation	180,460	2/26/1992
Maguindanao	South Upi Watershed Forest Reserve	1,894	2/20/1987

Source: http://forestry.denr.gov.ph/PFS2013.pdf

Even though there are abundant water sources in Mindanao, the percentage of population with access to water served is low, particularly in the ARMM region (Table 2.1.7). The population, especially in ARMM, is heavily dependent on other water supply sources, such as: informal water providers; Level I or II water systems, hand pumps, community artesian wells; natural sources, springs, streams or harvested rain<sup>6</sup>.

Table 2.1.7. Percentage of Population with Access to Water Served

Region	Total (% served)
IX	35.05
X	36.14
XI	39.18
XII	20.3
ARMM	9.9
Nationwide Total	42.9

Source: http://hdn.org.ph/wp-content/uploads/DP\_10\_Naz.pdf

Water quality monitoring for nutrients, heavy metals and pesticide residues was done in the course of preparing the Mindanao River Basin Master Plan in 2013. The results of the tests for nutrients and heavy metals showed that the water samples met the DENR standards while pesticide residues were not detected. Survey of literature also did not yield any reported notable incident of pollution events in bodies of water in the Bangsamoro region – whether eutrophication or consequent fish kill events.<sup>7</sup>

Another characteristic feature of the Bangsamoro region and associated with the Mindanao River Basin is the extensive wetlands such as marshes, swamps, lakes, and riparian areas.

<sup>5</sup>http://hdn.org.ph/wp-content/uploads/DP\_10\_Naz.pdf

<sup>6</sup>http://hdn.org.ph/wp-content/uploads/DP 10 Naz.pdf

<sup>&</sup>lt;sup>7</sup>Environmental and Social Safeguards Scoping Report for the Bangsomoro Fund Facility, draft 2014. Prepared by joint World Bank-JICA Environmental and Social Safeguards Scoping Team.

#### 2.6. Biodiversity

The Philippines is one of 18 megadiverse countries in the world, containing 2/3 of the earth's biodiversity and about 70-80% of the world's plant and animal species<sup>8</sup>. According to ECOGOV 2, the Philippines have more than 52,170 species, with about half endemic to the Philippines<sup>9</sup>.

The Philippines is also located within the coral triangle, at the center of the highest marine diversity including coral reefs, seagrass beds, mangrove and beach forests, fisheries, invertebrates, seaweeds, marine mammals and many others. Marine and coastal species diversity include 468 scleractinian corals, 1,755 reef-associates fishes, 648 species of mollusks, 19 species of seagrass, and 820 species of algae<sup>11</sup>. The biodiversity status in the Bangsamoro region is considered similar to the rest of the country<sup>10</sup>.

A two stage process was implemented to determine Key Biodiversity Areas in the Philippines. From this process, 128 terrestrial and freshwater KBAs were identified in 2006 and 123 marine KBAs were identified in 2009. A total of 228 KBAs resulted from the integration of the terrestrial, freshwater and marine KBAs. These KBAs represent the known habitat of 855 globally important species of plants, corals, mollusks, elasmobranchs, fishes, amphibians, reptiles, birds and mammals in the country<sup>11</sup>.

These 128 terrestrial KBAs have been identified for 209 globally threatened and 419 endemic species of freshwater fishes, amphibians, reptiles, birds and mammals, and 62 congregator bird species.

Ten of the total 128 identified biodiversity rich areas known as Key Biodiversity Areas (KBAs) are found in the Bangsamoro region and mostly classified as protected areas or watershed reservations (Table 2.1.8)

In the Bangsamoro region, forty-four species are identified as threatened including the Philippine eagle, Sulu hornbill, and hawksbill turtle. Threats to these species include land cover change, exploitation, and habitat destruction.

Table 2.1.8 KBA and Candidate KBAs in ARMM

	Table 2.1.6 RBA and Gandidate RBAS III ARMIN								
No.	Name of KBA*	Province	Area (ha)	CR	En	Vu	RR	Conservation Measure*	Threats
108	Munai/Tambo	Lanao del Norte/Lanao del Sur	69,836	1	1	4	1	IBA (PH096), CPA 132	Land conversion to agriculture
109	Lake Lanao	Lanao del Sur	36,351	14	1	7	9	IBA (PH097), CPA 133	Illegal logging, exotic fish, overfishing, pollution (domestic, fertilizer)

<sup>&</sup>lt;sup>8</sup> Fourth National Report to the Convention on Biological Diversity. Republic of the Philippines. 2009. www.cbd.int/doc/world/ph/ph-nr-04-en.pdf

<sup>9</sup>http://pdf.usaid.gov/pdf\_docs/PNADL681.pdf

<sup>&</sup>lt;sup>10</sup>Environmental and Social Safeguards Scoping Report for the Bangsomoro Fund Facility, draft 2014

<sup>&</sup>lt;sup>11</sup>http://threatenedtaxa.org/ZooPrintJournal/2012/August/o299506viii122788-2796.pdf

No.	Name of KBA*	Province	Area (ha)	CR	En	Vu	RR	Conservation Measure*	Threats
110	Mt. Piagayungan	Lanao del Sur, North Cotabato. Maguindanao	154,340	1		2	7	IBA (PH098&99), CPA 135&136	Illegal logging, small scale mining, forest conversion to agriculture
113	Ligawasan Marsh	North Cotabato, Maguindanao, Sultan Kudarat	39,424	2	1	3		IBA (PH0102), CPA 144	Illegal logging, land conversion
114	Mt. Daguma	Maguindanao, Sultan Kudarat	32,360	1		1	5	IBA (PH0103), CPA 145	Logging, human encroachment, land conversion, wildlife hunting
124	Basilan Natural Biotic Area	Basilan	4,497	1	3	18	77	IBA (PH0113), CPA 159, Basilan Natural Biotic Area (Proc #321)	Illegal logging, land conversion, human encroachment, collecting non- timber forest products, wildlife hunting
125	Mt. Dajo National Park	Sulu	3,304	3		3	12	IBA (PH0114), CPA 163&164	
126	Tawi-Tawi Island	Tawi-Tawi	5,851	4	2	6	33	IBA (PH0115), CPA 165, AZE*	Illegal logging, land conversion, wildlife hunting
127	Simunul and Manuk Manukan Islands	Tawi-Tawi	19,402	2	1		6	IBA (PH0116), CPA 166	
128	Sibutu and Tumindao Islands	Tawi-Tawi	116,763	1	2	4	16	IBA (PH0117), CPA 167	
	Candidate KBAs								
C47	Pulangi River	Bukidnon, Maguindanao, North Cotabato	131,002					Overlaps with CPA 137	
C49	Olangui River	Lanao del Norte, Lanao del Sur	4,674					Overlaps with CPA 131	
C51	Cagayan de Sulu	Tawi-Tawi	7,550					Overlaps with CPA 170	

\*KBA Key Biodiversity Area; IBA Important Bird Area; CPA Conservation Priority Area; AZE Alliance for Zero Extinction; CR Critically Endangered; En Endangered; Vu Vulnerable; RR Restricted Range Source: http://www.conservation.org/global/philippines/publications/Documents/KBA\_Booklet.pdf

Two of these sites, Lake Lanao and Tawi-Tawi Island, are home to species only occurring at that site (Table 2.1.9).

Table 2.1.9: Threatened Species present globally at only one KBA

Table 2.1.9. Threatened Species present globally at only one KBA					
KBA	Species	IUCN Red	List		
		Category			
Lake Lanao	Cephalakompsus pachycheilus	CR			
	Mandibularca resinus	CR			
	Ospatulus truncatulus	CR			
	Puntius amarus	CR			
	Puntius baoulan	CR			
	Puntius clemensi	CR			
	Puntius disa	CR			
	Puntius flavifuscus				

	Puntius herrei	CR
	Puntius katolo	CR
	Puntius lanaoensis	CR
	Puntius manalak	CR
	Puntius tras	CR
	Spratellicypris palata	CR
	Ospatulus palaemophagus	CR
	Puntius lindog	EN
	Puntius sirang	VU
	Puntius tumba	VU
		VU
Tawi-Tawi Island	Anthracoceros montani	CR
	Gallicolumba menagei	CR
	Phapitreron cinereiceps	EN

Source: http://threatenedtaxa.org/ZooPrintJournal/2012/August/o299506viii122788-2796.pdf

However, a proper baseline of biodiversity resources in the Bangsamoro area is not available<sup>12</sup>.

#### 3. Socio-Economic Environment

#### 3.1 Demographic and Indigenous Peoples Information

In 2010 ARMM registered a total population of 3,248,787.<sup>13</sup> The people have been generally described to include the: (i) Moros or Muslims, (ii) Lumads or indigenous peoples, and (iii) settlers who are mostly Christians from Luzon and the Visayas. The Muslims comprise the overwhelming majority. Based on the combined databases of the Office of Southern Cultural Communities (OSCC) in ARMM and the National Commission on Indigenous People (NCIP) in Basilan, the total population of indigenous people in ARMM in 2010 was 606,452 or 18.6% of the total population in the same year. By common knowledge, many of those classified as settlers are children of families who migrated to Mindanao in the 1950s to 1970s under government resettlement programs; and consider themselves, being born in Mindanao, as Mindanaoan. ARMM was one of only two regions in the country - the other region was the National Capital Region - that posted a larger number of female than male population (99 males per 100 females) or a sex ratio of lower than 100 (i.e., 98.8) in 2010.14 Of its total population, 1,634,189 or 50.3% were females.

Overall, ARMM registered the highest dependency ratio of 80.5 across regions in 2010.<sup>15</sup> This means that for every 100 working-age population (with ages 15 to 64 years old), there were 80 dependents (with ages 0 to 14 years old and 65 and over). In the same year, ARMM had more male dependents than female dependents at 729,651 and 714,799 respectively.

<sup>&</sup>lt;sup>12</sup> The Environment Chapter of the Bangsamoro Development Plan. Final Report on Coastal, Marine, and Freshwater Biodiversity Sub-Theme.

<sup>&</sup>lt;sup>13</sup>National Statistics Office (2011). Demography: Philippine Yearbook 2011. Retrieved February 23, 2014 from http://www.census.gov.ph/sites/default/files/2011%20PY Demography.pdf#page=77&zoom=150,0,728

<sup>&</sup>lt;sup>14</sup>National Statistics Office (2011).

<sup>&</sup>lt;sup>15</sup>National Statistics Officer (2011).

In 2013 ARMM had a total of 2,300,000 total working-age populations, with the greater female working-age population at 50.6%. <sup>16</sup> Only 54.1% (the lowest in the country) or approximately 1,252,000 were in the labor force, of whom 72.2% were males and 27.8% were females. Of this number, 95.7% or approximately 1,198,000 were employed; 73.2% were males and 26.8% were females. Not in the labor force were approximately 1,064,000 or 45.9% (highest in the country) of the working age population, of whom 77.4% were females and 22.6% were males. Women thus continued to be less represented in employment even if they comprise a larger proportion, at 50.6%, of the total working age population. In 2012 according to the Philippine Statistics Authority, of the total 1,220,000 employed persons in ARMM, 70% or 861,000 persons were in agriculture, of which 75.38% or 649,000 were males.<sup>17</sup> Female agricultural workers numbered 212,000 or 24.62% of the total agricultural workforce.

The population of the Maguindanao which is proposed Corporative project area inside is as shown in below table.

Table 3.1.1 Population of Maguindanao

DEMOGRAPHY (Source: 2000 and 2010 Census of				
Population and Housing (CPH)	2015*	2010*	2007*	2000*
2007 and 2015 Census of Population (POPCEN))				
Total population	1,173,933	944,718	1,273,71	801,102
			5	
Urban		154,963	342,018	-
Rural		789,755	931,697	-
Male	594,892	482,250	650,853	401,049
Female	579,041	462,468	622,862	400,053
Annual growth rate (1990-2000, 2000-2007,	4.22	1.66	6.60	2.42
2000-2010, 2010-2015)				
Sex ratio (number of males for every 100 females)		104.3	104.5	100.2
Household population	1,172,381	943,486	1,273,25	800,369
			4	
Male	593,665	481,106	650,573	400,578
Female	578,716	462,380	622,681	399,791
Number of households	194,507	157,715	245,557	143,669
Average household size	6.0	5.98	5.19	5.57
Population density (square kilometer)	118	97	131	82
Median age		17.6	18.9	18.5
Dependency ratio		83.9	78.1	73.6
Young dependents		81.1	75.3	70.7
Old dependents		2.8	2.8	2.9
Proportion by age group				
0 - 4		13.7	14.3	12.3

<sup>&</sup>lt;sup>16</sup>National Statistics Office (2013). July 2013 Labor Force Survey. Retrieved February 23, 2014 from <a href="http://www.census.gov.ph/sites/default/files/attachments/hsd/article/TABLE%">http://www.census.gov.ph/sites/default/files/attachments/hsd/article/TABLE%</a>
202B%20Percent%20Distribution%20of%20Population%2015%20Years%20Old%20and%20Over%20by%20Employment%20Status%2C%20by%20Region%20and%20Sex%20July%202013 0.pdf.
<sup>17</sup>http://countrystat.bas.gov.ph/?cont=16&r=15.

DEMOGRAPHY (Source: 2000 and 2010 Census of Population and Housing (CPH) 2007 and 2015 Census of Population (POPCEN))	2015 <sup>*</sup>	2010 <sup>*</sup>	2007*	2000*
0 - 14		44.1	42.3	40.7
15 - 64		54.4	56.1	57.6
18 and over		48.8	51.5	51.7
60 and over		2.7	2.7	3.1
65 and over		1.5	1.6	1.7
Proportion of urban population		16.4	26.9	19.6
Proportion of persons with disabilities		0.9	n. a.	0.4

Location and population of Indigenous people near and in the proposed Corporative project area are as shown in below table.

Table 3.1.2 Location and population of Indigenous people Maguindanao

MUNICIPALITY/	ETHNO-TRIBE	TOTA	AL POPULAT	ION
BARANGAY	ETTINO-TRIBE	2010	2011	2012
A. North Upi	Teduray	26,736	27,067	27,399
B. South Upi	Teduray/Lambangian-Manobo	23,952	24,249	24,546
C. Datu Odin Sinsuat	Teduray	10,972	11,108	11,244
D. Datu Blah Sinsuat	Teduray	6,352	6,431	6,510
E. Ampatuan	Teduray/Manobo-Dulangan	8,381	8,485	8,590
F. Datu Saudi	Teduray			353
G. Datu Unsay	Teduray			348
H. Datu Hoffer	Teduray/Manobo-Dulangan	7,976	8,076	8,174
I. Guindulungan	Teduray	1,329	1,340	1,369
J. Datu Paglas	B'laan	200	255	252
K. Datu Abdullah Sangki	Teduray		752	800
GRAND TOTAL (11 muni	cipalities, 69 brgys):	85,898	87,763	88,884

# 3.2 Economic and Poverty Condition

In 2012 the region posted the highest poverty incidence among families across all regions in the country. As of the first semester of 2012, poverty incidence is at 46.9 and subsistence incidence is at 20.4, which means that about 46.9% of every 100 families are poor, with their income incapable of providing the basic food requirements. Among the five provinces, Lanao del Sur had the highest poverty incidence of 68.9, followed by Maguindanao at 57.8 (See Table below).

<sup>&</sup>lt;sup>18</sup>http://www.nscb.gov.ph/poverty/defaultnew.asp.

Table 3.1.3 First Semester per Capita Poverty Threshold and Poverty Incidence among Families: 2006, 2009, and 2012

Region	First Semester Per Capita Poverty Threshold (in Php)			First Semester Poverty Incidence among Families (%)			
	2006	2009	2012	2006	2009	2012	
Philippines	6,703	8,448	9,385	23.4	22.9	22.3	
ARMM	6,319	8,257	10,027	43.0	42.0	46.9	
Basilan	6,347	8,191	9,541	31.2	37.4	32.5	
Lanao del Sur	6,443	8,309	10,970	38.1	51.4	68.9	
Maguindanao	6,241	8,048	9,530	47.7	37.6	57.8	
Sulu	6,860	8,837	9,996	42.9	37.9	30.3	
Tawi-tawi	5,691	7,289	8,244	50.6	48.3	20.8	

Source: National Statistical Coordination Board

Economic performance has been consistently lower in ARMM compared to the rest of Mindanao and the Philippines over the past decade. In 2012, ARMM's Gross Regional Domestic Product (GRDP) grew by only 1.2% compared to 7.4% in the Mindanao "growth areas" of Regions X and XI. The average annual nominal GRDP of ARMM was only P38.0 billion over the period 1996-2008 (and P83.8 billion over 2009-2012), <sup>19</sup> equivalent to only 0.9-1.0% of the country's GDP for approximately 3.5% of the Philippine population.20 With an average annual GRDP growth rate of 3.1% (1996-2008) and 2.5% (2009-2012), and a population growth of around 2.3% (as of 2010), the region's growth performance hardly meets the expanding needs of its residents.

Table 3.1.3 Gross Domestic Product (in Thousand Pesos at Current Prices)

Year	Philippines	ARMM
2011	9,708,331,799	88,078,989
2012	10,567,335,915	93,338,128
2013	11,548,191,402	101,091,392

Source: http://www.nscb.gov.ph/grdp/2013/data/2011-2013 GRDP July2014.pdf.

ARMM's regional economy was the region with the second-lowest growth rate at 3.6 percent in 2013, accounting for the lowest share of GDP (0.7%). The major sectors contributing ARMM's domestic output in 2013 were: Agriculture, Hunting, Forestry and Fishing (AHFF) (61.3%), Services (33.6%) and Industry (5.1%).<sup>21</sup> The per capita GRDP in ARMM was the lowest in the country at P14,566. Inflation was the highest in ARMM, 4.6 % in 2013.

<sup>&</sup>lt;sup>19</sup> The NSCB adopted a new methodology that updates the computation of the gross regional income accounts beginning 2009. Hence, caution should be exercised in comparing the levels and growth rates of the GRDP time series pre-2009 and post-2009.

<sup>&</sup>lt;sup>20</sup> The population of ARMM was estimated at 3.3 million as of August 2010. The population of the Bangsamoro is estimated at approximately 3.7 million (or, about 4.0% of the Philippines population).

<sup>&</sup>lt;sup>21</sup>http://www.nscb.gov.ph/grdp/2013/data/2011-2013 GRDP July2014.pdf

#### 1) Agriculture

Of the total 3.3 million hectares of land in ARMM, 533,410 or 16% is agricultural in nature. Agricultural output in ARMM is primarily crop-based (71.5%), followed by fisheries (22.4), livestock (4.2%) and poultry (1.9%).<sup>22</sup>

The major agricultural products of the Maguindanao provinces are: rice, corn, banana, palm oil, coconut, cassava, fish and marine resources<sup>23</sup>

#### 2) Services

In ARMM, the services sector ranks second to Agriculture, Fishing, and Forestry (AFF) and increased its contribution to GRDP by 6.6% from 2012 to 2013.<sup>24</sup> However, most jobs available in this sector are low paying. Tourism, which has the potential to provide significantly higher revenues to the region and offer higher compensation for workers, has not taken off due to security concerns and poor infrastructure despite the natural beauties and amenities that the region can offer.<sup>25</sup>

The subsectors of the service sector varied in their growth pattern:

- Financial Intermediation grew from 10.7 % to 18.5 %
- Trade and Repair grew from 4.0 % to 5.7 %
- Public Administration and Defense (PAD) grew from 5.5 % in 2012 to 5.9 %
- Transport, Storage, and Communication (TSC) shrank from 8.4 percent to 7.9 percent
- Other Services shrank from 6.7 % in 2012 to 6.2 % in 2013
- Real Estate, Renting, and Business Activities (RERBA) maintained its growth of 3.6 percent.<sup>26</sup>

# 3) <u>Industry</u>

In ARMM, manufacturing only comprises 5% of the regional economy and is dominated by micro and small-scale industries. This is primarily due to the uncertain peace and order situation and the ability of small and micro-industries to adapt to changing circumstances making them a form of survival or coping mechanism. However, most of them are part of the "shadow economy" and do not contribute to the government's ability to raise revenues.<sup>27</sup> There are only a few medium and large-scale enterprises that can generate a significant number of jobs, primarily because large and successful enterprises in the ARMM region can be subjected to extortion threats and security challenges.

<sup>&</sup>lt;sup>22</sup>http://countrystat.bas.gov.ph/?cont=16&r=15

<sup>&</sup>lt;sup>23</sup> ARMM Regional Development Plan Midterm Update 2013-2016. http://rpdoarmmgov.ph/rpdo/

<sup>&</sup>lt;sup>24</sup>http://www.nscb.gov.ph/grdp/2013/data/2011-2013\_GRDP\_July2014.pdf

<sup>&</sup>lt;sup>25</sup>Environmental and Social Safeguards Scoping Report for the Bangsomoro Fund Facility, draft 2014. Prepared by joint World Bank-JICA Environmental and Social Safeguards Scoping Team.

<sup>&</sup>lt;sup>26</sup>http://www.nscb.gov.ph/grdp/2013/reglHighlights.asp

<sup>&</sup>lt;sup>27</sup> Refer to WFP and WB (2011); and Lara and Schoofs (2013)

The Industry sector posted a decline by 2.1 percent in 2013 from a growth of 0.4 percent in 2012, mainly due to Electricity, Gas and Water Supply (EGWS) decreasing from 0.7 percent in 2012 to negative 6.2 percent in 2013. Accelerated growth was observed in:

- Mining and Quarrying grew from 2.3 % to 2.6 %
- Manufacturing grew from 3.0 % to 3.9 %
- Construction rebounded from negative 3.1 % in 2012 to 1.2 % in 2013.<sup>78</sup>

#### 3.3 Land Tenure

### 1) Land Administration Systems

Government agencies have different estimations of the total land area of ARMM, and therefore of the whole proposed Bangsamoro territory. The National Mapping and Resource Information Authority (NAMRIA) of the Department of Environment and Natural Resources (DENR) estimated the total land area of ARMM at 1,293,552 hectares as of 2011, with 628,401 hectares or 49% of the total land area classified as alienable and disposable and 665,151 hectares or 51% as forest land. The Philippine Statistics Authority placed the region at 3,351,129 hectares with 533,410 hectares devoted to agriculture, including 2,407 hectares of forest land.<sup>28</sup> The Regional Planning and Development Office (RPDO) of ARMM, on the other hand, pegged it at 27,581.79 square kilometers or 2,758,179 hectares as of 2007.<sup>29</sup> The data of the Mindanao Development Authority is consistent with that of NAMRIA.<sup>30</sup> Data of DENR-ARMM are slightly different from NAMRIA's and set the proportion of titled lands at 89% of the total alienable and disposable lands.

Consistent in all land data on ARMM, however, is the mention of a large area for agriculture. According to the ARMM Regional Planning and Development Office, most of the land in ARMM is devoted to agriculture.<sup>31</sup>

These conflicting land records are primarily due to the incomplete cadastral survey of the whole region as well as to the multiplicity of agencies maintaining and providing land records in the country. ARMM was initially excluded from the cadastral survey target of the DENR because of the inability of DENR personnel to conduct a cadastral survey in the area due to peace and order problem.<sup>32</sup> The Cadastral Survey Program of DENR-ARMM is nonetheless now ongoing and set to be completed by 2015.

<sup>&</sup>lt;sup>28</sup> http://countrystat.bas.gov.ph/?cont=16&r=15.

<sup>&</sup>lt;sup>29</sup> http://www.rpdoarmmgov.ph/redpb/The%20Autonomous%20Region.htm.

<sup>&</sup>lt;sup>30</sup>http://www.minda.gov.ph/site/Mindanao/statistics/Demography---Land-Area-Classification-

http://www.rpdoarmmgov.ph/redpb/The%20Autonomous%20Region.htm.

Jand Management Bureau (2011). DENR gears up for full implementation of Land Management System, cadastral survey. Retrieved August 11 from <a href="http://new.lmb.gov.ph/index.php?option=com\_content&view=article&id=10:denr-gears-up-for-full-implementation-of-land-management-system-cadastral-survey&catid=8:news&Itemid=107.</a>

#### 2) Statutory versus Customary Land Administration Systems

The complexity and inefficiency of the statutory land administration system is not the sole reason of land conflicts in Mindanao. The more stark reason is the contrast of this statutory system, which promotes the formalization of private land ownership through the issuance of land titles, with the traditional or customary land ownership concepts and land use practices of the Moros and indigenous people in Mindanao.

The customary system or indigenous concept of ownership views land as belonging to all generations of a clan, and therefore cannot be sold, disposed or destroyed. <sup>33</sup>A formal land title is, therefore, a weak basis of property rights. The more important evidence are ancestors' burial grounds, genealogies or salsila, and land occupation by the clan since time immemorial. Inheritance is considered as the main basis of one's right over land; and only the produce of the land, and not the land itself, can truly be possessed (Fianza, 1999).

Under the customary practice, most members of the community enjoy access to land. However, its regulation is a prerogative of individuals with rank or title (e.g., sultans, datus, village/clan leaders). Big Moro tribes/groups, such as the Maranaos, Maguindanaos, and Tausugs consider the sultans and datus as the titular ultimate owners or administrators of all communal lands and their fruits (Briones, 2012). Thus, to them, though individuals may have rights to unused sites through inheritance and kinship, they have to ask the permission of their clan elders. The sultan and datu decide on the allocation of communally owned land for individual use, and also personally supervise land production and distribution of harvests according to the needs of their constituents. They also resolve land disputes and other types of disputes. The followers reciprocate in terms of material support, such as a portion of produce, taxes, labor as required by the datu. Among the smaller Moro groups (i.e., Yakan, Samal, Sanguil, Kalagan, and Kalibugan), the village or community elders are more relied upon for decisions on land-related issues. According to Briones (2012), though this practice of deferring to the ownership claims or power of a datu or clan leader is observed throughout ARMM, it is more prevalent in the mainland provinces (Maguindanao and Lanao del Sur) where land consolidation has been associated with their economic and political power. An indicative listing of clan landholdings in Maguindanao is shown in Table.

**Table 3.1.4 Indicative List of Clan Landholdings in Maguindanao** 

Clan	Area	Description of landholdings		
Ampatuan	Ampatuan, Datu Piang, Usay,	Covers thousands of hectares; in Shariff		
	Hofer, Datu Sangki, Datu Saudi	Aguak, consolidation was through the		
	Ampatuan, Sharif Aguak	pressured land sale		
Sinsuat	Odin Sinsuat	Covers thousands of hectares		
Sema	Odin Sinsuat	About 500 hectares		
Paglas	Datu Paglas	Several hundreds of hectares; consolidated		

<sup>-</sup>

<sup>&</sup>lt;sup>33</sup>Briones, R. (2012). Mindanao Economic Policy Papers: Land tenure and agribusiness investment in Muslim Mindanao. Pasig City: Brain Trust: Knowledge and Options for Sustainable Development, Inc. Dumarpa, J. (1984). How Maranao possess land. *Salsilah, A Journal of Philippine Ethnic Studies*, 4 (2), pp 34-42. Fianza, M. (1999). Conflicting land use and ownership patterns and the "Moro problem" in Southern Philippines. In M. Coronel-Ferrer (1999). *Sama-sama: Facets of ethnic relations in South East Asia*. Quezon City, Philippines: Third World Studies Center, University of the Philippines.

Others: Matalam (Pagulangan), Pendatuan (Pendatun), Mastura (Sultan Mastura)

Source: Briones (2012)

Experiences on the ground show two implications of the dominance of datus and clan leaders in administering land rights and land use among members of the communities or On one hand, the dominance of datus can facilitate the entry of economic development opportunities and the mobilization of the support of the whole community. On the other hand, the dominance of datus can cause the displacement and further disempowerment of many small farmers, including indigenous people. A cited example is the amassing of large tracts of land by Datu Andal Ampatuan and his children in Maguindanao where even the judicial courts could not intervene.

The contrasts between statutory and customary land administration practices have resulted in three major problems: (1) competing land claims between those who hold land titles though many who hold titles are Christian settlers, there are also Moros who also have secured land titles for their occupied lands - and other Moros and indigenous groups in Mindanao who claim land rights by virtue of their ancestral lineage; (2) relegation of the status of many members of communities to the status of tenants of Moro landowners and datus who were able to secure land documents for vast tracts of land under their supervision; (3) displacement of many poor Moros, as well as Christian and Lumad peasants, with the expansion of local big agribusiness and transnational corporations who have gained control of Mindanao's land resources through the government land administration system (Fianza, 1999).

#### 3) Agrarian Reform

The total coverage of the Land Acquisition and Distribution (LAD) component of the Comprehensive Agrarian Reform Program (CARP) in ARMM is 376,213 hectares, which represents 29% of the total land area of the region (based on total land area estimate of NAMRIA). As of December 31, 2014, of this total LAD coverage, 72.3% or 272,045.63 hectares have been distributed to 86,854 agrarian reform beneficiaries or ARBs (See Table below).

Table. 3.1.5 Land Acquisition and Distribution Accomplishment of DAR as of December 2014

Provinces	Total LAD Scope	Accomplishment	Balance	No. of ARBs
	(hectares)	(hectares)	(hectares)	
Basilan	37,026.00	25,164.00	11,861.5640	8,110
Lanao del Sur	165,403.00	134,235.07	31,168.2929	34,000
Maguindanao	124,735.00	82,733.56	42,001.1911	33,275
Sulu	17,387.00	9,287.00	8,100.0000	3,220
Tawi-tawi	31,662.00	20,626.00	11,036.3748	8,249
Total/ ARMM	376,213.00	272,045.63	104,167.4228	86,854

Source: DAR-ARMM, 2015

Lands subjected to CARP are generally used for agricultural purposes. The table below presents the major crops planted in each province.

Table 3.1.6 Crops Planted in Lands Subjected to Agrarian Reform

Province	Crops
Basilan	Rubber, coconut, coffee, and cacao
Lanao del Sur	Rice, corn, coconut, root crops and fruit trees
Maguindanao	Rice, corn, coconut, banana and root crops
Sulu	Cassava, coffee and fruit trees
Tawi-Tawi	Cassava and coconut

Source: DAR-ARMM, 2015

There are a total of 97 agrarian reform communities covering a total of 224,726.17 hectares in 85 municipalities in five provinces of ARMM (See Table below). Of these ARCs, eleven have approved or ongoing agro-enterprise development (AED) projects under the Agrarian Reform Communities Connectivity and Economic Support Services (ARCCESS) Program. Examples of AED projects are common service facilities for rice and corn production; integrated rice-duck enterprise; rubber production and trucking facility; cassava production and marketing; and coffee production and marketing. Other projects are mechanized rice and corn production and marketing; provision of farm tractor; and integrated organic farming of cassava.

Table 3.1.6 ARCs, Land Areas, and Beneficiaries of Agrarian Reform as of June 30, 2014

Province	Number of Municipalitie	Number	Total LAD Scope (in	Total LAD area distributed as	В	Beneficiaries <sup>34</sup>	
	s with ARCs	of ARCs	hectares)	of June 30, 2014 (hectares)	Male	Female	Total
Basilan	6	11	18,676.55	18,676.55	5,121	527	5,648
Lanao del	33	34	83,740.88	67,912.16	15,237	3,398	24,756
Sur							
Mag'danao	23	23	72,695.74	41,485.02	9,601	4,317	14,772
Sulu	11	12	10,289.00	7,247.58	3,814	1,769	5,583
Tawi-tawi	12	17	39,324.00	21,673.00	1,538	936	7,074
Total/	85	97	224,726.1	156,994.31	35,311	10,947	57,833
ARMM			7				

Source: DAR-ARMM, 2014

According to the interviewed DAR-ARMM official, the implementation of agrarian reform is beset with problems related to land tenure and program beneficiaries' development. Land tenure issues include: (i) abandonment of awarded lands due to boundary disputes arising

<sup>34</sup>Totals do not tally with sums of numbers of males and females because some ARCs lack sex-disaggregated data.

from erroneous survey; and natural and human-induced disasters; (ii) un-subdivided Mother Certificate of Land Ownership Award (CLOA), which discourages individual farmers from developing their farm lots because of uncertainty on the exact locations of their respective awarded lands; and (iii) unpaid landowners. Problems related to the development of agrarian reform beneficiaries (ARBs) include: (i) weak organizations of ARBs; (ii) lack of access to farming technology, capital, and credit; (iii) unstable selling price of agriculture commodities; (iv) lack of technical knowledge on value chain, and lack of skills on value adding; (v) dilapidated road network and bridges, which have resulted in high transportation cost; (vi) inadequate irrigation system and services; (vii) lack of post-harvest facilities; and (viii) lack of potable water systems.

Nonetheless, in support of the proposed HARVEST as a potential source of additional assistance to the ARBs, DAR-ARMM recommended a list of ARCs that are possible areas for agri-business investment. These are those belonging to the Unayan cluster of ARCs in Lanao del Sur and Iranun cluster in Maguindanao.

#### 4) Ancestral Domain Claim of Indigenous People

The implementation of the Indigenous People's Rights Act (IPRA) in ARMM has been slow due to the absence or contested jurisdiction of the National Commission on Indigenous People (NCIP) in the region (except in Basilan), the lack of power of the Office of Southern Cultural Communities (OSCC) in ARMM to identify and delineate ancestral domains and issue Certificate of Ancestral Domain Titles (CADTs), and the divide between Moro and non-Moro indigenous peoples (IPs).

Thus, from 2002 to 2008, only one CADT (R09-LAN-0206-043) of Sama Bangingi tribe was issued in ARMM. <sup>35</sup> This covers 2,673.2682 hectares in the Municipality of Lantawan, Province of Basilan. For the IPs in Maguindanao, the NCIP of Region XII submitted, based on applications mostly from non-Moro IPs, a list of ancestral domain claims for delineation and recognition (See Table below). This list is, however, contested by the OSCC because of alleged lack of consultation. Also, the total claimed ancestral domain is more than 50% of the total land area of Maguindanao. Same areas are being claimed by Maguindanaoan Moros.

Table 3.1.7 List of Ancestral Domain Claims in Maguindanao

Location		Est. Area (Hectares)	ICC/IP Claimant/s
1.	Direct CADT Application, PC Hill, Cotabato City,	500	IP Community
	Maguindanao		
2.	North Upi, Maguindanao	48,722	Teduray
3.	First Complex, Shariff Aguak, Maguindanao	97,500	Teduray
4.	Dinaig, Datu Odin Sinsuat, Maguindanao	32,000	Teduray
5.	Crossing, Barurao, Sultan Barongis,	10	Datu Norodina A. Camsa
	Maguindanao		& Haji Mustapha Abdul
			Salam Mamasalagay

<sup>&</sup>lt;sup>35</sup>Source: National Commission on Indigenous People (NCIP)

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6.	Upi, South Upi, Southern portions of the	201,880	Teduray/ Lambangian &
	municipalities of datu Odin Sinsuat, Talayan,		Dulagan Manobo
	Guindulongan, Datu Unsay, Shariff Aguak and		
	Ampatuan, Maguindanao		
Subtotal		380,612	

Source: National Commission on Indigenous People, 2014

To assist the Moro and non-Moro IPs address their disagreements, the Bangsamoro Transition Commission has formed a Task Force Mamalu-Tabunaway that will facilitate dialogues on, among others, the demarcation of the claimed lands of the Tedurays and Maguindanaons.

#### 3.4 Peace and Order Condition

#### 1) Conflict Context

Due to its protracted nature, the conflict in the Bangsamoro area has mutated in various forms. Vertical conflict (state versus rebel groups) is primarily between the government and the MILF, but other armed groups such as the remnants of the Moro National Liberation Front (MNLF), the Bangsamoro Islamic Freedom Fighters (BIFF), and elements of the Abu Sayyaf Group pose challenges to state authority.

Horizontal conflicts abound such as political elites competing for key electoral positions in the government or control over the scarce resource in the area, inter-ethnic competition (IPs versus Moros, Maranaos versus Maguindanaoans), or inter-communal conflict (Christians versus Moros, MILF versus MNLF). Many of these horizontal conflicts are lumped together under the phenomenon of "rido" (clan wars). International Alert and WB (2014) noted that the incidences of horizontal conflicts outnumber those of vertical conflicts particularly when the peace negotiations occurred between GOP and the MILF and after the signing of the FAB in October 2012.

However, they admonished that the decline in the incidence of vertical conflict and a rise in horizontal conflict should similarly be a cause of concern because the latter can easily transform into vertical conflicts given the interwoven nature of personal relationships in the Bangsamoro. The "feudalistic nature" of its society enables prominent clan members who hold political power to use state resources against their enemies who will conveniently form an alliance with rebel groups to counter the overwhelming force of their rivals.

# 2) Conflict between Fronts

There has been sporadic fighting between MILF and MNLF fighters in recent years, usually triggered by factors not related to the broader peace process, such as land disputes, historical grievances, or shifting allegiances in local politics. The impact of these conflicts is often significant but tends to be relatively short-lived. These conflicts are restricted to specific geographic areas that can be mapped for risk profiling of potential investments. Its likelihood is low but could yield devastating results if occurred.

As for the CMDCA area, recent insurgency incidents are shown in Table below.

**Table 3.1.8 Incidents of Insurgency CMDCA Area** 

Conflict, by Location (Municipality)	Actor's Affiliation (Individual)	2011	2012	2013	2014	2015	2016
AMPATUAN	BIFF/BIFM	0	2	0	0	0	0
AMPATUAN	MILF	0	0	0	0	0	1
DATU ABDULLAH SANGKI	MILF	0	0	0	2	0	0
DATU PIANG	BIFF/BIFM	1	0	2	0	4	0
DATU PIANG	MILF	1	1	2	2	0	5
DATU SAUDI-AMPATUAN	BIFF/BIFM	1	0	0	1	2	0
DATU SAUDI-AMPATUAN	MILF	0	2	0	0	1	1
DATU UNSAY	BIFF/BIFM	1	4	1	2	3	0
GUINDULUNGAN	BIFF/BIFM	1	0	1	0	1	1
GUINDULUNGAN	MILF	1	0	0	0	0	0
MAMASAPANO	BIFF/BIFM	0	0	0	1	0	0
MAMASAPANO	MILF	0	1	1	0	15	0
RAJAH BUAYAN	BIFF/BIFM	0	0	0	2	0	2
RAJAH BUAYAN	MILF	2	0	2	1	0	0
SHARIFF AGUAK (MAGANOY) (Capital)	BIFF/BIFM	1	0	2	7	0	0
SHARIFF SAYDONA MUSTAPHA	BIFF/BIFM	0	0	1	7	1	0
SHARIFF SAYDONA MUSTAPHA	MILF	0	0	0	0	0	1
SULTAN SA BARONGIS (LAMBAYONG)	MILF	4	14	2	6	1	2
TALAYAN	BIFF/BIFM	1	0	0	0	0	0

Source: TA team interview with International Alert

# 3) Political conflicts

This type of conflict results from contestation of political and economic powers among elites and influential clans at the regional and local government level. Implications on the envisaged HARVEST are discussed under the "Political Economy Context." Its likelihood is low and but could create a medium impact.

#### 4) Religious Conflicts

There is a limited history of religious conflict in the proposed Bangsamoro areas. The Moro fronts (MILF and MNLF) characterize their struggles in terms that are based on historical injustice, exclusion, and oppression rather than on religious differences.

There are cases of specific religious attacks, particularly at the community level, but these tend to be isolated and small in scale. All the successful agribusiness investments to date in ARMM work with all religious communities. In some cases (e.g. Matling) those differences are openly recognized and addressed in company policy. In others, there is no specific policy response other than to buy inputs from any grower, regardless of affiliation (e.g. Agumil). Likelihood and impact of this type of horizontal conflict are low.

#### 5) Rido

The most common cause of local conflict is usually attributed to rido (typically defined as 'feuding between families and clans'). Ridos can be long-running, can escalate to involve an increasing number of families, and each rido tends to require a specific, tailored solution given that the origins are affected primarily by local factors. Any size of external investment in an area affected by rido can aggravate existing tensions, and companies involved can become easy de facto targets if aligned with one side or another in a rido conflict. Risk mitigation strategies will involve appropriate social impact analysis prior to investment, briefings from the local security forces on existing conflicts, and discussions with a full range of local political actors. Its likelihood is high, its impact medium.

In 2012, the ARMM Regional Reconciliation and Unification Commission (RRUC) identified a total of 228 rido cases in the five provinces as shown in below table, most of which were caused by land conflicts.<sup>36</sup>

Table 3.1.9 List of Rido Cases in ARMM as of December 2012

Provinces	Active Unresolved Cases	Resolved Cases	Total
Maguindanao	44	61	105
Lanao del Sur	60	9	69
Basilan	22	6	28
Sulu	15	4	19
Tawi-tawi	6	1	7
TOTAL	147	81	228

Source: ARMM Regional Reconciliation and Unification Commission (RRUC), 2013

As for the CMDCA area, recent Rido incidents are shown in Table below.

<sup>&</sup>lt;sup>36</sup>Regional Reconciliation and Unification Commission (2014). Strengthening peacebuilding in ARMM: 2013 annual report. Cotabato City: Autonomous Region in Muslim Mindanao.

Table 3.1.10 Rido Incidents CMDCA Area

Conflict, by Location (Municipality)	Conflict, by Specific Causes	2011	2012	2013	2014	2015	2016
AMPATUAN	Rido or clan feud	1	1	1	0	0	2
DATU HOFFER AMPATUAN	Rido or clan feud	0	0	0	1	0	0
DATU PIANG	Rido or clan feud	1	0	2	4	0	1
DATU SAUDI-AMPATUAN	Rido or clan feud	2	0	0	1	2	1
DATU UNSAY	Rido or clan feud	1	0	1	0	0	0
RAJAH BUAYAN	Rido or clan feud	1	0	2	0	1	0
SHARIFF AGUAK (MAGANOY) (Capital)	Rido or clan feud	0	0	0	1	1	1
SHARIFF SAYDONA MUSTAPHA	Rido or clan feud	1	0	0	0	0	1
SULTAN SA BARONGIS (LAMBAYONG)	Rido or clan feud	1	0	1	2	0	1

Source: TA team interview with International Alert

#### 6) Land conflicts

The lists of potential conflict triggers from land are numerous, including land grabbing, illegal land occupation, selling of land without titles, multiple claims over single plots, claims of historical usage against current titles, and others. There are land conflicts between Moros and Christian settlers, Moros and indigenous people, and Moros and Moros (LGSPA, 2009).<sup>37</sup>

The complexity of land tenure situation is one of the major sources of these conflicts. A big number of armed encounters between government and rebel forces, as well as between Moro groups or between Moro and IP groups, trace their roots to competing for land claims. The World Bank and the International Organization for Migration (IOM) conducted a Joint Scoping Mission on Land Conflict in Mindanao in March 2013 and found that the signing of the Framework Agreement on Bangsamoro (FAB) has created new dynamics in the region. According to unverified stories on the ground, many Moros are expressing a desire to return to the land from which they had been forcibly displaced, sometimes decades ago because of wars; and there are also those who started to threaten settlers of eviction after the signing of the BBL. The ensuing movement of people could bring latent claims to the fore in the absence of an effective institutional framework to deal with rising tensions. In addition, various stakeholders are positioning themselves based on their expectations of how the landrelated provisions of the FAB would be implemented, creating further tensions amongst neighboring communities. It is clear that a significant proportion of both the active and latent competing land claims have a considerable potential to trigger renewed violence and forced displacement.38

<sup>&</sup>lt;sup>37</sup>Land Governance Support Program in ARMM (2009). Land tenure stories in Central Mindanao. Davao City: LGSPA, Kadtuntaya Foundation, Inc., and Mediators Network for Sustainable Peace (MedNet), Inc.

<sup>&</sup>lt;sup>38</sup>Land Disputes in Conflict-Affected Areas of Mindanao: Report of the Joint World Bank-International Organization for Migration Scoping Mission, May 2013.

Disputes over land use are the most significant risk for agri-business investments in the future Bangsamoro. The proposed 'core territories' of the Bangsamoro include a number of areas within the current ARMM and neighboring municipalities and provinces where conflicts over land have occurred regularly. It is likely that any portfolio of agri-business investments in the Bangsamoro will run into land disputes at some point. Both its likelihood and impact is very high.

Incidents of the land dispute in the proposed Corporative project area are as shown in below table.

Table 3.1.11Incidents of Land Dispute CMDCA Area

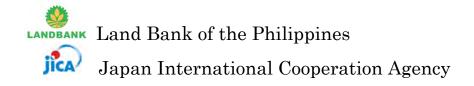
Conflict, by Location	Conflict, by Specific	2011	2012	2013	2014	2015	2016
(Municipality)	Causes	2011	2012	2013	2014	2013	2010
DATU ABDULLAH	Land conflict in both formal	0	0	0	1	0	1
SANGKI	and informal market		U	U		U	'
DATU HOFFER	Land conflict in both formal	0	0	0	0	0	1
AMPATUAN	and informal market		U	U	U	U	'
DATU PIANG	Land conflict in both formal	1	0	1	1	0	0
DATOFIANG	and informal market		U	Ţ	'	U	U
DATU SAUDI-AMPATUAN	Land conflict in both formal	1	0	0	0	1	0
DATO SAODI-AMI ATOAM	and informal market	'	U	U	U	'	· ·
RAJAH BUAYAN	Land conflict in both formal	1	0	1	0	0	0
NAJAH BOATAN	and informal market	'	U	ı	U	U	U
SHARIFF SAYDONA	Land conflict in both formal	0	0	0	0	0	1
MUSTAPHA	and informal market		U	U	U	U	'
SULTAN SA BARONGIS	Land conflict in both formal	1	0	0	1	0	1
(LAMBAYONG)	and informal market	'	U	U	I	U	1

Source: TA team interview with International Alert

#### 7) Internally Displaced Persons

The different types of conflicts gave rise to a large number of internally displaced persons (IDPs) in the region. The Bangsamoro Human Rights Network (BHRN) recorded 265,898 IDPs in Maguindanao, 67,144 IDPs in Lanao del Sur, and 20,248 IDPs in Basilan since January 2012 (PCIJ, 2013). The Internal Displacement Monitoring Center (2013) estimated nearly 200,000 people to have fled their homes since January 2013 because of conflicts between the government and rebel groups and clan-related violence. This includes an estimated 120,000 people who were affected by the fighting in Zamboanga City last September 2013. Of these people affected, at least 72,000 are still displaced. The estimated direct income loss due to these forcible displacements was PhP 258.5 million; and 1.9 million in cumulative schooldays lost by displaced children (PCIJ, 2013). According to the BHRN, in the last two years, the top cause of displacement was natural disasters; the second was fighting between the government and communist rebels, and the third was rido or blood feuds between and within powerful and influential clans in Mindanao. The armed conflict has also resulted in a huge number of children (i.e., 5,249 in 2009) involved in armed groups.

# 16. Screening and Scoping report on LASBUENASCAR



# LASBUENASCAR CORPORATIVE Environment and Social Considerations Preliminary Screening-scoping Report

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

September 2018

Technical Assistance Team Nomura Research Institute, Ltd. NTC International Co., Ltd. Oriental Consulting Global

#### LASBUENASCAR CORPORATIVE

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#### 1. INTRODUCTION

#### 1.1 Background

#### 1) Overview

The Harnessing Agribusiness Opportunities through Robust and Vibrant Entrepreneurship Supportive of Peaceful Transformation (HARVEST) was conceived to be a lending facility for agribusiness and agribusiness-related investors in the Bangsamoro and conflict affected areas in Mindanao. It is a two-step loan of the Land Bank of the Philippines from the Government of Japan through the Japan International Cooperation Agency (JICA) for onlending to sub-borrowers with eligible sub-loans and sub-projects.

The project is part of the an integrated effort of the Philippine Government in support of the peace building strategy and sustainable economic growth in the ARMM region and other conflict affected areas in Mindanao along with areas outside the region which are commercially linked though value chain. The project aims to further encourage agribusiness and agribusiness-related investments, promote sustainable income-generating opportunities, and create jobs.

Designed as on-lending facility for `corporatives`, cooperatives, large agribusiness corporations (LAEs) and micro, small and medium enterprises (MSMEs), small farmers and fisherfolks through a credit line at Land Bank of the Philippines. Apart from the credit facility, the project also has a technical assistance component which is divided into 2 phases namely:

- 1- Phase 1 focuses on the establishment of corporatives as inspired by the Malaysia Model in poverty and rural development and capacity building of Land Bank personnel in project implementation
- 2- Phase 2 focuses on business implementation of corporatives and further capacity building for cooperatives, SMEs and Land Bank personnel on project implementation.

The overall goal of the project is to create employment and increase agricultural productivity in the target areas by supporting agri-business related investments.

## 2) LasBueNasCar Corporative Project- The FELDA Model

The "corporative project" in LasBueNasCar was conceived and inspired by the experiences of Malaysia in eradicating rural poverty through settlement scheme, land consolidation and rehabilitation.

Looking at the experiences of the Federal Land Development Authority (FELDA) in Malaysia, more than 500,000 acres of land was alienated by the government of Malaysia to groups of individuals under the Group Settlement Areas Act – Land schemes where 3-8 acres of land were allocated to each participant. Participants are local village folks who are either landless or having land holdings too small to yield an adequate income.

Settlers were drawn from rural poor. They were to be aged between 21 and 50 years, married, and physically fit. Priority was given to those who did not own any land to farm. New settlers were assigned to a particular settlement, and were given 10 acres (4.0 ha), 12 acres (4.9 ha) or 14 acres (5.7 ha) of land to cultivate usually either rubber or oil palms. All

settlers were required to reside at the settlement itself, and were allotted .25 acres (0.10 ha) in a planned village, where their home — already built by FELDA — was located. Although basic infrastructure, such as piped water and electricity, used to be lacking, nowadays such facilities are readily provided. Schools, medical centres, and places of worship are also provided.

Originally, FELDA schemes were designed as co-operatives, where instead of each settler owning a defined piece of land, each settler held an equal share in the ownership of the particular scheme. However, the settlers did not prefer this scheme, as workers who did not tend to the land properly still benefited (a sort of free rider problem). The government then set up a 3-phase plan, where in the first phase, the co-operative remained as a mechanism for the settlers to learn how to farm. In the second phase, each settler was given a specific plot of land to work, and in the third phase, he was given the land title to that plot. However, the settler was forbidden from selling the land without permission from FELDA or the federal government.

The costs of acquiring, developing and allocating the land are borne by loans made to FELDA settlers. These loans are repaid in monthly instalments deducted from the settlers' income over a 15-year period. Although settlers are supposed to focus on agricultural activities, a substantial number are also engaged in other activities, such as shop-keeping. Some are even employed in jobs outside the settlement.

To date, the FELDA schemes had lifted over 122,000 families (equivalent 5 to over one million people), out of poverty and helped a generation of landless Malays become a rural middle-class, with holdings of typically four hectares of oil palm crops.

With the significant achievement of Malaysia in the implementation of the corporative schemes, the HARVEST program included in its component the establishment of "Corporative" in 3 selected pilot areas in Mindanao. In April 2018, the Joint Coordination Committee of HARVEST composed of Land Bank of the Philippines, Office of the Presidential Adviser for Peace Process, JICA Philippines and the TA HARVEST Team approved the 3 pilot areas. One of the identified location is in Agusan del Norte that comprises the Municipalities of Las Nieves, Buenavista, Nasipit and Carmen (LasBueNasCar).

The succeeding sections illustrate the preliminary information about the proposed corporative scheme in LasBueNasCar.

#### 2. PROJECT DESCRIPTION

#### 2.1 Project Overview

1) Project in Brief (to be confirmed)

The proposed project aims to replicate the concept of the Federal Land Development Authority (FELDA) in settlement scheme. A total of 19,000 has were identified by the local government of Agusan del Norte in collaboration with the Office of the Presidential Assistance for Peace Process (OPAPP). The land identified are mostly a CADT area of which tenurial instruments will have to be reviewed and confirmed in Phase 2 of the project and until such time, an anchor firm is selected (through a bidding process) to spearhead the overall implementation of activities of the corporative.

It is initially intended to benefit the poorest of the poor (indigents families), rebel returnees and indigenous peoples.

In discussion with Land Bank, the corporative will have the following proposed features:

#### Marketing Agreement

This may include stabilization of agro-related revenues of farmers by contract which exempts them form market risk, supply of inputs, supply chain finance, technical support for quality control and standardized production plan, etc.

#### Loan support

This may include arrangement of credit for farmers including withholding repayment from the payment to farmers and establishment of credit cooperative

#### Supplemental income

Support farmers during grace period until first harvest of the main crops (by subsidy or guidance on other short-term products); support employment in annual idling period, support for side business at farmers' own lot, employment of family members at factories/offices of the value chain

#### Profit sharing

The enterprise and farmers will share a portion of excessive profit over standard ROC such as 10% by agreed ratio. Sharing among farmers, allocation may be based on productivity by harvest area or excessive production over standard productivity

# Township<sup>1</sup>

- Soft infrastructure such as maintained order and security, decision making structure, socialization platform, etc.
- Hard infrastructure such as road, water supply, health facility/hospital, school and training facility, shopping center, and event facility
- Marketplace for farmers to trade with side business outputs
- Those are also benefit for the enterprise in retention of farmers in long term

#### Transfer of farm land ownership

This element might be a necessary element under the original concept, transformation of corporation to cooperative. Besides, this element might be modified to support of matching between exiting farmers and others (staying farmers and new entrants)

<sup>&</sup>lt;sup>1</sup> a) Safety refers to having trustworthy security within the whole township from illegal and unidentified people coming and out of the township. Landscaping along roads and walkways and having broader walkways that provide ample space between pedestrians and traffic could also effectively enhance safety and security of the township.

b) Community well-being refers to the presence of parks and open spaces as well as multi-purpose facilities not only promote health but also build closer community bonds. Walkways and cycling paths that encourage residents to walk and cycle with township rather than driving also promotes community well-being.

c) Economic activities refers to the presence of commercial projects within the township that could house businesses that offer convenient services to the residents. There could also be industrial areas that could provide employment or create job opportunities and greater economic activities.

d) Accessibility refers to road network within the township area with strategic entrance and exit that link to the highway and around to facilitate

e) Livability refers to a well-planned township that incorporate various components including amenities such as schools, hospitals and commercial establishments to service the needs of the population in the township.

#### Employment

Ensure employment of family members at farms and/or side business, and value chain of the enterprise's business

# 2) Background of the Project Site

In 1980s, the Nasipit Lumber Company, Inc (NALCO) was granted by the government a timber license agreement (TLA) as covered by TLA 39-4 to utilize forest resources in a contiguous land area of 56,093.81 hectares covering municipalities of Las Nieves, Buenavista, Nasipit and Carmen known by locals as LasBueNasCar.

On October 2003, the TLA was cancelled by the government due to environmental degradation and was declared as co-management area. With the Memorandum of Understanding signed between and among the local government units in Agusan del Norte and the Provincial Environment and Natural Resources (DENR), the LASBUENASCAR Sustainable Agro-Forestry Development Project was established in 2010.

Of the total contagious area, about 31,122.97 hectares have 0-18% slope; 13,605.98 hectares have 18-50% slope while 11,364.86 hectares have above 50% slope covering the protection forest. Unclaimed watersheds including the Casiklan watershed in Las Nieves covers an aggregate area of about 8,000 hectares. Table 2.1.1 showed the existing tenurial instrument in Agusan del Norte.

**Table 2.1.1 Existing Tenurial Instrument** 

xisting Tenurial Instrument	Area (hectares)	Location
Unclaimed watershed	8,000	Buenavista, Nasipit, Las Nieves
Military reservation	275	Buenavista
Dairy Stockfarm	602	Las Nieves
Certificate of Ancestral Domain	9,673	Las Nieves (Lawanlawan and
Claim		Gingoog)
Community Based Forest	1,000	LAKCNA Las Nieves
Management		
CADT	For delineation	Pending applications
	Unclaimed watershed Military reservation Dairy Stockfarm Certificate of Ancestral Domain Claim Community Based Forest Management	Unclaimed watershed         8,000           Military reservation         275           Dairy Stockfarm         602           Certificate of Ancestral Domain         9,673           Claim         1,000           Community Based Forest         1,000           Management         For delineation

Source: LasBueNasCar

As a former logging concession, these areas are basically suited for agro-forestry. Land tenure is an issue with this contagious area. In 2011, about 112 farmers were granted stewardship certificates under the co-management sub-agreement (see Figure 2.1.1 for tenurial map of LasBueNasCar).

In 2012, the following companies signed MOU to develop LASBUENASCAR:

- International Agricultural Development Institute (IADI) based in Korea for the production of cassava, palm oil, and processing of wood pellets. The target land area to be developed is around 5,000-15,000 ha for the period of 25 years
- Newphilcorn Corporation based in Korea for the development of yellow corn plantation and processing plant consisting of about 1,000-5,000 ha of land.
- La Agusana Fresh International, Inc. based in Davao City for the establishment of banana plantation

# Shine Art Valley, based in Korea for banana and palm oil plantation

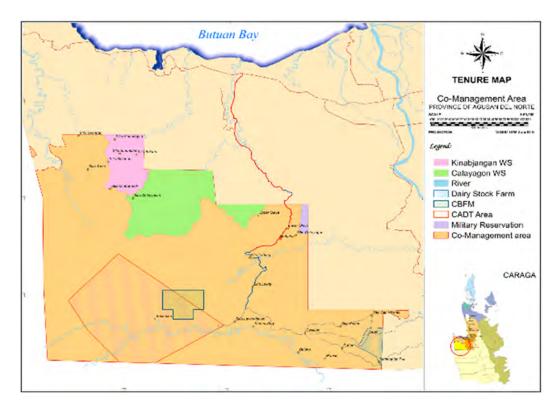


Figure 1.1.1 Tenurial Map of LasBueNasCar

# 3) Project Location

The proposed Corporative project covers a total land area of 19,000 has or about 33% of the total Co-Management Area consisting of 13 barangays in the municipalities of Las Nieves, Buenavista, Nasipit and Carmen (LasBueNasCar). See Table 2.1.2for detailed location and Figure 2.1.2 for the location map.

**Table 2.1.2 Proposed Location of Corporative** 

Municipality	Target Barangay	Total coverage area (has)
Las Nieves	Balungaggan, Casiklan, Durian, Ibuan and	9,000
	Lawanlawan	
Buenavista	Guinabsan, Lower Olave, Sangay and	3,000
	Simbalan	
Nasipit	Camagong and Jaguimitan	4,000
Carmen	Manoligao and Poblacion	3,000
Total		19,000

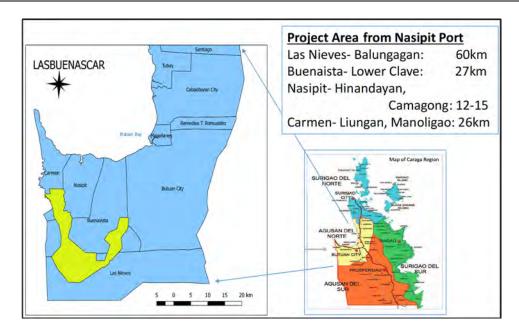


Figure 1.1.2 Location Map

# 2.2 Proposed Development Scheme (to be determined)

#### 2.3 Proposed profit sharing scheme (to be determined)

# 2.4 Proposed High Value crops

Based on initial results of the commodity investment study (refer to the Commodity Investment Study) conducted by TA HARVEST, the following high value crops are recommended namely:

- 1) Banana saba
- 2) Coconut
- 3) Coffee
- 4) Palm oil

# 2.5 Related Development

- 1) OPAPP to draft Tripartite Memorandum of Cooperation between and among OPAPP, LBP and PLGU-AND
- 2) OPAPP to draft EO for peace and Development Corporative Project

#### 3. PROJECT CATEGORY

Under the ESMF of the HARVEST Project, the corporative in LasBueNasCar shall be categorized. Given the perceived initial impact, the proposed corporative project is categorize as A.

# 4. PROJECT JUSTIFICATION AND ANALYSIS OF ALTERNATIVE

# 4.1 Project Justification

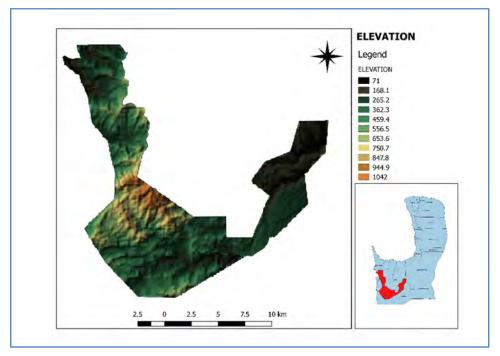
# 4.2 Analysis of Alternative

# 5. DESCRIPTION OF NATURAL ENVIRONMENT and SOCIO-ECONOMIC ENVIRONMENT

#### **5.1 Natural Environment**

# 1) Topography

The province of Agusan del Norte is made up predominantly of flat and rolling lands (0-18% slope) bounded by mountain ranges on its eastern and western parts, and Lake Mainit in the northeastern part. The eastern mountain range, composed of Mt. Mabaho (1,823 meters above sea level) and Mt. Hilonghilong (2,012 m asl), straddle the Agusan del Norte-Surigao del Sur-Agusan del Sur boundary. Another mountain range serves as the boundary with the province of Misamis Oriental on the west. The most prominent peaks in this mountain range are Mt. Indocay (1,243 m asl), Mt. Piglagahan (810 m asl) and Mt. Camagong (576 m asl). Found between the municipality of Buenavista and Butuan City is Mt. Mayapay which has an elevation of 675 m asl. Very steep slopes (i.e., > 50% slope) in these mountain ranges are estimated to cover 16,140.14 hectares. Lake Mainit, which Agusan del Norte shares with Surigao del Norte is one of the largest lakes in Mindanao and is the country's deepest and fourth largest lake. The 105 km coastline is generally rocky with occasional stretches of sandy or gravel beaches. Several embankments are gradually being filled up with alluvial materials which tend to produce small tracts of coastal plains. The elevation of LASBUENASCAR is shown in Figure 5.1.1



Source: HARVEST TA

Figure 5.1.1 Elevation of LasBueNasCar

#### 2) Land Area

The total land area of the province is 273,024 hectares wherein the largest land proportion is located in the municipality of Las Nieves with 58,269 hectares or 21.34% to the total land area of the province followed by the municipality of Buenavista with 47,561 hectares or 17.42% to the total land area of the province. The municipality of Magallanes has the smallest land area with 4,431 hectares or 1.62% to the land area of the province.

The target area of LASBUENASCAR is consisted by 4 Municipalities; Buenavista, Carmen, Las Nieves and Naspit, and 9 Barangays. The land area is shown Table 5.1.1

Table 5.1.1 Land area

Municipality	Barangay	Land Area (ha)	
	Guinabsan	889	
Buenavista	Lower Olave	1,912	
Bueriavista	Sangay	1,797	
	Simbalan	2,874	
Carmen	Manoligao	389	
Carmen	Poblacion	2,386	
Las Nieves	Durian	8,149	
Maninit	Aclan	502	
Nasipit	Amontay	36	
Total 18,			

# 3) Land Classification

The proportion of land classified as alienable and disposable has the total of 61,938 hectares or 22.69% to the total land area of the province while the remaining 211,086 hectares are classified as forestlands.

Table 5.1.2 Land Classification

Classification	Hectare	Percentage
Alienable and Disposable	61,938	22.69%
Forest Land	211,086	77.31%
Total	273,024	100%

Source: ILO Report

#### 4) Existing Land Use

The existing land use of the alienable & disposable area is classified into Built-up Area with a total of 4,416.61 hectares wherein 2,611 hectares are Settlements Area that is composed of residential, institutional, commercial, industrial and open spaces; Special Economic Zone with 528.00 hectares and; 1,277.61 hectares are classified as infrastructure and utilities area.

The land area devoted for agricultural use has a total of 69,422.35 hectares or 25.43% to the total land area of the province; while a total of 199.185.04 hectares are classified as forestlands, wherein 117,188.76 hectares are production forests and 81,785.14 hectares are protection forests; and 211.14 hectares are classified as water bodies. The land that is used for quarrying and mining has a total of 374.13 hectares and 201.59 hectares are tourism areas.

Table 5.1.3 Land Use

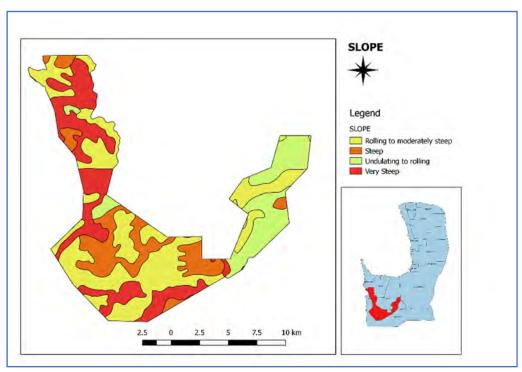
Land Use Category	Area (Has.)	% to Total
Built-up	4,416.61	1.62%
Settlement	2,611.00	0.96%
Residential	1,057.85	0.39%
Institutional	251.28	0.09%
Commercial	48.15	0.02%
Industrial	66.24	0.02%
Open Spaces	1,187.48	0.43%
Special Economic Zone	528.00	0.19%
Infrastructure & utilities	1,277.61	0.47%
Agriculture	69,422.35	25.43%
Crops	57,840.75	21.19%
Uncultivated	7,468.25	2.74%
Fishpond	1,607.74	0.59%
Water bodies	2,505.62	0.92%
Forestland	199,185.04	72.96%
Production	117,188.76	42.92%
Protection	81,785.14	29.96%
Water Bodies	211.14	0.08%
Special Uses	575.72	0.21%
Quarrying/Mining	374.13	0.11%
Tourism	201.59	0.06%

# 5) Slope Classification.

The land area which has a slope of below 18% has a total of 80,693.35 hectares while there is a total of 116,783.65 hectares with slope of 18% to 50%. The land area with slope of above 50% has a total of 75,547.0 hectares. The condition of slope at LASBUENASCAR is shown as following figure.

Table 5.1.4 Slope Classification

Slope	% to total	Estimated area(hectare)
0-3%	17.31%	47,269.21
3-8%	3.08%	8,403.07
8-18%	9.16%	25,021.07
18-30%	25.24%	68,904.08
30-50%	17.54%	47,879.57
Above 50%	27.67%	75,547.00



Source: TA HARVEST Team

Figure 5.1.2 Slope in LasBueNasCar

# 6) Soil Type and Suitability Use

By its abundance of soil types identified to be present in the province, the place is suitable for growing food and commercial crops. A total of 83,627.25 hectares or 30.63% of the land area in the province is highly suitable for growing food crops while a total of 80,016.40 hectares or 30.04% is suitable for commercial crops including tree plantations. The other 99,926.78 hectares or 36.66% of the land area is suitable for maintaining protection of forest species. The Soil type of LASBUENASCAR is shown as following figure. Most that area is consisted by Mountain Soil.

Table 5.1.5 Soil Type

Types	% to total	Estimated Area (has)	Suitability use
San Manuel Loam	3.77	10,293.00	Rice, Corn, Sugarcane, Vegetable, Camote, Tobacco, Abaca, Banana
San Manuel Clay	0.48	1,310.51	Corn, Banana, Rice, Vegetable, Coconut
San Manuel Clay Loam	2.75	7,508.16	Corn, Rice, Rootcrops, Peanuts, Vegetable
Isabela Clay	0.32	873.76	Rice
Isabela Clay Loam	0.90	2,457.22	Rice, Corn, Sugarcane
Bolinao Silt Loam	5.53	15,098.23	Banana, Corn, Abaca, Rootcrops, Falcata
Camansa Clay Loam	22.36	61,048.17	Banana, Corn, Rice, Abaca, Rootcrops, Falcata
Umingan Clay Loam	5.95	16,244.93	Rice, Corn, Rootcrops
Alimodian Clay Loam	0.71	1,938.47	Banana, Rootcrops, Abaca
Malalag Silt Loam	12.55	34,291.81	Banana, Rootcrops, Abaca, Coconut, Corn, Rice
Butuan Loam	6.90	18,838.65	Rice, Vegetable
Kitcharao Clay	0.25	682.56	Rice, Coconut, Abaca,
Loam			Ramie, Fruit Trees
Kitcharao Silt Loam	1.19	3,248.98	Rice, Rootcrops, Coconut, Tobacco
Hydrosol	2.13	5,815.41	Fish Pond and Wildlife
Rubble Land	0.11	300.36	Forest
Mountain Soils	34.09	93,073.88	Forest
TOTAL	100%	273,024.10	

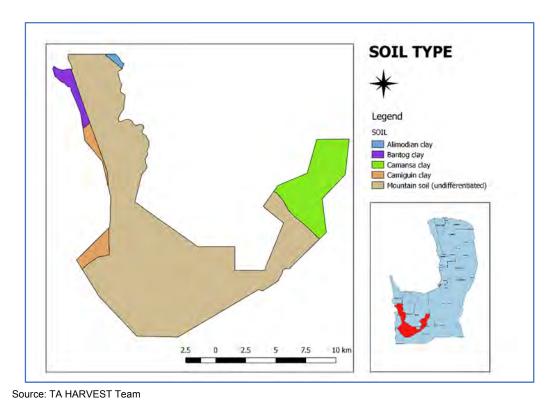


Figure 5.1.3 Soil Type in LasBueNasCar

#### 7) Climate

The province is categorized under Climatic Type II which means that there is no definite dry season but with a very pronounced rain that normally occurs during the months of November to February. The average annual temperature is 26.5°C and the average annual humidity is 84.6%.

The province is replete with natural resources distributed all across the eleven municipalities, evidenced by its many fresh water bodies like rivers and lakes, land resources like forest and agricultural lands, coastal resources, and also mineral resources.

The precipitation and temperature is shown in Figure 5.1.4

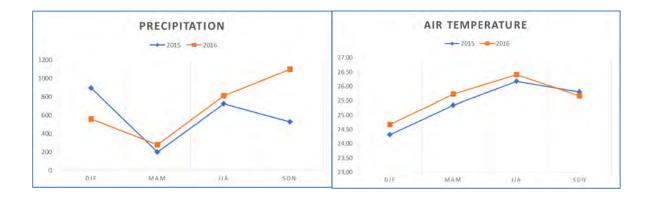


Figure 5.1.4 Precipitation and Temperature at LASBUENASCAR

The registered annual precipitation in the project area rages from 200 mm to 1,100 mm. Lowest amount of rain was observed in the months of March to May. High amount of rainfall was observed starting from the month of June to November and may extend up to the month of January. Average air temperature in the project area ranges from 24.32 to 26.41 degrees Celsius. Average temperature in a year ranges from 25.41 to 25.62 o Celsius. Colder months will start from September up to February. Temperature started to rise starting from March to August.

#### 8) Fresh Water Body

The Environmental Management Report of Agusan del Norte (AND-EMP) shows that the province has a good number of rivers and lakes of which the most important are: (1) Agusan River that starts from Compostela Valley and Davao Oriental and cuts through Agusan del Sur and Agusan del Norte and empties into Butuan Bay, and; (2) Lake Mainit that is being shared by the province of Agusan del Norte and Surigao del Norte, and which has a total area of 17,060 hectares; about 55% of the lake belongs to Agusan del Norte province.

The Agusan River has several rivers and creeks within the province that serve as its tributaries. Other rivers that are geographically distributed all across the province and are equally important are: Cabadbaran River, Magallanes/Baug River, Taguibo River (tributary of Magallanes River), Kalinawan/Tubay River, Asiga River (tributary of Kalinawan River), Puyo River (tributary of Kalinawan River), Manapa River and Guihao-an River in Buenavista,

and Kinabjangan River in the municipality of Nasipit.

Whereas, the waters in Lake Mainit come from 21 rivers and creeks in the northeastern part of Agusan del Norte and Surigao del Norte, Kalinawan River serves as its outlet. Another lake, the Lake Pagusi, is found along the route of the Kalinawan River, about 7 km from Lake Mainit. It is a backwater area of the Kalinawan River and is covered by "pagusi" (thus its name). It is considered an integral part of the Kalinawan river system. Lake Pagusi has a total area of 2,431 hectares.





Figure 5.1.5 Agusan River (Left) and Butuan Bay (Right)

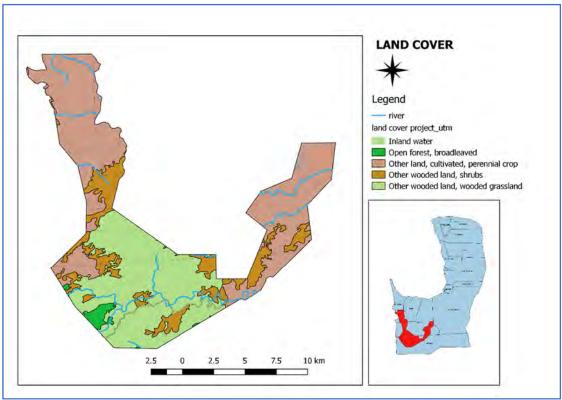
#### 9) Land Resources

The province is identified with a wide range of agricultural crops courtesy of a varied soil types suitable for agricultural farming. There are 16 soil types found in the province. The most dominant of which is the undifferentiated mountain soil found mainly in the mountainous parts of the province which is about 34% of the 265,488 hectares covered by the soil survey and deemed suitable for forest and fruit trees.

According to the Provincial Environmental Management Plan, the province has some 19,400 hectares of irrigated and irrigable areas and these are considered as protected areas for agriculture. The report also provides that the province has 61,707 hectares of residual or second growth forests and 31,371 hectares of plantation forests which serve as the timber and non-timber sources of the province. There are 13,266 hectares of brush lands and open lands of 43,822 hectares.

Furthermore, protection areas for forest lands are located in Cabadbaran City, RTR and Santiago which have an aggregate of 16,025 hectares; mossy forests in Kitcharao, Cabadbaran City and Santiago; areas above 1,000 meters above sea level also are protected in the municipalities of Kitcharao, Santiago, RTR and Cabadbaran City; areas with slope greater than 50% in Carmen, Jabonga, Las Nieves, Kitcharao, Cabadbaran City, Nasipit, RTR and Santiago, and; some 400 hectares in Manoligao, Carmen for the Higaonon civil reservations.

Accordingly, of the second growth forests distributed in the province can be found narra, molave, kaong, banaba, red and white lauan, yakal, tangile and tan-age, but only in patches. Some part in Kitcharao is characterized as limestone forest with natural vegetation consisting of balete, dumayaka, kaong, Ficus gigantifolia, bikal baboy, molave, hawili, tibig. The land cover at LASBUENASCAR is shown as following figure.



Source: TA HARVEST Team

Figure 5.1.6 Land cover at LASBUENASCAR

#### 10) Mineral Resources

It is contained in the AND-EMP report indicating that the province's mineral resources are located mainly in the municipalities of Nasipit, RTR, Kitcharao, Cabadbaran City, Jabonga, Tubay and Santiago. It is reported that an area of 10.5 hectares in Nasipit has bauxite ore; 112.9 hectares in R.T.R have manganese; and 178.9 hectares in Kitcharao have marbleized limestone. The DENR also pointed to gold deposits of about 1,566.14 MT in Tubay and 75,000 MT in Cabadbaran City. Copper deposits are also said to exist in Cabadbaran City, Jabonga, Santiago and Tubay. The city of Cabadbaran has also manganese deposits.

Furthermore, non-metallic resources such as limestone, marble, guano, sand, gravel and construction materials are also abundant. The Marapot and Cabadbaran Rivers are the best-known sources of Class A sand and gravel. Possibilities for hydrocarbon or natural gas deposits can be found in the coastal plains of Magallanes. Low pressure natural gas seepages have been found in the Magallanes Poblacion while low pressure natural gas utilization has been established at Barangay Caloc-an. Methaniferous gas emanations occur up to the mouth of Agusan River due perhaps to the faults that release the gas from underground deposits as reported in the provincial EMP.

#### 11) Ground Water

The proposed project area is abundant with groundwater resource that can be used mainly as potable water and irrigation water subsequently. Based on the study conducted in 1998, portions of the municipalities of Nasipit and Buenavista were categorize as shallow well areas wherein, the static water level is generally within six (6) meters below ground surface

(mbgs) thus wells with depths not greater than 20 meters are recommended. Other areas of Nasipit and Buenavista and greater portion of Carmen and Las Nieves were categorized as deep well areas wherein, the static water levels usually exceed six (6) mbgs and wells with depths greater than 20 meters are recommended. Noticeably, none of these four target municipalities were categorized under difficult areas wherein, groundwater supply is insufficient.

# 12) Earthquake Prone Areas

Based on the provincial environmental management plan, the province is prone to earthquake hazard with the identification of a fault line west of Lake Mainit area which is an extension of the Philippine Fault Zone that starts from northern Luzon through the Bondoc Peninsula, Camarines, Masbate, Leyte, Surigao and ends in Davao Gulf. The fault is reported to be running in parallel of Agusan River and following the river upstream to Agusan del Sur province. Moreover, the earthquakes recorded in the province have epicenters located along the tract of the major fault zones. Kitcharao is reported to have been within the seismic epicenter. The city of Cabadbaran and the municipalities of Tubay, Santiago and Jabonga are also reported to be within the active or probable active fault zones. The settlements near these fault zones and the roads near or traversing the fault lines (e.g., national highway in Tubay, RTR, Nasipit and Ampayon) are considered to be high-risk areas (ADN-EMP).

#### 13) Flood Prone Areas

Flooding has been a perennial occurrence in the province. Flash floods occur due to heavy rainfalls that normally pour during the months of November to January. Floods do not only cause severe damage on land and properties like agricultural farm lands and crops but also endanger the lives of the people directly hit by them. Statistics of major floods as reported in the EMP of Agusan del Norte show that major floods occurred in the years 1956, 1962, 1974, 1975 and on March 1981. The flood that occurred in 1981, accordingly, was the most severe with a total damage cost of about P57 million.

Accordingly, the physical locations of rivers and lakes of the province allowed flooding to happen. The big rivers of Agusan, Cabadbaran City and Tubay and some other rivers are often reported to be affected by seasonal flooding. The low physiography of the rivers in the province, poor vegetative cover in the headwaters of these rivers and the inability of it to cope with high flood discharge are all attributed to the occurrence of flooding. Additionally, the silted rivers all contributed to the occurrence of flooding to the flood-prone areas. Lake Mainit also overflow during heavy rains, thus bringing damage to surrounding lands and communities. According to the EMP report, the municipalities usually subjected to flooding are Buenavista, Cabadbaran City, Jabonga, Magallanes, Nasipit, RTR, Santiago and Tubay.

Reports from the Office of Civil Defense in the region show that for the last five years, flooding had been the leading natural disaster incident in the province based on its profile of natural disaster incidents. On its report of the continuous heavy rains in the province on January 10-18, 2009 it yielded a total damage cost of about P27.5 million to agricultural crops, fisheries and livestock and an additional P39.3 million damage cost to infrastructure, where it also affected a total of 11,069 families or 50,641 individuals in 8 municipalities. The municipalities of Jabonga and Carmen had the highest number of affected families and persons. Jabonga had a total of 3,926 families and 16,698 persons affected by the flood.

The municipality of Carmen had almost the same number of affected families and persons with 3,980 families and 18,176, respectively.

#### GEOHAZARD MAP OF AGUSAN DEL NORTE PROVINCE

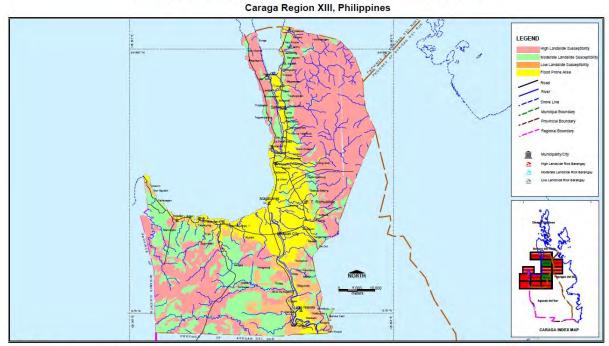


Figure 5.1.7 Geohazard Map Agusan del Norte Province

MINES AND GEOSCIENCES BUREAU

If measured against irreparable damage it brought to agriculture, the municipalities of RTR and Buenavista had the highest figure with a total estimated cost of P10,974,600.00 and P9,747,207.00, respectively. In March 2008, a three-day flood due to monsoon rains had affected a total of 12,800 persons or 2,558 families from the municipalities of Jabonga and Las Nieves. On January 2007, another flood resulted to a total damage on agriculture of about P7.3 million, where large fractions of it came from the municipalities of Jabonga and Las Nieves of about P2.07 million and P2.28 million, respectively. Another flood was recorded in February 2006 that had affected a total of 154,412 individuals or 29,799 families and a total damage cost of about P30.5 million all across the province, including Butuan City.

#### 14) Landslide Prone Areas

There are 4 barangays across the province that are identified to have a high susceptibility to landslides namely Barangay Sto. Niño in the municipality of Jabonga; Barangay Jaguimitan in Nasipit; Barangay Tagpangahoy and Barangay Tinigbasan in Tubay (Mines and Geosciences Bureau).

#### 15) Other Hazard Prone Areas

Additionally, the western and eastern shores of Lake Mainit are highly erodible primarily due to very steep to mountainous slopes and kaingin areas that remain without sufficient land cover. The local soils are susceptible to erosion, made more so by the practice of

kaingin. As reported in EMP, landslides have already been observed in these areas.

The province is generally out of the typhoon belt. Only the northernmost towns of Kitcharao and Jabonga are affected by typhoons that hit the Pacific coast. Nasipit, Magallanes, and Cabadbaran are identified as areas threatened by saltwater intrusion.

#### 16) Observed Climatic Changes

In terms of climatic changes, the baseline study results show that 85% of the farming households in the province have observed an increase in temperature; 64% have observed drought; 47% have observed flooding and 44% have observed heavy rainfall. Some 38% have observed pest infestation on crops while the other 7% have observed salt intrusion in water and another 5% have observed siltation.

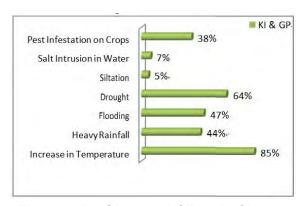


Figure 5.1.8 Observed Climatic Changes

#### 5.2 Socio-Economic Environment

#### 1) Demographic and Indigenous Peoples

The population of the proposed Corporative project area is as shown in the below table. The corporative site has an issue in the delineation of barangay/ sitio boundaries

Table 5.2.1 Population of the Proposed Corporative Project Area

Municipality	Darangay	Populat	Projected Population	
Municipality	Barangay	Count	Density (sq. Km)	in 2022
Buenavista	Guinabsan	3,833	45	4340
	Lower Olave	1,688	28	1911
	Sangay	3,815	50	4319
	Simbalan	4,188	62	4742
Carmen	Manoligao	1,356	51	1454
	Poblacion	5,988	141	6420
Las Nieves	Durian	2,085	6	2248
Nasipit	Aclan	2,354	61	2455
	Amontay	1,840	70	1919
Total		27,147		







Source: TA HARVEST Team

Figure 5.2.1 Current settlement area in Lower Olave, Buenavista



Source: TA HARVEST Team

Figure 5.2.2. Terrain and vacant areas in Brgy. Lower olave and Sangay of Buenavista, Suitable for relocation and build-up.

Location and population of Indigenous people in the proposed Corporative project area are as show in below table.

Existing settlement areas of the IP communities in the project site are inaccessible by 4-wheel vehicle. Water supply is not connected to distribution utilities. Some areas have electricity but most are outside of the power grid, solar panels and kerosene gas are

commonly used as a source.

Table 5.2.2. Location and Population of Indigenous people<sup>2</sup>

Municipality /	Population Count					
Barangay or Sitio	Household	Individual				
		Female	Male	Total		
Buenavista						
Olave	5	11	13	24		
Guinabsan	38	78	117	195		
Sangay	16	42	44	87		
Simbalan	107	334	352	627		
Carmen						
Manoligao	72	98	126	222		
Las Nieves						
Balungagan	4	8	9	17		
Ibuan	7	13	22	35		
Durian	14	27	42	69		
Casiklan	95	126	134	261		
Lawan-lawan	54	153	232	385		
Nasipit						
Jaguimitan	74	110	165	275		
*Minbahandi	196	612	407	1019		
(Camagong)						

Note: \*)if included in the project area

Area of Ancestral Domain Claim of Higaonon ICC is as shown in below table. The ancestral domains claimed by various groups of Higaonon have an overlap in terms of coverage area and barangay/ sitio boundaries. According to PEEDMO personnel, the whole area (56,000 ha) of the former co-management site has a current application for a certificate of ancestral domain title (CADT) by various clans of the Higaonon ICC for every barangay/ municipality.

Table 5.2.3. Area of Ancestral Domain Claim by Municipality

Municipality	Area (hectare – for validation)
Buenavista	30,487.8
Carmen	3,427.5
Las Nieves	10,300.0
Nasipit 6,089.0	
Total	50,304.3



Figure 5.2.3 Current IP settlement area in Sitio Labong, Simbalan, Buenavista

<sup>&</sup>lt;sup>2</sup> IP tribe present in the area is the Higaonon Indigenous Cultural Communities (Higaonon ICC).





Source: HARVEST TA

Figure 5.2.4 Current IP settlement and tribal center in Sitio Bocbocon, Durian, Las Nieves

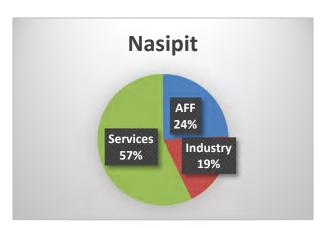
#### 2) Economic and Poverty Condition

Agriculture, Forestry, and Fishing (AFF) is the dominant sector of the economy of Carmen and Las Nieves, which is accounted for the employment of 48% and 72% of their labor force, respectively. In Carmen, the services sector is accounted for the 38% employment of the labor force and the remaining 14% is accounted for the Industry sector. Similarly, after AFF, services sector of Las Nieves generated 38% employment and the remaining 5% is accounted for the Industry sector.

On the other hand, the economy in the municipalities of Buenavista and Nasipit was primarily driven by the services sector, wherein 48% and 57% of their labor force were absorbed in the said sector. However, AFF sector comes after services then followed by industry sector.

Structure of the local economy in the proposed Corporative project area is shown in below figure.







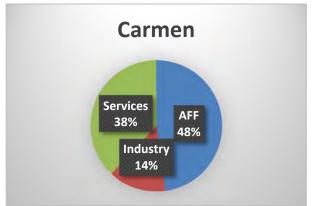


Figure 5.2.5 Structure of the local economy in the proposed Corporative project area

The poverty incidence in the proposed Corporative project area is as shown in below table.

Table 5.2.4. Poverty Incidence in the Proposed Corporative Project Area<sup>3</sup>

Municipality	Poverty Incidence (%)					
Municipality	2006	2009	2012			
Buenavista	34.1	38.0	30.8			
Carmen	37.1	40.6	37.7			
Las Nieves	52.3	53.0	59.4			
Nasipit	23.0	28.3	20.7			

#### 3) Land Tenure

Land classification in the proposed Corporative project area is as shown in Figure 4.2.6 Significant land area of around 49% of the total project area was awarded CADT (Certificate of Ancestral Domain Title) to Higaonon Tribal Communities. A large portion of the CADT areas is covered wooded grass while some portions are cultivated with perennial plants. The CADT area is located in barangay Durian and extends its area to the barangays of Simbalan and Lower Olave.

<sup>&</sup>lt;sup>3</sup> PSA, 2016. 2012 Municipal and City Level Poverty Estimates

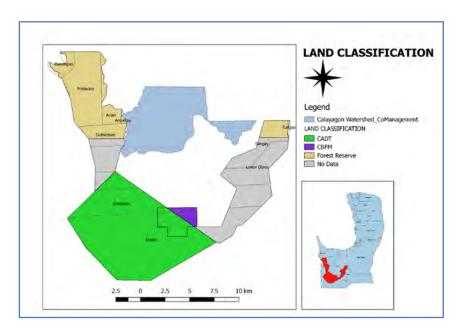


Figure 5.2.6 Land classification

A community-based forest management (CBFM) tenement for around 1,000 hectares was also observed in barangays of Durian and Simbalan. The CBFM area was used for cultivated perennials while some portion was covered with wooded grass. Significant portions of the CBFM area were encroached by the neighboring CADT of the Higaonon Tribal Communities.

The remaining 23% and 26% of the total land of the project area were classified as a forest reserve and unclassified, respectively. A watershed area (Calayagon Watershed) was also observed nearby the barangays of Aclan, Amontay, and Guinabsan. However, the watershed is located outside of the project site.

#### 4) Peace and Order Situation

Conflict incidents in the proposed Corporative project area are as shown in below table. NPA has not ceased their activity, and even now it is occasionally confronted with government forces. NPA also harass businesses in the areas where they operate. Their atrocities involved arson, extortion, harassment, black propaganda, infiltration of labor unions, meddling with agribusiness venture agreements, etc. In order to avoid such harassment, it is necessary for proponents to investigate the activity areas of these armed rebels carefully and decide the subproject area.

**Table 5.2.5 Conflict Statistics** 

Municipality / Barangay or Sitio	Month	Actor/ Party	Description				
Number of Incidents, 2016							
Buenavista							
Lower Olave /Sangay	April	NPA <sup>4</sup> vs. AFP 23 <sup>rd</sup> IB <sup>5</sup>	NPA bombed reinforcing troops of AFP; 2 AFP troops killed				
Carmen							
Manoligao	January	NPA vs CAA <sup>6</sup>	NPA attached power barge; 1 CAA member killed				
Aclan	January	NPA vs. AFP 23rd IB	NPA ambushed AFP troops				
Number of Incidents, 2	2017						
Buenavista							
Lower Olave	Sept	NPA vs CAA	NPA attack CAA outpost				
Carmen							
Poblacion	July	NPA vs PNP-RPSB <sup>7</sup> & AFP 23 <sup>rd</sup> IB	Encounter/ gun battle				
	July	NPA vs PNP-RPSB & AFP 23 <sup>rd</sup> IB	Encounter/ gun battle; 3 PNP members wounded				
Las Nieves	October	NPA vs AFP 23 <sup>rd</sup> IB	NPA attacked 23 <sup>rd</sup> IB camp				
Nasipit							
Camagong	November	NPA vs AFP 23 <sup>rd</sup> IB	Fierce gun battle; 1 AFP member killed				
Number of Incidents, 2	2018						
Buenavista							
Simbalan	July 11	NPA vs CAA	CAA troops snipped by NPA; 1 CAA member killed				

## 6. ENVIRONMENT AND SOCIAL ISSUES AND POTENTIAL IMPACTS (prelim assessment)

#### **6.1 Preliminary Assessment of the Natural Environment**

While the development of the final corporative design is still on the process of drafting however, based on the initial results of commodity suitability studies conducted, the corporative is recommended to engage into 4 high value crops namely: banana saba, coconut, coffee and oil palm. Considering that the proposed area is mainly timberland, soil suitability of these crops needs to be further studied.

In an initial study conducted by the TA HARVEST Team, the soil in the proposed site suggest to be moderately suitable for all recommended crops with undulating rolling slope, acidic and low ph soil (see Table 6.1.1). This suggest that rehabilitation shall need to be considered to prepare the ground for production. Also with the low ph level of soil, fertilizer use needs to consider physical impact to the environment, i.e those areas near watershed, rivers and creeks.

There is also a need to consider the sensitivity of this environment in terms of flora and fauna and other plants surrounding the area during the land preparation for agricultural production.

<sup>&</sup>lt;sup>4</sup> New People's Army

<sup>&</sup>lt;sup>5</sup> Armed Forces of the Philippines – 23rd Infantry Battalion

<sup>&</sup>lt;sup>6</sup> Cafgu Active Auxiliary (Barangay LGU)

<sup>&</sup>lt;sup>7</sup> Philippine National Police – Regional Public Safety Battalion (PNP-RPSB)

Table 6.1.1 Crops and Land Use Type and Suitability

Crop	Suitability	Soil Limitations					
	Rating	Severe	Moderate				
Abaca	S2tf		Undulating to rolling slope; Acidic soil (low soil pH) and low base saturation				
Banana-Cardava	S2tfw		Undulating to rolling slope; Acidic soil (low soil pH) and low base saturation; moderate drainage				
Cacao	S3f	Acidic soil (low soil pH) and base saturation	Shallow soil depth, undulating slope, moderate drainage				
Cassava	S2tfw		Undulating to rolling slope; Acidic soil (low soil pH) and low base saturation; poor drainage				
Coconut	S2tf		Undulating to rolling slope and low fertility level				
Coffee-robusta	S2tfw		Undulating to rolling slope; low fertility level and poor drainage				
Oil Palm	S2tf		Undulating to rolling slope and low fertility level				
Rubber	S2tw		Undulating to rolling slope and poor drainage				
Mango	S3fe	Low soil fertility level and clayey soil texture	Undulating to rolling slope and poor drainage				
Legend: S2= Moderately suitable e = texture	S3 = Marginally suita f = fertility	ble t = topography w = wetness					

Source: TA HARVEST Team

Other perceived significant impact of the proposed corporative project to the physical environment is yet to be determined, as activities are not yet finalized, however, the following concerns shall need to be looked into:

- Portion of the target area is a Nasipit Anakan Forest Reserve, of which condition is currently problematic due to the denudation. Hence, the proposed project should contribute to the enhancement and sustainability of the Forest Reserve.
- Significant watersheds in Calayagon, Kinabjanan and Casiklan surrounds the proposed target site

#### 6.2 Preliminary Assessment of the Socio-economic Environment

Pending additional information to warrant socio-economic impact of the project to the proposed participants and to the overall socio-economic condition of Agusan del Norte, the project seem to be a bold initiative to uplift condition of the people in the target area. If we look at the experience of Malaysia, the scheme, when properly implemented and managed results in significant improvement of the

#### 7. AREAS SUBJECT FOR STUDIES

#### 7.1 Land Tenure

An ocular survey need to be conducted together with other information collection instruments in order to generate information and understanding and characteristics of the proposed area and participants of the projects, including but limited to the following:

1) Conflict and settlement of existing boundary conflict with the LGUs

- 2) Harmonization of Indigenous Peoples Rights Act (IPRA) and Environmental Natural Resource (ENR) law
- 3) Evaluation of existing tenurial instruments and ancestral domain claims in the target area
- 4) Conduct inventory of actual occupants
- 5) Baseline survey and mapping of cultural communities
- 6) Clarify area with CADT within and surrounding the target site

#### 7.2 Ground truth survey

A ground truth survey need to be conducted in order to clarify, confirm and develop the current land use and identify land use classes and land cover of the proposed site. The Geographic Information System (GIS) database is also needed to be developed for mapping the existing/absence of facility and for facilitating future development plan of the target area.

The results of the ground truth survey can facilitate the delineation of production area out of the target 19,000 has and identify areas for settlement.

#### 7.3 Settlement Plan

Settlement planning need to be conducted in order to facilitate smooth settlement of selected participants to the project. Activities hope to lead in mapping out number of houses to be built, and the feasibility of the facilities to be installed and constructed.

#### 7.4 Socio-economic profile of the target participants

A socio-economic survey shall be initiated to establish the profile of the target participants. Although prior to the survey, it is desirable that selection criteria must be establish and process of selection are fully understood.

Mapping of the indigenous peoples and the rebel returnees in the target area and establish understanding on the number and their current socio-economic condition. The survey shall also indicates not only the population, age but also the structure of their economic activity. These information will provide a concise information as to identification of non-farm activities.

#### 7.5 Selection and Selection Process of Participants

As initially proposed, the project will benefit 3 sets of vulnerable sectors in LasBueNasCar namely; the indigents or poorest of the poor; indigenous peoples and rebel returnees.

In order to ensure adequate targeting of support to these income groups, selection criteria should be established.

# 17. Consideration for Conflict Prevention Regarding HARVEST Project





Republic of the Philippines

The Project for Capacity Building for Financial Access in Agribusiness (Phase 1) (Technical Assistance Grant for HARVEST)

# Consideration for Conflict Prevention Regarding HARVEST Project

July 26 2018

Japan International Cooperation Agency NTC International Co., Ltd.



1





Republic of the Philippines

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July 26 2018

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## **Background**

- In the ARMM and conflict-affected area, factors to trigger conflicts such as land problems, the rivalry between clans, the existence of the internally displaced person still exist as a result of long-term conflicts.
- Therefore, it is necessary for HARVEST to have careful considerations not to put negative impact toward these conflict factors.



2





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- Therefore, it is necessary for HARVEST to have careful considerations not to put negative impact toward these conflict factors.







# Possible Factors to Trigger Conflicts in case of HARVEST

- 1. The Land Issue
- 2. Various Stakeholders
- 3. Vulnerable People
- 4. Insurgency Problem
- 5. The Political Transition Stage



2



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- 1. The Land Issue
- 2. Various Stakeholders
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## 1. The Land Issue

- Land ownership based on traditional custom and formal registration system coexists alongside in the target area of HARVEST.
- There are multiple systems of land ownership registration.
  - The Land Registration Authority (LRA)
  - The Land Management Bureau (LMB, DENR)
  - The Forest Management Bureau (FMB, DENR)
  - The Department of Agrarian Reform (DAR)
  - The National Commission on Indigenous Peoples (NCIP)



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# Conflicts related to Land in Mindanao

- Typologies of multi-dimensionality land-related conflict in Mindanao
  - Between Moro and Christian parties related to past forced displacement
  - Between IP parties against Moro and Christian parties relating to a primacy of rights.
  - Between clans and community-based rido related to competing for land claims
  - Land disputes that escalate into a vertical conflict between the government and armed groups
  - Between public institutions and private parties relating to competing for land claims mainly caused by informal land markets.



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# View points not to promote Land Disputes

#### LBP should confirm that:

- Land acquisition costs should not be included in the HARVEST loan.
- A series of document preparation and procedures concerning land tenure are done by the proponent.
- Contracts such as land lease made by the proponent must be fair and transparent. Especially not to bring disadvantages to small farmers.
- Appropriate consideration on involuntary resettlement should be made by the proponent.
- Promotion of understanding by prior consultation to the community and good relationship between the land users and the community should be established by the proponent.
- The proponent must implement social consideration measures for the community.
- Monitoring and grievance handling system must be established and functional.



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## jica

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## 2. Various Stakeholders

- Due to the government's resettlement policy since 1920's, many Moros and IPs were driven to areas with low agricultural productivity by migrating Christians.
- As a result, economic gaps between Moros, IPs and Christians spread, which was one of the factors of conflict.
- Moros, IPs and Christians have different concept and protocol on arbitration and land ownership, even within Moros and IPs.



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# Considerations on Various Stakeholders

#### LBP should confirm that:

- From this background, following considerations are necessary for HARVEST sub-projects.
- ➤ To seek equitable coexistence among **Moros**, **IPs**, and **Christians**, and Inclusive development.
- ➤ To consider carefully that sub-projects will not increase the disparity or stimulate tensions among residents.
- ➤ The proponent should conduct consultation with a wide range of stakeholders to obtain an understanding of HARVEST sub-project from all stakeholders.



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# 3. Vulnerable People

- There are socially vulnerable people affected by conflict as followings.
  - Disabled people
  - Female householder
  - Ex-soldier
- Indigenous people has been marginalized historically.



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# **Considerations on Vulnerable People**

#### LBP should confirm that:

 While the rights of Moros have been focused on as in such as BBL, consideration for socially vulnerable people and IPs is necessary not to promote tensions among residents and stakeholders.



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### Reference for

- Screening and Monitoring
  For the following three factors that possibly trigger conflicts, checking subproject according to following references are vital.
  - The land issue
  - Various stakeholders
  - Vulnerable people
  - ➤ LBP's new " Environmental and Social Safeguards Policy Relative to Credit Delivery" (Annex H, B.2 Social impact) (also included in ESMF annex 4 Credit Policy Issuance (CPI))
  - ESMF (Annex 3 Environmental and Social Screening) Checklist (ESSC))





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## 4. Insurgency Problem

- The insurgency problem affects almost all industries in Mindanao.
- Their atrocities involved arson, extortion, harassment, black propaganda, infiltration of labor unions, meddling with agribusiness venture agreements, etc.
- Rebel groups possibly affect to HARVEST subprojects are as followings.
  - The Communist Party of the Philippines New People's Army National Democratic Front (CPP-NPA-NDF)
  - Bangsamoro Islamic Freedom Fighters (BIFF)
  - Abu Sayyaf Group (ASG)
  - Jemaah Islamiyah (JI)
  - Maute Group



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# Harassment by the Insurgency Rebels

 Most of the big industries in the countryside are located near rebel bases. They are vulnerable to violent and non-violent attacks. Rebels also harass smaller businesses in the areas where they operate.

#### [example]

One of the reasons for the bankruptcy of Nasipit Lumber Company (Nalco), a big logging company that was doing business in Agusan del Norte, was this insurgency problem. The communist rebels found Nalco's forests conducive for hiding. At the same time, they imposed sanctions on the company because it refused to give them money. The torching of trucks, tractors, and bridges was common during those years and Nalco was forced to move from one logging site to another just to steer clear of the rebels.

- In order to avoid such harassment, it is necessary for proponents to investigate the activity areas of these armed rebels carefully and decide the subproject target area.
- LBP should give proponents appropriate advice to avoid the harassment of the insurgency rebels.



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- LBP should give proponents appropriate advice to avoid the harassment of the insurgency rebels.







# 5. The Political Transition Stage

- At the moment, the Bangsamoro Basic Law (BBL) has been passed Congress at the end of May, and both chambers would have to ratify the reconciled version on the morning of July 23, and President Duterte, in turn, could sign it into law before he delivers his 3rd State of the Nation Address at the 17th Congress.
- On the other hand, even if the bill passes, unstable situations such as the implementation of referendums for the approval of the bill by the residents, and the shift of administrative authority are expected to continue.
- In order to minimize the influence of such social instability on subprojects, <u>it is necessary for LBP</u> to examine the target area and starting timing of subprojects carefully.



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18. Baseline Survey for KPI Target Setting	

Republic of the Philippines
Land Bank of the Philippines (LBP)

Republic of the Philippines
The Project for Capacity Building for
Financial Access in Agribusiness (Phase 1)
(Technical Assistance Grant for HARVEST)

Baseline Survey for KPI Target Setting

**Draft Report** 

August 2018

Japan International Cooperation Agency

Nomura Research Institute, Ltd.

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#### **Abbreviation and Acronyms**

ARB Agrarian Reform Beneficiaries

ARMM Autonomous Region in Muslim Mindanao

CDA Cooperative Development Authority

CFI Countryside Financial Institutions

CFP Credit Facilities Proposal

Co-op Cooperative

FCFS First Come First Served

JCC Joint Coordinating Committee

JPY Japanese Yen

JICA Japan International Cooperation Agency

KPIs Key Performance Indicators

LAEs Large Agribusiness Enterprises

LBP Land Bank of the Philippines

MSME Micro, Small and Medium Enterprise

SME Small and Medium Enterprise

SSP Sikat Saka Program (special program for rice and corn producers)

NEDA National Economic and Development Authority

PhP Philippine Peso

PTMAs Production Technical Marketing Agreements

#### 1 Background and Objective

#### 1.1 KPI and Background of the survey

Project Team have reviewed and updated the Operation and Effect Indicators (Key performance indicators, "KPIs") planned in appraisal of HARVEST, based on information identified through this Project. The updated indicators as follows, has been approved by the National Economic and Development Authority (NEDA):

Table 1 Key Performance Indicators (KPIs)

No	Indicators initially assumed	Updated indicators	Reason for modification
1	New employment created	Additional number of employment	Clarification of "new employment"
	by sub-project Target: LAE, agribusiness related SMEs	generated by LAEs and MSMEs.	Clarification of flew employment
2	Number of newly signed marketing contracts Target: Large agribusiness enterprise	Number of newly developed PTMAs or Corporate/ Business linkage by corporatives or LAEs with farmers' organizations	Clarification of marketing contracts and LAEs (which include Corporatives)
3	Sales of sub-project Target: Large agribusiness enterprise, agribusiness related SMEs	Growth in sales of SME sub-borrowers/ end-borrowers	Impact of LAEs shall be counted by PTMAs and generated employment.
4	Number of beneficiaries (cooperative members, farmers, fishers) Target: agriculture cooperative and group	Number of re-lending loan projects and their possible/ potential (not actual) end-users that can be extended credit by co-ops or farmers' organizations.	Burden for sub-loan borrower to check the 3-step loans from each promissory note may be too heavy, and difficult for LDB to trace, without borrower's cooperation.
5	-	Amount of investment supported by the eligible sub-borrowers through HARVEST	This KPI was not in the ToR, but had already been approved by NEDA as one of the KPIs.
6	Total sub-loan amount Target: All users of HARVEST loan	(Same)	
	Number of approved and disbursed sub-loan Target: All end users of HARVEST loan	(Same)	
7	Number of newly opened bank accounts Target: All end users of HARVEST loan	Total number of new (sub-)borrowers with new loan accounts generated by LANDBANK through HARVEST	To count only the borrower who were able to receive finance for the first time (Exclude any borrower who have borrowed from LBP or any other bank)
8	New female employees and female beneficiaries caused by sub-project Target: All end users of HARVEST loan	Number of women that were employed or have benefitted through HARVEST	Clarify that females who have not borrowed directly, but were employed under a HARVEST project are also included.

#### 1.2 Survey Objective

Baseline surveys are usually conducted to grasp the project situation and level of indicators before the implementation of the project. However, the above KPIs are defined as additional "new growth" resulting from the project and hence the baseline is, by this definition, "0".

The following survey (hereafter, the "baseline survey") was conducted to obtain data necessary to set the target level of the above indicators (KPIs), after the project has been completed.

#### 2 Scope and Methodology of the survey

2.1 Hearing survey on the Target for Job Generation for the HARVEST project appraisal by World Bank, JICA and LBP

In order to utilize the knowledge from the past project appraisal, the project team investigated how the target for job generation for HARVEST has been arrived, by interviewing LBP and JICA Manila Office regarding their past methodology and discussed how it can be utilized for the current HARVEST project.

# 2.2 Analysis on the characteristics of LBP's current Mindanao Loan Portfolio data

Target levels should be set at the expected level of project implementation (e.g., full disbursement) and the expected level of impact from such implementation at the time of project completion. Since some of the KPIs will depend on the type of customer borrowing the HARVEST loan (such as KPI No.1 to No.4), setting a goal on these borrower type dependent KPIs will require setting a target on the type of HARVEST loans by borrower type. However, the HARVEST loan is expected to be provided to eligible borrowers on a first come first served (FCFS) basis, and it would be difficult to control the type of borrowers under this FCFS policy. We therefore assumed that HARVEST loan portfolio would resemble the portfolio of the current (released during 2013-2018) Mindanao Loan Portfolio, as the "Baseline loan portfolio" in order to set the targets which are borrower type specific.

The disclosed portion of LBP's loan Mindanao database, for agricultural loans in Regions IX-XIII and ARMM, included information regarding account name, borrower type, location, project description, agriculture flag, application date, release date and amount, but did not

include information usually found in Marketing Customer Information Files, such as the borrower's employment/membership size, sales amount, etc.

We aggregated the released loans by name and by borrower type, to calculate the loan share in Mindanao and estimated the "Baseline loan portfolio" as well as the share of multiple availment loans (by the same borrower) and new borrowers from the Mindanao Loan Portfolio Database.

#### 2.3 Study on the characteristics of potential loan projects in LBP's pipeline

We have aggregated available data from the pipeline of potential loan projects and available CFPs in order to estimate the size of 3 step loan borrowers. The pipeline data were provided by LBP under the title of "Inventory of Potential HARVEST Sub-Borrowers" and was submitted to the JCC on April 23rd, 2018.

#### 2.4 Reference to the Market Database Survey

We have referred to the Market Database Survey to find a typical membership size of a CO-OP which provides finance/credit to its members, in order to set a target for the size of 3 step loan borrowers.

#### 2.5 Survey on Statistics of agricultural Co-ops

We have searched for official statistics of cooperatives registered at the Cooperative Development Authority's to obtain data on the asset size of cooperatives and their business volume. We have conducted a regression analysis to determine the relationship between the two variables, and assuming that the increase in loan size for SMEs will have the same impact as increase of asset size for cooperatives, we estimated the expected increase of sales from the disbursed loans.

We have also referred to the official list of cooperatives registered at the Cooperative Development Authority's to calculate the average female ratio at Cooperatives and assumed that the ratio will be the same for potential cooperatives applying for HARVEST. The Official list<sup>1</sup> is a list of Department of Agrarian Reform (DAR) assisted Cooperatives which have duly re-registered with the Cooperative Development Authority under RA 9250 and those which have availed of credit/microfinance (MF) services under the Department's credit/MF

<sup>&</sup>lt;sup>1</sup> The list is provided for the compliance to the agreement made by Bangko Sentral ng Pilipinas, Department of Agriculture and DAR in Inter-Agency Meeting on Agri-Agra last May 24, 2013. It intends to facilitate access by government or private banking institutions in their effort to link with these cooperatives to serve the credit requirements of their agrarian reform beneficiaries (ARBs) members in compliance to the Agri-Agra Law. http://www.dar.gov.ph/arb-portal?limitstart=0

programs in partnership with financing institutions.

#### 2.6 Survey on Enterprises and Employees

In order to identify the number of expected females to be benefitted from HARVEST, we have calculated the average female ratio and average enterprise size in the Mindano regions (regions IX-XIII and ARMM) by looking into the The 2016 List of Establishments of the Philippine Statistics Authority (PSA) and the January 2018 Labor Force Survey from the Philippine Statistics Authority.

#### 3 Survey Results

3.1 Hearing survey on the Target for Job Generation for the HARVEST project appraisal by World Bank, JICA and LBP

Estimates were based on the planting area of the projects listed in the pipeline with the following assumptions, grounded on USD 355 million as the amount of total investments generated in the market study for HARVEST.

Table 2 Job generation assumption table for HARVEST appraisal by LBP-World Bank-JICA

Crop	Production Area (ha)	Direct Jobs Created (per ha)	Total Jobs Generated
Banana	5,600	4	22,400
Pineapple	1,800	2	3,600
Coffee	4,000	1	4,000
Cacao	1,000	1	1,000
Total	12,400	-	31,000

(Source) LBP-World Bank-JICA

As the credit size decreased to 250 million USD (roughly 70% of the USD 355 million demand size), the target job size was conservatively established at roughly 70% of the 31,000 jobs, or at 21,700.

Considering the fact that the credit size of the current HARVEST loan has further decreased, but with the same concept, the Target for Job generation could further be decreased proportionally with the current credit size.

3.2 Analysis on the characteristics of LBP's current Mindanao Loan

#### Portfolio data

The loan data has been aggregated and summarized in the following table to highlight the loan portfolio:

Table 3 LBP's current Mindanao Loan Portfolio

Type of Borrower	Number of borrowers*	(%)	Total Released loan amount (PhP)	(%)	Average Loan size (PhP)
SME	672	20%	5,925,508,517	17%	8,817,721
COOP	195	6%	3,475,963,586	10%	17,825,454
CFI	18	1%	761,182,376	2%	42,287,910
Large	52	2%	22,313,454,069	64%	429,104,886
SSP*	1920	57%	179,986,667	1%	93,743
Others	488	15%	1,995,947,917	6%	4,090,057
Total	3,345	100%	34,652,043,132	100%	10,359,355

<sup>(\*</sup>Note) Number of borrowers in terms of different names (same borrower may borrow different type of loans at the same application date or at different application dates).

More than half of the borrowers are under the Sikat Saka Program (special program for rice and corn producers). However, their average loan size is less than 100 thousand PhP and the total amount of the borrowers under SSP is only 1% of the total loan portfolio.

The second largest type of borrowers (in terms of number of borrowers) is the SME segment, with 20% of the borrowers and 17% of the loan amount. The average loan size for SMEs was about 9 million PhP.

CO-OPs accounted for 6% of the portfolio in terms of number of borrowers and 10% in terms of loan amount, with an average loan size of 18 million PhP. Countryside Financial Institutions (CFIs) accounted for only 1% of the portfolio in terms of number of borrowers and 2% in terms of loan amount, but have an average loan size of 42 million PhP.

Large agribusiness enterprises accounted for only 2% of the portfolio in terms of number of borrowers, but for nearly 2/3, or 64% of the total loan amount. The average loan size of the large enterprises is 429 million PhP, or about 900 million JPY.

Among the loans in the database, about 3% were loans for borrowers with multiple availments (same borrower who applied for loans on a different date, or for different location, or for different project<sup>2</sup> description).

<sup>(\*\*</sup>Note) Borrower of Sikat Saka Program (special program for rice and corn producers) (Source data) LBP, as of June 2018 (Loan released during 2013-2018)

<sup>&</sup>lt;sup>2</sup> If the borrower is a CFI or COOP, different project description does not matter as the same CFI or COOP may just be applying for relending on behalf of different customers with different projects.

In order to achieve a "Baseline Loan Portfolio", we have proportionally shrunk the above loan portfolio to the size of HARVEST loan (PhP 2,357,894,737, or \$4,928 million at \$2.09/Php), with a few modifications.

First, as the HARVEST loan will not rely on any other program, such as SSP, and as the definition of "others" could not be clearly integrated with the borrower type in the KPIs, we have excluded these two categories.

Table 4 Baseline loan portfolio before adjustment of Large/Corporative

Type of Borrower	Number of borrowers	(%)	Total Released amount (PhP)	(%)	Average Loan size (PhP)
SME	49	72%	430,215,502	18%	8,817,721
COOP	14	21%	252,368,791	11%	17,825,454
CFI	1	2%	55,264,870	2%	42,287,910
Large	4	6%	1,620,045,574	69%	429,104,886
Total	68	100%	2,357,894,737	100%	34,659,668

(Source data) LBP, as of June 2018

Second, under the current interest rate situation, and after discussion with LBP/JICA-Manila, 1 Corporative or LAE would seem to be a "well stretched" target and we assume that a Corporative/LAE will have a loan size of the average loan size of a Large Borrower in the Mindanao Loan Portfolio.

Table 5 Baseline loan portfolio

Type of Borrower	Number of borrowers	(%)	Total Released amount	(%)	Average Loan size
SME	128	75%	1,124,613,723	48%	8,817,721
COOP	37	22%	659,709,852	28%	17,825,454
CFI/Credit COOP	3	2%	144,466,276	6%	42,287,910
Large/Corporative	1	1%	429,104,886	18%	429,104,886
Total	169	100%	2,357,894,737	100%	13,954,859

(Source data) LBP, as of June 2018

3.3 Study on the characteristics of potential loan projects in LBP's pipeline There were 26 potential SME Sub-borrowers in the LBP pipeline, with a total estimated loan amount of 378 million PhP. Among the 26 loan applications, 21 had female borrowers, in other words, 80.8% of the loan were requested by females.

There were 34 potential CO-OP Sub-borrowers in the LBP pipeline, with a total estimated

loan amount of 833 million PhP. Among them there was one "Credit Co-op" with an estimated loan amount of 0.79 million PhP.

#### 3.4 Reference to the Market Database Survey

The Market Database Survey covered two CO-Ops which have explicitly mentioned that they were in need for funding to provide credit to their members.

However, the size of the two CO-OPS were quite different, as follows:

Table 6 Membership size of Credit Co-ops in the HARVEST Market Database

			Required		N	<u>Iembershi</u>	р	
No.	Province	Municipality	funding	Total	Male	Female	Active	Inactive
1	Maguindanao	Pagalunga	100,000	30	20	10	30	0
2	BASULTA	Lamitan_City	500,000	120	5	115	120	0

(Source) HARVEST Market Database Survey

#### 3.5 Survey on Statistics of agricultural Co-ops

The asset size of cooperatives and their business volume are summarized in the following table. The ratio of business volume to asset size is around 1 for most of the targeted regions for HARVEST (Region IX to XIII), however the ratio is smaller for the ARMM area, while the ratio is higher for other (non-conflict) area. We can therefore assume that as the asset size of Co-ops (and SMEs) increases, business size shall increase, especially when there is no conflict in the area.

Table 7 Business Volume and Asset Size of agricultural Co-ops in Mindanao

	No. of	Membe	rship	Business V	olume	Asset	Size	Business Volume
	CO-OPs	Total	Average	Total	Average	Total	Average	/Asset
Grand Total	10,762	7,675,283	713	313,835,095,083	29,161,410	248,539,541,101	23,094,178	1.263
6 regions	3,079	2,188,780	711	59,931,647,610	19,464,647	60,542,586,756	19,663,068	0.990
REGION IX	356	348,858	980	5,047,088,586	14,177,215	5,443,279,360	15,290,111	0.927
REGION X	878	804,671	916	17,482,676,567	19,911,932	20,056,311,024	22,843,179	0.872
REGION XI	939	672,884	717	26,117,760,019	27,814,441	23,255,749,004	24,766,506	1.123
REGION XII	446	195,422	438	7,547,466,131	16,922,570	7,563,871,262	16,959,353	0.998
REGION XIII(Caraga)	446	159,107	357	3,685,596,661	8,263,670	3,984,499,399	8,933,855	0.925
ARMM	14	7,838	560	51,059,646	3,647,118	238,876,707	17,062,622	0.214

(Source) Cooperative Development Authority. Data as of Dec. 31, 2014

 $http://www.cda.gov.ph/resources/updates/statistics/527\text{-}statistics-as-of-december-} 31\text{-}2014?tmpl=component \&print=1$ 

We have further conducted a regression analysis to identify the relationship between the

two variables in further detail. The analysis verified the strong co-relation between the two variables, and that an increase of 1 PhP in the asset size shall increase the business volume by a factor<sup>3</sup> of 1.01.

We also calculated the average membership size and the female ratio of cooperatives listed at the Cooperative Development Authority, including the Non-ARB members in the 6 regions which are targeted by HARVEST. The average membership size of the cooperatives is 100 and 48% of them are female.

Table 8 Membership of DAR listed Co-ops in Mindanao

REGION	Number of Cooperatives	ARB Male Members	ARB Female Members	Non-ARB Male Members	Non-ARB Female Members		Non-ARB Female%	Average membership	Average female %
Grand	1,953	124,913	80,522	108,146	131,971	39%	55%	105	48%
Sub-Total	723	45,291	26,674	42,638	55,417	37%	57%	100	48%
IX	107	12,988	7,451	4,830	7,031	36%	59%	191	45%
X	214	9,520	6,796	2,475	6,636	42%	73%	76	53%
XI	154	9,812	3,826	4,090	3,968	28%	49%	89	36%
XII	55	3,249	1,230	1,625	1,778	27%	52%	81	38%
CARAGA	165	8,621	6,438	29,086	35,416	43%	55%	91	53%
ARMM	3	237	390	40	14	62%	26%	209	59%

(Source) Official list of DAR assisted Cooperatives, http://www.dar.gov.ph/arb-portal?limitstart=0

#### 3.6 Survey on Statistics of Enterprise and Employment

The average size of the SMEs and large firms in terms of employment is shown below for the regions in Mindano.

Table 9 Philippine MSME Statistics in Mindanao (2016)

		of Establishr I Employmer	,		nployment b		SME	(Small + M	ledium)	Large
REGION	SMALL	MEDIUM	LARGE	SMALL	MEDIUM	LARGE	Establish-	Employ-	Average	Average
				-					Employment	Employment
Philippines	86,955	4,018	3,958	1,981,316	551,871	2,831,729	90,973	2,533,187	28	715
Zamboanga Peninsula	1,838	70	50	39,046	9,404	23,465	1,908	48,450	25	469
Northern Mindanao	3,246	121	104	71,375	16,776	56,749	3,367	88,151	26	546
Davao Region	4,433	201	164	97,503	28,452	93,216	4,634	125,955	27	568
SOCCSKSARGEN	2,184	85	78	48,071	11,872	73,080	2,269	59,943	26	937
Caraga	1,171	35	49	24,103	4,737	23,580	1,206	28,840	24	481
ARMM	328	6	16	6,658	822	6,603	334	7,480	22	413
Subtotal of above regions	13,200	518	461	286,756	72,063	276,693	13,718	358,819	26	600

(Source) The 2016 List of Establishments of the Philippine Statistics Authority (PSA)

The female ratio in the agricultural sector in the Mindanao regions were 24% as follows:

 $^3$  We ran a linear regression over the 6 region data in the above mentioned table. As the t-value for the intercept was small (-0.426) we adopted a linear model without the intercept, which had a  $R^2$  of 0.986.

Table 10 Distribution of Employed Persons by Sex, Region and Industry Group

Region and Major Industry Group	Total	Male	Female	Total	Male	Female	F/T
Philippines	41,755	25,760	15,995				38%
IX - Zamboanga Peninsula	1,496	1,002	<b>494</b> Nu	ımber (in tho	usands)	1	
Agriculture, hunting, and forestry	48.0	51.6	40.8 (%	<b>6) 719</b>	517	201	28%
Fishing and aquaculture	4.6	6.5	0.7 (%	<b>69</b>	65	4	5%
X - Northern Mindanao	2,305	1,370	<b>935</b> Nu	ımber (in tho	usands)	1	
Agriculture, hunting, and forestry	37.6	41.0	32.5 (%	<b>866</b>	562	304	35%
Fishing and aquaculture	0.8	1.2	0.3 (%	<b>6)</b> 19	16	3	17%
XI - Davao Region	2,061	1,338	<b>723</b> Nu	ımber (in tho	usands)		
Agriculture, hunting, and forestry	33.9	41.1	20.6 (%	<b>699</b>	550	149	21%
Fishing and aquaculture	1.8	2.7	0.1 (%	<b>6)</b> 36	36	1	2%
XII - SOCCSKSARGEN	1,880	1,239	<b>641</b> Nu	ımber (in tho	usands)		
Agriculture, hunting, and forestry	42.3	49.2	29.0 (%	<b>6) 796</b>	610	186	23%
Fishing and aquaculture	2.8	4.2	0.1 (%	<b>6) 52</b>	52	1	1%
Caraga	1,207	745	<b>462</b> Nu	ımber (in tho	usands)	1	
Agriculture, hunting, and forestry	33.9	39.8	24.3 (%	<b>6)</b> 409	296	112	27%
Fishing and aquaculture	3.9	5.9	0.7 (%	<b>6)</b> 47	44	3	7%
Autonomous Region in Muslim Mindanao	1,064	806	<b>257</b> Nu	mber (in tho	usands)	1	
Agriculture, hunting, and forestry	54.9	58.4	43.9 (%	<b>6)</b> 584	471	113	19%
Fishing and aquaculture	13.8	17.4	2.5 (%	<b>6)</b> 147	140	7	4%
Subtotal of the regions above				4,442	3,359	1,083	24%

(Source) Philippine Statistics Authority, January 2018 Labor Force Survey

#### 4 Target setting for each KPI

Based on the above information, the Target for each KPI was set as follows:

#### 4.1 Additional number of employment generated by LAEs and MSMEs

World Bank and JICA has set the target for job generation from their planned USD 250 million credit size to be 21,700 jobs. Since World Bank has left the table, the credit size has dropped to 40 million USD, or to 16% of the initial planned credit size. Therefore, the target for Job Generation should drop to at least 16%, or, to 3,500 jobs. As the expected loan amount for LAEs and MSMEs are 66% of the total HARVEST loan the job target should be adjusted proportionally to 2,300 jobs.

Furthermore, as the planned project time has been reduced by 20% (from 5 years to 4 years), the jobs that can be generated from the projects that will be operational during this

time period should be reduced, likewise, to 1,800 jobs.

4.2 Number of newly developed PTMAs or Corporate/ Business linkage by corporatives or LAEs with farmers' organizations

Although the TA was initially designed to support development of 3 Corporatives, under the current interest rate situation, and after discussion with LBP/JICA-Manila, 1 Corporative or LAE would seem to be a "well stretched" target. As we assume that each Corporative/LAE will have 1 PTMA, the initial target will be set to 1 PTMA/Linkage.

#### 4.3 Growth in sales of SME sub-borrowers/ end-borrowers

Here we assume that loans to SME will be in the same proportion as in the Mindanao Loan Portfolio which LBP released during 2013-2018, except that there will be 1 LAEs/Corporative loan above with a loan size of the average loan size of a Large Borrower in the Mindanao Loan Portfolio (this Portfolio similar to LBP's portfolio shall be called the "Baseline loan portfolio"). We also assume that Harvest loan (which is expected to have a longer maturity than ordinary LBP loans) will have same impact on SMEs as increasing their asset size and that increase in asset size will proportionally increase sales volume by a factor of 1.01, as verified with the agricultural cooperatives (cf. section 3.5 above).

Under these assumptions, SMEs that utilize HARVEST loans should have a sales growth of **Php1,136 million**.

4.4 Number of re-lending loan projects and their possible/ potential end-users that can be extended credit by co-ops or farmers' organizations

Assuming the Baseline loan portfolio and the membership size of Co-ops for relending in the agricultural production would be similar to the membership size of a credit providing Co-op in the Marketing Database Survey that has a need for a lending amount close to the requested loan size of the credit Co-op in LBP's pipeline, the potential 3-step loan borrowers could reach 120 persons per credit providing Co-op. For 3 such Co-ops in the baseline loan portfolio, we can expect to have 360 persons as end-users of 3 step loans, when HARVEST is fully disbursed.

4.5 Amount of investment supported by the eligible sub-borrowers through HARVEST

Assuming that a project will be financed 20% by borrower's own fund (equity) and 80% of it by HARVEST loan, investment amount should reach **Php 2,947 million** when all of the

HARVEST loan is disbursed.

#### 4.6 Total sub-loan amount

The target should full disbursement of the HARVEST loan amount, which is PhP 2,357,894,737, or \(\pm\)4,928 million at \(\pm\)2.09/Php.

Assuming the Baseline loan portfolio, which has been the derived from the Mindanao loan portfolio and assumptions on the LAEs/Corporatives mentioned above, the Total sub-loan amount and number of applicants should reach the following (breakdown of total are not targeted, but shown as reference):

Table 11 Target amount (in Philippine Peso) and number of sub-loans extended to the following through HARVEST

	Entities	Loan Amount (Php mil)
Total	169	2,358
· Corporatives / Large Agribusiness Enterprises (LAEs)	1	437
· Micro, Small and Medium Enterprises (MSMEs)	123	1,107
· Cooperatives/ farmers' organizations	46	813

#### 4.7 Number of approved and disbursed sub-loan

Assuming the same ratio (3%) of multiple availment borrowers as in the active loans in Mindanao, new sub-borrowers should reach **164**.

# 4.8 Total number of new (sub-)borrowers with new loan accounts generated by LANDBANK through HARVEST

Assuming same ratio of new borrowers as for LBP's Mindanao Loan Database for 2013-2018 (15%), total number of new (sub-)borrowers with new loan accounts generated by LANDBANK through HARVEST should reach **25**.

# 4.9 Number of women that were employed or have benefitted through HARVEST

For direct borrowers (SME and LAEs), we assume that the number of average employees will be the same as in the Statistics of Enterprise and Employment survey for the Mindano regions (SME:26, LAE:600 average employees), and the ratio of female will be the same as in the Labor force survey for the employees working in the agriculture and fishing industries

(24 %). We also assume the female proportion will be in the same as in LBP's HARVEST Pipeline SME (81%).

For Co-ops, we assume women in all type of CO-OPs (not just the relending CO-OPs) benefit from HARVEST, and the size of membership and ratio of female membership will be the same as the CDA listed cooperatives (100 and 48%).

Furthermore, as we assume the Baseline portfolio for loans, the goal for female benefitted is set at **2,984**.

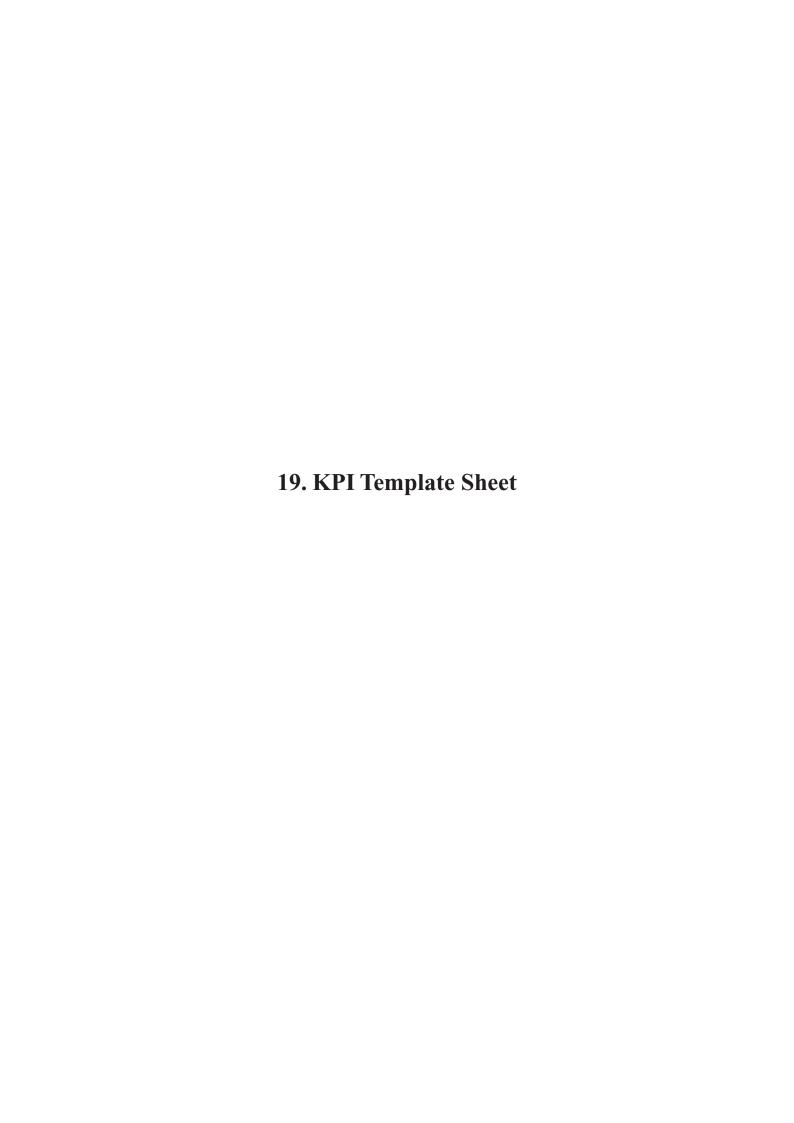
#### 5 Conclusion

For the ease of monitoring the status of the project, the KPIs can be re-categorized and their suggested target value can be summarized as follows:

Table 12 Operation and Effect Indicators (KPIs) by Target entity and Target Value

No	Target entity	Operation and Effect indicators	Present (2018)	Target* (2024)
1	LAE,MSMEs	Additional number of employment	0	1,800
2	Corporatives, LAEs	Number of newly developed PTMAs or Corporate/ Business linkage with farmers' organizations	0	1
3	SMEs	Sales Growth of sub-borrowers/ end-borrowers	0	P1,136mil
4	Cooperatives, Farmers Organizations	Number of re-lending loan projects and their possible/ potential end-users that can be extended credit	0	360
5	All categories: (Corporatives, LAEs, MSMEs, Cooperatives)	Amount of investment supported by the eligible sub-borrowers	0	P2,947mil
6	All categories: Total of - Corporatives - LAEs - MSMEs - Cooperatives	Number of approved and disbursed sub-loan	0	169; P2,358mil
7	New borrowers -1 <sup>st</sup> Harvest loan -1 <sup>st</sup> loan ever	Total number of newly opened bank accounts	0 0	164 45
8	Female employees and beneficiaries	Number of women that were employed or have benefitted through HARVEST	0	2,984

<sup>(\*</sup>Note) Figures are suggested target based on the Baseline Survey, which are to be determined in line with the approved Operating Policy Guidelines.





#### Land Bank of the Philippines



Japan International Cooperation Agency

## **KPI** Template Sheets

The Project for Capacity Building for Financial
Access in Agribusiness (Phase 1) (Technical
Assistance Grant for HARVEST)

September 2018

Technical Assistance Team

Nomura Research Institute, Ltd.

NTC International Co., Ltd.

Oriental Consulting Global

#### LC Monitoring Sheet (1)

Land Bank of the Philippines	Jap	oan International C	Cooperation Agency
HARVEST Lending Pro	ogram		
lamessing Agribusiness Opportunities through Robust and Vibrant	Entrepreneurship :	Supportive of Peace	eful Transformation)
KPI Template She	et		
ease provide the following information to monitor the impact of this	loan under the HAI	RVEST Program.	
Yellow box should be recorded at time of HARVEST loan applica	tion		
Blue box should be recorded during the monitoring period			
Green box will be automatically calculated			
Dark grey box do not require any input			
(Code) Name of Lending Center	Tr.		
	L		
Information of the Loan Applicant (borrower of HARVEST loa	n)		
Characteristic		Required entry	
Customer ID within LBP (CFP control number)			
Customer's Business type			(type in or pull down list)
Location of Project which required this loan	Region:		
2000 and 101 10 Jose Million 10 Quinto a million 10 and	Province/City:		
Major product from the project (most significant in sales, choose	only 1)		•
Major value/function of project (most significant in sales, choose	only 1)		
When did the borrower apply for a HARVEST loan for this project	?	10-Oct-2018	
Is this the first time the borrower applied for a HARVEST loan?			"
Is this the first time for the borrower to apply for a loan from any finstitution?			"
Is this a retroactively refinanced loan, which the original loan was of HARVEST?	made regardless		"
Is this loan for re-lending?			"
If the relending is for members of the borrower, how many	members exist?		

LC Monitoring Sheet (2)

* Key Performance Indicator (IQN) Estimation at time of Loan Application, Monitoring sheet	ning sheet														ş	June 09, 2017	-				
	Before HARVEST	Estimation for					Monit	Monitoring of Actual Figures (not growth figures)	Hgures (not g	trowth figures)					_	Revise	₹	KPI to be reported			
	Ioan Application Jun. 2022 at time	Jun. 2022 at tim		2018	2019		2020	2021	r.	2022	•	2023	2024	7	2025 estir	estimation, if	_	ecent review	Mid-term review	Recent review Mid-term review Completion report	Tepost
		of Application	ş	Dec	- Ju	Dec	Jun	e e	Dec	Jun Dec	ş	Dec	n)	Dec Dec	nn nece	necessary for	D)	Frowth up to)	(Growth up to) (Growth up to)	(Growth up to)	(Growth up to)
3	Oct-2018	Input date ⇒	.⇒ Od-2018												3	Jun-2022	Ĺ	Oct-2018	Jun-2020	Jun-2022	Jun-2025
How many persons will be employed, additionally, by this project, from the time the loan is approved until the end of March, 2023.	0		0														0	0	0		
Number of Full time equivalent (FTE) employees (generated from this project)	0														_						
(If not yet converted in above) Part-time/temporary workers (generated from this project)	0															0					
Average man-month workload of a part-time/temporary workers in a year																0 months					
(For corporatives or LAEs) How many new Production Technical Marketing 2 Agreements (PTMAs) or Corporate/ Business linkage has become able to sign																	0				
with farmers' organizations because of this loan approval?													_	_	_						
If the borrower is a SME, how much is their sales (current and future sales in million Ph.P)	0 mil.															0	0 mil.				
If the loan is for re-lending, how many end-borrowers were able to borrow? (Count the new end-borrowers in each year)	0																0				
How much investment is made because this loan became available? (Size of project investment in million PhP, in total)	PhP 0 mil.														۵.	PhP 0 mil.					
6 What is the loan amount disbursed by HARVEST (accumulated in million PhP)?	PhP 0 mil.														۵.	PhP 0 mil.	_				
If the loan is NOT for re-lending, how many borrowers (co-owners) of the enterprise have received the "HARVEST" loan for the first time (excluding multiple availments)?	0																				
How many of the above borrowers have never received any loan before for a project in Mindanao from LandBank or any other bank? (first time borrowers)	0																				
How many of the (above) borrowers are female?	0																				
How many employees working in this project are female?	0																0				
★ Information for Output Indicators																					
If the borrower has, or is going to have, a PTMA(s) with potential LBP customer(s) in the ARMM area or areas outside the region, following the value chain concept, in the ARMM area to a reas outside the respect of the property of the prop																		None, yet	None, yet	None, yet	None, yet
piedse wite down tien rightes and rocaton (maincipality lever)																					

# Monitoring sheet for LBP-HQ (Tabulation sheet of LC Monitoring Sheets)

No. Tabulation/Monitoring sheet for LBP-HQ Staff
Copy the green cell and all cells below in column V of each
LC monitoring sheet, no bine St. Pasts the Value with
formst cellson (St.) Dens coop formulas.

\* (Code) Name of Lending Center

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COD	ē
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	Name
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<ul> <li>Information of the Loan Applicant (borrower of HARVEST loan)</li> </ul>	(EST loan)	
-	<b>Sum of Harvest</b>	Sum of Harvest Information of the
	Loans	Loan Applicant
Customer ID within LBP (CFP control number)		0
Customer's Business type		0
to continue of Decisions subjects accomised this land		0
Location of rights which required this roal		0
Major product from the project (most significant in sales, choose only 1)	hoose only 1)	)
Major value/function of project (most significant in sales, choose only 1)	choose only 1)	)
When did the borrower apply for a HARVEST loan for this project?		10-Oct-2018
Is this the first time the borrower applied for a		
HARVEST loan?		,
Is this the first time for the borrower to apply for a loan		,
from any financial institution?		,
Is this a retroactively refinanced loan, which the original		,
loan was made regardless of HARVEST?		
Is this loan for re-lending?		)
If the relending is for members of the borrower,	C	,
how many members exist?		,
0	•	

lonitoring sh	ho sooosed
Application, N	of of ICV Assessed Section 10 by
t time of Loan Ap	70 11110
(KPI) Estimation at	
(KPI)	
Indicator	
Performance	
Key	
*	

		Sum of Harvest	Sum of Harvaet KPI to be renorted
		Loans (tabulation	Recent review
		of right side	(Growth up to)
	for	columns)	Oct-2018
	How many persons will be employed, additionally, by		
	this project, from the time the loan is approved until the end of March, 2023.	0	0
	Number of Full time equivalent (FTE) employees		
-	(generated from this project)		
	(If not yet converted in above) Part-		
	time/temporary workers (generated from this project)		
	Average man-month workload of a part-		
	time/temporary workers in a year		
	(For corporatives or LAEs) How many new		
	Production Technical Marketing Agreements (PTMAs)		
N	or Corporate/ Business linkage has become able to	0	
	sign with farmers' organizations because of this loan		
	approval?		
	If the borrower is a SME, how much is their sales	ď	
•	(current and future sales in million PhP)	0	
	If the loan is for re-lending, how many end-		
4	borrowers were able to borrow? (Count the new	0	
	end-borrowers in each year)		
	How much investment is made because this loan		
10	became available? (Size of project investment in	0	
	million PhP, in total)		
9	What is the loan amount disbursed by HARVEST	0	
0	(accumulated in million PhP)?	0	
	If the loan is NOT for re-lending, how many		
	borrowers (co-owners) of the enterprise have		
	received the "HARVEST" loan for the first time	>	
~	(excluding multiple availments)?		
	How many of the above borrowers have never received		
	any loan before for a project in Mindanao from	0	
	LandBank or any other bank? (first time borrowers)		
	How many of the (above) borrowers are female?	0	
œ	How many employees working in this project are	v	

A Information for Output Indicators		
If the borrower has, or is going to have, a PTMA(s) with		
potential LBP customer(s) in the ARMM area or areas		
outside the region, following the value chain concept,	0	None, yet
please write down their names and boation		
(municipality level)		