



SUGARCANE ROADMAP 2020

CY 2014-2015 to 2019-2020 Version

SEPTEMBER 2015

Sugarcane Roadmap 2020

**“A Medium-Term Plan for the Philippine
Sugarcane Industry”**



Released by the Sugar Regulatory Administration (SRA) on September 2015 through the Support and Guidance of the Department of Agriculture (DA) and the Department of Trade and Industry (DTI).

ACKNOWLEDGMENT

The Sugar Regulatory Administration acknowledges the support of the sugarcane industry stakeholders especially the MDDCs, the services and efforts of those who provided the data, prepared and developed the contents of the “Sugarcane Roadmap 2020” and those who guided and assisted during the stakeholders consultations down to the sugarcane mill district level.

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ENDORSEMENT OF SRA TO DA & DTI



Republic of the Philippines
Department of Agriculture
SUGAR REGULATORY ADMINISTRATION
Sugar Center Bldg., North Ave., Diliman, Quezon City
Philippines 1101
TIN 000-784-336

MEMO – PPD - 2015 – SEPT - 008

September 3, 2015

HON. PROCESO J. ALCALA
Secretary, Department of Agriculture
Elliptical Road, Diliman, Quezon City

THRU : USEC Dennis Guerrero – Chief of Staff

Dear Secretary Alcala:

In behalf of the Sugar Regulatory Administration, I would like to express my gratitude for the guidance of the Department of Agriculture in preparing the roadmap of the sugarcane industry. The Sugarcane Roadmap 2020 was further refined upon the sponsorship of the Department of Trade and Industry (DTI) during the conduct of the national stakeholders consultations held in Luzon, Visayas and Mindanao.

The Sugarcane Roadmap 2020 became the guidepost of the sugarcane industry in program implementation and has been cited in the Implementing Rules and Regulations of the Sugarcane Industry Development Act of 2015 as reference in the identification of programs and interventions for strengthening and further development of the industry that will be funded by the general appropriations.

Enclosed is the endorsement of the Confederation of Sugar Producers (CONFED).

Thank you very much.

Very truly yours,


MA. REGINA BAUTISTA-MARTIN
Administrator

ENDORSEMENT OF SRA TO DTI



Republic of the Philippines
Department of Agriculture
SUGAR REGULATORY ADMINISTRATION
Sugar Center Bldg., North Ave., Diliman, Quezon City
Philippines 1101
TIN 000-784-336

MEMO – PPD - 2015 – SEPT - 007

September 3, 2015

HON. GREGORY DOMINGO

Secretary, Department of Trade and Industry
Gil Puyat Ave., Makati City

THRU : USEC Adrian Cristobal – Board of Investments

Dear **Secretary Domingo**:

In behalf of the Sugar Regulatory Administration, I would like to express our appreciation for the financial assistance and guidance of the Department of Trade and Industry during the conduct of the national stakeholders consultations held in Luzon, Visayas and Mindanao for the refinement of the Sugarcane Roadmap 2020.

The Sugarcane Roadmap 2020 became the guidepost of the sugarcane industry in program implementation and has been cited in the Implementing Rules and Regulations of the Sugarcane Industry Development Act of 2015 as reference in the identification of programs and interventions for strengthening and further development of the industry that will be funded by the general appropriations.

Enclosed is the endorsement of the Confederation of Sugar Producers (CONFED).

Thank you very much and looking forward for more engagements with DTI in the future.

Very truly yours,


MA. REGINA BAUTISTA-MARTIN
Administrator



CONFEDERATION OF SUGAR PRODUCERS ASSOCIATIONS, INC.

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September 3, 2015

HON. GREGORY DOMINGO
Secretary, Department of Trade and Industry
Gil Puyat Ave., Makati City

THRU: Administrator Ma. Regina B. Martin – SRA

Dear **Secretary Domingo**:

The Confederation of Sugar Producers Associations, Inc. (CONFED), a SEC-registered federation of sugarcane planters with the biggest contribution of sugarcane production in the country endorses the Sugarcane Roadmap 2020 which was prepared by the Sugar Regulatory Administration (SRA) through the guidance of the Department of Agriculture and the Department of Trade and Industry.

We believe that through the dedication and sponsorship of the Department of Trade and Industry, the nationwide consultation with the sugarcane industry stakeholders for the said roadmap was made possible, and thus the final version of the Sugarcane Roadmap 2020 is now the comprehensive instrument that will guide the industry towards sustainable development.

Thank you very much.

Very truly yours,


PABLO LORENZO III
President



CONFEDERATION OF SUGAR PRODUCERS ASSOCIATIONS, INC.

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September 3, 2015

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Secretary, Department of Agriculture
Elliptical Road, Diliman, Quezon City

THRU: Administrator Ma. Regina B. Martin – SRA

Dear Secretary Alcala:

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We believe that the Sugarcane Roadmap 2020 is now the comprehensive instrument that will guide the industry towards sustainable development.

Thank you very much.

Very truly yours,


PABLO LORENZO III
President

TABLE OF CONTENTS

OVERVIEW	Page 10
<input checked="" type="checkbox"/> Rationale	
<input type="checkbox"/> Objectives	
<input type="checkbox"/> Area Coverage	
INDUSTRY SITUATIONER (WHERE ARE WE?)	Page 16
<input type="checkbox"/> Structure	
<input type="checkbox"/> Performance – National Production and Yield, Key Production Areas	
<input type="checkbox"/> Domestic Prices – Sugar and Bioethanol	
<input type="checkbox"/> Domestic Consumption – Sugar, Bioethanol, Muscovado, Molasses, Mudpress, Bagasse, Bio-organic fertilizer, Boiler ash	
<input type="checkbox"/> Trade (Imports / Exports) – Sugar, Molasses, Bioethanol, Muscovado	
<input type="checkbox"/> Processing Industries – Sugar Mills, Sugar Refineries, Bioethanol Distilleries, Muscovado Mills, Power Generation Plants	
FARM INCOME ANALYSIS	Page 118
<input type="checkbox"/> Farm Cash Flows	
SUPPLY / VALUE CHAIN ANALYSIS	Page 128
<input type="checkbox"/> Supply Chain Segments and Players – Sugarcane Production, Sugarcane Processing, Trading of Sugarcane Products	
<input type="checkbox"/> Cost Build-up, Value-Added and Margins – Benchmarking Cost Against Thailand, Sugarcane Production Cost, Milling Cost, Refining Cost, Distilling Cost, Supply Chain Cost Build Up & Net Returns	
<input type="checkbox"/> Support Industries, Key Institutions and Programs – Farm Sector, Milling/Refining Sector, Muscovado Sector, Bioethanol Sector, Power Generation Sector	
<input type="checkbox"/> Benchmarking Analysis – Local Benchmarking, Global Benchmarking with Thailand	

TABLE OF CONTENTS

COMPETITIVE ANALYSIS	Page 191
<input type="checkbox"/> Price Competitiveness	
MARKET TRENDS AND PROSPECTS	Page 195
<input type="checkbox"/> Market Trends	
<input type="checkbox"/> Market Prospects	
<input type="checkbox"/> Export Competition	
SWOT ANALYSIS	Page 199
<input type="checkbox"/> Strengths	
<input type="checkbox"/> Weaknesses	
<input type="checkbox"/> Opportunities	
<input type="checkbox"/> Threats	
TARGET SETTING (WHERE DO WE WANT TO GO?)	Page 202
<input type="checkbox"/> Industry Vision, Mission and Goals	
STRATEGY – HOW DO WE GET THERE	Page 203
<input type="checkbox"/> Specific Sectoral Strategies and Interventions	
IMPLEMENTATION PLANS	Page 207
<input type="checkbox"/> Mill District Development Plan 2015-2024	
<input type="checkbox"/> Block Farm Implementation Plan	
<input type="checkbox"/> Medium-Term Plans and Targets	
<input type="checkbox"/> Institutional Development Measures	
<input type="checkbox"/> Productivity Improvement Programs	

TABLE OF CONTENTS

OUTPUTS AND EXPECTED OUTCOMES	Page 258
<input type="checkbox"/> Production, Area, Sufficiency Level, National Yield	
<input type="checkbox"/> Inclusive Growth Indicators	
MONITORING AND EVALUATION	Page 261
ANNEXES	Page 263
<input type="checkbox"/> Performance of Block Farm Program	
<input type="checkbox"/> Support Services Rendered to Block Farms	
<input type="checkbox"/> Mill District Maps – Samples only	
<input type="checkbox"/> SRA Action Programs and KRAs	
<input type="checkbox"/> Creation of Sugarcane Industry Development Council	
<input type="checkbox"/> Coverage of Sugarcane Mill Districts	
LIST OF TABLES	Page 302
LIST OF FIGURES	Page 308
REFERENCES	Page 309

SUGARCANE ROADMAP 2020
“A MEDIUM-TERM PLAN FOR THE PHILIPPINE SUGARCANE INDUSTRY”

1. OVERVIEW

1.1 Rationale

Under the Philippine Development Plan (PDP) 2011-2016, the government is mandated to formulate a Comprehensive National Industrial Strategy (CNIS) that will spell out opportunities, coordinate and promote the growth of forward and backward linkages in priority areas and high potential growth sectors, and prepare other industries to attract investments and generate jobs. One identified major strategy is the development and promotion of industry clusters to help achieve the PDP’s vision.

In relation to the aforementioned mandate, the Department of Trade and Industry is partnering with the private sector and other agencies in implementing activities including the formulation of Industry Roadmaps to develop industries with large potentials to boost the economy and will generate more jobs in the countryside.

The Sugar Regulatory Administration and the Industry players themselves have long recognized the need for a Sugarcane Industry Roadmap, and have in fact formulated various versions over the past 15 years. This new initiative is a fresh collaboration between SRA and DTI-BOI, following other efforts by SRA to partner with the Department of Agriculture, Department of Agrarian Reform, other national Government agencies, GFIs and the private sector.

This updated Sugarcane Industry Roadmap is thus formulated to serve as guide in the identification and implementation of appropriate programs and interventions to enable the industry to address the threats and exploit the opportunities of trade liberalization, beginning in year 2015 when tariff on imported sugar will be reduced to 5% and the full integration of the ASEAN Economic Community (AEC) takes effect. With goods and services (including sugar) expected to flow freely within the region, the Philippine sugarcane industry will need to gear up for competition against its neighbors in the AEC.

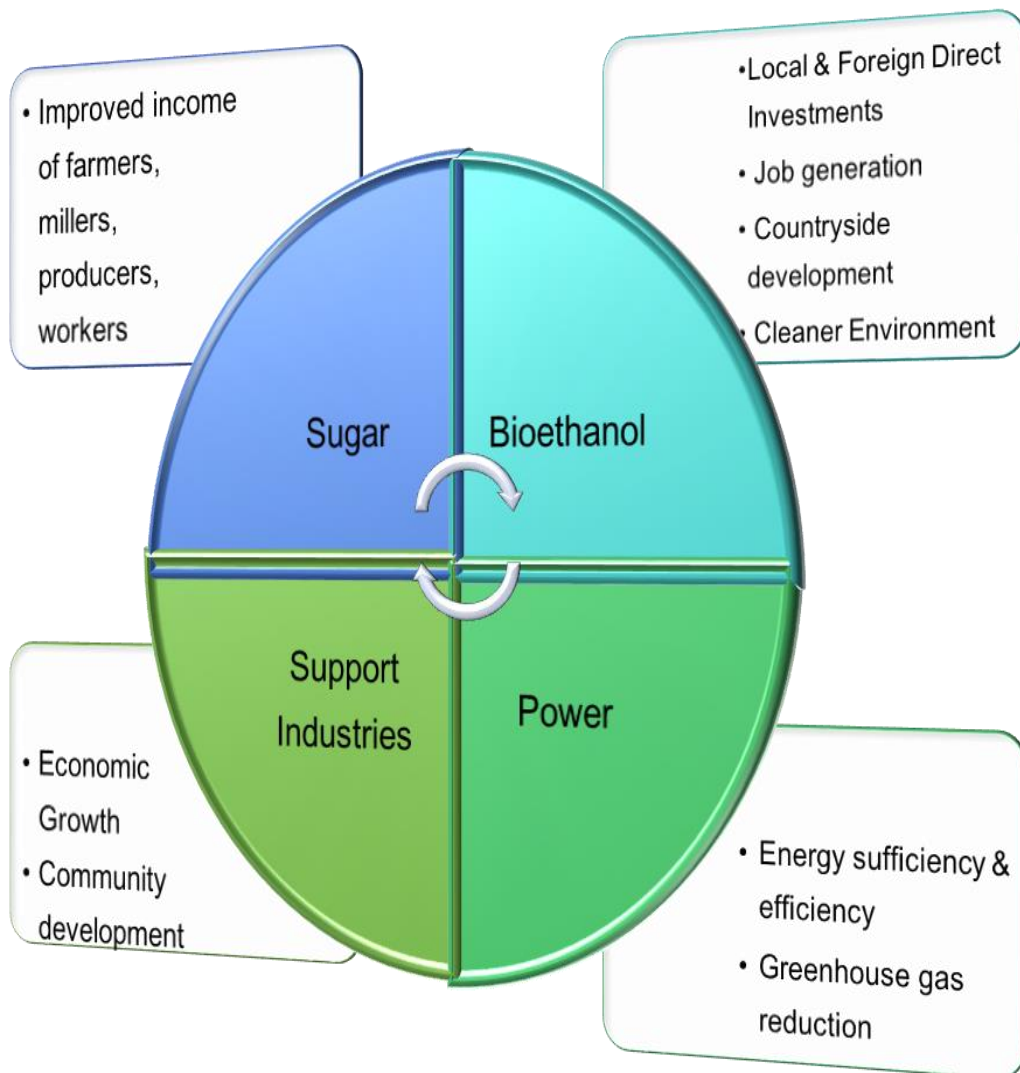
1.2 Objectives

Following extensive consultations with industry stakeholders and reviews of previous initiatives including the Action Plan formulated by Task Force *PATDAN*, the SRA Roadmap of 2010, and the succeeding versions of the Sugar Master Plan formulated by the Sugar Master Plan Foundation, the framers of this Roadmap have endeavored, with official support from the Department of Agriculture and Department of Trade and Industry through the Board of Investments (BOI), to redefine the targets, strategies and needed interventions to achieve the industry's short, medium and long-term goals.

The Roadmap is formulated to generate an overarching plan towards the development of a sustainable and multi-product sugarcane industry which continues to contribute significantly to the national economy. The industry contributed about P87 billion to the Philippine economy in Crop Year 2013-14 from the sales of raw sugar, molasses and bioethanol, from tolling fees on sugar refining and VAT on refined sugar. In addition, it brought in US\$ 111.76 million in CY 2013-14 through exports of sugar to the US and world markets. Moreover, the displacement of gasoline with 10% bioethanol derived from sugarcane and molasses also generates savings of foreign currency reserves apart from contributing towards a cleaner and greener environment.

Under the scenario spelled out in this roadmap, a more productive and competitive sugarcane industry will increase its contribution, in the medium-term, to about P100 billion through the opening of additional bioethanol plants and production of renewable power as well as other products from sugarcane like specialty sugars, bio-water, bio-plastics and more. The establishment of support industries will likewise contribute significantly to the revenue streams of an expanded sugarcane industry.

Figure 1.1. The Conceptual Framework for a Sustainable & Diversified Philippine Sugarcane Industry



1.2 Area Coverage

Total sugarcane area in crop year 2013-2014 was 423,333 hectares planted in around 20 provinces within the 10 regions of the country. Sugarcane area in crop year 2014-2015 declined to 416,893 hectares for sugar production and 5,982 hectares for bioethanol production in Isabela Mill District, a newly created sugarcane mill district dedicated to bioethanol production.

Sugarcane growing areas cover 30 Mill Districts (MDs) – 7 MDs in Luzon (includes Isabela Mill District), 3 MDs in Mindanao, 4 MDs in Panay, 3 MDs in Eastern / Central Visayas, 2 MDs in Negros Oriental and 11 MDs in Negros Occidental. SRA created the Mill District Development Committees (MDDCs) in the mill districts to oversee and implement programs and projects for the development of the sugarcane industry. It is composed of representatives from the mills, planters associations, PHILSURIN and SRA as Secretariat. The MDDCs were transformed into SEC-registered foundations or Mill District Development Council Foundation, Inc. (MDDCFIs) in order to avail of the Sugar ACEF grant in 2001. Hectarage of sugarcane harvested per mill district from crop year 2009-2010 to 2013-2014 are given in Table 1.1.

Generally, within the five-crop-year period examined, sugarcane areas harvested were on the uptrend from 385,662 hectares in crop year 2009-2010 to 424,132 hectares in crop year 2012-2013. Figure 1.2 shows the distribution of sugarcane plantations by island in crop year 2013-2014. Negros island shares 53% of the sugarcane production areas, followed by Mindanao with 22% share, Luzon with 14% share, Panay with 7% share and Eastern/Central Visayas with a share of 4%. Figure 1.3 illustrates the trend of sugarcane hectarage for the ten-crop year period from a low of 377,182 hectares in crop year 2005-2006 to a high of 42,132 hectares in 2012-2013.

SRA has embarked into a crop estimate project wherein digitized maps of all sugarcane fields are generated and populated with data obtained from actual field surveys. Fifty percent of the total areas were completed and targeted to finish the project by 2015. Digitized maps will be used in updating the fields planted with sugarcane every cropping season and as a tool to be used by the Sugar Board of arriving at a more reliable and accurate estimate of the cropping season's production. Some mill district digitized maps are shown in Annex A.

Figure 1.2. Distribution of Sugarcane Farms by Island, Crop Year 2013-2014

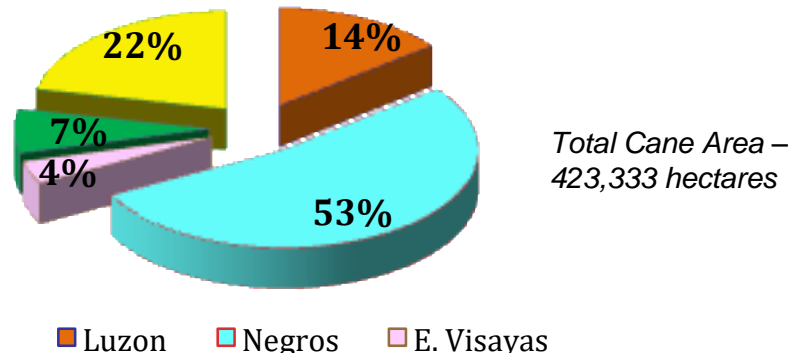
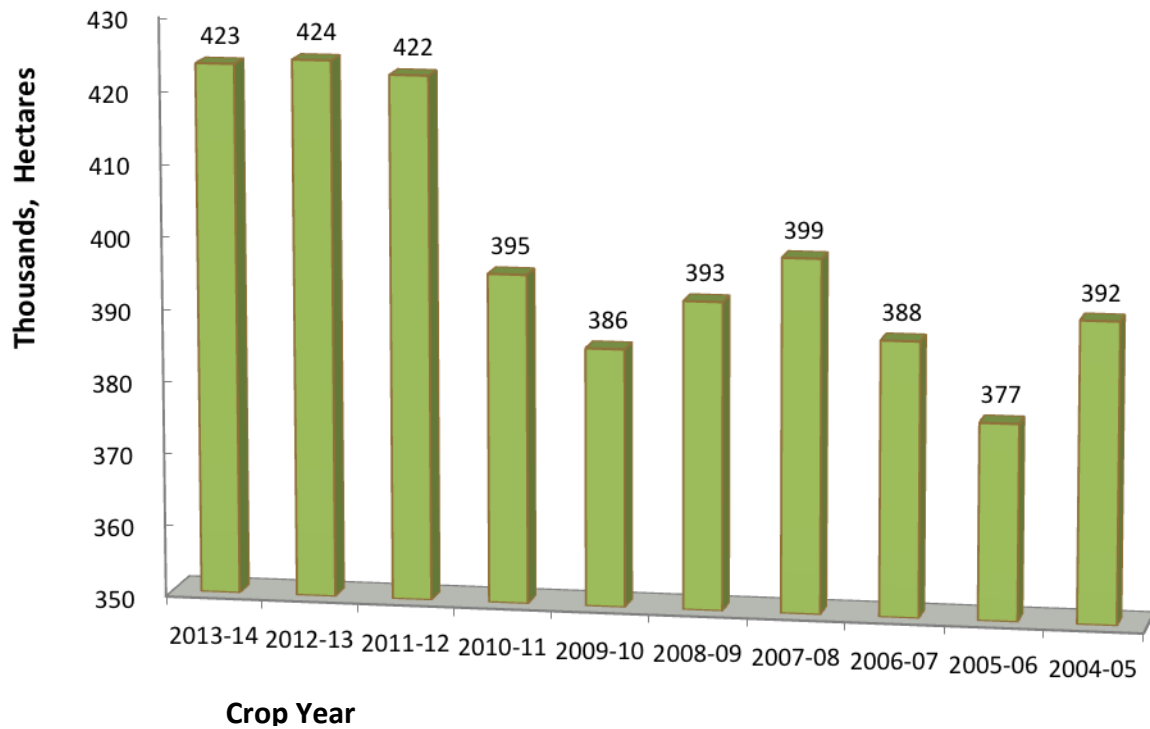


Figure 1.3. Sugarcane Areas (In Hectares) Harvested for the Past 10 Crop Years, 2004-05 to 2013-14



Reference: SRA Agricultural Extension Monitoring Reports

**Table 1.1. Areas of Sugarcane Harvested (Hectares) from Crop Year
2009-10 to 2013-14**

Mill Districts	2013-14	2012-13	2011-12	2010- 11	2009-10
<i>Region II</i>					
1. Carsumco – Cagayan	4,060	5,100	5,383	6,055	6,051
<i>Region III</i>					
2. Tarlac	15,106	16,235	15,700	12,700	13,400
3. Pampanga	7,132	8,023	8,342	8,342	9,497
<i>Region IV-A</i>					
4. Balayan, - Batangas	16,273	16,273	16,273	16,246	16,246
5. Don Pedro – Batangas	14,186	14,186	14,177	13,617	13,617
<i>Region V</i>					
6. Penumil – Camarines Sur	4,500	4,473	4,825	4,700	4,481
<i>Region VI</i>					
A. Negros Occidental					
7. La Carlota	18,592	18,592	18,592	16,335	16,335
8. Ma-ao	10,098	10,098	10,075	10,063	10,045
9. First Farmers/Bac-Murcia	20,894	20,894	20,894	20,694	20,659
10. Hawaiian-Silay	11,700	11,700	11,724	11,500	11,524
11. Lopez	13,010	13,010	12,355	12,268	12,268
12. Victorias	31,518	31,312	27,000	24,821	24,821
13. San Carlos	10,274	6,572	10,152	10,152	6,928
14. Sagay	16,000	16,000	16,000	15,190	15,190
15. Daconcogon	10,300	10,300	10,300	9,800	9,800
16. Sonedco	12,160	12,160	12,160	10,057	10,057
17. Binalbagan	28,500	28,500	28,000	25,484	25,412
B. Panay					
18. Passi	12,430	12,430	12,431	10,432	10,682
19. Santos Lopez	5,600	5,600	5,431	5,620	5,655
20. Monomer	3,313	3,313	3,263	2,755	2,832
21. Capiz	8,992	8,992	9,163	7,500	7,076
<i>Region VII</i>					
22. Bais-Ursumco	26,600	26,600	26,635	24,270	24,755
23. Tolong	8,805	8,805	8,740	8,310	9,332
24. Durano	7,900	8,061	1,583	1,640	1,640
25. Bogo-Medellin			5,848	6,562	6,562
<i>Region VIII</i>					
26. Ormoc-Kananga	8,587	8,700	8,559	9,190	9,300
<i>Region X</i>					
27. Bukidnon	70,355	70,355	74,126	70,400	60,674
<i>Region XI</i>					
28. Davao	11,978	12,536	11,803	11,020	10,581
<i>Region XII</i>					
29. Cotabato	12,600	12,600	12,851	9,769	10,243
PHILIPPINES	423,333	424,132	422,384	395,492	385,662

Reference: SRA Agricultural Extension Monitoring Reports

2. INDUSTRY SITUATIONER (WHERE ARE WE?)

The industry situationer discusses several areas: industry structure particularly farm profiles such as farm sizes, number of farms/farmers, plantation areas, variety picture, farm practices, processing and product types; performance in terms of production, area, yield, trade and prices; and farm cash flow.

2.1 Structure

In crop year 2011-12, the sugarcane industry comprised around 64,765 farmers wherein 89.5% were small farmers (landholders with 10 hectares and below). The figure is expected to rise with continuing implementation of CARPer. Farmers with medium-sized farms comprised 8.7% and farmers with areas over 50 hectares were only 1.8% of the total in the country. Farmer profiles from CY 2009-2010 to 2011-2012 is seen in Table 2.1.

In terms of farm size, small farms comprised around 38.7%, medium-sized farms 30.3% and large farms occupied 31%. The most number of sugarcane farmers which was 26,188 farmers is in Negros island where 87% are small farmers (with farms 10 hectares and less) considering that it has the biggest sugarcane area in the country. Table 2.2 shows the distribution of farmers and plantations by island and

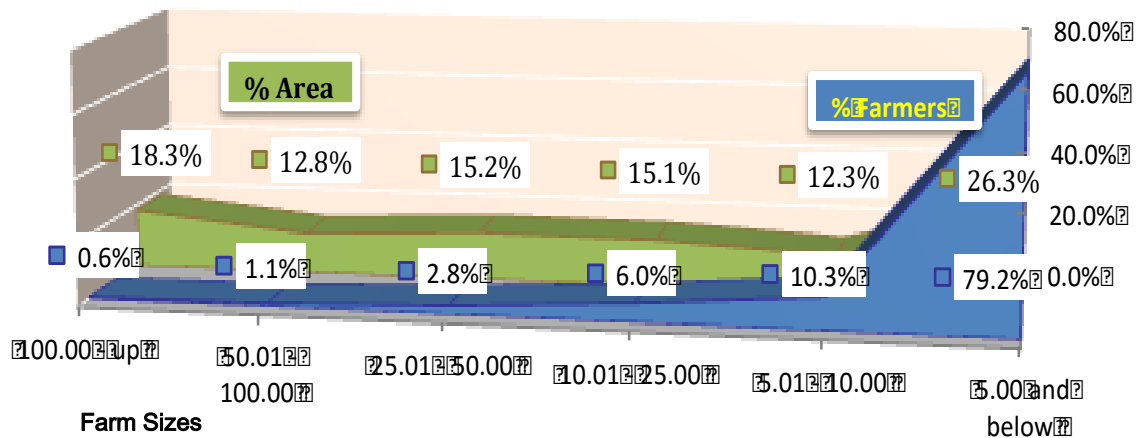
Table 2.3 gives the farm profiles of sugarcane farms on the national and island-wide distribution in crop year 2013-2014. It can be observed that in CY 2013-2014, the number of small farmers with less than 5 hectares of farmlands rose to 81.46% which corresponds to a total plantation area of 120,364 hectares equivalent to 26.61% of the total sugarcane farmlands in the country.

Table 2.1. Summary of Number of Farmers and Plantations by Farm Sizes in the Philippines, CY 2009-2010 to 2011-2012

Farm Sizes	2011-2012				2010-2011				2009-2010			
	Farmers		Plantation Size		Farmers		Plantation Size		Farmers		Plantation Size	
	No. of Farmers	% of Total	Hectares	% of Total	No. of Farmers	% of Total	Hectares	% of Total	No. of Farmers	% of Total	Hectares	% of Total
Small (10 has. & below)	57,973	89.5	159,604	38.7	52,396	88.3	137,382	35	52,519	89	137,991	36
Medium (10.01 has.- 50.0 has.)	5,652	8.7	124,967	30.3	5,562	9.4	122,850	31	5,301	9	116,986	30
Large (over 50 has.)	1,140	1.8	128,139	31.0	1,361	2.3	135,149	34	1,324	2	131,282	34
PHILIPPINES	64,765	100	412,710	100	59,319	100	395,381	100	59,144	100	386,259	100

Reference: SRA Agricultural Extension Monitoring Reports

Figure 2.1. Profile of Philippine Sugarcane Farms, Crop Year 2011-12



Reference: SRA Agricultural Extension Monitoring Reports

Table 2.2. Number of Farmers by Farm Sizes, By Island, CY 2009-2010 to 2011-2012

Farm Sizes	2011-12		2010-2011		2009-2010	
	No. of Farmers	Farm Area (Has.)	No. of Farmers	Farm Area (Has.)	No. of Farmers	Farm Area (Has.)
LUZON	13,759	65,850	13,397	61,660	13,375	63,960
Small (10 has. & below)	12,590	27,532	12,291	25,711	12,244	26,215
Medium(10.01 has.-50.0 has.)	986	21,382	963	20,758	970	20,824
Large (over 50 has.)	183	16,936	143	15,191	161	16,921
NEGROS	26,188	212,627	23,227	198,890	22,621	197,126
Small (10 has. & below)	22,849	63,508	19,864	54,134	19,174	53,016
Medium(10.01 has.-50.0 has.)	2,532	61,620	2,481	59,327	2,560	61,312
Large (over 50 has.)	807	87,499	882	85,429	887	82,798
PANAY	6,926	30,288	5,269	26,307	4,997	26,245
Small (10 has. & below)	6,336	16,953	4,601	10,719	4,518	10,220
Medium(10.01 has.-50.0 has.)	542	8,729	603	10,563	416	9,897
Large (over 50 has.)	48	4,606	65	5,025	63	6,128
EASTERN VISAYAS	1,149	15,990	1,287	17,335	1,179	17,502
Small (10 has. & below)	902	2,517	1,010	2,780	911	2,610
Medium(10.01 has.-50.0 has.)	183	3,677	208	3,807	197	3,633
Large (over 50 has.)	77	9,796	69	10,749	71	11,259
MINDANAO	16,743	87,955	16,139	91,189	16,972	81,426
Small (10 has. & below)	15,296	49,094	14,630	44,039	15,672	45,930
Medium(10.01 has.-50.0 has.)	1,409	29,558	1,307	28,396	1,158	21,320
Large (over 50 has.)	38	9,302	202	18,754	142	14,176
PHILIPPINES	64,765	412,710	59,319	395,381	59,144	386,259

Note: Plantation size refers to areas planted with sugarcane based on survey reports of SRA Mill District Officers

Reference: SRA Agricultural Extension Monitoring Reports

Table 2.3. Profile of All Farms, Farmers and Areas Planted in CY 2013-2014

Profile of Philippine Sugarcane Farms						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		No. of Farms
Below 5.00 Has.	63,761	81.46%	67,512	75.51%	120,364	28.44%
5.01 - 10.00	7,851	10.03%	9,515	10.64%	56,745	13.41%
10.01 -25.00	3,730	4.77%	5,656	6.33%	63,806	15.08%
25.01 - 50.00	1,637	2.09%	2,977	3.33%	62,837	14.85%
50.01 - 100.00	911	1.16%	2,044	2.29%	56,755	13.41%
100.01 & Above	386	0.49%	1,706	1.91%	62,658	14.81%
TOTAL	78,276	100.00%	89,411	100.00%	423,165.45	100.00%

Profile of Visayas Sugarcane Farms						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		No. of Farms
Below 5.00 Has.	38,306	82.43%	39,560	81.88%	71,820	26.61%
5.01 - 10.00	4,192	9.02%	4,502	9.32%	32,128	11.90%
10.01 -25.00	2,004	4.31%	2,214	4.58%	36,633	13.57%
25.01 - 50.00	1,023	2.20%	1,083	2.24%	42,251	15.66%
50.01 - 100.00	635	1.37%	590	1.22%	38,311	14.20%
100.01 & Above	310	0.67%	367	0.76%	48,736	18.06%
TOTAL	46,470	100.00%	48,316	100.00%	269,879.70	100.00%

Profile of Luzon Sugarcane Farms						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		No. of Farms
Below 5.00 Has.	11,473	84.19%	13,909	63.17%	18,552	30.29%
5.01 - 10.00	1,089	7.99%	2,272	10.32%	8,133	13.28%
10.01 -25.00	680	4.99%	2,099	9.53%	11,309	18.46%
25.01 - 50.00	225	1.65%	1,366	6.20%	7,827	12.78%
50.01 - 100.00	117	0.86%	1,143	5.19%	7,961	13.00%
100.01 & Above	43	0.32%	1,229	5.58%	7,476	12.20%
TOTAL	13,627	100.00%	22,018	100.00%	61,257	100.00%

Profile of Mindanao Sugarcane Farms						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		No. of Farms
Below 5.00 Has.	13,982	76.91%	14,043	73.61%	29,992	32.59%
5.01 - 10.00	2,570	14.14%	2,741	14.37%	16,484	17.91%
10.01 -25.00	1,046	5.75%	1,343	7.04%	15,865	17.24%
25.01 - 50.00	389	2.14%	528	2.77%	12,759	13.86%
50.01 - 100.00	159	0.87%	311	1.63%	10,482	11.39%
100.01 & Above	33	0.18%	110	0.58%	6,446	7.00%
TOTAL	18,179	100.00%	19,077	100.00%	92,028	100.00%

Reference: SRA Agricultural Extension Reports, CY 2013-2014

2.2 Performance

2.2.1. Production, Area and Yield

The most productive sugarcane farms in the country is in the island of Negros yielding a low of 62.37 tons cane per hectare and a high of 72.92 tons cane per hectare within the five-crop year period from CY 2009-2010 to 2013-2014. In contrast, Pensumil mill district in Camarines Sur, Pampanga, Tarlac, Davao and Cagayan mill districts showed the lowest yields ranging from 30.0 to 42.0 tons cane per hectare. National farm productivity was highest in CY 2010-2011 at 66.36 TC/Ha (Table 2.4) due to favorable weather conditions and the good sugar price in CY 2009-2010 which provided the financial needs of the planters in procuring the necessary farm inputs.

Table 2.5 shows that small farms are generally less productive compared with the medium-sized and large farms ranging from 48.47 to 57.31 tons cane per hectare compared with large farms having productivity levels with a low of 62.72 TC/Ha to a high of 76.19 TC/Ha within the three-crop year period. Lack of economies of scale, no financial capability to procure the necessary farm inputs such as fertilizer and planting materials from cane high-yielding varieties and poor farm practices are seen to influence the low yields of small farms.

Figure 2.2 shows the production trends of sugarcane and sugar for the past ten cropping seasons with CY 2009-2010 having the lowest production for both sugarcane and sugar at 19.23 and 1.97 million metric tons, respectively. CY 2009-2010 was marked with escalating sugar prices both in the domestic and world market due to sugar supply shortage in both markets.

Crop year 2012-2013 is another bountiful season for the sugar industry as it produced a 37-year high of sugar at the level of 2,465,116 metric tons after the 2,684,255 metric tons production in crop year 1976-1977.

Table 2.4. Sugarcane Productivity and Sugar Yield by Mill District, Crop Year 2009-10 to 2013-14

Mill District	2013-2014		2012-2013		2011-2012		2010-2011		2009-2010	
	TC/Ha	LKg/Ha	TC/Ha	LKg/Ha	TC/Ha	LKg/Ha	TC/Ha	LKg/Ha	TC/Ha	LKg/Ha
LUZON	50.18	85.37	50.32	91.59	53.85	95.10	54.64	98.93	47.89	87.53
1. Cagayan	38.79	72.30	42.00	79.80	40.00	77.04	30.00	56.17	35.00	66.50
2. Tarlac	39.74	68.83	44.00	82.28	48.43	81.64	56.75	97.20	41.79	83.28
3. Pampanga	42.00	66.41	41.90	64.11	55.07	84.27	43.08	68.91	37.06	59.30
4. Don Pedro	53.31	81.13	52.90	101.04	52.76	100.66	58.96	114.93	50.00	99.00
5. Balayan	65.77	121.84	64.55	122.61	67.36	124.88	66.41	127.21	65.00	117.00
6. Penumil	42.18	64.26	40.00	52.00	42.42	61.03	47.99	67.80	40.00	50.00
NEGROS	67.19	135.63	65.46	129.48	62.37	120.36	72.92	132.62	62.49	123.76
1. La Carlota	74.62	149.48	73.00	147.46	64.50	130.30	77.00	144.76	70.00	139.30
2. Ma-ao	70.00	135.80	71.00	142.00	65.00	129.93	67.00	128.64	61.00	122.00
3. First Farmers	69.75	145.08	68.00	136.00	64.50	124.00	75.22	139.15	65.00	136.50
4. Silay	76.82	169.00	76.00	167.20	70.71	148.17	96.66	185.59	75.00	165.00
5. Victorias	69.04	149.23	69.00	146.28	63.48	132.57	82.00	149.24	68.00	138.00
6. Lopez	68.32	139.37	60.00	117.00	62.50	123.00	67.00	127.30	66.00	125.40
7. Sagay	68.42	130.00	66.66	125.18	63.50	113.00	67.04	122.21	64.52	114.04
8. San Carlos	66.26	130.26	67.92	134.48	64.00	128.00	69.22	127.37	59.50	125.55
9. Binalbagan	74.34	146.78	70.00	138.60	69.00	127.00	77.00	137.06	68.00	134.64
10. Sonedco	65.22	130.44	64.00	121.60	64.50	125.00	69.99	125.98	70.00	126.00
11. Dacongogon	52.00	97.24	54.00	102.60	49.50	93.00	59.00	106.99	46.00	87.40
12. Tolong	50.79	96.74	53.00	93.28	49.32	85.39	61.00	100.65	43.50	81.35
13. Bais-Ursumco	56.28	109.95	53.00	94.34	53.39	95.53	65.00	109.20	47.56	93.09
PANAY	51.85	91.98	54.11	94.74	49.11	84.53	65.97	111.57	46.19	84.42
1. Passi	54.22	98.15	55.35	97.97	49.80	86.83	67.84	115.33	47.00	88.36
2. Santos-Lopez	53.48	97.89	56.00	99.68	51.89	90.90	68.55	118.60	46.00	87.40
3. Monomer	50.55	87.77	52.00	91.52	46.27	79.93	61.73	103.71	39.00	68.25
4. Capiz	47.96	81.16	52.00	88.40	47.55	79.27	63.00	103.98	48.00	82.56
EASTERN/ CENTRAL VISAYAS	44.27	69.98	54.44	98.16	45.48	83.29	56.88	99.79	47.30	91.57
1. Durano	45.46	69.11	54.91	87.54	43.67	70.85	55.43	81.96	47.00	85.27
2. Bogo-Medellin					45.33	75.37	57.57	87.03	50.00	94.06
3. Ormoc-Kananga	43.09	70.84	54.00	108.00	45.93	91.00	56.65	112.17	45.44	90.93
MINDANAO	50.23	101.23	55.92	111.57	50.75	93.88	61.87	118.34	51.74	107.20
1. Bukidnon	52.24	104.98	58.84	119.45	51.08	94.91	63.74	123.92	55.31	115.86
2. Davao	42.17	87.35	47.86	95.72	46.54	91.78	45.78	82.86	37.64	78.08
3. Cotabato	45.83	91.82	47.62	83.33	52.67	89.86	66.54	82.86	45.00	85.50
PHILIPPINES	59.07	115.25	59.78	114.83	56.76	106.32	66.36	121.23	56.01	110.14

NOTE: 1. TC/Ha – tons cane per hectare, a measure of farm productivity;

2. LKg/Ha – 50-kilo bag per hectare; LKg/TC- 50-kilo bag per ton cane

3. LKg/Ha and LKg/TC pertain to sugar yield influenced by both cane quality and mill performance

**Table 2.5. Sugarcane Productivity and Sugar Yield by Farm Size, Crop Year
2009 -10 to 2011-12**

Farm Sizes	2011-2012			2010-2011			2009-2010		
	TC/ Ha	LKg/ Ha	LKg/ TC	TC/ Ha	LKg/ Ha	LKg/ TC	TC/ Ha	LKg/ Ha	LKg/ TC
Small (10 has. & below)	49.80	89.77	1.80	57.31	102.96	1.80	48.47	92.43	1.91
Medium (10.01 has.- 50.0 has.)	56.96	106.90	1.88	65.65	119.18	1.82	57.38	112.51	1.96
Large (over 50 has.)	64.25	125.67	1.96	76.19	141.66	1.86	62.72	126.65	2.02
PHIL	59.07	115.25	1.95	66.36	121.23	1.83	56.01	110.14	1.97

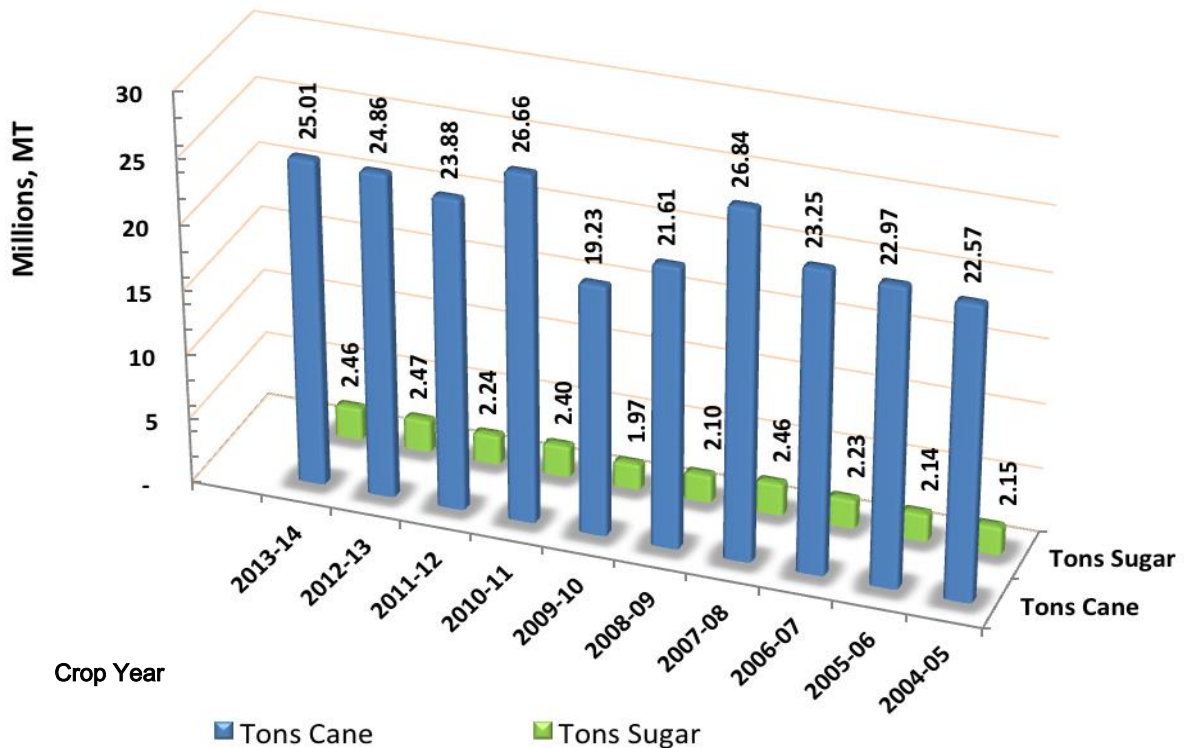
NOTE: 1. TC/Ha – tons cane per hectare which is a measure of sugarcane productivity;

2. LKg/Ha – 50-kilo bag per hectare; LKg/TC- 50-kilo bag per ton cane

3. LKg/Ha and LKg/TC pertains to sugar yield influenced by both cane quality and mill performance

Reference: SRA Agricultural Extension Monitoring Reports

Figure 2.2. Sugarcane and Sugar Production, CY 2004-05 to 2013-14



Reference: SRA Regulation Department Sugar Monitoring System Reports

2.2.2. Key Production Areas

Cagayan Mill District – Cagayan, Region II

Cagayan Mill District is situated 535 kilometers from Manila. It covers Piat, Tuao, Tuguegarao, Rizal, Solana, Sto Nino, Enrile, Amulong, Isabela and Kalinga with a total sugarcane area of 4,060 in CY 2013-14. The district has five sugarcane planters associations and one cooperative. There were 533 sugar planters cultivating 5,100 ha of sugarcane farms in crop year 2012-2013. It was observed that farm productivity is lowest in large farms at 40.66 TC/Ha compared to small farms with 42.01 TC/Ha in CY 2012-2013. The mill district produced 293,550 LKg bags sugar which contributed around 0.6% of the national production in CY 2013-14.

CY 2013-2014 farm profile data of Cagayan mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 551 farmers where 72.23% are farming less than 5 hectares which constitutes 29.93% of the total sugarcane plantations of Cagayan.

Cagayan mill district has one sugar mill, the CARSUMCO sugar mill owned by Universal Robina Corporation having a capacity utilization of 52.16% of its rated capacity of 4,000 tons cane per day (TCD) and a reduced overall sugar recovery of 83.18% against the standard overall recovery of 85.50%, based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. Reckoned from the mill capacity utilization, more sugarcane is needed in the district to maximize capacity utilization of its mill.

The challenges faced by the mill district are lack of irrigation facilities, farm mechanization equipment that are suited to the mill district's soil type and land contours, tax imposed by BIR even to small farmers by requiring the printing of tax identification numbers (TIN) in the sugar quedans and issuance of official receipts to sugar sales, lack of sugarcane HYV nurseries, need for soils laboratory in the district and high fertilizer prices. Burning of sugarcane upon harvesting became a problem of the mill which promotes a cleaner environment. Some burnt canes were then delivered to the bioethanol distillery in San Mariano, Isabela.

Table 2.6. Performance of Cagayan Mill District, CY 2009-2010 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	4,060	157,500	14,677	38.79	72.30	1.86
2012-13	5,100	206,699	21,271	40.53	83.41	2.06
2011-12	5,383	215,335	20,734	40.00	77.04	1.93
2010-11	6,055	181,678	17,007	30.00	56.17	1.87
2009-10	6,051	181,533	16,795	30.00	55.51	1.85

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.7. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Cagayan Mill District						
Farm Size	No. of Farmers	Percent No. of Farmers	No. of Farms	Percent No. of Farms	Area (has)	Percent Area
Below 5.00 Has.	398	72.23%	490	74.36%	1,215.19	29.93%
5.01 - 10.00	93	16.88%	102	15.48%	819.34	20.18%
10.01 -25.00	42	7.62%	46	6.98%	795.42	19.59%
25.01 - 50.00	10	1.81%	11	1.67%	476.57	11.74%
50.01 - 100.00	6	1.09%	8	1.21%	351.10	8.65%
100.01 & Above	2	0.36%	2	0.30%	402.38	9.91%
TOTAL	551	100.00%	659	100.00%	4,060.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Tarlac Mill District - Tarlac, Region III

Tarlac Mill District covers 12 municipalities and 127 barangays in the province of Tarlac. In crop year 2013-14, Tarlac mill district had a total sugarcane area of 15,106 hectares with 1,917 farmers where 85% were small farmers. Average farm yield was 39.74 tons cane per hectare. The mill district produced 51,985 tons sugar equivalent to 2.13% of the national production. Generally small farms had the lowest farm productivity level from CY 2008-09 to 2011-2012 except for CY 2009-10 where small farms surpassed the large farms, 43.41 TC/Ha for small farms against 40.77 TC/Ha for large farms. There are two organized block farms in Tarlac under the DAR-DA-SRA convergence initiative, the North Cluster MPC in Paniqui and the Binhi ni Abraham in Concepcion. Both block farms were financed by Land Bank of the Philippines.

CY 2013-2014 farm profile data of Tarlac mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 1,578 farmers where 63.62% are farming less than 5 hectares which constitutes 11.22% of the total sugarcane plantations of Tarlac.

Tarlac mill district has one sugar mill, the Central Azucarera de Tarlac having a capacity utilization of 73.21% of its rated capacity of 7,200 tons cane per day (TCD) and a reduced overall sugar recovery of 81.65% against the standard overall recovery of 81.02%, based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories.

Challenges faced by the district include the lack of farm-to-mill roads, irrigation facilities like shallow tube wells and portable engines and pumps, drainage problems involving the dredging of Chico and Agno rivers, lack of farm mechanization equipment such as tractors, trucks and harvesters, shortage of sugarcane HYV nurseries, labor shortage during harvesting and lack of boom sprayer for weed control. The distribution of the lands in Hacienda Luisita also poses a threat to the sugar production level of the district. It is possible that ARBs might choose to plant crops other than sugarcane if they are given sufficient support services, government subsidy and financing windows.

Table 2.8. Performance of Tarlac Mill District, CY 2009-2010 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	15,106	600,262	51,985	39.74	68.83	1.73
2012-13	16,235	700,764	65,401	43.16	80.57	1.87
2011-12	15,700	760,319	64,084	48.43	81.64	1.69
2010-11	12,700	720,754	61,720	56.75	97.20	1.71
2009-10	13,400	557,728	54,250	41.62	80.97	1.95

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.9. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Tarlac Mill District						
Farm Size	No. of Farmers	Percent No. of Farmers	No. of Farms	Percent No. of Farms	Area (has)	Percent Area
Below 5.00 Has.	1004	63.62%	2459	29.27%	1,694.69	11.22%
5.01 - 10.00	237	15.02%	1280	15.24%	1,697.60	11.24%
10.01 -25.00	209	13.24%	1513	18.01%	3,262.32	21.60%
25.01 - 50.00	70	4.44%	1100	13.10%	2,311.84	15.30%
50.01 - 100.00	38	2.41%	905	10.77%	2,508.59	16.61%
100.01 & Above	20	1.27%	1143	13.61%	3,631.50	24.04%
TOTAL	1578	100.00%	8400	100.00%	15,106.54	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Pampanga Mill District - Pampanga, Region III

Pampanga mill district is composed of three municipalities and 10 barangays of Bataan province and 10 municipalities and 82 barangays of Pampanga province. The soil quality of the mill district was mostly mixed with lahar which was brought about by the Mt. Pinatubo eruption in 1991. In CY 2013-14, the district had an area of 7,132 hectares and a sugar production of 23,680 tons which was 0.97% of the national production. The mill district is composed of three major planters associations / cooperatives. Two of the planters associations comprised the SRA-recognized Mill District Development Foundation Inc. (Pampanga MDDFI) and the other one opted to operate independently. The district is composed of 71% small farmers. The DAR-DA-SRA convergence initiative has organized the Pasama block farm in Magalang, Pampanga and SRA has validated the farms and provided technical assistance on best practices and new technologies in sugarcane farming. The block farm obtained two units water pump from DA-RFU III.

CY 2013-2014 farm profile data of Pampanga mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 613 farmers where 52.53% are farming less than 5 hectares which constitutes 10.60% of the total sugarcane plantations of Pampanga.

It has two sugar mills, one is a new mill named Sweet Crystal-Porac and the other one an old mill located in San Fernando formerly called Basecom but later named Sweet Crystal-San Fernando. Eventually, the mill in San Fernando stopped operation in crop year 2013-14. Sweet Crystal - Porac had a capacity utilization of 56.63% of its rated capacity of 2,500 tons cane per day (TCD) and a reduced overall sugar recovery of 78.13% against the standard overall recovery of 78.93%, based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. Although the mill was still lacking sugarcane to maximize its production capacity, it had the highest capacity utilization among the sugar mills in Luzon in this particular cropping season.

High soil acidity, the need for soil rehabilitation of lahar fields, low adoption of cane HYVs, lack of irrigation and drainage facilities such as portable engine and pumps, shallow tube wells, excavators, etc., the need for farm mechanization equipment

such as tractors, trucks and harvesters and permanent farm-to-mill roads are the major challenges of the district. The district also needs yield verification or adaptability trials of different cane HYVs to determine the best cane variety suited in the district and a complete soils fertility map for proper fertilizer applications. Farmers in the district also complained on the low sugar recovery of the sugar mill in San Fernando which has closed down its operation.

Table 2.10 Performance of Pampanga Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	4,060	157,500	14,677	38.79	72.30	1.86
2012-13	5,100	206,699	21,271	40.53	83.41	2.06
2011-12	5,383	215,335	20,734	40.00	77.04	1.93
2010-11	6,055	181,678	17,007	30.00	56.17	1.87
2009-10	6,051	181,533	16,795	30.00	55.51	1.85

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.11. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Pampanga Mill District						
Farm Size	No. of Farmers	Percent No. of Farmers	No. of Farms	Percent No. of Farms	Area (has)	Percent Area
Below 5.00 Has.	322	52.53%	338	49.42%	756.05	10.60%
5.01 - 10.00	123	20.07%	141	20.61%	908.84	12.74%
10.01 -25.00	103	16.80%	110	16.08%	1,683.70	23.61%
25.01 - 50.00	37	6.04%	48	7.02%	1,248.30	17.50%
50.01 - 100.00	22	3.59%	35	5.12%	1,496.10	20.98%
100.01 & Above	6	0.98%	12	1.75%	1,038.80	14.57%
TOTAL	613	100.00%	684	100.00%	7,131.79	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Don Pedro Mill District - Western Batangas, Region IVA

Don Pedro mill district covers the western portion of Batangas, some municipalities in Cavite, Laguna and Quezon. The mill district has seven planters associations which are affiliated with the Don Pedro Mill District Development Council Foundation Inc. (Don Pedro MDDCFI). The total plantation area in the district was 14,186 hectares in CY 2013-14 with a total sugarcane and sugar production of 756,185 tons and 57,545 tons, respectively. Don Pedro mill district was composed of 6,187 farmers where 98% were small farmers, both Agrarian Reform Beneficiaries (ARBs) and non-ARBs. Farm yields and sugar yields in crop year 2013-14 were 53.31 TC/Ha, 81.13 LKG/Ha and 1.52 LKg/TC, respectively. Sharing ratio in the mill district is 65% in favor of the planters and 35% for the miller. Sugar production in crop year 2013-14 contributed 2.36% of the national production.

CY 2013-2014 farm profile data of Don Pedro mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 6,185 farmers where 93.18% are farming less than 5 hectares which constitutes 58.64% of the total sugarcane plantations of Western Batangas.

The mill district has one sugar mill, the Central Azucarera Don Pedro Inc. (CADPI). CADPI having a capacity utilization of 65.74% of its rated capacity of 13,000 tons cane per day (TCD) and a reduced overall sugar recovery of 82.22% against the standard overall recovery of 80.97% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. However, the drop in sugar yield during the past cropping seasons showed mill efficiency problems which discouraged the planters of delivering their sugarcane to the mill.

The challenges faced by the district are shortage of labor especially cane cutters, thus there is a need for farm mechanization equipment, lack of irrigation facilities, lack of funding for HYV nurseries to increase the saturation of HYVs and increase the area planted with new canes, rehabilitation of farm roads, white grubs infestation, liming program to adjust soil acidity, and soil fertility map of the district as guide in the application rate of fertilizer, as investors' reference and the provision of appropriate interventions in the mill district. The district also needs equipment for cane loading and detrashing excess cane trashes left in the fields after harvesting. Low sugar

recovery of the mill during the past two crop years caused financial injury to the cane planters who delivered canes to CADPI.

Table 2.12. Performance of Don Pedro Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	14,186	756,185	57,545	53.31	81.13	1.52
2012-13	14,186	740,333	76,080	52.19	107.26	2.06
2011-12	14,177	747,971	71,355	52.76	100.66	1.91
2010-11	13,617	802,914	78,252	58.96	114.93	1.95
2009-10	13,617	687,733	70,775	50.51	103.95	2.06

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.13. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Don Pedro Mill District						
Farm Size	No. of Farmers	Percent No. of Farmers	No. of Farms	Percent No. of Farms	Area (has)	Percent Area
Below 5.00 Has.	5,763	93.18%	6,409	93.73%	8,318.17	58.64%
5.01 - 10.00	281	4.54%	287	4.20%	1,977.64	13.94%
10.01 -25.00	93	1.50%	94	1.37%	1,508.60	10.63%
25.01 - 50.00	33	0.53%	33	0.48%	1,123.64	7.92%
50.01 - 100.00	13	0.21%	13	0.19%	957.95	6.75%
100.01 & Above	2	0.03%	2	0.03%	300.00	2.11%
TOTAL	6,185	100.00%	6838	100.00%	14,186.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Balayan Mill District - Eastern Batangas, Region IVA

Balayan Mill District covers 22 municipalities of Eastern Batangas. The mill district has an area of 16,273 hectares and a sugar production of 99,137 tons in crop year 2013-14 which was 4.06% of the national sugar production. Sharing system adopted is 65% planters share and 35% miller share. Farm yield was 65.77 TC/Ha and 121.84 LKg /Ha while average sugar yield for the crop year was 1.85 LKg/TC. The mill district had the highest farm yield so far among the Luzon mill districts. It is composed of 3,887 farmers where 92% of them are small farmers, ARBs and non-ARBs. There are two block farms that are operational in Balayan mill district, namely, Lucban MPC with 38 enrollees and a total sugarcane area of 28.9 hectares located in Balayan, and Prenza MPC with 32 enrollees and a total farm area of 29.5 hectares located in Lian.

CY 2013-2014 farm profile data of Balayan mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 3,887 farmers where 85.90% are farming less than 5 hectares which constitutes 32.48% of the total sugarcane plantations of Eastern Batangas.

Balayan mill district has one sugar mill, the Batangas Sugar Central (BSCI) having a capacity utilization of 78.68% of its rated capacity of 4,500 tons cane per day (TCD) and a reduced overall sugar recovery of 80.60% against the standard overall recovery of 81.47%, based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories.

The mill district is facing certain challenges in order to be cost competitive. There is scarcity of farm laborers in the mill district. The district is importing cane cutters from Negros and labor costs are quite high. Mechanizing farm operations especially the harvesting and loading operations are urgent need in Batangas to address the labor shortage problem. Removing excess cane trashes in the fields during harvesting is also a problem in the district. The farmers need a mechanized detrashing equipment to avoid the temptation of burning the canes, instead, trashes can be used as additional feedstock for power generation and as raw material for bio-organic fertilizer production.

Table 2.14. Performance of Balayan Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	16,273	1,070,266	99,137	65.77	121.84	1.85
2012-13	16,273	1,069,320	105,485	65.71	129.64	1.97
2011-12	16,273	1,096,156	101,609	67.36	124.88	1.85
2010-11	16,246	1,078,928	103,332	66.41	127.21	1.92
2009-10	16,246	981,802	100,161	60.43	123.30	2.04

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.15. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Balayan Mill District						
Farm Size	No. of Farmers	Percent No. of Farmers	No. of Farms	Percent No. of Farms	Area (has)	Percent Area
Below 5.00 Has.	3339	85.90%	3538	79.95%	5,285.36	32.48%
5.01 - 10.00	270	6.95%	337	7.62%	2,078.45	12.77%
10.01 -25.00	180	4.63%	229	5.18%	3,077.55	18.91%
25.01 - 50.00	56	1.44%	132	2.98%	2,031.25	12.48%
50.01 - 100.00	31	0.80%	142	3.21%	2,127.25	13.07%
100.01 & Above	11	0.28%	47	1.06%	1,673.14	10.28%
TOTAL	3,887	100.00%	4,425	100.00%	16,273.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

PENSUMIL Mill District - Camarines Sur, Region V

The mill district is composed of 19 municipalities and 99 barangays. The PENSUMIL Mill District Development Council Foundation Inc. (Pensumil MDDCFI) has three affiliated planters associations. The aggregate area planted with sugarcane in crop year 2013-2014 based on SRA's crop estimate as of August 2013 is 4,500 hectares compared to 5,000 hectares in CY 2012-2013. Its sugar production of 14,458 tons was 0.60 of the national production. In CY 2012-13, out of 822 farmers, 745 or 91% were small ones. In partnership with the DAR and DA, SRA has assisted the block farm enrollees of Hacienda Salamat in Cadlan, Pili, Camarines Sur. The block farm is composed of 43 enrollees with a total area of 96.95 hectares. The ARBs were initially identified and organized by SRA.

CY 2013-2014 farm profile data of PENSUMIL mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 813 farmers where 79.58% are farming less than 5 hectares which constitutes 28.51% of the total sugarcane plantations of Camarines Sur.

PENSUMIL mill district has one sugar mill, the Peñafrancia Sugar Mill (PENSUMIL) with a capacity utilization of 41.52% of its rated capacity of 4,000 tons cane per day (TCD) and a reduced overall sugar recovery of 79.40% against the standard overall recovery of 80.80%. Its capacity utilization was very low which showed that more sugarcane is required to maximize the mill production capacity.

An inefficient sugar mill leading to low sugar recoveries (1.52 LKg/TC in CY 2013-14) and lack of synchronization of mill operations and harvesting of canes which rendered low % Pol of canes milled are serious problems which threaten the mill district's survival. The mill district also needs HYV nurseries to improve the adoption of high-yielding varieties and increase sugar yields and sugarcane production volume in the district. Additional farm machineries such as tractors and trucks are needed by the mill district to cater to the needs of all its sugarcane farmers.

Table 2.16. Performance of PEÑAFRANCIA Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	4,500	189,824	14,458	42.18	64.26	1.52
2012-13	4,473	177,493	13,859	39.68	61.97	1.56
2011-12	4,825	204,655	14,724	42.42	61.03	1.44
2010-11	4,700	225,535	15,934	47.99	67.80	1.41
2009-10	4,481	159,078	12,385	35.50	55.28	1.56

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.17. Profile of Sugarcane Farms and Farmers, CY 2013-2014

PENSUMIL Mill District						
Farm Size	No. of Farmers	Percent No. of Farmers	No. of Farms	Percent No. of Farms	Area (has)	Percent Area
Below 5.00 Has.	647	79.58%	675	66.70%	1,283.00	28.51%
5.01 - 10.00	85	10.46%	125	12.35%	651.00	14.47%
10.01 -25.00	53	6.52%	107	10.57%	981.00	21.80%
25.01 - 50.00	19	2.34%	42	4.15%	635.00	14.11%
50.01 - 100.00	7	0.86%	40	3.95%	520.00	11.56%
100.01 & Above	2	0.25%	23	2.27%	430.00	9.56%
TOTAL	813	100.00%	1012	100.00%	4,500.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Passi Mill District - Panay, Region VI

Passi mill district covers the municipalities of Passi, Badiangan, Cabatuan, Calinog, Dueñas, Janiuay, Lambunao, Maasin and San Enrique of the province of Iloilo. In crop year 2013-14, the mill district had a total sugarcane area of 10,682 hectares with a total sugar production of 45,297 tons which constituted 1.86% of the national production. Sugar sharing scheme of the mill district is 65% planters' share and 35% miller's share. Its cane yield was 43.69 TC/Ha, a sugar yield of 84.81 LKg/Ha and 1.94LKg/TC. In crop year 2011-12, it recorded a total of 3,498 farmers of which 96% are small farmers. It is the biggest mill district in Panay island.

CY 2013-2014 farm profile data of PASSI mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 4,046 farmers where 87.00% are farming less than 5 hectares which constitutes 43.53% of the total sugarcane plantations of the mill district.

One block farm was organized under the DAR-DA-SRA convergence initiative, the Jaguimitan-JARBEMCO, which is already operational. It is negotiating with Universal Robina Corporation to finance its farm operations. Major problem of the block farms was their existing loans with LBP which is why they have difficulty of securing financial assistance from LBP under the CARPER loan facility.

The mill district has two sugar mills, Central Azucarera de San Antonio (CASA) which is a new mill established in 2007 and URC-Passi Sugar Central (URC-Passi). CASA had a capacity utilization of 40.26 % of its rated capacity of 8,000 tons cane per day (TCD) and a reduced overall sugar recovery of 90.22% against the standard overall recovery of 81.05% while URC-Passi had a capacity utilization of 51.06 % of its rated capacity of 4,500 tons cane per day (TCD) and a reduced overall sugar recovery of 86.91% against the standard overall recovery of 80.71% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. Both mills are underutilized as shown in their capacity utilization data.

Passi mill district just like any other sugarcane districts lacks farm mechanization equipment like hauling trucks, tractors, cane loaders, cane cutting equipment suited to the land contours of the district, it also lacks HYV nurseries that will provide the

planting materials, irrigation equipment such as drilling equipment, pumps and engines and its arterial road networks leading to interior cane farms need rehabilitation.

Table 2.18. Performance of Passi Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	12,680	687,522	62,227	54.22	98.15	1.81
2012-13	12,430	669,564	61,079	53.87	98.28	1.82
2011-12	12,431	619,040	53,970	49.80	86.83	1.74
2010-11	10,432	707,713	60,155	67.84	115.33	1.70
2009-10	10,682	466,722	45,297	43.69	84.81	1.94

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.19. Profile of Sugarcane Farms and Farmers, CY 2013-2014

PASSI MILL DISTRICT						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	3,520	87.00%	3,848	86.86%	5,520.000	43.53%
5.01 - 10.00	360	8.90%	387	8.74%	2,530.000	19.95%
10.01 -25.00	125	3.09%	142	3.21%	1,882.000	14.84%
25.01 - 50.00	26	0.64%	30	0.68%	1,075.000	8.48%
50.01 - 100.00	10	0.25%	15	0.34%	789	6.22%
100.01 & Above	5	0.12%	8	0.18%	884	6.97%
TOTAL	4,046	100.00%	4,430	100.00%	12,680.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Santos-Lopez Mill District – Panay, Region VI

Santos-Lopez mill district covers the municipalities of Banate, Barotac Nuevo, Barotac Viejo, Anilao, Concepcion, Lemery, Mina, New Lucena, Pototan, San Dionisio, San Rafael, Dumangas and Sara of the province of Iloilo. In crop year 2013-14, the mill district had a total sugarcane area of 5,600 hectares with a total sugar production of 27,409 tons which constituted 1.12% of the national production.

CY 2013-2014 farm profile data of Santos-Lopez mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 1,156 farmers where 80.88% are farming less than 5 hectares which constitutes 27.30% of the total sugarcane plantations of the mill district.

Sugar sharing scheme of the mill district is 65% planters' share and 35% miller's share similar to Passi mill district because it has no sugar mill and canes were milled in the sugar mills of Passi mill district. Its cane yield in CY 2013-14 was 53.48 TC/Ha, a sugar yield of 97.89 LKg/Ha and 1.83 LKg/TC. In crop year 2011-12, it recorded a total of 724 farmers of which 88% are small farmers.

One block farm was organized under the DAR-DA-SRA convergence initiative in Barotac Nuevo which is under validation and profiling by SRA. In CY 2010-2011, it was recorded that the mill district had 93 units of tractors and 180 units of trucks. However, the tractors and trucks available are still not enough to service the needs of all the planters in the district especially the small farmers.

Santos-Lopez mill district faced similar challenges as the Passi mill district like the need for farm mechanization equipment, irrigation equipment, farm-to-mill roads, and HYV nurseries. Interventions for the district are handled by the Iloilo Mill District Development Council Foundation Inc. being the lone MDDCFI in the province.

Table 2.20. Performance of Santos-Lopez Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	5,600	299,498	27,409	53.48	97.89	1.83
2012-13	5,600	311,478	28,660	55.62	102.36	1.84
2011-12	5,431	281,835	24,683	51.89	90.90	1.75
2010-11	5,620	385,251	33,326	68.55	118.60	1.73
2009-10	5,655	248,265	24,743	43.90	87.51	1.99

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.21. Profile of Sugarcane Farms and Farmers, CY 2013-2014

SANTOS LOPEZ MILL DISTRICT						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	935	80.88%	935	80.53%	1529.00	27.30%
5.01 - 10.00	111	9.60%	113	9.73%	1063.00	18.98%
10.01 -25.00	80	6.92%	82	7.06%	1328.00	23.71%
25.01 - 50.00	18	1.56%	19	1.64%	815.00	14.55%
50.01 - 100.00	9	0.78%	9	0.78%	475.00	8.48%
100.01 & Above	3	0.26%	3	0.26%	390.00	6.96%
TOTAL	1,156	100.00%	1,161	100.00%	5,600.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Monomer Mill District – Panay, Region VI

Monomer mill district covers the municipalities of Banate, Barotac Nuevo, Barotac Viejo, Anilaw, Concepcion, Lemery, Mina, New Lucena, Pototan, San Dionisio, San Rafael and Sara of the province of Iloilo. In crop year 2013-14, the mill district had a total sugarcane area of 3,283 hectares with a total sugar production of 14,408 tons which constituted 0.60% of the national production.

CY 2013-2014 farm profile data of Monomer mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 698 farmers where 74.79% are farming less than 5 hectares which constitutes 40.45% of the total sugarcane plantations of the mill district.

Planters in the mill district may deliver their canes to Capiz Sugar Central or to any of the two sugar mills in Iloilo. Sharing system will depend on where the canes were delivered for milling. Sugar sharing scheme of Capiz is 63% for the farmers and 37% for the miller while in Iloilo sugar mills, sugar sharing is 65% for the farmers and 35% for the millers. Its cane yield in CY 2013-2014 as shown in Table 2.13 was 50.55 TC/Ha, a sugar yield of 87.77 LKg/Ha and 1.74 LKg/TC. In crop year 2011-12, it recorded a total of 643 farmers of which 90% are small farmers.

Currently, interventions for Monomer mill district are taken cared of by Passi mill district because the mill district has no MDDCFI that will manage the implementation of industry programs.

Table 2.22. Performance of Monomer Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	3,283	165,942	14,408	50.55	87.77	1.74
2012-13	3,313	171,250	15,512	51.69	93.65	1.81
2011-12	3,263	150,990	13,041	46.27	79.93	1.73
2010-11	2,755	170,066	14,286	61.73	103.71	1.68
2009-10	2,832	88,663	8,334	31.31	58.86	1.88

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.23. Profile of Sugarcane Farms and Farmers, CY 2013-2014

MONOMER MILL DISTRICT						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	522	74.79%	529	74.93%	1328.000	40.45%
5.01 - 10.00	127	18.19%	128	18.13%	768	23.39%
10.01 -25.00	33	4.73%	33	4.67%	495	15.08%
25.01 - 50.00	11	1.58%	11	1.56%	330	10.05%
50.01 - 100.00	4	0.57%	4	0.57%	262	7.98%
100.01 & Above	1	0.14%	1	0.14%	100	3.05%
TOTAL	698	100.00%	706	100.00%	3,283.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Capiz Mill District - Panay, Region VI

Capiz mill district covers the municipalities of Ma-ayon, Pilar, Pontevedra, Balasan, Carles, Estancia, Panit-an, Panay and President Roxas. In crop year 2013-14, the mill district had a total sugarcane area of 9,000 hectares with a total sugar production of 36,522 tons which constituted 1.50% of the national production. Sugar sharing scheme of the mill district is 63% planters' share and 37% miller's share. Its cane yield was 47.96 TC/Ha, a sugar yield of 81.16 LKg/Ha and 1.69 LKg/TC. In crop year 2011-2012, it recorded a total of 1,543 farmers of which 82% are small farmers. It is the second biggest mill district in Panay island.

CY 2013-2014 farm profile data of Capiz mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 1,804 farmers where 76.94% are farming less than 5 hectares which constitutes 38.58% of the total sugarcane plantations of the mill district.

One block farm was organized under the DAR-DA-SRA convergence initiative located in President Roxas City, which is already operational. Most of the ARBs in the mill district lack the necessary support from government which resulted to low sugar production in the district. SRA record in CY 2010-2011 showed that the mill district had 64 units of tractors and 568 units of trucks.

The mill district has one sugar mill, Capiz Sugar Central. The mill had a capacity utilization of 46.28 % of its rated capacity of 4,500 tons cane per day (TCD) and a reduced overall sugar recovery of 88.66% against the standard overall recovery of 80.23% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. More sugarcane is needed to maximize the mill's capacity.

The mill district was one of those hardest hit by typhoon Yolanda and the area needed more focus in order to revive the district from the devastation. The district needed more assistance in terms of infrastructure support like farm-to-mill roads, farm mechanization equipment, HYV nurseries, soils laboratory, automated weather stations and financial support for the production of organic fertilizer and other livelihood options for the farmers.

Table 2.24 Performance of Capiz Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	9,000	431,601	36,522	47.96	81.16	1.69
2012-13	8,992	465,603	40,638	51.78	90.39	1.75
2011-12	9,163	435,699	36,317	47.55	79.27	1.67
2010-11	7,500	472,500	38,991	63.00	103.98	1.65
2009-10	7,076	317,005	29,323	44.80	82.88	1.85

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.25. Profile of Sugarcane Farms and Farmers, CY 2013-2014

CAPIZ/PILAR MILL DISTRICT						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	1388	76.94%	1388	76.94%	3,472.00	38.58%
5.01 - 10.00	289	16.02%	289	16.02%	2,024.00	22.49%
10.01 -25.00	86	4.77%	86	4.77%	1,554.00	17.27%
25.01 - 50.00	31	1.72%	31	1.72%	952.00	10.58%
50.01 - 100.00	8	0.44%	8	0.44%	628.00	6.98%
100.01 & Above	2	0.11%	2	0.11%	370.00	4.11%
TOTAL	1,804	100.00%	1,804	100.00%	9,000.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

La Carlota Mill District – Negros Occidental, Region VI

La Carlota mill district covers the municipalities of La Carlota City, La Castellana and Pontevedra of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 18,684 hectares with a total sugar production of 139,643 tons which constituted 5.72% of the national production. Sugar sharing scheme of the mill district is 65% planters' share and 35% miller's share. Its farm productivity of 74.62 TC/Ha ranked 2nd among the mill districts in Negros Occidental, next to Silay mill district with 76.82 TC/Ha. In terms of sugar yield of 2.00 LKg/TC, it ranked 4th compared to the highest 2.20 LKg/TC of Silay mill district. In crop year 2011-12, it recorded a total of 2,295 farmers of which 88% are small farmers.

CY 2013-2014 farm profile data of La Carlota mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 2,323 farmers where 81.92% are farming less than 5 hectares which constitutes 15.02% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, the Central Azucarera La Carlota Inc. (CACI). CACI having a capacity utilization of 58.01% of its rated capacity of 18,000 tons cane per day (TCD) and a reduced overall sugar recovery of 88.41% against the standard overall recovery of 80.09% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. Like other mills in Negros, the mill lacks the supply of sugarcane to maximize its production capacity.

The challenges faced by the mill district are the lack of sugarcane HYV nursery as source of better canepoints, high fertilizer prices, lack of irrigation and drainage equipment, scarcity of farm labor, thus, there is a need for new farm mechanization equipment such as trucks, harvesters, cane loaders and tractors, farm roads need rehabilitation into permanent roads and lack of financial assistance to small farmers.

Table 2.26. Performance of La Carlota Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	18,684	1,394,133	139,643	74.62	149.48	2.00
2012-13	18,592	1,332,675	143,185	71.68	154.03	2.15
2011-12	18,592	1,199,184	121,127	64.50	130.30	2.02
2010-11	16,335	1,257,795	118,235	77.00	144.76	1.88
2009-10	16,335	1,029,105	102,388	63.00	125.36	1.99

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.27. Profile of Sugarcane Farms and Farmers, CY 2013-2014

LA CARLOTA MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	1,903	81.92%	1,926	82.10%	2,806.72	15.02%
5.01 - 10.00	150	6.46%	150	6.39%	1,458.67	7.81%
10.01 -25.00	120	5.17%	120	5.12%	1,986.45	10.63%
25.01 - 50.00	70	3.01%	70	2.98%	2,531.18	13.55%
50.01 - 100.00	50	2.15%	50	2.13%	3,499.03	18.73%
100.01 & Above	30	1.29%	30	1.28%	6,401.95	34.26%
TOTAL	2,323	100.00%	2,346	100.00%	18,684.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Ma-ao Mill District – Negros Occidental, Region VI

Ma-ao mill district is located in the Central Negros area which covers the municipalities of Bago City, Valladolid, Pulpandan and San Enrique of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 10,200 hectares with a total sugar production of 69,258 tons which constituted 2.84% of the national production. Sugar sharing scheme depends on the sharing scheme of nearby sugar mill that the farmers may bring their sugarcane for milling because the mill district has no sugar mill. Its farm productivity of 70 TC/Ha ranked 4th among the mill districts in Negros Occidental, next to Binalbagan mill district of 74.34 TC/Ha, La Carlota mill district of 74.62 and Silay mill district with 76.82 TC/Ha. In crop year 2011-2012, it recorded a total of 1,053 farmers of which 86% are small farmers.

CY 2013-2014 farm profile data of MA-AO mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 5,103 farmers where 93.38% are farming less than 5 hectares which constitutes 49.60% of the total sugarcane plantations of the mill district.

Common problems shared by the mill district with the rest are the lack of sugarcane HYV nurseries as source of better canepoints, lack of financing for bio-organic fertilizer production to partly resolve the problem of high chemical fertilizer costs, the need for a liming program coupled with soils analysis, lack of irrigation and drainage equipment, lack of financing for the repair of worn-out tractors and for the acquisition of new farm mechanization equipment such as trucks and tractors, rehabilitation of farm roads into permanent roads and lack of financial assistance to small farmers.

Table 2.28. Performance of Ma-ao Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	10,200	714,000	69,258	70.00	135.80	1.94
2012-13	10,098	712,111	72,102	70.52	142.81	2.03
2011-12	10,075	654,900	65,451	65.00	129.93	2.00
2010-11	10,063	674,221	64,725	67.00	128.64	1.92
2009-10	10,045	602,700	62,270	60.00	120.00	2.00

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.29. Profile of Sugarcane Farms and Farmers, CY 2013-2014

MA-AO MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	4,765	93.38%	4,808	93.36%	5,059.20	49.60%
5.01 - 10.00	102	2.00%	104	2.02%	852.80	8.36%
10.01 -25.00	164	3.21%	154	2.99%	1,326.00	13.00%
25.01 - 50.00	48	0.94%	52	1.01%	1,432.00	14.04%
50.01 - 100.00	19	0.37%	27	0.52%	918.00	9.00%
100.01 & Above	5	0.10%	5	0.10%	612.00	6.00%
TOTAL	5,103	100.00%	5150	100.00%	10,200.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Bacolod-Murcia / First Farmers Mill District – Negros Occidental, Region VI

Bacolod-Murcia/First Farmers mill district covers the cities and municipalities of Talisay City, Bacolod City, Murcia and Don Salvador Benedicto of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 21,000 hectares with a total sugar production of 152,334 tons which constituted 6.24% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share. It has a cane yield of 69.75 TC/Ha, a sugar yield 145.08 LKg/Ha and 2.08 LKg/TC. In crop year 2011-2012, it recorded a total of 572 farmers of which 35% are small farmers.

CY 2013-2014 farm profile data of Bacolod-Murcia/First Farmers mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 596 farmers where 22.99% are farming less than 5 hectares which constitutes 5.09% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, the First Farmers Holdings Corp. (FFHC) which is owned and operated by a farmers cooperative. FFHC had a capacity utilization of 69.54% of its rated capacity of 4,800 tons cane per day (TCD) and an actual reduced overall sugar recovery of 86.41% against the standard overall recovery of 81.03% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill lacks sugarcane supply to maximize its production capacity.

The major challenges of the mill district are the lack of sugarcane HYV nurseries as source of better canepoints, high fertilizer prices, the need for better/permanent farm roads, lack of funds for the acquisition of new farm machinery such as tractors, trucks, cane loaders and mechanical harvesters and lack of financial assistance to small farmers in cultivating their sugarcane farms. The district recommends soil mapping and establishment of soils laboratory to be able to apply the right amount of fertilizer and the appropriate soil ameliorants. The farms in the district need irrigation, however, there is no water source for irrigation and the farmers just depend on rainfall.

The fragmentation of sugarcane plantations became a major problem for the mill district taking into account the financial and technical capability of the ARBS in

running the farm operations efficiently. The small farmers need to be capacitated on best practices in sugarcane growing especially the ARBs who used to be dedicated farm workers who are under the supervision of farm managers.

Table 2.30. Performance of Bacolod-Murcia / First Farmers Mill District

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	21,000	1,464,750	3,046,680	69.75	145.08	2.08
2012-13	20,894	1,415,390	150,182	67.74	14	2.12
2011-12	20,894	1,347,663	129,543	64.50	124.00	1.92
2010-11	20,694	1,552,464	143,603	75.02	138.79	1.85
2009-10	20,659	1,280,858	130,792	62.00	126.62	2.04

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.31. Profile of Sugarcane Farms and Farmers, CY 2013-2014

FIRST FARMERS/ BACOLOD-MURCIA MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	137	22.99%	148	22.98%	1,093.79	5.09%
5.01 - 10.00	90	15.10%	95	14.75%	754.00	3.51%
10.01 -25.00	111	18.62%	115	17.86%	2,006.00	9.33%
25.01 - 50.00	122	20.47%	127	19.72%	4,861.00	22.61%
50.01 - 100.00	98	16.44%	110	17.08%	7,268.00	33.80%
100.01 & Above	38	6.38%	49	7.61%	5,519.00	25.67%
TOTAL	596	100.00%	644	100.00%	21,501.79	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Hawaiian-Philippines /Silay Mill District – Negros Occidental, Region VI

Hawaiian-Philippines/Silay mill district covers the city/municipality of Silay City and EB Magalona of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 12,490 hectares with a total sugar production of 105,543 tons which constituted 4.33% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share. It had a cane yield of 76.82 TC/Ha, a sugar yield of 169 LKg/Ha and 2.20 LKg/TC which was the highest cane and sugar yield in CY 2013-14. The mill district has the most efficient sugarcane farms in Negros. In crop year 2011-2012, it recorded a total of 530 farmers of which 62% are small farmers.

CY 2013-2014 farm profile data of Hawaiian-Philippines/Silay mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 612 farmers where 51.31% are farming less than 5 hectares which constitutes 6.19% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, the Hawaiian-Philippines Co. (HPCO) having a capacity utilization of 57.92% of its rated capacity of 7,500 tons cane per day (TCD) and a reduced overall sugar recovery of 87.52% against the standard overall recovery of 82.93% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill was also underutilized due to the lack of sugarcane supply.

The fragmentation of sugarcane plantations became a major problem for the mill district taking into account the financial and technical capability of the ARBs in running farm operations efficiently. The small farmers also need to be capacitated on best practices in sugarcane growing especially the ARBs who used to be dedicated farm workers who were previously under the supervision of farm managers. Sugar production is also threatened by big investors who might lease the farms at higher price to be planted with other crops. Another challenge is the imposition of so many additional fees and taxes by BIR which add up to farmers' costs and the requirement of invoices and receipts on sugar sales even to small farmers.

Table 2.32. Performance of HPCO/Silay Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	12,490	959,482	105,543	76.82	169.00	2.20
2012-13	11,700	890,220	98,814	76.09	168.91	2.22
2011-12	11,724	828,970	86,857	70.71	148.17	2.10
2010-11	11,500	1,111,590	106,713	96.66	185.59	1.92
2009-10	11,524	783,632	86,274	68.00	149.73	2.20

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.33. Profile of Sugarcane Farms and Farmers, CY 2013-2014

HAWAIIAN-PHILIPPINES/SILAY MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	314	51.31%	316	49.45%	773.00	6.19%
5.01 - 10.00	71	11.60%	73	11.42%	600.00	4.80%
10.01 -25.00	75	12.25%	87	13.62%	1,717.00	13.75%
25.01 - 50.00	91	14.87%	102	15.96%	3,747.00	30.00%
50.01 - 100.00	45	7.35%	45	7.04%	3,223.00	25.80%
100.01 & Above	16	2.61%	16	2.50%	2,430.00	19.46%
TOTAL	612	100.00%	639	100.00%	12,490.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Victorias Mill District – Negros Occidental, Region VI

Victorias mill district covers the cities/municipality of Cadiz City, Victorias City and Manapla of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 31,518 hectares with a total sugar production of 235,175 tons which constituted 9.64% of the national production. It was the biggest sugarcane-producing district in Negros and second to Bukidnon in the national level. Sugar sharing scheme of the mill district is 69.5% planters' share and 30.5% miller's share. It had a cane yield of 69.04 TC/Ha, a sugar yield of 149.23 LKg/Ha and 2.16 LKg/TC. In crop year 2011-2012, it recorded a total of 733 farmers of which 67% are small farmers.

CY 2013-2014 farm profile data of Victorias mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 3,650 farmers where 63.67% are farming less than 5 hectares which constitutes 21.00% of the total sugarcane plantations of the mill district.

There are two organized block farms in Cadiz City, Paraiso and Hda. Bernardita MPCs which received funding from LBP for CY 2013-2014 farm operations. Hda. Bernardita is already operational in CY 2013-2014 with 42 enrollees owning 32 hectares of farms while Paraiso is partially operational as it committed 10 hectares only equivalent to the farm area funded by LBP. However, processing and release of loans from LBP is always delayed due to existing and overdue loans of block farm enrollees. Validation of farm areas and enrollees is still on-going for Paraiso block farm as of CY 2013-2014.

The mill district has one sugar mill, the Victorias Milling Co. (VICMICO) having a capacity utilization of 80.80% of its rated capacity of 15,000 tons cane per day (TCD) and a reduced overall sugar recovery of 85.71% against the standard overall recovery of 83.38% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. Its capacity utilization is the highest among the sugar mills in the country.

The planters in the mill district identified CARP as their major problem plus the high cost of production. It is recommended that the CARP beneficiaries shall tie up or lease their farms to their former owners to keep the productivity levels of the farms.

Table 2.34. Performance of Victorias Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	31,518	2,175,057	4,703,508	69.04	149.23	2.16
2012-13	31,312	2,134,415	234,182	68.17	149.58	2.19
2011-12	27,000	1,714,023	178,970	63.48	132.57	2.09
2010-11	24,821	2,035,322	185,214	82.00	149.24	1.82
2009-10	24,821	1,536,539	161,337	61.90	130.00	2.10

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.35. Profile of Sugarcane Farms and Farmers, CY 2013-2014

VICTORIAS MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	2324	63.67%	2324	64.02%	6,618.77	21.00%
5.01 - 10.00	996	27.29%	996	27.44%	5,673.23	18.00%
10.01 -25.00	120	3.29%	103	2.84%	5,358.05	17.00%
25.01 - 50.00	83	2.27%	80	2.20%	5,988.41	19.00%
50.01 - 100.00	62	1.70%	62	1.71%	3,151.79	10.00%
100.01 & Above	65	1.78%	65	1.79%	4,727.69	15.00%
TOTAL	3650	100.00%	3630	100.00%	31,517.94	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Lopez Mill District – Negros Occidental, Region VI

Lopez mill district covers Escalante City, a portion of Cadiz City and Sagay City of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 13,510 hectares with a total sugar production of 94,146 tons which constituted 3.86% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share. Its cane yield was 68.32 TC/Ha, a sugar yield of 139.37 LKg/Ha and 2.04 LKg/TC. In crop year 2011-2012, it recorded a total of 492 farmers of which 58% are small farmers.

CY 2013-2014 farm profile data of Lopez mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 716 farmers where 59.78% are farming less than 5 hectares which constitutes 4.37% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, the Lopez Sugar Corporation having a capacity utilization of 79.12% of its rated capacity of 7,000 tons cane per day (TCD) and a reduced overall sugar recovery of 89.25% against the standard overall recovery of 81.68% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. In terms of capacity utilization, the mill was running at higher capacity compared to the Negros average of 57.51% and Philippine average of 58.12%. In terms of reduced overall sugar recovery, it was higher than the Negros average of 88.32% and the 86.75% national average.

The planters in the mill district projected a decline in sugar production due to land reform because the ARBs have no financial and technical capability to operate sugarcane farms. The mill district needs a massive production of sugarcane high-yielding varieties and the conduct of yield verification trials at least 5 varieties at 0.4 hectare each. A tractor pool program is needed by the district to cater to the needs of the small farmers. Labor shortage is another problem in the mill district. A government financing scheme with counterpart funding by the planters cooperatives for the acquisition of cane loaders and harvesting equipment is needed. There is also a need for SRA and DA-ATI to intensify the provision of leadership trainings and transfer of technologies to the farmers in the mill district. The block farms and small

farmers requested for more farmers' trainings and seminars for running a cooperative and livelihood projects.

With respect to the bioethanol program of the government, the sugar mill needs a definite SRA policy on the allocation of sugarcane for bioethanol. The mill is also interested to invest in bioethanol, however, the risk is high for the mill to invest with an unstable policy environment.

Table 2.36. Performance of Lopez Mill District

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	13,510	923,003	94,146	68.32	139.37	2.04
2012-13	13,010	766,582	80,491	58.92	123.74	2.10
2011-12	12,355	772,214	75,986	62.50	123.00	1.97
2010-11	12,268	821,956	78,086	67.00	127.30	1.90
2009-10	12,268	664,440	65,401	54.16	106.62	1.97

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.37. Profile of Sugarcane Farms and Farmers, CY 2013-2014

LOPEZ MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	428	59.78%	450	56.25%	590.60	4.37%
5.01 - 10.00	88	12.29%	97	12.13%	842.80	6.24%
10.01 -25.00	95	13.27%	130	16.25%	2,162.66	16.01%
25.01 - 50.00	50	6.98%	63	7.88%	3,043.30	22.52%
50.01 - 100.00	40	5.59%	42	5.25%	3,554.00	26.30%
100.01 & Above	15	2.09%	18	2.25%	3,317.44	24.55%
TOTAL	716	100.00%	800	100.00%	13,510.80	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Sagay-Danao Mill District – Negros Occidental, Region VI

Sagay-Danao mill district covers Calatrava, Toboso and a portion of Escalante City and Sagay City of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 16,763 hectares with a total sugar production of 108,956 tons which constituted 4.47% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share. Its cane yield was 68.42 TC/Ha, a sugar yield of 130.00 LKg/Ha and 1.90 LKg/TC. In crop year 2011-2012, it recorded a total of 1,439 farmers of which 74% are small farmers.

CY 2013-2014 farm profile data of Sagay-Danao mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 3,801 farmers where 84.79% are farming less than 5 hectares which constitutes 27.07% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, the Sagay Central Inc. (SCI) and one muscovado mill, Organic Product in the Island of Negros Multi-Purpose Cooperative (OPTION-MPC). SCI had a capacity utilization of 47.19% of its rated capacity of 4,000 tons cane per day (TCD) and a reduced overall sugar recovery of 90.59% against the standard overall recovery of 78.77% while OPTION-MPC had a capacity utilization of 48.88% of its rated capacity of 500 TCD and a reduced overall recovery of 86.31% against the standard overall recovery of 78.62%, based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories.

Major problem of the mill district is farm-to-mill roads where 300 kilometers need rehabilitation and only 50 kilometers are in good condition. Bad road conditions caused delay in harvesting and hauling the sugarcane to the mills. The priority roads in the mill district were already surveyed and identified and waiting for government funding to rehabilitate. The identified priority road network is located in Toboso, crossing Cabalas to Bandila with a total length of 3.0 kilometers.

Table 2.38. Performance of Sagay-Danao Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares(Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	16,763	1,146,902	108,956	68.42	130.00	1.90
2012-13	16,000	960,800	90,770	60.05	113.46	1.89
2011-12	16,000	1,016,000	90,400	63.50	113.00	1.78
2010-11	15,190	1,018,327	92,816	67.04	122.21	1.82
2009-10	15,190	817,381	79,694	53.81	104.93	1.95

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.39. Profile of Sugarcane Farms and Farmers, CY 2013-2014

SAGAY / DANA O MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	3,223	84.79%	3,693	86.02%	4,512.73	27.07%
5.01 - 10.00	356	9.37%	370	8.62%	2,627.48	15.76%
10.01 -25.00	98	2.58%	102	2.38%	1,678.83	10.07%
25.01 - 50.00	98	2.58%	98	2.28%	4,079.59	24.47%
50.01 - 100.00	18	0.47%	20	0.47%	1,433.37	8.60%
100.01 & Above	8	0.21%	10	0.23%	2,341.00	14.04%
TOTAL	3,801	100.00%	4,293	100.00%	16,673.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

BISCOM / Binalbagan-Isabela Mill District – Negros Occidental, Region VI

BISCOM mill district covers Binalbagan, Himamaylan City, Hinigaran, Moises Padilla and Isabela of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 28,725 hectares with a total sugar production of 210,817 tons which constituted 8.64% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share. Its cane yield was 74.34 TC/Ha, a sugar yield of 146.78 LKg/Ha and 1.97 LKg/TC. In crop year 2011-2012, it recorded a total of 2,467 farmers of which 75% are small farmers.

CY 2013-2014 farm profile data of Biscom / Binalbagan-Isabela mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 2,572 farmers where 58.32% are farming less than 5 hectares which constitutes 12.61% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, the Binalbagan-Isabela Sugar Company (BISCOM) having a capacity utilization of 72.01% of its rated capacity of 14,000 tons cane per day (TCD) and a reduced overall sugar recovery of 87.32% against the standard overall recovery of 81.49% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. In terms of capacity utilization, the mill still needs additional sugarcane supply to maximize its production capacity although it is running at higher capacity compared to the Negros average of 57.51% and Philippine average of 58.12%.

Table 2.40. Performance of BISCOM/Binalbagan-Isabela Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	28,725.00	2,135,446.00	210,817.37	74.34	146.78	1.97
2012-13	28,500.00	1,991,519.00	198,454.64	69.88	139.27	1.99
2011-12	28,000.00	1,932,000.00	177,800.00	69.00	127.00	1.84
2010-11	25,484.00	1,962,268.00	174,641.85	77.00	137.06	1.78
2009-10	25,412.00	1,517,136.00	160,019.00	59.70	125.94	2.11

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.41. Profile of Sugarcane Farms and Farmers, CY 2013-2014

BISCOM / Binalbagan-Isabela MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	1500	58.32%	1500	60.48%	3,592.92	12.61%
5.01 - 10.00	350	13.61%	350	14.11%	2,762.78	9.69%
10.01 -25.00	370	14.39%	370	14.92%	4,257.05	14.94%
25.01 - 50.00	140	5.44%	140	5.65%	4,982.92	17.48%
50.01 - 100.00	165	6.42%	73	2.94%	5,054.09	17.73%
100.01 & Above	47	1.83%	47	1.90%	7,850.24	27.54%
TOTAL	2,572	100.00%	2,480	100.00%	28,500.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

SONEDCO Mill District – Negros Occidental, Region VI

SONEDCO mill district covers Cauayan, Ilog and Kabankalan City of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 12,755 hectares with a total sugar production of 83,190 tons which constituted 3.41% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share. Its cane yield was 65.22 TC/Ha, a sugar yield of 130.44 LKg/Ha and 2.00 LKg/TC. In crop year 2011-2012, it recorded a total of 2,514 farmers of which 94% are small farmers.

CY 2013-2014 farm profile data of SONEDCO mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 2,514 farmers where 88.42% are farming less than 5 hectares which constitutes 41.00% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, the URC-Southern Negros Corporation (URC-SONEDCO) having a capacity utilization of 75.92% of its rated capacity of 10,000 tons cane per day (TCD) and a reduced overall sugar recovery of 87.66% against the standard overall recovery of 82.10% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill is also underutilized and needs more sugarcane to maximize its production capacity.

The planters in the mill district considered land reform as a threat to the productivity of sugarcane in the district because the ARBs have no financial and technical capability to operate sugarcane farms. The imposition of new BIR regulations on the issuance of invoices and receipts for the sale of sugar and new fees and taxes add up to the cost of production of the small farmers. Getting tax exemption is a tedious process for the small farmers.

Table 2.42. Performance of SONEDCO Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	12,755.00	831,896.00	83,189.56	65.22	130.44	2.00
2012-13	12,160.00	765,118.50	74,530.05	62.92	122.58	1.95
2011-12	12,160.00	784,320.00	76,000.00	64.50	125.00	1.94
2010-11	10,057.00	703,889.43	63,350.05	69.99	125.98	1.80
2009-10	10,057.00	664,879.00	59,839	66.11	119.00	1.80

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.43. Profile of Sugarcane Farms and Farmers, CY 2013-2014

SONEDCO MILL DISTRICT/Dacongogon, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	2,223	88.42%	2,223	88.42%	5,229.00	41.00%
5.01 - 10.00	140	5.57%	140	5.57%	1,687.00	13.23%
10.01 -25.00	93	3.70%	93	3.70%	1,722.00	13.50%
25.01 - 50.00	36	1.43%	36	1.43%	1,366.00	10.71%
50.01 - 100.00	15	0.60%	15	0.60%	970.00	7.60%
100.01 & Above	7	0.28%	7	0.28%	1,781.00	13.96%
TOTAL	2,514	100.00%	2,514	100.00%	12,755.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Dacongogon Mill District – Negros Occidental, Region VI

Dacongogon mill district covers some barangays in Candoni, Ilog, Cauayan and Kabankalan City of Negros Occidental. In crop year 2013-14, the mill district had a total sugarcane area of 10,800 hectares with a total sugar production of 52,510 tons which constituted 2.15% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share based on the sharing scheme of SONEDCO where the planters usually deliver their canes. Its cane yield was 52.00 TC/Ha, a sugar yield of 97.24 LKg/Ha and 1.87 LKg/TC. In crop year 2011-2012, it recorded a total of 2,533 farmers of which 92.26% are small farmers. It is the least productive mill district in Negros Occidental.

CY 2013-2014 farm profile data of Dacongogon mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 2,747 farmers where 91.55% are farming less than 5 hectares which constitutes 65.00% of the total sugarcane plantations of the mill district.

The mill district has no sugar mill and usually sugarcane of the mill district is delivered to URC-SONEDCO which is the nearest sugar mill. The mill district has no Mill District Development Council Foundation, Inc. because it was dissolved upon the closure of its sugar mill in crop year 2008-09. The Dacongogon sugar mill was foreclosed by the Philippine National Bank.

Major constraint in the mill district is the absence of a sugar mill that would process their sugarcane. The farmers were requesting the government to reopen the sugar mill in Dacongogon which was foreclosed by the Philippine National Bank (PNB) because the farmers incurred high hauling costs in delivering their canes to distant sugar mills. Most farms in the district are in the uplands, hence, trucks for the small farmers are much needed assistance on logistics support. The mill district needs a massive production of sugarcane high-yielding varieties and the conduct of yield verification trials of at least five varieties at 0.4 hectare each.

Table 2.44. Performance of Dacongogon Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	10,800.00	561,600.00	52,509.60	52.00	97.24	1.87
2012-13	10,300.00	507,250.00	50,670.38	49.25	98.39	2.00
2011-12	10,300.00	509,850.00	47,895.00	49.50	93.00	1.88
2010-11	9,800.00	578,200.00	52,427.10	59.00	106.99	1.81
2009-10	9,800.00	433,854.00	41,650.00	44.27	85.00	1.92

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.45. Profile of Sugarcane Farms and Farmers, CY 2013-2014

DACONGCOGON MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	2,515	91.55%	2,615	90.64%	7,020.00	65.00%
5.01 - 10.00	200	7.28%	210	7.28%	1,620.00	15.00%
10.01 -25.00	15	0.55%	35	1.21%	862.00	7.98%
25.01 - 50.00	10	0.36%	15	0.52%	649.00	6.01%
50.01 - 100.00	7	0.25%	10	0.35%	649.00	6.01%
100.01 & Above		0.00%		0.00%		0.00%
TOTAL	2,747	100.00%	2,885	100.00%	10,800.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

San Carlos Mill District – Negros Occidental & Negros Oriental, Region VI & VII

San Carlos mill district covers San Carlos City and Calatrava of Negros Occidental, and Canlaon City, Guihulngan and Vallehermoso of Negros Oriental. In crop year 2013-14, the mill district had a total sugarcane area of 11,190 hectares with a total sugar production of 72,880 tons which constituted 2.99% of the national production. Sugar sharing scheme of the mill district is 70% planters' share and 30% miller's share. Its cane yield was 66.26 TC/Ha, a sugar yield of 130.26 LKg/Ha and 1.97 LKg/TC. In crop year 2011-2012, it recorded a total of 1,126 farmers of which 83.75% are small farmers.

CY 2013-2014 farm profile data of San Carlos mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 1,938 farmers where 83.90% are farming less than 5 hectares which constitutes 24.55% of the total sugarcane plantations of the mill district.

The mill district has no sugar mill, however, it has one bioethanol distillery named San Carlos Bioenergy Inc. (SCBI) with an annual rated capacity of 40,000 liters bioethanol. Farmers in the mill district either send their sugarcane to neighboring sugar mills or deliver it to SCBI. In crop year 2012-2013, SCBI milled the sugarcane and delivered the sugar syrup to Sagay Central or other nearby sugar mills. SCBI shifted to using molasses for bioethanol production but when it started operation in 2009, sugarcane was initially used as feedstock for its bioethanol distillery. When prices of sugar went up in 2010, SCBI stopped using sugarcane and used molasses which is a more viable feedstock at that time. Currently, the distillery is using both sugarcane and molasses in sustaining its operation.

The mill district needs a massive production of sugarcane high-yielding varieties. In crop year 2013-2014, the mill district is maintaining one nursery for the CARP beneficiaries. Labor shortage is another problem in the mill district. Farm mechanization program is the best solution like the acquisition of tractors and trucks that will be operated by San Carlos MDDCFI to be able to cater to the needs of the small farmers in the district.

Table 2.46. Performance of San Carlos Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	11,190.00	741,472.00	72,879.85	66.26	130.26	1.97
2012-13	10,274.00	692,287.00	69,349.96	67.38	135.00	2.00
2011-12	10,152.00	649,728.00	64,973.00	64.00	128.00	2.00
2010-11	10,152.00	702,726.59	64,650.75	69.22	127.37	1.84
2009-10	6,928.00	401,824.00	42,708.00	58.00	123.29	2.13

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.47. Profile of Sugarcane Farms and Farmers, CY 2013-2014

SAN CARLOS MILL DISTRICT, Negros Occ.						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	1,626	83.90%	1,623	82.85%	2,522.58	24.55%
5.01 - 10.00	133	6.86%	138	7.04%	945.88	9.21%
10.01 -25.00	112	5.78%	112	5.72%	1,645.81	16.02%
25.01 - 50.00	44	2.27%	50	2.55%	1,400.76	13.63%
50.01 - 100.00	14	0.72%	17	0.87%	1,091.05	10.62%
100.01 & Above	9	0.46%	19	0.97%	2,667.92	25.97%
TOTAL	1,938	100.00%	1,959	100.00%	10,274.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Tolong Mill District – Negros Oriental, Region VII

Tolong mill district covers Sta. Catalina, Basay, Siaton and Bayawan City of Negros Oriental. In crop year 2013-14, the mill district had a total sugarcane area of 9,025.00 hectares with a total sugar production of 43,652 tons which constituted 1.79% of the national production. Sugar sharing scheme of the mill district is 68% planters' share and 32% miller's share. Its cane yield was 50.79 TC/Ha, a sugar yield of 96.74 LKg/Ha and 1.90 LKg/TC. In crop year 2011-2012, it recorded a total of 3,582 farmers of which 96.62% are small farmers. The mill district has potential areas for expansion which is around 13,500 hectares.

CY 2013-2014 farm profile data of Tolong mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 3,688 farmers where 90.08% are farming less than 5 hectares which constitutes 37.95% of the total sugarcane plantations of the mill district.

The mill district has one sugar mill, URC-Tolong Sugar Mill having a capacity utilization of 62.86% of its rated capacity of 3,000 tons cane per day (TCD) and a reduced overall sugar recovery of 84.27% against the standard overall recovery of 81.56% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill was formerly owned by Herminio Teves and Co. but was later sold to URC and it needs more sugarcane supply to improve its capacity utilization.

The soil in the mill district is already acidic which is conducive to white grubs infestation and because of the investment required for liming the soil, the district would like to seek assistance from government in terms of liming subsidy. The planters in the district also noted the need for yield verification trials to establish the best suited HYV variety in the district. The district also lacks farm mechanization equipment like tractors, planting machines, cane loading equipment, irrigation equipment and needs rehabilitation of artery road networks leading to sugarcane farms.

Table 2.48. Performance of Tolong Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	9,025.00	458,336.00	43,652.40	50.79	96.74	1.90
2012-13	8,805.00	418,392.86	38,596.74	47.52	87.67	1.85
2011-12	8,740.00	431,044.00	37,315.00	49.32	85.39	1.73
2010-11	8,310.00	506,910.00	41,820.08	61.00	100.65	1.65
2009-10	9,332.00	368,176.00	34,696.00	39.45	74.36	1.88

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.49. Profile of Sugarcane Farms and Farmers, CY 2013-2014

TOLONG MILLDISTRCT, Negros Oriental						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	3,322	90.08%	3,401	89.90%	3,425.00	37.95%
5.01 - 10.00	215	5.83%	225	5.95%	1,160.00	12.85%
10.01 -25.00	86	2.33%	90	2.38%	1,180.00	13.07%
25.01 - 50.00	36	0.98%	37	0.98%	1,110.00	12.30%
50.01 - 100.00	19	0.52%	20	0.53%	1,100.00	12.19%
100.01 & Above	10	0.27%	10	0.26%	1,050.00	11.63%
TOTAL	3,688	100.00%	3,783	100.00%	9,025.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Bais-Ursumco Mill District - Negros Oriental, Region VII

Bais-Ursumco mill district covers Amlan, Dumaguete City, Ayungon, Bais City, Bindoy, Dauin, Jimalalud, La Libertad, Mabinay, Manjuyod, Pamplona, San Jose, Sibulan, Tayasan, Tanjay City and Valencia of Negros Oriental. In crop year 2013-14, the mill district had a total sugarcane area of 26,836 hectares with a total sugar production of 147,527 tons which constituted 6.05% of the national production. Sugar sharing scheme of the mill district is 66.5% planters' share and 33.5% miller's share. Its cane yield was 56.28 TC/Ha, a sugar yield of 109.95 LKg/Ha and 1.95 LKg/TC. In crop year 2011-2012, it recorded a total of 6,852 farmers of which 96.23% are small farmers. It is next to Bukidnon in terms of the number of farmers. Farm areas in the mill district are 60% located in the upland.

CY 2013-2014 farm profile data of Bais-Ursumco mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 6,867 farmers where 92.68% are farming less than 5 hectares which constitutes 47.15% of the total sugarcane plantations of the mill district.

The mill district has two sugar mills, Central Azucarera de Bais (CAB) and Universal Robina Sugar Milling Corporation (URSUMCO). CAB had a capacity utilization of 44.60 % of its rated capacity of 9,000 tons cane per day (TCD) and a reduced overall sugar recovery of 88.16% against the standard overall recovery of 81.14% while URSUMCO had a capacity utilization of 52.24% of its rated capacity of 8,000 tons cane per day (TCD) and a reduced overall sugar recovery of 87.67% against the standard overall recovery of 82.18% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. Both sugar mills are underutilized and sugarcane production and farm productivity levels should be intensified to supply the sugarcane requirement of the two sugar mills.

The problems faced by the planters in the district are its acidic soil which needs a government-initiated liming program, lacks farm mechanization equipment like tractors, cane loaders, cane cutting equipment suited to the farm sizes and land contours of the district, GPS units to monitor the areas planted with sugarcane and track down the areas serviced by farm machinery, lacks HYV nurseries, load capacity of bridges are 20 tons only which are not passable by trucks loaded with canes, needs sprinkler type of irrigation equipment to improve cane yields, needs assistance

for the importation of fertilizer in big volumes to get discounts and tax exemptions as a cooperative because fertilizer cost in the district is high compared to Luzon prices. Common in all mill districts is the need for farm-to-mill roads rehabilitation.

Table 2.50 Performance of Bais-Ursumco Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	26,836.00	1,510,434.00	147,527.06	56.28	109.95	1.95
2012-13	26,600.00	1,329,850.00	125,450.46	49.99	94.32	1.89
2011-12	26,635.00	1,422,003.00	127,222.00	53.39	95.53	1.79
2010-11	24,270.00	1,577,660.00	132,514.20	65.00	109.20	1.68
2009-10	24,755.00	1,044,689.00	103,959.00	42.20	83.99	1.99

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.51. Profile of Sugarcane Farms and Farmers, CY 2013-2014

BAIS-URSUMCO MILL DISTRICT, Negros Oriental						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	6,364	92.68%	6,364	92.62%	12,593.00	47.15%
5.01 - 10.00	245	3.57%	249	3.62%	2,071.17	7.76%
10.01 -25.00	151	2.20%	151	2.20%	2,718.00	10.18%
25.01 - 50.00	64	0.93%	64	0.93%	2,560.00	9.59%
50.01 - 100.00	24	0.35%	24	0.35%	2,160.00	8.09%
100.01 & Above	19	0.28%	19	0.28%	4,604.00	17.24%
TOTAL	6,867	100.00%	6,871	100.00%	26,706.17	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Durano Mill District - Cebu, Region VII

Durano mill district covers Danao City, Mandaue City, Liloan, Compostela, Carmen, Tuburan and Pinamungahan towns (Figure 54). In crop year 2011-2012, the mill district had a total sugarcane area of 1,583 hectares with a total sugar production of 112,151 LKg bags which constituted 0.23% of the national production. Sugar sharing scheme of the mill district is 63% planters' share and 37% miller's share. Its cane yield was 43.67 TC/Ha, a sugar yield of 70.85 LKg/Ha and 1.62 LKg/TC. In crop year 2011-2012, it recorded a total of 59 farmers of which 61% are small farmers.

Durano sugar mill has stopped operation in crop year 2012-2013 and farmers of the Durano mill district were bringing their canes to Bogó-Medellin sugar mill. Farm reports of Durano mill district is being merged with the Bogó-Medellin mill district reports. Government interventions for the farmers in the district are being catered by the Bogó-Medellin MDDCFI.

Table 2.52. Performance of Durano Mill District, CY 2009-10 to 2011-12

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2011-12	1,583	69,128	5,608	43.67	70.85	1.62
2010-11	1,640	90,906	6,721	55.43	81.96	1.48
2009-10	1,640	70,042	6,356	42.71	77.51	1.81
2008-09	1,637	71,311	5,739	43.56	70.12	1.61
2007-08	1,562	84,392	6,793	54.03	86.98	1.61

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Bogo-Medellin – Cebu, Region VII

Bogo-Medellin mill district covers Bogo, Borbon, Medellin, San Remegio, Daan Bantayan and Tabogon of Cebu province. In crop year 2012-13, the Durano mill district was merged with the Bogo-Medellin mill district. For crop year 2013-14, the mill district has a total sugarcane area of 7,900 hectares with a total sugar production of 27,297 tons which constituted 1.12% of the national production. Sugar sharing scheme of the mill district is 64.5% planters' share and 33.5% miller's share and 2% for medical share. Its cane yield was 45.46 TC/Ha, a sugar yield of 69.11 LKg/Ha and 1.52 LKg/TC. In crop year 2011-2012, it recorded a total of 302 farmers of which 74.17% are small farmers.

CY 2013-2014 farm profile data of merged Bogo-Medellin and Durano mill districts as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 789 farmers where 78.58% are farming less than 5 hectares which constitutes 28.86% of the total sugarcane plantations of the mill district.

The sugar mill of the mill district is Bogo-Medellin Milling Company, Inc. (BOMEDCO) with a capacity utilization of 56.62% of its rated capacity of 3,000 tons cane per day (TCD) and a reduced overall sugar recovery of 83.39% against the standard overall recovery of 79.67% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill remained underutilized even though it was augmented by the sugarcane from Durano mill district.

Bogo-Medellin mill district was one of the three sugarcane districts in the country which was hardest hit by typhoon Yolanda. Farm machinery were destroyed during the typhoon and the district is clamoring for assistance in procuring tractors, cane loaders, harvesters / cane cutting equipment suited to the district, establishment of HYV nurseries, yield verification trials to determine the best sugarcane HYV suited to the district, water source for irrigation, rehabilitation of farm-to-mill roads and access to financing / timely releases of funds for farm inputs. The district also needs to synchronize harvesting and milling operations in order to optimize the yield of its sugarcane.

Table 2.53. Performance of Bogó-Medellín Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	7,900.00	359,168.00	27,296.75	45.46	69.11	1.52
2012-13	7,741.24	363,945.00	29,830.75	47.01	77.07	1.64
2011-12	5,847.67	265,073.00	22,036.00	45.33	75.37	1.66
2010-11	6,562.00	377,787.65	28,554.58	57.57	87.03	1.51
2009-10	6,562.00	278,257.00	26,083.00	42.40	79.50	1.87

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.54. Profile of Sugarcane Farms and Farmers, CY 2013-2014

BOGO-MEDELLIN/DURANO MILL DISTRICT						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	620	78.58%	789	77.28%	2,280.00	28.86%
5.01 - 10.00	57	7.22%	55	5.39%	356.00	4.51%
10.01 -25.00	48	6.08%	61	5.97%	659.00	8.34%
25.01 - 50.00	25	3.17%	38	3.72%	735.00	9.30%
50.01 - 100.00	15	1.90%	26	2.55%	1,200.00	15.19%
100.01 & Above	24	3.04%	52	5.09%	2,670.00	33.80%
TOTAL	789	100.00%	1,021	100.00%	7,900.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Ormoc-Kananga Mill District – Leyte, Region VIII

Ormoc-Kananga mill district covers Albuena, Capoocan, Carigara, Kananga, Ormoc, Matag-ob, Merida, Palompon, and Villaba of Leyte province. In crop year 2013-14, the Ormoc-Kananga mill district has a total sugarcane area of 8,089.50 hectares with a total sugar production of 28,652 tons which constituted 1.17% of the national production. Sugar sharing scheme of the mill district is 65% planters' share, 34% miller's share and 1% for socio-economic programs. Its cane yield was 43.09 TC/Ha, a sugar yield of 70.84 LKg/Ha and 1.64 LKg/TC. In crop year 2011-2012, it recorded a total of 788 farmers of which 81.47% are small farmers.

CY 2012-2013 farm profile data of Ormoc-Kananga mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 850 farmers where 79.65% are farming less than 5 hectares which constitutes 21.12% of the total sugarcane plantations of the mill district.

The sugar mill of the mill district is HIDEKO Sugar Milling Company, Inc. with a capacity utilization of 40.90% of its rated capacity of 5,000 tons cane per day (TCD) and a reduced overall sugar recovery of 86.40% against the standard overall recovery of 80.27% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill district needs to augment its sugarcane production to maximize the capacity utilization of the sugar mill.

The mill district has available expansion areas, however, it needs an investor to come in and finance the production facility for sugar or ethanol. The district was one of the three districts hardest hit by typhoon Yolanda and it needs assistance for its priority projects on mechanization, establishment of HYV nurseries, yield verification trials to determine the best variety suited to the district, drainage equipment because the district is prone to flooding, liming program through financial assistance in mining the lime deposits within a nearby site in Leyte to resolve the problem on acidic soils, soils fertility maps, discounts for diesel prices which are more expensive compared to Luzon, access to timely financing for farm inputs and training on the application of mudpress and mill ash to its sugarcane farms.

Table 2.55. Performance of Ormoc-Kananga Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	8,089.50	348,608.00	28,652.27	43.09	70.84	1.64
2012-13	8,587.00	402,118.53	41,488.43	46.83	96.63	2.06
2011-12	8,559.00	393,082.00	38,943.00	45.93	91.00	1.98
2010-11	9,190.00	517,383.88	51,221.00	56.30	111.47	1.98
2009-10	9,300.00	376,650.00	40,060.00	40.50	86.15	2.13

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.56. Profile of Sugarcane Farms and Farmers, CY 2013-2014

HISUMCO MILL DISTRICT (CY 2012-2013 data)						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	677	79.65%	680	56.67%	1,854.00	21.12%
5.01 - 10.00	112	13.18%	333	27.75%	2,331.00	26.55%
10.01 -25.00	22	2.59%	148	12.33%	2,095.00	23.86%
25.01 - 50.00	20	2.35%	20	1.67%	593.00	6.75%
50.01 - 100.00	13	1.53%	13	1.08%	886.00	10.09%
100.01 & Above	6	0.71%	6	0.50%	1,020.00	11.62%
TOTAL	850	100.00%	1200	100.00%	8779	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Bukidnon Mill District – Bukidnon, Region X

Bukidnon mill district covers the municipalities of Damulog, Cabanglasan, Dacangcagan, Don Carlos, Malaybalay, Quezon, Kibawe, Impasugong, Kadilingan, Kalilangan, Maramg, Kitao-tao, Lantapan, Pangantucan of the province of Bukidnon. In crop year 2013-14, the mill district had a total sugarcane area of 69,663 hectares with a total sugar production of 365,652 tons which constituted 15% of the national production. Sugar sharing scheme of the mill district is 64% planters' share and 36% miller's share. Its cane yield was 58.84 TC/Ha, a sugar yield of 119.45 LKg/Ha and 2.03 LKg/TC. In crop year 2011-2012, it recorded a total of 10,591 farmers of which 87% are small farmers.

CY 2012-2013 farm profile data of Bukidnon mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 11,395 farmers where 72.40% are farming less than 5 hectares which constitutes 25.82% of the total sugarcane plantations of the mill district.

There are two sugar mills in Bukidnon mill district, BUSCO Sugar Milling Company, Inc. and Crystal Sugar Milling Company, Inc. BUSCO had a capacity utilization of 60.58% of its rated capacity of 18,000 tons cane per day (TCD) and a reduced overall sugar recovery of 87.16 % against the standard overall recovery of 82.61% while Crystal Sugar had a capacity utilization of 79.36% of its rated capacity of 10,500 tons cane per day and a reduced overall sugar recovery of 84.27% against its standard overall recovery of 83.52% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. Both mills are underutilized which can be supplied by the mill district through improvement of farm productivity and development of expansion areas.

The planters in the mill district have identified various challenges and among them are the peace and order situation in the area, cane losses due to poor road conditions, lack of automated loading ports for export sugar shipments coming from Mindanao, no nearby testing facility for fertilizer and soil, lack of mechanical harvesters and cane loaders to solve the problem of labor shortage, the need for investment in opening new sugarcane areas for bioethanol production, and fear of BIR taxation even to small farmers who are required to indicate TIN in the printing of sugar quedans.

Table 2.57. Performance of Bukidnon Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	69,663	3,639,070	365,652	52.24	104.98	2.01
2012-13	70,355	3,867,967	381,171	54.98	108.36	1.97
2011-12	74,126	3,786,561	351,761	51.08	94.91	1.86
2010-11	70,400	4,487,648	436,184	63.74	123.92	1.94
2009-10	60,674	2,794,789	297,569	46.06	98.09	2.13

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.58. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Bukidnon Mill District						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	8,250	72.40%	8,270	68.48%	17,987.10	25.82%
5.01 - 10.00	1,750	15.36%	1,850	15.32%	11,424.80	16.40%
10.01 -25.00	850	7.46%	1,109	9.19%	13,201.22	18.95%
25.01 - 50.00	360	3.16%	474	3.92%	11,814.92	16.96%
50.01 - 100.00	155	1.36%	286	2.37%	10,184.79	14.62%
100.01 & Above	30	0.26%	87	0.72%	5,050.59	7.25%
TOTAL	11,395	100.00%	12,077	100.00%	69,663.42	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Davao Mill District – Davao, Region XI

Davao mill district covers the provinces of Davao del Sur and South Cotabato. In crop year 2013-14, the mill district had a total sugarcane area of 11,335 hectares with a total sugar production of 49,503 tons which constituted 2.03% of the national production. Sugar sharing scheme of the mill district is 62% planters' share and 38% miller's share. Its cane yield was 42.17 TC/Ha, a sugar yield of 87.35 LKg/Ha and 2.07 LKg/TC. In crop year 2011-2012, it recorded a total of 4,178 farmers of which 98% are small farmers.

CY 2012-2013 farm profile data of Davao mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 4,178 farmers where 93.68% are farming less than 5 hectares which constitutes 56.08% of the total sugarcane plantations of the mill district.

There is only one sugar mill in Davao mill district, Davao Sugar Central Company, Inc. (DASUCECO). The mill had a capacity utilization of 70.88% of its rated capacity of 5,000 tons cane per day (TCD) and a reduced overall sugar recovery of 84.24 % against the standard overall recovery of 82.99% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill needs more sugarcane to improve its capacity utilization.

Farm roads in the mill district are very rough which need to be rehabilitated according to specifications that can accommodate trucks loaded with sugarcane, acidic soil conditions which deterred the growth of the sugarcane plant needs liming program assisted by the government, lack of HYV nurseries / yield verification trials to determine the appropriate variety best suited to the district, needs farm mechanization equipment to solve the problem on labor shortage, low-interest rate financing to procure farm inputs, technology generation / training to help the farmers improve their farm practices, installation of irrigation facilities and construction of farm-to-mill roads.

Table 2.59. Performance of Davao Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	11,335	477,970	49,503	42.17	87.35	2.07
2012-13	11,978	591,904	59,782	49.42	99.82	2.02
2011-12	11,803	549,271	54,166	46.54	91.78	1.97
2010-11	11,020	504,473	45,659	45.78	82.86	1.81
2009-10	10,581	385,973	38,635	36.48	73.03	2.00

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.60. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Davao Mill District						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	3,914	93.68%	3,914	92.79%	6,356.62	56.08%
5.01 - 10.00	173	4.14%	173	4.10%	1,524.55	13.45%
10.01 -25.00	70	1.68%	77	1.83%	1,262.47	11.14%
25.01 - 50.00	15	0.36%	22	0.52%	560.97	4.95%
50.01 - 100.00	3	0.07%	9	0.21%	234.59	2.07%
100.01 & Above	3	0.07%	23	0.55%	1,395.80	12.31%
TOTAL	4,178	100.00%	4,218	100.00%	11,335.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

Cotabato Mill District – Cotabato, Region XII

Cotabato mill district covers the provinces of Maguindanao, Sultan Kudarat, South Cotabato and North Cotabato. In crop year 2013-14, the mill district had a total sugarcane area of 11,030 hectares with a total sugar production of 50,636 which constituted 2.08% of the national production. Sugar sharing scheme of the mill district is 62.5% planters' share and 37.5% miller's share. Its cane yield was 45.83 TC/Ha, a sugar yield of 91.82 LKg/Ha and 2.00 LKg/TC. In crop year 2011-2012, it recorded a total of 2,137 farmers of which 94% are small farmers.

CY 2012-2013 farm profile data of Cotabato mill district as gathered by SRA Agricultural Extension unit shows that the mill district is composed of 2,606 farmers where 69.76% are farming less than 5 hectares which constitutes 51.21% of the total sugarcane plantations of the mill district.

There is only one sugar mill in Cotabato mill district, Cotabato Sugar Central Company, Inc. (COSUCECO). The mill had a capacity utilization of 62.29% of its rated capacity of 4,500 tons cane per day (TCD) and a reduced overall sugar recovery of 84.86 % against the standard overall recovery of 83.27% based on data taken from the CY 2013-2014 SRA Annual Synopsis of Raw Sugar Factories. The mill is also underutilized and more sugarcane is needed to maximize its production capacity.

The mill district needs correct variety tagging to determine the most efficient HYV to be planted in the district, improve its database of the sugarcane areas in the mill district through GPS/GIS mapping, lacks tractors to serve majority of the farmers in the district, needs backhoe or excavators to resolve the drainage problems, automated weather stations and gauges to help warn farmers with weather conditions, construction of all-weather roads leading to the interior farms, shortage of labor which can be resolved by using harvesters that would fit the contour of the farms, lacks hauling trucks and the threat of the conversion of sugarcane areas into other crops like rubber and banana which are being financed by investors. Poor farm productivity is very noticeable in the mill district and establishment of HYV nurseries is very essential to improve the adoption of better HYVs.

Table 2.61. Performance of Cotabato Mill District, CY 2009-10 to 2013-14

<i>Crop Year</i>	<i>Area, Hectares (Ha.)</i>	<i>Tons Cane (TC)</i>	<i>Tons Raw Sugar (TS)</i>	<i>TC/Ha</i>	<i>LKg/Ha</i>	<i>LKg/TC</i>
2013-14	11,030	505,502	50,636	45.83	91.82	2.00
2012-13	12,600	614,631	57,149	48.78	90.71	1.86
2011-12	12,851	676,842	57,735	52.67	89.86	1.71
2010-11	9,769	650,000	57,724	66.54	118.18	1.78
2009-10	10,243	394,882	37,304	38.55	72.84	1.89

Reference: SRA Agricultural Extension Reports, CY 2009-2010 to 2013-2014

Table 2.62. Profile of Sugarcane Farms and Farmers, CY 2013-2014

Cotabato Mill District						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	1,818	69.76%	1,859	66.82%	5,648	51.21%
5.01 - 10.00	647	24.83%	718	25.81%	3,535	32.05%
10.01 -25.00	126	4.83%	157	5.64%	1,401	12.70%
25.01 - 50.00	14	0.54%	32	1.15%	383	3.47%
50.01 - 100.00	1	0.04%	16	0.58%	63	0.57%
100.01 & Above		0.00%		0.00%		0.00%
TOTAL	2,606	100.00%	2,782	100.00%	11,030.00	100.00%

Reference: SRA Agricultural Extension Report, CY 2013-2014

2.2.3 Domestic Prices

2.2.3.1. Millsite Prices of Raw Sugar

The price of sugarcane is computed in terms of the millsite prices of sugar using sugar yield factors or the LKg/TC and the prevailing sharing scheme implemented in each mill district. Due to increasing trend of domestic demand, millsite price of raw sugar in crop year 2013-14 escalated at a composite price ranging from P 1,318 – P1,694 per LKg bag and a national average of P1,480 per LKg bag. Average millsite prices of US quota sugar, domestic and world market sugar were P806.54, P1,536.05 and P792.86 per LKg bag, respectively. In crop years 2000-01 to 2004-05, prices of US quota sugar exceeded the domestic prices, therefore, those years became very attractive for the Philippine sugar of entering the US market.

Millsite prices of raw sugar showed a downward trend from crop year 2007-2008 to 2008-2009 and an upward trend from crop year 2008-2009 to 2009-2010. Composite prices of raw sugar from crop year 2007-2008 to 2009-2010 were P1,057, P945 and P1,539 per 50-kilo bag, respectively. Molasses as well showed an upward trend at P4,099, P4,272 and P6,973 per metric ton from crop year 2007-2008 to 2009-2010, respectively.

Raw sugar millsite prices in CY 2009-2010 turned abnormally high which triggered the importation of sugar under the tax expenditure subsidy program of the National Food Authority (NFA). Millsite price trends for the past 5 crop years are shown in Table 2.63.

Crop year 2010-2011 is seen to be a profitable season for sugarcane farmers in the Philippines with an average composite millsite price of P1,864 per 50-kilo bag while crop year 2011-2012 showed a sharp decline in millsite price to an average of P1,345 per 50-kilo bag. The traders and millers with large sugar stocks were having huge exposures during the sharp decline of sugar prices in CY 2011-2012. Millsite prices further declined to P1,280 per 50-kilo bag in crop year 2012-2013 but have recovered to P1,480 in CY 2013-14.

Table 2.63. Average Millsite Prices by Sugar Classification Including Molasses, CY 2009-10 to 2013-14

Crop Year	"A" Export	"B" Domestic	"C" Reserve	"D" World Market	Composite Price	Molasses (Pesos/ MT)
	Prices in Pesos Per LKg (50-kilo) Bag					
2013-14	806.54	1,536.05		792.86	1,480.07	6,029.43
2012-13	756.00	1,393.00		781.00	1,280.95	5,837.00
2011-12	1,234.34	1,419.23		1,128.11	1,346.22	4,498.09
2010-11	1,128.11	1,346.22			1,330.95	5,722.46
2009-10	1,281.31	1,587.83	1,420.73	1,130.79	1,664.25	7,172.23

Reference: SRA Regulation Department's Sugar Monitoring System Reports

2.2.3.2 Wholesale and Retail Prices of Raw and Refined Sugar

In years 2012-2014, prevailing wholesale prices of raw sugar in Metro Manila ranged from P1,380-1,800, P1,500-1,800 and P1,600-1,850 per 50-kilo bag, respectively while retail prices ranged from P36.50-44.00, P38.00 – P44.00, and P39.00-43.50 per kilo of raw sugar.

The National Price Coordinating Council (NPCC) chaired by DTI established the suggested retail price (SRP) of refined sugar at P50.00 per kilo in July 2011 and since then it remained at the same level because of the stable millsite prices of sugar. The SRP of commodities was set by the NPCC in times of abnormal price situations or whenever there is an abrupt escalation of commodity prices. Average wholesale and retail prices in Metro Manila groceries of raw, washed and refined sugar in crop years 2010-2011 to 2012-2013 are shown below.

Table 2.64. Prevailing Wholesale Prices in Metro Manila Groceries, 2012-2014

Reference Month / Year	2014			2013			2012		
	Raw	Washed	Refined	Raw	Washed	Refined	Raw	Washed	Refined
Jan	1,630	1,730	2,020	1,400	1,500	1,900	1,380	1,550	1,850
Feb	1,600	1,775	2,000	1,550	1,580	2,000	1,450	1,580	1,850
March	1,700	1,850	2,030	1,500	1,610	1,950	1,550	1,600	1,980
April	1,750	1,970	2,150	1,550	1,600	2,000	1,650	1,790	2,100
May	1,850	2,050	2,250	1,600	1,750	2,020	1,650	1,800	2,100
June	1,850	2,050	2,300	1,620	1,800	2,000	1,750	1,950	2,300
July	1,800	2,080	2,300	1,580	1,780	2,000	1,750	1,950	2,300
Aug	1,800	2,080	2,295	1,580	1,780	1,970	1,800	1,950	2,300
Sept	1,700	1,970	2,230	1,580	1,780	1,950	1,800	1,910	2,250
Oct	1,700	1,900	2,070	1,620	1,775	1,950	1,750	1,850	2,200
Nov	1,700	1,850	2,070	1,700	1,800	1,980	1,480	1,550	1,930
Dec	1,700	1,850	2,050	1,650	1,730	2,030	1,400	1,550	1,900

Department's Price Monitoring Reports

Table 2.65. Prevailing Retail Prices in Metro Manila Groceries, Years 2012-2014

Month / Year	2014			2013			2012		
	<i>Raw</i>	<i>Washed</i>	<i>Refined</i>	<i>Raw</i>	<i>Washed</i>	<i>Refined</i>	<i>Raw</i>	<i>Washed</i>	<i>Refined</i>
<i>Jan</i>	39.00	40.00	45.00	44.00	44.00	50.00	39.00	42.50	47.00
<i>Feb</i>	39.00	40.00	44.00	44.00	44.00	50.00	39.00	42.50	47.00
<i>March</i>	36.50	39.00	43.50	38.00	42.00	50.00	41.50	45.75	48.00
<i>April</i>	38.00	39.75	46.00	38.00	42.00	50.00	41.50	45.00	49.00
<i>May</i>	40.00	41.00	47.00	38.00	42.00	48.00	40.00	47.00	49.50
<i>June</i>	40.00	43.50	49.00	38.00	42.00	48.00	43.50	47.00	49.50
<i>July</i>	44.00	45.00	51.00	38.00	42.00	48.00	43.50	47.00	50.00
<i>Aug</i>	44.00	45.00	50.00	38.00	42.00	48.00	43.50	47.50	51.50
<i>Sept</i>	40.00	45.00	50.00	38.00	42.00	48.00	43.50	47.50	51.00
<i>Oct</i>	44.00	44.00	50.00	38.00	41.50	48.00	43.50	47.50	51.00
<i>Nov</i>	44.00	44.00	50.00	39.00	42.50	47.00	43.50	47.50	51.00
<i>Dec</i>	44.00	44.00	50.00	39.00	42.50	47.00	43.50	47.50	51.00

Reference: SRA Regulation Department's Price Monitoring Reports

2.2.3.3 Bioethanol Reference Price

The National Biofuel Board (NBB) through the SRA set up a price index or reference price of bioethanol which serves as basis during the negotiation of the oil companies and bioethanol producers when it comes to locally-produced bioethanol. The reference price is based on the millsite prices of sugar and molasses which are the existing feedstocks for bioethanol. Table 2.66 showed the reference price of locally-produced bioethanol in CY 2013-2014 and Tables 2.67 and 2.68 gave the reference price in CY 2012-2013 and 2011-2012, respectively. Reference price in crop year 2013-2014 ranged from a low of P47.34 per liter on September 2013 to a high of P51.38 per liter on May 2014. Average reference prices of bioethanol from crop year 2011-2012 to 2013-2014 were P44.84, P47.54 and P49.32 per liter, respectively.

Table 2.66 Bioethanol Reference Price, CY 2011-2012

MONTHLY BIOETHANOL REFERENCE PRICE, CROP YEAR 2011-2012									
Month	GIVEN Negros Molasses Price (Php/MT)	Transportation Cost (Php/Ton)	Equivalent Feedstock Cost due Molasses (Php/liter)	GIVEN Sugar Price (Php/Lkg)	Equivalent Sugarcane Price (Php/MT)	Equivalent Feedstock Cost due sugarcane (Php/liter)	Average Feedstock Cost at 50:50 (Php/liter)	Conversion Cost (Php/liter)	Bioethanol Price Index (Php/liter)
Sep-11	2,600.00	450.00	12.45	1,286.00	1,665.37	23.79	18.12	22.29	Php40.41
Oct-11	2,759.00	450.00	13.10	1,258.00	1,629.11	23.27	18.19	22.29	Php40.48
Nov-11	3,218.00	450.00	14.97	1,177.00	1,524.22	21.77	18.37	22.29	Php40.66
Dec-11	3,703.00	450.00	16.95	1,219.00	1,578.61	22.55	19.75	22.29	Php42.04
Jan-12	3,754.00	450.00	17.16	1,243.00	1,609.69	23.00	20.08	22.29	Php42.37
Feb-12	4,513.00	450.00	20.26	1,256.00	1,626.52	23.24	21.75	22.29	Php44.04
Mar-12	4,572.00	450.00	20.50	1,345.00	1,741.78	24.88	22.69	22.29	Php44.98
Apr-12	5,024.00	450.00	22.34	1,404.00	1,818.18	25.97	24.16	22.29	Php46.45
May-12	5,273.00	450.00	23.36	1,399.00	1,811.71	25.88	24.62	22.29	Php46.91
Jun-12	5,984.00	450.00	26.26	1,523.00	1,972.29	28.18	27.22	22.29	Php49.51
Jul-12	6,322.00	450.00	27.64	1,526.00	1,976.17	28.23	27.94	22.29	Php50.23
Aug-12	6,255.00	450.00	27.37	1,519.00	1,967.11	28.10	27.73	22.29	Php50.02
Crop Year Average Bioethanol Reference Price (Sept 2011-Aug 2012)									Php44.84

Reference: Planning & Policy Department Bioethanol Reference Price Report Posted in the SRA Website

Table 2.67. Bioethanol Reference Price, CY 2012-2013

BI-MONTHLY BIOETHANOL REFERENCE PRICE, CROP YEAR 2012-2013									
Month	GIVEN Negros Molasses Price (Php/MT)	Transportation Cost (Php/Ton)	Equivalent Feedstock Cost due Molasses (Php/liter)	GIVEN Sugar Price (Php/Lkg)	Equivalent Sugarcane Price (Php/MT)	Equivalent Feedstock Cost due sugarcane (Php/liter)	Average Feedstock Cost at 50:50 (Php/liter)	Conversion Cost (Php/liter)	Bioethanol Price Index (Php/liter)
Sept 2012, Ave.	5,665.00	450.00	24.96	1,438.00	1,862.21	26.60	25.78	22.29	Php48.07
Oct 2012, Ave.	6,370.00	450.00	27.84	1,285.00	1,664.08	23.77	25.80	22.29	Php48.09
Nov 2012, Ave.	5,457.00	450.00	24.11	1,213.00	1,570.84	22.44	23.28	22.29	Php45.57
Dec 2012, Ave.	6,003.00	450.00	26.34	1,205.00	1,560.48	22.29	24.32	22.29	Php46.61
Jan 2013, Ave.	6,139.00	450.00	26.89	1,237.00	1,601.92	22.88	24.89	22.29	Php47.18
Feb 2013, Ave.	5,829.39	450.00	25.63	1,255.41	1,625.76	23.23	24.43	22.29	Php46.72
Mar 2013, Ave.	5,978.00	450.00	26.24	1,264.00	1,636.88	23.38	24.81	22.29	Php47.10
Apr 2013, Ave.	6,911.29	450.00	30.05	1,305.07	1,690.07	24.14	27.09	22.29	Php49.38
May 2013, Ave.	6,393.00	450.00	27.93	1,298.00	1,680.91	24.01	25.97	22.29	Php48.26
June 2013, Ave.	6,625.00	450.00	28.88	1,301.00	1,684.80	24.07	26.47	22.29	Php48.76
July 2013, Ave.	6,125.00	450.00	26.84	1,283.00	1,661.49	23.74	25.29	22.29	Php47.58
Aug 2013, Ave.	5,918.75	450.00	25.99	1,278.73	1,655.96	23.66	24.83	22.29	Php47.12
<i>Average, 1st half</i>	<i>6,125.00</i>	<i>450.00</i>	<i>26.84</i>	<i>1,274.00</i>	<i>1,649.83</i>	<i>23.57</i>	<i>25.20</i>	<i>22.29</i>	<i>Php47.49</i>
<i>Average, 2nd half</i>	<i>5,775.00</i>	<i>450.00</i>	<i>25.41</i>	<i>1,278.85</i>	<i>1,656.11</i>	<i>23.66</i>	<i>24.53</i>	<i>22.29</i>	<i>Php46.82</i>
CY 2012-2013 Ave.	6,118	450.00	26.81	1,280	1,658	23.68	25.25	22.29	Php47.54

Table 2.68. Bioethanol Reference Price, CY 2013-2014

BI-MONTHLY BIOETHANOL REFERENCE PRICE, CROP YEAR 2013-2014									
Month	GIVEN Negros Molasses Price (Php/MT)	Transportation Cost (Php/Ton)	Equivalent Feedstock Cost due Molasses (Php/liter)	GIVEN Sugar Price (Php/Lkg)	Equivalent Sugarcane Price (Php/MT)	Equivalent Feedstock Cost due sugarcane (Php/liter)	Average Feedstock Cost at 50:50 (Php/liter)	Conversion Cost (Php/liter)	Bioethanol Price Index (Php/liter)
Sept 2013	5,659.77	450.00	24.94	1,360.41	1,761.73	25.17	25.05	22.29	47.34
Oct 2013	6,040.82	450.00	26.49	1,348.69	1,746.55	24.95	25.72	22.29	48.01
Nov 2013	6,236.33	450.00	27.29	1,339.54	1,734.70	24.78	26.04	22.29	48.33
Dec 2013	6,578.63	450.00	28.69	1,337.97	1,732.67	24.75	26.72	22.29	49.01
Jan 2014	6,234.98	450.00	27.29	1,318.32	1,707.22	24.39	25.84	22.29	48.13
Feb 2014	6,115.24	450.00	26.80	1,383.32	1,791.39	25.59	26.19	22.29	48.48
Mar 2014	5,882.73	450.00	25.85	1,480.64	1,917.43	27.39	26.62	22.29	48.91
Apr 2014	5,879.51	450.00	25.83	1,632.47	2,114.05	30.20	28.02	22.29	50.31
May 2014	6,122.58	450.00	26.83	1,694.35	2,194.18	31.35	29.09	22.29	51.38
Jun 2014	6,181.11	450.00	27.07	1,638.57	2,121.95	30.31	28.69	22.29	50.98
Jul 2014	6,181.11	450.00	27.07	1,604.07	2,077.27	29.68	28.37	22.29	50.66
Aug 2014	5,996.67	450.00	26.31	1,604.64	2,078.01	29.69	28.00	22.29	50.29
PHL	6,092.46	450.00	26.70		1,914.76	27.35	27.03	22.29	49.32

Reference: Planning & Policy Department Bioethanol Reference Price Report Posted in the SRA Website

2.2.4. Domestic Consumption

2.2.4.1 Sugar

The major product derived from sugarcane is sugar and the domestic demand of raw sugar in CY 2013-2014 was 2,461,808 metric tons while refined sugar demand was 1,115,935 metric tons. Refined sugar is derived from raw sugar and domestic consumption is measured in terms of raw sugar withdrawals from mill warehouses as monitored by SRA. Table 2.69 showed the monthly domestic withdrawals (consumption) of raw sugar and Table 2.70 on refined sugar for crop years 2009-10 to 2013-14.

A sudden drop in domestic consumption was observed in crop year 2008-2009 in comparison with the 2007-2008 domestic consumption figures. However, a spike in domestic demand was noted in crop year 2009-2010 which prompted the government to allow the subsidized importation of 250,000 metric tons refined sugar (equivalent to 270,000 MT raw sugar).

The upward trend in domestic demand was attributed to the onslaught of El Niño or hot season during the first half of 2010 and the election fever which induced more spending and consumption of beverages and sugar-based products.

Around 170,000 metric tons (in terms of refined sugar equivalent) arrived in crop year 2009-2010 which were directly released to the domestic market. The remaining 80,000 metric tons (in terms of refined sugar equivalent) arrived in crop year 2010-2011 which were also released directly to the domestic market.

The decline in domestic consumption was further recorded in crop year 2010-2011 which was lower than the 2008-2009 level. The decline was attributed to the accumulation in the market of imported sugar during the previous and current crop year, importation of sugar premixes and the possible entry of illegal or smuggled sugar.

Domestic consumption spiked to 2,029,866 metric tons in crop year 2011-2012 and a sustained increase in 2012-2013 at the level of 2,184,512 metric tons due

to stable domestic prices and increase in demand of sugar-based products due to the May 2013 national election.

**Table 2.69. Monthly Domestic Withdrawals (Consumption) of Raw Sugar
in Metric Tons, CY 2009-10 to 2013-14**

Months	Crop Year 2013-14	Crop Year 2012-13	Crop Year 2011-12	Crop Year 2010-11	Crop Year 2009-10
September	103,637	103,750	61,458	35,608	80,328
October	126,110	127,423	111,533	69,881	121,813
November	132,064	167,935	125,636	86,266	194,540
December	214,155	229,174	159,643	124,984	178,355
January	213,554	185,514	217,870	167,546	263,482
February	216,768	215,486	214,197	205,651	180,819
March	310,016	250,657	204,341	210,924	205,329
April	223,747	273,794	243,650	202,628	210,948
May	233,190	201,383	159,065	178,174	222,822
June	201,574	195,825	190,185	178,397	123,106
July	137,004	109,941	172,863	144,750	86,414
August	90,624	123,630	169,425	111,696	75,487
Total Withdrawals	2,202,443	2,184,512	2,029,866	1,716,505	1,943,443

Reference: Sugar Production Bulletin

**Table 2.70. Monthly Domestic Withdrawals (Consumption) of Refined Sugar in
LKg Bags (50 – kilo bag), CY 2009-10 to 2013-14**

MONTHS	Crop Year 2013-2014	Crop Year 2012-2013	Crop Year 2011-2012	Crop Year 2010-2011	Crop Year 2009-2010
September	1,480,361	1,676,203	1,237,608	911,148	1,472,983
October	1,772,969	1,694,900	1,511,068	1,012,403	1,751,891
November	1,578,836	1,465,056	1,284,723	805,945	2,260,883
December	2,323,265	1,942,043	1,300,583	1,074,847	1,915,026
January	1,565,605	1,481,320	1,461,171	1,090,875	2,341,382
February	2,019,055	1,656,271	1,479,015	1,113,452	1,610,296
March	2,278,333	1,691,548	1,724,968	1,333,760	1,496,720
April	1,652,508	1,673,739	1,963,675	1,118,949	1,473,545
May	1,880,503	1,675,787	1,697,336	1,531,500	1,899,505
June	2,157,932	2,229,269	1,834,245	1,495,942	1,348,613
July	1,881,190	1,535,022	2,078,606	2,015,467	1,180,181
August	1,728,152	1,774,497	1,324,434	1,762,242	1,386,414
Total Withdrawals	22,318,709	20,495,655	18,897,432	15,266,530	20,137,439

Reference: Sugar Production Bulletin

2.2.4.2 Bioethanol

Bioethanol turned out to be the second major product from sugarcane when RA 9367 otherwise known as the Biofuels Act of 2006 was enacted. The biofuels law was implemented in 2007, however, the minimum bioethanol mandate of 5% was implemented in 2009 and 10% bioethanol mandate in 2011 with exemptions on certain gasoline grades. The main feedstocks used for bioethanol are all sugarcane-based materials such as sugarcane juice and molasses.

In 2007, purely imported bioethanol supplied the mandated requirement of bioethanol in the country. In 2008, 0.42 million liters was produced by Leyte Agri Corporation (LAC) which was the lone domestic producer of bioethanol in the country by then and it increased to 23.11 million liters in 2009 when San Carlos Bioenergy became operational.

Leyte Agri Corporation used molasses as feedstock while San Carlos Bioenergy Inc. (SCBI) used molasses and sugarcane. However, in 2010 when sugar prices skyrocketed to a very high level because of world deficit in sugar supply, the price of sugarcane to bioethanol became prohibitive which led to losses in bioethanol production coming from sugarcane.

Importation of bioethanol was allowed in order to fill-up the mandated requirement which keep the investment climate for bioethanol remain attractive to investors. Demand situation of bioethanol from 2007-2014 is shown in Table 2.71. In 2013, four bioethanol distilleries were operating with a total production of 71.5 million liters out of the total production capacity of 133 million liters annually while in 2014, production reached 114.9 million liters from a production capacity of 222 million liters. Six bioethanol distilleries were operational in 2014. Table 2.72 shows the DOE accredited bioethanol distilleries in 2014.

With the passage of a DOE circular mandating the utilization of locally-produced prior to importation, investors started to come in and potable alcohol producers shifted to bioethanol fuel production. The major challenge that remains to be addressed by the government is intensifying the production of feedstocks and the tapping of idle areas for biofuel crops production.

Table 2.71 Bioethanol Consumption, Years 2007-2014

Year	Bioethanol Blends	Sales from Domestic Production, Million Liters	Importation Million Liters	Actual Consumption Million Liters
2007	-	-	3.18	3.18
2008	-	0.42	12.56	12.98
2009	5%	23.11	64.24	87.35
2010	5%	9.17	140.40	149.57
2011	10%	2.87	218.78	197.36
2012	10%	38.9	248.0	306.49
2013	10%	63.2	318.79	436.50
2014	10%	118.9	339.06	441.51

Ten (10)% blend of bioethanol by volume into all gasoline fuel distributed and sold by each and every oil company subject to certain exempt gasoline grades beginning August 6, 2011 [DOE Department Circular (DC) No. 2011-02-0001

References: National Biofuels Program, 2014-2030 and DOE Bioethanol Committee Report

Table 2.72 Bioethanol Distilleries with DOE Accreditation as of December 2014

BIOETHANOL PRODUCERS	PROJECT LOCATION	REGIS-TERED CAPACITY (Million Liters)	FEED-STOCK	DATE AWARDED	REMARKS
San Carlos Bioenergy, Inc.	San Carlos City, Negros Occ.	40	Sugarcane Molasses	July 13, 2009	Operational
Leyte Agri Corporation	Ormoc City, Leyte	9	Molasses	Oct 23, 2009	Operational
Roxol Bioenergy Corporation	La Carlota, Negros Occ.	30	Molasses	Dec. 3, 2013	Operational
Green Future Innovations, Inc.	San Mariano, Isabela	54	Sugarcane , Sugar Molasses	Aug 13, 2012	Operational
Balayan Distillery, Inc.	Calaca, Batangas	30	Molasses	April 25, 2014 July 10, 2014	Operational
Far East Alcohol Corp.	Pampanga	15	Molasses	Dec. 1, 2014	Operational
Kool Company	Negros Occidental	14.12	Molasses	Dec 11, 2014	Operational
Universal Robina Corp.	Negros Oriental	30	Molasses	Dec 22, 2014	Operational
Total Production Capacity		222.12			

Reference: DOE-REMB Report of Accredited Bioethanol Producers

2.2.4.3 Muscovado

Muscovado is also a product from sugarcane which is widely produced in Antique, Sultan Kudarat, Ilocos region, Bicol region, Tarlac and Negros Occidental. SRA does not regulate the muscovado industry, thus, marketing and financial assistance were provided by the Department of Trade and Industry (DTI) and some technical assistance on best farming practices and HYV planting materials by SRA. SRA does not maintain a regular database on muscovado consumption except those muscovado produced by Option MPC of Sagay, Negros Occidental which is registered with SRA as a muscovado producer. In crop year 2013-14, it was recorded that the domestic withdrawals of muscovado by Option-MPC was 1,748 metric tons.

2.2.4.4 Molasses

Molasses is the major by-product obtained from the manufacture of sugar from sugarcane. In CY 2013-14, total domestic withdrawals was 877,236 metric tons. It is used as raw material in the manufacture of potable alcohol and bioethanol, and as supplement for animal feeds. Competition between the use of molasses might put a pressure on its price especially that the biofuels law requires that biofuels components shall be locally-sourced, therefore, imported molasses cannot be used for bioethanol fuel production. No data were collected by SRA as to the individual consumption of the molasses markets.

2.2.4.5 Bagasse

Bagasse is the cellulosic material from sugarcane which is left after extracting the juice from the sugarcane stalk. It is mainly used for power cogeneration of the sugar mills, sugar refineries, and bioethanol distilleries.

When the Renewable Energy Law of 2008 was passed which offered fiscal and non-fiscal incentives for developers, excess power derived from bagasse became the main biomass material used for power generation to the grid. Table 2.73 and 2.74 listed the sugar mills registered with DOE as of December 2014.

Table 2.73 Sugarcane-Based Biomass Projects in the Visayas Registered with the Department of Energy (DOE) as of December 2014

Name of Proponents	Nature of Business	Project Type	Installed Capacity, MW
I. VISAYAS PROJECTS:			
1. Central Azucarera de San Antonio	Sugar Mill	Commercial	15.0
2. First Farmers Holdings Corp.	Sugar Mill	Commercial	21.0
3. Hawaiian Philippines Co.	Sugar Mill	Commercial	8.0
4. Victorias Milling Co.	Sugar Mill	Commercial	18.0
5. URC-Sonedco	Sugar Mill	Commercial	46.0
6. Capiz Sugar Central	Sugar Mill	Own Use	5.8
7. Binalbagan-Isabela Sugar Milling Co.	Sugar Mill	Own Use	19.5
8. Lopez Sugar Corp.	Sugar Mill	Own Use	10.0
9. Sagay Central Inc.	Sugar Mill	Own Use	4.2
10. URC - Bais	Sugar Mill	Own Use	9.4
11. HIDECO Sugar Milling Co.	Sugar Mill	Own Use	11.0
12. Central Azucarera de la Carlota	Sugar Mill	Own Use	10.0
13. Universal Robina Corporation	Distillery	Own Use	2.75
14. San Carlos Bioenergy	Distillery	Commercial	8.0
15. Roxol Bioenergy Corp.	Distillery	Own Use	4.0
Subtotal - Visayas			192.65

Reference : Department of Energy - REMB

Table 2.74 Sugarcane-Based Biomass Projects in Luzon & Mindanao Registered with the Department of Energy (DOE) as of December 2014

Name of Proponents	Nature of Business	Project Type	Installed Capacity, MW
II. MINDANAO PROJECTS:			
16. Busco Sugar Milling Co.	Sugar Mill	Own Use	24.4
17. Crystal Sugar Company	Sugar Mill	Commercial	21.0
Subtotal - Mindanao			45.5
III. LUZON PROJECTS:			
18. Sweet Crystals Integrated Sugar Mill	Sugar Mill	Commercial	2.5 & 2.8
19. Central Azucarera de Tarlac	Sugar Mill	Commercial	9.5
20. Central Azucarera Don Pedro Inc.	Sugar Mill	Commercial	25.52
21. Green Future Innovations, Inc. (Inclgd Biogas)	Distillery	Commercial	19.0
Subtotal – Luzon Projects			59.32
GRAND TOTAL - PHILIPPINES			297.47

Reference : Department of Energy - REMB

2.2.4.6 Bio-organic Fertilizer

Most of the bio-organic fertilizer used by the sugarcane farmers are derived from bagasse, cane trashes from the fields and mudpress. Several bio-organic fertilizer production technologies were already practiced by sugarcane farmers cooperatives and associations to supplement the organic material needs of the soil. SRA has no database on the producers, production and demand of bio-organic fertilizer.

2.2.4.7 Mudpress or Filter Cake

Mudpress or filter cake are the solid materials left after expressing and filtering the sugarcane juice used for sugar or bioethanol manufacture. Mudpress is used directly as organic fertilizer in the sugarcane fields by spreading them in the fields prior to land preparation. It helps in keeping the right quantity of organic matter and right acidity of the soil aside from the soil nutrients that it contains. Most farmers especially in Batangas and Negros used mudpress as organic fertilizer. No data is available with SRA as to the consumption of mudpress.

2.2.4.8 Mill Ash or Boiler Ash

Mill ash is the carbonaceous residue left from the bagasse that are used in firing the boilers for power cogeneration purposes. Mill ash is rich in potassium and phosphorus which is why most farmers especially in Negros and Batangas used it as fertilizer supplement. SRA does not gather the data of mill ash consumption by the farmers.

2.2.5 Trade

The country became a net exporter of sugar in CY 2003-2004 and exceeded domestic demand requirements starting CY 2002-2003. However, in CY 2009-2010, El Niño struck the country which affected the volume of sugarcane harvests turning the country into a net importer of sugar again. In CY 2009-2010, the country imported 43,725 metric tons of raw sugar and 129,453 metric tons of refined sugar which spilled over until CY 2010-2011 wherein 16,398 metric tons raw sugar and 64,419 metric tons of refined sugar were imported under the tax expenditure subsidy program implemented by NFA through Executive Order No. 857, series of 2010. Importers under the tax expenditure subsidy program were exempted from paying tariff or customs duties. Due to stockpiles of imported sugar, recorded domestic withdrawals in CY 2010-2011 declined to 1.7 million metric tons leading to high sugar inventory in CY 2011-2012 which contributed to the abrupt decline of sugar prices in the millsite. Table 2.75 showed the volume of production of raw sugar, exports and imports of raw and refined sugar and domestic withdrawals of raw sugar.

**Table 2.75. Production, Consumption, Imports and Exports of Sugar,
CY 2003-04 to 2013-14**

CROP YEAR	PRODUCTION		"B" IMPORTS		EXPORTS		DOMESTIC WITHDRAWALS
	Tons Cane	Raw Sugar	Raw	Refined	U. S.	World Mkt	
2013-14	25,005,965	2,461,808			123,148	129,048	2,180,334
2012-13	24,859,028	2,465,116			53,960	187,801	2,184,512
2011-12	23,884,337	2,245,454			200,562	332,084	2,029,866
2010-11	26,664,481	2,399,116	16,398	64,419	212,505	35,801	1,716,505
2009-10	19,227,028	1,970,784	43,725	129,453	170,957	21,120	1,943,443
2008-09	21,611,068	2,100,048			137,343	81,789	1,886,466
2007-08	26,835,578	2,455,027			125,201	20,781	2,078,468
2006-07	23,254,009	2,233,453			175,000	62,037	1,958,643
2005-06	22,966,325	2,138,075		153	213,317		1,909,846
2004-05	22,572,028	2,150,746		737	137,353	163,602	1,950,585
2003-04	25,864,698	2,338,574	5	346	137,000	53,600	2,068,109

Reference: SRA Planning & Policy Department Compilation of Industry Statistics

2.2.5.1. Sugar Imports

The Philippines remained self-sufficient with respect to its domestic requirements and maintained surplus production for seven consecutive crop years (crop years 2002-2003 to 2008-2009) to serve its export markets. However, in crop year 2009-2010, the country allowed the importation of 250,000 metric tons refined sugar (equivalent to 270,000 MT raw sugar) for domestic consumption to supplement its buffer stock for the lean months of the next cropping season.

Around 165,000 metric tons as refined sugar (equivalent to 178,200 MT raw sugar) arrived on August 31, 2010 of crop year 2009-2010 and 85,000 metric tons as refined sugar (equivalent to 91,800 MT raw sugar) arrived in September to October 2010 of crop year 2010-2011. Likewise, food processors /exporters who are operators of Customs Bonded Warehouses (CBW) were allowed sugar importations at zero tariff for their sugar-based products which were exported abroad as part of the measures to enhance the competitiveness of export-oriented industries as provided for under the Tariff and Customs Code of the Philippines (TCCP).

Although the Philippines regained surplus production in crop year 2010-2011, voluminous quantity of sugar premixes used by industrial users have entered into the country. Records of the Philippine Sugar Regulatory Administration showed that 49,945 metric tons versus 11,660 metric tons of sugar premixes were imported under AHTN 1701 for crop year 2010-2011 versus 2009-2010. Entry of sugar premixes in 2011-2012 has tapered down to 10,160 metric tons. So far, recorded sugar premix importation under AHTN 1701 for year 2013 was 6,627 metric tons and zero importation in 2014. Imports of sugar premixes from CY 2009-10 to 2012-2013 are shown in table 2.76 while table 2.77 gave the monthly imports of sugar premixes in CY 2013-2014.

Table 2.76 Sugar Premixes Imported by Food Exporters & Industrial Users In Metric Tons By Tariff Heading (AHTN), CY 2009-10 to 2012-13

Month	HS 1701			HS 2106			
	CY 2009-2010	CY 2010-2011	CY 2011-2012	CY 2009-2010	CY 2010-2011	CY 2011-2012	CY 2012-2013
September	0.00	96,400.00	68,800.00	25,203.35	12,415.29	146,112.94	10,855.17
October	0.00	59,600.00	46,000.00	116,107.24	6,927.19	61,172.62	69,278.79
November	0.00	110,500.00	88,400.00	16,403.26	215,321.19	7,326.20	10,600.62
December	0.00	64,800.00	0.00	125,950.06	61,461.45	84,560.60	70,263.70
January	3,600.00	95,600.00	0.00	30,669.53	39,919.17	67,998.47	69,318.34
February	10,800.00	85,200.00		86,834.93	234,891.98	88,986.61	80,175.48
March	14,800.00	177,200.00		18,284.52	9,708.02	42,644.00	76,009.50
April	17,600.00	89,200.00		19,270.93	139,116.28	47,624.64	68,540.16
May	12,000.00	25,200.00		11,900.43	6,060.69	88,895.96	79,676.78
June	20,000.00	20,400.00		126,994.08	96,770.78	94,890.66	79,912.46
July	48,400.00	98,800.00		11,107.37	12,133.80	98,026.10	48,080.51
August	106,000.00	76,000.00		15,062.14	10,373.40	64,053.61	
TOTAL, Lkg-bags	233,200.00	998,900.00	203,200.00	603,787.84	845,099.24	1,506,923.41	
MT	11,660.00	49,945.00	10,160.00	30,189.39	42,254.96	75,346.17	

Table 2.77 Sugar Premixes Imported by Food Exporters & Industrial Users By Tariff Heading (AHTN), Crop Year 2013-2014

Months	Crop Year 2013-2014	
	HS 1701 (MT)	HS 2106 (MT)
January 2014		2,345.40
February		2,933.38
March		1,792.76
April		2,469.97
May		2,188.41
June		1,735.90
July		3,210.90
August		822.42
September 2013	2,954.56	2,260.25
October	3,129.34	2,106.85
November	3,589.38	2,713.70
December		1,095.57
Total	9,673.28	25,675.51

2.2.5.2. Molasses Imports

The country imported molasses to supply the requirements of the feed and the potable ethanol industry. SRA record from years 2000 – 2010 showed that most of the molasses imported into our country were coming from India, Indonesia, Australia and Thailand. In 2010, the Philippines imported 65,766 metric tons of molasses from Indonesia, however, the highest importation was in 2003 where the country imported 75,602 metric tons from Australia and Thailand. Table 2.78 gave the monthly molasses importation data in years 2013-2014 while table 2.79 showed the molasses imports and FOB values from year 2000-2010.

2.2.5.3 Bioethanol Imports

The bioethanol mandate of 5% was implemented in 2009 and the 10% mandate in 2011 with exemptions to certain gasoline grades. Full implementation of the 10% bioethanol mandate took effect in 2012. In 2012, 248 million liters of bioethanol were imported by the oil companies to fill-in the mandated requirement of bioethanol which is around 300 million liters. Table 2.80 showed the bioethanol importation from 2011 to 2014 by country of origin. In 2012, majority of the imports were coming from Thailand and the Subic free port.

Table 2.78 Molasses Imports in Year 2013 -2014

Months	Volume, MT	
	2013	2014
JANUARY	0.02	10,670
FEBRUARY		5,142
MARCH		
APRIL		10,108
MAY		
JUNE		
JULY		12,065
AUGUST	13,199	
SEPTEMBER		8,805
OCTOBER		
NOVEMBER		
DECEMBER	10,350	
TOTAL	23,549	46,790

Reference: Molasses Importation Report of SRA Regulation Department

Table 2.79. Molasses Imports in Kilos, Years 2000-2010

YEAR	COUNTRY OF ORIGIN	QUANTITY (kilos)		FOB VALUE (In US \$)	
		By Origin	Total	By Origin	Total
2010	Indonesia	65,765,900	65,765,900	10,486,430	10,486,430
2009	Thailand	17,000	17,000	1,235	1,235
2008	-				
2007	INDONESIA (INCLUDES (WEST IRIAN)	46,354,923	46,354,923	9,866,599	9,866,599
2006	CHINA, PEOPLE'S REP. OF	58,637	58,637	142,817	142,817
2005	-				
2004	THAILAND	7,500,000	7,500,000	225,000	225,000
2003	AUSTRALIA	8,275,220	75,601,811	148,954	2,933,941
	THAILAND	67,326,591		2,784,987	
2002	EGYPT ARAB REPUBLIC	515	61,953,534	220	2,111,831
	INDONESIA (INCLUDES (WEST IRIAN)	11,623,596		447,712	
	SUDAN	8,126,000		243,780	
	THAILAND	42,203,018		1,419,990	
	UNITED STATES OF AMERICA	405		129	
2001	TAIWAN (REP. OF CHINA)	302,346	45,282,666	117,310	1,593,231
	INDIA	21,990,000		768,000	
	INDONESIA (INCLUDES (WEST IRIAN)	8,687,221		260,617	
	THAILAND	14,303,099		447,304	
2000	INDIA	13,075,000	65,918,869	574,050	2,631,687
	INDONESIA (INCLUDES (WEST IRIAN)	12,525,997		405,725	
	THAILAND	32,800,000		1,287,832	
	UNITED STATES OF AMERICA	1,499,701		153,444	
	VIETNAM	6,018,171		210,636	

Reference: SRA Regulation Department Importation Report

Table 2.80 Imports of Bioethanol in Million Liters, Years 2011-2014

Country of Origin	2014	2013	2012	2011
Singapore	3.34	2.81	23.0	17.8
Philippines (Subic)	12.34	49.34	93.0	67.3
Indonesia	28.15	6.17	-	3.2
USA	246.03	74.56	6.9	56.1
Vietnam	28.29	27.46	6.2	9.8
Korea	2.47	2.09	3.5	36.3
Australia		17.37	27.1	-
Thailand	4.13	38.83	88.8	24.4
Cambodia	0.40	16.03		
Guatemala		8.02		
Brazil	13.91	45.30		
Pakistan		8.44		
Taiwan		9.69		
Total	339.06*	306.11*	248.4	215.0

Reference: DOE-OIMB Report

* Tentative Data

2.2.5.4 Sugar Exports

Sugar exports are in the form of raw sugar, muscovado and refined sugar. However, exports of refined sugar were hampered by the VAT collected by BIR upon withdrawal from refinery warehouses which add up to the cost of exporting the product.

The US quota is a stable market for the Philippine sugar industry especially during the seven (7) consecutive crop years of surplus production. The country's share of the US quota is around 13% of the total sugar import requirements of the US. In quota year 2011, the Philippines earned the confidence of the US in terms of commitment delivery and the country was allocated with an additional quota of 79,648 metric tons raw value (MTRV) on top of the regular quota which is 142,160 MTRV while in quota year 2012, the country was given an additional quota of 75,540 MTRV. Estimated value of US exports from crop year 2007-2008 to 2011-2012 were US\$31,222,685, US\$48,443,462, US\$77,485,054, US\$141,427,631 and US\$108,420,759, respectively. Tables 2.82 and 2.83 illustrated the countries of destinations of the

country's world sugar exports in CY 2010-2011 to 2012-2013 and in year 2014, respectively.

The country was able to supply sugar to the world market during the seven (7) consecutive crop years of surplus production. Destinations were Indonesia, U.A.E., Japan and South Korea. Estimated value of world market exports from crop year 2007-2008 to 2011-2012 were US\$5,595,162, US\$18,971,284, US\$5,689,398, US\$21,770,532 and US\$171,401,464 respectively.

In crop years 2010-2011 to 2012-2013, major markets of sugar exports were Japan, China, USA, Indonesia, South Korea and Vietnam while in 2012-2013 are Japan and South Korea. Total volume of sugar shipments to the world market from crop year 2010-2011 to 2012-2013 and in 2014 are shown in Table 2.81 and Table 2.82. Data shown in Table 2.83 reflected the country's export markets for muscovado sugar like Korea, Italy, Japan, Germany, etc. In 2012, muscovado exports reached 1,769 metric tons with a value of \$ 2,983,124.

The Philippines delivered only 53,960 metric tons of sugar with a value of \$22,185,777 to the US out of the 138,827 metric tons sugar quota in quota year 2013. Because of the surplus supply of sugar in the US brought about by the unlimited access of Mexico to the US sweetener market under NAFTA, the price of US quota sugar has declined to very low levels which discouraged the Philippine exporters of shipping out the US quota sugar. Despite the inability of the country to deliver its quota commitment in 2013, the USDA allocated the same level of sugar quota in 2014 (138,827 metric tons) to the Philippines which was the third highest allocated volume next to Brazil and Dominican Republic. Table 2.84 illustrated the original allocation of US TRQ in FY 2014.

**Table 2.81. Countries of Destination of World Market Sugar Shipments,
CY 2010-11 to 2012-13**

Country of Destination	Quantity (in Metric Tons)					
	CY 2012-13		CY 2011-12		CY 2010-11	
	Raw	Refined	Raw	Refined	Raw	Refined
China			72,799.95		6,825.00	
Indonesia			50,955.39		8,229.60	
Japan	100,500.00		106,300.02		6,000.00	
Juvalo Island	25.00					
Korea			10,337.21		6,040.00	
Malaysia	32.00					
Russia	11.50					
Samoa	1,225.00		225.00			
Singapore	7,816.44					
Solomon Island	25.00		25.00			
South Korea	30,960.00		13,700.00		40.00	
Taiwan			175.00	3,704.54	149.97	
Tarawa			125.00			
Nokualofa, Tonga	750.00					
USA			49,639.58		8,517.36	
Vancouver, Canada	44.00		22.00			
Vanuatu	100.00		75.00			
Vietnam			22,000.01	2,000.00		
Total	141,488.94	-	326,379.16	5,704.54	35,801.93	-

Reference: SRA Regulation Department

Table 2.82. Destinations of Raw Sugar Exports in 2014, Metric Tons

Destinations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Apia, Samoa		200	100	475	75	125							975
Hongkong									5				5
Indonesia											6,700		6,700
Japan	12,000	18,000	18,500		9,000	20,000		14,000			20,450	8,500	120,450
Juvalu Island							25						25
Malaysia			12			20							32
Nukualofa, Tonga	150	50	200	100	50	50	100		100				800
Russia							12						12
Singapore	540	353	1,848	1,210	1,325	1,050	503	987	568	1,164	487	797	10,832
Solomon Island				25									25
South Korea	12,040	9,040	40	340	100	260	9,060		18,000	242		19,000	68,122
U S A		27,160					26,800						53,960
Villa Vanuatu			50	50									100
Total	24,730	54,803	20,750	2,200	10,550	21,505	36,500	14,987	18,673	1,406	27,637	28,297	262,038

Reference: SRA Regulation Department

Table 2.83. Muscovado Exports & Countries of Destinations, Year 2012

MONTH	AUSTRALIA	BELGIUM	HONGKONG	FRANCE	GERMANY	ITALY	JAPAN	KOREA	MALAYSIA	SWITZERLAND	TAIWAN	USA	TOTAL	FOB Value (\$)
January			1.22	15.00		17.61	0.25				10.00		44.08	75,122.58
February				15.00		33.70	1.00	19.80		38.00		12.00	119.50	189,567.29
March	2.00				30.00	49.35	27.76	69.50		57.00			235.61	385,226.20
April			0.80	12.00	58.51		20.00	43.62					134.93	205,380.17
May				12.00		53.06	33.77	116.00	10.00				224.83	592,514.16
June	2.99				68.00			23.00		57.00		3.89	154.88	211,901.35
July			1.00			53.23	19.00				10.00		83.23	158,888.28
August				11.90		14.37	13.50	135.00	11.50				186.27	252,644.92
September		15.00	0.09	12.00	38.00	52.10	33.80	15.00		19.00		12.10	197.09	317,909.23
October					38.40	36.20							74.60	114,537.05
November				15.00		20.00	41.73	15.00	8.00		10.00		109.73	178,842.28
December					98.00	56.41	28.27		1.50		20.00		204.18	300,589.70
TOTAL	4.99	15.00	3.11	92.90	330.91	386.03	219.08	436.92	31.00	171.00	50.00	27.99	1,768.93	2,983,123.21

Reference: SRA Regulation Department

Table 2.84. FY 2014 US Quota Allocations

WTO Countries	FY 2014 TRQ original allocation	FY 2014 TRQ Adjusted Allocation	Not entered to date	Entries as percentage of TRQ	Estimated shortfall
Argentina	45,281	49,804	28,783	46	30,000
Australia	87,402	96,132	1,782	108	0
Barbados	7,371	0	0	0	0
Belize	11,584	12,741	4,947	67	12,741
Bolivia	8,424	9,265	9,265	0	0
Brazil	152,691	167,942	568	110	0
Colombia	25,273	27,797	997	106	0
Congo	7,258	0	0	0	0
Costa Rica	15,796	17,374	0	110	0
Cote d'Ivoire	7,258	0	0	0	0
Dominican Republic	185,335	203,847	93,228	60	60,000
Ecuador	11,584	12,741	534	105	0
El Salvador	27,379	30,114	128	110	0
Fiji	9,477	10,424	0	110	10,424
Gabon	7,258	0	0	0	0
Guatemala	50,546	55,595	1,687	107	0
Guyana	12,636	13,898	2,098	93	8,000
Haiti	7,258	0	0	0	0
Honduras	10,530	11,582	118	109	0
India	8,424	9,265	9,265	0	9,265
Jamaica	11,584	12,741	1,242	99	12,741
Madagascar	7,258	0	0	0	0
Malawi	10,530	3,000	-3	29	0
Mauritius	12,636	6,318	4,169	17	1,500
Mexico 1/	7,258	7,258	7,258	0	0
Mozambique	13,690	15,057	0	110	5,000
Nicaragua	22,114	24,323	0	110	0
Panama	30,538	33,588	9,999	77	0
Papua New Guinea	7,258	0	0	0	0
Paraguay	7,258	7,258	4,446	39	5,000
Peru	43,175	47,487	2,599	104	0
Philippines	142,160	156,359	27,823	90	20,000
South Africa	24,220	26,639	2,419	100	0
St. Kitts and Nevis	7,258	0	0	0	0
Swaziland	16,849	18,532	0	110	3,532
Taiwan	12,636	0	0	0	0
Thailand	14,743	16,216	2,797	91	0
Trinidad-Tobago	7,371	0	0	0	0
Uruguay	7,258	0	0	0	0
Zimbabwe	12,636	13,898	1,504	98	1,598
Total	1,117,195	1,117,195	217,653	81	179,801

Source: United States Customs and Border Protection, *Weekly Commodity Status Report*.

2.2.6 Processing Industries

2.2.6.1 Sugar Mills

In crop year 2013-14, twenty eight (28) sugar mills were operational with a total production of 2,461,808 metric tons raw sugar. The largest sugar mill in terms of actual sugar production was Victorias Sugar Milling Company with a total raw sugar production of 343,114 metric tons while Option-MPC had the smallest production of 5,667 metric tons of muscovado sugar followed by Sweet Crystals Inc. of Pampanga with 13,064 metric tons of raw sugar. Table 2.85 showed the production volume of the Philippine sugar mills from CY 2003-04 to 2013-14.

Paniqui and Ma-ao sugar mills shut down their operation in crop year 2004-05, Dacongogon sugar mill stopped operating in CY 2006-07 but resumed operation as United Farmers Sugar Corporation in CY 2007-08. However, United Farmers Sugar Corporation was financially unstable and it finally stopped operation in CY 2009-10 and the sugar mill facility was foreclosed by the Philippine National Bank. Passi II stopped operating in CY 2009-10 while Durano became non-operational in CY 2012-13, both due to financial instability. Within the ten-year period, two new sugar mills were installed – Central Azucarera de San Antonio (CASA) in CY 2007-08 and Option-MPC which is producing muscovado sugar in CY 2008-09.

Table 2.86 gave the molasses production of the operating sugar mills from CY 2009-10 to 2013-14. The biggest producer of molasses in CY 2013-14 was Victorias sugar mill at 127,325 metric tons while URC-Carsumco had the smallest production of 5,699 metric tons.

From year 2010 to 2013, the sugar mills invested and have undertaken mill improvement activities in terms of improving milling efficiencies, sugar quality and power generation capability to be able to sell power to the grid. Table 2.87 gave the capacity utilization, and recoveries of the sugar mills in CY 2011-2012 while Table 2.88 illustrated the various improvement activities of the sugar mills which include upgrading of milling hardwares to improve milling efficiency, upgrading the capacities of boilers and turbo-generators for power generation to the grid and improvement of market access through certifications with GMP, HALAL, HACCP and ISO. Low capacity utilization of the sugar mills indicates lack of sugarcane supply which also assures a market and demand for sugarcane. Therefore, farm productivity and sugarcane production levels in the mill districts need to be improved to be able to supply the raw material requirements of the sugar mills.

In CY 2013-2014, among the sugar mills in the country, Busco sugar mill in Bukidnon and La Carlota sugar mill in Negros Occidental had the highest normal rated capacity of 18,000 and 16,000 tons cane per day (TCD), respectively, Sagay Central Inc. and CASA had the highest reduced overall recovery of 90.59 and 90.22%, respectively, and VICMICO in Negros Occidental and Crystal Sugar Mill of Bukidnon had the highest capacity utilization of 80.80% and of 79.36%, respectively.

Table 2.85. Raw Sugar Production by Sugar Mill, CY 2004-05 to 2013-14

Region	SUGAR MILLS	Crop Year 2013-2014	Crop Year 2012-2013	Crop Year 2011-2012	Crop Year 2010-2011	Crop Year 2009-2010	Crop Year 2008-09	Crop Year 2007-08	Crop Year 2006-07	Crop Year 2005-06	Crop Year 2004-05
	PHILIPPINES	2,461,808	2,465,116	2,244,131	2,399,116	1,970,784	2,100,048	2,455,027	2,233,453	2,138,075	2,150,746
	LUZON	273,997	314,719	306,276	305,027	281,721	299,214	344,394	311,970	310,977	322,954
3	1. Sweet Crystal-San Fdo		7,472	11,011	7,342	7,562	16,688	17,551	11,168	21,438	51,972
4	2. Batangas Sugar Central Inc. (BSCI)	43,479	45,586	31,632	42,765	47,830	38,129	33,178	34,655	36,915	25,815
2	3. URC-Carsumco	14,677	21,271	20,734	17,050	16,752	20,958	25,113	29,063	24,789	21,623
4	4. Central Azucarera Don Pedro Inc. (CADPI)	125,559	135,305	140,163	138,814	123,305	135,100	163,515	154,659	147,256	162,087
3	5. Paniqui (WESCOR)		stopped operation								-
5	6. Pensumil Inc.	14,458	14,044	14,724	15,934	12,322	11,445	16,596	15,642	16,959	15,983
3	7. Sweet Crystal-Porac	13,064	18,674	22,811	21,402	19,699	21,303	23,077	17,422	26,744	32,378
3	8. Central Azucarera de Tarlac (CAT)	62,760	72,367	65,201	61,720	54,251	55,591	65,364	49,361	36,876	13,096
	NEGROS	1,524,222	1,437,263	1,280,112	1,325,729	1,135,329	1,187,145	1,351,842	1,283,849	1,233,535	1,222,047
7	1. Central Azucarera de Bais Inc. (CAB)	72,848	55,827	51,700	59,777	41,607	40,452	56,160	67,921	68,623	40,927
6	2. Biscom Inc.	212,970	192,056	170,710	198,358	160,023	170,147	189,881	175,858	151,309	153,921
6	3. Daongcogon/United Farmers Sugar Corp.						1,967	11,315	-	10,111	15,301
6	4. First Farmers Holding Corp.	94,191	68,031	60,941	65,336	61,403	71,409	60,796	63,953	62,258	74,891
6	5. Haw-Phil Company	108,615	104,856	87,931	105,795	95,552	110,085	119,253	110,581	106,267	115,761
6	6. Central Azucarera de La Carlota	186,748	205,940	175,930	166,622	124,826	162,261	176,945	156,421	153,143	156,054
6	7. Lopez Sugar Corp.	156,631	144,041	121,727	154,148	137,639	121,643	154,232	133,429	133,500	127,562
6	8. Ma-ao Sugar Central										
7	9. URC-URSUMCO	75,764	64,104	65,795	65,367	60,448	66,093	84,522	67,398	55,705	70,801
6	10. Sagay Central Inc.	74,612	76,659	73,934	72,728	54,272	64,428	78,105	75,565	67,192	60,004
6	11. URC-Sonedco	162,701	144,666	122,842	124,011	96,330	65,746	46,404	69,209	66,846	66,767
7	12. URC-Tolong	30,361	26,372	26,156	23,766	16,025	24,108	33,997	32,695	33,964	35,353
6	13. Victorias Milling Co. Inc. (VICMICO)	343,114	351,091	320,003	285,573	283,587	288,785	340,232	330,819	324,617	304,705
6	14. OPTION - MPC	5,667	3,620	2,443	4,248	3,617	21				
	PANAY	142,404	143,349	127,446	142,405	104,728	99,258	145,888	123,370	122,166	133,787
6	1. Capiz Sugar Central Inc.	37,153	43,069	39,070	44,185	40,591	39,289	52,249	46,542	44,081	50,647
6	2. CASA	58,601	60,886	50,939	47,322	33,234	24,450	21,848			
6	3. Passi I (URC)	46,650	39,394	37,437	50,898	30,903	35,406	57,638	49,333	51,005	54,829
6	4. Passi II (Cimico)		stopped operation		-	-	113	14,153	27,495	27,080	28,311
	E. VISAYAS	55,934	71,319	66,807	83,960	72,530	67,585	94,977	83,643	90,898	86,227
7	1. Bogo-Medellin Co. Inc. (BOMEDCO)	27,282	29,831	26,728	22,073	24,233	22,339	30,702	29,407	33,505	30,127
7	2. RD Durano III & Co. Inc.	stopped operation		657	10,993	8,239	7,970	8,458	8,730	4,938	4,446
8	3. Hideco Sugar Milling Co. Inc. (HISUMCO)	28,652	41,488	39,422	50,894	40,058	37,277	55,817	45,506	52,455	51,654
	MINDANAO	465,251	498,466	463,490	541,995	376,476	446,846	517,926	430,621	380,499	385,731
10	Busco Sugar Milling Co. Inc.	214,700	228,934	230,395	272,975	185,912	222,230	247,299	207,748	176,313	189,818
12	2. Cotabato Sugar Central Co. Inc. (COSUGECCO)	42,997	48,372	43,227	35,895	31,472	38,271	58,017	43,620	35,591	42,102
10	3. Crystal Sugar Co. Inc.	158,630	161,378	136,757	187,466	120,088	131,649	147,553	115,211	110,490	102,180
11	4. Davao Sugar Central Co. Inc. (DASUCECO)	48,924	59,782	53,111	45,659	39,004	54,695	65,057	64,042	58,105	51,631

Source of Data: Final Sugar Production Bulletin / Regulation Department

Reference: SRA Production Bulletin

Table 2.86. Molasses Production of Philippine Sugar Mills, CY 2009-10 to 2013-14

MILL DISTRICT	2013-2014	2012-2013	2011-2012	2010-2011	2009-2010
PHILIPPINES	1,009,137	985,680	974,025	1,062,689	774,849
LUZON	166,783	159,116	163,413	171,711	159,102
Batangas Sugar Central	20,700.0	18,323	13,784	19,201	22,268.033
URC-Carsumco	5,699.0	7,664	7,501	6,686	7,467.094
Central Azucarera Don Pedro	86,125.0	75,217	82,668	86,448	87,371.327
Pensumil Inc.	8,798.0	8,412	9,794	10,616	6,740.727
Sweet Crystal -Porac	7,647.0	8,810	11,666	10,415	7,911.630
Sweet Crystal - SF		3,273	4,611	3,591	2,851.247
Central Azucarera de Tarlac	37,814.0	37,416	33,389	34,755	24,491.995
NEGROS	567,182	535,338	524,996	578,147	417,929
Central Azucarera de Bais	25,701	23,804	26,987	24,804	16,189.000
Biscom Inc.	91,944	71,176	75,218	90,204	65,246.699
First Farmers Holding Inc.	21,792	15,531	17,290	42,245	19,361.865
Hawaiian-Phil Co.	36,864	35,135	33,815	69,095	31,250.066
Central Azucarera de La Carlota	70,939	78,002	69,105	18,449	44,722.270
Lopez Sugar Central	52,416	57,285	56,639	73,578	53,772.019
URC- Ursumco	31,456	28,381	29,557	30,041	23,122.809
Sagay Central Inc.	29,653	27,872	27,744	30,169	16,480.000
URC-Sonedco	64,049	54,073	50,963	52,134	36,197.608
URC-Tolong	12,363	11,465	12,346	11,904	7,092.360
Victorias Milling Co.	127,325	130,696	123,927	132,469	102,742.029
OPTION-MPC	2,680	1,916	1,405	3,055	1,752.000
UFSC / Dacongogon	stopped operation				
PANAY	70,170	65,631	61,753	63,911	44,558
Capiz Sugar Central	17,260	19,202	17,456	19,102	16,377.311
URC-Passi I	19,648	16,146	16,859	22,924	12,395.986
Passi II					
CASA	33,262	30,284	27,438	21,886	15,784.283
EASTERN VISAYAS	31,436	28,551	29,131	37,293	26,252
Bogo-Medellin Milling Co.	15,620	14,060	13,065	10,803	9,892.500
RD Durano III & Co.	stopped operation		383	6,435	3,652.796
Hideco Sugar Milling Co.	15,816	14,491	15,683	20,055	12,707.099
MINDANAO	173,566	197,044	194,733	211,626	127,008
Busco Sugar Milling Co.	84,523	95,817	100,631	105,751	63,636.807
Cotabato Sugar Central Co.	13,979	19,274	17,417	16,198	10,878.000
Crystal Sugar Co. Inc.	59,288	61,058	56,116	69,861	38,023.529
Davao Sugar Central Co.	15,776	20,896	20,570	19,816	14,469.720

Reference: SRA Production Bulletin

Table 2.87. Performance of the Philippine Sugar Mills, CY 2013-2014

Mills	Rated Capacity, Tons Cane Per Day (TCD)	Capacity Utilization, %	Reduced Overall Recovery, %
LUZON	35,200	61.71	81.59
1. URC-Carsumco	4,000	52.16	83.18
2. Central Azucarera de Tarlac	7,200	73.21	81.65
3. Sweet Crystals - Porac	2,500	56.63	78.13
4. Central Azucarera Don Pedro Inc.	13,000	65.74	82.22
5. Batangas Sugar Central Inc.	4,500	78.68	80.60
6. PENSUMIL	4,000	41.52	79.40
EASTERN VISAYAS	8,000	49.15	85.34
1. Bogo - Medellin Milling Co.	3,000	56.62	83.39
2. HISUMCO	5,000	40.90	86.40
PANAY	17,000	44.20	88.71
1. Capiz Sugar Central	4,500	46.28	88.66
2. URC-Passi	4,500	51.06	86.91
3. Central Azucarera de San Antonio	8,000	40.26	90.22
NEGROS	98,000	65.37	87.36
1. First Farmers Holdings Inc.	5,000	69.54	86.41
2. Haw-Phil Co.	7,500	57.92	87.52
3. VICMICO	15,000	80.80	85.71
4. Lopez Sugar Corp.	7,000	79.12	89.25
5. Sagay Central Inc.	4,000	47.19	90.59
6. OPTION-MPC	500	48.88	86.31
7. Central Azucarera La Carlota	16,000	58.01	88.41
8. BISCO	14,000	72.01	87.32
9. URC-SONEDCO	9,000	75.92	87.66
10. URC-URSUMCO	8,000	52.24	87.67
11. Central Azucarera de Bais	9,000	44.60	88.16
12. URC-Tolong	3,000	62.86	84.27
MINDANAO	37,500	63.99	85.63
1. BUSCO	18,000	60.58	87.16
2. Crystal Sugar Co. Inc.	5,000	70.88	84.27
3. DASUCECO	4,000	62.29	84.24
4. Cotabato Sugar Central Corp.	10,500	79.36	84.86
PHILIPPINES	195,700	60.87	86.39

Reference: SRA R, D E Annual Synopsis – Phil. Raw Sugar Factories' Production & Performance Data, CY 2013-2014

Table 288. Mill Improvement Initiatives from Year 2010-2013

Sugar Mills / Location	Project	Intended Outcome
1. Victorias Milling Co. - Negros Occidental	Mill upgrading Acquisition of 8 MW turbo generator ISO, GMP, HACCP & HALAL Certifications	Improved mill efficiency Sale of power to the grid Market access in the international market & Muslim countries
2. Biscom Negros Occidental	Mill upgrading Rated capacity upgraded from 12,000 to 14,000 tons cane per day Upgrading of boiler equipment and powerhouse HALAL Certification	Improved mill efficiency & capacity Sale of power to the grid Market access in Muslim countries
3. First Farmers Negros Occidental	Rehabilitation of powerhouse, boiler, raw sugar house centrifugal equipment & refinery bagging room HALAL Certification	Improved production efficiency Sale of power to the grid Market access in Muslim countries
4. Lopez Negros Occidental	Installation of 2 core samplers Upgrading of mill equipment & boiler house facilities Improvement of product quality control facilities and instrumentation HALAL Certification	Improved production process and efficiency Market access in Muslim countries
5. Capiz Sugar Central	Mill, boiler and boiling house upgrading	Improved mill efficiency
6. Hawaiian-Phil Negros Occidental	Mill improvement Boiling house & boiler efficiency improvements Quality improvement of white sugar Repair of railroad equipment and renovation of warehouse Upgrading the powerhouse & power cogeneration equipment	Improved mill efficiency and logistics support to cane deliveries Sale of power to the grid Storage capacity improved
7. La Carlota Negros Occidental	Rated capacity upgraded from 11,000 to 18,000 tons cane per day ISO Certification	Improved mill production capacity
8. URC- Sonedco Negros Occidental	Rated capacity upgraded from 9,000 to 10,000 tons cane per day ISO & HALAL Certifications	Improved mill production capacity Market access in international market & Muslim countries
9. URC – URSUMCO Negros Oriental	ISO & HALAL Certifications	Market access in international market & Muslim countries
10. Penumil Camarines Sur	Boiler rehabilitation	Improved mill production efficiency
11. Sweet Crystals Porac, Pampanga	Mill automation HALAL & HACCP Certifications	Improved mill production process Market access in the international market and Muslim countries

Table 2.88 Mill Improvement Initiatives from Year 2010-2013 (continuation)

Sugar Mills / Location	Project	Intended Outcome
1. Sweet Crystals – San Fernando, Pampanga	HALAL Certification	Market access in Muslim countries
2. URC – CARSUMCO Cagayan	Certifications : ISO-9001-2008 & HALAL	Market access in the international market and Muslim countries
3. Central Azucarera Don Pedro, Inc. - Batangas	Certifications: ISO-9001-2008 QMS, ISO-14001:2004 EMS, ISO-22000:2005 FSMS, GMP CAC/RCP 1-1969 Rev 4(2003), HACCP, HALAL	Market access in the international market and Muslim countries Cleaner environment
4. Cotabato Sugar Central	Modernization of refinery instrumentation	Improved refinery production process
5. Davao Sugar Central	Acquisition of computerized weighing scales	Improved accuracy of weights on canes delivered
6. Central Azucarera de Tarlac	Mill upgrading	Improved production efficiency
7. Busco Sugar Milling Co., Inc. - Bukidnon	Mill upgrading Boiler & powerhouse upgrading	Improved production efficiency
8. Crystal Sugar Co., Inc. - Bukidnon	Upgrading of boiler and powerhouse for power generation to the grid	Sale of power to the grid
9. Central Azucarera de Bais – Negros Oriental	HALAL Certification	Market Access in the International market and Muslim countries
10. Central Azucarera de San Antonio, Iloilo	HALAL Certification	Market Access in the International market and Muslim countries
11. URC – Passi Iloilo	ISO Certification	Market access in the international market

Reference: SRA RDE & Mill Survey Questionnaire

2.2.6.2 Sugar Refineries

There were fourteen operating sugar refineries in CY 2012-2013 & 2013-14. Total refined sugar production in CY 2013-14 was 1,034,386 metric tons, a 2% decline compared with CY 2012-2013 production as shown in Table 2.89. Table 2.90 illustrated the performance of Philippine sugar refineries in CY 2013-2014. It can be seen from the historical production data that refined sugar production was declining from the 1.213 million metric ton level in CY 2003-2004 to 936,187 metric tons in CY 2012-2013. The sugar refineries with declining production levels were Busco, Don Pedro, Luisita and Dasuceco. Average capacity utilization of the sugar refineries in CY 2013-2014 was 76.33% out of the total rated capacity of 145,000 LKG bags per day.

Table 2.89 Refined Sugar Production by Sugar Refinery, CY 2004-05 to 2013-14

Region	REFINERY	Crop Year	Crop Year	Crop Year	Crop Year	Crop Year	Crop Year	Crop Year	Crop Year	Crop Year	Crop Year
		2013-2014	2012-2013	2011-2012	2010-2011	2009-2010	2008-09	2007-08	2006-07	2005-06	2004-05
	PHILIPPINES	1,034,386	1,054,895	936,187	823,827	984,203	948,877	1,092,181	1,082,254	1,001,816	1,056,374
	LUZON	166,198	203,470	178,600	158,785	233,672	247,210	298,515	289,003	255,109	291,690
4	1. Batangas Sugar Central		8,491.50	8,039	-	14,638	-	5,097	10,441	13,146	6,644
2	2. URC- Carsumco	9,355.80	11,932.95	12,828	9,418	12,646	15,673	17,414	18,695	17,082	15,641
4	Azucarera Don Pedro	102,865.10	119,763.65	113,283	91,554	153,650	179,443	212,770	213,075	190,110	252,883
3	Azucarera de Tarlac	53,977.20	63,281.45	44,450	57,813	52,738	52,094	63,234	46,793	34,771	16,522
	NEGROS	718,243	695,312	605,014	477,967	578,270	506,274	561,514	604,484	579,190	573,384
7	1. Central Azucarera de Bais	-	-	-	-	-	-	-	17,597	14,295	31,278
	2. Biscom Inc.	62,624.35	55,390.90	34,627	7,081						
6	3. First Farmers Holdings Inc.	30,139.95	15,435.10	17,174	10,963	29,912	25,934	32,863	41,487	39,306	45,894
6	4. Lopez Sugar Central	170,210.75	165,928.10	144,296	158,840	185,023	141,405	182,756	156,363	141,628	133,790
7	5. URC-URSUMCO	41,268.90	51,644.70	43,791	28,944	41,333	45,432	62,153	66,434	56,340	49,203
	6. URC- Sonedco	93,578.00	93,361.50	63,536	53,009	64,512	30,632	1,587	-	-	-
6	7. Victorias Milling Co.	320,421.10	313,551.75	301,590	219,130	257,490	262,871	282,156	322,602	327,620	313,219
	E.VIS/MINDANAO	149,945	156,114	152,572	187,075	172,261	195,393	232,152	188,768	167,517	191,300
8	1. Hideco	5,294.05	6,286.95	4,592	12,654	14,876	13,217	23,813	15,218	18,800	25,531
10	2. Busco Sugar Milling Co.	126,191.00	133,206.05	129,649	159,039	138,724	160,377	179,108	136,751	112,616	131,838
	3. Cotabato Sugar Central Co.	2,386.55	590.55	605	165						
11	4. Davao Sugar Central Co.	16,072.90	16,030.30	17,728	15,217	18,662	21,799	29,231	36,799	36,101	33,931

Reference: SRA R, D & E Annual Compendium of Phil. Sugar Refineries, 2013-14

Table 2.90. Performance of Sugar Refineries, Year 2014

Refinery	Rated Capacity, LKg Bag/Day	% Capacity Utilization	% Actual Refining Efficiency
<i>LUZON</i>	30,500	72.00	94.25
1. URC-Carsumco	5,000	70.54	95.2
2. Central Azucarera Don Pedro	18,000	64.21	93.47
3. Central Azucarera de Tarlac	7,500	87.10	95.62
<i>VISAYAS</i>	90,500	79.74	94.99
1. First Farmers	7,500	39.16	93.39
2. HIDECO	6,000	30.47	95.51
3. Lopez	12,000	101.48	96.69
4. URC-Sonedco	15,000	56.51	94.28
5. URC-URSUMCO	10,000	55.96	94.52
6. VICMICO	25,000	92.11	94.72
7. BISCOB	15,000	45.04	94.00
<i>MINDANAO</i>	24,000	57.66	95.20
1. Busco	18,000	56.62	95.09
2. Dasuceco	6,000	65.90	96.01
PHILIPPINES	145,000	76.33	94.90

Reference: SRA Annual Compendium of Sugar Refineries, 2014

2.2.6.3 Bioethanol Distilleries

From 2012 to 2013, only four distilleries were operating and in 2014, seven bioethanol distilleries (Table 2.91) were operating with a production volume of 114.8 million liters and sales volume of 119 million liters of bioethanol fuel. In 2015, eight distilleries were accredited by DOE bringing the total rated capacity to 222 million liters annually. The newly established distilleries are highly efficient except those distilleries which has been operational for several years producing potable and industrial ethanol.

Investment cost of a bioethanol distillery with cogeneration facilities using sugarcane as feedstock ranged from P5 billion for a distillery with an annual rated capacity of 40 million liters bioethanol similar to San Carlos Bioenergy Inc. of Negros Occidental to P10 billion for a distillery with an annual rated capacity of 54 million liters like Green Future Innovations Inc. in Isabela with complete waste treatment and power generation facilities. A new 30-million liter distillery using molasses as feedstock may cost around P3 billion. However, those with existing facilities which shifted from potable or industrial alcohol into bioethanol fuel may cost less than a billion only.

San Carlos Bioenergy Inc. and Green Future Innovations, Inc. (GFII) used sugarcane as feedstock from dedicated sugarcane plantations in San Carlos mill district and idle lands or lands planted with less productive crops in Isabela. Table 2.92 showed the sugarcane areas harvested, cane milled and bioethanol produced by GFII in CY 2012-2013. Total area utilized was 3,820.22 hectares with a total cane tonnage of 253,679 and bioethanol production of 13.76 million liters.

The bioethanol fuel distillery of Universal Robina Corporation (URC) with a production capacity of 30 million liters started its commercial production in December 2014. Balayan Distillery Inc. has started its commercial operation in August 2014. Cavite Biofuels Producers Inc. (CBPI) will commence its construction phase in 2015 and expected to commercially operate in late 2016. Table 2.93 showed the operating bioethanol distilleries as of Q1 of 2015 and Table 2.94 gave the estimated number of employment that can be generated by bioethanol investments.

Table 2.91. Production and Sales of Operating Bioethanol Distilleries, 2012-2014

Production / Sales by Producer	San Carlos Bioenergy	Roxol Bioenergy	Leyte Agri	Green Future	Balayan Distillery	Universal Robina	Kool Company	Total
Annual Rated Capacity	40,000,000	30,000,000	9,000,000	54,000,000	30,000,000	30,000,000	14,120,000	207,120,000
2014	72.50%	118.71%	30.15%	41.26%	75.51%	6.74%	4.08%	55.45%
Production	28,999,402	35,614,219	2,713,882	22,278,404	22,652,000	2,023,113	576,700	114,857,720
2013	80.42%	66.53%	27.94%	31.28%	0.00%	0.00%	0.00%	34.54%
Production	32,169,914	19,959,535	2,515,032	16,893,158				71,537,639
2012	48.13%	2.07%	9.16%	6.62%	0.00%	0.00%	0.00%	11.72%
Production	19,251,750	621,172	824,105	3,574,542				24,271,569

Reference: Data from DOE-REMB

Table 2.92. Sugarcane Areas, Cane Milled and Bioethanol Production of Green Future Innovations, Inc., CY 2012-13

Month	Tons Cane (TC)		Area Harvested*		Cane Milled MT	Bioethanol Withdrawn Liters
	ECOF	IF	ECOF (ha)	IF (ha)		
November 2012	8,277.33	152.65	118.25	3.05	8,636.91	
December 2012	30,151.89	1,414.28	430.74	28.29	32,191.47	284,589.00
January 2013	37,512.04	3,032.15	535.89	60.64	41,545.14	2,732,602.00
February 2013	35,255.79	10,750.16	503.65	215.00	47,183.05	2,343,347.00
March 2013	22,233.55	7,919.92	317.62	158.40	30,951.01	3,728,529.00
April 2013	26,090.10	4,061.68	372.72	81.23	30,718.69	1,412,001.00
May 2013	22,116.00	2,760.15	315.94	55.20	25,367.91	1,625,104.00
June 2013	33,491.99	2,412.61	478.46	48.25	37,084.99	1,634,738.00
Total	220,681.36	33,381.26	3,152.59	667.63	253,679.17	13,760,910.00

*Assumed yield of 70 Ton/ha for Ecofuel Farms Corporate Farms (ECOF) and 50 Ton/ha for Independent Farms (IF)

Reference: GFII Monthly Report to SRA

Table 2.93. Bioethanol Distilleries Operational as of Q1 of 2015

Distillery	Annual Rated Capacity	Feedstock	Location
1. Leyte Agri Corp. (LAC)	9 million liters	Molasses	Ormoc, Leyte
2. San Carlos Bioenergy Inc. (SCBI)	40 million liters	Sugarcane Molasses	San Carlos, Negros Occ.
3. Roxol Bioenergy Corp. (RBC)	30 million liters	Molasses	La Carlota, Negros Occ.
4. Green Future Innovations Inc. (GFII)	54 million liters	Sugarcane	San Mariano, Isabela
5. Universal Robina Corp.	30 million liters	Molasses	Bais, Negros Oriental
6. Balayan Distillery	30 million liters	Molasses	Balayan, Batangas
7. Far East Alcohol Distillery	15 million liters	Molasses	Pampanga
8. Kooll Company	14 million liters	Sugarcane	Magallanes, Cavite

Reference: DOE-REMB Data and SRA Bioethanol Producers' Registration Data

Table 2.94. Projected Bioethanol Workers, 2013-2030

Year	Target Blend	Bioethanol Demand (in M Liters)	Est. No. of Field Workers	Est. No. of Plant Workers	Total No. Bioethanol Workers*
2013	10%	381.36	85,806	1,906.80	87,713
2014	10%	383.93	86,384	1,919.65	88,304
2015	10%	381.86	85,919	1,909.30	87,828
2020	20%	865.70	194,783	4,328.50	199,111
2025	20%	963.45	216,776	4,817.25	221,594
2030	20%	1,016.80	228,780	5,084.00	233,864

Source of Basic Data: DOE, Sept. 24, 2012; Computed by DOLE, * if local bioethanol supply = local ethanol demand

Basic Employment Assumptions:

- ✓ 1 hectare : 1 field sugarcane worker;
- ✓ 300T liters Ethanol : 1 plant worker;
- ✓ 1M liters ethanol : 230 workers (*225 field workers + 5 plant workers*)

2.2.6.4 Muscovado Mills

Muscovado mills are scattered all over the country especially in Antique wherein muscovado is second to rice in terms of production. Muscovado production is not closely monitored by SRA although its exports should comply with SRA regulations. Table 2.95 illustrated the muscovado production levels of the various provinces as monitored by the Bureau of Agricultural Statistics from year 2002 to 2006. In 2006, Western Visayas produced 69,874 metric tons, followed by Central Luzon with 31,710 metric tons and SOCCSKSARGEN with 20,196 metric tons.

Table 2.95 Muscovado Production in the Philippines (Metric Tons), 2002-2006

Region / Province	2002	2003	2004	2005	2006
PHILIPPINES	128,699	199,736	196,487	215,785	206,295
Ilocos Region	8,926	16,111	16,271	15,840	16,013
<i>Ilocos Norte</i>	504	7,915	7,939	7,786	7,932
<i>Ilocos Sur</i>	218	356	694	970	1,287
<i>La Union</i>	25	151	300	316	365
<i>Pangasinan</i>	8,179	7,688	7,338	6,767	6,429
Cagayan Valley	4	3,170	5	198	284
<i>Isabela</i>		3,166			
<i>Quirino</i>	4	5	5	198	284
Central Luzon	26,521	28,124	29,529	41,389	31,710
<i>Tarlac</i>	26,384	27,967	29,366	41,234	31,543
<i>Zambales</i>	137	157	163	155	167
Bicol Region	67,809	68,672	66,771	68,528	67,803
<i>Albay</i>	67,806	68,669	66,769	68,525	67,800
<i>Catanduanes</i>	0.36	0.38	0.35	0.32	0.34
<i>Sorsogon</i>	3	2	2	2	2
Western Visayas	4,700	63,161	62,315	69,830	69,874
<i>Antique</i>	1,685	60,352	61,129	60,744	57,562
<i>Iloilo</i>	3,015	2,809	1,186	1,300	1,652
<i>Negros Occ.</i>				7,786	10,660
Eastern Visayas	3	3	3	6	6
<i>Leyte</i>	3	3	3	6	6
Zamboanga Peninsula	519	486	501	442	411
<i>Zamboanga City</i>	135	131	126	124	115
<i>Zamboanga Norte</i>	130	135	183	171	183
<i>Zamboanga Sur</i>	220	188	162	121	87
<i>Sibugay</i>	34	32	30	27	26
SOCCSKSARGEN	20,216	20,009	21,091	19,552	20,196
<i>North Cotabato</i>	3	7	1,035	550	579
<i>Sultan Kudarat</i>	20,213	20,002	20,056	19,002	19,617

Source of Data: Bureau of Agricultural Statistics

2.2.6.5. Power Generation

All sugar mills, sugar refineries and bioethanol distilleries generate their own power used for their operation using bagasse or in combination with biogas in the case of bioethanol distilleries, which is commonly known as power cogeneration.

With the passage of the Renewable Energy law of 2008, such establishments were encouraged to secure certificates of registration with the Department of Energy (DOE) for own-use or grid use to avail certain fiscal and non-fiscal incentives under the renewable energy law.

Additional investments needed by a sugar mill in order to generate power to the grid may reach P2 billion. Fourteen sugar mills were awarded with certificates of registration by DOE for own-use as of May 2013 and two sugar mills and another two bioethanol distilleries obtained nomination under the feed-in-tariff (FiT) system as of August 2013 .

In 2014, DOE has registered 12 sugar mills and 3 distilleries in the Visayas, 2 sugar mills in Mindanao and 3 sugar mills plus one distillery in Luzon bringing the total awarded sugarcane-based biomass projects to 21 projects. Five of these projects were into commercial production in 2014 thru bilateral contracts and the WESM.

It is estimated that the sugarcane industry has the potential to generate 500 MW of power to the grid which can be harnessed through more investments of upgrading their boilers and turbo-generators and firm policy support by government in implementing the renewable energy law. Biofuels and biomass power are both included in the renewable energy targets under the 2011-2030 National Renewable Energy Plan (NREP 2011-2030) as illustrated in Table 2.96.

Table 2.96. Renewable Energy Targets, 2011-2030

Sector	Short Term	Medium Term	Long Term	Total
	2011-2015	2016-2020	2021-2030	
Geothermal	220 MW	1,100 MW	175 MW	1,495 MW
Hydropower	341.3 MW	3,161 MW	1,891.8 MW	5,394.1 MW
Biomass	276.7 MW	0	0	276.7 MW
Biofuels	<ul style="list-style-type: none"> • DC on E10 in 2011 • Mandatory E10 to all Gasoline by 2012 • PNS for B5 by 2014 • DC on B5 by 2015 • Mandatory B5 to all Diesel by 2015 	<ul style="list-style-type: none"> • PNS for B20 & E85 by 2020 • DC on B10 and E20 by 2020 	<ul style="list-style-type: none"> • DC on B20 and E85 by 2025 	
Wind	200 MW	700 MW	1,445 MW	2,345 MW
Solar	50 MW	100 MW	200 MW	350 MW (Aspirational target 1,528 MW)
Ocean Power	0	35.5	35	70.5
Total	1,088 MW	5,096 MW	3,746.80 MW	9,931.3 MW

Reference: National Renewable Energy Plan, 2011-2030

3. FARM INCOME ANALYSIS

3.1. Farm Cash Flows

Cultural practices of farmers in Luzon, Visayas and Mindanao vary. The farm practices of small or low input farms, medium or intermediate input farms and large or high input farms also differ between mill districts.

Farm cash flows in Luzon, Visayas and Mindanao islands will be illustrated in three categories based on CY 2012-2013 mill district farm productivities – least efficient farms, farms falling within the island average and the most efficient farms.

The average cost of production for every category will be based on the assumption that for every hectare, 40% plant cane and 60% ratoon cane are planted, unless a specific data for plant cane to ratoon cane ratio is available for the mill district. Cost of seedpieces and land preparation will be saved on sugarcane crop using ratooned canes. It is assumed that small or subsistence farming used carabao during cultivation while medium-size and large farms are mechanized.

Cash flows reflect the detailed cost of production without any government subsidy, both direct and indirect costs with the gross income based on mill district average composite millsite price and the sharing scheme adopted by the districts taking into account the additional income from molasses production which follows the sharing scheme on sugar production.

Cash flow assumptions which will be applied to all mill districts take into account indirect costs such as land rental, administrative and interest costs. Unless data is available in the mill district, the average molasses millsite price of CY 2012-2013 will be used in all mill districts at P5,837 per metric ton. Land rental cost gathered during the discussions with the MDDCFIs will be used that vary from district to district and will be applied to medium-size and large farms only considering that small farms are more of subsistence farming. Likewise, an administrative cost of 10% of direct cost will be employed to medium-size and large farms. Interest cost of 10% will be applied to all farm categories.

3.1.1. Cash Flows of Luzon Sugarcane Mill Districts

In Luzon, Pensumil mill district was considered as the least efficient farm, Tarlac mill district represented an average farm and Balayan mill district as the most efficient farm in Luzon. Cost figures were based on the common practice in the district although these may vary from farm to farm of the same category.

In Pensumil Mill District, plant cane to ratoon cane ratio is 70:30 due to inavailability of HYV nurseries in the mill district and the mill efficiency was very low at 1.4 LKg/TC in CY 2012-2013. The farmers were forced not to apply the recommended farm inputs because of the very low sugar yield and if all necessary costs were inputted in the cash flow computation (Table 3.1), the farmers then had a very low income as shown in their cash flows in CY 2012-2013.

In Tarlac mill district, small farms seemed to give better sugar yield than medium and large farms, thus, earning positive cash flows of 27% for small farms, 18% for medium-size farms and 19% for large farms (Table 3.2). In the case of Balayan mill district, all farm categories had high return on investment with the large farms showing the highest ROI of 38 %, 25% for medium-size farms and 31% of small farms (Table 3.3).

Table 3.1. Farm Cash Flows of Pensumil Mill District Pesos per Hectare, CY 2012-2013

FARM OPERATIONS	SMALL 10 Has. & Below	MEDIUM Over 10 Has. to 50 Has.	LARGE Over 50 Has.
Land Preparation	5,000.00	7,500.00	10,500.00
Seedpieces	12,000.00	15,000.00	15,000.00
Seedpieces Preparation	500.00	2,000.00	2,000.00
Planting	1,500.00	1,500.00	1,500.00
Replanting	500.00	1,000.00	1,000.00
Fertilzer	6,280.00	9,600.00	9,690.00
Fertilizer Application	400.00	800.00	800.00
Cultivation	4,000.00	4,500.00	5,000.00
Manual Weeding	3,000.00	6,000.00	6,000.00
Sprays and Application	1,200.00	2,500.00	2,500.00
Irrigation and Drainage		N/A	N/A
Cutting & Loading	6,000.00	9,750.00	10,500.00
Hauling less trucking	5,000.00	7,000.00	10,000.00
Stubble shaving	500.00	1,500.00	1,500.00
Trash clearing	500.00	500.00	500.00
Others	1,000.00	2,000.00	2,500.00
TOTAL DIRECT COST-TDC	47,380.00	71,150.00	78,990.00
Land rental/annum	-	2,500.00	2,500.00
Interest Cost, 10% of TDC	4,738.00	7,424.00	7,749.00
TOTAL COSTS-TC	52,118.00	81,074.00	89,239.00
YIELD/HECTARE			
Average TC/Ha	40.00	65.0	75.0
Ave. LKG/Ha	56.00	91.0	105.0
AVERAGE Molasses Yield, Kg	1,200.00	1,820.00	1,875.00
MILLSITE PRICES			
Price of sugar/LKG	1,517.00	1,517.00	1,517.00
Price of Molasses/kg	4.50	4.50	5.00
RETURNS			
PLANTER SHARE	60%	60%	60%
A) Sales from Sugar	50,971.00	82,828.20	95,571.00
B) Sales from Molasses	3,240.00	4,914.00	5,625.00
NET RETURNS PER HECTARE			
A + B-TC	2,093.00	6,668.20	11,957.00
NET RETURNS PER LKG BAG			
A + B-TC / LKG bag	37.38	73.28	113.88

Reference: Data gathered from the MDDCs and SRA MDOs

Table 3.2. Farm Cash Flows of Tarlac Mill District in Pesos per Hectare, CY 2012-2013

FARM OPERATIONS	SMALL	MEDIUM	LARGE	AVERAGE
	< 10 Has.	25-50 Has.	50.01 Has. & Above	
A. Direct Costs				
1. Land Preparation and Planting Materials				
a. Plant Cane, 40%	18,760	22,160	25,160	22,027
Land Preparation @ P3,000/pass by tractor	9,000	9,000	12,000	10,000
<i>Plowing</i>	3,000	3,000	3,000	
<i>Harrowing</i>	3,000	3,000	6,000	
<i>Furrowing</i>	3,000	3,000	3,000	
Seedpieces @ P2,500/laksa	7,500	10,000	10,000	9,167
<i>Planting Density, laksa/ha</i>	3 laksa	4 laksa	4 laksa	
Seedpieces Preparation, manual labor @ P300/laksa	900	1,200	1,200	1,100
Planting, manual labor, @ P200/mandav	1,000	1,600	1,600	1,400
<i>Mandays (MD)</i>	5	8	8	
Replanting, manual labor, P180/day	360	360	360	360
<i>Mandays (MD)</i>	2	2	2	
b. Ratoon Cane, 60%	3,160	3,161	3,161	3,160
Land Preparation	0	0	0	0
Seedpieces @ P2,500/laksa	2,500	2,500	2,500	2,500
<i>Planting Density, Laksa/hectare</i>	1	1	1	
Seedpieces Preparation, manual labor @ P300/laksa	300	300	300	300
Replanting, Manual labor, @ P180/day	360	360	360	360
<i>Mandays (MD)</i>	2	2	2	
Sub total - Average of 40% Plant & 60% Ratoon Cane	9,400	10,761	11,961	10,707
2. Fertilizer, Lime & Chemicals, (Weedicides & Herbicides)				
Fertilizer/Lime/Chemicals Used & Application Rate	8,290	11,340	11,790	10,473
Urea @ P1,100/bag	3,300	4,400	4,400	
<i>Application rate, baqs/ha</i>	3	4	4	
Ammonium Phosphate @ P1,100/bag	2,200	3,300	3,300	
<i>Application rate, baqs/ha</i>	2	3	3	
Organic Fertilizer, Commercial @ P200/bag	1,000	1,000	1,000	
<i>Application rate, baqs/ha</i>	5	5	5	
Fertilizer Application, P100/bag for chemical fert. & P25/bag for organic fert.	400	600	1,050	
Weedicide - Diuron @ P550/kg.	550	1,100	1,100	
<i>Application rate, kg/ha</i>	1	2	2	
2-4 @ P270/liter	540	540	540	
<i>Application rate, liter/ha</i>	2	2	2	
Weedicide Application @ P100/ liter or P100/kg	300	400	400	
3. Pest Control Agent Used & Application Rate	0	0	0	0
Chemical/Biological Agent Applied	0	0	0	
3. Irrigation and Drainage	N/A	N/A	N/A	
4. Pakiao Services	5,850	7,000	7,600	6,817
Stubble shaving	600	600	600	
Land/trash Clearing	300	300	300	
Cultivation	2,700	2,700	2,700	
Manual Weeding	2,250	2,400	3,000	
Chemical Weeding		1,000	1,000	
5. Post harvest Costs	21,735	23,625	24,650	23,337
Cutting & Loading @ P200/TC	9,200	10,000	10,434	
Net Hauling Cost	12,535	13,625	14,216	
<i>Hauling Cost, Prevailing Rate@ P280/TC</i>	12,880	14,000	14,608	
<i>Trucking Subsidy given by mill, P32.50/TC</i>	1,495	1,625	1,696	
<i>Driver's allowance per trip, P500/trip</i>	1,150	1,250	1,304	
<i>No. of trips of a 20-ton capacity truck based on TC/Ha</i>	2.30	2.50	2.61	
Total Direct Costs (TDC)	45,275	52,726	56,001	51,334

Table 3.2. Farm Cash Flows of Tarlac Mill District in Pesos per Hectare, CY 2012-2013
(Continuation)

FARM OPERATIONS	SMALL -< 10 Has.	MEDIUM 25-50 Has.	LARGE 50.01 Has. & Above	AVERAGE
B. Indirect Costs				
Land rental, prevailing rates in the district	6,000	6,000	6,000	
Administrative Cost, 10% of TDC	4,528	5,273	5,600	
Interest Cost, 10% of TDC	4,528	5,273	5,600	
Total Indirect Costs (TIC)	15,055	16,545	17,200	16,267
C. Total Production Cost (TPC) = TDC + TIC	60,330	69,271	73,201	67,601
Cost of Production /LKg @ 67% planters' share	1,047	1,106	1,120	
D. FARM PRODUCTIVITY				
Tons Cane Per Hectare, TC/HA	46	50	52	
E. SUGAR YIELD				
50-kilo Bag Per Hectare, LKG/HA @ 1.87 LKg/TC	86	94	98	
F. MOLASSES PRODUCTION				
Kilos Molasses Per Hectare , gallons	201	186	239	
G. MILLSITE PRICES				
Composite Millsite Price of sugar, P/LKG	1,219.94	1,219.94	1,219.94	
Millsite Price of Molasses, P/gal	45.00	45.00	45.00	
H. SHARING SCHEME, % Planters Share	67%	67%	67%	
I. GROSS INCOME	76,377	82,017	86,954	81,782
<i>Sales from Sugar</i>	<i>70,309</i>	<i>76,423</i>	<i>79,740</i>	
<i>Sales from Molasses</i>	<i>6,067</i>	<i>5,594</i>	<i>7,214</i>	
J. NET RETURNS OR NET CASH FLOWS	16,047	12,746	13,752	14,182
<i>Gross Income - TPC</i>	<i>16,047</i>	<i>12,746</i>	<i>13,752</i>	
K. RETURN ON INVESTMENT (ROI), %	26.60%	18.40%	18.79%	20.98%
<i>Net Cash Flows/TPC X 100</i>	<i>26.60%</i>	<i>18.40%</i>	<i>18.79%</i>	

Source: MDDC and SRA MDOs

Table 3.3. Farm Cash Flows of Balayan Mill District in Pesos/Ha, CY 2012-2013

FARM OPERATIONS	SMALL	MEDIUM	LARGE	AVERAGE
	< 10 Has.	25-50 Has.	50.01 Has. & Above	
A. Direct Costs				
1. Land Preparation and Planting Materials				
a. Plant Cane, 40%	26,700	30,600	32,400	29,900
Land Preparation	13,500.00	13,500.00	13,500.00	13,500
Seedpieces @ P3,000/laksa	9,000.00	12,000.00	16,000.00	12,333
Planting Density, laksa/ha	3 laksa	4 laksa	4 laksa	
Seedpieces Preparation, manual labor @ P300/laksa	900	1,200	1,200	1,100
Planting, manual labor & machine for large farms	2,400.00	3,000.00	800.00	2,067
Replanting, manual labor	900.00	900.00	900.00	900
b. Ratoon Cane, 60%	4,200	4,201	4,201	4,200
Land Preparation	0	0	0	0
Seedpieces @ P3,000/laksa	3,000	3,000	3,000	3,000
Planting Density, Laksa/hectare	1	1	1	
Seedpieces Preparation, manual labor @ P300/laksa	300	300	300	300
Replanting, Manual labor, @ P180/day	900.00	900.00	900.00	900
Sub total - Average of 40% Plant & 60% Ratoon Cane	13,200	14,761	15,481	14,480
2. Fertilizer, Lime & Chemicals, (Weedicides & Herbicides)				
Fertilizer/Lime/Chemicals Used & Application Rate	12,200	13,200	16,300	13,900
Urea @ P1,100/bag		9,200	11,500	
Ammonium Sulfate	11,600			
Organic Fertilizer, Commercial @ P120/bag		3,000	3,600	
Fertilizer Application	600	1,000	1,200	
3. Pest Control Agent Used & Application Rate	0	0	0	0
Chemical/Biological Agent Applied	0	0	0	0
3. Irrigation and Drainage	N/A	N/A	N/A	
4. Pakiao Services	13,700	13,700	8,625	12,008
Stubble shaving	600	600	600	
Land/trash Clearing	800	800	800	
Cultivation	6,300	6,300	2,125	
Manual Weeding	6,000	6,000	5,100	
5. Post harvest Costs	20,625	24,375	28,125	24,375
Cutting & Loading @ P220/TC	12,100	14,300	16,500	
Net Hauling Cost	8,525	10,075	11,625	
Hauling Cost, P270/TC	14,850	17,550	20,250	
Trucking Subsidy given by mill, P140/TC	7,700	9,100	10,500	
Driver's allowance per trip, P500/trip	1,375	1,625	1,875	
No. of trips of a 20-ton capacity truck based on TC/Ha	2.75	3.25	3.75	
Total Direct Costs (TDC)	59,725	66,036	68,531	64,764
B. INDIRECT COSTS				
Land rental, prevailing rates in the district		10,000	10,000	
Administrative Cost, 10% of TDC	5,973	6,604	6,853	
Interest Cost, 10% of TDC	5,973	6,604	6,853	
TOTAL INDIRECT COSTS (TIC)	11,945	23,207	23,706	19,619
C. Total Production Cost (TPC) = TDC + TIC	71,670	89,243	92,237	84,383
Cost of Production /Lkg @ 65% planters' share	1,055	1,112	996	
D. FARM PRODUCTIVITY				
Tons Cane Per Hectare, TC/HA	55	65	75	
E. SUGAR YIELD				
50-kilo Bag Per Hectare, LKG/HA @ 1.90 Lkg/TC	105	124	143	
F. MOLASSES PRODUCTION				
Kilos Molasses Per Hectare	2,235	2,840	2,878	
G. MILLSITE PRICES				
Composite Millsite Price of sugar, P/LKG	1,242.35	1,242.35	1,242.35	
Millsite Price of Molasses, P/kg	6.50	6.50	6.50	
H. SHARING SCHEME, % Planters Share	65%	65%	65%	
I. GROSS INCOME	93,829	111,729	127,232	110,930
Sales from Sugar	84,387	99,730	115,073	
Sales from Molasses	9,443	11,999	12,160	
J. NET RETURNS OR NET CASH FLOWS	22,159	22,486	34,995	26,547
Gross Income - TPC	22,159	22,486	34,995	
K. RETURN ON INVESTMENT (ROI), %	30.92%	25.20%	37.94%	31.4%
Net Cash Flows/TPC X 100	30.92%	25.20%	37.94%	

3.1.2. Cash Flows of Visayas Sugarcane Mill Districts

Among the mill districts in the Visayas, Bogo-Medellin mill district was the least efficient, Lopez mill district as the average farm and Hawaiian-Philippines/Silay mill district as the most efficient district. Cost figures were based on the common practice in the district although these may vary from farm to farm of the same category.

In Bogo-Medellin mill district, net farm cash flows were positive in CY 2012-2013, however, medium-size and large farms had low ROI of 5.48% and 3.44%, respectively, while small farms got 11.16% ROI (Table 3.4).

Table 3.4. Farm Cash Flows of Bogota-Medellin Mill District, Pesos per Hectare, CY 2012-2013

FARM OPERATIONS	SMALL	MEDIUM	LARGE	AVERAGE
	< 10 Has.	25-50 Has.	50.01 Has. & Above	
A. Direct Costs				
1. Land Preparation and Planting Materials				
a. Plant Cane, 30%	15,650	16,650	16,950	16,417
Land Preparation	10,000	10,000	10,000	10,000
<i>Plowing</i>	8,000	8,000	8,000	
<i>Furrowing</i>	2,000	2,000	2,000	
Seedpieces	2,000	2,700	3,000	2,567
Seedpieces Preparation, P300/laksa	900	1,200	1,200	1,100
Planting	2,000	2,000	2,000	2,000
Replanting	750	750	750	750
b. Ratoon Cane, 70%	1,800	1,800	1,800	1,800
Land Preparation	0	0	0	
Seedpieces	750	750	750	750
Seedpieces Preparation	300	300	300	300
Replanting	750	750	750	750
Sub total - Average of 30% Plant & 70% Ratoon Cane	5,955	6,255	6,345	6,185
2. Fertilizer, Lime & Chemicals, (Weedicides & Herbicides)				
Fertilizer/Lime/Chemicals & Application Rate	15,900	21,900	26,150	21,317
<i>Urea, P1,150/bag</i>	4,600	4,600	6,900	
<i>Application rate, bags/ha</i>	4	4	6	
<i>Potash, P1,800/bag</i>	5,400	7,200	7,200	
<i>Application rate, bags/ha</i>	3	4	4	
<i>Ammonium Phosphate, P900/bag</i>	2,700	3,600	4,500	
<i>Application rate, bags/ha</i>	3	4	5	
<i>Organic Fertilizer, Commercial, P225/bag</i>		2,250	2,250	
Fertilizer Application	1,000	1,500	2,000	
Weedicides/Herbicides	1,900	2,375	2,850	
<i>Diuron @ P700/kg</i>	1,400	1,750	2,100	
<i>2-4 @ P250/liter</i>	500	625	750	
Weedicide Application	300	375	450	
3. Pest Control Agent & Application Rate	0	0	0	0
3. Irrigation and Drainage	0	0	0	0

Table 3.4. Farm Cash Flows of Bogó-Medellin Mill District, Pesos per Hectare, CY 2012-2013
(Continuation)

FARM OPERATIONS	SMALL	MEDIUM	LARGE	AVERAGE
	< 10 Has.	25-50 Has.	50.01 Has. & Above	
4. Pakiao Services	5,400	6,400	6,400	6,067
Land/trash Clearing	500	500	500	
Cultivation	1,400	2,400	2,400	
Manual Weeding	3,500	3,500	3,500	
5. Post harvest Costs	15,800	21,725	23,700	20,408
Cutting & Loading, P175/TC	7,000	9,625	10,500	
Net Hauling Cost	8,800	12,100	13,200	
<i>Hauling Cost, P200/TC</i>	<i>8,000</i>	<i>11,000</i>	<i>12,000</i>	
<i>Driver's allowance per trip, P400/trip</i>	<i>800</i>	<i>1,100</i>	<i>1,200</i>	
<i>No. of trips of a 20-ton capacity truck based on TC/Ha</i>	<i>2.00</i>	<i>2.75</i>	<i>3.00</i>	
Total Direct Costs (TDC)	43,055	56,280	62,595	53,977
B. Indirect Costs				
Land rental, prevailing rates in the district		5,000	5,000	
Administrative Cost, 10% of TDC	4,306	5,628	6,260	
Interest Cost, 10% of TDC	4,306	5,628	6,260	
Total Indirect Costs (TIC)	8,611	16,256	17,519	14,129
C. Total Production Cost (TPC)	51,666	72,536	80,114	68,105
D. FARM PRODUCTIVITY				
TC/HA	40.00	55.00	60.00	
LKG/HA @ 1.59 LKg/TC	63.60	87.45	95.40	
E. Molasses Production, Kilos				
14,060,000 kilos molasses /8,061 hectares	1,744	1,744	1,744	
F. Millsite Prices				
Composite Millsite Price of sugar, P/LKG	1,240.17	1,240.17	1,240.17	
Millsite Price of Molasses, P/kg	5.83	5.83	5.83	
G. SHARING SCHEME, % Planters Share	64.5%	64.5%	64.5%	
H. GROSS INCOME	57,430	76,508	82,867	72,268
<i>Sales from Sugar</i>	<i>50,874</i>	<i>69,952</i>	<i>76,311</i>	
<i>Sales from Molasses</i>	<i>6,555</i>	<i>6,555</i>	<i>6,555</i>	
I. NET RETURNS OR NET CASH FLOWS	5,764	3,972	2,753	4,163
<i>Gross Income – TPC</i>	<i>5,764</i>	<i>3,972</i>	<i>2,753</i>	
J. RETURN ON INVESTMENT (ROI), %	11.16%	5.48%	3.44%	6.11%
<i>Net Cash Flows/TPC X 100</i>	<i>11.16%</i>	<i>5.48%</i>	<i>3.44%</i>	

Table 3.4. Farm Cash Flows of Victorias Mill District, Pesos per Hectare, CY 2012-2013

FARM OPERATIONS	Small Farms	Medium-Sized Farms	Large Farms	AVERAGE
Seedpieces	10,000.00	8,000.00	8,000.00	8,666.67
Fertilizer				
46-0-0 @P1,150/bag	4,600.00	4,600.00	4,600.00	4,600.00
0-0-60 @P1,800/bag	5,400.00	9,000.00	10,800.00	8,400.00
16-20-0 @ P900/bag	1,800.00	2,700.00	4,500.00	3,000.00
18-46-0				
Organic Fertilizer @ P225/bag			11,250.00	11,250.00
Weedicide/Herbicide			1,400.00	1,400.00
Land Preparation	12,000.00	12,000.00	12,000.00	12,000.00
Planting / Replanting	5,620.00	5,840.00	5,840.00	5,766.66
Fertilizer Application	1,200.00	1,975.00	1,975.00	1,716.67
Cultivation	2,055.00	2,055.00	2,055.00	2,055.00
Irrigation /Drainage			1,250.00	1,250.00
Weeding	1,400.00	1,400.00	1,400.00	1,400.00
Weedicide application		2,300.00	2,300.00	2,300.00
Pest & Disease Control			2,000.00	2,000.00
Cutting & Loading @ P380/ton	7,600.00	8,600.00	8,900.00	8,366.67
Hauling @P200/ton	11,655.00	12,950.00	13,320.00	12,641.67
TOTAL DIRECT COST	63,330.00	71,420.00	91,590.00	86,813.33
Land Rental	5,000.00	10,000.00	15,000.00	10,000.00
Administrative	2,000.00	5,000.00	10,000.00	5,666.67
TOTAL COST	70,330.00	86,420.00	116,590.00	102,480.00
FARM YIELD				
LKg / Ha	94.00	122.99	160.10	149.24
Kg Molasses / Ha	2,510.00	2,510.00	2,510.00	2,510.00
MILLSITE PRICES				
Composite Price Sugar, P/LKg	1,376.00	1,376.00	1,376.00	1,376.00
Price of Molasses, P/Kg	6.00	6.00	6.00	6.00
GROSS SALES				
Planters Share	69.50%	69.50%	69.50%	69.50%
A - Sale from sugar	89,894.08	117,617.80	153,106.83	142,721.20
B - Sale from molasses	10,466.70	10,466.70	10,466.70	10,466.70
NET RETURNS/HECTARE				
A + B - Direct Cost	37,030.78	56,664.50	71,983.53	66,374.56
A+B-Total Cost	30,030.78	41,664.50	46,983.53	50,707.90
NET RETURNS/LKG				
A + B - Direct Cost	393.94	460.72	449.62	444.75
A+B-Total Cost	319.48	338.76	293.46	339.77

Reference: MDDC and Extension Field Data

4. SUPPLY / VALUE CHAIN ANALYSIS

4.1. Supply Chain Segments and Players

4.1.1. Sugarcane Production

The production of sugarcane is mainly managed by the planters, whether farm owners or leaseholders. Sugarcane farm management and operations require a series of activities such as:

- Financing - sugarcane farm operations entail a huge investment and mostly sourced through government/private/cooperative banks, private individuals, sugar mills or lending institutions;
- Technology – best practices and modern technologies are the key solutions to cost-efficient sugarcane production process. SRA and PHILSURIN provide the technical and variety needs of the industry;
- Land preparation – most of the sugarcane farms are cultivated through the use of farm tractors and implements to ensure deep plowing and proper land preparation. Tractors may be provided by the planters associations, individual planters, the MDDCFIs and the sugar mills;
- Irrigation – most sugarcane farms are rainfed; some irrigation facilities are provided by individual farm owners and the Sugar ACEF grant;
- Input supply – most planting materials are sourced from the cane tops of harvested canes and the high-yielding variety nurseries of SRA, PHILSURIN, MDDC and planters cooperatives. Local traders provide for the supply of fertilizer, weedicides and pesticides. SRA also supplies trichogramma as biological agent for the control of white grubs;
- Labor – farm workers are sourced locally for planting, cultivation, weeding and fertilizer application activities but most often migrant workers or sacadas are hired during harvesting; Labor rates vary from province to province as mandated by the regional wage boards.

- Hauling - trucks are commonly used in hauling sugarcane from the farm to the mill which are provided by planters associations, truckers or the sugar mills. Sugar mills provide hauling subsidy that varies from mill to mill;
- Farm roads – maintenance of temporary farm roads are undertaken by the sugar mills by dumping landfills during harvest season. Some farm roads which are barangay roads were concretized, mostly funded from the PDAF of congressmen.

4.1.2. Sugarcane Processing

4.1.2.1. Sugar Mills / Refineries

Sugar remains the major product of sugarcane. Sugarcane is processed into raw sugar by bringing the canes to the sugar mills. In crop year 2013-2014, the country has 29 sugar mills but only 28 mills are operational. Capacity utilization of sugar mills ranged from a low of 40.90 % to a high of 80.80%. The supply of cane is the major factor which accounts for the low capacity utilization of sugar mills and due to incidents of equipment breakdown. Efficiency and overall recovery of sugar mills are reflections of mill equipment performance. Table 2.56 showed the production capacities of the sugar mills in crop year 2013-2014. The least efficient sugar mill is Pensumil located in Camarines Sur with a reduced overall sugar recovery of 79.40% compared to CASA of Iloilo which is the most efficient mill with 90.22% recovery. CASA is the newest sugar mill in the country.

Raw sugar may be directly used by industrial users or it may be refined for both industrial, commercial, institutional and household use. There are fourteen sugar refineries in crop year 2013-2014, available data are the rated capacities and efficiencies of eleven refineries in crop year 2013-2014 given in Table 2.61. All sugar mills and refineries are required to secure license to operate with the SRA.

4.1.2.2. Bioethanol Fuel Distilleries

Bioethanol became the second major product of sugarcane in 2009 when the biofuels law was passed which provides for the mandatory requirement of bioethanol blends. Furthermore, additional incentives for the production of renewable energy including biofuels are mandated through the Renewable Energy Act of 2008. In year 2012 and 2013, there are four operating bioethanol distilleries using sugarcane and molasses as feedstocks with a total rated capacity of 133 million liters annually. In 2014, the total number of distilleries rose to 6 facilities with a total rated capacity of 193 million liters and became eight operating facilities in 2015 with a total rated capacity of 222 million liters which is around 57% of the mandated requirement for 10% blend in gasoline. Their rated capacities and feedstock used are given in Table 4.1.

Table 4.1. Rated Capacities and Feedstocks of Bioethanol Distilleries, Year 2015

Distillery	Rated Capacity (Million Liters)	Feedstock Used
1. San Carlos Bioenergy Inc.	40.0	Molasses, Sugarcane
2. Leyte Agri Corp.	9.0	Molasses
3. Roxol Bioenergy Corp.	30.0	Molasses
4. Green Future Innovations Inc.	54.0	Sugarcane, Sugar
5. Balayan Distillery Inc.	30.0	Molasses
6. Kool Company Inc.	14.12	Molasses
7. Universal Robina Corp.	30.0	Molasses
8. Far East Alcohol Inc.	15.0	Molasses
GRAND TOTAL	222.12	

Reference: DOE-REMB Bioethanol Report

Due to the lack of domestic supply, importation of bioethanol is allowed to fill in the gap of the mandated requirement of bioethanol blend. Table 4.2 shows the local production and import volumes while Table 4.3 gave the projected demand of bioethanol.

Table 4.2 Historical Supply-Demand Situation of Bioethanol Fuel

Year	% Blend in Gasoline	Local Production (Million Liters)	Imports (Million Liters)
2005	Voluntary	-	2.54
2006	Voluntary	-	2.70
2007	Voluntary	-	3.18
2008	Voluntary	0.973	12.56
2009	5%, by volume	23.284	64.24
2010	5%, by volume	10.174	140.40
2011	10%, by volume	4.138	218.78
2012	10%, by volume	32.445	248.40

Source : DOE-REMB and OIMB

Table 4.3 Projected Bioethanol Supply-Demand and Feedstock Requirement

Year	Bioethanol Blends (Targets)	Supply Requirement (Million Liters)	MT Molasses Required (50% of local molasses)	Hectarage of Sugarcane Required (less supplied by molasses)
2013	10%	381.36	487,000	58,232
2014	10%	383.92	487,000	58,804
2015	10%	381.84	487,000	58,339
2020	10%	436.50	487,000	70,486
2025	20%	963.00	487,000	187,486
2030	20%	1,024.00	487,000	201,041

4.1.2.3. Muscovado Mills

Two muscovado mills are registered with SRA, namely, Hawaiian Philippines and OPTION-MPC. Muscovado production areas are scattered all over the country ranging from 2,000 - 5,000 hectares of plantation wherein the biggest production areas are in Antique. Muscovado areas and production facilities are not well-monitored and its production is not regulated by SRA. Only muscovado traders are registered with SRA but not the muscovado mills.

4.1.2.4. Power Plants

Power generation to the grid is a value-added product from sugarcane. All sugar mills and refineries in the country used bagasse for their own power generation. The passage of the renewable energy law encourages the sugar mills to venture into power generation for sale to the grid. Table 4.4 tabulates the sugar mills and bioethanol distilleries granted with Certificates of Compliance (COCs) by the Energy Regulatory Commission (ERC).

Table 4.4 List of Sugar Mills & Bioethanol Distilleries with Certificates of Compliance with ERC

Name of Sugar Mill/Distillery	Installed Capacity, MW	Actual Power Sold to the Grid, MW
1. Hawaiian Phil Co.	8.0	Own use only
2. First Farmers Holdings Corp	21.0	3 MW
3. Victorias Milling Co. Inc.	18.0	Own use only
4. Crystal Sugar Central Inc.	21.0	4 MW
5. Central Azucarera de San Antonio	15.0	Own use only
6. San Carlos Bioenergy Inc.	8.0	2 MW
7. Green Future Innovations Inc.	19.0	Own use only
8. TOTAL	83.0 MW	11.0 MW

4.1.3. Trading of Sugarcane Products

4.1.3.1. Sugar Trading

Only SRA-registered sugar traders are allowed to trade and withdraw sugar from sugar mill and refinery warehouses. Domestic and international sugar traders are required to register with SRA to be able to transact business on sugar. However, wholesale and retail level sugar traders are not required to register with SRA, only those domestic traders who transact business directly with the sugar mills and refineries. Sugar is traded by the use of sugar quedans which can be swapped for logistical and positioning purposes. Sometimes advance swapping of sugar quedans from one sugar classification or market destination to another is authorized by SRA depending on market needs.

Sugar is traded in the sugar mills which conduct weekly bidding of sugar quedans.

4.1.3.2. Bioethanol Trading

Bioethanol trade is solely confined to the oil companies. Oil companies buy bioethanol directly from bioethanol producers for blending with gasoline in order to meet the mandate of the biofuels law. So far, under the current policy of the Department of Energy (DOE), no bioethanol traders on local production is allowed. Bioethanol traders operate the trading of imported bioethanol only.

Price of locally-produced bioethanol is benchmarked against the reference price for bioethanol prepared and issued by SRA on a bi-monthly basis. Bioethanol reference price for crop year 2011-12 to 2013-14 are given in Tables 2.37-2.39.

4.1.3.3. Muscovado Trading

All muscovado traders are required to register with SRA especially those that transact business on muscovado shipments and exports. All coastwise shipments of muscovado should have secured shipping permits with SRA as well as imports and exports clearances.

4.1.3.4. Sale of Power to the Grid

Sale of electrical power from biomass plants such as the sugar mills are covered by the regulations of the Energy Regulatory Commission where the DOE is the implementing agency. Currently, all bioenergy developers are required to secure certificate of compliance with the ERC and power rates under the feed-in-tariff (FIT) system are regulated to certain price levels. FIT rates are given in Table 4.5.

Table 4.5. Feed-in-Tariff Rates of Renewable Energy Approved by the Energy Regulatory Commission

RE Resources	FIT Rate(Php/kwh)
Solar	9.68
Wind	8.53
Biomass	6.63
Run-of-river hydro	5.90

4.2. Cost Build-Up, Value-Added and Margins

(Reference: *UA&P Study on Benchmarking the Philippine Sugarcane Industry with Thailand, 2012*)

A segment by segment analytics was done to compare and contrast the cane-sugar value chains showing the differences of the Philippine sugar industry versus that of Thailand. There are two mill composite prices used for the Philippines: the abnormally high price of CY 2010-2011, and the *normalized* price of early 2012.

Value Chains: Cost and Profit Margin

The costs and profit margins along the supply chain were estimated for small and large farms. From input supply to logistics cost of delivering canes to mill came from the costs and returns per hectare and expressed in per Lkg. Meanwhile, the cost and profit margins from processing to the wholesale market were gathered from key informant interviews. In the Philippines, three areas were selected: Negros occidental for Visayas (the major producing area), Batangas (Luzon, and Bukidnon (Mindanao).

Small Farms

Cane production cost at the farm level in Negros amounted to Php583.13 per Lkg (US\$271.22/ton). At CY 2010-2011 composite mill site price of Php1.922 per Lkg, the farmer's profit margin per Lkg was estimated at Php680.94 (US\$316.72/ton). The cost incurred in bringing the cane to the mill totaled

Php121.05 per Lkg (US\$56.30/ton). By contrast, at the mill site price of Php1,250 per Lkg¹, the farmer's profit would drop to Php217.26 per Lkg (US\$101.05/ton).

In Batangas, farm production cost reached Php437.81 per Lkg (US\$203.63/ton) leaving the farmer with a profit margin of Php796.61 per Lkg (US\$3700.522/ton). Hauling the canes

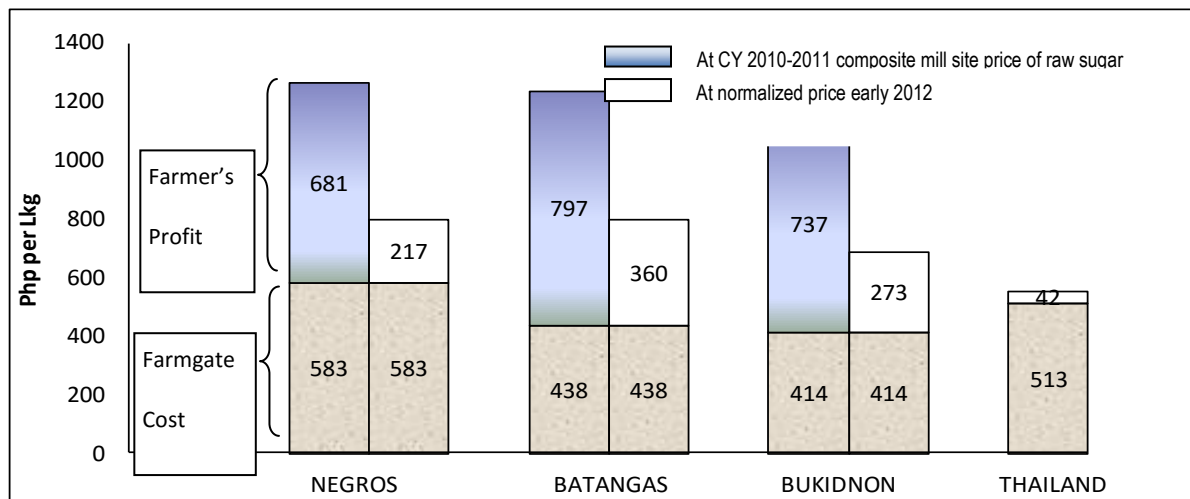
¹ Normalized price

from the farm to the mill amounted to Php130.36 per Lkg (US\$60.63/ton). At normalized price, farmer's profit declined to Php359.81 (US\$167.35/ton).

Farm production cost for small farms in Bukidnon amounted to Php414.38 per Lkg (US\$192.74/ton). The farmer's estimated profit of Php736.80 per Lkg (US\$342.70/ton) at the mill site price of Php1,922 per Lkg in CY 2010-2011. Using normalized price of Php1,250 per Lkg, it would only be about Php273.12 per Lkg (US\$127.03/ton).

In Thailand, the total production cost at the farm level amounted to Php513.22 per Lkg (Baht 360.94/Lkg or US\$236.78/ton) and farmer's profit margin per Lkg was estimated at Php42.13 (Baht 29.63/Lkg or US\$19.44/ton). The cost incurred in bringing the canes to the mill totaled Php88.19 per Lkg (Baht 62.02/Lkg or US\$40.69/ton).

Figure 4.1. Cane Production Costs and Profits: Small Farms, Philippines* and Thailand (Php/Lkg)



* Cost excludes milling and coop fees and transport cost from farm to mill (farmer's share)

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Processing

Sugar mills in Negros were estimated to incur a total cost of Php270 per Lkg (US\$125.58/ton) with an estimated profit of about Php307 per Lkg (US\$142.60/ton) at a raw sugar price (composite) of Php1,922 per Lkg (US\$893.95/ton) in CY 2000-2010. The processor's margin would drop to Php105 per Lkg (US\$48.84/ton) if raw sugar price was Php1,250 per Lkg (*normalized price*).

In Batangas, the total cost to mill cane to raw sugar amounted to Php288.71 per Lkg (US\$134.29/ton) with bulk of the expenses for the cost of cane and cane transport which is shouldered by the mill. The estimated profit reached Php383.99 (US\$178.60/ton) during CY 2010-2011. It declined to Php148.79 per Lkg (US\$69.20/ton) given a raw sugar mill gate composite price of Php1,250 per Lkg (US\$581.40/ton). Refining cost is at Php200 per Lkg (US\$93.02/ton) giving a refinery profit of Php21.00 per Lkg (US\$9.77/ton)

In Bukidnon, cost of milling is estimated at about Php245 per Lkg (US\$113.95/ton) generating profit of Php331.60 per Lkg (US\$154.23/ton) at a raw sugar price of Php1,922 per Lkg. Using normalized raw sugar price of P1,250 per Lkg, the miller's margin would drop to Php130 per Lkg. Profit of sugar refiners was lower at Php29 per Lkg (US\$13.49/ton) with estimated total refining cost of Php192 per Lkg (US\$89.30).

In Thailand, sugar mills were estimated to incur a total cost of Php155.52 per Lkg (Baht 109.37/Lkg or US\$71.75/ton) with an estimated profit of about Php101.04 per Lkg (Baht 71.06/Lkg or US\$46.62/ton) at a raw sugar price of Php995.33 per Lkg (Baht 700/Lkg or US\$459.20/ton). The milling cost was mainly comprised of costs of cane and milling. Meanwhile, cost of refining sugar totaled Php190.83 per Lkg (Baht 134.21/Lkg or US\$88.04/ton) and estimated profit of refineries were at Php315.52 per Lkg (Baht 221.90/Lkg or US\$145.57/ton).

Trading

In Visayas, the costs incurred in trading including product cost amounted to Php2,047.42 per Lkg (US\$952.29/ton) for raw sugar and Php2,561.18 per Lkg (US\$1,191.25/ton) for refined sugar during CY 2010-2011. The cost basically consisted of cost of raw/refined sugar, cost of money, and marketing costs. The latter comprised of cost of delivery from mill to Manila to the wholesale market which amounted to about Php72 per Lkg (US\$33.26/ton). The combined profit margins per Lkg from the traders to the wholesalers were estimated at about Php131 (US\$60.73/ton) and Php127 (US\$58.98/ton) for raw and refined sugar, respectively.

Using *normalized price*, trading costs would be Php1,357.08 per Lkg (US\$631/ton) for raw and Php1,816.32 per Lkg (US\$844.80/ton) for refined. The combined profits of traders to wholesalers would increase to Php142 (US\$66.47/ton) for raw sugar and Php183.68 (US\$85.43/ton) for refined sugar.

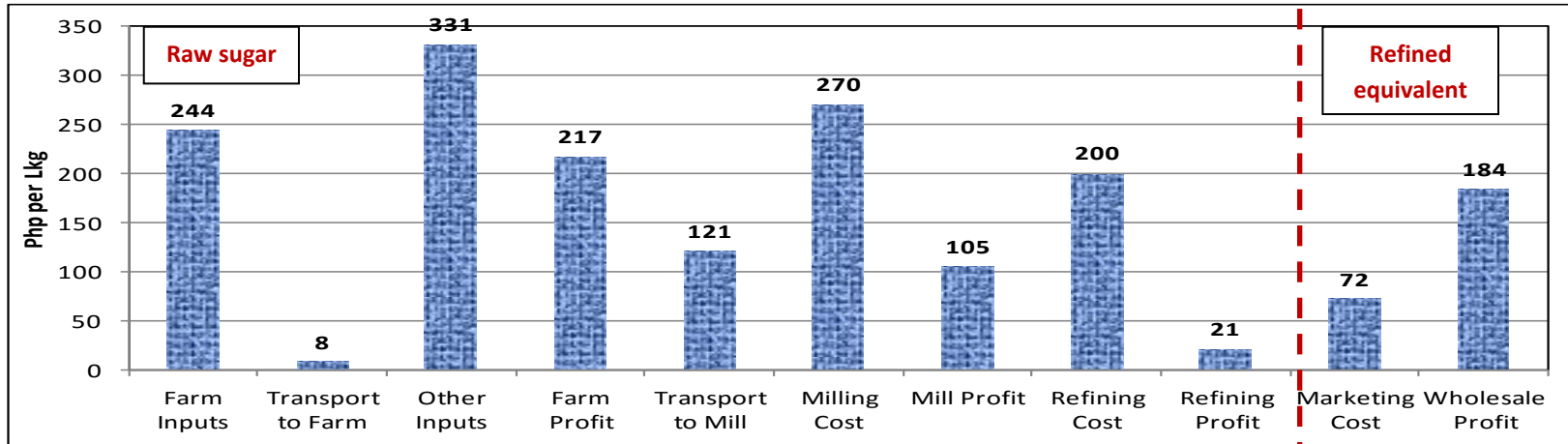
In Luzon, traders incurred a cost of Php2,007.36 per Lkg (US\$933.65/ton) for raw sugar and Php2,512.94 per Lkg (US\$1,168.81/ton) for refined sugar. The primary wholesale market for raw and refined sugar is Metro Manila with marketing costs from the mill reaching Php32.50 per Lkg (US\$15.12/ton). The traders normally get a higher profit margin from refined sugar at Php175.06 per Lkg (US\$81.42/ton) compared to raw sugar at Php170.64 per Lkg (US\$79.37/ton). At normalized price, trader's costs dropped to Php1317 per Lkg (US\$612.57/ton) for raw and to Php1,770.64 (US\$82.55/ton) for refined. On the other hand, traders will earn more with margins amounting to Php182.98 per Lkg (US\$85.11/ton) and Php229.36 per Lkg (US\$106.68/ton), respectively.

In Mindanao, trading cost for raw sugar was Php2,050.96 per Lkg (US\$953.93/ton) while refined sugar was Php2,564.71 per Lkg (US\$1,192.89/ton). Using normalized price, trading costs would be Php1,360.61 per Lkg (US\$632.84/ton) for raw and Php1,819.85 per Lkg (US\$846.44/ton) for refined. The trader's profit margins per Lkg were estimated at about Php127.05 (US\$59.09/ton) and Php123.29 (US\$57.34/ton) for raw and refined sugar, respectively. Using normalized pricing, these would increase to Php139.39 (US\$64.83/ton) and Php180.15 (US\$83.79/ton), respectively.

In Thailand, the costs incurred in trading amounted to Php1,088 per Lkg (Baht 765.25/Lkg or US\$502/ton) for raw sugar and Php1,538.14 per Lkg (Baht 1,081.75/Lkg or US\$709.63/ton) for refined sugar. The cost basically consisted of cost of raw/refined sugar, marketing costs and logistics costs. The latter comprised of delivery cost from mill to Bangkok at Php21.68/Lkg or Baht 15.25/Lkg (US\$10/ton) and to the wholesale market which amounted to about Php7.11/Lkg or Baht 5/Lkg (US\$3.28/ton). The trader's margin per Lkg was estimated at about Php156.05 per Lkg (Baht 109.75/Lkg or US\$72/ton) and Php89.94 per Lkg (Baht 63.25/Lkg or US\$41.49/ton) for raw and refined sugar, respectively.

Figure 4.2. Value Chain: Small Farm at Normalized Price (Php/Lkg)

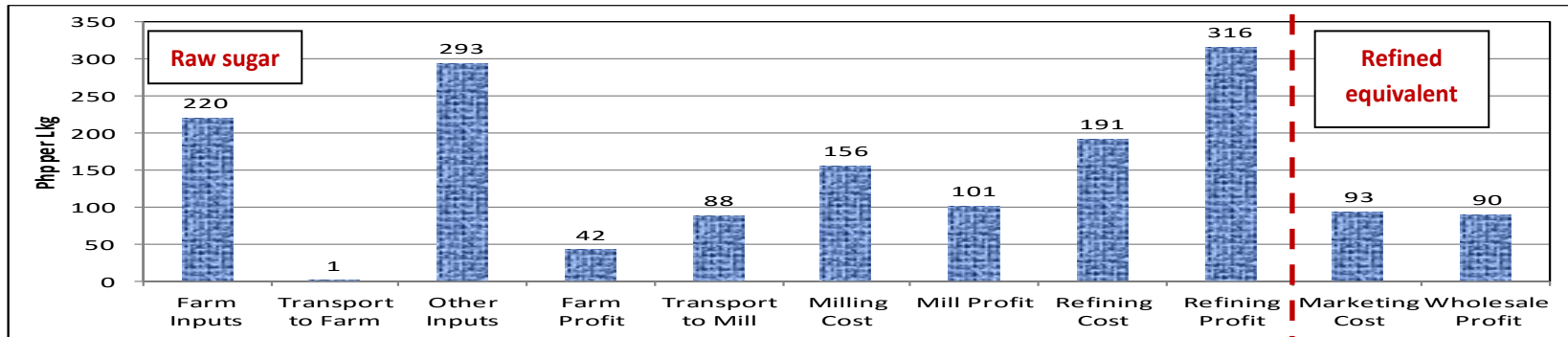
PHILIPPINES



Broken line indicates that the raw sugar cost is converted to refined sugar equivalent using the formula:

$$REFINED\ SUGAR\ EQUIV = ((\text{farmer's raw sugar selling price} + \text{tolling fee} + \text{SRA monitoring fee}) / 0.9268) + \text{VAT} + \text{handling and insurance}$$

THAILAND



Broken line indicates that the raw sugar cost is converted to refined sugar equivalent

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Large Farms

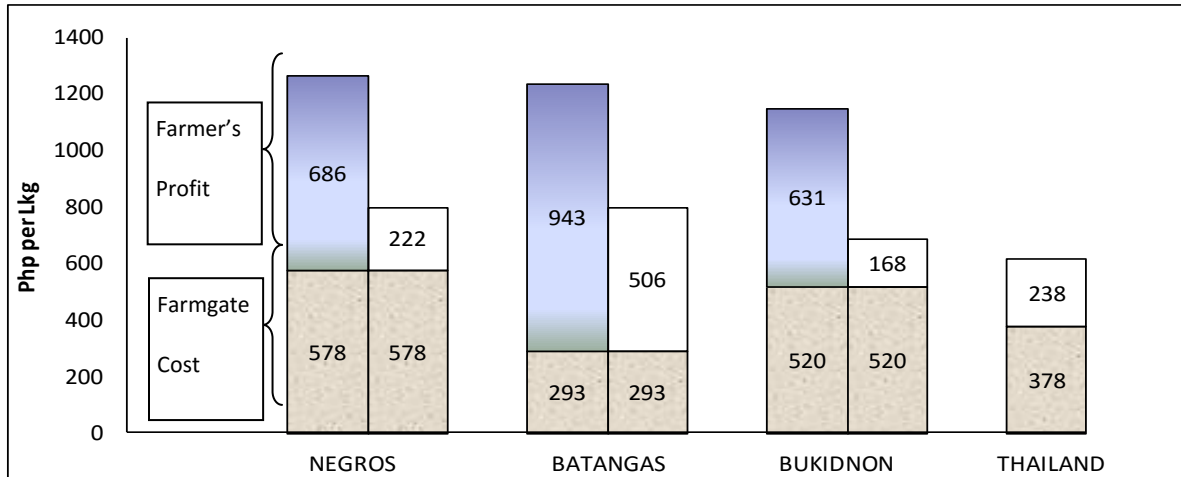
In Negros Occidental, the farm gate cost amounted to Php577.92 per Lkg (US\$268.80/ton) and farmer's earned a profit of Php686.15 per Lkg (US\$319.14/ton) at CY 2010-2011 average composite mill site price. The costs and profit margins along the supply chain from processing to the wholesale market were the same with the small farms. At normalized price of P1,250 per Lkg, the farmer's margin dropped by more than half to Php222.47 per Lkg (US\$103.48/ton). Meanwhile, the processing and trading costs and profits were similar with the small farms if a normalized price was used.

In Batangas, the farm gate costs totaled Php293.12 per Lkg (US\$136.33/ton) bulk of which is the cost of farm labor and inputs. The lower farm gate costs gave the farmer a higher profit margin at Php943.29 (US\$438.74/ton) during CY 2010-2011. 506.49 per Lkg (US\$235.58/ton). From the processing to the wholesale market, stakeholders posted similar costs and margins as in small farms as they have similar transactions.

In Bukidnon, the farm production cost for large farms amounted to Php519.74 per Lkg (US\$241.74/ton) and the farmer's estimated profit was Php729.88 per Lkg (US\$339.48/ton) at the millsite price of Php1,922 per Lkg. Using *normalized price* of Php1,250 per Lkg, farmer's margin would only be about Php282.76 per Lkg.

In Thailand, the average input cost totaled around Php133.16 per Lkg (Baht 93.65/Lkg or US\$61.43/ton) in large farms. Farm gate cost was computed at Php377.71 per Lkg (Baht 265.63/Lkg or US\$174.26/ton) and farmer's earned a profit of Php237.87 per Lkg (Baht 167.29/Lkg or US\$109.74/ton). The costs and profit margins along the supply chain from processing to the wholesale market were the same with the small farms.

Figure 4.3. Cane Production Costs and Profits: Large Farms, Philippines* and Thailand (Php/Lkg)



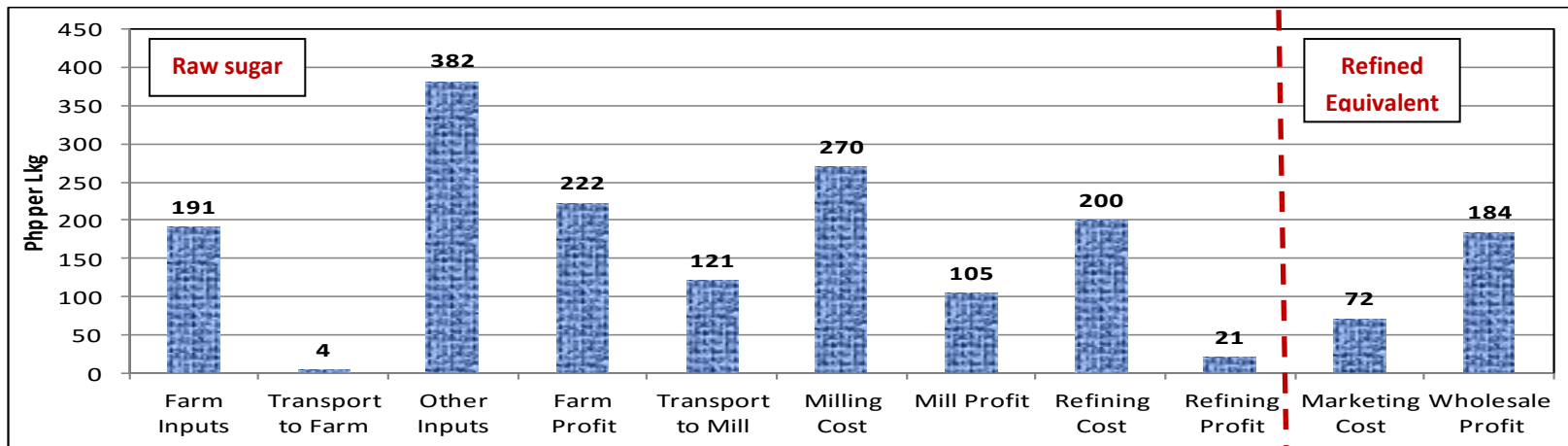
■ At CY 2010-2011 composite mill site price of raw sugar
 At normalized price early 2012

** Cost excludes milling and coop fees and transport cost from farm to mill (farmer's share)*

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Figure 4.4. Value Chain: Large Farm at Normalized Price (Php/Lkg)

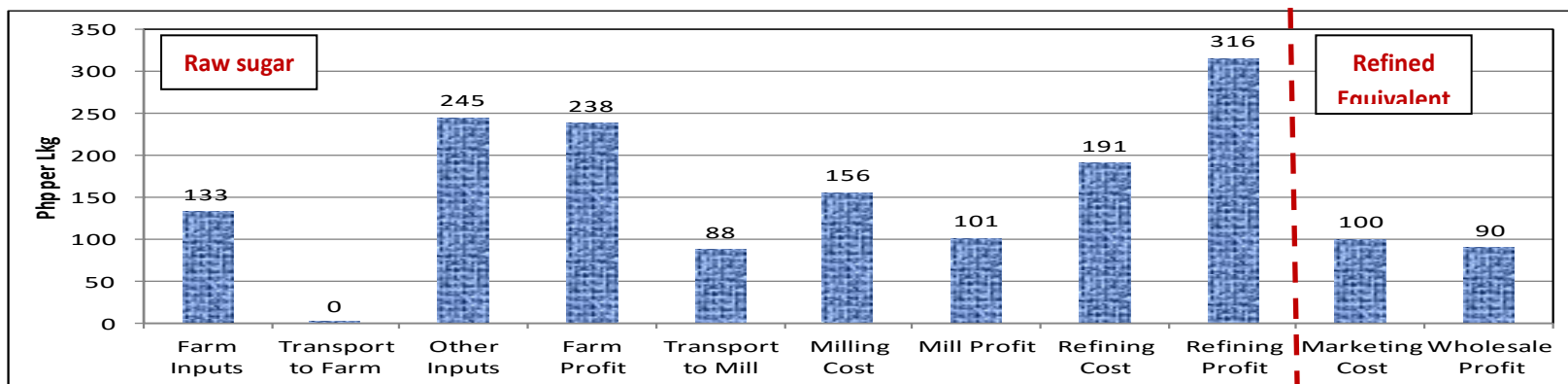
PHILIPPINES



Broken line indicates that the raw sugar cost is converted to refined sugar equivalent using the formula:

$$REFINED\ SUGAR\ EQUIV = ((farmer's\ raw\ sugar\ selling\ price + tolling\ fee + SRA\ monitoring\ fee) / 0.9268) + VAT + handling\ and\ insurance$$

THAILAND



Broken line indicates that the raw sugar cost is converted to refined sugar equivalent.

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Value Chain Gaps and Advantage: Philippines vs. Thailand

Farm Costs

In the Philippines, the total farm costs including other costs such as lease, overhead and interest were at Php583.13 per Lkg (US\$271.22/ton) in small farms and Php577.92 per Lkg (US\$268.80/ton) in large farms. In both farms, the cost of inputs and labor had the biggest shares in total farm gate cost. Meanwhile in Thailand, the total farm costs including other costs such as lease, overhead and interest were at Php549.50 per Lkg (Baht 386.46/Lkg or US\$255.58/ton) in small farms and Php455.14 per Lkg (Baht 320.08/Lkg or US\$211.69/ton) in large farms.

At the farm level, cane production costs in the Philippines for small and large farms were higher than in Thailand. The main cost components at the farm were inputs and labor.

Table 4.6 Total Farm Cost, Plant/Ratoon Cane (Php/Lkg)

Farm Type	Philippines	Thailand
Small	583	549
Large	578	455

** Cost excludes milling and coop fees and transport cost from farm to mill (farmer's share)*

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Figure 4.5. Cane Production Costs and Profits: Small and Large Farms, Philippines (Negros) and Thailand (North) (Php '000 per hectare)

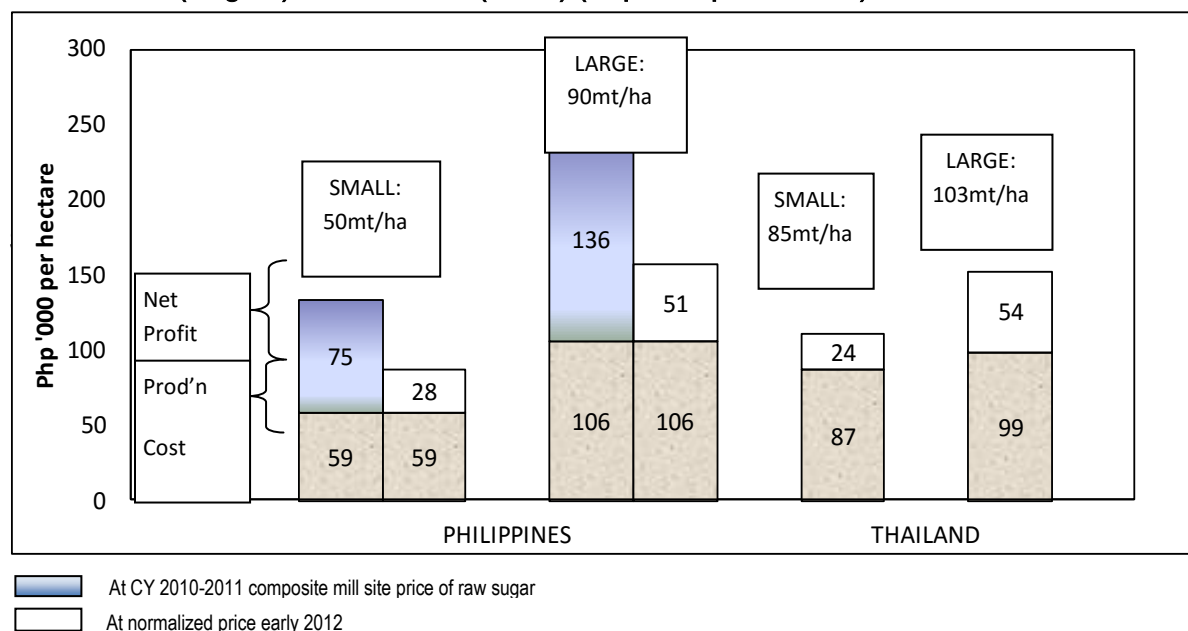
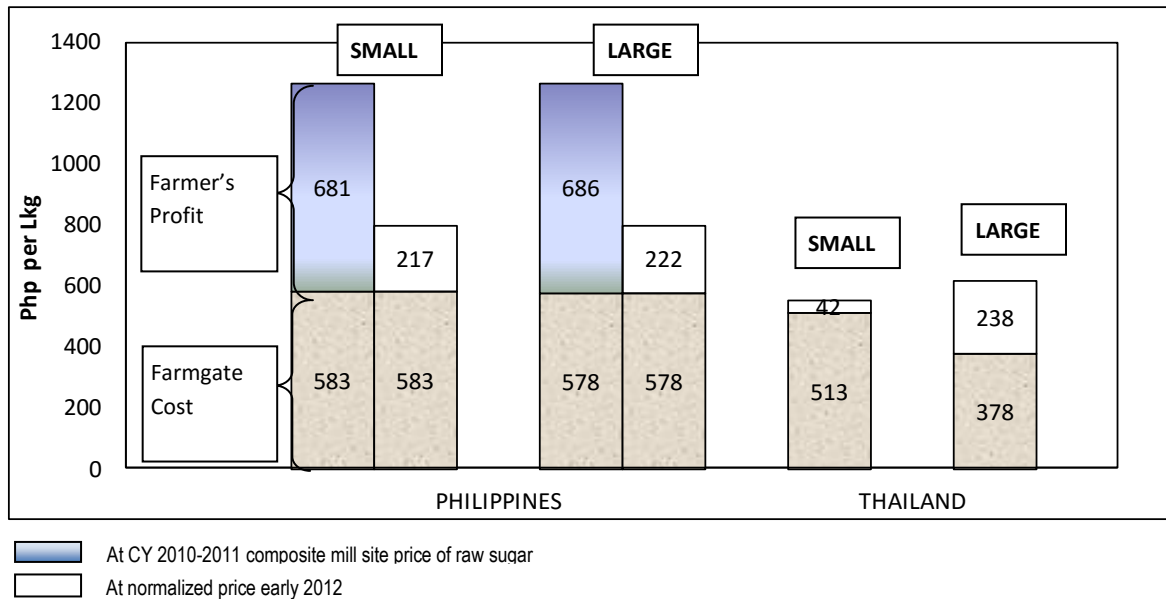


Figure 4.6. Cane Production Costs and Profits: Small and Large Farms, Philippines* (Negros) and Thailand (North) (Php per Lkg)



* Cost excludes milling and coop fees and transport cost from farm to mill (farmer's share)

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Value Added

In Negros (Philippines), the value added (rent, interest, labor and profit) per Lkg was slightly lower in small farms at Php962.92 (US\$447.87/ton) as compared to large farms at Php980.60 (US\$456.09/ton). Large farms incurred higher expense in overhead and rent as well as earned higher profit against small farms. Using *normalized price* of Php1,250 per Lkg, value added would decline to Php499.24 per Lkg in small farms and Php516.92 per Lkg in large farms. Meanwhile in Thailand, the value added in small farms was Php292.67 per Lkg (Baht 205.83 or US\$136.13/ton), higher than the large farms at Php244.30 per Lkg (Baht 171.81 or US\$113.63/ton).

Value added in Thailand is lower because farms are highly mechanized and require less labor as compared to the Philippines which uses more labor even for weeding and harvesting. Land rent is also common in the Philippines due to landownership limit of five hectares while Thailand has no limit in landownership.

Table 4.7 Value Added Using Normalized Price, (Php/Lkg)

Farm Type	Philippines	Thailand
Small	499	293
Large	517	244

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Profit Margins

The large farms in the Philippines (Negros) posted slightly higher profits at Php686.15/Lkg compared to small farms at Php680.94/Lkg. Moreover, large farms normally have higher average yield than small farms. At a millsite price of Php1,250 per Lkg, profits would decline to Php217.26 per Lkg in small farms and Php222.47 per Lkg in large farms. Meanwhile in Thailand, profit margin in small farms was only at Php42.13 per Lkg (Baht 29.63/Lkg or US\$19.44/ton) while large farms earned at Php237.87 per Lkg (Baht 167.29/Lkg or US\$109.74/ton). Small farms in Thailand use more fertilizers than larger farms. Large farms are more equipped with doing soil analysis and applying the right amount of fertilizers as needed. Large farms produce higher yield at 112 tons per ha (18 tons/rai) compared to 81 tons per hectare (13 tons/rai) for small farms for new plant. Ratoons yield is lower at 68 tons per hectare (11 tons/rai).

Sugarcane farmers in the Philippines earn much higher due to the sale of raw sugar compared to the sale of cane in Thailand. Profit margin is also higher because of higher trucking allowance provided by Philippine millers.

Table 4.8 Farm Production Costs of New Plant Cane Farms , Value Added and Profit, Php/Lkg

Item	SMALL FARM			LARGE FARM		
	Philippines		Thailand	Philippines		Thailand
	CY 2002-2011 Composite Price	Normalized Price		CY 2002-2011 Composite Price	Normalized Price	
Land Preparation	56.84 (hired tractor)	56.84 (hired tractor)	38.93 (owned tractor)	25.12 (owned tractor)	25.12 (owned tractor)	34.88 (owned tractor)
Cane points	51.05	51.05	50.40	28.51	28.51	48.17
Fertilizers	164.21	164.21	140.50	126.32	126.32	52.53
Chemicals	28.42	28.42	28.59	17.25	17.25	21.34
Harvesting	89.47	89.47	121.88	100.00	100.00	121.88
Labor	56.71	56.71	28.21	57.29	57.29	18.93
Land Rent				105.26	105.26	
Overhead	49.05	49.05	62.07	87.72	87.72	58.27
Interest	78.95	78.95	14.22	26.07	26.07	10.34
Profit	688.26	217.26	154.10	686.15	222.47	393.82
Total Cost	583.13	583.13	549.50	577.92	577.92	455.14
Total Value Added (rent, interest, labor and profit)	962.92	499.24	292.67	980.60	516.92	244.30
Total Farm Sales	1,922.00	1,250.00	703.60	1,922.00	1,250.00	703.60

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Logistics

In the Philippines (Negros), cutting and loading of cane amounted to Php58 per Lkg (US\$26.93/ton) in small farms and Php68 per Lkg (US\$31.82/ton) in large farms. Hauling of cane to roadside was about Php32 per Lkg (US\$14.69/ton) in both farms. The transport cost from the farm to the mill was about Php121.05 per Lkg (US\$56.30/ton) or Php230/ton cane. Farmers paid 35 percent (Php42/Lkg or US\$19.58/ton) of the cost while millers provided trucking allowance which accounted for about 65 percent (Php79/Lkg (US\$36.72/ton) or Php150/ton) of the total logistics cost. Meanwhile in Thailand, the cost of cutting and loading in small and large farms was Php81.25 per Lkg (Baht 57.14/Lkg or US\$37.79/ton) and cost

of hauling was at Php40.63 per Lkg (Baht 28.57/Lkg or US\$18.90/ton). The cost of delivery of cane to mill was Php88.02 per Lkg (Baht 61.90/Lkg or US\$41.02/ton).

Cost is found to be higher as compared to Philippines wherein harvesting is usually done using contract arrangement with a group of farmers who are paid on a per ton basis. This is relatively cheaper than paying daily wage rate. The cost of cutting and loading is higher in Thailand due to high labor cost. Large farmers tried to solve this problem by using mechanical harvester. For hauling, Thai farmers also use mechanical loader which requires fuel and labor while in the Philippines, hauling is either through carabao or manual labor.

Table 4.9 Farm to Mill Logistics Costs, Php/Lkg

	Philippines	Thailand
Cut	58 – 68	81
Load		
Hauling	32	41
Transport	121 (a)	88
Total	211-221	210

(a) Farmer paid 35%(Php42/Lkg) while mill paid 65% (Php79/Lkg)

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Processing Cost

On average, milling and refining costs in the Philippines (Negros) were estimated at Php270 (US\$125.58/ton) and Php200 per Lkg (US\$93.02/ton), respectively. It was estimated that total milling costs, on average, made up of 45 percent cane cost and 55 percent milling cost. Of the total cane cost, bulk (95 percent) went to hauling. Meanwhile, labor and manufacturing supplies accounted for 10 and 7 percent of total milling cost, respectively. For refining, total cost was likely broken down into fuel (30 percent), materials/supplies (25 percent) and labor (10 percent). Meanwhile, in Thailand, the average cost of milling and refining excluding direct material costs were Php155.52 per Lkg (Baht 109.37/Lkg or US\$71.75/ton) and Php190.83 per Lkg (Baht 134.21/Lkg or US\$88.04/ton). The latter is actually lower as most mills have integrated mill-refinery. Thus, the sugar need not pass through crystallization before refining.

Processing facilities in Thailand are relatively newer as compared to mills and refineries in the Philippines. Mills are more efficient and operating at higher capacities which resulted to lower milling and refining cost per Lkg.

Processing Value Added

In the Philippines (Negros), the value-added (labor and profit) in milling was higher than in refining. The values stood at Php333.60 per Lkg (US\$155.16/ton) and Php41.00 per Lkg (US\$19.07/ton), respectively. Using *normalized price*, value added for milling would be only at Php132 per Lkg while it would remain the same for refining. In Thailand, the value added amounted to Php149.87 per Lkg (US\$69.71/ton) in milling and Php353.60 per Lkg (US\$164.47/ton) in refining.

There is a significant difference in value added for millers in Philippines and Thailand. Thai millers are into cane purchase while it is raw sugar sharing in the Philippines. This is the reason why Thai sugar refineries earn more profit because of sugarcane ownership even at the start of milling which give them more flexibility in terms of operation.

Table 4.10 Sugar Processing Costs (Milling and Refining), Php/Lkg

Item	Philippines		Thailand	
	Milling	Refining	Milling	Refining
Cost of cane/Direct material	121.50		738.77	939.01
Direct labor	27.00	20.00	48.83	38.08
Manufacturing supplies	18.90	50.00	(a)	(a)
Utilities				
Overhead			106.69	132.19
Others	102.60	130.00		20.56 (b)
Total Cost	270.00	200.00	155.52*	190.83*
Total Value Added (labor and profit)	333.60	41.00	149.87	353.60

* Excluding direct material cost

(a) Included in direct material costs

(b) packaging cost

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Logistics and Marketing Costs

In the Philippines, the distribution cost from mill to the wholesale market in Negros was estimated at Php71.50 per Lkg (US\$33.26/ton). The cost incurred from the mill to Manila port was about Php54 per Lkg (US\$25.12/ton) while logistics cost from Manila warehouse to wholesale market was Php17.50 per Lkg (US\$8.14/ton). In Thailand, the cost of delivery from the mill to Bangkok to the wholesale market totaled Php28.79 per Lkg (Baht 20.25/Lkg or US\$13.39/ton).

Generally, the Philippines bore higher logistics and marketing costs compared to Thailand. The lower transportation cost in trading is a product of Thailand's better roads and highway networks.

Table 4.11 Logistics and Marketing Costs, (Php/Lkg)

Area	PHILIPPINES	THAILAND
Negros Occidental	71.50	28.79
Batangas	32.50	
Bukidnon	75.00	

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Profit margins

Given the wholesale prices in Metro Manila at Php2,178 per Lkg (US\$1,013.02/ton) for raw sugar and Php2,688 per Lkg (US\$1,250.23/ton) for refined sugar, the combined profit margins earned by traders to wholesalers amounted to Php130.58 (US\$60.73/ton) and Php126.82 per Lkg (US\$58.98/ton), respectively. At a *normalized price* of Php1,250 per Lkg of raw sugar and wholesale prices of Php1,500 per Lkg for raw sugar and Php2,000 per Lkg for refined sugar, the profit margins of traders to wholesalers would be higher at Php142.92 per Lkg and Php183.68 per Lkg, respectively. In Thailand, the estimated profit of traders amounted to Php156.05 per Lkg (US\$72.58/ton) for raw sugar and Php89.94 per Lkg (US\$41.83/ton) for refined sugar.

Sugar traders in the Philippines earn more profit as compared to traders in Thailand. The price of refined sugar is controlled in the domestic market and the price has not changed since 2008 and was pegged at Baht 23 per kilo. Sugar traders in the Philippines operate in a free market economy and can speculate on the demand and supply situation.

Table 4.12 Sugar Distribution to Wholesaler and Port Php/Lkg

Item	RAW SUGAR			REFINED SUGAR		
	Philippines		Thailand	Philippines		Thailand
	CY 2010-2011*	Normalized Price		CY 2010-2011*	Normalized Price	
Ex-mill price	1,922.00	1,250.00	700.00	2,422.12	1,697.00	1,016.50
Transport (mill to wholesale market)	71.50	71.50	28.79	71.50	71.50	28.79
Trader to Wholesaler margin	130.58	142.92	156.05	126.82	183.68	89.94
Wholesale price	2,178.00	1,500.00	1,251.27	2,688.00	2,000.00	1,635.19

* Composite Price (Refer to Table 6.3 for details)

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

4.2.1. Sugarcane Production Cost

Production cost of typical farms versus model or productive farms in terms of production cost per hectare is lower but in reality it is higher per LKg or 50-kilo bag of sugar produced.

For a typical farm like Pensumil, average direct cost of production is P66,510 per hectare or P773.37 per LKG bag and average total cost of production is P78,370 per hectare or P911.27 per LKG bag. On the model farms like Victorias mill district, average direct cost of production is P 86,813.33 per hectare or P581.70 per bag and an average total cost of P 102,480 per hectare or P686.68 per LKG bag. Average net returns based on total cost of Pensumil is P93.37 per LKG bag while for Victorias it is P339.77 per LKG bag. Table 4.13 illustrates the cost build-up and returns of Pensumil mill district versus the cost build-up and margins of Victorias mill district as model farm in Table 4.14.

**Table 4.13 Cost Build-up and Returns Per Hectare of Pensumil Mill District (Typical Farm),
CY 2012-2013**

FARM OPERATIONS	SMALL 10 Has. & Below	MEDIUM Over 10 Has. to 50 Has.	LARGE Over 50 Has.	AVERAGE
Land Preparation	7,500.00	7,500.00	7,500.00	7,500.00
Seedpieces	12,000.00	18,000.00	21,000.00	17,000.00
Seedpieces Preparation	500.00	2,000.00	2,000.00	1,500.00
Planting	2,000.00	1,500.00	1,500.00	1,667.00
Replanting	500.00	1,000.00	1,000.00	834.00
Fertilizer	7,280.00	9,600.00	9,690.00	8,887.00
Fertilizer Application	400.00	800.00	800.00	667.00
Cultivation	4,000.00	4,500.00	5,000.00	4,500.00
Manual Weeding	3,000.00	6,000.00	6,000.00	5,000.00
Sprays and Application	1,200.00	2,500.00	2,500.00	2,067.00
Irrigation and Drainage		N/A	N/A	N/A
Cutting & Loading	6,000.00	9,750.00	10,500.00	8,750.00
Hauling less trucking	2,000.00	7,000.00	10,000.00	6,333.00
Stubble shaving	500.00	1,500.00	1,500.00	1,167.00
Trash clearing	500.00	500.00	500.00	500.00
Others	1,000.00	2,000.00	2,500.00	1,833.00
TOTAL DIRECT COST-TDC	47,800.00	74,240.00	77,490.00	66,510.00
Land rental/annum	2,000.00	3,000.00	2,500.00	2,500.00
Est. Adm.Cost/annum	3,000.00	10,000.00	15,000.00	9,333.00
TOTAL COSTS-TC	52,880.00	87,240.00	94,990.00	78,370.00
YIELD/HECTARE				
Average TC/Ha	40.00	65.0	75.0	60
Ave. LKG/Ha	52.00	97.0	109.0	86.0
AVERAGE Molasses Yield, Kg	1,200.00	1,820.00	1,875.00	1,631.00
MILLSITE PRICES				
Price of sugar/LKG	1,500.00	1,500.00	1,550.00	1,517.00
Price of Molasses/kg	4.50	4.50	5.00	4.70
RETURNS				
PLANTER SHARE	32	58	65	52
C) Sales from Sugar	48,000.00	87,000.00	100,750.00	78,583.00
D) Sales from Molasses	3,240.00	4,914.00	5,625.00	4,593.00
NET RETURNS PER HECTARE				
A + B-TDC	3,440.00	17,674.00	28,885	16,667.00
A + B-TC	(-) 1,640	4,674.00	11,385.00	8,030.00
NET RETURNS PER LKG BAG				
A + B-TDC /LKG	66.15	182.20	265.00	193.80
A + B-TC / LKG	-	48.19	104.45	93.37

Based on New Plant Cane Farms

Table 4.14 Cost Build-up and Returns Per Hectare of Victorias Mill District (Model Farm),CY 2012-2013

FARM OPERATIONS	Small Farms	Medium-Sized Farms	Large Farms	AVERAGE
Seedpieces	10,000.00	8,000.00	8,000.00	8,666.67
Fertilizer				
46-0-0 @P1,150/bag	4,600.00	4,600.00	4,600.00	4,600.00
0-0-60 @P1,800/bag	5,400.00	9,000.00	10,800.00	8,400.00
16-20-0 @ P900/bag	1,800.00	2,700.00	4,500.00	3,000.00
18-46-0				
Organic Fertilizer @ P225/bag			11,250.00	11,250.00
Weedicide/Herbicide			1,400.00	1,400.00
Land Preparation	12,000.00	12,000.00	12,000.00	12,000.00
Planting / Replanting	5,620.00	5,840.00	5,840	5,766.66
Fertilizer Application	1,200.00	1,975.00	1,975.00	1,716.67
Cultivation	2,055.00	2,055.00	2,055.00	2,055.00
Irrigation /Drainage			1,250.00	1,250.00
Weeding	1,400.00	1,400.00	1,400.00	1,400.00
Weedicide application		2,300.00	2,300.00	2,300.00
Pest & Disease Control			2,000.00	2,000.00
Cutting & Loading @ P380/ton	7,600.00	8,600.00	8,900.00	8,366.67
Hauling @P200/ton	11,655.00	12,950.00	13,320.00	12,641.67
TOTAL DIRECT COST	63,330.00	71,420.00	91,590.00	86,813.33
Land Rental	5,000.00	10,000.00	15,000.00	10,000.00
Administrative	2,000.00	5,000.00	10,000.00	5,666.67
TOTAL COST	70,330.00	86,420.00	116,590.00	102,480.00
FARM YIELD				
LKg / Ha	94.00	122.99	160.10	149.24
Kg Molasses / Ha	2,510.00	2,510.00	2,510.00	2,510.00
MILLSITE PRICES				
Composite Price Sugar, P/LKg	1,376.00	1,376.00	1,376.00	1,376.00
Price of Molasses, P/Kg	6.00	6.00	6.00	6.00
GROSS SALES				
Planters Share	69.50%	69.50%	69.50%	69.50%
A - Sale from sugar	89,894.08	117,617.80	153,106.83	142,721.20
B - Sale from molasses	10,466.70	10,466.70	10,466.70	10,466.70
NET RETURNS/HECTARE				
A + B - Direct Cost	37,030.78	56,664.50	71,983.53	66,374.56
A+B-Total Cost	30,030.78	41,664.50	46,983.53	50,707.90
NET RETURNS/LKG				
A + B - Direct Cost	393.94	460.72	449.62	444.75
A+B-Total Cost	319.48	338.76	293.46	339.77

Based on New Plant Cane Farms

4.2.2. Milling Cost

Average milling cost particularly in Negros Occidental is around P270 per LKG bag. On the average cost of cane accounts for about 45% of the cost and milling operations is 55%. Millers share with an average of 35% of the sugar produced from the canes delivered by the farmers comprised both the cost of canes, processing cost and profit margins of the sugar mills.

4.2.3. Refining Cost

Raw sugar is brought to the refineries for refining through the payment of tolling fees to the sugar refinery. Refining cost averaged about P247 per LKG bag (tolling fee & tolling VAT) of raw sugar that is refined excluding advance VAT and government regulatory fees. Based on per bag of refined sugar, average refining cost is around P500 inclusive of advance VAT and refining losses. Over 50% of the cost of refining went to fuel, materials, supplies and labor.

4.2.4. Distilling Cost of Bioethanol

Feedstock cost for bioethanol production ranged from P24-29 per liter if molasses is used and P23-27 for sugarcane. Average operating cost of producing bioethanol is around P19.38 per liter of bioethanol produced. It is assumed that a ton of molasses produced 245 liters of bioethanol and a ton of cane yields 70 liters of bioethanol. Table 4.11 shows the cost of operations for a bioethanol plant.

**Table 4.15 Average Cost of Operations for a Bioethanol Distillery
Excluding Raw Materials**

Cost Components	Operating Cost / Liter of bioethanol (Excl'dg Raw Materials)
Interest Cost	5.13
Manufacturing Cost	14.25
<i>Power Cost (Ethanol Plant Consumption)</i>	<i>4.77</i>
<i>Chemicals, Oils and Lubricants</i>	<i>3.45</i>
<i>Repairs and Maintenance</i>	<i>0.87</i>
<i>Salaries and Wages and Other Services</i>	<i>3.65</i>
<i>Govt Permit & Licenses, Taxes, Liens, Insurance</i>	<i>1.51</i>
Total Operating Cost	19.38

4.2.5. Supply Chain Cost Build-up and Net Returns

The total millgate cost per LKg bag of sugar incurred by a typical sugarcane farm like Pensumil mill district illustrated in Figure 4.7 is P1,513 translating to a wholesale price of P1,783 per LKG bag and a retail price of P37.67 per kilo of sugar. Retail price of Pensumil sugar is quite higher than the normal raw sugar because Pensumil sugar mill produces direct consumption sugar which is equivalent to washed sugar. Farmers profit margin is approximately P93.37 per LKG bag of sugar based on CY 2013-2014 data.

A model farm like Victorias mill district showed a millgate cost per LKG bag of P 1,372 which translated to wholesale price of P 1,642 per LKG and a retail price of P34.84 per kilo. Figure 4.8 shows the details of the average cost build-up and profit margin of Victorias mill district farms based on CY 2013-2014 data.

Figure 4.7 Sugar Supply/Value Chain Cost Build Up of Pensumil Mill District

Input Supply	Farm Production	Harvesting	Logistics	Primary Processing	Warehousing	Logistics	Trader	Logistics	Wholesale Market	Retail Market		
325	252	142	74	627								
				Farmers Margin								
				93.37								
				Millgate Cost			25					
				1,513	5	25	Trader's Cost					
							1,568	65	150			
NOTE: Retail price of sugar from Pensumil is at a premium price because it is producing direct consumption sugar which is white in color; the mill directly bought the planters share, no bidding in the millsite is being conducted unlike the other sugar mills which conducted weekly sugar bidding									Wholesale			
											1,783	100
										1,883		
											37.67	
											per kilo	

Reference: SRA Price Reports and Cost of Production Data, CY 2-13-2014

Figure 4.8 Sugar Supply/Value Chain Cost Build Up of Victorias Mill District

Input Supply	Farm Production	Harvesting	Logistics	Primary Processing	Warehousing	Logistics	Trader	Logistics	Wholesale Market	Retail Market
250.04	190.89	56.06	84.71	450.46						
				Farmers Margin						
				339.77						
				Millgate Cost			25			
				1,372	5	25	Trader's Cost			
							1,427	65	150	
									Wholesale	
									1,642	100
										Retail
										1,742
										34.84
										per kilo

Reference: SRA Price Reports and Cost of Production Data, CY 2-13-2014

4.3. Support Industries, Key Institutions and Programs

4.3.1. Farm Sector

Main support industries and institutions for the sugarcane farming sector are the fertilizer manufacturing and trading industry, the local fabricators of farm machinery / implements, the SRA on farm technologies and high-yielding varieties, PHILSURIN on high-yielding varieties, Sugar Master Plan Foundation for support programs and the DA on farm infrastructures like irrigation and farm-to-mill roads.

SRA is currently providing support to the small farmers through the block farming program where small farms are consolidated into a minimum of 30 hectares in a block of contiguous farms to improve economies of scale and easier deployment of logistical support. Technical services on best and efficient practices and proper farm management are undertaken by SRA while DAR provides the common service facilities such as truck and tractors and funding for capability building, DA provides support for infrastructure projects like irrigation and farm-to-mill roads and livelihood assistance. The block farms are conceptualized to be future agribusiness units in a milling district.

Funding support for the establishment of sugarcane high-yielding varieties is also provided by SRA with the MDDCFIs and block farms as intended beneficiaries.

4.3.2. Milling / Refining Sector

The milling and refining sector is also supported by SRA in terms of technical services on performance/capacity/energy evaluation of plant facilities and equipment, environmental monitoring of water and air pollutants and food safety aspect of sugar. SRA works hand in hand with the DOE in energy capability assessment of sugar mills that plan to proceed into power generation for the grid. Trade and industrial concerns are being taken care of by the Department of Industry which is the Chair of

the Philippine negotiating panel on trade negotiations. The Board of Investments under DTI provides the fiscal incentives for the sugar processors.

The Philippine Sugar Millers Association is the major association which supports the programs of the sugar mills and the Philippine Association of Sugar Refineries for the refineries.

4.3.3. Muscovado Sector

SRA does not regulate muscovado production but it plans to conduct a survey of all muscovado mills in the country to be able to identify the scope and necessary support programs needed by the sector. Currently, DTI is assisting the muscovado producers in terms of providing common service machinery for farm operations and mill operations as well as assistance on the marketing of muscovado.

SRA in cooperation with the LGUs also assisted the muscovado farmers in terms of farm practices and supply of high-yielding varieties.

4.3.4. Bioethanol Sector

The bioethanol sector is being regulated by the DOE while SRA provides policy support on feedstock development through its representation in the National Biofuel Board (NBB). SRA also provides technical services and farm survey for existing and expansion areas for bioethanol production purposes.

4.3.5. Power Generation Sector

Power generation is a value added investment for the sugar industry. SRA supports the sugar mills in terms of energy capability assessments, policies and networking with DOE and DA in the development of the biomass to energy.

5. BENCHMARKING ANALYSIS

5.1. Local Benchmarking: Typical (Pensumil) Versus Model Farm (Victorias)

5.1.1. Agricultural Performance

- Low farm productivity of Pensumil mill district is mainly attributed to lack of financing to procure the necessary farm inputs, its farm management practices and low adoption of cane high-yielding varieties (HYV) due to the absence of an HYV nursery in the district.
- In contrast, Victorias mill district has established around 160 hectares of HYV nurseries and is highly mechanized, which practiced better farm management.

5.1.2. Mill Performance

- The sugar mill in Pensumil mill district ranked as the most underutilized mill in the country with a capacity utilization of 37.99% and the most inefficient mill with an overall sugar recovery of 71.88% in contrast to VICMICO in Victorias mill district having a capacity utilization of 79.82 % and an overall sugar recovery of 85.04 %.
- The mill inefficiency resulted to the farmers unwillingness of looking for financing to procure the necessary farm inputs to their sugarcane farms.

5.2. Global Benchmarking with Thailand *(Reference: Benchmarking the Philippine Sugar Industry with Thailand by UA&P, 2012)*

A sugar benchmarking study was conducted in 2012 in response to the drastic fall of tariffs under the ASEAN Free Trade Area (AFTA) to five percent in 2015 from 28 percent in 2012. This section present the result of the independently commissioned study conducted by the Center for Food and Agri Business (University of Asia and the Pacific).

Thailand was chosen for the benchmarking analysis because Thailand is among the largest net sugar exporters after Brazil, and the main supplier of sugar in Asia.² Over 70 percent of its production, or over five million tons, is exported compared to its domestic market of about 2.4 million tons. Thailand also hosts large sugar conglomerates with several mills, including the multi-national Mitr Phol group which owns mills in Australia, Cambodia, China and Vietnam.

5.2.1. Policies

5.2.1.1. Sharing System

The Philippine sugar industry is shaped by the Sugar Act of 1954 which mandates the sharing of raw sugar and molasses: 65-70 percent to the planter; and 30-35 percent to the millers.³ This has remained unchanged for almost 60 years. Meanwhile, Thailand has the Sugar Act of 1984 that mandates the planter sells his cane to the mill and be paid on cane basis at an *initial* price set by the Office of Cane and Sugar Board (OCSB). Pricing is based on a cane price and the commercial content of sugar (CCS).⁴ As of early 2012 for cane with 10 CCS, the price is Baht 1,000 per ton; for 11 CCS, the price is Baht 1,060. There is an additional Baht 60 for every CCS above 10.

At the end of the crop year, the total national value of raw sugar for all mills is calculated. From that amount, the OCSB operating cost is deducted. From the net amount, 70 percent will go to the planters, and 30 percent to the millers. Normally, final price paid is higher than the initial price.

²Thailand expects to export a record 7 million tons of sugar in 2011. The 2010/11 crushing season had almost ended and a total 9.62 million tons of sugar was likely to be produced, the highest ever, Prasert Tapaneeyangkul, secretary-general of the Office of Cane and Sugar Board – Reuters (<http://www.theglobeandmail.com>)

³ It is not a common practice in agribusiness. Rice farmers sell to traders and millers and get paid for the palay. So do corn, coconut, coffee, rubber, oil palm and other farmers.

⁴ CCS of a farmer is determined by on-site laboratory analysis.

In case, there is deficit payment from the initial price⁵, the farmers will get rebate from the Cane Fund. The Cane Fund is generated by the seven percent value added tax (VAT) on raw and refined sugar.

5.2.1.2. Market Intervention

In the Philippines, the Sugar Act in 1954 allows SRA to classify raw sugar at the start of every crop year (September) into the following: Class A – US quota; Class B - Domestic sugar; Class C - Domestic Reserve; and Class D – World market. SRA issues a Sugar Order at the beginning of the Crop Year. The SRA Board comprises the Chair, and one representative each from the planters and millers. Meanwhile, in Thailand, the Ministry of Commerce sets the domestic prices (Quota B) of refined sugar (mill, wholesale and retail). It was last set in 2008 at Baht 16 per kilo, ex mill. Export prices (Quotas B and C) are based on world market prices: London for refined sugar, and New York Exchange for raw for export prices. In computing for export price for eventually setting of cane prices, the export price of Thai Cane and Sugar Corporation is the threshold. All the export prices of the six “shipper/exporters” must be at par or above it. In the last ten years, except for four months, B sugar prices were higher than C prices.

5.2.1.3. Taxes

The Philippine government imposes 12 percent VAT on raw and refined sugar. The VAT proceeds go to the general tax revenues. By contrast, the Thai government collects seven (7) percent VAT on sugar milling and refining.⁶ The proceeds go to the Cane Fund to help the sugar farmers: (a) to provide rebate to achieve the 70 percent of the national sugar output; and (b) for projects such as farm mechanization loan (2 percent a year) together with the Bank for Agriculture and Agricultural Cooperatives (BAAC). Exported sugar has no VAT. The Thai

⁵ This occurred in CY 2006/2007.

⁶ For domestic destination only. Export sugar is VAT-free.

government also collects farm tax of 0.75 percent on cane sales at the mill. The corporate income taxes are similar for both countries (about 30 percent).

5.2.1.4. Liens

In the Philippines, the mills collect Php 2 per bag as voluntary sugar lien. Some 50 percent of the lien funds the private Philippine Sugar Research Institute (Philsurin) and the rest for the Mill District Development Committee (MDDC). A number of mills do not participate in this voluntary scheme but “free ride” from the new varieties developed by Philsurin. At say 40 million bags, the annual amount is Php 80 million. This has been dissipated by inflation since it was first imposed in 1997. By contrast, in terms of direct support, the Philippine sugar industry gets far less than their counterparts in Thailand. Assuming an annual production of 7.5 million tons of raw sugar of which 30 percent is VATable, and the 70 percent not, a VAT of seven percent, will generate a total collection of about US\$ 120 million a year (Baht 3,600 million). As of end-2011, the Cane Fund had about US\$400 million (Baht 12,000 million in balance).⁷

5.2.1.5. Cost of Capital

In the Philippines, the bank lending rate for prime clients ranges from 6 to 7 percent. The rate is one of the lowest rates in many decades. In agriculture, the rate is about 8 to 9 percent for commercial banks. On the other hand, it is 8.5 to 9.5 percent from Land Bank to the cooperatives, but the latter on-lends to farmers at 15 to 20 percent. Meanwhile in Thailand, the commercial bank rate is 5.2 to 6 percent a year to farmers; and 6 percent from the government-owned Bank for Agriculture and Agricultural Cooperatives (BAAC).

⁷Bangkok Post (February 21, 2012). “Sugar planters call for float.”

Thailand's interest rates have been consistently lower than the Philippines. BAAC also has a bigger lending base. BAAC lent Php 850 billion (605 billion baht) to agriculture in 2010 as compared to Land Bank's Php 215 billion. ⁸

5.2.1.6. Cost of Labor

Farm workers in the Philippines (Negros Occidental) are paid Php230 to Php233 per day (US\$5.35 to US\$5.42). The farm wage for harvesting (cut and load) ranged from Php 130 per ton cane in Bukidnon to Php 180 per ton cane in Negros (US\$ 3.02 to 4.19 per ton cane) and Php 200-220 in Luzon. Note: foreign exchange rate US\$1 = Php43. Among mills, there is a large share of permanent employees as millers are hesitant to lay them off as they have little work options. Meanwhile, in Thailand's Northern provinces, the farm wage ranges from Baht 100 to 150 per ton, cut only (US\$ 3.33 to 5.00 per ton cane) for seasonal, migrant labor. Loading is done by machine. (Note: Forex rate US\$1 = Baht 30).

The share of temporary employees among mills borders at less than 50 percent. Temporary worker only received wages, and they are normally laid off by the mills after four months with minimal problems.

5.2.1.7. Land Ownership Ceiling

The land market in the Philippines is under strain by the Land Reform law (Comprehensive Agrarian Reform Program or CARP) and later, the CARP

⁸BAAC chair said that in fiscal 2012, starting April, the bank aims to make 658 billion baht in loans, up 8.84% from fiscal 2011. Of the total, 334 billion baht will be allocated to the agricultural sector, 121 billion baht will be committed to building employment opportunities in rural areas, 95 billion baht will go to enhancing the rural economy, and the remainder will be channelled to government projects and programs for the farming sector (<http://www.bangkokpost.com>, March 12, 2012).

Extension with Reforms (CARPER).⁹ The maximum land ownership is five (5) hectares, be it individual or corporate. There is also eligibility (mainly small holders) and transferability provisions (land sale takes ten years after full payment). In Thailand, some literature on the subject indicates that land ownership of private land can be 100 rai (16 hectares). There is a plan to cap ownership to 50 rai (8 hectares). By contrast, there appears to be high land ceiling in some areas. For example, a farmer in Nakhon Sawan has 3,000 rai (or almost 500 ha).

5.2.1.8. Land Lease / Rent

The land lease in the Philippines range from Php10,000 to Php15,000 per ha (US\$ 232 to 349 per ha) in Bukidnon and Luzon to Php8,000 to Php30,000 per ha a year (US\$186 to 698 per ha) in Negros (the main sugar area), depending on land quality, irrigation and distance from mill. In Thailand, the land rental rates range from Baht 1,500 to 2,250 per rai (US\$208 to US\$312 per ha per year) over three to five years in Supanburi province. These appear to be lower than in the Philippines.

5.2.1.9. Cost of Land

The cost of land in the Philippines varies according to many factors: soil quality, nearness to main road, availability of irrigation, etc. The land valuation of the Department of Agrarian Reform for landowner's compensation is Php450,000 max in Negros (US\$ 10,500). This land valuation is reportedly being contested in court by landowners given their higher capitalized net income. In Thailand, the cost of land ranges from Baht 25,000 to Baht 200,000 per rai (US\$5,208 to US\$ 41,670) in Kanchanaburi and Supanburi, respectively, depending on distance, water availability and distance from mill.

⁹ CARP was passed in 1988 under the Cory Aquino government for a life of ten years. It was extended to 2008 by President Fidel Ramos and further to 2013 by CARPER Act.

5.2.1.8. Cost of Power

Plant power cost is not a concern in both countries as sugar mills are self-sufficient in power. In fact, a number of mills in Thailand have co-generation plants that sell power to the national grid.

5.2.1.10. Cost of Fuel

Fuel costs affects transport costs from farm to mill and beyond. The price differential of diesel fuel is about 15 percent: Php 49.50 per liter (US\$ 1.15 per liter) in Negros and Baht 30 per liter (US\$1.00 per liter) in Thailand (Kanchanaburi province).

Table 5.1. Comparative Indicators, 2011

Item	Philippines	Thailand
Bank Interest Rate (percent)		
- Commercial bank prime rate, end 2011 average (a)	7.3	6.9
- BAAC to farmers cooperatives (2012), production loan	*	5 (b)
- Land Bank to Filipino cooperatives (2012)	8.5-9.5	*
- Cooperative to farmers	15-20	8
Labor – Minimum Wage	5.35-5.42	6.47
Main production area (US\$/day)	(Php 230-233)	(Baht 200)
Land Rental (US\$/ha/year)	186-698	208-312
Cost of Fuel –Diesel (US\$/liter) (February 2012)	1.15	1.00

Note: (a) Prime lending rates for 2011 (CIA.gov)

(b) Bank of Thailand

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

5.2.2. Practices

5.2.2.1. Farm Sector

Farm Distribution. In terms of the number of farms, Thailand has four times more farms as compared to the Philippines but the distribution according to plantation area are the same. In both countries, around 75% of the farmers are small ones – 5 hectares and less in size.

Production and Area. Thailand sugarcane production was much larger than the Philippines. Aside from the larger sugarcane areas in Thailand, area planted to sugarcane increased by 3% annually. By contrast, in the Philippines, aside from its smaller farms, growth in the area planted was almost flat.

Sugarcane Yield. Thailand cane yield is about 10% higher than the Philippines. On both countries, low yields were experienced during the CY 2004-05 and 2009-10 due to weather disturbances during the period.

Spatial Concentration. For both countries, sugarcane production is concentrated in a particular region with 55% in the Western Visayas region in the Philippines and 43% in the Northeastern region in Thailand. However, in contrast, Thailand has one land mass which is a huge advantage in logistics costs.

Farm Costs. Cost of inputs per hectare was more expensive in the Thailand small farms compared to the Philippines. Total input costs is higher by 58% in Thailand due to higher fertilizer used and higher fuel and oil costs due to mechanization. Costs of canepoints and labor cost are also higher in Thailand. However, land rental, interest rates and administrative costs are generally higher in the Philippines.

5.2.2.2. Milling Sector

There are more mills in Thailand with higher capacities than in the Philippines. Thai mill capacities clustered within the 15,000 TCD while in the Philippines, most mills are within the 7,500 TCD capacity. Thailand has also modern mills and the mills are relatively newer than Philippine mills.

Thailand's milling cost is generally lower than the Philippines which can be attributed to Thailand's capacity expansion of mills towards better efficiency, better quality cane and the export orientation of the industry given the government's export promotion program.

5.2.2.3. Refineries

The Philippine refined sugar production is decreasing while that of Thailand is increasing by 5.9 % per annum.

Cost of refining raw sugar to refined sugar is 5% higher in the Philippines than in Thailand. Sugar refineries in Thailand are more modern, efficient and with higher production capacities than in the Philippines.

5.2.2.4. Sugar Marketing

In the Philippine setting, payment of sugar is based on the raw sugar output reflected in the sugar quedans under the sugar sharing scheme while in Thailand, cane is directly purchased by the mills from the farmers.

Thailand is one of the world's top sugar exporters of whom its exporters are affiliated with the large sugar factories. They have their own ports to facilitate their export shipments. On the other hand, Philippine exports are mainly for the US quota and exports to the world market is done only when there is excess sugar.

5.2.2.5. Prices

Sugar prices in the Philippines is market-driven, depending on the supply-demand situation while in Thailand, preliminary and final millgate prices are fixed by the Office of the Cane and Sugar Board (OCSB).

5.2.3. Structure and Performance

5.2.2.1. Farm Sector

Farm Distribution. The Philippine sugarcane farms are mostly small with more than 75% of the 62,175 farms measuring 5 hectares and below. Only 6% of the total number of farms is above 25 hectares in size. Meanwhile, Thailand sugarcane farms are relatively bigger wherein the majority (75% or 165,000 farms) is below eight hectares (50 rais). Only a very small percentage of the farms are 80 hectares (500 rais) and below.

In terms of the number of farms, Thailand has four times more farms as compared to the Philippines but the distribution according to the land area is the same. In both countries, around 75% of the farms are small.

Table 5.2. Sugarcane Farm Distribution

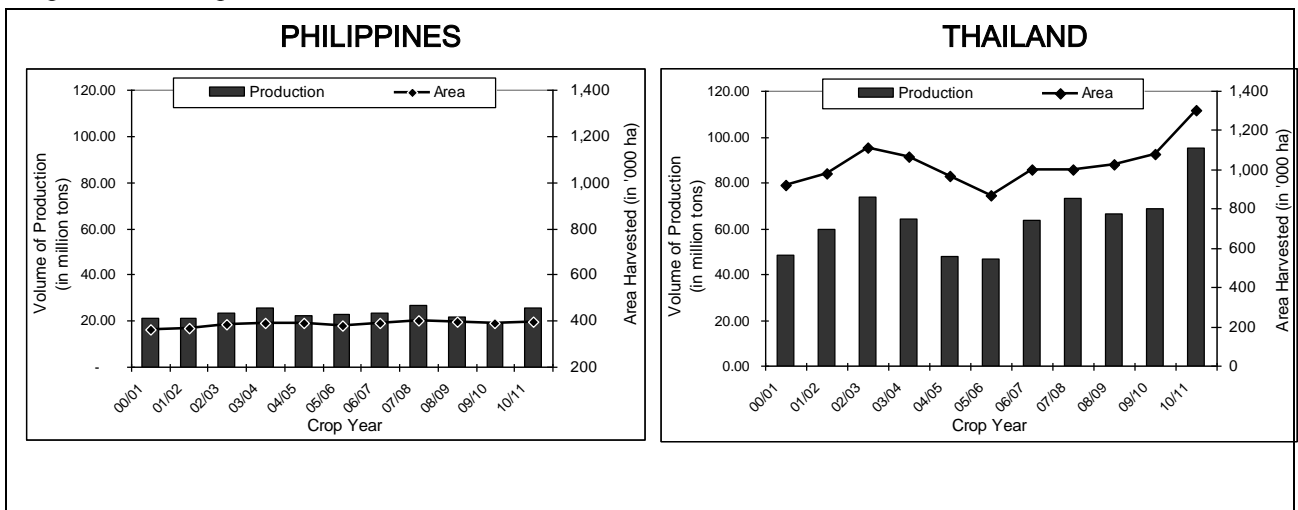
PHILIPPINES			THAILAND		
Farm Size (Ha)	Number of Farms	Percent Distribution	Farm Size (Ha)	Number of Farms	Percent Distribution
5 and below	46,726	75.15	< 8	164,769	74.71
5.1 – 10	6,735	10.83	8 - <16	22,574	10.24
10.1 – 25	4,507	7.25	16 - <80	27,536	12.49
25.1 – 50	2,088	3.36	80 - <160	3,994	1.81
50.1 – 100	1,288	2.07	>160	1,673	0.76
above 100	831	1.34	-	-	
Total	62,175	100.00		220,546	100.00

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Production and Area. Philippines. The Philippines' sugarcane production amounted to 25.9 million tons from an area of 395,381 hectares in crop year 2010/11. It increased by an average of 3.1 percent annually from 21.2 million tons in CY 2000/01. Area harvested posted a slow growth of 0.8 percent per year from 364,445 in CY 2000/01. In Thailand, sugarcane production amounted to 95.4 million tons from an area of 1.2 million ha (7.5 million rais) during the same period. It grew by 9.01 percent per year from 48.7 million tons in CY 2000/01. Area harvested in the country posted a growth of 3.02 percent.

Thailand production was much larger than the Philippines. Aside from the larger sugarcane farms in Thailand, area planted to sugarcane increased by 3% annually. By contrast, in the Philippines, aside from its smaller farms, growth in the area planted was almost flat.

Figure 5.1. Sugarcane Production and Area Harvested, CY 2000/01 to 2010/11

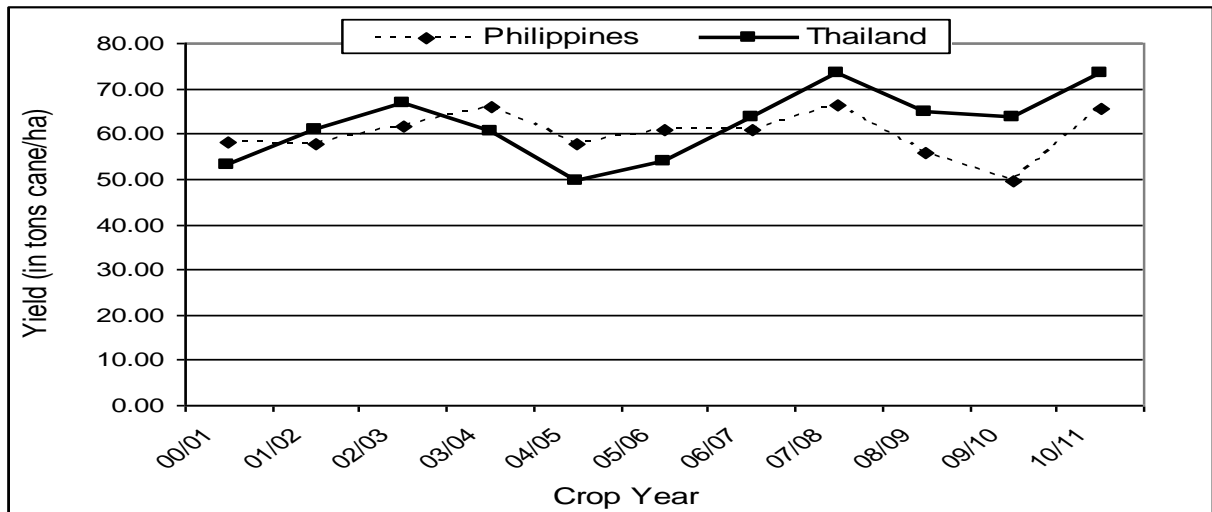


Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Sugarcane Yield. In the Philippines, cane yield averaged 65.6 tons cane (TC)/ha in CY 2010/11, a growth of 2.03 percent per year from 58.2 TC/ha in CY 2000/01. The lowest yield was obtained in CY2009/10 with 49.6 TC/ha. This is a sharp decrease from the highest yield of 66.5 TC/ha in CY 2007/08. Meanwhile, the yield in Thailand was 72 TC/ha in CY 2010/11. Sugarcane yield increased at an average of 4.13 percent from CY 2000/01 to CY 2010/11. The highest yield was also experienced in CY 2007/08 which totaled to 73.6 TC/ha.

Thailand cane yield is about 10 percent higher. For both countries, low yields were experienced during the CY 2004/05 and 2009/10 due to weather disturbances during the period. Yield performance for both countries followed similar fluctuations during the 11-year period.

Figure 5.2. Sugarcane Yield Levels, CY 2000/01 to 2010/11



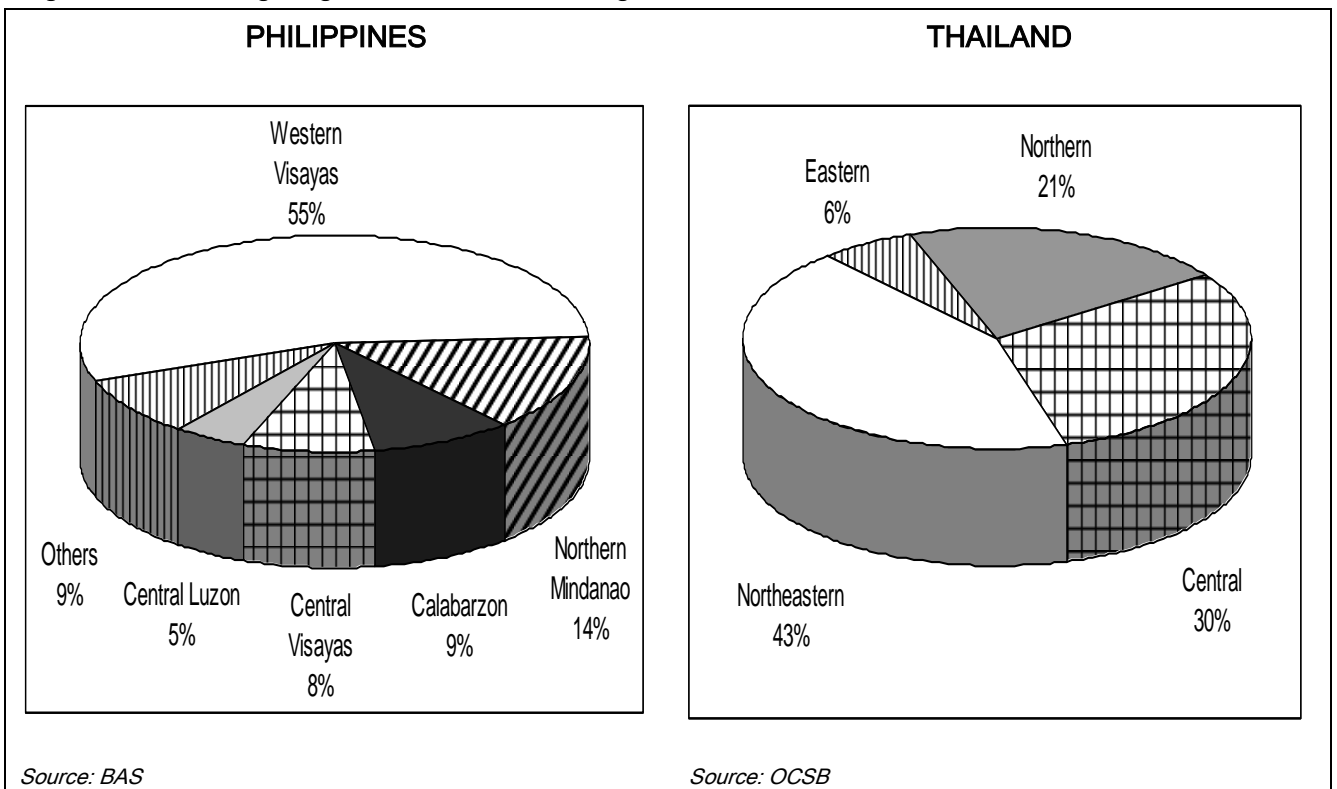
Source: SRA, OCSB and USDA

Spatial Concentration. In the Philippines, Western Visayas produces around 55 percent of the total sugarcane in the country, with the Negros Island as the major contributor. Northern Mindanao contributes 14 percent with Bukidnon province as the main production area. Meanwhile, in Thailand, sugarcane is planted in four regions: North, Central, East and Northeast. There is no sugarcane production in the south of Thailand. Production is concentrated in

Central and some parts in Northeast and North region. In 2010, the largest sugarcane area is in the Northeastern region (43 percent), followed by the Central region (30 percent).

For both countries, sugarcane production is highly concentrated in a particular region with 55 percent in the Western Visayas region in the Philippines and 43 percent in Northeastern region in Thailand. However, a major contrast is that Thailand has one land mass, a huge advantage in logistics costs.

Figure 5.3. Leading Regional Producers of Sugarcane, 2010



Farm Costs and Profits. To obtain the sugarcane costs and returns for crop year 2010-2011, sugarcane growers in small farms (less than 10 hectares) and large farms (greater than 50 hectares) were interviewed in Negros Occidental, the main sugar producing area, to represent the Philippines.. The average yield per hectare in crop year 2010-2011 for new plant was 55 in small farms and 100 tons in large farms while for the first ratoon, yield was 45 tons and 80 tons, respectively. Meanwhile, in Thailand, the average yield per hectare for new plant was 94 tons (15 tons/rai) in small farms and 112 tons (18 tons/rai) in large farms in crop year 2010-2011. The yield decreased in the first ratoon to 75 tons (12 tons/rai) and 94 tons (15 tons/rai), respectively.

Table 5.3. Average Yield Per Hectare, Philippines and Thailand, CY 2010-11 (Tons)

Particular	Small	Large
Philippines		
Plant	55	100
First Ratoon	45	80
Thailand		
Plant	94 (15 tons/rai)	112 (18 tons/rai)
First Ratoon	75 (12 tons/rai)	94 (15 tons/rai)

Note: One hectare = 6.25 rai

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

The farm costs were broken down into inputs, labor, logistics and other costs. The latter consisted of interest expense for small farms and rent and administrative costs for large farms. Inputs comprised of cane points, fertilizers, pesticides/herbicides, fuel and oil. Labor costs covered land preparation, crop management and harvesting. Logistics costs included hauling of inputs to farm and canes to mill.

Table 5.4. Sugarcane Farming Costs Per Hectare, New Plant, CY 2010-11 (Php/ha)

Cost Items	Philippines		Thailand	
	Small	Large	Small	Large
Inputs				
Cane points (a)	8,750	8,200	15,996	19,995
Fertilizers (b)	17,300	23,700	22,134	11,379
Chemicals	2,700	2,950	4,503	4,621
Fuel	-	4,560	2,844(c)	3,981(c)
Oil	-	2,040		
Labor				
Land Preparation	9,800 (d)	690	12,263	15,108
Crop Management	6,275	10,347	11,109	4,266
Harvesting	9,350	19,000	23,995	28,793
Logistics				
Hauling canes to mill	4,400 (farmer's share)	8,000 (farmer's share)	17,329	20,795
Other Costs				
Land Rent	-	18,000		
Overhead	4,660	15,000	9,776	12,619
Interest	7,500	4,933	2,613	2,613

Note:

(a) Including cutting, loading and hauling

(b) Including logistics to farm

(c) Including oil

(d) hired tractor

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

5.2.2.2. Total Farm Cost and Profits

Philippines. The bulk of the average costs for new plant and ratoon in small farms went to inputs (37 percent) and labor (35 percent) while majority of the farm costs in large farms were spent on other costs (35 percent) and inputs (30 percent). Labor cost accounted for a lesser share (27 percent) in large farms than small farms as the former used own tractors but in return incurred overhead costs which included equipment maintenance. The average farm costs per hectare of farmers for new plant were Php70,735 (Php1,286 per ton cane) in small farms and Php117,420 (Php1,174 per ton cane) in large farms. On the

other hand, total farm costs in the first ratoon were Php48,060 (Php1,068 per ton cane) and Php94,628 (Php1,183 per ton cane), respectively.

The mill site prices at the national level were used in estimated sales. In 2010-11, it averaged at Php1,413 per Lkg (50-kg bag) for “A” sugar and Php1,960 per Lkg for “B” sugar. Given the average yield of 55 to 45 tons in small farms and 100 to 80 tons in large farms, the estimated farm sales per hectare for new plant in small and large farms during CY 2010-2011 were Php147,972 and Php269,039, respectively, while for the first ratoon were Php121,068 and Php215,232.

Meanwhile, profits in new plant per hectare averaged Php77,237 in small farms and Php151,619 in large farms. These were lower in the first ratoon and averaged at Php73,008 in small farms and Php120,603 in large farms.

Thailand. For small and large farms, labor costs accounted for at least 40 percent of total costs while input supply contributed over 30 percent of total costs. The estimated total farm cost per hectare were Php112,833 (Php1,187 per ton cane) for new plant and Php68,523 (Php914 per ton cane) for first ratoon in small farms. The total costs were higher in large farms at Php121,554 per hectare (Php1,085 per ton cane) for new plant and Php75,578 per hectare (Php804 per ton cane) for first ratoon.

At a price *per ton of cane* of Baht 1,039 or Php1,450 and an average yield of 95 (15 tons/rai) and 75 tons (12 tons/rai) for small farms during new plant and first ratoon, the estimated farm sales per hectare were Php138,520 (Baht 15,587/rai) and Php110,816 (Baht 12,470/rai), respectively. For large farms with yield of 112 tons and 94 tons per hectare (18 and 15 tons/rai), on average, in new plant and first ratoon, earnings reached Php166,225 and Php138,520 per hectare (Baht 18,705 and Baht 15,587/rai), correspondingly.

In terms of profits, small farms earned Php25,686 and Php42,292 per hectare, respectively, during the two planting cycles while large farms gained Php44,670 and Php62,942 per hectare during the same crop cycles.

The farmer's selling price per Lkg was more expensive in the Philippines (Php1,922) than in Thailand (Php739) by more than 150 percent in CY 2010-11. Thus, both small and large farms in the Philippines indicated bigger farm sales per hectare. Total farm cost per ton in small farms for new plant and first ratoon were higher in the Philippines by eight and 17 percent, respectively. For large farms, total costs during the two cycles were also higher in the Philippines by eight percent for new plant and 47 percent for ratoon, respectively. As in farm sales, farm profits in the Philippines were bigger than in Thailand.

Table 5.5. Sugarcane Farm Costs and Profits, Large Farms, CY 2010-11 (Php/ha)

Item	Philippines		Thailand	
	Plant	Ratoon	Plant	Ratoon
Farm Sales	269,039 (147,972)	215,232 (121,068)	166,225 (138,520)	138,520 (110,816)
Farm Costs	117,420 (70,735)	94,628 (48,060)	121,554 (112,833)	75,578 (68,523)
Farm Profits	151,619 (77,237)	120,603 (73,008)	44,670 (25,686)	62,942 (42,292)

Notes: Figures in parenthesis are for small farms.

Memo Items:

Philippine plant and ratoon farm costs were Php1,286/ton cane and Php1,068/ton cane in small farms and Php1,174/ton cane and Php1,183/ton cane in large farms.

Thailand plant and ratoon farm costs were Php1,187/ton cane and Php914/ton cane in small farms and Php1,085/ton cane and Php804/ton cane in large farms.

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

5.2.2.3. Logistics

The average distance of sugarcane transport from field to sugar mill is another important factor, which affects the competitiveness of the sugar industry. The longer the distance of sugarcane transport, the higher the costs of transportation and sugar quality reduction. In Negros Occidental, the transport cost of cane points to the farm was Php100/lacsa while hauling of fertilizer and chemicals was about Php500 per trip. Logistics cost of cane from farm to mill averaged at Php230 per ton or Php115 per Lkg. Of the total cost, mills provided an average trucking allowance of about Php150 per ton. In Thailand, the logistics of

sugarcane from the farm to the mill differs from region to region. In the Northeast, there are the loading stations or centers that collect sugarcane. However, in the Central regions, sugarcane is delivered directly by the farmers. Most factories use the queuing system to organize the sugarcane delivery to the mill. Transport cost ranges from Baht 180-220 per ton.

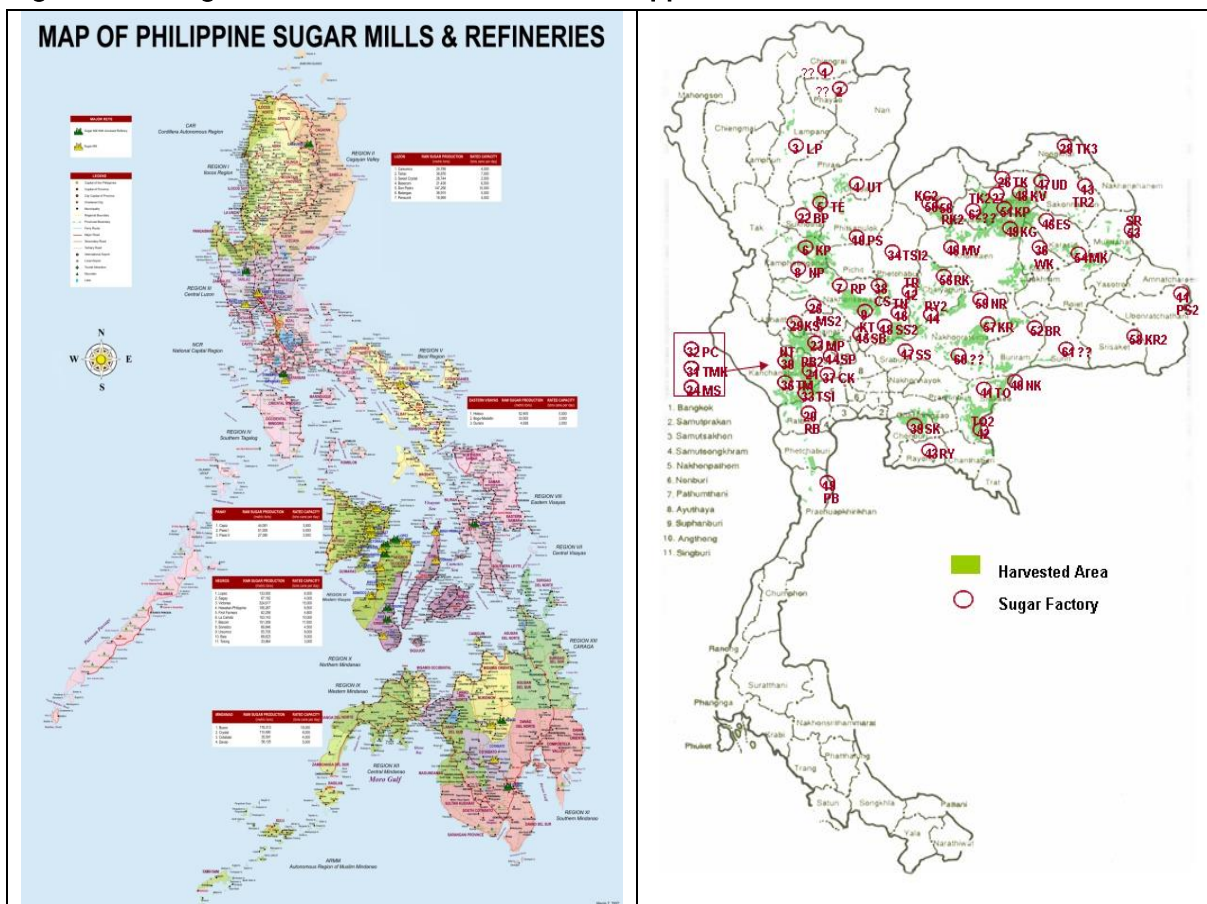
The average cost of cane delivery to mills was slightly higher in Thailand (Baht 180-220 per ton or Php256-313 per ton) than in the Philippines (Php230 per ton). This can be partly explained by the longer distance traveled from farm to mill in Thailand.

5.2.2.4. Milling Sector

Size and Efficiency. There are 29 sugar mills in the country with total rated capacity of 196,500 tons cane per day (TCD). Busco Sugar Milling Company, with a rated capacity of 18,000 TCD, has the largest mill. Central Azucarera dela Carlota and Central Azucarera Don Pedro, both under Roxas Holdings, are the next two mills with a capacity of 18,000 TCD and 13,000 TCD, respectively. Victorias Milling Company (VMC) with rated capacity of 15,000 TCD used to be the largest sugar mill. Meanwhile, there are 47 factories in Thailand situated in four parts of the country, i.e. Northern, Central, Eastern and Northeastern region. There are nine factories in Northern region, 17 factories in Central region, five factories in Eastern region, and 16 factories in Northeastern region. The total capacity utilization is about 85 percent.

There are more mills in Thailand with higher capacities than the Philippines. Mill capacities clusters within the 15,000 TCD while in the Philippines, most mills are within the 7,500 TCD capacity. Thailand also has modern mills and the mills are relatively newer as compared with the mills in the Philippines.

Figure 5.4. Sugar Mills and Refineries in the Philippines and Thailand



Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Table 5.6. Rated Capacity of Sugar Mills, 2010 (TCD)

PHILIPPINES		THAILAND	
Region	Rated Capacity	Region	Rated Capacity
Luzon	38,700	Northern	140,427
Negros	92,800	Central	230,866
Visayas	27,500	Eastern	42,655
Mindanao	37,500	Northeastern	289,099
Total	196,500	Total	703,047

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Table 5.7. Mills, Capacity and Utilization, 2010

Particulars	Philippines	Thailand
Number of Mills	29 (a)	47(b)
Total Capacity (TCD)	196,500	703,047
Capacity Utilization (%)	60	84
Milling days	180-220	120-150
Knife to Knife (average hours)	10-48	4-10
Mill Distribution by TCD (number)		
Less than 5,000	13	2
5,000 to <10,000	10	11
10,000 to <15,000	4	10
15,000 to <20,000	2	10
20,000 to <25,000	-	11
Over 25,000	-	3

Note: (a) Luzon, 7; Visayas 18; and Mindanao, 4

(b) Some of the factories have three lines (tandems) of 12,000 to 15,000 TCD each

The average crushing capacity in Australia is 10,000 TCD, and the average knife to knife is 12 hours (www.canegrowers.com.au).

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Raw Sugar Production. Raw sugar production in the Philippines reached 2.4 million tons in CY 2010/11. It increased by three percent per annum from 1.8 million tons in CY 2000/01 to 2.4 million tons in CY 2010/11. Meanwhile, in Thailand, production grew by nine percent per year from nearly 5.0 million tons in CY 2000/01 to 9.7 million tons in CY 2010/11. There was a sharp increase in production in CY 2010/11.

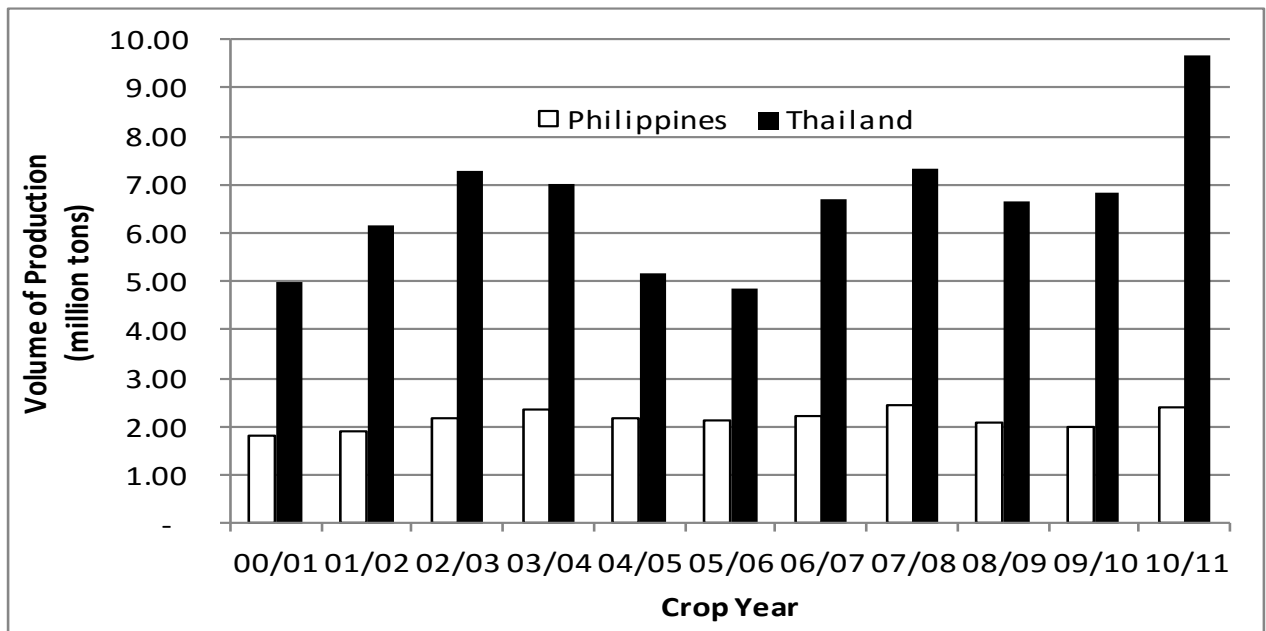
Both countries experienced production fluctuations brought about by unfavorable weather conditions, limited good planting materials and declining area planted to sugarcane. The severe shortfall was experienced in some years which prompted sugar importation in the Philippines. Production in Thailand though fluctuating is more than sufficient which makes it a net sugar exporter. Production grew faster at nine percent compared to only three percent for the Philippines.

Milling Cost. Milling cost in the Philippines, particularly in Negros Occidental, was about Php270 per Lkg, (US\$125/ton), on average. This was the total cost incurred by the mill in processing all sugarcane to raw sugar. Total milling cost comprised of cost of cane and cost of milling. On the average, cost of cane accounted for about 45 percent of the total cost while cost of milling was 55 percent. Farmers paid about 30 percent of the selling price for milling sugarcane to raw sugar. In addition, cooperatives which handle marketing charge Php20/Lkg and one percent of selling price for association dues.

In Thailand, the cost of milling sugarcane to produce raw sugar is about Php156/Lkg (Baht 109/Lkg or US\$72/ton). This excludes the cost of cane which is about 83 percent of total raw sugar cost.

Thailand's milling cost is generally lesser than that of the Philippines which can probably be attributed to the capacity expansion of mills towards better efficiency, better quality cane, and the export orientation of the industry given the government's export promotion.

Figure 5.5. Raw Sugar Production, CY 2000/01 to 2010/11



5.2.2.4. Refineries

Refining Capacity and Utilization. In the Philippines, there are 18 sugar refineries led by Victorias Milling Company, Inc., Lopez Sugar Corp., Central Azucarera Don Pedro, and Bukidnon Sugar Refinery. Altogether, these top producers accounted for 75 percent of the total refined sugar production in CY 2010/11. Meanwhile, almost all sugar factories in Thailand have refineries. Sugar factories normally have two to three tandems. Other sugar factories can produce a special form of sugar like liquid sugar which is supplied to the beverage industry.

Almost all sugar factories in Thailand have sugar refineries while in the Philippines only large mills are coupled with refineries. Sugar factories in Thailand are capable of producing special sugar and liquid sugar which is not being produced by refineries in the Philippines.

Table 5.8. Comparative Refining Capacity and Utilization, Philippines Vs. Thailand

Particulars	Philippines	Thailand
Number of Refineries	18	47(a)
Total Capacity (Lkg bag per day)	176,000	
Capacity Utilization (%)	78	84
Actual Refining (hours)	39,521.5	
Refinery Distribution by Lkg/day (number)		
Less than 5,000	2	2
5,000 to <10,000	9	11
10,000 to <15,000	3	10
15,000 to <20,000	3	10
20,000 to <25,000	1	11
Over 25,000	-	3

Source: PSMA and OCSB

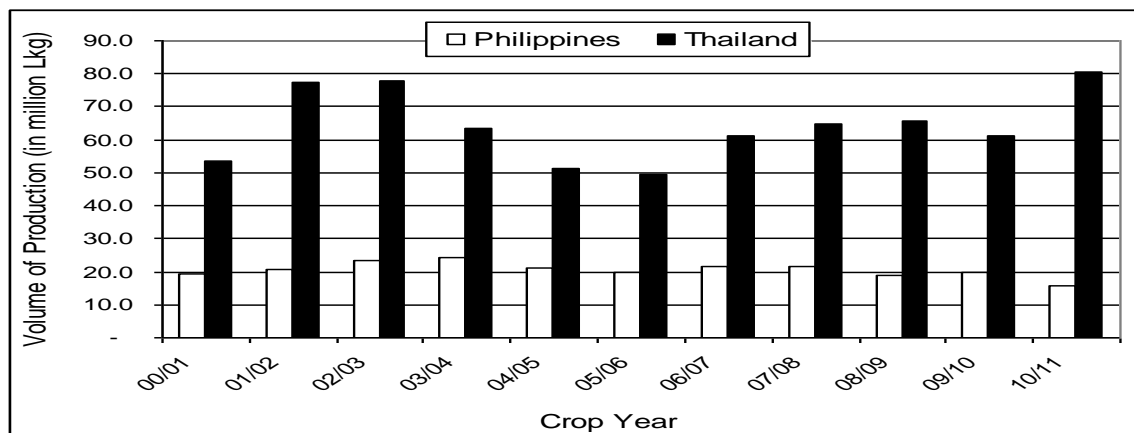
Note: (a) Assuming all factories have refineries. For verification.

Source: Benchmarking the Philippine Sugar Industry with Thailand, 2012

Refined Sugar Production. In the Philippines, the refined sugar production averaged 20.6 million Lkg bags from CY 2000/01 to 2010/11 a growth of 1.5 percent annually on the average. On the other hand, Thai refined sugar production averaged 64.3 million Lkg bags from CY 2000/01 to 2010/11 with six percent annual average growth during the period.

The Philippine refined sugar production is decreasing while that of Thailand is increasing. Philippines produced a total of 15.8 million Lkg bags of refined sugar during the CY 2010/11, which decreased by 1.5 percent per annum. Thailand's refined sugar production is in the uptrend with an increase of 5.9 percent per annum with production of 80.6 million Lkg bags in CY 2010/11. In crop year 2013-2014, the Philippines has fourteen operational refineries.

Figure 5.6. Refined Sugar Production, CY 2000/01 to 2010/11



Source: PSMA and OCSB

Refining Cost. In the Philippines, refining cost, particularly in Negros Occidental, was about Php200 per Lkg, on average. This was the total cost incurred by the mill in processing all sugarcane to refined sugar. Over 50 percent of the cost of refining went to fuel, materials/supplies and labor. For sugar refining, a tolling fee of Php221 (VAT-in) was paid plus SRA fee, advance VAT, handling and insurance. Meanwhile,

the refining cost in Thailand was about Php190/Lkg (Baht 134/Lkg or US\$88/ton). This excludes the direct material cost of Php939/Lkg (Baht 660/Lkg to US\$433/ton). Direct materials cost accounted for 83% of total refining cost.

Cost of refining raw sugar to refined sugar is 5% higher in the Philippines than in Thailand. Refineries in Thailand are more modern with higher capacities than in the Philippines which are advantages for efficiency.

5.2.2.5. Sugar Marketing

Domestic. The domestic sugar market is divided into two main segments: household and industrial. Among industrial users, sugar is an important input to the food processing industry. Major users are the beverage industry, confectioneries, food service outlets, and preserved fruits, among others.

In the Philippines, the flow of sugar for the domestic market follows an established pattern. After getting the *quedans*, the planters usually sell these immediately to the local traders who in turn sell them to bigger traders, who accumulate the *quedans* and subsequently sell the volume sugar either to wholesalers, the distributors or the processors. The processors use the sugar as input for processing while the wholesalers and distributors sell their sugar to the retailers. The sugar eventually reaches the consumers through the supermarkets, wet markets and sari-sari stores.

The Thai sugar market follows a somewhat different scheme since the farmers sell the cane to the sugar mills directly or through traders also called quota men who can be both farmers and non-farmers. The sugar mills then sell the processed sugarcane (raw, white, and refined) to the domestic and export market. It is estimated that around 30 percent of total sugar production goes to domestic consumption while the rest is for exports.

In the Philippine setting, payment to the farmer is based on the raw sugar output with a *quedan* document while the system in Thailand is cane purchase.

Export. There are about 258 sugar traders and 156 molasses traders in the country. The major registered sugar traders in the country are All Asian Counter Trade, ED&F Man, Sucden, Oro Allado, Delmax and Busco Sugar Milling. In Thailand there are seven sugar exporters under which are different sugar factories. The Thai Cane and Sugar Company which is a joint company between the growers, sugar factories and the government appears to be the largest with long-term export contract of raw sugar at 800,000 tons per year. It is supplied by the 47 sugar factories.

Thailand is one of the world's top sugar exporters with exporters affiliated to the large sugar factories. They have their own ports. On the other hand, the export of the Philippines is basically for the US quota with exports to the world done only when there is excess sugar.

Table 5.9. List of Major Sugar Traders, Philippines

Sugar Trader	Location
All Asian Counter Trade, Inc.	National Capital Region
Sucden Philippines	National Capital Region
Oro Allado Commodities	National Capital Region, Negros
Delmax	National Capital Region, Negros
Tao Commodities	National Capital Region
Busco Sugar Milling Co., Inc.	Bukidnon
La Perla Sugar Export Corp.	National Capital Region
ED&F Man	National Capital Region, Negros

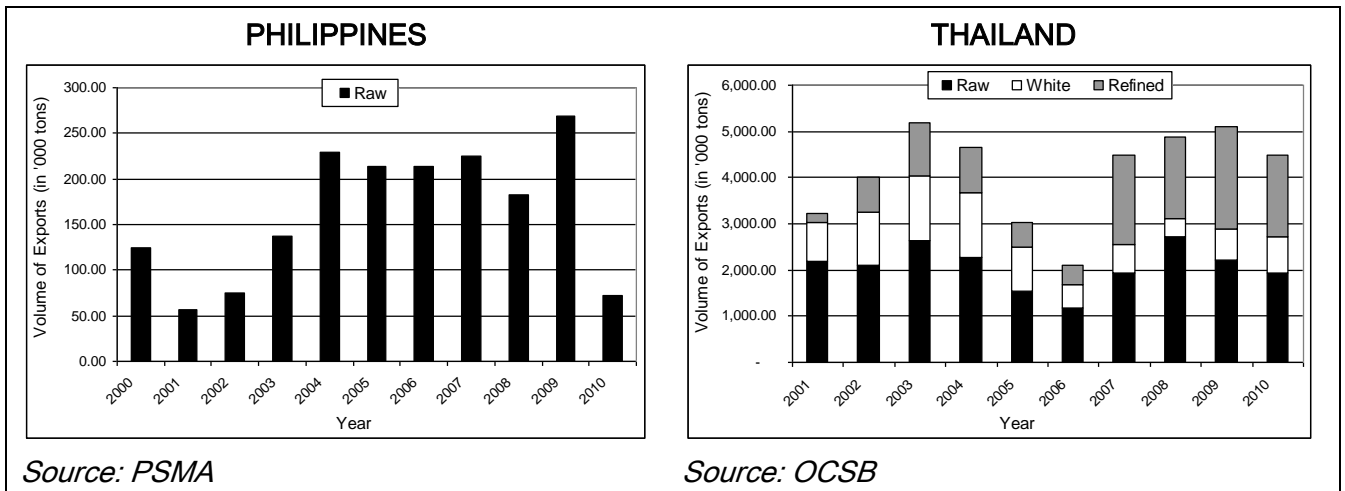
Table 5.10. List of Sugar Exporting Companies in Thailand

Sugar Trader/Exporter	Company Affiliation
Thai Cane and Sugar Co., Ltd. (TCSC)	Mitr Phol Group Thai Ekalak Group Tamaka Group Thai Roong Ruang Group Banpong Group Kumpawapi Group Wang Kanai Group
The Thai Sugar Trading Co., Ltd. (TSTC)	Banpong Group Kumpawapi Group
Siam Sugar Export Co., Ltd. (SSEC)	Thai Roong Ruang Group
Sugar Industry Trading Co., Ltd. (SITCO)	Wang Kanai Group
Pacific Sugar Corporation Co., Ltd. (PAC)	Mitr Phol Group
K.S.L. Export Trading Co., Ltd (KSL)	Tamaka Group
T.I.S.S. Co., Ltd. (TISS)	Thai Ekalak Group

Source: OCSB

Export Performance. The Philippines used to export both raw and refined sugar. However, since 2003, refined sugar exports had been minimal and becoming nil because of the Advance VAT collected by the Bureau of Internal Revenue on refined sugar for exports. Meanwhile, raw sugar export was generally on the uptrend by 8.2 percent annual growth averaging 163,661 tons per year from 2000 to 2010. The upward trend from 2003 to 2009 can be explained by the changes in the sugar quota allocation of the Philippines from the US, the country's sole export market. Thailand is a net sugar exporter. Thailand exports raw, white and refined sugar principally to Asia. Exports to Asean (Cambodia, Philippines, Vietnam and Indonesia) represented 57 percent of total exports in 2010. Total sugar exports increased by 9.7 percent annually from 3.2 million tons in 2001 to 4.5 million tons in 2010. In 2010, raw sugar export is about 42.9 percent equivalent to 1.9 million tons. Exports of refined and white sugar contributed 39.6 percent and 17.5 percent respectively.

Figure 5.7. Sugar Exports, 2000-2010



Imports. In the event that local production does not meet local demand, importation of sugar is done by the Philippines. Thailand has enough sugar supply and does not import sugar.

5.2.2.6. Prices

The discussions on sugar prices covered the mill gate, wholesale and retail prices of raw and refined sugar.

Mill Gate Prices

Philippines. Production volumes contribute to the determination of mill gate prices of sugar. Another determinant identified by SRA is the sugar stock balance. Sugar stock balance at any given time represents the available supply in the market. It is said that there is a direct inverse relationship between stock balance and price of sugar. That is, as stock balance inventory increases, prices would tend to move downwards. As the milling season ends, prices would tend to inch upwards. This is in consideration to the fact that sugar milling season in the country and therefore sugar production, normally takes place within a period

of six months in a year. During the other six months when production is minimal or nil, the consumers use the stock balance.

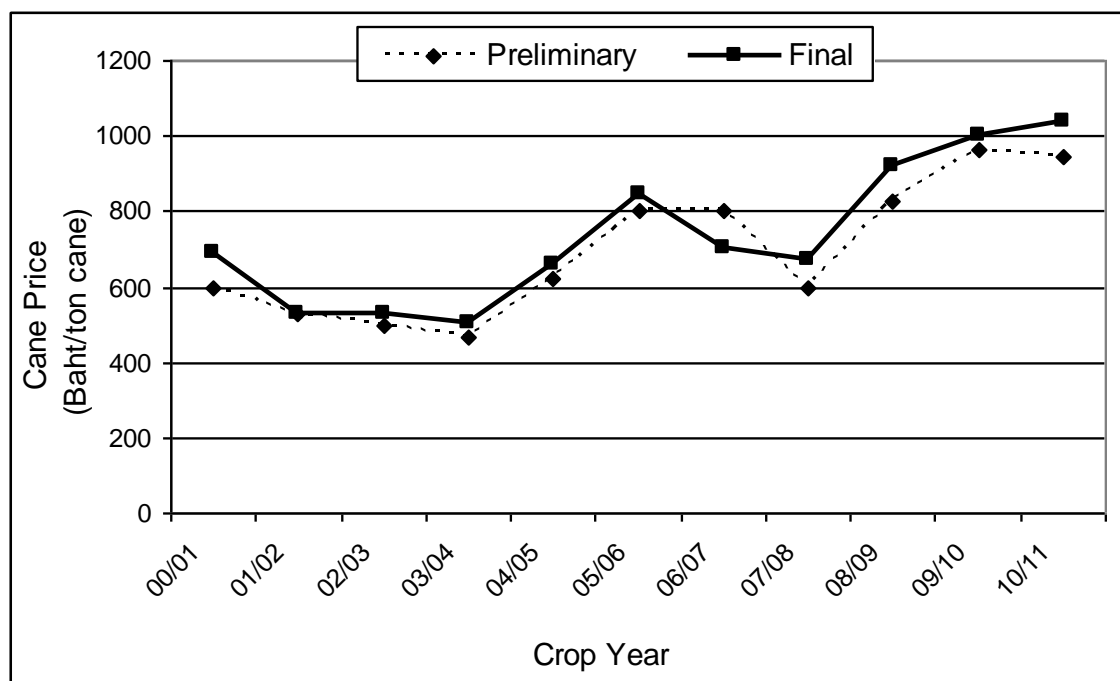
Mill gate prices refer to the price paid for raw sugar at the mill site. Mill gate price of "A" classified sugar (for US market) increased by an annual average growth rate of seven percent from Php925.61/Lkg in CY 2000/01 to Php1,412.91/Lkg in CY 2010/11. Mill gate price of sugar for the domestic market followed the same uptrend from Php847.50 per Lkg in CY 2000/01 to Php1,959.95 per Lkg with an annual average growth rate of 10.5 percent.

Thailand Preliminary and Final Cane Prices

Thailand. In order to calculate the return on sugarcane production, the preliminary and final sugarcane prices have to be considered. Firstly, the preliminary sugarcane price is the price that sugarcane farmers get when they send sugarcane to the sugar factory. Secondly, the final sugarcane price is the price that sugarcane farmers receive after the factory calculated the CCS value of sugarcane. It is an additional price which sugarcane farmers will receive, and then the OCSB announces the final CCS value, which is different from region to region.

The preliminary sugarcane price is the price at a CCS level of 10. The rate of change in sugarcane price (additional payment) was at Baht 94 per CCS per ton in the production year 2010/11.

Figure 5.8. Thailand: Preliminary and Final Prices of Cane



Source: OCSB

Table 5.11. Preliminary and Final Cane Prices in Thailand, CY 2001/02 to 2011/12

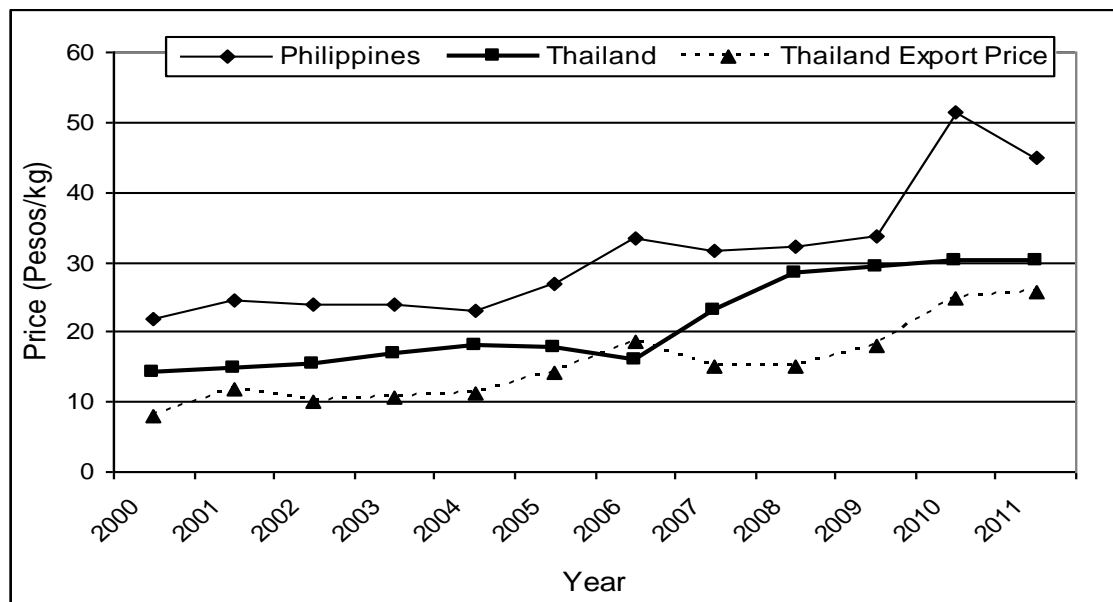
CROP YEAR	Cane prices at 10 CCS	
	(Baht/ton cane)	
	Preliminary	Final
2000/01	600.00	688.90
2001/02	530.00	530.39
2002/03	500.00	530.74
2003/04	465.00	503.94
2004/05	620.00	657.65
2005/06	800.00	846.50
2006/07	800.00	702.19
2007/08	600.00	672.43
2008/09	830.00	917.87
2009/10	965.00	999.71
2010/11	945.00	1,039.14
2011/12	1,000.00	-

Source: OCSB

Wholesale Prices. In the Philippines, wholesale prices of refined sugar increased at an annual average of eight percent from Php21.93/kg in 2000 to Php44.95/kg in 2011. Meanwhile in Thailand, refined sugar wholesale prices grew from Php14.12 per kg to Php30.06/kg over the same period with an average annual increase of nearly eight percent. On the other hand, export prices of Thai white sugar grew at an annual average of 13 percent from Php8.01/kg to Php25.71/kg from 2000-2011. Export prices in peso terms were always below the wholesale prices except in 2006. However, in Baht terms, export price in the year 2006 was also below the wholesale price.

Growth of both countries in wholesale prices was the same at eight percent although price movements in Thailand's wholesale market tend to show a more gradual climb. Price differences showed Philippine figures at an average of 1.5 times higher than Thailand with 2006 prices being twice as much.

Figure 5.9. Wholesale and Export Prices of Sugar, 2000-2011



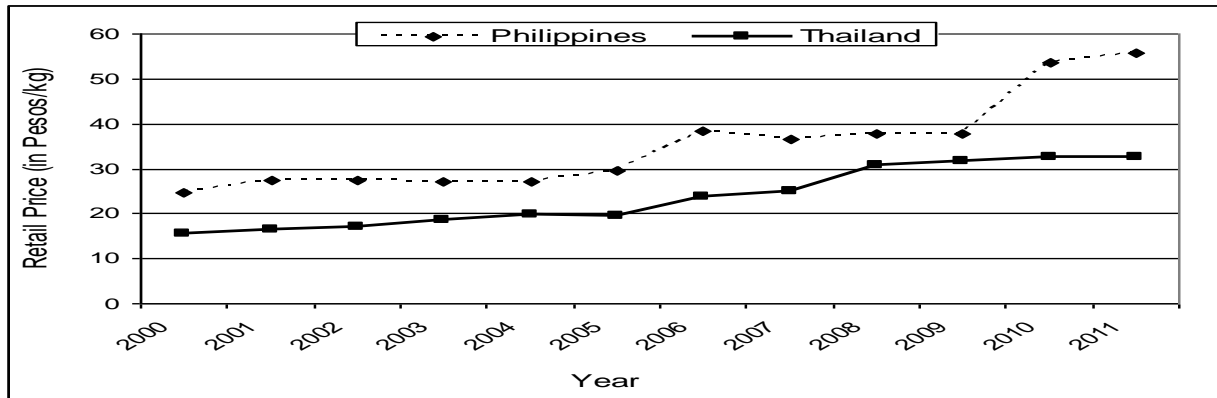
Note: Wholesale prices of refined sugar; export prices of white sugar

Source: PSMA and OCSB

Retail Prices. In the Philippines, refined sugar retail prices grew in a similar way as wholesale prices with an 8.5 percent growth annually averaging Php35.20/kg from Php24.66 per kg to Php55.60/kg over the 12-year period. Meanwhile, retail prices in Thailand averaged Php23.61/kg from a low of Php15.67/kg in 2000 to a high of Php32.52/kg in 2010. The price dropped slightly in 2011 to Php32.49/kg. The price movements resulted to an annual average growth rate of 7.1 percent.

As in wholesale prices, Thailand’s retail prices are much lower than the Philippines given the higher growth rate resulting in part to the wide price gap between the two countries in 2010 and 2011.

Figure 5.10. Retail Prices of Refined Sugar, 2000-2011



Source: PSMA & OCSB

6. COMPETITIVE ANALYSIS

6.1. Price Competitiveness

Cost structure of raw and refined sugar are given in Tables 6.1 and 6.2 while the cost structure of imported sugar is given in Table 6.3. Cost structure analysis is referenced against the “B” or domestic sugar millsite prices. Cost components along the sugar supply value chain are taken into account which were discussed extensively with the DTI and the sugar traders and retailers. Analysis of the cost structure of imported refined sugar take into consideration the varying levels of tariff rates which greatly affect the landed cost.

Table 6.1. Cost Structure of Raw Sugar, CY2008-09 to 2013-2014

Cost Components	CY 2008-09 "B" Price	CY 2009-10 "B" Price*	CY 2010-11 "B" Price	CY 2011-12 "B" Price	CY 2012-13 "B" Price*	CY 2013-14 "B" Price*
Raw Sugar Quedan Price per LKG, average	1,034.47	1,587.83	1,899.77	1,419.23	1,379.00	1,536.05
<i>Plus:</i>						
Warehouse /Storage Fee per month + Insurance	5.00	5.00	5.00	5.00	5.00	5.00
Raw Sugar Price ex-mill per LKG	1,039.47	1,592.83	1,904.77	1,424.23	1,384.00	1,541.05
<i>Plus:</i>						
Freight: Mill to North Harbor	65.00	65.00	65.00	65.00	65.00	65.00
Trader's Margin + trucking cost	50.00	50.00	50.00	50.00	50.00	50.00
Raw Sugar Price ex-North Harbor per LKG	1,154.47	1,707.83	2,019.77	1,539.23	1,499.00	1,656.05
<i>Plus:</i>						
Repacking Cost + handling/trucking cost	100.00	100.00	100.00	100.00	100.00	100.00
Repacker's Profit	50.00	50.00	50.00	50.00	50.00	50.00
Cost per LKG of Repacked Raw Sugar	1,304.47	1,857.83	2,169.77	1,689.23	1,649.00	1,806.05
<i>Plus:</i>						
Retailer's Profit + stall/shelf rental	100.00	100.00	100.00	100.00	100.00	100.00
Cost per LKG - Repacked Wholesale to Retail	1,404.47	1,957.83	2,269.77	1,789.23	1,749.00	1,906.05
Retail Price	28.09	39.16	45.40	35.78	34.98	38.12

Source: SRA Planning & Policy Department – Cost Structure Computation

Table 6.2. Cost Structure of Refined Sugar, CY2007-08 to 2012-2013

Cost Components	<i>CY 2008-09 "B" Price</i>	<i>CY 2009-10 "B" Price*</i>	<i>CY 2010-11 "B" Price</i>	<i>CY 2011-12 "B" Price</i>	<i>CY 2012-13 "B" Price*</i>	<i>CY 2013-14 "B" Price*</i>
Raw Sugar Quedan Price per LKG, Ave.	1,034.47	1,587.83	1,899.77	1,419.23	1,379.00	1,536.05
Tolling Fee + tolling VAT =220+(220X.12)	246.40	246.40	246.40	246.40	246.40	246.40
SRA Monitoring Fee	2.00	2.00	2.00	2.00	2.00	2.00
Subtotal	1,282.87	1,836.23	2,148.17	1,667.63	1,627.40	1,784.45
Refined Sugar Factor (refining loss)	0.92	0.92	0.92	0.92	0.92	0.92
Cost in Refined Sugar Basis per LKG	1,394.42	1,995.90	2,322.60	1,812.64	1,768.91	1,939.62
Advanced VAT	102.00	102.00	102.00	102.00	102.00	102.00
VAT balance = 12% of ref. cost less advance VAT	65.33	137.51	176.71	115.52	110.27	130.75
Warehouse /Storage Fee per month + Insurance	5.00	5.00	5.00	5.00	5.00	5.00
Refined Sugar Price ex-mill per LKG	1,566.75	2,240.41	2,606.31	2,035.16	1,986.18	2,177.37
Freight: Mill to North Harbor	65.00	65.00	65.00	65.00	65.00	65.00
Trader's Margin + trucking cost	50.00	50.00	50.00	50.00	50.00	50.00
Refined Sugar Price ex-North Harbor per LKG	1,681.75	2,355.41	2,721.31	2,150.16	2,101.18	2,292.37
Repacking Cost + handling/trucking cost	100.00	100.00	100.00	100.00	100.00	100.00
Repacker's Profit	50.00	50.00	50.00	50.00	50.00	50.00
Cost per LKG of Repacked Refined Sugar	1,831.75	2,505.41	2,871.31	2,300.16	2,251.18	2,442.37
Retailer's Profit + stall/shelf rental	100.00	100.00	100.00	100.00	100.00	100.00
Cost per LKG - Repacked Wholesale to Retail	1,931.75	2,605.41	2,971.31	2,400.16	2,351.18	2,542.37
Retail Price	38.64	52.11	59.43	48.00	47.02	50.85

Source: SRA Planning & Policy Department – Cost Structure Computation

Table 6.3. Cost Structure of Imported Refined Sugar, 2013 Average World Market Price

Assumptions:								
Discharge Port - Batangas								
Tariff Rates	50	38	28	18	10.00	5.00	0.00	
Exchange Rate, P/US\$	42.45							
Average World Market Price of Refined Sugar - 2013								
Cost Components	Unit	Cost						
		Tariff-50%	Tariff-38%	Tariff-28%	Tariff-18%	Tariff-10%	Tariff-5%	Tariff-0%
London # 5 - 2013 average (USDA)	US\$/MT	487.74	487.74	487.74	487.74	487.74	487.74	487.74
Cash Premium	US\$/MT	20.00	20.00	20.00	20.00	20.00	20.00	20.00
ICUMSA 45 Premium	US\$/MT	-						
Ocean Freight	US\$/MT	20.00	20.00	20.00	20.00	20.00	20.00	20.00
CNF Philippines	US\$/MT	527.74	527.74	527.74	527.74	527.74	527.74	527.74
Add: Uninsured weight loss	0.25%	1.32	1.32	1.32	1.32	1.32	1.32	1.32
Add: Insurance	0.50%	2.64	2.64	2.64	2.64	2.64	2.64	2.64
CIF Philippines	US\$/MT	531.70	531.70	531.70	531.70	531.70	531.70	531.70
CIF Philippines	US\$/Lkg	26.58	26.58	26.58	26.58	26.58	26.58	26.58
CIF Philippines	P/Lkg	1,128.53	1,128.53	1,128.53	1,128.53	1,128.53	1,128.53	1,128.53
Add: Tariff	P/Lkg	564.26	428.84	315.99	203.14	112.85	56.43	0.00
Landed Cost before VAT & other charges	P/Lkg	1,692.79	1,557.37	1,444.52	1,331.66	1,241.38	1,184.96	1,128.53
SRA & other Liens	P/Lkg	37.75	37.75	37.75	37.75	37.75	37.75	37.75
Ex-vessel Landed Cost	P/Lkg	1,730.54	1,595.12	1,482.27	1,369.41	1,279.13	1,222.71	1,166.28
Add: VAT	12%	207.67	191.41	177.87	164.33	153.50	146.72	139.95
Landed Cost after VAT	P/Lkg	1,938.21	1,786.53	1,660.14	1,533.74	1,432.63	1,369.43	1,306.23
Add: Other local charges								
L/C Opening Charges	P/Lkg	0.21	0.21	1.21	2.21	3.21	4.21	0.21
Insurance	0.16%	2.77	2.55	2.37	2.19	2.05	1.96	1.87
Interest Cost	1.33%	23.02	21.22	19.71	18.21	17.01	16.26	15.51
Spillage Allowance	0.14%	2.42	2.23	2.08	1.92	1.79	1.71	1.63
TOTAL IMPORT COST	P/Lkg	1,966.63	1,812.75	1,685.51	1,558.28	1,456.69	1,393.57	1,325.45
Add: Unloading Charges								
Arrastre	P/Lkg	3.09	3.09	3.09	3.09	3.09	3.09	3.09
Stevedoring	P/Lkg	3.25	3.25	3.25	3.25	3.25	3.25	3.25
Wharfage	P/Lkg	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Truckscale fee	P/Lkg	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Add: Trucking & Handling	P/Lkg	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Landed Cost before profit	P/Lkg	2,000.02	1,846.14	1,718.90	1,591.67	1,490.08	1,426.96	1,358.84
Add: Profit Margin - Importer	P/Lkg	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Total Landed Cost to End-user	P/Lkg	2,025.02	1,871.14	1,743.90	1,616.67	1,515.08	1,451.96	1,383.84
Add: Repacking Cost	P/Lkg	75.00	75.00	75.00	75.00	75.00	75.00	75.00
Repacker's profit	P/Lkg	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Total Landed Cost to Retailer	P/Lkg	2,150.02	1,996.14	1,868.90	1,741.67	1,640.08	1,576.96	1,508.84
Handling & Delivery Cost	P/Lkg	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Retailers' Profit & Stall rental	P/Lkg	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Cost (Retail)	P/Lkg	2,275.02	2,121.14	1,993.90	1,866.67	1,765.08	1,701.96	1,633.84
Estimated Retail Price	P /kg	45.50	42.42	39.88	37.33	35.30	34.04	32.68

Reference: SRA Planning & Policy Matrix on Landed Costs

Table 6.4 Sensitivity Analysis of Imported Raw Sugar at 5% Tariff, 2013

Sensitivity Analysis of Imported Raw Sugar Price at 5% Tariff						
		NY #11: World Market Price (\$US cents per pound)				
		US\$0.14	US\$0.15	US\$0.16	US\$0.17	US\$0.18
Dollar: Peso Exchange Rate	₱40.00	₱896.80	₱943.00	₱989.20	₱1,035.40	₱1,081.60
	₱41.00	₱912.97	₱960.33	₱1,007.68	₱1,055.04	₱1,102.39
	₱42.00	₱929.14	₱977.65	₱1,026.16	₱1,074.67	₱1,123.18
	₱43.00	₱945.31	₱994.98	₱1,044.64	₱1,094.31	₱1,143.97
	₱44.00	₱961.48	₱1,012.30	₱1,063.12	₱1,113.94	₱1,164.76
	₱45.00	₱977.65	₱1,029.63	₱1,081.60	₱1,133.58	₱1,185.55
Tariff Rate: 5%		Shipment & Other Costs: ₱250.00 per bag				

Table 6.5 Sensitivity Analysis on Cost of Production

Sensitivity Analysis on Cost of Production Per 50-kg Bag Raw Sugar						
		Cost of Production per Hectare				
		₱60,000	₱70,000	₱80,000	₱90,000	₱100,000
Sugarcane Production per Hectare (tons/Ha.)	40	₱1,111	₱1,296	₱1,481	₱1,667	₱1,852
	50	₱889	₱1,037	₱1,185	₱1,333	₱1,481
	60	₱741	₱864	₱988	₱1,111	₱1,235
	70	₱635	₱741	₱847	₱952	₱1,058
	80	₱556	₱648	₱741	₱833	₱926
	90	₱494	₱576	₱658	₱741	₱823
Sharing: 67.5% Planter share		Sugar Recovery: 2.0 LKg/TC				

Source: SRA Planning & Policy Department – Cost Structure Computation

7. MARKET TRENDS AND PROSPECTS

7.1. Market Trends

From crop year 2003-2004 except 2009-2010, the Philippines is a net exporter of sugar to the world market. World market sugar shipments and country of destinations are shown in Table 7.1. Japan is a consistent importer with the biggest import volume of 106,300 and 100,500 metric tons in crop years 2011-12 and 2012-2013, respectively. Japan specifications of raw sugar favors the Philippine raw which should be 97 degree pol or lower.

Table 7.1. World Market Shipments and Country of Destinations

Country of Destination	Quantity (in Metric Tons)					
	CY 2012-13		CY 2011-12		CY 2010-11	
	Raw	Refined	Raw	Refined	Raw	Refined
China			72,799.95		6,825.00	
Indonesia			50,955.39		8,229.60	
Japan	100,500.00		106,300.02		6,000.00	
Juvalo Island	25.00					
Korea			10,337.21		6,040.00	
Malaysia	32.00					
Russia	11.50					
Samoa	1,225.00		225.00			
Singapore	7,816.44					
Solomon Island	25.00		25.00			
South Korea	30,960.00		13,700.00		40.00	
Taiwan			175.00	3,704.54	149.97	
Tarawa			125.00			
Nokualofa, Tonga	750.00					
USA			49,639.58		8,517.36	
Vancouver, Canada	44.00		22.00			
Vanuatu	100.00		75.00			
Vietnam			22,000.01	2,000.00		
Total	141,488.94	-	326,379.16	5,704.54	35,801.93	-

Source: SRA Regulation Department – Sugar Transactions Division

7.2. Market Prospects

The Philippines wanted to retain in its offensive position in the world market by maintaining its net exporter status in the world market. Otherwise, the domestic market will be flooded with imported sugar once the tariff will be down to 5% in 2015.

Because of the growing population in Asia, it became the demand center in the world. Major potential markets under surveillance aside from Japan are the big consumers in the world market like India, China and Indonesia. Indonesia is a prospective market for the Philippine raw sugar especially that a major Philippine investor acquired the sugar mills of Roxas Holdings Inc. who happened to have a connection in the sugar refineries in Indonesia. The industry is also vigilant with the supply swings of the major sugar producers like Thailand and Brazil which have a big influence on world market prices.

Thirty two (32) sugar mills in Brazil closed operation over the past 10 years because of inefficiency and financial problems. The drought in Brazil during the 2014-2015 cropping season is also another factor to consider which may contribute to the narrowing down of the sugar surplus in the world market which may also lead to sugar deficits. Leading market analysts like Czarnikow, F.O. Lichts and the International Sugar Organization (ISO) see a deficit in sugar supply come 2016 and onwards.

Table 7.2 World Market Forecasts, CY 2013-14

World Market Forecasts, CY 2013-14			
Market Analyst	Production (MMT Raw Value)	Consumption (MMT Raw Value)	Surplus (MMT Raw Value)
Czarnikow	181.8	179.8	2.0
Kingsman	179.9	175.6	4.3
ISO	181.1	176.7	4.4
F. O. Lichts	181.0	175.8	3.6

Reference: European Commission

7.3. Export Competition

Among the ASEAN countries, Thailand is the major competitor of Philippine sugar. The country has already lost its share of the Indonesian market the past crop year because it prefers to procure Thai sugar on quality considerations, specifically on color requirements. Philippine sugar mills need to improve their sugar quality to capture the current market destinations of Thai sugar. Philippine sugar is consistently in demand by Japan traders because of low pol, 97 degree and below. Raw sugar entering the Japanese domestic market with a pol higher than 97 gets penalized.

In the global market, Brazil is the biggest exporter followed by Thailand. The biggest consumer or importer is European Union, Indonesia and China. The major destination of world sugar is in Asia. Figure 7.1 shows the sugar global market players, Figure 7.2 gave the role of ASEAN member-countries in the global sugar trade and Table 4.3 illustrated the ASEAN Economic Community (AEC) supply-demand situation. Figure 7.3 provides an idea on the Asian sugar markets in 2013.

Figure 7.1 Sugar Global Market Players



Reference: International Sugar Organization (ISO); mmt – million metric tons in raw value

Figure 7.2 Role of AEC Countries in Sugar Trade, CY 2012-2013

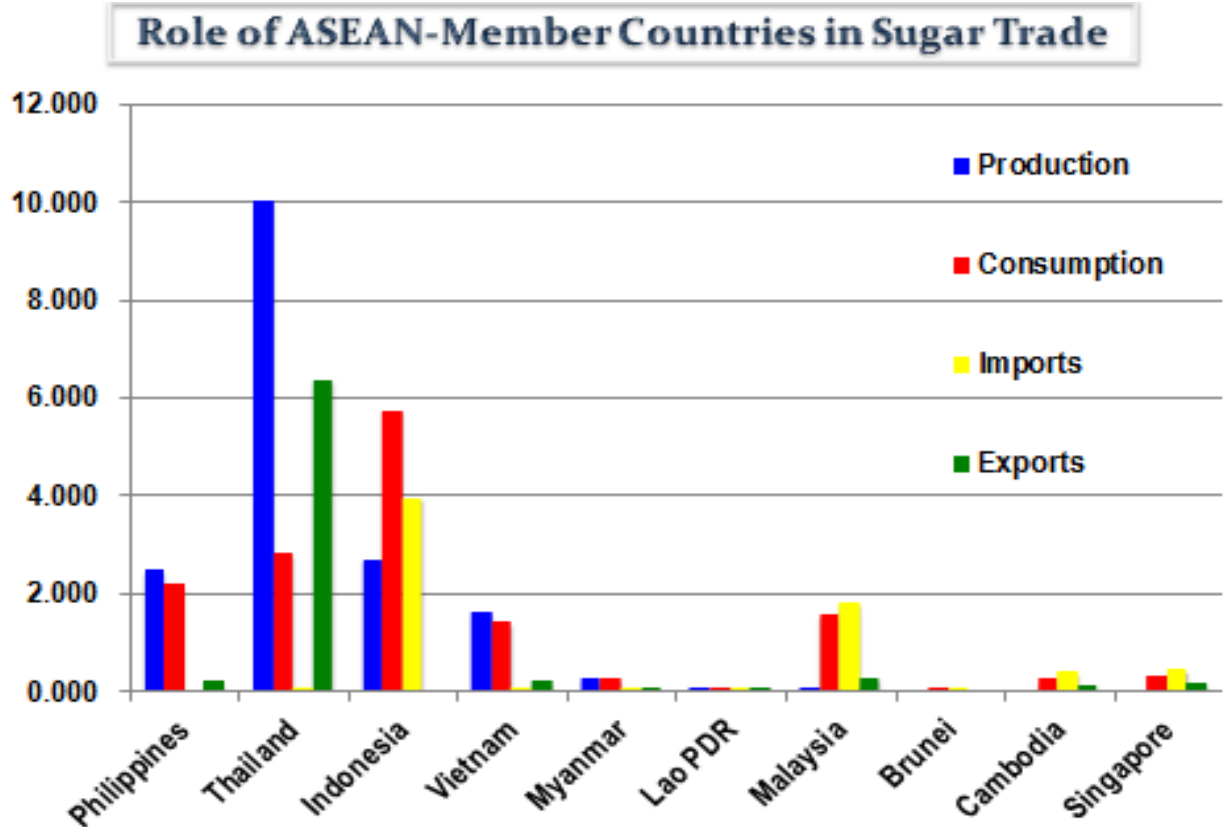


Table 7.3 AEC Supply-Demand Situation, CY 2012-2013

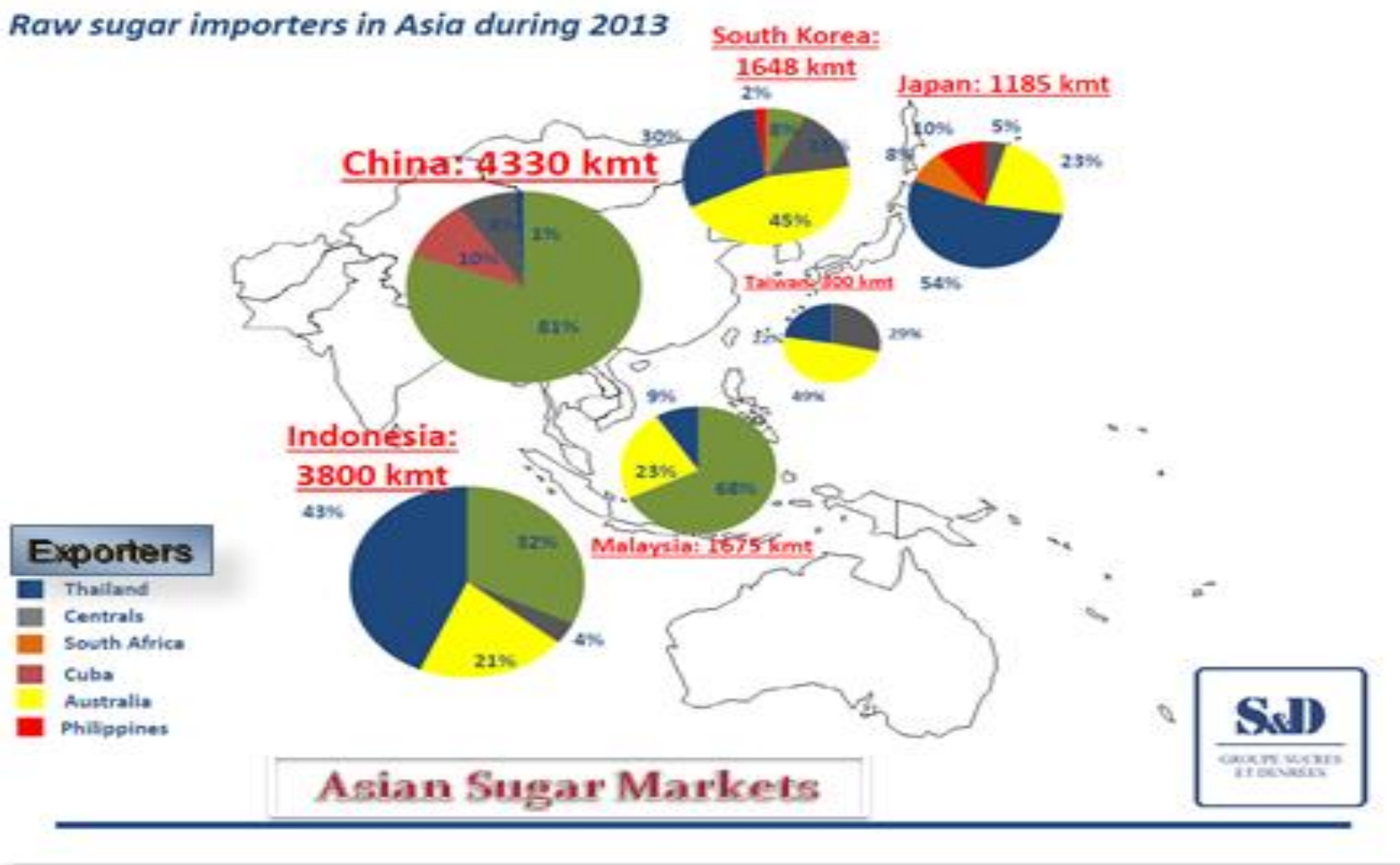
CY 2012-13 - AEC Supply-Demand in Million MT

	Production	Consumption	Imports	Exports
Philippines	2.465	2.184	0.000	0.195
Thailand	10.009	2.800	0.001	6.357
Indonesia	2.700	5.740	3.950	0.000
Vietnam	1.595	1.405	0.025	0.215
Myanmar	0.275	0.255	0.060	0.080
Lao PDR	0.055	0.068	0.063	0.050
Malaysia	0.030	1.560	1.805	0.275
Brunei	0.000	0.013	0.013	0.000
Cambodia	0.000	0.260	0.385	0.125
Singapore	0.000	0.295	0.455	0.160

Reference: ISO

Figure 7.3 Asian Sugar Markets, 2013

Raw sugar importers in Asia during 2013



8. SWOT ANALYSIS

8.1. Strengths

- The Philippine sugarcane industry is well-organized;
- SRA as the regulatory body (*which provides the policy environment for a balanced supply and sugar requirement in the domestic market at stable sugar prices for the consumers and at the same time maintain its profitability for the producers*) has the power over the classification of locally-produced and imported sugar as well;
- Active participation of the private sector for the socio-economic welfare of the farmers and workers through the social amelioration program;
- Merger of sugar mills by leading investors
- Presence of Mill District Development Council Foundations Inc. in every milling district which takes care of program implementation

8.2. Weaknesses

- Fragmentation of farms due to CARP resulting to inefficient and unproductive farms;
- Some mills are inefficient and with low sugar recovery;
- Lack of capability of mills / refineries to meet certain product specifications of industrial users / food processors like caster sugar, kosher certified sugar, etc.
- Lack of financing and credit facilities at low interest rates to fund farm operations, support industries for the mills and farm machineries;
- Lack of cane supply to maximize the capacity utilization of sugar mills;
- Weak R, D & E structure and programs;
- Ageing researchers, scientists, engineers and lack of experts for the development of the sugarcane industry;
- Weak private sector participation in R & D;
- Declining labor force in cane cutting and loading

8.3. Opportunities

- Provision of a Sugar Fund for the sugarcane industry through passage of the Sugarcane Industry Development Act;
- Infrastructure support from the DA and NEDA under the Philippine Development Plan;

- More investments in product diversification like bioethanol, power generation and other diversified products from sugarcane;
- Bilateral cooperation with Brazil, Costa Rica, Colombia, Guatemala and Thailand for the acquisition of high-yielding sugarcane varieties;
- AEC integration which may encourage more exports of surplus raw sugar to complement the need for raw materials of the sugar refineries in Indonesia, Malaysia, Korea and others;
- Emergence of mill/farm support / fabrication industries and service providers;
- Transformation of block farms as agribusiness units in the mill districts;
- Creation of sugarcane ecozones;
- Global decline of sugar surplus;

8.4. Threats

- Reduction of tariff to 5% and full integration of AEC in 2015 which may result to the free flow of imported sugar into the country which is detrimental to the livelihood of the sugarcane farmers, the industry workers, the existing investments of the sugar mills and the local economies of the major sugar-producing provinces;
- Farmers' shift to other crops or business activities due to lack of subsidy and infrastructure support from government in sugarcane farming;
- Land conversion to industrial / commercial estates due to the absence of a national land use policy;
- Entry of alternative sweeteners like stevia, HFCS, synthetic sweeteners, etc.
- Passage of 10% ad valorem tax on soft drinks which may lead to a decline in sugar demand and attract entry of sugar cheaper sugar substitutes such as HFCS and artificial sweeteners;
- Policy shifts of government like imposition of VAT on raw sugar and unstable bioenergy policies which may discourage more investments in the sugarcane industry.

9. TARGET SETTING (WHERE DO WE WANT TO GO?) – SUGARCANE ROADMAP 2020

9.1. Industry Vision, Mission and Goals

9.1.1. Vision:

The Sugarcane Industry is envisioned as a strategically diversified, sustainably viable industry that is beneficial to all its stakeholders*. It will be able to supply the domestic market for sugar, fuel ethanol and renewable power at profitable but competitive prices, and to maintain its ability to export surplus sugar to the US and world markets.

9.1.2. Mission and Goals:

- A. Mission. The Philippine sugarcane industry will strive to become a market-responsive, competitive, diversified and stable industry.
- B. Specific Goals. In order to realize its vision, the industry will seek to have the following in place within the first five years of this revised Roadmap (by Crop Year 2019-2020):
- i. An organized and synergistic partnership among all industry stakeholders working in unison for the good of all;
 - ii. Well-managed sugar milling districts - led by MDDCs – that are conducive to efficient production and processing of cane into sugar and other products;
 - iii. Efficient sugar mills and refineries with capacity utilization increasing by 2-3% a year;
 - iv. Productive and economically-viable cane growers producing a sustainable supply of cane to meet present and future demand;
 - v. National self-sufficiency in competitively-priced sugar;
 - vi. A robust bioethanol and power cogeneration sector utilizing molasses, cane juice, bagasse and cane trash as feedstocks to produce the mandated requirements for bioethanol and to supply at least 200 MW of renewable power to the grid;
 - vii. An active community of service providers to meet the needs of farmers, millers and workers;
 - viii. A more efficient, skilled and fairly-compensated labor sector with access to meaningful socio-economic support services and opportunities, and last but not least;
 - ix. Favorable government and public support for the Philippine sugarcane industry.

10. STRATEGY – HOW DO WE GET THERE?

10.1. Primary Strategy

The key strategy will employ a coordinated sectoral and programme-oriented approach to provide appropriate interventions across all sectors of the industry.

10.1.1. Specific Sectoral Strategies and Interventions

A. **Institutional** – The Industry will harmonize and strengthen its institutional structures in order to create the enabling environment needed to grow and prosper. Stakeholder Interventions will endeavor to:

- a. Strengthen SRA as regulatory and developmental institution. The agency will:
 - i. *Redefine its Role and Functions in line with current needs and the mandates provided for in the proposed Sugarcane Industry Development Act;*
 - ii. *Implement its Rationalization and Restructuring Program (Part 2) in line with its redefined role;*
 - iii. *Seek ways to enhance its Revenue Base, and*
 - iv. *Ensure the effective implementation of an Action Agenda anchored on the industry Roadmap.*
- b. Strengthen private sector institutions (Philsurin, MDDCs) as key development partners.
- c. Strengthen the industry's coordinative mechanisms.
 - i. *Mobilize the Sugarcane Industry Development Council (SIDC), Technical Working Groups, Program Coordinating Committees and MDDCs, with SRA as Lead Agency, to bring key stakeholders together for planning, implementing, coordinating and monitoring industry development programs and to address key issues affecting the Industry(Annex C).*
- d. Lobby for a Supportive Legislative/Policy Environment:
 - i. The Sugarcane Industry Development Act;
 - ii. Government enforcement of the Biofuels Act & the R/E Law,
 - iii. An amended CARPer that will make agricultural land more negotiable/bankable, and
 - iv. Government interventions to level the playing field for local sugar vis-à-vis imported sugar by addressing VAT, smuggling & other issues.

e. Establish effective partnerships with NGAs and key Institutions to support the industry's development agenda, to include the following programs:

- i. *Infrastructure development – DA, DBM, NEDA, DPWH, NIA, LGUs;*
- ii. *Support program for the muscovado sector - DTI, DOST;*
- iii. *Support programs for the Labor sector - DOLE, BRW, STC, TESDA, SIFI & private foundations;*
- iv. *Support program/financing for ARBs and non-ARB small farmers engaged in sugarcane production – DAR/LBP, Planters' & Millers' Associations, MDDCs;*
- v. *Consolidated R&D - SRA, DOST, UPLB, PHILSURIN, PHILSUTECH, MDDC's, SUCs;*
- vi. *Ethanol & Renewable Energy programs - NBB, NREB, DOE.*

Lead Institution: SRA, with partner NGAs and GFIs

B. Mill/Industrial Sector – The industry will endeavor to promote investments in new processing plants and/or upgrading, modernization and diversification of mills. The Mill Sector should:

- a) Campaign for Incentives like the proposed “stimulus package” and Local Investment Incentives Codes to encourage investments in co-gen and ancillary projects;
- b) Secure Philsucor/GFI support through loans for mill upgrading or investing in improved logistics/cane-handling facilities;
- c) Ensure unwavering government support for and adherence to the Biofuels Act, the R/E Law and the Sugarcane Industry Development Act;
- d) Encourage cane producers to accept fair “cane purchase” arrangements or mill-financing of consolidated farms;
- e) Secure support from National and Local Governments for the establishment of mills as “rural development hubs”.

Lead Institution: Millers associations, with SRA, EPAP, PASRI, PHILSUTECH, NBB/NREB, LGUs

C. Agriculture/Farm Sector – The Industry will improve Farm Productivity and Output in line with Mill District targets by:

- a) Enabling MDDCs as the key district development & extension arm, each with its own Mill District Development Road Map and Action Plan, to include provision for high-yielding variety (HYV) nurseries, Extension Services, Demo Farms, Tractor Services, Fertilization Program, etc. (MDDCs will use a common template for their District Road Maps and Action Plans.)
- b) Securing funding for identified Productivity Improvement Programs and Projects and ensuring effective implementation by MDDCs and other implementing partners;
- c) Sustaining PHILSURIN as the industry's private R&D arm and Technology Developer, in partnership with SRA and other research institutions such as UPLB;
- d) Encouraging private investors / former land-owners / planters' associations to provide management, financing and other services for block farms, ARB associations, small farmer clusters and cane producers in general;
- e) Providing easier access to government financing for crop loans, farm mechanization, irrigation systems, farm-to-mill roads, Research, development and extension, etc.;
- f) Climate change adaptation measures such as cloud seeding in areas where water is needed for the growth of sugarcane, conservation of watersheds to preserve surface water for irrigation, information technology projects linking the farmers to weather and farm advisories to be able to plan farm activities and adjust scheduling of farm activities to the changing climate patterns and other policy and capability building support services.
- g) Institutionalizing the Block Farms to achieve economies of scale and achieve target outputs.

Lead Institution: SRA with Mill District Development Program Committee under the Sugar Industry Development Council (MDDC-SIDC) and individual MDDCs, PHILSURIN, UPLB, Planters' Associations / federations / foundations and other partners

D. Labor Sector – The Labor Sector should be supported as partners of the industry.

Interventions will include:

- a) HRD/Capacity Development Programs
- b) Livelihood and Skills Training
- c) Scholarship Programs for workers & dependents
- d) Enforcement of Labor/Minimum Wage Laws
- e) Continuation of the Social Amelioration Fund

**Lead Institution: DOLE/BSCRW, with Sugar TriPartite Council,
TESDA, SUCs, UPLB, SIFI/other foundations
& NGOs**

E. Consumer Sector & Public at Large – In order to win the support of government and the consuming public, the Industry should project a positive image. It should thus seek to:

- a) “Reengineer” itself (as envisioned);
- b) Project itself as a modernizing and inclusive industry at the forefront of Philippine agriculture, agri-business and renewable energy);
- c) Communicate this positive image with the public through an effective public relations campaign.

Lead Institution: SRA, with Sugar Alliance of the Phil/SMPFI

11. THE IMPLEMENTATION PLANS

The goals can be attained by employing the 5-point strategy and implementing the needed interventions through appropriate action plans, programs and projects.

SRA, in consultation and partnership with industry stakeholders, currently implements or plans to implement identified programs and projects to be funded by SRA corporate funds, the general appropriations through the Sugarcane Industry Act of 2015, financing provided by PHILSUCOR, research fund of PHILSURIN or foreign grants in convergence with government agencies like DAR, DA, DOLE, NEDA, DTI, DOF and PEZA, and through partnerships with private research institutions, planters' federations or associations, state universities and non-government organizations (NGOs).

The program committees provided under the Implementing Rules and Regulations of the Sugarcane Industry Development Act (IRR-SIDA) of 2015 will provide guidance on the priority projects that will be implemented at the mill district level. The various program committees of SIDA will recommend to SRA specific projects on infrastructure, farm mechanization, research, development and extension, support services and specific interventions for the block farm program, identification of field of disciplines to be prioritized under the scholarship program, and identification of priority beneficiaries , priority projects or farm activities that will be prioritized by the socialized credit program. The priority programs and projects and required investments are enumerated in Table 11.

11.1 Mill District Development Plan 2015-2024 (MDDP 2015-2024)

The sugarcane industry is composed of 30 mill districts as sugarcane production areas nationwide wherein the newest mill district declared by SRA is the Isabela Mill District in northern Luzon. The Mill District Development Councils (MDDCs) that are composed of representatives of the sugar mill, SRA, PHILSURIN and planters associations serve as the conduit in the implementation of programs and initiatives in every mill district. At the same time, it can also be the service providers of farm machineries, farm technologies, farm management and sugarcane high-yielding variety planting materials.

The massive distribution of sugarcane high-yielding varieties (HYV) in the mill districts through the establishment of nurseries will contribute a lot in achieving the farm productivity target of a national average of 70 tons cane per hectare by CY 2019-2020. Adaptability and national cooperative trials of newly bred varieties prior to release for commercialization will be brought to the mill districts for testing in partnership with state universities and the MDDCs.

The MDDCs provides cohesiveness and synergy towards the development of the sugarcane mill districts. However, not all of the mill districts have active MDDCs and 6 of them have no MDDCs in place. Mill districts without MDDCs are managed by the MDDCs of nearby mill districts with existing MDDCs like Durano merged with Bogo-Medellin MDDC, Monomer and Santos-Lopez merged with Passi / Iloilo MDDC while Ma-ao, Dacongogon and Isabela have no MDDCs and they are assisted by the SRA extension personnel assigned in such districts or Extension Work Areas (EWA).

The Mill District Development Plan 2015-2024 (MDDP-2015-2024) enumerates the various programs and interventions which have been identified for implementation by each mill district as well as the projected sugarcane areas, farm productivity and sugarcane production in the medium- and long-terms as outputs or outcomes of the programs / interventions implemented. A more detailed manuscript of the Mill District Development Plan 2015-2024 will be prepared in consultation with the mill district constituents to identify the minute details of every problem and solutions towards competitiveness.

Individual and more detailed masterplans of each program will be crafted by SRA in coordination with the MDDCs to provide guidance in the prioritization and deployment of services to the mill districts (refer to Annex E).

Table 11.1a. Medium & Long-Term Action Plans and Targets of Cagayan Mill District

Cagayan Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	38.75	40.0	45.0	50.0	50.0	60.0	60.0	70.0	70.0	80.0	80.0
2. LKg / TC	1.87	1.95	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
3. Cane Prodn, Million MT	0.1976	0.2184	0.2480	0.2805	0.2855	0.3486	0.3576	0.4277	0.4382	0.5168	0.5328
4. Sugar Prodn, Million MT	0.370	0.426	0.496	0.561	0.571	0.697	0.715	0.855	0.876	1.034	1.066
5. Area Planted, Has.	5,410	5,460	5,510	5,610	5,710	5,810	5,960	6,110	6,260	6,460	6,660
6. Area Expansion, Has.	50	50	100	100	100	150	150	150	200	200	200
7. Commercial Power Generation											
MW	-	-	-	5.0	5.0	5.0	10.0	10.0	10.0	10.0	10.0

Table 11.1b. Medium & Long-Term Action Plans and Targets of Cagayan Mill District

Cagayan Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	25	25
2.	Farm Mechanization % Mechanized		
	Land Preparation	50%	100%
	Cultivation	50%	100%
	Harvesting	35%	70%
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	10%	20%
4.	HYV Propagation, % adoption	60%	100%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	80%
6.	Capacity building / HRD for farmers & workers % of farmers & workers trained	75%	100%
	No. of scholars	10	20
7.	Installation of Automated Weather Stations		
	No. of units	4	10
8.	Soil fertility mapping.	100%	
9.	Development of Expansion Areas, Has.	550	1,450

Table 11.2a. Medium & Long-Term Action Plans and Targets of Isabela Mill District

Isabela Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	55.00	60.0	62.5	63.5	64.5	65.0	66.0	67.5	68.5	70.0	70.0
2. Cane Prodn, Million MT	0.1976	0.2184	0.2480	0.2805	0.2855	0.3486	0.3576	0.4277	0.4382	0.5168	0.5328
3. Bioethanol Prodn, Million Liters	24.060	30.000	35.000	40.000	45.000	50.000	51.000	52.000	53.000	54.000	54.000
4. Area Planted, Has.	4,000	7,000	8,000	9,000	10,000	11,000	11,000	11,000	11,000	11,000	11,000
5. Commercial Power Generation											
MW	19.0	19.0	19.0	19.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0

Table 11.2b. Medium & Long-Term Action Plans and Targets of Isabela Mill District

Isabela Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	15	30
2.	Farm Mechanization % Mechanized		
	Land Preparation	50%	85/100%
	Cultivation	50%	65/100%
	Harvesting	50%	65/80%
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	50%	65/80%
4.	HYV Propagation, % adoption	70%	100%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	60/80%
6.	Capacity building / HRD for farmers & workers % of farmers & workers trained No. of scholars	75% 10	100% 20
7.	Installation of Automated Weather Stations No. of units	2	4
8.	Soil fertility mapping,	100%	
9.	Development of Expansion Areas, Has.	5,000	5,000

Table 11.3a. Medium & Long-Term Action Plans and Targets of Tarlac Mill District

Tarlac Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	39.74	40.0	44.0	48.0	50.0	52.0	54.0	56.0	57.0	58.0	60.0
2. Cane Prodn, Million MT											
3. Bioethanol Prodn, Million Liters	0	0	0	0	0	0	0	0	0	0	0
4. Total Area Planted, Has.											
For sugar	15,106	15,106	15,181	15,250	15,500	15,550	15,600	15,650	15,700	15,750	15,800
For bioethanol*	0	0	0	0	0	0	0	0	0	0	0
5. Commercial Power Generation											
MW	9.5	9.5	9.5	9.5	15.0	15.0	15.0	15.0	15.0	15.0	15.0

Table 11.3b. Medium & Long-Term Action Plans and Targets of Tarlac Mill District

Tarlac Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	50	80
2.	Farm Mechanization % Mechanized		
	Land Preparation	50%	100%
	Cultivation	50%	100%
	Harvesting	50%	80%
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	50%	80%
4.	Yield Trials / HYV Propagation, % adoption	70%	100%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	100%
6.	Capacity building / HRD for farmers & workers % of farmers & workers trained	75%	100%
	No. of scholars	10	20
7.	Installation of Automated Weather Stations		
	No. of units	2	4
8.	Soil fertility mapping,	100%	

Table 11.4a. Medium & Long-Term Action Plans and Targets of Pampanga Mill District

Pampanga Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	42.00	42.00	44.00	46.00	48.00	50.00	52.00	54.00	57.00	59.00	60.00
2. Cane Prodn, Million MT	0.300	0.294	0.311	0.787	0.917	1.105	1.253	1.355	1.488	1.599	1.746
3. Bioethanol Prodn, Million Liters	-	-	-	32,000	40,000	52,000	60,000	68,000	75,000	82,000	92,000
4. Total Area Planted, Has.	7,132	7,000	7,070	17,100	19,100	22,100	24,100	25,100	26,100	27,100	29,100
For sugar	7,132	7,000	7,070	7,100	7,100	7,100	7,100	7,100	7,100	7,100	7,100
For bioethanol*	-	-	-	10,000	12,000	15,000	17,000	18,000	19,000	20,000	22,000
5. Commercial Power Generation											
MW	5.3	5.3	5.3	5.3	10.0	10.0	10.0	10.0	10.0	10.0	10.0

*includes expansion areas in Bataan, Zambales, etc. for bioethanol production by Luzon Bioenergy Corp.

Table 11.4b. Medium & Long-Term Action Plans and Targets of Pampanga Mill District

Pampanga Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	20	50
2.	Farm Mechanization % Mechanized		
	Land Preparation	50%	100%
	Cultivation	50%	100%
	Harvesting	50%	80%
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	50%	80%
4.	Yield Trials / HYV Propagation, % adoption	70%	100%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	100%
6.	Capacity building / HRD for farmers & workers % of farmers & workers trained	75%	100%
	No. of scholars	10	20
7.	Installation of Automated Weather Stations		
	No. of units	2	4
8.	Soil fertility mapping	100%	
9.	Liming program	50%	100%
10.	Development of Expansion Areas, Has.	15,000	22,000

Table 11.5a. Medium & Long-Term Action Plans and Targets of Don Pedro Mill District

Don Pedro Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	53.31	55.18	57.11	59.11	61.47	63.93	66.49	69.48	72.60	76.23	80.05
2. Cane Prodn, Million MT	0.76	0.80	0.84	0.89	0.94	0.99	1.05	1.10	1.17	1.24	1.31
3. Bioethanol Prodn, Million Liters	-	-	10.0	15.0	20.0	25.0	30.0	35.0	35.0	35.0	35.0
4. Total Area Planted, Has.	14,186	14,470	17,259	18,654	19,880	21,009	22,242	23,099	23,258	23,419	23,581
For sugar	14,186	14,470	14,759	15,054	15,280	15,509	15,742	15,899	16,058	16,219	16,381
For bioethanol*	-	-	2,500	3,600	4,600	5,500	6,500	7,200	7,200	7,200	7,200
5. Commercial Power Generation											
MW	25.52	25.52	25.52	25.52	40.0	40.0	40.0	40.0	40.0	40.0	40.0

Table 11.5b. Medium & Long-Term Action Plans and Targets of Don Pedro Mill District

Don Pedro Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	20	50
2.	Farm Mechanization % Mechanized		
	Land Preparation	25%	40%
	Cultivation	25%	40%
	Harvesting	20%	40%
3.	Irrigation / Drainage Improvement		
	% Irrigated / Improved drainage	10%	40%
4.	HYV Propagation, % adoption	40%	80%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	75%
6.	Capacity building / HRD for farmers & workers		
	% of farmers & workers trained	25%	75%
	No. of scholars	5	10
7.	Installation of Automated Weather Stations		
	No. of units	5	10
8.	Soil fertility mapping,	100%	
9.	Liming program	50%	100%

Table 11.6a. Medium & Long-Term Action Plans and Targets of Balayan Mill District

Balayan Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	65	66.3	67.63	68.98	70.71	72.48	74.65	76.89	79.19	81.57	84.01
2. Cane Prodn, Million MT	1.06	1.08	1.1	1.12	1.14	1.16	1.18	1.2	1.24	1.28	1.32
3. Bioethanol Prodn, Million Liters	0	0	0	0	0	0	0	0	0	0	0
4. Total Area Planted, Has.	16,273	16,275	16,375	16,400	16,475	16,500	16,550	16,600	16,650	16,700	16,775
For sugar	16,273	16,275	16,375	16,400	16,475	16,500	16,550	16,600	16,650	16,700	16,775
For bioethanol*	0	0	0	0	0	0	0	0	0	0	0
5. Commercial Power Generation											
MW	0	0	0	0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Table 11.6b. Medium & Long-Term Action Plans and Targets of Balayan Mill District

Balayan Mill District		
INTERVENTIONS	MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1. Block Farming, No. of block farms	20	45
2. Farm Mechanization % Mechanized		
Land Preparation	35%	40%
Cultivation	35%	40%
Harvesting	35%	40%
3. Irrigation / Drainage Improvement % Irrigated / Improved drainage	30%	70%
4. HYV Propagation, % adoption	70%	90%
5. Farm to Mill Roads, % permanent/concrete roads	25%	80%
6. Capacity building / HRD for farmers & workers % of farmers & workers trained	50%	70%
No. of scholars	10	20
7. Installation of Automated Weather Stations		
No. of units	5	10
8. Soil fertility mapping,	100%	
9. Development of Expansion Areas, has.	200	500

Table 11.7a. Medium & Long-Term Action Plans and Targets of Pensumil Mill District

Pensumil Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	42.18	42.50	44.00	45.00	46.00	47.00	50.00	52.00	54.00	55.00	56.00
2. Cane Prodn, Million MT	0.190	0.191	0.198	0.207	0.214	0.219	0.235	0.247	0.257	0.261	0.266
3. Bioethanol Prodn, Million Liters	0	0	0	0	0	0	0	0	0	0	0
4. Total Area Planted, Has.	4,500	4,500	4,500	4,600	4,650	4,650	4,700	4,750	4,750	4,750	4,750
For sugar	4,500	4,500	4,500	4,600	4,650	4,650	4,700	4,750	4,750	4,750	4,750
For bioethanol*	0	0	0	0	0	0	0	0	0	0	0
MW	0	0	0	0	0	5.0	5.0	5.0	5.0	5.0	5.0

Table 11.7b. Medium & Long-Term Action Plans and Targets of Pensumil Mill District

Pensumil Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	10	20
2.	Farm Mechanization % Mechanized		
	Land Preparation	25%	40%
	Cultivation	25%	40%
	Harvesting	20%	40%
3.	Irrigation / Drainage Improvement		
	% Irrigated / Improved drainage	10%	40%
4.	HYV Propagation, % adoption	40%	80%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	75%
6.	Capacity building / HRD for farmers & workers		
	% of farmers & workers trained	25%	75%
	No. of scholars	5	10
7.	Installation of Automated Weather Stations		
	No. of units	2	4
8.	Soil fertility mapping	100%	
9.	Mill efficiency improvement, % completion of rehab	50%	75%
10.	Synchronization of milling & harvesting operations	Discussion between the mill & planters associations	

Table 11.8. Medium & Long-Term Action Plans and Targets of Silay-HPCO Mill District

Silay-HPCO Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	76.82	78.00	80.00	82.00	85.00	86.00	87.00	87.50	88.00	88.00	88.00
2. Cane Production, Million MT											
for sugar	0.959	1.050	1.101	1.128	1.170	1.183	1.197	1.204	1.211	1.211	1.211
for ethanol	0	0	0	0	0	0	0	0	0	0	0
3. Commercial Power Generation											
MW	8.0	8.0	8.0	8.0	10.0	10.0	10.0	10.0	15.0	15.0	15.0
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)							
1.	Block Farming, No. of block farms	20		50							
2.	Farm Mechanization % Mechanized	50%		80/100%							
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	30%		60/80%							
4.	HYV Propagation, % adoption	80%		100%							
5.	Farm to Mill Roads, % permanent/concrete roads	25%		60/80%							
6.	Capacity building / HRD for farmers & workers % of farmers & workers trained	75%		100%							
	No. of scholars	10		20							
7.	Installation of Automated Weather Stations No. of units	2		2							
8.	Soil fertility mapping										

Table 11.9. Medium & Long-Term Action Plans and Targets of Bac-Murcia / First Farmers Mill District

Bac-Murcia / First Farmers Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	69.75	70.00	73.00	74.00	79.00	81.00	82.00	83.00	83.00	84.00	85.00
2. Cane Production, Million MT											
for sugar	1.465	1.480	1.585	1.607	1.716	1.597	1.207	1.222	1.236	1.236	1.251
for ethanol						0.162	0.574	0.581	0.588	0.588	0.595
3. Commercial Power Generation											
MW	21.0	21.0	21.0	25.0	25.0	25.0	25.0	30.0	30.0	30.0	30.0
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)							
1.	Block Farming, No. of block farms	20		50							
2.	Farm Mechanization, % Mechanized	50%		75/100%							
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	30%		60/80%							
4.	HYV Propagation, % adoption	80%		100%							
5.	Soil fertility mapping, % completion	100%									
6.	Farm to Mill Roads, % permanent/concrete roads	25%		60/80%							
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained	75%		100%							
	No. of scholars	10		20							
8.	Automated Weather Stations, No. of units	2		2							

Table 11.10. Medium & Long-Term Action Plans and Targets of Binalbagan Mill District

Binalbagan-Biscom Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	74.34	75.50	76.00	78.00	81.00	83.00	84.00	85.00	86.00	87.00	87.00
2. Cane Production, Million MT											
for sugar	2.135	2.150	2.211	2.270	2.194	2.224	2.270	2.146	2.171	2.196	2.196
for ethanol					0.567	0.581	0.570	0.728	0.736	0.745	0.745
3. Commercial Power Generation											
MW	0	0	0	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)			LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					20			50		
2.	Farm Mechanization, % Mechanized					50%			100%		
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage					30%			80%		
4.	HYV Propagation, % adoption					80%			100%		
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent/concrete roads					25%			80%		
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained No. of scholars					75% 10			100% 20		
8.	Automated Weather Stations, No. of units					2			2		
9.	Development of expansion area, hectares					500			700		

Table 11.11. Medium & Long-Term Action Plans and Targets of Dacongogon Mill District

Dacongogon Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	52.00	52.68	54.00	55.00	60.00	62.00	65.00	70.00	72.00	74.00	75.00
2. Cane Production, Million MT											
for sugar	0.561	0.543	0.567	0.578	0.630	0.341	0.358	0.315	0.324	0.333	0.338
for ethanol						0.434	0.455	0.560	0.576	0.592	0.600
3. Commercial Power Generation											
MW	0	0	0	0	0	0	0	0	0	0	0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)			LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					50			100		
2.	Farm Mechanization, % Mechanized					30%			70%		
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage					30%			80%		
4.	HYV Propagation, % adoption					60%			80%		
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent/concrete roads					25%			80%		
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained No. of scholars					75% 10			100% 20		
8.	Automated Weather Stations, No. of units					2			2		
9.	Investment promotion, sugar mill or bioethanol facility					promotion			Facility installed		

Table 11.12. Medium & Long-Term Action Plans and Targets of La Carlota Mill District

La Carlota Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	74.62	75.00	77.00	78.00	82.00	83.00	84.00	85.00	86.00	86.00	86.00
2. Cane Production, Million MT											
for sugar	1.394	1.400	1.484	1.504	1.581	1.600	1.619	1.639	1.658	1.658	1.658
for ethanol	-	-	-	-	-	-	-	-	-	-	-
3. Commercial Power Generation											
MW	0	0	0	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)			LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					50			100		
2.	Farm Mechanization, % Mechanized					50%			100%		
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage					30%			80%		
4.	HYV Propagation, % adoption					80%			100%		
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent/concrete roads					25%			80%		
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained					75%			100%		
						No. of scholars			20		
8.	Installation of Automated Weather Stations, No. of Units					2			2		

Table 11.13. Medium & Long-Term Action Plans and Targets of Lopez Mill District

Lopez Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	68.32	69.00	69.50	72.00	76.00	78.00	80.00	83.00	84.00	85.00	85.00
2. Cane Production, Million MT											
for sugar	0.923	0.825	0.958	0.992	0.998	1.025	1.051	0.963	0.930	0.901	0.901
for ethanol	-	-	-	-	-	-	-	0.127	0.173	0.215	0.215
3. Commercial Power Generation											
MW	0	0	0	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)			LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					20			50		
2.	Farm Mechanization, % Mechanized					50%			100%		
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage					30%			80%		
4.	Yield trials / HYV Propagation, % adoption					80%			100%		
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent/concrete roads					25%			80%		
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained					75%			100%		
						No. of scholars			20		
8.	Automated Weather Stations, No. of Units					2			2		
9.	SRA policy on allocation of cane to ethanol					New policy implemented					

Table 11.14. Medium & Long-Term Action Plans and Targets of Ma-ao Mill District

Ma-ao Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	70.0	71.0	71.50	74.0	78.00	80.00	82.00	83.00	84.00	85.00	85.00
2. Cane Production, Million MT											
for sugar	0.714	0.730	0.777	0.804	0.613	0.629	0.645	0.653	0.660	0.668	0.668
for ethanol	-	-	-	0.222	0.546	0.560	0.574	0.581	0.588	0.595	595
3. Commercial Power Generation											
MW	0	0	0	0	0	0	0	0	0	0	0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)			LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					20			50		
2.	Farm Mechanization, % Mechanized					50%			100%		
3.	Irrigation / Drainage Improvement, % of area served					30%			80%		
4.	HYV Propagation, % adoption					70%			100%		
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent/concrete roads					25%			80%		
7.	Capacity building / HRD for farmers & workers										
	% of farmers & workers trained					75%			100%		
	No. of scholars					10			20		
8.	Automated Weather Stations, No. of Units					2			2		
9.	Development of expansion area, hectares					500			750		
10.	Strengthen MDDC					implemented					

Table 11.15. Medium & Long-Term Action Plans and Targets of Sagay Mill District

Sagay Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	68.42	70.00	70.50	73.00	76.00	80.00	82.00	83.00	84.00	85.00	85.00
2. Cane Production, Million MT											
for sugar	1.147	1.180	1.199	1.241	1.141	0.629	0.645	0.653	0.660	0.668	0.668
for ethanol						0.560	0.574	0.581	0.588	0.595	0.595
3. Commercial Power Generation											
MW	0	0	0	5.0	5.0	5.0	5.0	10.0	10.0	10.0	10.0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)			LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					50			100		
2.	Farm Mechanization, % Mechanized					50%			100%		
3.	Irrigation / Drainage Improvement										
	% Irrigated / Improved drainage					30%			80%		
4.	HYV Propagation, % adoption					70%			100%		
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent/concrete roads					25%			80%		
7.	Capacity building / HRD for farmers & workers										
	% of farmers & workers trained					75%			100%		
	No. of scholars					10			20		
8.	Installation of Automated Weather Stations, No. of Units					2			2		

Table 11.16. Medium & Long-Term Action Plans and Targets of San Carlos Mill District

San Carlos Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	66.26	68.00	69.00	71.00	75.00	77.00	79.00	81.00	82.00	83.00	84.00
2. Cane Production, Million MT											
for sugar	0.741	0.760	0.776	0.798	0.693	0.711	0.730	0.749	0.758	0.767	0.777
for ethanol	0.232	0.200	0.242	0.249	0.525	0.539	0.553	0.567	0.574	0.581	0.588
3. Commercial Power Generation											
MW	8.0	8.0	8.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)							
1.	Block Farming, No. of block farms	20		50							
2.	Farm Mechanization, % Mechanized	50%		100%							
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	30%		80%							
4.	HYV Propagation, % adoption	70%		100%							
5.	Soil fertility mapping, % completion	100%									
6.	Farm to Mill Roads, % permanent/concrete roads	25%		80%							
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained	75%		100%							
	No. of scholars	10		20							
8.	Installation of Automated Weather Stations, No. of Units	2		2							

Table 11.17. Medium & Long-Term Action Plans and Targets of Sonedco Mill District

Kabankalan-SONEDCO Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	65.22	66.00	67.00	70.00	75.00	77.00	79.00	81.00	82.00	83.00	84.00
2. Cane Production, Million MT											
for sugar	0.832	0.862	0.841	0.879	0.942	0.967	0.992	1.017	1.030	1.042	1.055
for ethanol											
3. Commercial Power Generation											
MW	46.0	46.0	46.0	46.0	46.0	46.0	60.0	60.0	60.0	60.0	60.0
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)							
1.	Block Farming, No. of block farms	30		80							
2.	Farm Mechanization, % Mechanized	50%		100%							
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage	30%		80%							
4.	HYV Propagation, % adoption	80%		100%							
5.	Soil fertility mapping, % completion	100%									
6.	Farm to Mill Roads, % permanent/concrete roads	25%		80%							
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained	75%		100%							
	No. of scholars	10		20							
8.	Installation of Automated Weather Stations, No. of Units	2		2							

Table 11.18. Medium & Long-Term Action Plans and Targets of Victorias Mill District

Victorias Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	69.04	70.00	71.00	73.00	78.00	80.00	82.00	83.00	84.00	85.00	86.00
2. Cane Production, Million MT											
for sugar	2.176	2.200	2.260	2.324	2.483	2.547	2.610	2.559	2.590	2.621	2.652
for ethanol						0.549	0.563	0.653	0.661	0.668	0.676
3. Commercial Power Generation											
MW	18.0	18.0	18.0	40.0	40.0	40.0	40.0	50.0	50.0	50.0	50.0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)			
1.	Block Farming, No. of block farms					80		150			
2.	Farm Mechanization, % Mechanized					50%		100%			
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage					30%		80%			
4.	HYV Propagation, % adoption					80%		100%			
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent / concrete roads					25%		80%			
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained No. of scholars					75% 10		100% 20			
8.	Installation of Automated Weather Stations, No. of Units					2		2			

Table 11.19. Medium & Long-Term Action Plans and Targets of Bais-Ursumco Mill District

Bais-URSUMCO Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	56.28	58.00	59.00	60.00	65.00	67.00	69.00	74.00	75.00	76.00	77.00
2. Cane Production, Million MT											
for sugar	1.510	1.550	1.615	1.642	1.779	1.834	1.889	2.026	2.053	2.080	2.108
for ethanol											
3. Commercial Power Generation											
MW	0	0	0	10.0	10.0	10.0	10.0	10.0	10.0	20.0	20.0
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)			
1.	Block Farming, No. of block farms					80		150			
2.	Farm Mechanization, % Mechanized					50%		100%			
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage					30%		80%			
4.	Yield Trials / HYV Propagation, % adoption					80%		100%			
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent / concrete roads					25%		80%			
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained No. of scholars					75% 10		100% 20			
8.	Automated Weather Stations, No. of Units					2		2			
9.	Liming program, % farm area applied					100%					

Table 11.20. Medium & Long-Term Action Plans and Targets of Tolong Mill District

Tolong Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	50.79	52.00	53.00	55.00	60.00	62.00	65.00	70.00	72.00	73.00	74.00
2. Cane Production, Million MT											
for sugar	0.458	0.500	0.502	0.521	0.568	0.587	0.616	0.663	0.682	0.691	0.701
for ethanol											
3. Commercial Power Generation											
MW	0	0	0	0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
INTERVENTIONS							MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					20		50			
2.	Farm Mechanization, % Mechanized					50%		100%			
3.	Irrigation / Drainage Improvement % Irrigated / Improved drainage					30%		80%			
4.	Yield Trials / HYV Propagation, % adoption					60%		100%			
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent / concrete roads					25%		80%			
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained					75%		100%			
	No. of scholars					10		20			
8.	Automated Weather Stations, No. of Units					2		2			
9.	Liming program, % of farm areas applied					100%					

Table 11.21. Medium & Long-Term Action Plans and Targets of Capiz Mill District

Capiz Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	47.95	50.00	51.00	52.00	55.00	57.00	59.00	61.00	65.00	66.00	67.00
2. Cane Production, Million MT											
for sugar	0.432	0.450	0.469	0.478	0.396	0.410	0.425	0.439	0.468	0.475	0.482
for ethanol					0.110	0.114	0.118	0.122	0.130	0.132	0.134
3. Commercial Power Generation											
MW	0	0	0	0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
INTERVENTIONS							MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)		
1.	Block Farming, No. of block farms					20		50			
2.	Farm Mechanization, % Mechanized					50%		100%			
3.	Irrigation / Drainage Improvement, % of area served					30%		80%			
4.	HYV Propagation, % adoption					60%		100%			
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent / concrete roads					25%		80%			
7.	Capacity building / HRD for farmers & workers % of farmers & workers trained					75%		100%			
	No. of scholars					10		20			
8.	Automated Weather Stations, No. of Units					2		2			
9.	Installation of Soils laboratory, % completion					100%					
10.	SRA sugar pricing policy					Policy study undertaken					

Table 11.21. Medium & Long-Term Action Plans and Targets of Monomer Mill District

Monomer Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	50.55	52.00	53.00	54.00	58.00	60.00	62.00	64.00	68.00	69.00	70.00
2. Cane Production, Million MT											
for sugar	0.166	0.178	0.177	0.180	0.194	0.200	0.207	0.214	0.227	0.230	0.234
for ethanol											
3. Commercial Power Generation											
MW	0	0	0	0	0	0	0	0	0	0	0
INTERVENTIONS								MEDIUM-TERM TARGETS (2018-19)			LONG-TERM TARGETS (2023-24)
1. Block Farming, No. of block farms								20			50
2. Farm Mechanization, % Mechanized								50%			100%
3. Irrigation / Drainage Improvement, % of area served								30%			80%
4. HYV Propagation, % adoption								60%			100%
5. Soil fertility mapping, % completion								100%			
6. Farm to Mill Roads, % permanent / concrete roads								25%			80%
7. Capacity building / HRD for farmers & workers											
% of farmers & workers trained								75%			100%
No. of scholars								10			20
8. Automated Weather Stations, No. of Units								2			2

Table 11.22. Medium & Long-Term Action Plans and Targets of Passi-Iloilo Mill District

Passi-Iloilo Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	54.22	55.50	56.00	58.00	60.00	62.00	64.00	66.00	70.00	71.00	71.00
2. Cane Production, Million MT											
for sugar	0.688	0.700	0.718	0.744	0.770	0.795	0.821	0.847	0.898	0.911	0.911
for ethanol											
3. Commercial Power Generation											
MW	15.0	15.0	15.0	15.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
INTERVENTIONS											
1. Block Farming, No. of block farms								25			50
2. Farm Mechanization, % Mechanized								50%			100%
3. Irrigation / Drainage Improvement, % of area served								30%			80%
4. HYV Propagation, % adoption								60%			100%
5. Soil fertility mapping, % completion								100%			
6. Farm to Mill Roads, % permanent / concrete roads								25%			80%
7. Capacity building / HRD for farmers & workers											
% of farmers & workers trained								75%			100%
No. of scholars								10			20
8. Automated Weather Stations, No. of Units								2			2

Table 11.23. Medium & Long-Term Action Plans and Targets of Santos-Lopez Mill District

Santos-Lopez Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	53.48	55.00	56.00	57.00	59.00	61.00	63.00	64.00	66.00	67.00	68.00
2. Cane Production, Million MT											
for sugar	0.299	0.320	0.320	0.325	0.337	0.348	0.360	0.365	0.377	0.382	0.388
for ethanol											
3. Commercial Power Generation											
MW											
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)					LONG-TERM TARGETS (2023-24)				
1.	Block Farming, No. of block farms	25					50				
2.	Farm Mechanization, % Mechanized	50%					100%				
3.	Irrigation / Drainage Improvement, % of area served	30%					80%				
4.	HYV Propagation, % adoption	60%					100%				
5.	Soil fertility mapping, % completion	100%									
6.	Farm to Mill Roads, % permanent / concrete roads	25%					80%				
7.	Capacity building / HRD for farmers & workers										
	% of farmers & workers trained	75%					100%				
	No. of scholars	10					20				
8.	Automated Weather Stations, No. of Units	2					2				

Table 11.24. Medium & Long-Term Action Plans and Targets of Bogo-Nedellin & Durano Mill District

Bogo-Medellin / Durano Mill Districts											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	45.46	46.00	48.00	49.00	52.00	54.00	56.00	58.00	62.00	63.00	64.00
2. Cane Production, Million MT											
for sugar	0.359	0.370	0.384	0.392	0.416	0.432	0.448	0.464	0.496	0.507	0.600
for ethanol											0.078
3. Commercial Power Generation											
MW	0	0	0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)					LONG-TERM TARGETS (2023-24)				
1.	Block Farming, No. of block farms	25					50				
2.	Farm Mechanization, % Mechanized	50%					100%				
3.	Irrigation / Drainage Improvement, % of area served	30%					80%				
4.	HYV Propagation, % adoption	60%					100%				
5.	Soil fertility mapping, % completion	100%									
6.	Farm to Mill Roads, % permanent / concrete roads	25%					80%				
7.	Capacity building / HRD for farmers & workers										
	% of farmers & workers trained	75%					100%				
	No. of scholars	10					20				
8.	Automated Weather Stations, No. of Units	2					2				
9.	SRA Policies - Synchronization of harvesting & milling to optimize yield & sugar pricing, not dictated by DTI										

Table 11.25. Medium & Long-Term Action Plans and Targets of Ormoc-Kananga Mill District

Ormoc-Kananga Mill District											
	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	43.09	44.00	45.00	46.00	49.00	51.00	53.00	55.00	58.00	60.00	62.00
2. Cane Production, Million MT											
for sugar	0.349	0.360	0.381	0.389	0.415	0.432	0.449	0.466	0.491	0.511	0.528
for ethanol					0.189	0.197	0.204	0.212	0.224	0.231	0.239
3. Commercial Power Generation											
MW											
INTERVENTIONS						MEDIUM-TERM TARGETS (2018-19)		LONG-TERM TARGETS (2023-24)			
1.	Block Farming, No. of block farms					25		50			
2.	Farm Mechanization, % Mechanized					50%		100%			
3.	Drainage Improvement, % of area served					30%		80%			
4.	Yield Trials / HYV Propagation, % adoption					60%		100%			
5.	Soil fertility mapping, % completion					100%					
6.	Farm to Mill Roads, % permanent / concrete roads					25%		80%			
7.	Capacity building / HRD for farmers & workers					75%		100%			
	% of farmers & workers trained					10		20			
	No. of scholars					2		2			
8.	Automated Weather Stations, No. of Units					100%					
9.	Liming program, % of farm areas applied					100%					

Table 11.26a. Medium & Long-Term Action Plans and Targets of Bukidnon Mill District

Bukidnon Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	52.24	53.00	55.00	56.00	60.00	62.00	65.00	67.00	70.00	72.00	73.00
2. LKg / TC	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.05	2.10
3. Cane Prodn, Million MT											
4. Sugar Prodn, Million MT	3.639	3.705	3.844	3.993	4.278	5.227	5.480	5.648	5.901	6.064	5.914
5. Area Planted, Has.											
	69,663	69,906	69,906	71,304	84,304	84,304	84,304	84,304	84,304	84,220	81,008
6. Area Expansion, Has.											
				1,398	13,000						
											(ethanol)
7. Commercial Power Generation, Capacity											
MW	21.0	21.0	21.0	21.0	21.0	21.0	31.0	31.0	31.0	31.0	31.0

Table 11.26b. Medium & Long-Term Action Plans and Targets of Bukidnon Mill District

Bukidnon Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	50	100
2.	Farm Mechanization (% Mechanized)		
	Land Preparation	70%	100%
	Cultivation	60%	100%
	Harvesting	40%	70%
3.	Irrigation / Drainage Improvement		
	% Irrigated	10%	20%
	% Improved drainage		
4.	HYV Propagation, % adoption	70%	100%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	80%
6.	Capacity building / Training for farmers & workers		
	% of farmers & workers trained	80%	100%
	No. of scholars	20	20
7.	Installation of Automated Weather Stations		
	No. of units	4	10
8.	Soil fertility mapping, % coverage	100%	
9.	Development of Expansion Areas, Has.	550	1,450

Table 11.27a. Medium & Long-Term Action Plans and Targets of Davao Mill District

Davao Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	42.17	45.00	47.00	48.00	54.00	56.00	58.00	60.00	65.00	68.00	69.00
2. LKg / TC	2.0	2.0	2.0	2.0	2.0	2.0	2.05	2.05	2.05	2.05	2.10
3. Cane Prodn, MMT	0.478	0.490	0.506	0.517	0.581	1.023	1.366	1.480	1.548	1.548	1.709
4. Sugar Prodn, MMT	0.047	0.047	0.050	0.051	0.082	0.085	0.090	0.090	0.090	0.090	0.095
5. Area Planted, Has.	11,335	10,556	10,767	10,767	10,800	22,767	22,767	22,767	22,767	22,767	22,767
5. Commercial Power Generation, capacity											
MW	0	0	0	0	5.0	5.0	5.0	5.0	10.0	10.0	10.0

Table 11.27b. Medium & Long-Term Action Plans and Targets of Davao Mill District

Davao Mill District			
INTERVENTIONS		MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1.	Block Farming, No. of block farms	15	30
2.	Farm Mechanization % Mechanized		
	Land Preparation	60%	100%
	Cultivation	60%	100%
	Harvesting	40%	80%
3.	Irrigation / Drainage Improvement		
	% Irrigated / Improved drainage	50%	80%
	% drainage improvements		
4.	HYV Propagation, % adoption	70%	100%
5.	Farm to Mill Roads, % permanent/concrete roads	25%	80%
6.	Capacity building / HRD for farmers & workers		
	% of farmers & workers trained	75%	100%
	No. of scholars	10	20
7.	Installation of Automated Weather Stations		
	No. of units	4	6
8.	Soil fertility mapping, % completion	100%	
9.	Development of Expansion Areas, Has.	5,000	5,000

Table 11.28a. Medium & Long-Term Action Plans and Targets of Cotabato Mill District

Cotabato Mill District											
Crop Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1. TC/Ha	45.83	48.00	49.00	51.00	54.00	56.00	58.00	60.00	65.00	68.00	
2. Cane Prodn, MMT	0.505	0.450	0.420	0.437	0.463	0.480	0.497	0.514	0.557	0.583	0.592
3. Sugar prodn, MMT	0.0625	0.045	0.042	0.045	0.05	0.05	0.05	0.06	0.065	0.070	0.075
4. Total Area Planted, Has.	11,030	8,491	8,576	8,576	8,576	8,576	8,576	8,576	8,600	8,600	8,600
5. Commercial Power Generation											
MW	0	0	0	0	0	10.0	10.0	10.0	10.0	10.0	10.0

*Includes expansion areas in Bataan, Zambales, etc. for bioethanol production by Luzon Bioenergy Corp.

Table 11.28b. Medium & Long-Term Action Plans and Targets of Cotabato Mill District

Cotabato Mill District		
INTERVENTIONS	MEDIUM-TERM TARGETS (2018-19)	LONG-TERM TARGETS (2023-24)
1. Block Farming, No. of block farms	25	50
2. Farm Mechanization % Mechanized		
Land Preparation	50%	100%
Cultivation	50%	100%
Harvesting	50%	80%
3. Irrigation / Drainage Improvement		
% Irrigated	20%	80%
% Improved drainage	20%	80%
4. Yield Trials / HYV Propagation, % adoption	70%	100%
5. Farm to Mill Roads, % permanent/concrete roads	25%	100%
6. Capacity building / HRD for farmers & workers		
% of farmers & workers trained	75%	100%
No. of scholars	10	20
7. Installation of Automated Weather Stations		
No. of units	2	4
8. Soil fertility mapping, % completion	100%	
9. Liming program, % applied	50%	100%
10. Development of Expansion Areas, Has.		

11.2. Block Farm Implementation Plan

I. INTRODUCTION

1. Background

As early as January 2011, the concept of block farming was announced by Administrator Ma. Regina Bautista-Martin of SRA as the flagship program of her administration to prepare the small farmers when the tariff of sugar will be reduced to 5% in year 2015. She conceptualized the program as an avenue of promoting agribusiness and entrepreneurship among the small farming communities with the block farm as an agribusiness enterprise.

Secretary Proceso J. Alcala, the DA Secretary, fully supported the block farming program of SRA which he included as part of the DA-DAR-DENR Convergence Initiative. When the SRA Administrator and DAR Secretary Virgilio de los Reyes met in one of the gatherings for the Agrarian Reform Communities in Negros Occidental, sometime in February 2011, the block farming program for the Agrarian Reform Beneficiaries was extensively discussed by the two leaders.

2. Rationale

SRA production and productivity data in crop year 2013-2014 (Table 11.2.1) showed that small farms of 5 hectares and less comprised around 82 % of the total farms with a total land area of 120,364 hectares and still counting due to the on-going distribution of lands under the agrarian reform program. The average farm productivity is way below the national average productivity. In general, the Philippine farm productivity is below the Thailand productivity having an average of around 70 tons cane per hectare compared to the Philippines with only 59 tons cane per hectare in CY 2013-2014. In a way, the low productivity of small farms have influenced the national average. Productive farms in the Philippines can yield even more than 100 tons cane per hectare given the right fertilizer, with properly mechanized and irrigated farms and right timing of planting and harvesting operations that are synchronized with mill operations.

Table 11.2.1 Farm Profile of Philippine Sugarcane Farms

Profile of Philippine Sugarcane Farms, CY 2013-2014						
Farm Size	No. of Farmers	Percent	No. of Farms	Percent	Area (has)	Percent
		No. of Farmers		No. of Farms		Area
Below 5.00 Has.	63,761	81.46%	67,512	75.51%	120,364	28.44%
5.01 - 10.00	7,851	10.03%	9,515	10.64%	56,745	13.41%
10.01 -25.00	3,730	4.77%	5,656	6.33%	63,806	15.08%
25.01 - 50.00	1,637	2.09%	2,977	3.33%	62,837	14.85%
50.01 - 100.00	911	1.16%	2,044	2.29%	56,755	13.41%
100.01 & Above	386	0.49%	1,706	1.91%	62,658	14.81%
TOTAL	78,276	100.00%	89,411	100.00%	423,165.45	100.00%

The country’s sugarcane farms have a huge potential to grow economically if the farmers are given the right support especially for the small farms and the appropriate infrastructure programs are provided by the government that help in achieving optimum farm productivity.

II. PROGRAM COMPONENTS

1. Description

The block farming program is the operational consolidation of small sugarcane farms with low farm productivities to take advantage of plantation-scale production for easier deployment / access of support facilities such as logistical, financial and marketing support services. Operations and farm management of small farms will be consolidated into a minimum “block farms” of 30 hectares. Ownership of each small farm is still maintained and respected, thus giving the landowners a share in the profits or earnings in using the land for sugarcane production. Through a consolidated and professional management of contiguous farms, productivity will improve

beyond the national average level of 56 tons cane per hectare given the appropriate infrastructure and timely support / financial services.

2. Program Status and Milestones

For the period of 2012 to 2014, twenty eight (28) block farms were operationalized under the convergence initiative of DAR-DA-SRA. In 2012, four (4) pilot block farms were launched in Balayan, Batangas which were already operational for two cropping seasons and fifteen (15) more operated for their first cropping season. Remaining block farms will complete their first cropping season as block farms in crop year 2014-2015.

Monitoring reports of SRA showed an increase in sugarcane yield of the 19 pilot block farms (Table 11.2.2) during their operation in CY 2013-2014 at an average of 29.2%, comparing their yields prior to participation in the block farm program versus farm productivities when they operated as block farms.

Table 11.2.2. SRA-DAR-DA Pilot Block Farms as of CY 2013-14

Block Farms (BF)	Tons Cane / Hectare		% Increase
	Prior to Block Farm	As Block Farm	
1. Binhi ni Abraham, Concepcion, Tarlac	40.00	70.00	75.00%
2. North Cluster Producers Coop, Paniqui, Tarlac	50.00	100.00	100.00%
3. Lucban MPC, Blayan, Batangas	37.00	50.58	36.70%
4. Kamahari MPC, Nasugbu, Batangas	43.67	57.31	31.23%
5. Damba MPC, Nasugbu, Batangas	41.00	47.31	15.39%
6. Prenza MPC, Lian, Batangas	50.00	54.81	9.62%
7. Kauswagan MPC, Pontevedra, Negros Occ.	45.44	55.48	22.10%
8. Gen. Malvar MPC, Pontevedra, Negros Occ.	38.00	53.27	40.18%
9. Minaba MPC, Kabankalan, Negros Occ.	42.05	52.92	25.85%
10. Hda. Bernardita ARB MPC (Cadiz, Negros Occ.	77.00	82.75	7.47%
11. Casa MPC, Talisay, Negros Occ.	59.25	67.04	13.15%
12. SYCIP Plantation Workers, Manjuyod, Negros Or.	80.00	123.55	54.44%
13. San Julio Farm Workers MPC, Tanjay, Negros Or.	55.00	65.00	18.18%
14. KASFARBECO, Bais, Negros Or.	52.00	65.00	25.00%
15. LARBEMCO, Bayawan, Negros Or.	41.50	49.83	20.07%
16. RAMPUCO MPC	58.00	75.00	29.31%
17. MAFARMPUCO	45.00	50.66	12.58%
18. SUFARMPUCO	55.00	60.00	9.09%
19. Agutayan-Cubay ARC	55.00	60.00	9.09%
AVERAGE	50.78	65.29	29.18%

3. Implementing Agency / ies

Lead Agency : Sugar Regulatory Administration
Partners : Department of Agrarian Reform (DAR)
Department of Agriculture (DA)
Mill District Development Councils (MDDCs)

4. Target Beneficiaries

Beneficiaries shall be small farmers of SRA-validated farms with sizes of 5 hectares and less, ARBs or non-ARBs.

II. OBJECTIVES AND TARGETS

1. Objectives

- To provide the small sugarcane farmers with ample technical, financial, infrastructure and marketing support by consolidating small farms to achieve economies of scale;
- To improve the farm productivity of small farms through block farming;
- To reduce cost of production and provide a sustainable income for small sugarcane farmers.

2. Deliverables

a. Target Outputs

- Hired 50 junior agriculturists to assist in providing technical assistance and technologies to block farms
- Business / deployment plans of 50 block farms
- Farm and budget plans of 50 block farms
- Rehabilitated the soils of 1,500 hectares of block farms
- Trained 1,500 block farm enrollees using OPSI modules (Appendix 3)
- 50 locations of one-hectare demo farms
- 50 locations of one-hectare high-yielding variety (HYV) nurseries
- 8 sets of training equipment

- 50 sets of farm machineries, implements & irrigation equipment
- Financed the farm operations of 50 block farms @ P50,000/hectare

b. Desired Outcomes

- 5 tons cane per hectare minimum increase in sugarcane tonnage per block farm provided that there is no typhoon damage and pest infestation
- P 100 per 50-kilo bag minimum reduction of cost of production of raw sugar produced, granting that there is no escalation in the price of farm inputs

3. Medium-Term Targets

Table 11.2.3. Block Farm Medium-Term Targets

Years	2015	2016	2017	2018	2019	2020
% Small Farmers Enrolled in Block Farms	2%	10%	30%	42%	55%	68%
% Area of Small Farms Covered by Block Farms	0.5%	3%	10%	15%	25%	35%

Notes: As of CY 2011-2012, number of small farms was 54,042 and area of small farms was 108,699 hectares

III. IMPLEMENTATION PHASES

1. Identification and Prioritization of Beneficiaries

- SRA and / or DAR pre-identifies and obtain profiles of small farmers cooperatives and organizations who have legal personality (SEC, CDA or DOLE-registered) and qualify for the block farm program

- Farm areas of individual enrollees are surveyed by SRA technical personnel and junior agriculturists to validate ownership and farm size
- Identified and pre-qualified block farms should apply for SRA accreditation
- Organizational maturity and financial capability are assessed as basis for grants through the general appropriations
- The priority 50 block farms will be assessed by SRA as to its organizational stability and capability. Organizationally stable block farms will be prioritized in terms of granting them with HYV nurseries and farm machineries
- Continual briefings, orientations and trainings will be given to all block farms and give focus to the strengthening of those with weak organizational structure for them to be able to receive grants from the government
- Remaining block farms over and above the funded 50 block farms will be lined-up for funding the following year.

2. Beneficiaries and Locations

The target 50 block farm beneficiaries and locations pre-identified by SRA and DAR to qualify for government grants will be selected from among those validated and accredited by SRA.

3. Interventions and Activities

- Prospective block farms organizations are profiled by SRA or DAR and lists of interested enrollees who wanted to join the block farm program are evaluated
- Individual farms of block farm enrollees are validated by SRA through GPS mapping and exact area of each farm are finalized for inclusion in the block farm program
- Briefing, orientation, awareness and bookkeeping seminars are given to organized block farms
- Soil samples are gathered by SRA agriculturists, Mill District Officers (MDOs) and hired Junior agriculturists and analyzed in

SRA soils laboratories as basis for fertilization and soil amendments / rehabilitation

- Farm and budget plans of each individual farms are prepared with the assistance of SRA technical personnel and hired junior agriculturists which is a requirement of Landbank in crop loan applications
- Potential farm managers are selected among the block farm enrollees who will be trained as future farm managers
- Each block farm should be managed by a professional manager and in the absence of such, the SRA MDO will initially coach the block farm on how to manage their farms as an agribusiness enterprise
- Farm management seminars and trainings are conducted to block farm enrollees more particularly the SRA Outreach Program for the Sugar Industry (OPSI) training which is a 3-day seminar/workshop that contains a comprehensive course on sugarcane farm management and good agricultural practices. This includes cross farm visits to progressive farms in the country
- Block farm enrollees are also sponsored for cross farm visits to observe best practices of progressive farms within the country and in neighboring countries as well like Thailand
- Demo farms are made available to each block farm as model farms where the best technologies and good agricultural practices are showcased. A MOA between the block farm lot owner and the SRA will be executed for the establishment and operation of a demo farm where farm inputs will be funded by the government
- A one-hectare HYV nursery will be funded by government to multiply and propagate good varieties of sugarcane in the block farm. A MOA shall be executed between SRA and the block farm beneficiary. Most block farms use old varieties because these are cheaper compared to high-yielding varieties. A one-hectare HYV nursery could generate approximately 600,000 pieces of canepoints or planting materials that could be planted in a 12-hectare sugarcane field. The nursery should be maintained by the block farm sustainably for 5 years and

planting materials shall be distributed to member-enrollees at reasonable profit margins

- Farm machineries, implements and equipment will be given to the priority 50 block farms in the form of a grant which they will manage as a business undertaking. Those who are not organizationally and financially ready to manage the deployment of farm machineries cannot be a recipient of such machineries, instead, the machineries will be operated by a service provider with a profit-sharing scheme agreement with the block farm owners. The machineries shall be turned over to the block farms once they are organizationally and financially capable or at the end of the service life of the machineries
- Block Farm Business plan or Farm Machinery deployment plan shall be outsourced and a requirement prior to the delivery of such farm machineries
- SRA MDOs and junior agriculturists will coach the block farm for a term of 6 years with some government support, (technical / financial / infrastructure), and thereafter they should have managed their farms as an agribusiness enterprise
- A cluster of block farms will be established in Luzon, Visayas and Mindanao as island representatives to the block farm national level

Table 11.2.4. Budgetary Requirement of the Block Farm Program – 2016

GAA

Description / Components	Total Budgetary Requirement of 50 block farms (BF)	Target Outputs
Orientation / farm management seminars & trainings like OPSI and cross farm visits	19,532,200 (782,200 for training eqpt of Luzon, Visayas & Mindanao; Training MOOE @ 375,000 / BF that includes transportation, meals, venue, accommodation, training materials and honorarium of speakers	Minimum of 1,500 BF enrollees trained
Soils rehabilitation of block farms	16,027,500 @ 10,685/BF for Soils analysis and soil rehabilitation materials and services	Minimum of 1,500 hectares rehabilitated
Hiring of Junior Agriculturists to assist in providing technical services to block farms	11,880,000 @ P650 /day salary. + P250/day transportation allowance for 22 days/mo	50 Junior agriculturists hired
Establishment of one-hectare Demo Farms per BF to showcase latest technologies and best practices in sugarcane farming	4,294,750 @ 85,895/ha/BF includes farm inputs (machinery services, labor, planting materials, irrigation, fertilizer, herbicides, weedicides, carabao plowing / cultivation, hauling, loading, harvesting costs, etc)	50 hectares of Demo Farms
Establishment of one-hectare HYV Nursery per BF as source of good quality and high-yielding variety material for the block farms. Land rental and administrative cost shall be shouldered by the block farms while farm inputs shall be charged to the gov't fund	4,294,750 @ 85,895/ha/BF includes farm inputs (machinery services, labor, planting materials, irrigation, fertilizer, herbicides, weedicides, carabao plowing / cultivation, hauling, loading, harvesting costs, etc)	50 hectares of HYV Nurseries
Preparation of business / deployment plans - outsourced	1,250,000 @ 25,000 / BF	Business / deployment plans of 50 block farms
Procurement of farm machinery	347,750,000 @6,955,000 / BF	50 sets of farm machineries, implements & equipment
Financing for crop loans	82,500,000 @50,000/ha; 50 block farms with 30 has. per block farm	Minimum of 1,500 hectares of BF financed through socialized credit
GRAND TOTAL	487,529,200	

Figure 11.1. Block Farm Implementation Schedule – GANTT Chart

Activities	2015		2016			
	Q3	Q4	Q1	Q2	Q3	Q4
1. Profiling / GPS mapping of block farms	■	■				
2. Assessment / Prioritization of 50 BFs for funding under GAA		■				
3. Soils sampling & analysis		■				
4. Hiring of technical assistants/ agriculturists			■			
5. Orientation / briefings of selected BFs			■			
6. Soil rehabilitation			■	■		
7. Preparation of farm plans & processing of credit financing			■	■		
8. Establishment of HYV nurseries				■	■	
9. Procurement of farm machineries				■	■	■
10. Establishment of demo farms					■	■
11. Farm management trainings, cross farm visits, etc.			■	■	■	■
12. Technical services & coaching			■	■	■	■
13. Monitoring & Evaluation			■	■	■	■

IV. MONITORING AND EVALUATION

1. Project Monitoring

- SRA shall assign a regular monitoring team under the Planning & Policy Department for all programs and projects funded by the general appropriations
- The monitoring team shall be equipped with knowhow on GPS and geo-tagging of projects
- The monitoring team shall submit quarterly monitoring reports to the Sugar Board
- The SRA Finance shall regularly monitor the funds flow and liquidation of cash advances especially by the block farm beneficiaries

2. Reportorial Requirements and Liquidation Schedules

- The block farms through the SRA MDOs assigned in the mill district are required to submit quarterly progress reports to the SRA Administrator
- Schedule of fund liquidation shall be strictly observed by block farm beneficiaries. Delinquent block farms that do not possess valid justifications for delayed liquidation of cash advances shall be closely monitored and shall be blacklisted for future grants. Removal from the SRA blacklist shall be subject to assessment by the SRA Internal Audit Department and approved by the Sugar Board.

11.3 Sugarcane Roadmap 2020 and Its Medium-Term Plans and Targets (2015-2020)

Some of the action plans and targets generated from the action planning sessions with the individual MDDCs of each mill district has generated conservative targets based on existing capacities and support from the government. Ideal targets are set by SRA in its overall medium-term plan for the sugarcane industry granting that the provisions and funding support under the Sugarcane Industry Development Act of 2015 will be fully implemented. Tables 11.3.1 – 11.3.3 showed the national targets of each priority program under the Sugarcane Roadmap 2020. The breeding and farm mechanization programs should be supported by a strong R & D program in collaboration with state universities, DOST-PCARRD, PHILMECH and DA-BAR. The block farm and Human Resource Development programs should be likewise supported with an active extension support and skills / experts development programs by SRA, DOLE, TESDA, state universities, and other government agencies.

Table 11.3.1. Infrastructure & HRD Medium – Term Targets, 2015-2020

Medium-Term Targets – Years 2015-2020

Crop Year	Farm-to-Mill Roads Constructed (Kilometers)	Area Served by Irrigation System (Hectares)	Area Served by Drainage Project (Hectares)	No. of Farmers / Workers Trained	No. of Scholars	
					Under-graduate/ Graduate/ Post Doctorate	Technical / Vocational
2013-14	0	0	0	7,197	17	0
2014-15	0	0	0	7,500	17	0
2015-16	0	0	0	20,000	319	50
2016-17	300	10,000	5,000	50,000	319	100
2017-18	300	10,000	5,000	50,000	302	100
2018-19	300	10,000	5,000	50,000	302	100
2019-20	300	10,000	5,000	50,000	302	100
Total (2015-2020)	1,200	40,000	20,000	227,500	237 undergraduates 72 post doctorates 92 graduate courses	200 graduates

Table 11.3.2. Breeding, Soil Rehabilitation and Block Farm Medium – Term Targets, 2015-2020

Medium-Term Targets – Years 2015-2020

Crop Year	% Adoption of High-Yielding Variety	Area with Soil Fertility Maps, Hectares	Area Covered by Soil Rehabilitation, Hectares	% Small Farmers Covered by Block Farms	% Area Covered by Block Farms, Hectares
2013-14	60%	10,000	0	1%	0.2%
2014-15	61%	0	0	2%	0.5%
2015-16	63%	23,000	0	10%	3%
2016-17	65%	200,000	10,000	30%	10%
2017-18	67%	200,000	20,000	42%	15%
2018-19	69%	-	20,000	55%	20%
2019-20	72%	-	22,000	68%	25%
Total (2015-2020)	72%	423,000	72,000	68%	25%

Table 11.3.3. Farm Mechanization Medium – Term Targets, 2015-2020

Source

Medium-Term Targets – Years 2015-2020

Crop Year	% Mechanized Farms			
	Land Preparation	Cultivation	Harvesting	Loading
2013-14	60%	15%	1%	1%
2014-15	60%	15%	1%	1%
2015-16	64%	17%	1%	1%
2016-17	68%	19%	2%	2%
2017-18	72%	21%	5%	5%
2018-19	76%	23%	10%	10%
2019-20	80%	25%	15%	15%

Source : SRA Planning & Policy Department

11.4. Institutional Development Measures

- A. Completion within 3 months of the SRA Rationalization / Reorganization program in line with SRA's expanded mandate under the Sugarcane Industry Development Act (SIDA).
- B. Official Launching of an Industry-Endorsed Industry Roadmap - Q1
- C. Creation by DA of a Sugarcane Industry Development Council (SIDC) as overall coordinating body (composition subject to due consultation with Government and Private sectors) to serve as venue for harmonization of plans, programs and resolution of issues affecting the Industry.
- D. Creation of an SRA internal TWG under the Sugar Board to i) prepare its agency-specific 2-year Action Plan (2015-2016) aligned with the Roadmap and ii) to serve as the Secretariat in all Roadmap-related activities and functions;
- E. Creation of an SRA Communications / Public Relations Group to craft/oversee / implement the Sugarcane Industry Communications Plan upon launching of the new Roadmap;
- F. Creation of the following committees under the SIDC:
 - 1. Oversight Committee to oversee the implementation of the Roadmap Action Plan;
 - 2. Program Committees (for Block Farming, RD&E, Mill District Development, Farm Mechanization, HRD and other programs) that will oversee the formulation and implementation of Specific Action Plans for each program and to submit and follow up Roadmap-related Project Proposals to concerned Agencies;

11.5. Productivity improvement programs for the Agriculture Sector, with implementing partners and various fund sources (Tables 11.5.1 & 11.5.2):

- A. **Block farming program** – Institutionalization of the Block Farming Program in each Milling District with the goal of transforming small marginal farms into block farms and agribusiness units with the assistance of SRA, MDDCs, GFIs

and private service providers. Annex A showed the accomplishments and support services of the block farm program in collaboration with DAR & DA.

B. Research, Development & Extension

1. Crafting and implementation of an industry-wide R,D & E Masterplan in collaboration with State Universities, other government research institutions, private research institutions and international research organizations
2. Expansion and TESDA accreditation of SRA's Outreach Program for the Sugar Industry (OPSI)
3. Expansion of extension services in partnership with the MDDCs, sugar mills, sugar refineries, bioethanol distilleries, investors, industrial users, etc.
4. HYV yield verification and ecological tests in all sugarcane mill districts by MDDCs and R&D partners
5. Rapid propagation of selected HYVs found suitable for specific mill districts through increase in number and size of HYV nurseries operated by MDDCs
6. Facilitation by MDDCs, mill and SRA field personnel of Farm Planning and crop monitoring activities in order to improve synchronization of harvesting and milling operations and the preparation of crop estimates
7. Commercialization of R & D outputs and technologies in partnership with the private sector
8. Global search of advance technologies and acquisition of sugarcane foreign varieties through bilateral cooperation agreements and participation in international fora

C. Farm Productivity Improvement Activities

1. Designation of Mill District Development Council Foundations (MDDCFI's) as lead implementor and catalyst for productivity improvement interventions in each sugarcane mill district, with initial task of formulating their own District Development Plans and securing support for the same from district stakeholders
2. Soil rehabilitation / liming program to improve soil quality in all Districts
3. Farm mechanization program (establishment of service providers or securing access to the financing program for acquisition of farm

equipment or tractor services under the general appropriations for the sugarcane sector as mandated under the Sugarcane Act of 2015)

4. Irrigation systems development with DA-BSWM/NIA assistance
5. Identification of priority farm-to-mill roads and rehabilitation of the same to specifications suited to trucks loaded with sugarcane, with funding support from the General Appropriations Act as provided in the sugarcane act through DPWH or LGU'S

D. Human Resource Development

1. Crafting of a Human Resource Development Plan for the Sugarcane Industry in coordination with Bureau of Workers with Special Concerns (DOLE-BWSC formerly BRW) and the NGO sector to improve the skills of workers and farmers and their dependents towards the development of the sugarcane industry.

E. Public Relations Program

1. Crafting and implementation of a Communications/Public Relations Campaign

11.6. Other Industry Development Initiatives

A. Access to Credit

1. Provision of Socialized credit to farmers, service providers and emerging support industries through the general appropriations as mandated by the sugarcane act and partner GFIs

B. Support Industries Development, with assistance from DTI/PEZA-BOI/LGUs

1. Campaign for Investments in Support Industries for farm and mill operations, i.e., establishment of local fabrication industries and service providers, through LGU *OTOP* or enterprise development programs or assistance from *Negosyo* Centers
2. Establishment of sugarcane ecozones as business hubs
3. Diversify product streams to increase income of producers, farmers and workers

Table 11.5.1. 2016 Priority Programs and Required Investments

Programs	Performance Indicator	Physical Targets	Budgetary Requirement & Fund Sources (Millions, Pesos)		
			GAA	SRA	ODA
A) Block Farming Program	No. of block farms operationalized	200	300.0	10.0	100.0 - DAR
B) R, D & E Program					
1. HYV Nurseries	No. of Hectares	1,500	130.0	5.0	
2. Breeding of new varieties	No. of foreign varieties acquired/tested	4	2.0	5.0	
	No. of new varieties bred	2-SRA 3-PHILSURIN/ SUCs	3.0	10.0	
2. Adaptability trials	No. of Hectares tested	300	25.0	5.0	
	NCT tests conducted	15	5.0		
	Hectares of demo farms	100	10.0	2.0	
3. Crop Estimate System	No. of weather stations installed	120	24.0		
4. Soil Fertility Mapping	No. of soils laboratories assisted / installed	10	45.0		
	No. of soil fertility district maps generated	5		2.0	
	No. of district soil monoliths generated	5	5.0		
5. Soil Rehabilitation Program	Hectares rehabilitated	10,000	10.0		
	No. of small farmers assisted	3,500			
6. Capacity building of farmers	No. of experts hired	20	15.0	2.0	
	No. of OPSI trainings	20			
	No. of farmers/workers trained as farm managers	500			
	No. of farmers/workers trained agripreneurs	50			
7. Accelerated Technology Generation & Transfer	No. of farmer-beneficiaries to new technologies	2,500	12.5	10.0	
8. Research Projects thru PHILSURIN, SUCs, Millers associations, etc.	No. of research projects undertaken	5	13.5	10.0	
Subtotal			300.0	61.0	

Table 11.5.1. 2016 Priority Programs and Required Investments (continuation)

Programs	Performance Indicator	Physi-cal Targets	Budgetary Requirement & Fund Sources (Millions, Pesos)		
			GAA	SRA	ODA
C. Farm mechanization program					
1. Mechanized land preparation & planting	No. of sets tractors & implements acquired	30	60.0		60.0
2. Mechanized loading & hauling	No. of loaders acquired	20	10.0		10.0
	No. of trucks acquired	5	10.0		20.0
3. Mechanized harvesting	No. of harvesters / cutters acquired	10	20.0		20.0
	<i>Subtotal</i>		<i>100.0</i>		<i>110.0</i>
D. Socialized Credit program thru LBP					
1. Financing of mill/farm support industries	No. of support industries assisted	2	50.0		
2. Financing of service providers	No. of service providers assisted	2	50.0		
3. Crop loan financing	Hectares financed	2,000	100.0		
	<i>Subtotal</i>		<i>200.0</i>		
D. Infrastructure program					
1. Irrigation system	Hectares covered by irrigation	20,000	150.0		150.0
2. Drainage improvement	Hectares covered by improved drainage	5,000	50.0		50.0
2. Farm-to-mill Roads	Km road constructed	70	800.0		1,000.0
	<i>Subtotal</i>		<i>1,000.0</i>		<i>1,200.0</i>
E. Scholarship program for the development of skills needed by the sugarcane industry					
1. Vocational Courses	No. of scholars	500	25.0		
2. Bachelors Degree Courses	No. of scholars	400	75.0	5.0	
	<i>Subtotal</i>		<i>100.0</i>		
F. Communications / Public Relations Program	No. of PR campaigns conducted	5	-	5.0	-
	GRAND TOTAL		2,000.0	71.0	1,410.0

Table 11.5.2. Sugarcane Roadmap 2020 Priority Programs (Physical Targets)

Programs	Performance Indicator	Physical Targets					
		2015	2016	2017	2018	2019	2020
A) Block Farming Program							
1. Operationalization of block farms	No. of block farms operationalized	50	200	200	200	200	200
B) R, D & E Program							
1. HYV Nurseries	No. of Hectares	100	1,500	1,500	1,500	1,500	1,500
2. Breeding of new varieties	No. of foreign varieties acquired/tested	2	4		4		
	No. of new varieties bred		2-SRA 3- PHILSU RIN / SUCs	5	5	5	5
2. Adaptability trials	No. of Hectares tested	100	300	300	300	300	300
	NCT tests conducted	5	15	15	15	15	15
	Hectares of demo farms	24	100	100	100	100	100
3. Crop Estimate System	No. of weather stations installed Generation of crop modeling software and database	90	120		1 set		
4. Soil Fertility Mapping	No. of soils laboratories assisted / installed	2	10	5	5	5	5
	No. of soil fertility district maps generated	2	5	17			
	No. of district soil monoliths generated		5	10	9		
5. Soil Rehabilitation Program	Hectares rehabilitated		10,000	20,000	20,000	20,000	20,000
	No. of small farmers assisted		3,500	7,000	7,000	7,000	7,000

Table 11.5.2. Sugarcane Roadmap 2020 Priority Programs (Physical Targets) - Continuation

Programs	Performance Indicator	Physical Targets					
		2015	2016	2017	2018	2019	2020
B) R, D & E Program							
6. Capacity building of farmers	No. of experts hired	10	20	20	20	20	20
	No. of OPSI trainings	50	500	500	500	500	500
	No. of farmers/workers trained as farm managers		50	100	100	100	100
	No. of farmers/workers trained as agripreneurs						
7. Accelerated Technology Generation & Transfer	No. of farmer-beneficiaries to new technologies	500	2,500	5,000	10,000	10,000	10,000
8. Research Projects thru PHILSURIN, SUCs, Millers associations, etc.	No. of research projects undertaken	1	5	10	10	10	10

**Table 11.5.2. Sugarcane Roadmap 2020 Priority Programs – Physical Targets
(continuation)**

Programs	Performance Indicator	Physical Targets					
		2015	2016	2017	2018	2019	2020
C. Farm mechanization							
1. Mechanized land preparation & planting	No. of sets of tractors & implements acquired		30	30	30	30	30
2. Mechanized loading & hauling	No. of loaders acquired No. of trucks acquired		20 5	20 5	20 5	20 5	20 5
3. Mechanized land preparation	No. of harvesters/cutters acquired		20	20	20	20	20
D. Socialized Credit							
1. Financing of mill/farm support industries	No. of support industries assisted		2	3	3	3	3
2. Financing of service providers	No. of service providers assisted		2	3	3	3	3
3. Crop Loan Financing	Hectares Financed	100	2,000	2,500	2,500	2,500	2,500

**Table 11.5.2. Sugarcane Roadmap 2020 Priority Programs – Physical Targets
(continuation)**

Programs	Performance Indicator	Physical Targets					
		2015	2016	2017	2018	2019	2020
E. Infrastructure program							
1. Irrigation system	Hectares covered by irrigation		20,000	20,000	20,000	20,000	20,000
2. Drainage improvement	Hectares covered by improved drainage		5,000	5,000	5,000	5,000	5,000
2. Farm-to-mill Roads	Km road constructed		70	150	150	150	150
F. Scholarship program for the development of skills, technologists and technical / agribusiness experts needed by the sugarcane industry							
1. Vocational Courses	No. of scholars		500	500	500	500	500
2. Bachelors Degree Courses	No. of scholars	12	100	100	100	100	100
G. Communications / Public Relations Program	No. of PR campaigns conducted		5	5	5	5	5

Table 11.5.3. Sugarcane Roadmap 2020 Priority Programs – Financial Requirements, Millions of Pesos

Programs	Performance Indicator	Financial Requirements, Millions Pesos																	
		2015			2016			2017			2018			2019			2020		
		GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA
A) Block Farming Program																			
1. Operationalization of block farms	No. of block farms operationalized	50	10		300	10	100	300	10	100	300	10	100	300	10	100	300	10	100
<i>Subtotal, Block Farming</i>		<i>50</i>	<i>10</i>		<i>300</i>	<i>10</i>	<i>300</i>	<i>300</i>	<i>10</i>	<i>300</i>	<i>300</i>	<i>10</i>	<i>300</i>	<i>300</i>	<i>10</i>	<i>300</i>	<i>300</i>	<i>10</i>	<i>300</i>
B) R, D & E Program																			
1. HYV Nurseries	No. of Hectares	5	5		130	5		130	5		130	5		130	5		130	5	
2. Breeding of new varieties	No. of foreign varieties acquired	2	4		2	5		2			2	5		2	5		2	5	
	/tested		10		3	10		3	10		3	10		3	10		3	10	
	No. of new varieties bred																		
2. Adaptability trials	No. of Hectares tested	5	5		25	5		25	5		25	5		25	5		25	5	
	NCT tests conducted				5			5			5			5			5		
	Hectares of demo farms				10	2		10	2		10	2		10	2		10	2	

Programs	Performance Indicator	Financial Requirements, Million Pesos																	
		2015			2016			2017			2018			2019			2020		
		GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA
3. Crop Estimate System	No. of weather stations installed Generation of crop modeling software and database	6	12		24			4.0											
4. Soil Fertility Mapping	No. of soils laboratories assisted / installed No. of soil fertility district maps generated No. of district soil monoliths generated	5.0	5 2		45 5		2.0												
5. Soil Rehabilitation Program	Hectares rehabilitated No. of small farmers assisted				10			20			20			20				20	

NOTE: GAA is included for possible supplementary budget in 2015; SRA has no national subsidy / appropriations from year 2008-2015

Table 11.5.3. Sugarcane Roadmap 2020 Priority Programs – Financial Requirements, Millions of Pesos (Continuation)

Programs	Performance Indicator	Financial Requirements, Millions Pesos																	
		2015			2016			2017			2018			2019			2020		
		GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA
6. Capacity building of farmers	No. of experts hired No. of OPSI trainings No. of farmers/workers trained as farm managers No. of farmers/workers trained as agripreneurs	2	2		15	2		15	2		15	2		15	2		15	2	
7. Accelerated Technology Generation & Transfer	No. of farmer-beneficiaries to new technologies	2	6		12.5	10		12.5	15		12.5	20		12.5	20		12.5	20	
8. Research Projects thru PHILSURIN, SUCs, Millers associations, etc.	No. of research projects undertaken	5	10		13.5			23.5			23.5			23.5			23.5		
Subtotal, R,D & E		32	51		300	41		300	39		300	49		300	49		300	49	

Programs	Performance Indicator	Financial Requirements, Millions Pesos																	
		2015			2016			2017			2018			2019			2020		
		GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA
C) Farm Mechanization Program																			
1. Mechanized land preparation & planting	No. of sets of tractors & implements acquired				60		60	60		60	60		60	60		60	60		60
2. Mechanized loading & hauling	No. of loaders acquired				10		10	10		10	10		10	10		10	10		10
	No. of trucks acquired				10		20	10		20	10		20	10		20	10		20
3. Mechanized land preparation	No. of harvesters /cutters acquired				20		20	20		20	20		20	20		20	20		20
Subtotal, Farm Mechanization					100		110	100		110	100		110	100		110	100		110

Table 11.5.3. Sugarcane Roadmap 2020 Priority Programs – Financial Requirements, Millions of Pesos (Continuation)

Programs	Performance Indicator	Financial Requirements, Millions Pesos																	
		2015			2016			2017			2018			2019			2020		
		GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA
D. Socialized Credit																			
1. Financing of mill/farm support industries	No. of support industries assisted				50			50			50			50			50		
2. Financing of service providers	No. of service providers assisted				50			50			50			50			50		
3. Crop Loan Financing	Hectares Financed				200			200			200			200			200		
Subtotal, Socialized Credit					300			300			300			300			300		

Programs	Performance Indicator	Financial Requirements, Millions Pesos																	
		2015			2016			2017			2018			2019			2020		
		GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA
E. Infrastructure program																			
1. Irrigation system	Hectares covered by irrigation				150		150	150		150	150		150	150		150	150		150
2. Drainage improvement	Hectares covered by improved drainage				50		50	50		50	50		50	50		50	50		50
2. Farm-to-mill Roads	Km road constructed				800		2,000	800		2,000	800		2,000	800		2,000	800		2,000
Subtotal, Infrastructure					1,000		2,200	2,000		2,200	2,000		2,200	2,000		2,200	2,000		2,200
F. Scholarship program for the development of skills, technologists and technical / agribusiness experts needed by the sugarcane industry																			
1. Vocational Courses	No. of scholars				25			25			25			25			25		
2. Bachelors Degree Courses	No. of scholars		5		75	5		75	5		75	5		75	5		75	5	

Programs	Performance Indicator	Financial Requirements, Millions Pesos																	
		2015			2016			2017			2018			2019			2020		
		GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA	GAA	SRA	ODA
<i>Subtotal, Scholarship</i>			5		100	5		100	5		100	5		100	5		100	5	
F. Communications / Public Relations Program	No. of PR cam-paigns conduc-ted		2			2			2			2			2			2	
<i>Subtotal, PR</i>			2			2			2			2			2			2	
GRAND TOTAL		82	73		2,000	58	2,610	3,100	56	2,610	3,100	56	2,610	3,100	56	2,610	3,100	56	2,610

12. OUTPUTS AND SECTORAL OUTCOMES

The programs outlined above will spur the sugarcane industry towards greater competitiveness, productivity and eventual stability. Farm productivity will be increased from 59 TC/Ha to 70 TC/Ha by crop year 2019-2020. Increased sugar output will enable the supply of 2.3 million metric tons of competitively-priced sugar to the domestic market, around 150,000 metric tons to the world market and 137,000 metric tons for the US quota. Bioethanol output will supply at least 57% of the mandated requirement in Crop Year 2015-2016 and 100% of mandated requirements by CY 2019-2020. The number of larger-sized farms (30 hectares and up) will also increase by 100-150 Block Farms per year with the implementation of the Block Farm Program. Farm and mill support industries / MSME's will emerge in well-managed Milling Districts with support from DTI and LGU's with aggressive LED and "*Negosyo*" programs. Sugar ecozones will be established as rural development hubs by forward-looking mills seeking to establish integrated operations (cane growing, milling, refining, power cogeneration, ethanol production and production of other products within their ecozones) in order to enhance their competitive positions.

Tables 12.1 & 12.2 enumerates the target outputs, sectoral outcomes and inclusive growth indicators once all interventions and programs are in place and implemented within the medium-term period. Annual contribution of the industry to the national economy is expected to increase then from P 87 billion to P100 billion not counting the socio-economic impact to the lives of the industry's 5 million dependents, farmers and workers.

Table 12.1. Sugarcane Roadmap 2020 (By Crop Year) – Targets

(Crop Year)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
A. Production							
1. Sugar (MT)	2,461,808	2,500,000	2,621,000	2,666,900	2,713,718	2,761,472	2,810,182
2. Bioethanol (Liters), from cane	31,504,200	49,109,270	89,181,007	235,812,269	235,812,269	235,812,269	235,812,269
from molasses	40,033,439	70,890,730	103,218,993	113,218,993	196,000,000	196,000,000	196,000,000
3. Sugarcane production, MT	25,456,025	26,506,757	27,484,014	29,905,065	30,237,242	30,575,371	30,919,549
3.1 Sugarcane (MT) for sugar	25,005,965	25,805,196	26,210,000	26,536,318	26,868,495	27,206,624	27,550,802
3.2 for bioethanol	450,060	701,561	1,274,014	3,368,747	3,368,747	3,368,747	3,368,747
B. Area (Hectares)	430,834	434,537	436,580	461,723	461,723	461,723	461,723
for sugar	423,333	423,036	416,032	408,251	401,022	394,299	393,583
for bioethanol	7,501	11,501	20,549	53,472	60,701	67,424	68,140
C. Self-sufficiency							
1. Sugar, %							
% of Domestic Demand	113%	111%	114%	114%	114%	113%	113%
% of Total Demand	102%	96%	100%	100%	100%	100%	100%
2. Bioethanol, %	19%	31%	50%	89%	110%	110%	109.88%
Mandated Bioethanol Blend, %	10%	10%	10%	10%	10%	10%	10%
D. National Yield							
1. TC/Ha for Sugar, Average	59.07	61.00	63.00	65.00	67.00	69.00	70.00
2. LKG / TC, Average	1.96	1.98	2.00	2.01	2.02	2.03	2.04

Table 12.2. Sugarcane Roadmap 2020 (By Crop Year) – National Inclusive Growth Indicators

(Crop Year)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
E. Farmers' Income (Pesos / LKg) - @ Planters' share of 65%;							
@ Composite Price, P/Ha	1,480	1,450	1,400	1,350	1,300	1,250	1,200
1. High Production Cost Scenario							
@ Ratoon Production Cost, P70,000/ha	41,376	43,835	44,660	44,645	44,362	43,807	41,384
@ Plant Cane Production Cost, P100,000/ha	11,376	13,835	14,660	14,645	14,362	13,807	11,384
@ Average Production Cost at 60% ratoon + 40% plant cane, P82,000/ha	29,376	31,835	32,660	32,645	32,362	31,807	29,384
2. Low Production Cost Scenario							
@ Ratoon Production Cost, P50,000/ha	61,376	63,835	64,660	64,645	64,362	63,807	61,384
@ Plant Cane Production Cost, P80,000/ha	31,376	33,835	34,660	34,645	34,362	33,807	31,384
@ Average Production Cost at 60% ratoon + 40% plant cane, P62,000/ha	49,376	51,835	52,660	52,645	52,362	51,807	49,384
F. Jobs Generated							
<i>Total Number of workers (1.5 jobs/ha + 2500 jobs/1.0 milliom MT sugar + 10 jobs / million liters bioethanol)^{1/}</i>	652,721	658,547	662,315	701,610	701,727	701,847	701,968

^{1/} Conservative estimate; DOLE record shows more than 700,000 beneficiaries to SAF

13. MONITORING AND EVALUATION

The Implementing Rules and Regulations (IRR) of the Sugarcane Industry Development Act provides for the creation of program committees composed of government agencies and private sector which shall prepare the program-specific masterplans, monitor and evaluate the milestones of each program supported by SRA units as technical working group. SRA, on the other hand, has its own project monitoring and evaluation team which shall sit down with the program committees in the planning and monitoring aspect.

All projects implemented in the mill district level shall be geotagged and quarterly outputs and deliverables shall be measured. Corrective actions shall be implemented to delayed implementations of projects or those projects that are implemented not in accordance to specifications and the process flow of each project shall be reviewed regularly if proper protocols are observed during project implementation. Implementing guidelines of all projects shall be in place to guide in the efficient and effective implementation of all industry programs and projects. The SRA will also call for a stakeholders consultative assembly in the identification of programs and to be consulted on the level of success of the programs that were implemented for the industry.

The program committees under the Sugarcane Industry Development Act are the following:

1. Block Farm Committee
2. Farm Mechanization Committee
3. Human Resource and Development Committee
4. Infrastructure Committee
5. R, D & E Committee
6. Mill District Development Program Committee

ANNEXES

ANNEX A – BLOCK FARM PROGRAM ACCOMPLISHMENTS & SUPPORT SERVICES

Average 32.8% actual Increase in cane yield per hectare in 15 pilot Block Farms.
In peso terms, income increased by P25,000 per hectare at current prices.

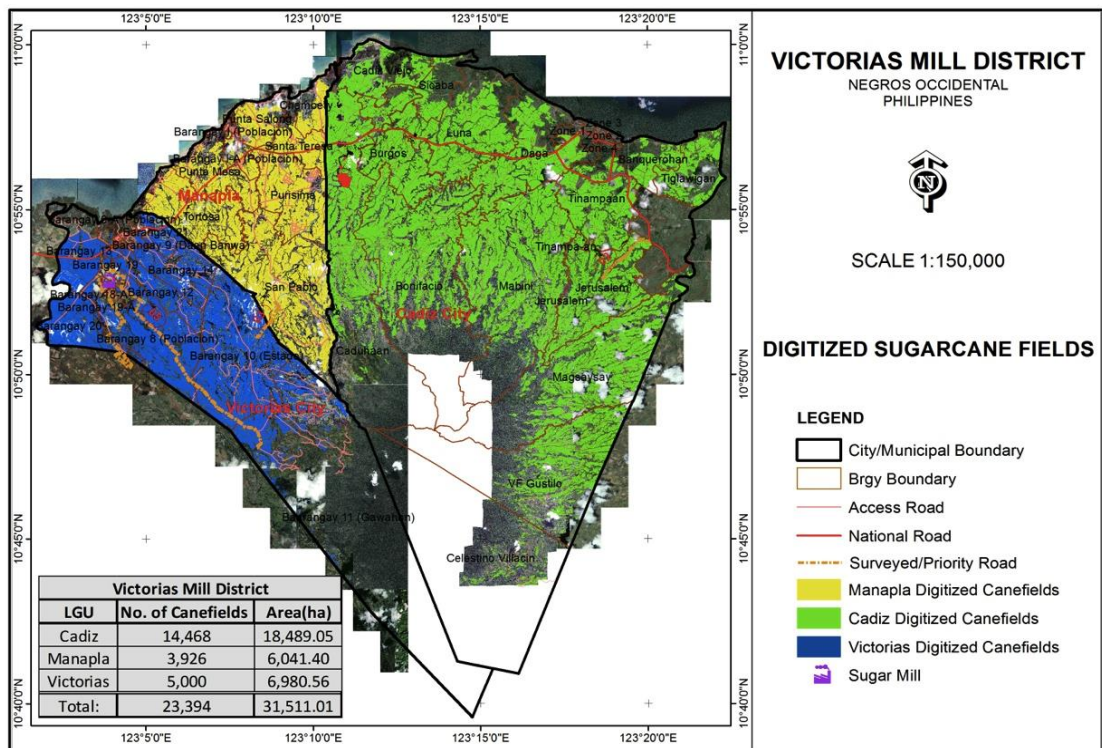
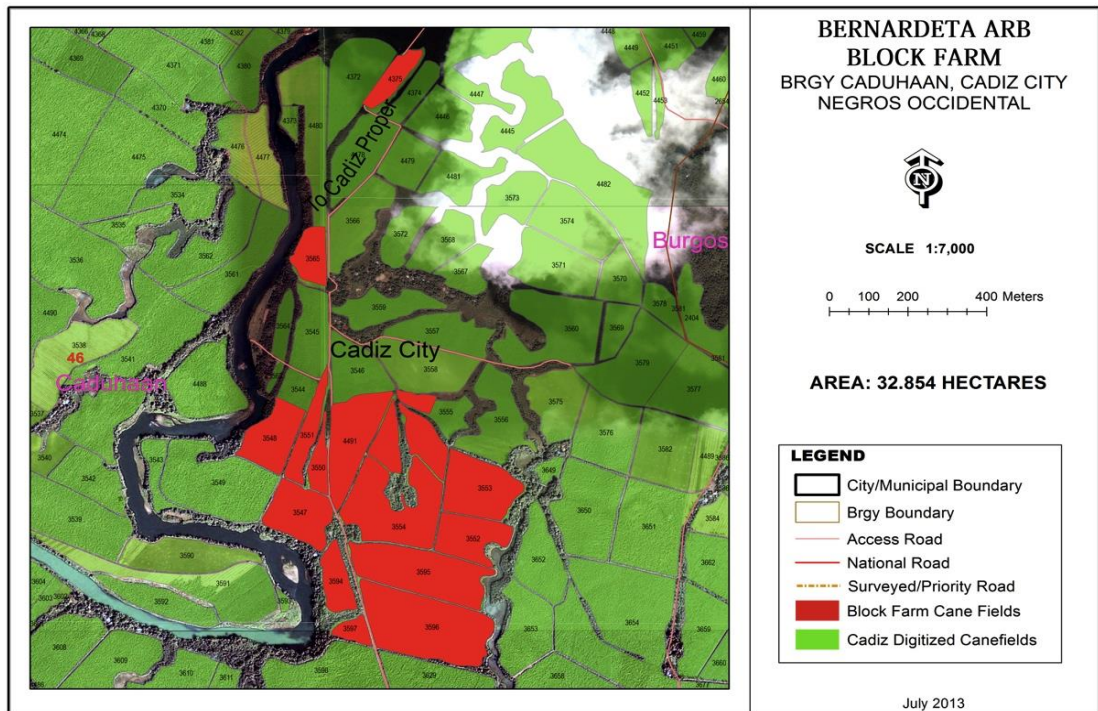
Block Farm (BF)	Prior TC/Ha	BF TC/Ha	% Increase	Remarks
1. Binhi ni Abraham (Concepcion, Tarlac)	40.00	70.00	75%	On first year
2. North Cluster Producers Coop (Paniqui, Tarlac)	50.00	100.00	100%	On first year
3. Lucban MPC (Balayan, Batangas)	37.00	50.58	36.7%	48.27 TC/Ha in first year
4. Kamahari MPC (Nasugbu, Batangas)	43.67	57.31	31.2%	48.72 TC/Ha in first year
5. Damba MPC (Nasugbu, Batangas)	41.00	47.31	13.3%	45.42 TC/Ha in first year
6. Prenza MPC (Lilian, Batangas)	50.00	54.81	9.6%	55.00 TC/Ha in first year
7. Kauswagan MPC (Pontevedra, Negros Occ)	45.44	55.48	22.1%	On first year
8. Gen Malvar MPC (Pontevedra, Negros Occ)	38.00	53.27	40.2%	On first year
9. Minaba MPC (Kabangkalan, Negros Occ)	42.05	52.92	25.9%	On first year
10. Hda. Bernardita ARBMPC (Cadiz, Negros Occ)	77.00	82.75	7.5%	On first year
11. CASA MPC (Talisay, Negros Occ)	59.25	67.04	13.1%	On first year
12. SYCIP Plantation Workers (Manjuyod, Negros Oriental)	80.00	123.55	54.4%	On first year
13. San Julio Farm Workers (Tanjay, Negros Oriental)	55.00	65.00	18.2%	On first year
14. KASFARBECO (Bais, Negros Oriental)	52.00	65.00	25.0%	On first year
15. LARBEMCO (Bayawan, Negros Oriental)	41.50	49.83	20.1%	On first year

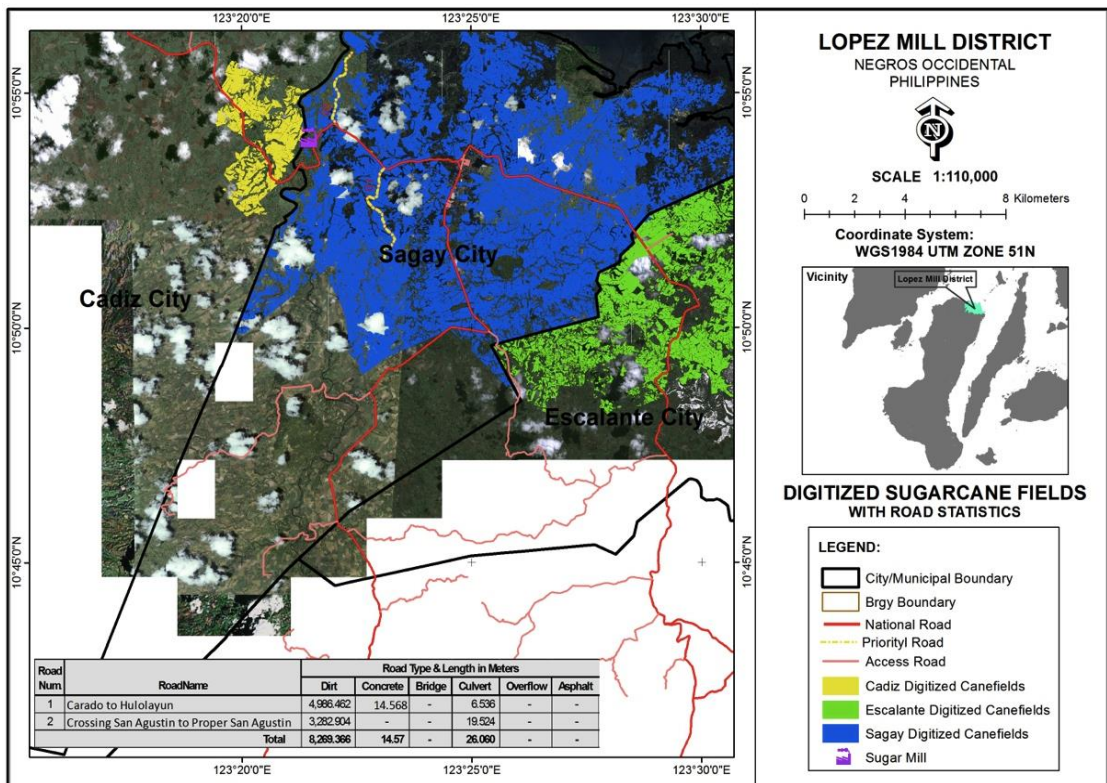
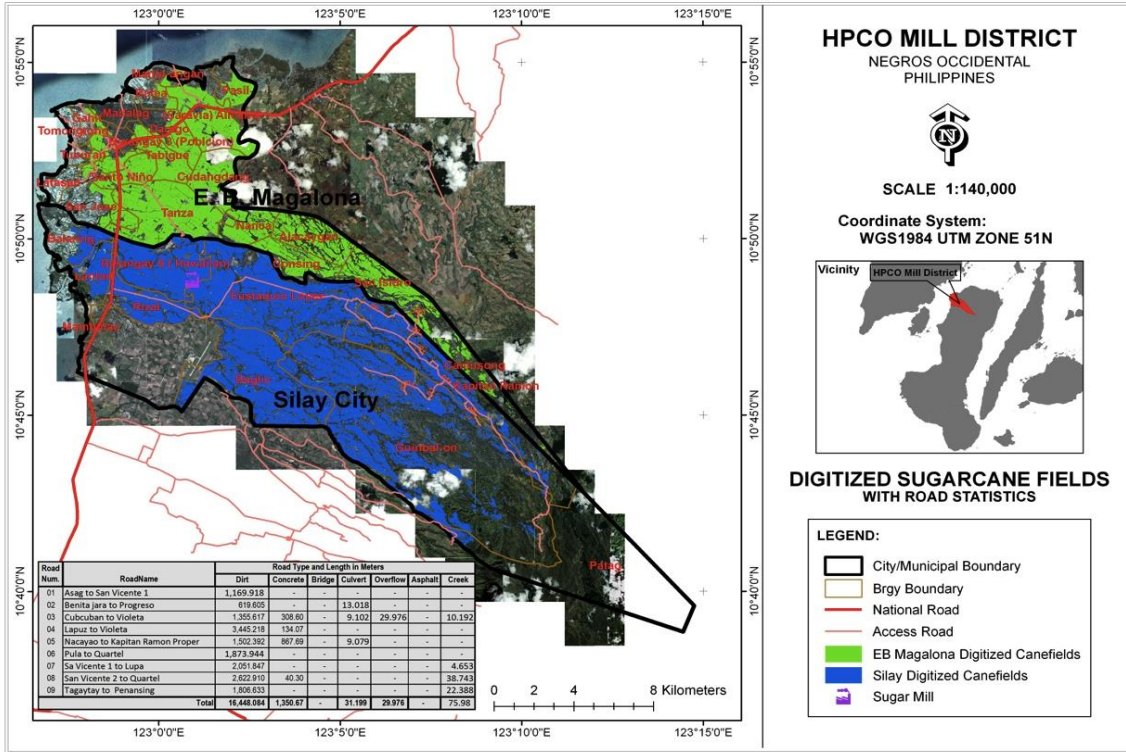
Based on SRA data, farms of 10 hectares and below produce an average of 98.5 bags, while farms of 25 to 50 hectares can produce 129.3 bags per hectare, or 31% increase by consolidation. Another 10% by using HYVs.

Support Services for Block Farms

Block Farm (BF)	Equipment Grants under DAR's ARCESS Program	Credit under DA-DAR-LBP ACP (Approved Loan)
1. Binhi ni Abraham (Concepcion, Tarlac)	4WD tractor (90 HP)	PhP 10.000 M
2. Lucban MPC (Balayan, Batangas)	4WD Tractor (90HP), 17 tonner Dump Truck	
3. Kamahari MPC (Nasugbu, Batangas)	4WD Tractor (90HP), 17 tonner Dump Truck	
4. DAMBA MPC (Nasugbu, Batangas)	4WD Tractor (90HP), 17 tonner Dump Truck	
5. Prenza MPC (Lilian, Batangas)	4WD Tractor (90HP), 17 tonner Dump Truck	
6. Kauswagan MPC (Pontevedra, Negros Occ)		PhP 2.474 M
7. Gen Malvar MPC (Pontevedra, Negros Occ)	Two 4WD tractor, 10 wheeler dump truck, light-duty shredder	PhP 1.260 M
8. Minaba MPC (Kabangkalan, Negros Occ)		PhP 2.621 M
9. Hda. Bernardita ARBMPC (Cadiz, Negros Occ)	4WD Tractor (120 HP), 10 wheeler dump truck	PhP 3.200 M
10. CASA MPC (Talisay, Negros Occ)	4WD Tractor (120 HP), 10 wheeler dump truck	PhP 1.920 M
11. Sycip Plantation Workers MPC (Manjuyod, Negros Oriental)	4WD Tractor (120 HP), 10 wheeler dump truck	PhP 15.000 M
12. San Julio Farm Workers MPC (Tanjay, Negros Oriental)	4WD Tractor (120 HP), 10 wheeler dump truck	
13. KASFARBECO (Bais, Negros Oriental)	4WD Tractor (120 HP), 10 wheeler dump truck	
14. LARBEMCO (Bayawan, Negros Oriental)	4WD Tractor (120 HP), 10 wheeler dump truck	

ANNEX B – SAMPLE DIGITIZED & VALIDATED MILL DISTRICT MAPS WITH BLOCK FARMS





ANNEX C

SRA ACTION PROGRAMS AND KRAS: CROP YEAR 2014-2015 TO 2019-2020 (to be updated by the TWG into a detailed "SRA Action Plan 2020")

A. Agency Rationalization and Reorganization, First Semester 2015

B. Organizing for Roadmap Implementation, First Quarter 2015

1. Creation of the Sugarcane Industry Development Council (SIDC) and the Roadmap Oversight Committee (ROC)
2. Creation of SRA-TWG to serve as SIDC Secretariat and to update SRA's 5-year Action Plan (2015-2020)
3. Creation of Program Development Committees for a) the Block Farm Program, b) RD&E, c) Mill District Development, d) Farm Mechanization, e) Human Resource Development and other programs as may be found necessary by the SIDC. Functions and responsibilities of the above will be defined by the SIDC with the assistance of the TWG.

C. Exercise of Regulatory/Monitoring functions (Agency-funded):

1. Capacity / performance monitoring of sugar mills
2. Sugar Market Study
3. Installation of automated weather stations in all mill districts as basis for weather trends and farm planning
4. Identification and mapping of expansion areas
5. Firm and transparent regulatory framework for the utilization of sugarcane and production / marketing / distribution / food safety of sugar
6. Systematic monitoring of sugarcane supply chain and projects using new information system technologies such as electronic quedan tracking and validation, geo-tagging of projects and production facilities, digitization of all sugarcane fields and other advances in IT

D. Implementation of Roadmap Programs

- Productivity improvement programs like block farming, capacity building through the Outreach Program for the Sugar Industry (OPSI) of SRA
- Transformation of block farms as agribusiness units within the mill districts
- Strengthening the Mill District Development Council Foundation Inc. (MDDCFIs) catalyzing the sustainability of each sugarcane mill district
- Strengthening Research, Development and Extension through collaboration with State Universities, other government research institutions, private research institutions and international research organizations and drafting of industry-wide R, D & E Masterplan
- Expansion of extension and production services in partnership with the MDDCs, sugar mills, sugar refineries, bioethanol distilleries, investors, industrial users, etc.
- Commercialization of R & D outputs and technologies in partnership with the private sector
- Crafting of a Human Resource Development Plan for the Sugarcane Industry in coordination with DOLE to improve the skills of workers and farmers and TESDA accreditation of the SRA Outreach Program for the Sugar Industry (OPSI)
- Global search of advance technologies and acquisition of sugarcane foreign varieties through bilateral cooperation agreements and participation in international for a

5. Advocacies:

- Development of support industries for farm and mill operations like establishment of local fabrication industries and service providers
- Establishment of sugarcane ecozones
- Diversify product streams to increase income of producers, farmers and workers
- Capacity improvement of sugar mills through farm productivity improvement and search for new and expansion areas
- Farm mechanization and irrigation contributing to the attainment of the 70 TC/ha cane productivity by 2015-2016

ANNEX D

CREATION OF THE SUGAR INDUSTRY DEVELOPMENT COUNCIL (SIDC)

I. SIDC Oversight Committee:

- Functions - serves as the overall coordinating body for the harmonization of plans, programs and resolution of issues affecting the sugarcane industry; oversee the implementation of roadmap action plans
- Composition – DA representative to Sugar Board as Chair, SRA Administrator as Co-Chair, and duly designated representatives of the following agencies / organizations with a rank not lower than a Director or Vice-Chairman / Vice-President of an organization:
 1. DAR
 2. DPWH
 3. SMPFI
 4. NACUSIP
 5. 5 leading planters confederations

II. SIDC Technical Working Group

- Functions - serves as Secretariat of the SIDC and various program committees; conduct a review of the 5-year action plan and the Sugarcane Roadmap 2020
- Composition – SRA Planning & Policy as TWG Head , with members from R,D & E, Regulation, Finance, Internal Audit Departments of SRA and SMPFI

III. SIDC Program Committees

- Functions - formulate specific action plans or masterplans of each program, oversee the implementation of such specific action plans and prepare, submit and follow up roadmap-related project proposals to concerned agencies or NGOs

- Composition of each program committees:
 1. *Block Farming Program Committee* – SRA Board Member as Chairperson, USEC/ASEC/Director of DAR as Vice-Chairperson with DA, SRA, DOLE, SMPFI, PHILSUCOR, Foundations of planters associations and MDDCs as members
 2. *R, D & E Committee* – PHILSURIN President as Chairperson, SRA Board Member as Vice-Chairman with millers associations, SMPFI, PHILSUTECH, PASRI, DA-BAR, SUCs/UPLB, DOST-PCARRD /PCIERRD as members
 3. *Mill District Development Committee* – SRA Board Member as Chairperson, SMPFI as Vice-Chairperson, with members from PSMA, PHILSURIN, EPAP, planters federations, refinery, block farms, and SRA
 4. *Farm Mechanization Program Committee* - SRA Board Member as Chairperson, DA-PHILMECH as Vice-Chair with PCARRD-DOST, UPLB, SUCs, PHILSUTECH, SMPFI and Planters Federations as members
 5. *Infrastructure (FMR, irrigation, drainage, bridges, loading ports, etc.) Program Committee* – DA as Chairperson, DPWH as Vice-Chairperson with SRA, NIA, DA-BSWM and SMPFI as members
 6. *Human Resource Development Committee* – DOLE as Chairperson, SRA as Vice-Chair, with representatives of Foundations of planters federations, DA, DAR, TESDA-DOLE, SUC, millers associations, NACUSIP, planters federations as members
 7. *Public Relations Program Committee* – SRA as Chair, SMPFI as Vice-Chair with representatives of EPAP, foundations of planters federations, millers associations as members.

ANNEX E. SUGARCANE MILL DISTRICT COVERAGE

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
1. ISABELA	ISABELA	Alicia		To be determined
		Angadanan		
		Cauayan		
		East Echague		
		Naguillan 1		
		Naguillan 2		
		Reina Mercedes		
		West Echague		
		Benito Soliven		
		San Mariano		
		Mallig		
		Quezon		
		Quirino		
		Cabagan		
		Delfin Albano		
		Gamu		
		Ilagan		
		San Pablo		
		Sto. Tomas		
		Tumaini		
	IFUGAO, KALINGA			
2. CARSUMCO	CAGAYAN	AMULUNG	CORDOVA	Lito M. Caranguian
			LA SUERTE	Agriculturist II
			NABBIALAN	
			NANGALASAUAN	
		ENRILE	BATO	
			LEMU	
			LIWAN	
			ROMA NORTE	
			ROMA SUR	
		IGUIG	STA. BARBARA	
		PIAT	BALANAY	
			BALAYMANOK	
			BINULU	
			CALANTAK	
			CSU	
			C-Y	
			DUGAYUNG	
			MAGUILLING	
			MALAGAMUT	
			MALASAT	
			MARUSIP	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
2. CARSUMCO	CAGAYAN	PIAT	NANAMBAN, PALAYAN	Lito M. Caranguian
			PANISSIN, STO. DOMINGO	Agriculturist II
			TALINGANAY, UMABANG	
			VILLA REYNO, VILLAREY	
			WARAT, WATAWAT	
			ZONES 1, 2, 4	
		SOLANA	AFUROG, ASILANG	
			BANTAY, CADAANAN	
			CAMAGONG	
			DAMORTIS, DIVISORIA	
			FURAGUI, KAMAGONG	
			LANNIG, MALAMAG	
			NABBOTUAN	
			NANGALISAN	
			PADUL, SAMPAGUITA	
		STO. NINO	VIRGINIA	
		TUAO	ALABIAO, BICOK	
			BUGNAY, CATO	
			FUGU, KINAMA	
			LAKAMBINI	
			MAMBACAG	
			PATA, SAN JUAN	
			SAN LUIS, SAN VICENTE	
			STO. TOMAS, VILLALAIDA	
		TUGUEGARAO	CARIG	
	ISABELA	CABAGAN	SAN ANTONIO	
		STA. MARIA	NAGANACAN	
			SAN MANUEL	
			CENTRO	
			VILLABUENA	
	KALINGA	RIZAL	BABALAG	
			BAGBAG	
			CENTRO	
			KINAMA	
			PINUCOK	
			SAN PEDRO	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
3. TARLAC	TARLAC	BAMBAN	ANUPOL	Joel G. Ronario
			BANGCU, CULUBASA	Agriculturist II
			CUTCUT 1 ST & 2 ND	
			DELA CRUZ, LAPAZ	
			MALONZO, MALUPA	
			PACALCAL, SAN PEDRO	
			SAN RAFAEL, SAN ROQUE	
			SAN VICENTE	
		CAMILING	LIBUEG	
		CAPAS	ARENGORENG	
			BUENO, CUBCUB	
			DOLORES	
			ESTRADA, LAWY	
			MANGGA, MANLAPIG	
			MARUGLU, ODONNEL	
			PUBLIC FOREST	
			STA JULIANA, STA. LUCIA	
			STA RITA, STO DOMINGO	
			STO ROSARIO	
			TALAGA	
		CONCEPCION	CAFE	
			CALIUS GUECO	
			CALULUAN, CASTILLO	
			CORAZON DE JESUS	
			CULATINGAN	
			GREEN VILLAGE	
			LILIBANGAN, MAGAO	
			MOTRICO, MURCIA	
			PANDO, PARANG	
			PARULONG, PASAJES	
			PITABUNAN, STA ROSA	
			SAN BARTOLOME	
			SAN FRANCISCO	
			SAN JUAN, SAN MARTIN	
			SAN NICOLAS, SANTIAGO	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
3. TARLAC	TARLAC	CONCEPCION	STO CRISTO, STO NINO	Joel G. Ronario
			TINANG, TELABANCA	Agriculturist II
			TALIMUNDOC	
		GERONA	ABAGON, AMACALAN	
			APSAYAN, AYSON	
			BAWA, BUENLAG	
			BULARIT, CADANGLAAN	
			CARBONEL, CARDONA	
			CATURAY, DANZO	
			DECOLOR, DON BASILIO	
			LUNA, MAGASPAC	
			MALAYEP, MATAPITAP	
			MATAYUNCAB	
			OLUYBUAYA	
		GERONA	PINASLING, PLASTADO	Joel G. Ronario
			RIZAL, SAN ANTONIO	Agriculturist II
			SAN BARTOLOME	
			SAN JOSE, SANTIAGO	
			SEMBRANO, SULIPA	
			TAGUMBAAO, TANGCARAN	
			VILLA PAZ	
		LA PAZ	COMILLAS, DUMARAIS	
			MATAYUMTAYUM	
			MAYANG, SIERRA	
		MONCADA	ABLANG-SAPANG	
			BANAOANG, CALAPAN	
			MALUAC	
			TOLEGA	
		PANIQUE	ABOGADO	
			ACOCOLAO	
			APULID	
			BANTOG	
			BRILLIANTE	
			CABAYAOSAN	
			CANAN	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
3. TARLAC	TARLAC	PANQUI	CARINO, DAPDAP	Joel G. Ronario
			CAYANGA	Agriculturist II
			CULIBANGBANG	
			ESTACION, MANAOIS	
			MATALAPITAP	
			NIPACO, PATALAN	
			POBLACION NORTE	
			RANGAYAN, SALUMAGUE	
			SAMPUT	
			SAN JUAN DE MILLA	
			SINIGPIT, STA INES	
			TABLANG	
		PURA	BUENAVISTA	
			CADANGLAAN	
			ESTIPONA, LIAO	
			MAASIN, MATINDEG	
			MAUNGIB, NAYA	
			NILASIN, NILASIN II	
			POBLACION, POROC, SINGAT	
		RAMOS	CORAL, GITEB, PANCE	
			POBLACION CENTER	
			POBLACION NORTH	
			POBLACION SOUTH	
			SAN JUAN	
			SAN RAYMUNDO	
		SAN MANUEL	SAN AGUSTIN	
		TARLAC CITY	ALVINDIA SEGUNDO	
			ARMENIA, ASTURIAS, BALANTI	
			BALETE, BALIBAGO, BANABA	
			BANTOG, BORA, BUHILIT	
			CUTCUT, DALAYAP, DELA PAZ	
			LUISITA	
			MALIGAYA	
			MAPALACIAO	
			MORIONES	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
3. TARLAC	TARLAC	TARLAC CITY	SAN CARLOS, San MANUEL	Joel G. Ronario
			SAN JOSE, SAN PASCUAL	Agriculturist II
			SAN JOSE DE ORQUICO	
			SAN SEBASTIAN	
			SAPANG MARAGUL	
			SEPUNG CALSADA	
			SINAIT, STA MARIA, STO NINO	
			TEXAS, UNGOT	
			VILLA BACOLOR	
		VICTORIA	BACULONG, BALBALATO, BANGAR	
			BATANG BATANG, BULO	
			CABULUAN, CRUZ, LALAPAC	
			MALUID, PALAC PALAC	
			SAN AGUSTIN, SAN ANDRES	
			SAN FRANCISCO	
			SAN JACINTO	
	NUEVA ECIJA	GAPAN	MABURAK	
			PUTING TUBIG	
		GUIMBA	MAYBUBON	
		SAN ANTONIO	SAN JOSE	
	PANGASINAN	MANAOAG	MANAOAG	
		MANGATARE M	MANGATAREM	
		ALCALA	SAN PEDRO APARTADO	
		VILLASIS	VILLASIS	
4. PAMPANGA	BATAAN	Bagac	San Antonio	Laverne Olalia
		Dinalupihan	Dalao , Tucap	Agriculturist II
			Pagalanggang	
		Hermosa	Balsic	
			Culis	
	PAMPANGA	Angeles City	Anonas , Capaya, Cuayan	
			Sapa Libutad	
			Sapang Bato	
		Arayat	Arenas	
			San Antonio	
			Telapayung	
		Bacolor	Balas , Banlic, Cabalantian	
			Concepcion	
			Dolores	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
4. PAMPANGA	PAMPANGA	Bacolor	Duat , Parulog, Potrero	Laverne Olalia
			Maliwalu	Agriculturist II
			San Antonio , San Isidro, Tinajero	
		Floridablanca	Calantas	
			Carmencita	
			Dampe , Malabo, Pabanlag	
			Paguiruan , Palmayo, San Jose	
			Solib	
		Guagua	Ascomo	
		Lubao	San Franciso	
			Prado	
		Mabalacat	Calumpang	
		Magalang	Navaling	
			San Bartolome	
			San Pablo , San Roque	
			Sto. Rosario	
		Mexico	Acle , Anao, Culubasa	
			Dalisdis , Eden, Ganduz	
			Pandacaqui	
			Pangatlan , Panipuan	
			Suclaban	
			Tangle	
		Porac	Babo Pangulo , Babo Sacan	
			Balas , Balubad, Balucbuc	
			Calzadang Bayu	
			Dawi	
			Had. Dolores	
			Jalung , Mancatian, Manuali	
			Mitla , Palat, Pias, Pio, Planas	
			Pulung Santol	
			Salu	
			Sepung Bulaon	
			Sta. Cruz	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
4. PAMPANGA	Pampanga	San Fernando City	Baliti	Laverne Olalia
			Calulut , Del Carmen, Del Rosario	Agriculturist II
			Lara , Dela Paz, Maimpis, Malino	
			Malpitic , Panipuan, Saguin	
			Sindalan	
		Sta. Ana	San Pablo	
		Sta. Rita	Dila-dila	
			San Basilio	
5. DON PEDRO	BATANGAS	CALATAGAN	BALIBAGO	Celso T. Ersando
			BALITOC, BIGA,, BUCAL, CARETUNAN	Senior Agriculturist
			COMBENTUHAN	
			GULOD, HUKAY, LUKSUHIN	
			P.BANDERA	
		CALATAGAN	PANTIHAN	Celso T. Ersando
			PAROLA, POBLACION, QUILITISAN	Senior Agriculturist
			REAL , SAMBUNGAN, STA ANA	
			T.BUCAL, TALISAY, TANAGAN	
		LIAN	AGUHA	
			ALTURA	
			B.POOK , B. TUBIG, BAGBAG, BAKAYAN	
			BALANOY , BALIBAGO, BINUBUSAN	
			BULSA	
			BUNGAHAN	
			CALAONGAN	
			CALERO	
			CALUMPIT	
			CANIADA	
			CAPITO	
			CUMBA	
			ELENAHAN	
			HERMOSA	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
5. DON PEDRO	BATANGAS	LIAN	HUMAYINGAN	Celso T. Ersando Senior Agriculturist
			L.TUBIGAN, LIGTASIN	
			LITLIT, LUMANIAG, LUYAHAN	
			M.PARANG, MALARUHATAN	
			MATABUNGKAY, MOLINO	
			P.CRUZAN, PADER, PAJO	
			PRENZA, PUTTING KAHROY	
			SAMPALUKAN	
			TANAG	
		NASUGBU	ABEJAR, ABILO, BALIMBING	
			BALOBO	
			BALOC-BALOC	
			BANILAD, BAUTISTA, BILARAN	
			BUBUYAN , BUHAY, BULIHAN	
			BUNDUCAN, BUTUCAN	
			CATANDAAN , CALAYO	
			COGUNAN, COLASTICA	
			DAMULAG, DALUGDOG	
			DAYAP, HABA, HALANG	
			HOSPITAL , HIMAMAO	
			HULO	
			JULIANAHAN	
			K.IGTIW	
			K.PUSA	
			K.REINA	
			K.TAPAS	
			KAYLAWAY	
			LATAG	
			LOOC	
			M.PULO	
			MALAPAD NA BATO	
			MAUGAT	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
5. DON PEDRO	BATANGAS	NASUGBU	MUNTING INDANG	Celso T. Ersando
			P.ILOG, PANTALAN, PANUCA	Senior Agriculturist
			PINKIAN, PARAIG, PATLIW	
			PONGOL , PULO, PUTAT	
			SEBUCAWAN, REPARO, SABANG	
			TALA, TAMPISAW, TUMALIM	
			UTOD	
		TUY	ACLE , BANCALAN, BIAA	
			CABANCALAN, BAYUDBOD	
			CACAWATIHAN, BOLBOC	
			CAFEHAN, DALIMA, DAO	
			LUMBANGAN, GUINHAWA	
			LUNTAL , LAGNAS	
			M.CORRAL	
			M.PARANG	
			MAGAHIS	
			MALALAY	
			MALIBU	
			MATAYWANAC	
			MAYANTOC	
			OBISPO	
			PALICO	
			PALINGKARO	
			POBLACION	
			PUTIC	
			PUTOL	
			SABANG	
			SAN JOSE	
			SUCOL	
			TACTAC	
			TALON	
			TOONG	
	CAVITE			
	LAGUNA			
	QUEZON			

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
6. BALAYAN	BATANGAS	Alitagtag	Balabang	Lucio S. Santiago III Senior Agriculturist
			Bucal, Concepcion	
			Dalipit, Concordia, Dalig	
			Dominador	
			Kawayan	
			Libis, Mulawin, Muzon	
			Poblacion, Pinagcruzan	
			Pooc, San Jose, San Juan	
			Sta Cruz	
		Balayan	Baclas	
			Biga, Bolboc, Cacawatihan	
			Calantas, Cagayan, Calan	
			Caloocan	
			Camastilisan	
			Caybunga, Canda	
			Cayponce, Dalig, Dao, Dilao	
			Duhatan	
			Durungao, Ermita, Gapas	
			Guimalas	
			Gumamela	
			Lagnas, Lanatan, Latag	
			Lucban, M. Tubig, Magabe	
			Magahis, Malakay, Malibu	
			Mayantoc	
			Navotas	
			Patugo	
			Pinalayan	
			Pooc	
			Putol	
			Ruhatan	
			Sampaga	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
6. BALAYAN	BATANGAS	Balayan	Sambat	Lucio S. Santiago III
			Sampalukan	Senior Agriculturist
			Sanpiro, Santol, Sucol	
			Taludtod, Tactac, Talan	
			Tanagan	
			Tanggoy	
			Tejero	
		Batangas City	Balete, Banaba, Katandal	
			Mahacot, Kalumala	
			Soro-soro	
		Bauan	Asis	
			Balayong	
			Cupang	
			Manghinao	
			Muzon, Rizal	
		Calaca	Aromahan	
			B. Tubig, Bacalas, Bonbon	
			Calantas, Bucal	
			Caluangan	
			Calumpit	
			Carasuche	
			Caretonan, Coral	
			Coral ni Bakal	
			Coral ni Lopez	
		Calaca	Cultihan	
			Dacanlao	
			Damiana, Dao, Duhatan	
			La Huerta, Gulod	
			Lampasan	
			Loma	
			Lumbang	
			Lumbang na Matanda	
			Lumbang na Bata	
			M. Coral	
			M. Tubig	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
6. BALAYAN	BATANGAS	Calaca	Madalunot	Lucio S. Santiago III
			Magabe, Makina, Niogan	Senior Agriculturist
			P. Cawong 1 & 2, P. Bato	
			P. Cawong 2	
			P. Makina	
			Pantay 1 & 2	
			Sambungan, Pinagcruzan	
			Sinisian, Sugod, Tactac	
			Taludtod, Talisay	
			Tampisaw	
			Timbain	
		Cuenca	Bungahan, Dalipit	
			Sto Niño, San Felipe	
		Ibaan	Balanga, Bucal, Bungahan	
			Colongan, Calamias	
			Dayapan, Culiat	
			Lapu-lapu, Lucsuhin	
		Ibaan	M. Tubig, Mabalor	
			Matala, Malainin	
			Poblacion, Palindan, Pangao	
			San Agustin	
			Sandalan, Sto Nino, Talaiban	
			Tulay	
		Lemery	Ayao-iyao	
			Bucal, Cahilan, M. Bayan	
			Matingain, Malinis	
			Sinisian	
			Sinisian West	
			Talaga	
			Tampisaw	
			Tubigan	
			Tulay	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
6. BALAYAN	BATANGAS	Lipa City	Anilao	Lucio S. Santiago III
			Antipolo, Balintawak	Senior Agriculturist
			Bolboc, Banay-banay	
			Inusluban, Dagatan	
			Kayumangi, Latag	
			Lumbang na Matanda	
			P. Cruzan, Pag-ulingin	
			Pag-ulingin Bata	
			Pag-ulingin Matanda	
			Pinagkawitan, Tambo	
		Malvar	Bagong Pook	
		Padre Garcia	Banaba	
			Banay-banay, Bawi, Bucal	
			Dalugdog	
		Padre Garcia	Manggas, Maugat, Pansol	
			Quilo-quilo, Payapa	
			San Felipe, San Miguel, Tamak	
		Rosario	Baybayin, Cahigan, Colongan	
			Maalas-as	
			Macalamcam	
			Malaya, Marilag, Masaya	
			Natu, Namunga	
			Quilib	
			San Ignacio	
			San Roque	
			Sta Cruz	
			Timbugan	
		San Jose	Anus	
			Bagong Pook	
			Calansayan	
			Don Luis	
			Mujon	
			Natunuan	
			Sabang	
			Tampoy	
			Tugtog	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
6. BALAYAN	BATANGAS	San Juan	Buhay na Sapa	Lucio S. Santiago III Senior Agriculturist
			Calit-calit	
			Janao-janao, Sico	
		San Luis	Abiacao	
			Bagong Tubig	
			Bungliw	
			Calumpang, Durungao, Malinis	
			Muzon, Mangahan	
			Talon-Tejero, Taliba, Talon	
			Tunggal	
		San Nicolas	Abelo, Balete, Bancoro	
			Maabud, Hipit, Calangay	
			Mulawin	
			Resplandor Total	
			Sinturisan Total	
			Talang Total	
		San Pascual	Galerang Kawayan	
			Kapitanan	
			M. Na Lupa	
			Poblacion, Pia, Malaking Pulo	
			Resplandor	
			Sambat	
			San Mariano	
		Sto Tomas	Santiago	
		Sta Teresita	Antipolo	
			Bihis, Burol, Calumala, Cuta	
			Irucan, Cuta East, Cuta West	
			Kalayaan	
			Maabud	
			Pacifico	
			Poblacion	
			Poblacion 1	
			Poblacion 2	
			Poblacion 3	
			Sampa	
			Sampa-Pacifico	
			Sinipian	
			Sta Cruz	
			Tambo	
			Tampisaw	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
6. BALAYAN	BATANGAS	Taal	Apacay	Lucio S. Santiago III Senior Agriculturist
			Baclas	
			Balisong, Bolboc, Buli	
		Taal	Butong	
			Carasuchi, Cawit, Cubamba	
			H. Gahol, Cultihan	
			Jalang, Iba, Ilog, Ipil	
			Pansol, Luntal, Latag, Laguile	
			Tala, Siiran, Sabang, Pooc	
			Tampisaw, Tawilisan, Tulo	
		Tanauan	Altura	
			Altura Bata	
			Altura matanda	
			Altura south	
			Bagumbayan, Banjo	
			Banjo Uno, Banjo East	
			Bilog-bilog, Cale, Carasa	
			Janopol, Hidalgo	
			Janopol Oriental	
			Loma	
			Luyos	
			Malaking Pulo	
			Montaña	
			Natatas	
			Pagaspas	
			Pantay Bata	
			Pantay Matanda	
			Sala	
			Santor	
			Sulpoc	
			Talaga	
			Trapiche 1	
			Trapiche 4	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
6. BALAYAN	BATANGAS	Taysan	Bucal	Lucio S. Santiago III
			Malaking Pulo	Senior Agriculturist
			Mataas na Lupa	
			San Isidro, Tilambo	
7. PENSUMIL	CAMARINES SUR	Baao	Agdangan	1. Salvador B. Ocampo
			Caranday	Agriculturist II
			Sn Juan	
			Sn Rafael	2. Ma. Teresa M. Caballero
				Agriculturist II
		Bombon	Siembre, San Antonio	
			Sta Cruz	
		Bula	Banasi	
			Casugad, Lanipga	
			Pecuaría, Pawili	
		Calabanga	Bigaas, Camuning	
			Labog, Fabrica	
			Manguiring	
		Goa	Abucayan, Balainan	
			Tagongtong	
		Iriga City	La Medalla	
			Niño Jesus	
			Perpetual Help	
			Sn Antonio, Sagrada	
			Sn Rafael, San Vicente	
			Tubigan	
		Magarao	Carangcang	
		Milaor	Maycatmon	
		Minalabac	Taririk	
		Nabua	Inapatan	
		Naga	Cararayan, Carolina	
			Sn Isidro, Panicason	
		Ocampo	Ayugan, Cabariwan	
			Gatbo, Del Rosario	
			Guinaban, Hanawan	
			May-Ogob, Hibago	
			Moriones, Oras, Pinit	
			Sn Antonio, Salvacion	
			Sn Francisco	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
A. LUZON				
7. PENSUMIL	CAMARINES SUR	Ocampo	Sn Roque	1. Salvador B. Ocampo
			Sn Vicente, Sta Cruz	Agriculturist II
			Sto Niño	2. Ma. Teresa M. Caballero
		Pasacao	Caranan	Agriculturist II
		Pili	Bagong Sirang	
			Binanuaanan	
			Cabuclodan, Cadlan	
			Caroyroyan, Curry	
			Himaa, Del Rosario	
			Millsite, Palestina	
			Sto Niño, Sagurong	
			Tinangis	
		San Fernando	Lupi	
		San Jose	Tambangan	
		Sagñay	Aniog, Bolo, Del Carmen	
			Minadongjol, Kilantao	
			Nabuntalan, Quilomaon	
			Tinorongan, Tarabog	
		Tigaon	Ambawan	
			Cabalinadan	
			Caraycayon	
		Tigaon	Coyaw-yaw	
			Gaao	
			Gubat	
			Huyon Huyon	
			Libod	
			M-balod	
			Ocine	
			Panagan	
			Salvacion	
			Tinawagan	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
1. BUKIDNON	BUKIDNON	Cabanglasan		1. Wilfredo A. Mapano
EWA No. 1		Impasug-ong		Senior Agriculturist
		Lantapan		
		Malaybalay		2. Alan F. Buque
		Maramag		Agriculturist II
		Quezon		
		San Fernando		
		Valencia		
2. BUKIDNON	BUKIDNON	Dangcagan		3. Arthur Saludes
EWA No. 2		Kitaakitao		Agriculturist II
		Don Carlos		
		Kibawe		4. Ismael B. Braga
		Damulog		Agriculturist II
		Kadingilan		
		Pangantucan		
		Kalilangan		
	LANAO DEL SUR	Wao		
		Bumbaran		
	NORTH COTABATO	Banisilan		
3. DAVAO	DAVAO DEL SUR	Bansalan	Bonifacio	Edgar V. Aclao, Sr.
			Buenavista , Curvada	Senior Agriculturist
			Libertad , Eman, Dolo	
			Linawan , Mabuhay	
			Managa , Mabunga	
			New Clarin , Sibayan	
			Tinongtongan , Tubod	
			Union	
		Digos City	Balabag , Colorado	
			Dulangan , Goma	
			Matti , Mahayahay	
			Ruparan , Lungag	
			San Agustin	
			San Roque , Tiguman	
			Tres de Mayo	
		Hagonoy	Clib , Kibuaya, Lanuro	
			Guihing , La union	
			Lapulabao	
			Mahayahay	
			Malabang	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
3. DAVAO	DAVAO DEL SUR	Hagonoy	Maliit Digos	Edgar V. Aclao, Sr.
			New Quezon	Senior Agriculturist
			Paligue , Poblacion, Sacub	
			Tologan , San Guillermo	
		Kiblawan	Bagong Negros	
			Bagong Silang	
			Bagumbayan , Balasiao	
			Bunot , Bonifacio	
			Cogon Bacaca	
			Kibongbong, Dapok, Ihan	
			Kisulan , Latian, Manual	
			Molopolo , Maraga-a	
			New Sibonga , Panaglib	
			Poblacion , Pasig	
			Pocaleel , San Isidro	
			San Pedro , San Jose	
			Sto. Niño , Waterfall	
		Magsaysay	1. Bacungan	
			2. Bala	
			3. Balnate	
			4.Barayong	
			5.Blocon	
			6.Dalumay	
			7.Glamang	
			8.Kasuga	
			9.Mabini	
			10.Poblacion	
			11.San Isidro	
			12. San Miguel	
		Malalag	1. Bulacan	
			2. Dalongbong	
			3. Magdulog	
			4. New Baclayon	
			5. Rizal	
			6. San Isidro	
			7. Tagansuli	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
3. DAVAO	DAVAO DEL SUR	Matan-ao	Bagumbayan	Edgar V. Aclao, Sr.
			Bangkal , Buas, Buri, Cabligan	Senior Agriculturist
			Camanchiles , Ceboza	
			Dungan Pekong , Katipunan	
			Kibao, Kauswagan	
			La Suerte , Langaan, Manga	
			New Visayas , New Murcia	
			Sampaguita , Poblacion	
			San Jose , Saub, Savoy, Sinawilan	
			Tamlangon , Tibongbong	
			San Vicente , Towak, Sinaragan	
		Padada	1. Katipinan	
			2. Malinao	
			3. Osmeña	
			4. Paligue	
			5. Poblacion	
			6. Tologan	
			Total	
		Sulop	1. Batang	
			2. Buguis	
			3. Carre	
			4. Clib	
			5. Katipunan	
			6. Kiblagon	
			7. Labon	
			8. Litos	
			9. Luparan	
			10. McKinley	
			11. New Cebu	
			12. Palili	
			13. Parami	
			14. Poblacion	
			15. Roxas	
			16. Sulongvale	
			17. Tagolilong	
			18. Talao	
			19. Tanwalang	
			20. Waterfall	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
3. DAVAO	DAVAO DEL SUR	DAVAO DEL SUR	Lapla	Edgar V. Aclao, Sr.
			Laperas	Senior Agriculturist
	SOUTH COTABATO	General Santos	Apopong , Batomelong	
			Mabuhay , Conel	
			Lower Labay , Olympog	
			Sinawal , Pulatana	
			Tinagakan , Upper Labay	
			Bawing , Cabuay	
		Surallah	1. Lamsugod	
			2. Centrala	
		T'Boli	1. Aflex	
		Isulan	1.Publacion	
		Pres. Quirino	1.Poblacion	
			2.Tinungan	
		HYSEC	Cebulan , Tagabuli, Tolugan	
			Panaglib, New Sibunga	
			Maliit Digos , Mahayahay	
			Kibuaya , New Quezon	
			Malabang , San Miguel, Buas	
	6. SARANGANI PROV.	Maasim	Lamlangil	
		Malungon	Alkikan , Ampon, Banahaw	
			JP Laurel , Banate, Biangan	
			Lower Mainit , Kawayan, Kitakal	
			Malalag cogon , Malandag	
			Malungon gamay , Nagpan	
			San Miguel , Poblacion	
			San Roque	
			Tagaytay	
			Talus	
			Upper Lumabat	
			Upper Mainit	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
3. DAVAO	SARANGANI PROV.	Polomolok	1. Aquino Gate	Edgar V. Aclao, Sr.
			2. Glamang	Senior Agriculturist
			3. Klinan 6	
			4. Magsaysay	
			5. Matin-ao	
			6. Poblacion	
			7. Polo	
			8. Silway	
			9. Cannery	
			10. Upper Klinan	
4. COTABATO	MAGUIN-DANAO	Buluan	Poblacion	Ireneo F. Nuñez
		Datu A. Sangki	Banaba, Talahik	Senior Agriculturist
		Datu Montawal	Tuka	
		Datu Paglas	Kalumenga	
		Pagagawan	Tunggol	
		Pagalungan	Linandangan, Poblacion	
		Paglat	Damakling, Damasulay	
			Salam, Kakal, Kampo	
		Pandag	Poblacion	
		S.K. Pendatun	Poblacion, Ramcar	
		Talayan	Kudin	
4. COTABATO	NORTH COTABATO	Alamada	Pigcawaran	
		Aleosan	Dunguan, Pagangan	
		Antipas	Malatab	
			New Pontevedra	
		Arakan	Doroloman, Malibatuan	
			Poblacion	
		Carmen	Aroman	
			Katanayanan, Kibayao	
			Kibugtungan, Kibenes	
			Kimadzil, Kitulaan, Lanoon	
			Malapag, Liliongan	
			Manarapan, Manili	
			Rancho, Nasapean	
			Taculen, Tacupan	
			Tawantawan	
		Colombio	Libertad	
		Esperanza	Villamor	
		Kabacan	Bangilan	
			Bannawag	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
4. COTABATO	NORTH COTABATO	Kabacan	Dagupan	Ireneo F. Nuñez
			Katiduan	Senior Agriculturist
			Lower Malamote	
			Malanduague, Nangaan	
			Sangadong, Pectad	
			Sanggadong	
		Kidapawan	Amas, Binoligan	
			Junction, Gayola	
			Kalaisan, Kalasuyan	
			Linangkob, Katipunan	
			Macebuleg, Malinan	
			San Isidro, Onica, Paco	
			San Roque, Sikitan	
			Sumbac, Sto Nino	
			Patadon, San Roque	
		Magpet	Alibayon , Bantac	
			Kabisig, Del Pilar, Kamada	
			Poblacion, Mahongcog	
			Tagbac	
		Makilala	Poblacion	
			Sinkatulan	
		Matalam	Kibudok	
			Central Malamote	
			Dalapitan	
			Estado	
			F.Valdevieso	
			Ilian	
			Kabulakan	
			Kidama	
			Killada	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
4. COTABATO	NORTH COTABATO	Matalam	Kinudal	Ireneo F. Nuñez
			Lambayao, Lampayan	Senior Agriculturist
			Manubuan, Magoncia	
			Manupal, Marbel	
			Marbel condring	
			Marbel Kayakaya	
			Natutungan, Napasaan	
			New abra	
			New Alimodian	
			New Bogasong	
			Patadon, Poblacion	
			Sarayan, Salvacion	
			Sta.Maria, Tacub	
			West Patadon	
		M'lang	Bialong, Buayan, Buenafior	
			Dalipe, Calunsan	
			Gaunan	
			Katipunan	
			Kibia	
			La fortuna	
			La Suerte	
			Langkong	
			libo-o	
			Lika	
			Langkong	
			Luz village	
			Magallon	
			Malayan	
			New Antique	
			New Barbasa	
			New Calibo	
			New Consolacion	
			New Esperanza	
			New Janiuay	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
3. COTABATO	NORTH COTABATO	M'lang	New Kalibo	Ireneo F. Nuñez Senior Agriculturist
			New Lawaan, New Rizal	
			Palma Perez, Pag-asa	
			Pulanglupa, Sangat	
			Tawantawan, Teresita, Tibao	
			Ugpay	
		Pigcawayan	Simsiman	
		Pikit	Balungis, Batulawan	
			Gokotan, Gli-gli	
			Ladtingan	
			Nunguan	
		Pres. Quirino	Mangilala	
			Sinakulay	
			Suben	
		Pres. Roxas	Datu Sundungan	
			Alegria	
			Lamalama	
			Lomonay	
			New Cebu	
			Sagkungan	
			Bato-Bato	
			Del Carmen	
			Kamarahan	
			Kimauring	
			Kisupaan	
			La esperanza	
			Labu-o	
			Poblacion	
		Surallah	Buenavista	
		Tulunán	Banayal	
			Bual	
			Dungos	
			Kanibong	
			La esperanza	
			Lampagang	
			Maybula	
			Minapan	
			Nabundasan	
			New Kulasi	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
4. COTABATO	NORTH COTABATO	Tulunán	New Panay	Ireneo F. Nuñez Senior Agriculturist
			Pupuyon, Sibsib, Talisawa	
			Tuburan, Tambac	
	SOUTH COTABATO	Banga	Bo. 5. And 9	
			Poblacion, Malaya, Lamba	
		Koronadal	Concepcion	
		Norala	Bgy.dose	
			Garido	
		Polomolok	Klinan 6, Glamang	
			Silway 8, Poblacion	
		Sto. Nino	M. Roxas	
			Tenumigues	
		Surallah	Bo. 10, Colongolo, Dajay	
			Lambontong	
			Lamsugod	
			Moloy, Naci, Sampao	
			Tubi-Allah, Takepan	
		Tantangan	Magon	
			New Cuyapo	
			Poblacion	
	SULTAN KUDARAT	Bagumbayan	Bai saripinang	
			Biwang	
			Busok	
			Daguma	
			Kapaya	
			Nakan	
			Poblacion	
			Sison	
			Tuburan	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
B. MINDANAO				
4. COTABATO	SULTAN KUDARAT	Colombio	Bunawan	Ireneo F. Nuñez
			Lomoyon, Lumaga, Mayo	Senior Agriculturist
			Poblacion, Natividad	
		Esperanza	Daladap, Dukay, Guiamalia, Kamasi	
			Sagasa, Pamintingan	
			Salabaka	
		Isulan	Bambad, Delotilla	
			New Pangasinan, Poblacion	
		Lambayong	Gansing, Lilit, Mamali Uno	
			Midtapok, Matiampong	
			New Cebu	
			Pimbalayang, Poblacion	
			Tawantawan, Sadsalan	
		Pres. Quirino	Bagumbayan	
			Bayawa, Estrella	
			Kalanawi dos, Katiku	
			Malingon, Mangelen	
			San Jose, San Emmanuel	
			Tinaungan	
			Tual	
			Tuato	
			Poblacion	
			Tonggol	
		Surallah	Centrala	
4. COTABATO	SULTAN KUDARAT	Tacurong	Baras	
			Dumagil	
			Kalandagan	
			Katungal	
			Montilla	
			New Isabela	
			Poblacion	
			San Emmanuel	
			San Pablo	
			San Rafael	
			Tina	

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
C. VISAYAS				
MILL DISTRICT	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
1. HPCO	NEGROS OCC.	E.B. Magalona		Roberto C. Velasco, Jr.
		Silay city	Hawaiian, Lantad	Senior Agriculturist, MDO
			E. Lopez, Balaring	
			Capt. Ramon	
			Guimbalaon, Bagtic	
			Rizal, Patag, Mabulac	
2. Bacolod-Murcia/ FFHC	NEGROS OCC.	Talisay City		Antonio S. Alulod
		Bacolod City		Agriculturist II
		Murcia		
		Don Salvador Benedicto City		
		Silay City	Guinhalaran 4 & 5	
3. La Carlota / Ma-ao	NEGROS OCC.	La Carlota		1. Helen B. Lobaton
		Pontevedra		Senior Agriculturist, MDO
		La Castellana		2. Tomas Buendia, Jr
		Villadolid		Agriculturist II
		Bago City		3. Dee Arr D. Paglumotan
		Pulupandan		Agriculturist II
		San Enrique		
4. Victorias	NEGROS OCC.	Cadiz City		Eduardo F. Tupino
		Manapla		MDO, Agriculturist II
		Victorias City		
5. Lopez / Sagay-Danao	NEGROS OCC.	Sagay City		1. Julian Geolingo
		Escalante City		Senior Agriculturist, MDO
		Toboso		2. Cyril Vera
				Agriculturist II
6. San Carlos	NEGROS OCC.	San Carlos City		Rogelio Lavina
		Calatrava		MDO, Agriculturist II
		Canlaon City		
		Guinhungan		
		Vallehermoso		

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED
	PROVINCE	MUNICIPALITY	BARANGAY	
C. VISAYAS				
7. Biscom	NEGROS OCC.	Moises Padilla		Jade M. Villarias
		Isabela, Hinigaran		OIC MDO, Agriculturist II
		Himamaylan		
		Binalbagan		
8. Sonedco - Dacongogon	NEGROS OCC.	Kabankalan City		1. Jade M. Villarias
		Cauayan		MDO, Agriculturist II
		Ilog		2. Edgardo M. Adalia
		Sipalay City, Candoni		Agriculturist II
		Hinobaan		
9. Bais-Ursumco	NEGROS OR.	Amlan		Fernando C. Sauro, Jr
		Ayungon, Sibutan		MDO, Agriculturist II
		Dumaguete City		
		La Libertad, Bais City		
		Jimalalod, San Jose		
		Manjuyod, Mabinay		
		Pamplona, Tanjay		
		Zamboangita		
		Basay, Tayasan		
		Bindoy		
10. Tolong	NEGROS OR.	Bayawan		Protacio Arnaiz
		Sta Catalina, Siaton		MDO, Senior Agriculturist
		Basay		
11. Passi - Santos Lopez	ILOILO	Badiangan		Elmer Belandres
		Cabatuan, Calinog		MDO, Agriculturist II
		Dueñas, Dingle		
		Janiuay		
		Lambunao		
		Maasin, Passi		
		San Enrique, Pototan		
		New Lucena, Mina		
		Barotac Nuevo		
		Dumangas, Anilao		
		Ajuy, Banate		
		San Rafael		
		Lemery		
		Sara		
		Concepcion		
		Barotac Viejo		
		San Dionisio		

Sugarcane Mill Districts	COVERAGE			PERSONNEL ASSIGNED	
	PROVINCE	MUNICIPALITY	BARANGAY		
C. VISAYAS					
12. Monomer - Capiz	CAPIZ	Bingawan, Iloilo		Rex J. Jinon	
		Cuartero, Capiz			
		Dao, Capiz			
		Dumalag, Capiz			
		Dumarao, Capiz			
		Ivisan, Capiz			
		Jamindan, Capiz			
		Mambusao, Capiz			
		Roxas City, Capiz			
		Sapi-an, Capiz			
		Sigma, Capiz			
		Tapaz, Capiz			
		President Roxas, Capiz			
		Pontevedra, Capiz			
		Pilar, Capiz			
		Panit-an, Capiz			
		Panay, Capiz			
		Maayon, Capiz			
		Estancia, Iloilo			
		Carles, Iloilo			
	Batad, Iloilo				
	Balasan, Iloilo		MDO, Agriculturist II		
13. Bogo Medellin / Durano	CEBU	Bogo		Paulino A. Oñal	
		San Remegio			MDO, Senior Agriculturist
		Medellin, Daan Bantayan			
		Daan Bantayan			
		Danao City, Tabogon, Borbon			
		Mandaue, Carmen, Tuburan			
14. Ormoc Hisumco	LEYTE	Ormoc		Jessie Alao	
		Albuera, Kananga, Carigara			MDO, Agriculturist II
		Kananga			
		Capoocan, Merida, Villaba			
		Palompon			
		Matag-ob			

LIST OF TABLES

Table No.	Title / Description
1.1	Areas of Sugarcane Harvested (Hectares) from Crop Year 2009-10 to 2013-14
2.1	Summary of Number of Farmers and Plantations by Farm Sizes in the Philippines, CY 2009-2010 to 2011-2012
2.2	Number of Farmers by Farm Sizes, By Island, CY 2009-2010 to 2011-2012
2.3	Profile of All Farms, Farmers and Areas Planted in CY 2013-2014
2.4	Sugarcane Productivity and Sugar Yield by Mill District, Crop Year 2009-10 to 2013-14
2.5	Sugarcane Productivity and Sugar Yield by Farm Size, Crop Year 2009 -10 to 2011-12
2.6	Performance of Cagayan Mill District, CY 2009-10 to 2013-14
2.7	Profile of Sugarcane Farms and Farmers of Cagayan Mill District, CY 2013-14
2.8	Performance of Tarlac Mill District, CY 2009-10 to 2013-14
2.9	Profile of Sugarcane Farms and Farmers of Tarlac Mill District, CY 2013-14
2.10	Performance of Pampanga Mill District, CY 2009-10 to 2013-14
2.11	Profile of Sugarcane Farms and Farmers of Pampanga Mill District, CY 2013-14
2.12	Performance of Don Pedro Mill District, CY 2009-10 to 2013-14
2.13	Profile of Sugarcane Farms and Farmers of Don Pedro Mill District, CY 2013-14
2.14	Performance of Balayan Mill District, CY 2009-10 to 2013-14
2.15	Profile of Sugarcane Farms and Farmers of Balayan Mill District, CY 2013-14
2.16	Performance of PENSUMIL Mill District, CY 2009-10 to 2013-14
2.17	Profile of Sugarcane Farms and Farmers of PENSUMIL Mill District, CY 2013-14
2.18	Performance of PASSI Mill District, CY 2009-10 to 2013-14
2.19	Profile of Sugarcane Farms and Farmers of PASSI Mill District, CY 2013-14
2.20	Performance of Santos-Lopez Mill District, CY 2009-10 to 2013-14
2.21	Profile of Sugarcane Farms and Farmers of Santos-Lopez Mill District, CY 2013-14
2.22	Performance of Monomer Mill District, CY 2009-10 to 2013-14
2.23	Profile of Sugarcane Farms and Farmers of Monomer Mill District, CY 2013-14
2.24	Performance of Capiz Mill District, CY 2009-10 to 2013-14
2.25	Profile of Sugarcane Farms and Farmers of Capiz Mill District, CY 2013-14
2.26	Performance of La Carlota Mill District, CY 2009-10 to 2013-14
2.27	Profile of Sugarcane Farms and Farmers of La Carlota Mill District, CY 2013-14

LIST OF TABLES

Table No.	Title / Description
2.28	Performance of Ma-ao Mill District, CY 2009-10 to 2013-14
2.29	Profile of Sugarcane Farms and Farmers of Ma-ao Mill District, CY 2013-14
2.30	Performance of Bac-Mur/First Farmers Mill District, CY 2009-10 to 2013-14
2.31	Profile of Sugarcane Farms and Farmers of Bac-Mur/First Farmers Mill District, CY 2013-14
2.32	Performance of HPCO/Silay Mill District, CY 2009-10 to 2013-14
2.33	Profile of Sugarcane Farms and Farmers of HPCO/Silay Mill District, CY 2013-14
2.34	Performance of Victorias Mill District, CY 2009-10 to 2013-14
2.35	Profile of Sugarcane Farms and Farmers of Victorias Mill District, CY 2013-14
2.36	Performance of Lopez Mill District, CY 2009-10 to 2013-14
2.37	Profile of Sugarcane Farms and Farmers of Lopez Mill District, CY 2013-14
2.38	Performance of Sagay-Danao Mill District, CY 2009-10 to 2013-14
2.39	Profile of Sugarcane Farms and Farmers of Sagay-Danao Mill District, CY 2013-14
2.40	Performance of Binalbagan-Isabela Mill District, CY 2009-10 to 2013-14
2.41	Profile of Sugarcane Farms and Farmers of Binalbagan-Isabela Mill District, CY 2013-14
2.42	Performance of SONEDCO Mill District, CY 2009-10 to 2013-14
2.43	Profile of Sugarcane Farms and Farmers of SONEDCO Mill District, CY 2013-14
2.44	Performance of Dacongogon Mill District, CY 2009-10 to 2013-14
2.45	Profile of Sugarcane Farms and Farmers of Dacongogon Mill District, CY 2013-14
2.46	Performance of San Carlos Mill District, CY 2009-10 to 2013-14
2.47	Profile of Sugarcane Farms and Farmers of San Carlos Mill District, CY 2013-14
2.48	Performance of Tolong Mill District, CY 2009-10 to 2013-14
2.49	Profile of Sugarcane Farms and Farmers of Tolong Mill District, CY 2013-14
2.50	Performance of Bais-URSUMCO Mill District, CY 2009-10 to 2013-14
2.51	Profile of Sugarcane Farms and Farmers of Bais-URSUMCO Mill District, CY 2013-14
2.52	Performance of Durano Mill District, CY 2009-10 to 2013-14
2.53	Performance of Bogo-Medellin Mill District, CY 2009-10 to 2013-14
2.54	Profile of Sugarcane Farms and Farmers of Bogo-Medellin Mill District, CY 2013-14
2.55	Performance of HISUMCO Mill District, CY 2009-10 to 2013-14
2.56	Profile of Sugarcane Farms and Farmers of HISUMCO Mill District, CY 2013-14
2.57	Performance of Bukidnon Mill District, CY 2009-10 to 2013-14

LIST OF TABLES

Table No.	Title / Description
2.58	Profile of Sugarcane Farms and Farmers of Bukidnon Mill District, CY 2013-14
2.59	Performance of Davao Mill District, CY 2009-10 to 2013-14
2.60	Profile of Sugarcane Farms and Farmers of Davao Mill District, CY 2013-14
2.61	Performance of Cotabato Mill District, CY 2009-10 to 2013-14
2.62	Profile of Sugarcane Farms and Farmers of Cotabato Mill District, CY 2013-14
2.63	Average Millsite Prices By Sugar Classification Including Molasses, CY 2009-10 to 2013-14
2.64	Prevailing Wholesale Prices in Metro Manila, 2012-2014
2.65	Prevailing Retail Prices in Metro Manila, 2012-2014
2.66	Bioethanol Reference Price, CY 2011-2012
2.67	Bioethanol Reference Price, CY 2012-2013
2.68	Bioethanol Reference Price, CY 2013-2014
2.69	Monthly Domestic Withdrawals of Raw Sugar in Metric Tons, CY 2009-10 to 2013-14
2.70	Monthly Domestic Withdrawals of Refined Sugar in LKG Bags, CY 2009-10 to 2013-14
2.71	Bioethanol Consumption, Years 2007-2014
2.72	Bioethanol Distilleries with DOE Accreditation as of December 2014
2.73	Sugarcane-Based Biomass Projects in the Visayas Registered with DOE as of December 2014
2.74	Sugarcane-Based Biomass Projects in the Luzon and Mindanao Registered with DOE as of December 2014
2.75	Production, Consumption, Imports and Exports of Sugar, 2003-04 to 2013-14
2.76	Sugar Premixes Imported by Food Exporters & Industrial Users in Metric Tons By Tariff Heading (AHTN), CY 2009-10 to 2012-13
2.77	Sugar Premixes Imported by Food Exporters & Industrial Users in Metric Tons By Tariff Heading (AHTN), CY 2013-2014
2.78	Molasses Imports in Years 2013-2014
2.79	Molasses Imports in Kilos, Years 2000-2010
2.80	Imports of Bioethanol In Million Liters, Years 2011-2014
2.81	Countries of Destination of World Market Sugar Sugar Shipments, CY 2010-11 to 2012-13
2.82	Destinations of Raw Sugar Exports in 2014, Metric Tons
2.83	Muscovado Exports and Countries of Destinations, Year 2012

LIST OF TABLES

Table No.	Title / Description
2.84	FY 2014 US Quota Allocations
2.85	Raw Sugar Production By Sugar Mill, CY 2004-05 to 2013-14
2.86	Molasses Production of Philippine Sugar Mills, CY 2009-10 to 2013-14
2.87	Performance of Philippine Sugar Mills, CY 2013-2014
2.88	Mill Improvement Initiatives, Year 2010-2013
2.89	Refined Sugar Production By Sugar Refinery, CY 2004-05 to 2013-14
2.90	Performance of Sugar Refineries, CY 2013-2014
2.91	Production and Sales of Operating Bioethanol Distilleries, 2012-2014
2.92	Sugarcane Areas, Cane Milled & Bioethanol Production of Green Future Innovations, Inc., CY 2012-2013
2.93	Bioethanol Distilleries Operational as of Q1 2015
2.94	Projected Bioethanol Workers, 2013-2030
2.95	Muscovado production in the Philippines (MT), 2002-2006
2.96	Renewable Energy Targets, 2011-2030
3.1	Farm Cash Flows of Pensumil Mill District, Pesos Per Hectare, CY 2012-2013
3.2	Farm Cash Flows of Tarlac Mill District, Pesos Per Hectare, CY 2012-2013
3.3	Farm Cash Flows of Balayan Mill District, Pesos Per Hectare, CY 2012-2013
3.4	Farm Cash Flows of Bogo-Medellin Mill District, Pesos Per Hectare, CY 2012-2013
3.5	Farm Cash Flows of Victorias Mill District, Pesos Per Hectare, CY 2012-2013
4.1	Rated Capacities and Feedstocks of Bioethanol Distilleries, Year 2015
4.2	Historical Supply-Demand Situation of Bioethanol Fuel
4.3	Projected Bioethanol Supply-Demand & Fedstock Requirement
4.4	List of Sugar Mills & Bioethanol Distilleries with Certificates of Compliance with ERC
4.5	Feed-inTariff Rates of Renewable Energy Approved by the ERC
4.6	Total Farm Cost, Plant / Ratoon Cane (Php/LKg) – Philippines & Thailand
4.7	Value Added Using Normalized Price (Php/LKg) – Philippines & Thailand
4.8	Farm production Costs of New Plant Cane Farms, Value Added and Profit, Php/LKg – Philippines & Thailand
4.9	Farm to Mill Logistics Cost, Php/LKg – Philippines & Thailand
4.10	Sugar Processing Costs (Milling & Refining), Php/LKg – Philippines & Thailand

LIST OF TABLES

Table No.	Title / Description
4.11	Logistics & Marketing Costs, Php/LKg – Philippines & Thailand
4.12	Sugar Distribution to Wholesaler and Port, Php/LKg – Philippines & Thailand
4.13	Cost Build Up and Returns Per Hectare of PENSUMIL Mill District (Typical Farm), CY 2012-2013
4.14	Cost Build Up and Returns Per Hectare of Victorias Mill District (Model Farm), CY 2012-2013
4.15	Average Cost of Operations of a Bioethanol Distillery Excluding Raw Materials
5.1	Comparative Indicators, 2011 – Philippines & Thailand
5.2	Sugarcane Farm Distribution – Philippines & Thailand
5.3	Average Yield Per Hectare, Philippines & Thailand, CY 2010-11 (Tons)
5.4	Sugarcane Farming Costs Per Hectare, New Plant, CY 2010-11 (Php/Ha) – Philippines & Thailand
5.5	Sugarcane Farm Costs and Profits, Large Farms, CY 2010-11 (Php/Ha) – Philippines & Thailand
5.6	Rated Capacity of Sugar Mills, 2010 (TCD) – Philippines & Thailand
5.7	Mills, Capacity and Utilization, 2010 – Philippines & Thailand
5.8	Comparative Refining Capacity and Utilization, Philippines Vs. Thailand
5.9	List of Major Sugar Traders, Philippines
5.10	List of Sugar Exporting Companies in Thailand
5.11	Preliminary and Final Cane Prices in Thailand, CY 2001/02 to 2011/12
6.1	Cost Structure of Raw Sugar, CY 2008-09 to 2013-14
6.2	Cost Structure of Refined Sugar, CY 2007-08 to 2012-13
6.3	Cost Structure of Imported Refined Sugar, Based on 2013 Average World Market Price
6.4	Sensitivity Analysis of Imported Raw Sugar at 5% Tariff, 2013
6.5	Sensitivity Analysis on Cost of Production
7.1	World Market Shipments and Country of Destinations, CY 2010-11 to 2012-13
7.2	World Market Forecasts, CY 2013-2014
7.3	AEC Sugar Supply-Demand Situation, CY 2012-2013

LIST OF TABLES

Table No.	Title / Description
11.1a-11.28b	Medium & Long-Term Action Plans and Targets of the Sugarcane Mill Districts
11.2.1	Farm & Farmers Profile of Philippine Sugarcane Farms, CY 2013-2014
11.2.2	SRA-DAR-DA Pilot Block Farms as of CY 2013-2014
11.2.3	Block Farm Medium-Term Targets
11.2.4	Budgetary Requirement of the Bloc Farm Program – 2016 GAA
11.3.1	Infrastructure and HRD Medium-Term Targets, 2015-2020
11.3.2	R, D & E Medium-Term Targets, 2015-2020
11.3.3	Farm Mechanization Medium-Term Targets, 2015-2020
11.5.1	2016 Priority Programs & Required Investments
11.5.2	Sugarcane Roadmap 2020 Priority Programs (Physical Targets)
11.5.3	Sugarcane Roadmap 2020 Financial Requirements
12.1	Sugarcane Roadmap 2020 Target Outcomes
12.2	Sugarcane Roadmap 2020 – National Inclusive Growth Indicators

LIST OF FIGURES

Figure No.	Title / Description
1.1	The Conceptual Framework for a Sustainable & Diversified Philippine Sugarcane Industry
1.2	Distribution of Sugarcane Farms by Island, Crop Year 2013-2014
1.3	Sugarcane Areas (In Hectares) Harvested for the Past 10 Crop Years, 2004-05 to 2013-14
2.1	Profile of Philippine Sugarcane Farms, Crop Year 2011-12
4.1	Cane Production Costs & Profits: Small Farms, Philippines & Thailand (Php/LKg)
4.2	Value Chain: Small Farm at Normalized Price (Php/LKg) – Philippines and Thailand
4.3	Cane Production Costs and Profits: Large Farms, Philippines & Thailand (Php/LKg)
4.4	Value Chain: Large Farms at Normalized Price (Php/LKg) – Philippines and Thailand
4.5	Cane Production Costs and Profits: Small & Large Farms, Philippines (Negros) and Thailand (North) (Php'000 per Hectare)
4.6	Cane Production Costs and Profits: Small & Large Farms, Philippines (Negros) and Thailand (North) (Php per LKg)
4.7	Sugar Supply / Value Chain Cost Build Up of PENSUMIL Mill District
4.8	Sugar Supply / Value Chain Cost Build Up of Victorias Mill District
5.1	Sugarcane Production & Area Harvested, CY 2000/01-2010/11 – Philippines & Thailand
5.2	Sugarcane Yield Levels, CY 2000/01-2010/11 – Philippines & Thailand
5.3	Leading Regional Producers of Sugarcane, 2010 – Philippines & Thailand
5.4	Sugar Mills & Refineries in the Philippines and Thailand
5.5	Raw Sugar Production, CY 2000/01 to 2010/11 Philippines & Thailand
5.6	Refined Sugar Production, CY 2000/01 to 2010/11 Philippines & Thailand
5.7	Sugar Exports, 2000-2010 – Philippines & Thailand
5.8	Thailand: Preliminary and Final Prices of Cane
5.9	Wholesale & Export Prices of Sugar, 2000-2011 – Philippines & Thailand
5.10	Retail Prices of Refined Sugar, 2000-2011 – Philippines & Thailand
7.1	Sugar Global Market Players – CY 2012-13
7.2	Role of AEC Countries in Sugar Trade, CY 2012-2013
7.3	Asian Sugar Markets, 2013
11.1	Block Farm Implementation Schedule 0 GANTT CHART

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