



Climate Resilient Agriculture Practices Investment Prioritization

Investment Prioritization for Region XII: SOCCSKSARGEN on Organic Rice Farming

Overview

North Cotabato, a prime province of Region XII (SOCCSKARGEN), has a total land area of 656,590 hectares, of which, 55.11 percent are classified as alienable and disposable while the remaining 44.89 percent are forest lands. This land area of the province is suitable for various uses.

With the vast resources found in the region as well as in the province, it has become suitable for lowland rice, corn, and sugarcane production. These are found in the municipalities of Kabacan, Matalam, Libungan, Carmen, Pikit and parts of Tulumun, M'lang and Midsayap. Oil palm, rubber, coconut, and banana as well as coffee and fruit trees are also suitable in the province, thus, making the province a producer of various agricultural commodities and leader of rice production in the region.

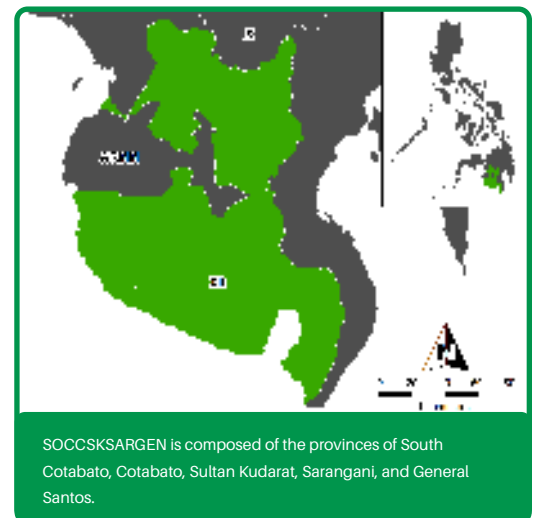
However, the province is confronted with various climate hazards making it vulnerable to climate change. This affects the agricultural production in the province especially during the dry spell experienced last 2015 where vast agricultural areas were devastated.

Prioritized Climate Resilient Agriculture (CRA) Practice

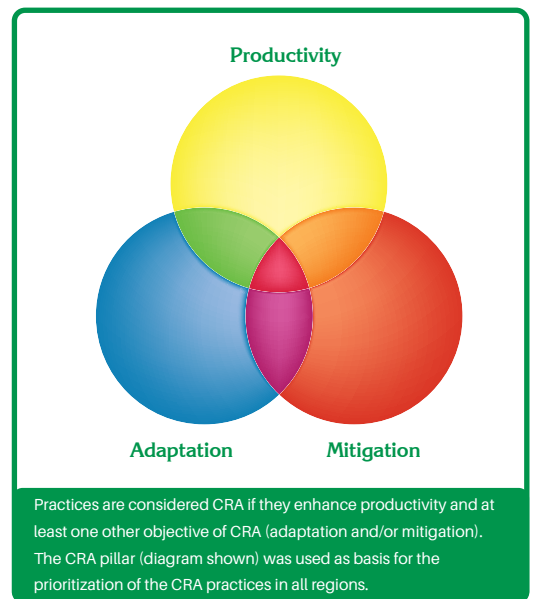
Organic Rice farming has been practiced in the province. In North Cotabato, Awot, Black Rice/Red Rice, Dinorado, Guyod, Hinumay and RV-8 are some of the rice varieties and landraces that are organically grown. As of 2015, the Don Bosco Multipurpose Cooperative, the leading organic rice producer in the province, has 519 hectares of organic rice that has contributed to the 9,696 MT produced in the region in the same year. In Don Bosco MPC, farmers plant crops near the farm to drive away pests and use madre de cacao leaves as pesticides. They apply both solid and liquid fertilizer (Cow and Pat Pit, milk, honey, etc.) and other concoctions.

One environmental benefit of this CRA is the reduction of carbon emission. It also contributes to the improvement of soil quality by increasing the soil organic matter and soil organic carbon.

The financial and social viability of the CRA practice rely on the data gathered from the cooperative and from the survey conducted in selected areas in the province.



SOCCSKSARGEN is composed of the provinces of South Cotabato, Cotabato, Sultan Kudarat, Sarangani, and General Santos.



Practices are considered CRA if they enhance productivity and at least one other objective of CRA (adaptation and/or mitigation). The CRA pillar (diagram shown) was used as basis for the prioritization of the CRA practices in all regions.

Data Gathering Methodology

Data on conventional rice farming were generated from the interviews with 100 conventional rice farmers. On the other hand, the data on organic rice production were gathered from the Provincial Agriculturist Office and KII with the head of Don Bosco Multipurpose Cooperative. For the externalities, three farmers, two municipal agriculturists, and one environmentalist were interviewed using a validated questionnaire.

Secondary data were used to supplement the needed information and data for the Cost-Benefit Analysis (CBA) using the tool by the International Center for Tropical Agriculture (CIAT).

Results

The CRA practice requires a private initial investment of around Php43,379.00 (USD 896.82) per hectare for it to be adopted. The yield of organic rice is about 89 percent higher compared to that of conventional rice.

Due to price premium of organic rice, the yield of conventional rice was adjusted. Given this difference in both prices and yield, the projected net cash flow of the CRA result is profitable from the private point of view with a potential net present value (NPV) of Php100,604.06 (USD 2,064.52) and an internal rate of return (IRR) of 84.36 percent way above the 12 percent discount rate making the CRA practice likely to be adopted by the farmers. Since there is a price premium for organic rice, the initial investment is realized in 3 years.

On the other hand, from the point of view of society in general and by incorporating the externality (reduction of CO₂ emission), the CRA seems to be highly attractive with a potential NPV of Php157,653.73 (USD 3,235.25) and a quasi-social IRR of almost 170 percent.

Recommendations

Based on the reasons, it is recommended that the Government continue to promote the adoption of the CRA practice on the ground of the existing divergence between private and social gains reaped from the adoption.

Furthermore, in order to reduce the degree of uncertainty in the evaluation of the impacts of the CRA practice, the authors recommend the allocation of more funds to finance researches to allow substantial generation of information on the externalities, prices and yield.

CBA Tool Summary Results

Farm-level Analysis	Net present value (NPV)	Social and Environmental NPV	Internal Rate of Return (IRR)	Social IRR	Payback Period	Initial Investment	Scenario in the Analysis	
	USD 2,064.52*	USD 3,235.25	84.36%	169.53%	3 years	USD 896.82	WITHOUT CRA: Conventional Rice Farming	WITH CRA: Organic Rice Farming
Aggregate analysis	Total area of rice	Current adoption rate	Adoption rate	Aggregate NPV		Period		
	2,069 ha	5%	7%	USD 190,197.06		10 years		

*USD 1 = Php48.73

References

Socio-demographic profile of North Cotabato, 2015.
 Philippine Rural Development Program. 2016. Value Chain Analysis and Competitiveness Strategy: Organic Rice in Mindanao
 Photo source: <http://www.organicgarden.co.in/blog/known-organic-black-rice-health-benefits>

About the authors

This investment brief was authored by the team from the University of Southern Mindanao (USM), CIAT-AMIA's partner SDC for the CRA-DS project in SOCCSKSARGEN.

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