



# Climate-Smart Agriculture Practices Investment Prioritization

## Investment Prioritization for Region III: Water Conservation Technology (AWD)

### Overview

Region III is located in the central plains of Luzon with a total land area of 2,147,036 ha devoted to agriculture spread in seven provinces, 14 cities and 116 municipalities (PSA, 2015).

The region contributes almost 10% of the National Gross Domestic Product. The agricultural sector gives 17% of the regional output, employing 22% of the labor force (DA RFO III).

The province of Tarlac has a total population of 1,366,000, composed of 280,382 households. Tarlac City is the most populous while Anao has the least population (PSA, 2015).

Out of the 305,345 ha of land in the province, 54.37% are utilized in agriculture. Rice, corn, rootcrops and vegetables are the main crops cultivated in the province (Provincial Agricultural Office, 2015).

The province is frequently visited by typhoon and floods. Likewise, limited access to water is a concern in areas without irrigation facilities (Philippine Rural Development Project Provincial Commodity Investment Plan, 2015). The effect of these calamities on agricultural lands is a major concern.

### Prioritized CRA Practice

Some parts of the province depend on shallow tube wells and Tarlac Ground (TG) water as

their main source of irrigation. In these areas, one of the main expenses incurred by farmers is gasoline that is used to run pumps.

This practice was chosen because of it allows farmers to irrigate at the proper time. The intermittent drying of fields enables the farmers to save on time and money.

This practice saves at least 96 liters (approx. P3,600) on fuel alone versus the traditional practice of continuous flooding. Farmers' experience reveal that there is no significant difference in terms of output produced per hectare.

### Data Gathering and Methodology

Water conservation technology, specifically Alternate wet and dry (AWD) method, was prioritized among the CRA practices identified during a series of focus group discussion with seventy one (71) farmer leaders, agricultural technologists and city/municipal agriculturists.

Four farmers who practice AWD method in the municipalities of Anao and Victoria were interviewed. These areas rely heavily on shallow tube wells and Tarlac Groundwater as their main source of irrigation. The practice was compared with farmers in the same area who are not practicing AWD. To validate the data, interviews and focus group discussion was done with agricultural technicians and municipal agriculturist.





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### Results

Results of field trials and past experiences of key informants show that the use of Alternate Wet and Dry Method is privately profitable at 15% discount rate with \$877.55 NPV based on current prices.

From the point of view of the society as a whole, the eventual use of AWD seems to be beneficial with \$3,788. This may be due to less fuel consumption thus reducing carbon emissions.

### Recommendations

The use of AWD method is recommended in areas that rely on shallow tube wells and Tarlac Groundwater as source of water for irrigation. This

method is highly efficient in terms of fuel consumption because it maximizes the use of water without sacrificing the quantity of output.

Multi-stress varieties of rice especially drought-tolerant and other plants that has low water requirement may perform better if used in combination with this method. Currently, there are on-going field trials being conducted by PhilRice on the effectiveness of AWD in rice.

Proper documentation of experiences of farmers following these CRA practices should be done to serve as guide in the decision making process of farmers and policy makers in the choice of CRA practice to be employed in areas where water is scarce.

### Summary of Results

CBA tool summary Farm (1 ha) results	Net present value (NPV)	Internal rate of return (IRR)	Payback Period	Initial investment	Social NPV	Social IRR	Scenario in the analysis (10 years)	
Unit	US\$	%	Years	US\$	US\$	%	Before	After
<b>Value</b>	877.55		n/a	2.00	998.78	-		
<b>Aggregate analysis CBA tool summary</b>	Total area of corn	Current adoption rate	Adoption rate	Aggregated NPV			Period	
	14,588	1%	10%	3,788			10	



