



Climate Resilient Agriculture Practices Investment Prioritization

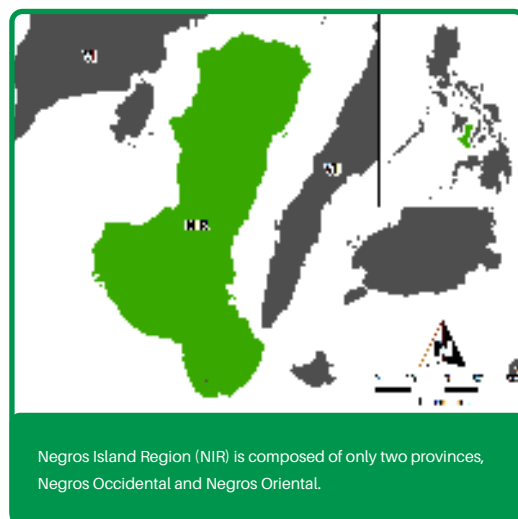
Investment Prioritization for Region XVIII: Negros Island Region on Organic Red Rice Production

Overview

Negros Island Region (NIR) is considered as the Sugar Bowl of the Philippines. However, due to the volatility of the sugar industry, the region has resorted to diversification of commodities. Rice is among the region's current top five commodities. It ranks second to sugarcane in terms of area planted. NIR has a total land area of 1,335,074 ha, 49 percent of which is devoted to crop production.

The province of Negros Occidental occupies about 796,521 ha, 56 percent of which is devoted to crop production, contributing to about 88 percent of the region's rice production. In 2014, 615,000 MT of rice was produced from 167,421 ha crop area. Irrigated farms constituted about two-thirds of the area harvested.

Negros Occidental is subjected to a number of climate-related hazards. These include flooding, rain-induced landslides, surges, typhoons, and droughts. Drought has brought tremendous impact to agriculture in the province. The El Niño phenomenon from November 2015 until June 2016 affected 8,100 ha of rice farms in 27 municipalities that resulted to estimated losses of about Php277M.



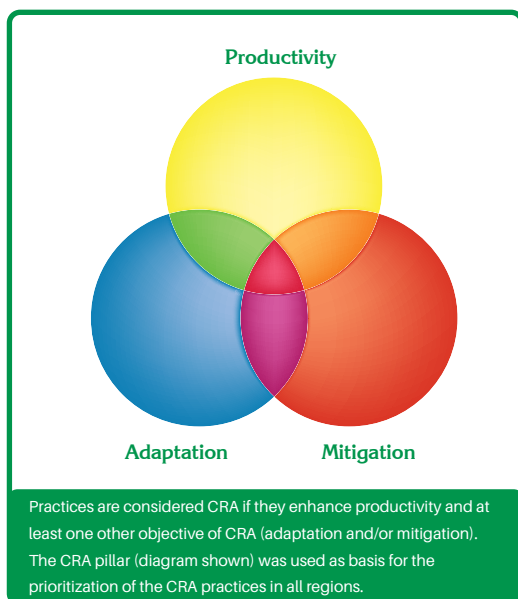
Negros Island Region (NIR) is composed of only two provinces, Negros Occidental and Negros Oriental.

Prioritized Climate Resilient Agriculture (CRA) Practice

Organic agriculture is one of the strategies for climate protection or climate change mitigation. It is a production system that promotes and enhances agroecosystem health and contributes to the improvement of air quality by reducing carbon dioxide emission and improving soil carbon sequestration.

Organic red rice production advocates the production of transplanted red rice variety using pure organic inputs. It adopts the protocol of Pastor Jerry Dionson, 2016 National Gawad Saka Outstanding Organic Agriculture Farmer from Bago City, Negros Occidental. It also promotes proper repair and cleaning of dikes as well as weed and water management.

Organic red rice production supports DA-NIR's Promotion and Development of Organic Agriculture Program. It has been unanimously recommended by the Municipal and City Agriculture Officers and validated with the Regional Director of DA as well as the Regional Rice Focal Person. Moreover, it has the strong support of the Negros Island Organic Producers' Association (NIOPA), which has 185 active members.



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

The CRA practice was identified through a consultation meeting with 28 out of 30 MAOs/CAOs in Negros Occidental. Primary input-output data were gathered for both organic and conventional practices through KII with the Outstanding Organic Agriculture Farmer and President of NIOPA and five rice farmers from Bago City, respectively. Moreover, secondary data on the level and value of externalities, local interest rate, and foreign exchange rate were gathered. The profitability of the CRA was determined using the Cost-Benefit Analysis (CBA) Tool prescribed by the International Center for Tropical Agriculture (CIAT).

Results

The CRA practice requires an initial investment of about Php32,300 (USD 668) per hectare. Incremental costs are incurred for organic inputs and labor due to shifting from direct seeding to transplanting. Due to the transition of production, positive incremental benefit can be realized starting the third year. The estimated annual incremental benefit is about Php24,500 (USD 507).

Based on the current yield, price premium for organic red rice, and 15 percent discount rate, the CRA can be a worthwhile investment. It has a potential higher private net present value (NPV) of Php44,000 (USD 911) and an internal rate of return (IRR) of 31 percent. Taking into account the value of improvement in air quality, the CRA seems to be more attractive from the point of view of the society. It has a potential increased NPV of Php98,000 (USD 2,025) and quasi-IRR of 57 percent. Given the pilot area, the current adoption of the CRA can rise to 37 percent. This can generate total benefits of about Php9.4M (USD 195,084).

Recommendations

It is recommended that the government promote the adoption of the CRA practice and ensure programs to support the availability of supply of organic inputs.

Moreover, in order to reduce the degree of uncertainty in the evaluation of the impacts of the CRA practice, it is recommended to allocate funds to finance research programs to gain more information on yield and environmental externalities.

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 911*	USD 2,025	31%	57%	5 years	USD 668	WITHOUT CRA: Conventional Rice Production	WITH CRA: Organic Red Rice Production
Aggregate analysis	Total area of rice	Current adoption rate	Adoption rate	Aggregate NPV			Period	
	480 ha**	15%	37%	USD 195,084			10 years	

*USD 1 = Php48.73

**Current Target Area of NIOPA

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Photo source: <http://irri.org/news/hot-topics/sharing-rice-genetic-diversity-responsibly>

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