

Adaptation and Mitigation Initiative for the Rice Sector in the Philippines. Lessons for African Countries

**African Regional Workshop on Carbon Finance
12th April 2015**



- Supported by UNDP MDG Carbon
- Rice cultivation contributes to 13% of GHG emissions in the Philippines (or 16,437 GgCO₂e), while agriculture as a whole - to 29% of the overall GHG emissions in the country.
- Development of a Standardized Baseline for Rice Cultivation (2013 – 2015)
 - Approved in February 2015 as ASB0008
- NAMA Study for the Water Management in Rice Production (January – August 2014)
 - Study Completed
- Development of a full NAMA for Rice Cultivation (September 2014 – March 2015)
 - Final Stage

- AMS-III.AU. “Methane emission reductions by adjusted water management practice in rice cultivation” ver. 03.0
- Standardization of methane emission factors for rice cultivation using country specific data for the Philippines. (Measurements for the period 1994 – 1997, dry and wet season)
- Deviation from the approved CDM methodology, AMS-III.AU., ver. 03.0 and adoption of AMS-III.AU., ver. 04.0
- Submission to the UNFCCC: 29 May 2014
- Approved as ASB0008: Standardized Baseline for Methane Emissions from Rice Cultivation in the Republic of the Philippines (20 February 2015, EB82)

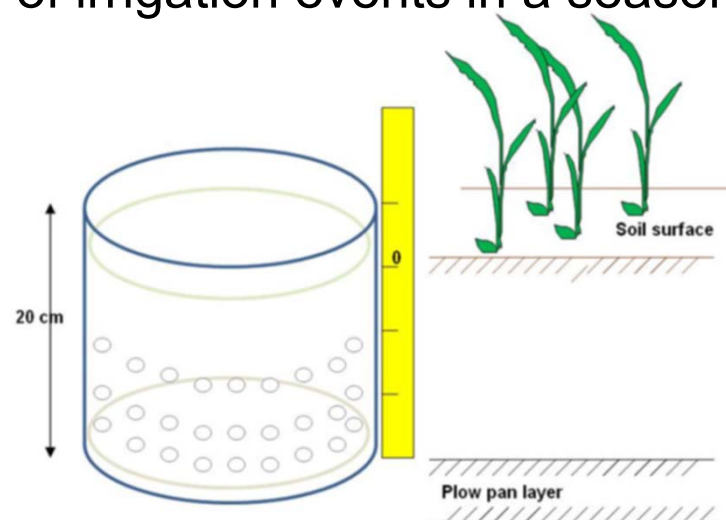
tCO₂e/ha/season

Dry Season	EF _c	Baseline				Project Scenarios	Project				Emission Reduction Factor (EF _{ER})
		SF _{BL,w}	SF _{BL,p}	SF _{BL,o}	Emission Factor (EF _{BL})		SF _{P,w}	SF _{P,p}	SF _{P,o}	Emission Factor (EF _P)	
For regions where double cropping is practiced	171.40	1.00	1.00	2.88	493.63	Scenario 1: change the water regime from continuously to intermittent flooded conditions (single aeration)	0.60	1.00	2.88	296.18	197.45
						Scenario 2: change the water regime from continuously to intermittent flooded conditions (multiple aeration)	0.52	1.00	2.88	256.69	236.94
For regions where single cropping is practiced	171.40	1.00	0.68	1.70	198.14	Scenario 1: change the water regime from continuously to intermittent flooded conditions (single aeration)	0.60	0.68	1.70	118.88	79.26
						Scenario 2: change the water regime from continuously to intermittent flooded conditions (multiple aeration)	0.52	0.68	1.70	103.03	95.11

tCO₂e/ha/season

Wet Season	EF _c	Baseline				Project Scenarios	Project				Emission Reduction Factor (EF _{ER})
		SF _{BL,w}	SF _{BL,p}	SF _{BL,o}	Emission Factor (EF _{BL})		SF _{P,w}	SF _{P,p}	SF _{P,o}	Emission Factor (EF _P)	
For regions where double cropping is practiced	297.42	1.00	1.00	2.88	856.56	Scenario 1: change the water regime from continuously to intermittent flooded conditions (single aeration)	0.60	1.00	2.88	513.94	342.62
						Scenario 2: change the water regime from continuously to intermittent flooded conditions (multiple aeration)	0.52	1.00	2.88	445.41	411.15
For regions where single cropping is practiced	297.42	1.00	0.68	1.70	343.81	Scenario 1: change the water regime from continuously to intermittent flooded conditions (single aeration)	0.60	0.68	1.70	206.29	137.53
						Scenario 2: change the water regime from continuously to intermittent flooded conditions (multiple aeration)	0.52	0.68	1.70	178.78	165.03

- AWD is a water management technology that uses a simple tool to determine the right time to irrigate and the right amount of water to apply;
- The simple tool is a perforated 10 cm x 25 cm polyvinyl chloride (PVC) tube that is inserted 15 cm to the ground during the dry season and 20 cm during the wet season;
- The AWD scheme is implemented at about 20 days after transplanting or sowing for direct seeded rice;
- When AWD is applied, the number of irrigation events in a season ranges from 4-6 times only;



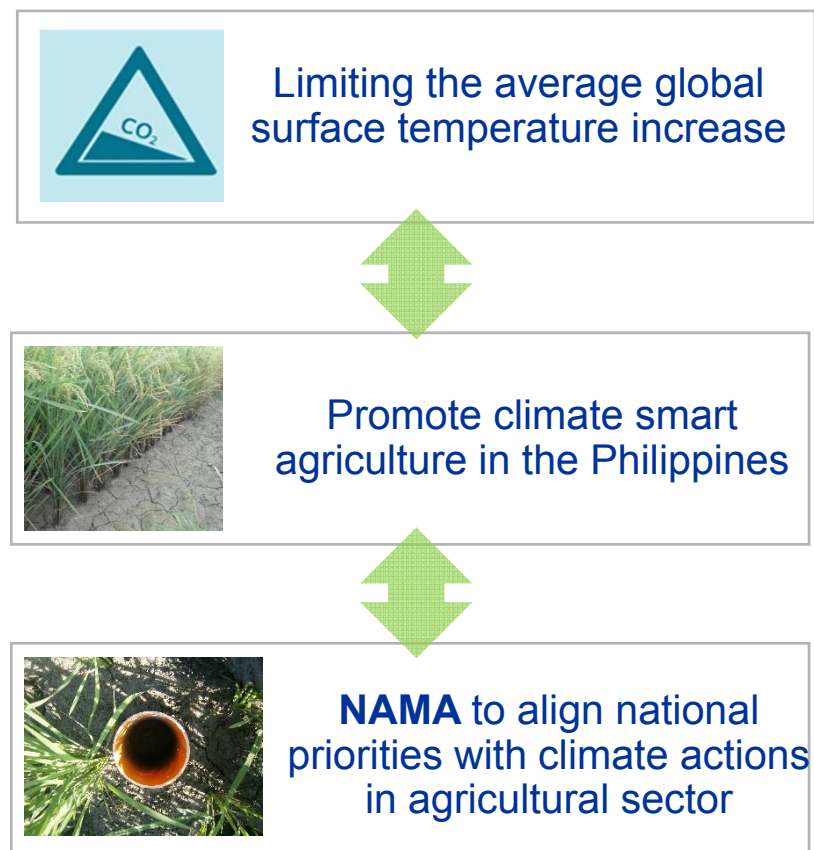
- **Philippines:** successful examples in pump and gravity irrigation systems
 - Pump systems: direct savings from reduced diesel consumption
 - Gravity systems: little direct incentives, yet increased yield, increased irrigable area and reduced conflicts among farmers
 - Only 8 % of all irrigated rice fields use AWD
- **Viet Nam**
 - AWD integrated in the “Three reductions, three gains” program (‘Ba Giam, Ba Tang’)
 - Approximately 5,000 farmers adopted AWD
- **Myanmar**
 - Demonstration projects
- **Indonesia**
 - Demonstration projects
- **China**

- Increase yield and improve food security
- Achieve self sufficiency in rice production (2013)
- Improve irrigation services
- Promote irrigation water savings
- Promote fuel savings/sustainable energy
- Improve livelihood and human security of rice farmers
- Diversify agricultural production
- Improve the resilience of the rice sector
- Reduce the impact of climate change
- Create climate-friendly agricultural industries

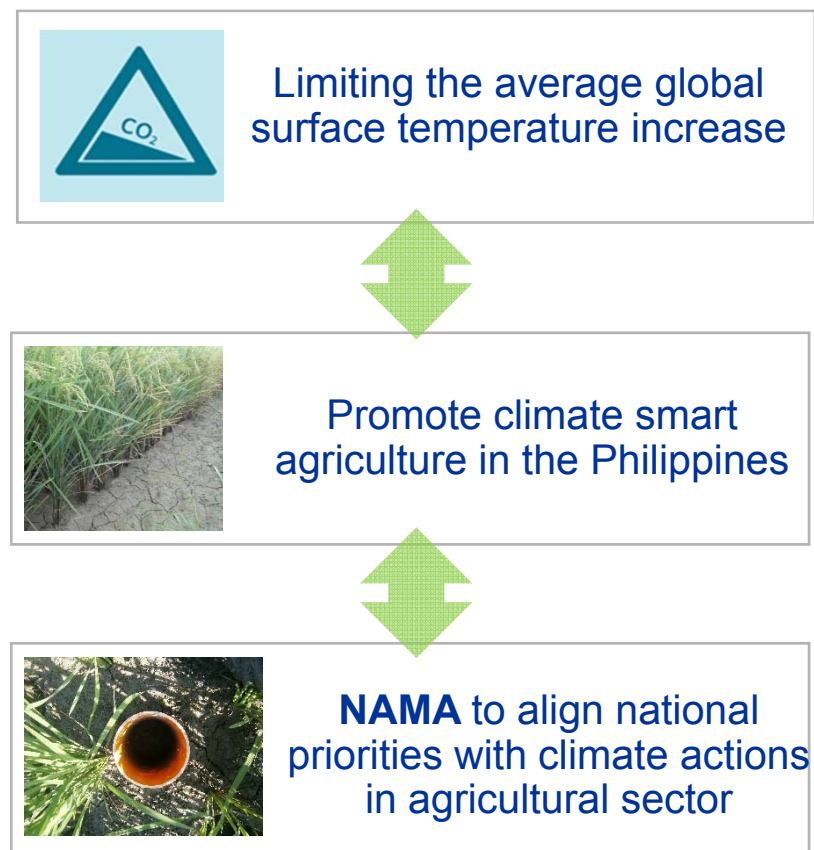
- Introduction of AWD applied on 750,000 ha
- This is expected to result in:
 - Improved water management;
 - Resilient rice production;
 - Increase in irrigated areas;
 - Increase in rice yield;
 - Reduction of conflicts among farmers;



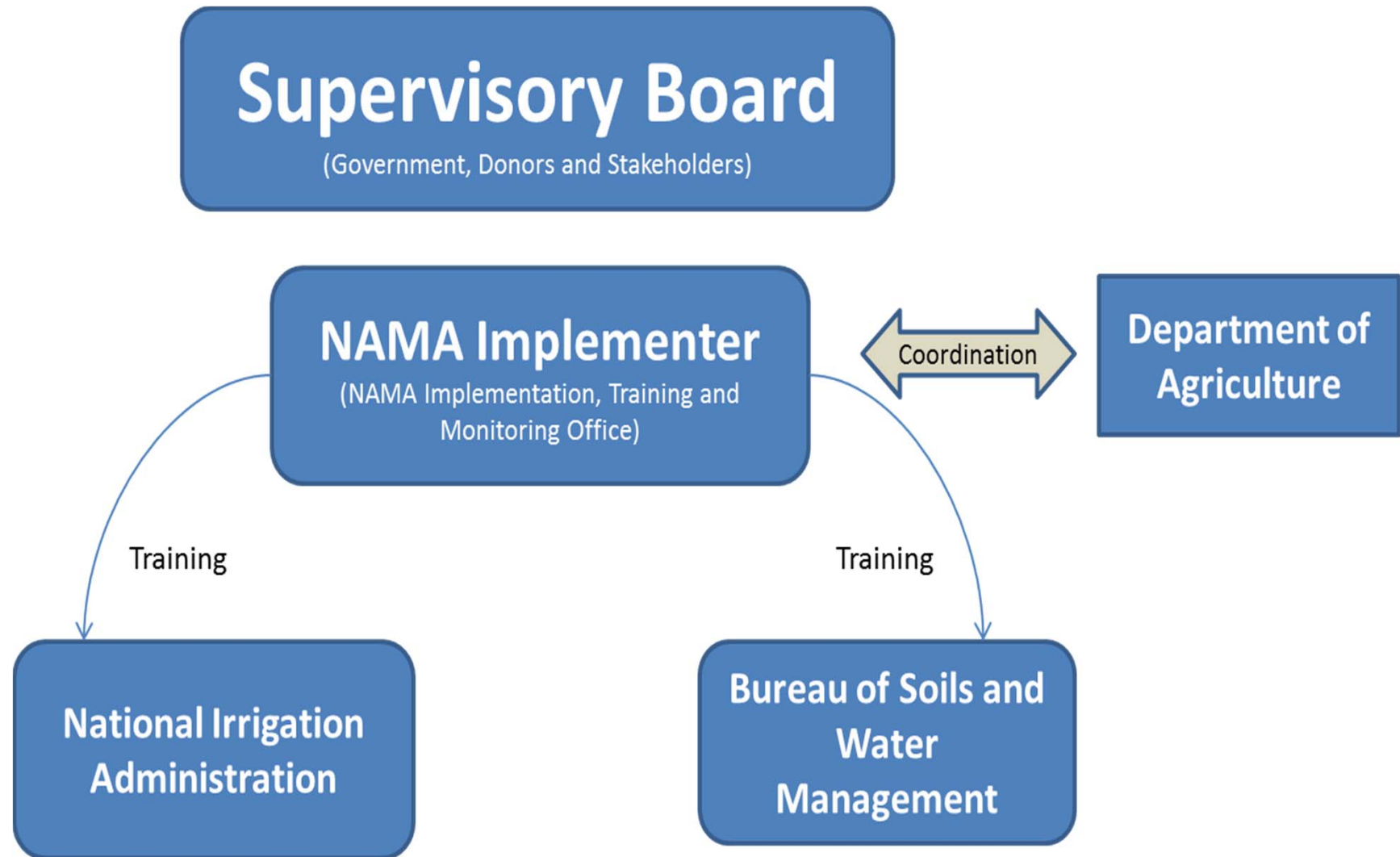
- The NAMA implementation involves uprooting of deeply entrenched cultural practices
- The success of the NAMA is possible only with a combination of training and incentive mechanisms
- Incentive mechanism: Reduction in the ISF for farmers adopting AWD
- The incentive mechanisms may help increase the farmers' willingness to pay and increase ISF collection rate by the NIA

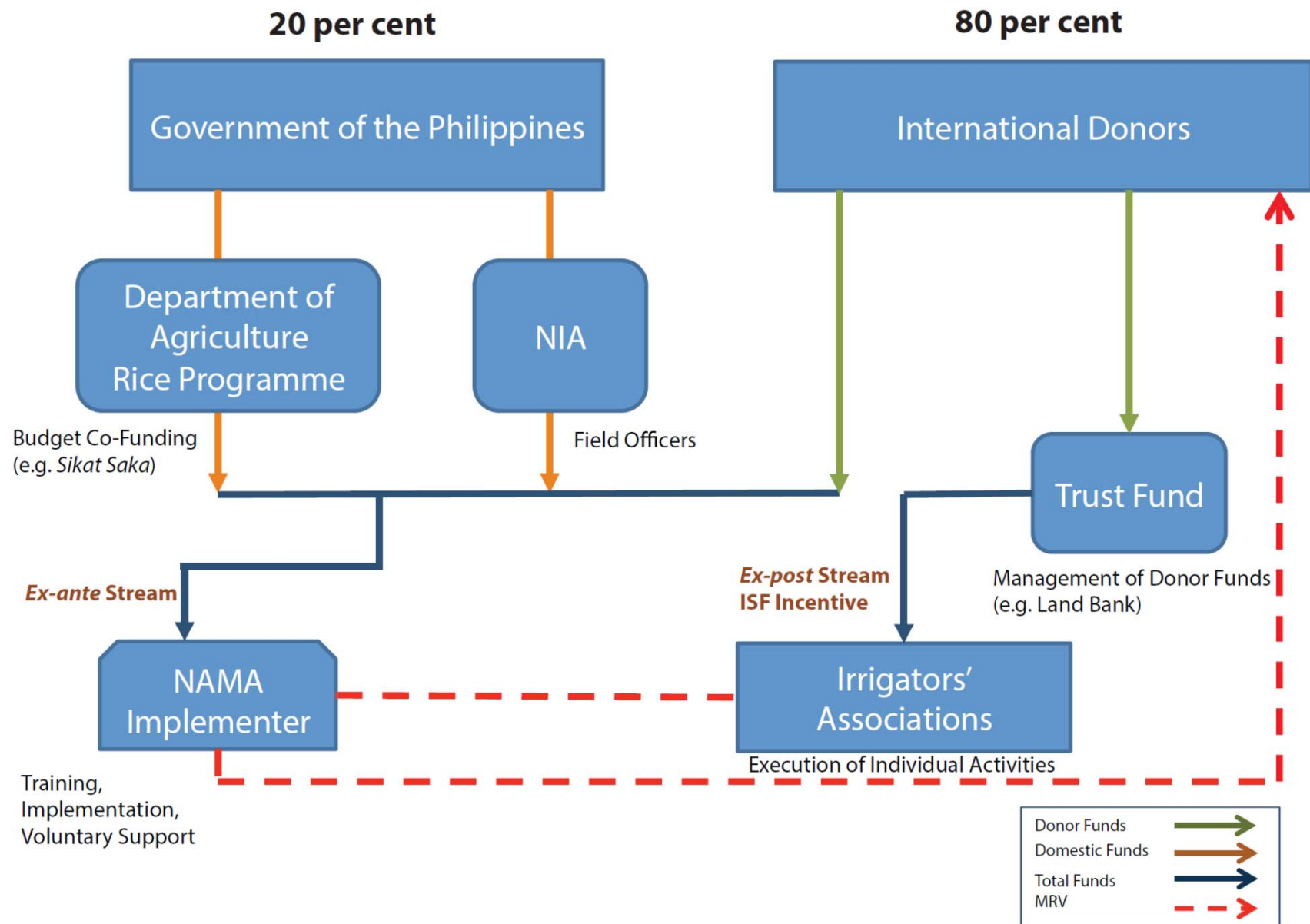


- Information dissemination campaigns and introducing AWD as the “new” and “appropriate” way of irrigating the rice crop or managing irrigation water at the farmers’ field;
- Design and implement Training Programs and special training manual for NIA/BSWM field officers;
- Regular knowledge updates (brush-up) seminars;
- Hotline service to provide field officers and farmers constant support in implementing AWD;
- Develop database of issues encountered by farmers and field officers to expedite smooth transformation;



- Additional training for diversification of their production;
- Aims at supporting farmers in expanding their income sources base and gaining access to different agricultural markets;
- Make adoption of AWD, i.e. a fundamental change in an existing agricultural practice, easier to accept and implement;
- Trainings will include several modules from which farmers can choose which to participate in (e.g. production of mushrooms, vegetables and others);
- Lectures on growing the particular agricultural product for each module;





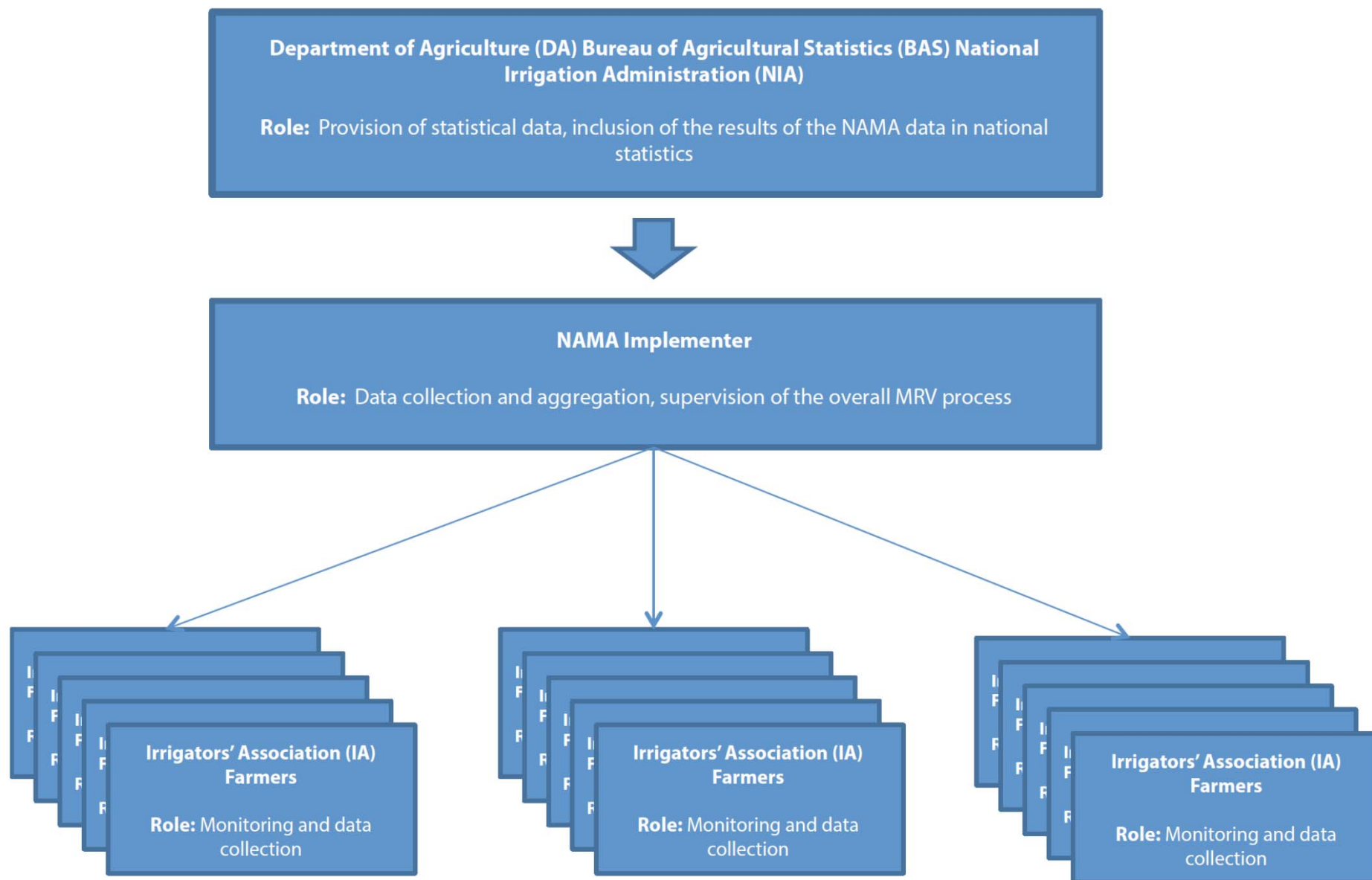
Particulars	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Total Cost of NAMA Training and Management (US\$)	2,199,993	2,739,958	2,767,358	2,767,358	2,767,358	2,767,358	16,009,383
Donor Coverage (US\$)	2,199,993	2,739,958	1,383,679	830,207	0	0	7,153,838
Local Coverage (US\$)	0		1,383,679	1,937,151	2,767,358	2,767,358	8,855,545
Donor Payment for Reduction in the Irrigation Service Fee (US\$)	0	0	2,965,116	5,930,233	4,447,674	2,372,093	15,715,116



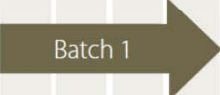




Expected Outcomes	Values	Indicator/ Unit	Means of Verification
GHG Emission Reductions in Rice Cultivation	12,151,688	tCO ₂ e	Through the MRV system described in Chapter 8
Annual Rice Production in the Philippines	20,382,000	tons	Data from the Bureau of Agricultural Statistics, Philippine Statistics Authority
Irrigated Land Area	1,925,000	ha	Data from the Bureau of Agricultural Statistics, Philippine Statistics Authority
Trained Irrigation Officers	150	persons	Reports by NAMA Implementer
Trained Farmers/ IAs (in land area managed)	750,000	ha	Reports by NAMA Implementer
ISF Collection Rate	100	per cent	Data from NIA

MRV System for SD benefits based on UNDP NAMA SD Tool

Table 8: Monitoring of Nationally Appropriate Improvements

Co-Benefits	Parameter	Data Source
Food Security Benefits	Rice production (ton)	Using data from the BAS database
	Area of irrigated land (ha)	Using data from the BAS database
Adaptation Benefits	Number of farmers having access to reliable irrigation services	Data provided to NIA and IAs
	Water usage (m ³)	Data provided by NIA and IAs
Social Benefits	New jobs created	Data based on labor statistics
Knowhow Transfer	Share of irrigated rice fields that have adopted AWD (%)	Using data from the BAS database
Other Benefits	Reported decrease in conflicts (survey based)	Survey
	Improved satisfaction with irrigation services (survey based)	Survey
	Share of ISF collection	Using data of NIA



Intervention	Specific deliverables	Requirement		Year 0	Year 1				Year 2				Year 3				Year 4				Year 5			
1. Provision of FFS Manual on Water Management	Updating of FFS Manual to highlight AWD implementation (measurement and monitoring of water level or moisture adequacy, possible effects on pests and diseases, nutrient management, mechanization, micro climates, etc.)	14 subject matter specialists and 4 support/ writeshop staff	Writeshop for 4 days; allocation for lodging, meals and honaria; cost of layouting and proofreading of the final draft; cost of printing of 500 copies of the manual	Q1-4 	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2. Training of 150 Field Officers	150 persons trained for work in the field for five years	Trainers/ resource persons, training facilities	Training for two months to incorporate AWD principles with respect to the PalayCheck system																					
3. Conduct of Fieldwork	Fieldwork conducted for one year for each IA	Each RSO/ AEW to handle four IAs per season	To cover all the IAs under the NIS, IS (under NIA) and SWISA (under BSWM) (150 field officers x 4 IAs per year x 250 ha per IA x 5 years = 750,000 ha)																					

- The proposed approach is easy to replicate
- Significant knowledge and experience has been accumulated
- A holistic approach to the improvement of irrigation services is required, including:
 - Training
 - Information dissemination and advocacy
 - Creation of economic incentives for farmers
 - Creation of additional incentives
- The proposed approach is cost efficient, less than 1 USD/tCO_{2e}
- Significant adaptation and mitigation benefits, as well as improvement of food security

Thank you for your attention!

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