# Progress Report
## July 2013-April 2014

# *Yamang Lupa* Program:
## Capacity Building for the Adoption of *Bhoochetana* Principles and Approach in Boosting Agricultural Productivity in the Philippines

***Submitted to***
**Department of Agriculture**
**Bureau of Agricultural Research**
**Philippines**

ICRISAT
Science with a human face

**International Crops Research Institute for the Semi-Arid Tropics**

This work is being undertaken as part of the

CGIAR RESEARCH PROGRAM ON Dryland Systems

# Contents

## Executive Summary

To improve livelihoods of rural smallholder farmers, and enhance food and nutrition security while maintaining healthy ecosystems, the Bureau of Agricultural Research of the Department of Agriculture has adopted the *Bhoochetana* principles and approaches or *Yamang Lupa* program in strategic rainfed areas. By increasing crop productivity of selected major crops in the pilot provinces through sustainable intensification and market-led diversification of the farming systems, the program helped farmers' experience 20% increase in their incomes.

To support the implementation of the *Yamang Lupa* program, ICRISAT in partnership with DA-BAR and DA-HVCDP, conducted capacity building activities for members of the management, to build their capacity in implementing the program in the pilot regions. ICRISAT organized training and exposure visits for the program management group to understand the nuances of *Bhoochetana* program in Karnataka State and ICRISAT's research for development programs in the drylands. Training on integrated crops and natural resources management was organized for young and potential researchers-cum-leaders of the country to lead promising innovative strategies for boosting agricultural productivity while managing the natural resources effectively and efficiently for the smallholder farmers. A training-workshop on soil sampling, analysis and mapping was conducted with the support of DA-BSWM. Six scientific visits have been organized by ICRISAT and top executives and officials of the Consortium Partners involved in the program took part in them for deeper appreciation of the *Bhoochetana* principles and understanding on the *Yamang Lupa* program as well as to benchmark good planning and M&E practices promoted by ICRISAT. At the end of the exposure trips and visits, workplans for 2014-2015 of the three pilot regions were developed based on their learnings in India, concept of the *Yamang Lupa* program and experiences in the Philippines.

Through ICRISAT's experiences and guidance, the Steering Committee (SC) and program management group (PMG) have been set up both at the national and regional levels prior to the implementation of the program. To build awareness in the community, amongst farmers and government officials working in DA and policymakers, ICRISAT has supported the conduct of the program launching in pilot regions through the initiatives and cooperation of the regional technical working group.

The management group has finalized the 2014-2015 work and financial plans of the program and the program's implementing guidelines and policies during the Steering Committee meeting held on April 11, 2014 at BSWM. The group has also agreed to provide necessary guidance to those regions or provinces that will initiate the implementation of the program through the Local Government Units (LGUs). ICRISAT team provided on-ground guidance and participated in conduct of the Steering Committee meeting.

ICRISAT developed a flow chart on program management and process documentation and program implementation eligibility with local government units (LGUs). This approach has been considered by the management group as a guide in dealing with interested LGUs to implement the program both in the municipal and provincial levels.

In consultation with DA-BAR, DA-BSWM and implementing groups, ICRISAT has developed a poster, brochure and flyers with details of the program. They have been translated into the local dialect by the implementing groups headed by DA concerned offices & SUCs and distributed by the LGUs concerned.

## Background

Globally, rainfed agriculture constitutes 80% of the total physical agricultural area generating 62% of the world's staple food (FAOSTAT, 2005). In developing countries, where most of the rainfed population is situated, it accounts for 60% of the total agricultural production (World Bank, 2006). However, statistics show that rainfed agriculture could significantly contribute to the performance of the overall agriculture sector, yet it remains vulnerable, weak and underdeveloped.

Considering that majority of arable lands worldwide are rainfed, there is a growing interest in tapping this agricultural sector to harness its vast production and economic potential. It is time to shift funds/resources and give priority to improve/enhance the rainfed areas upon recognizing that these systems can significantly contribute to increasing global agricultural productivity. Although rainfed crop yields could be increased significantly through the use of improved/adapted crop varieties and appropriate use of fertilizers, sustainable and profitable rainfed farming should first establish a strong foundation on soil and water management to determine what specific inputs a particular soil needs and rejuvenate soil health while increasing agricultural productivity.

In 2009, the Government of the Indian state of Karnataka, known as the second largest rainfed area in the country, took an innovative step of using the power of science to increase the agricultural productivity of their land for the farmers while sustaining soil fertility. This development program was called the Bhoochetana, which means "reviving the soil". The impact of Bhoochetana in the past four years has clearly demonstrated the power of a science-led development and partnership approach in the state as millions of smallholder farmers are benefiting from increased crop productivity ranging from 23% to 66% in different districts in various crops. As a result of the increased productivity, the state has recorded an impressive growth rate of above 5% in the last four years as compared to <2% during 2000-2008 before the launch of the Bhoochetana program. Encouraging grassroots participation from the start through capacity building has been one of the important components of Bhoochetana's success. During participatory soil health assessments, farmers collected the samples themselves. From the samples examined, fertilizer and micronutrient recommendations were made for different areas in different districts.

Likewise in the Philippines, efforts are also being made through the Department of Agriculture (DA) to develop its rainfed areas which cover 75% of cultivated land. In April 2011, the DA-Bureau of Agricultural Research (DA-BAR) launched the Philippine Rainfed Agriculture Research, Development and Extension Program (PHIRARDEP) with the goal of developing, coordinating, monitoring and evaluating the implementation of a vigorous rainfed agriculture research, development and extension program to enhance food, nutrition and energy security, improve livelihoods and empower communities in the country's rainfed areas. As part of the active collaboration of ICRISAT with DA-BAR, Local Government Units (LGUs) and State Universities and Colleges (SUCs), the *Yamang Lupa* program was launched to adopt the *Bhoochetana* principles and approaches in strategic rainfed areas.

In support to the implementation of the *Yamang Lupa* program, ICRISAT in partnership with DA-BAR and DA-HVCDP, has conducted capacity building activities for the members of the management, implementing/collaborating groups.

## Objectives

The overall objective is to enhance understanding of the management group members of the *Yamang Lupa* program on the concept of *Bhoochetana* through learning experiences in order to capacitate them in spearheading the actual implementation of the program in the Philippines.

The specific objectives are as follows:

1. Capacitate the management/implementing group members with knowledge and skills on the production, post-production and marketing systems of rainfed crops such as groundnut, chickpea and pigeonpea;
2. Capacitate the concerned implementing group members with techniques and skills on soil sampling, analysis and mapping;
3. Provide the management group members with practical but proven experiences through immersion or exposure in *Bhoochetana* project sites at India;
4. Guide the management group members to do planning, monitoring and evaluation of activities and strategies needed for the implementation of the program in the pilot regions; and
5. Build awareness among consortium partners for establishing strong partnership and nurturing sense of responsibilities for the smallholder farmers.

## Accomplishments by Component and Related Activities

### I. Integrated Crop and Natural Resources Management Training Course

The training course aimed to provide an opportunity to selected members of the program implementing/management groups to understand the nuances of *Bhoochetana* program, the strategy and principles to be adopted, and to gain hands-on experience in Karnataka State by personal interactions with the stakeholders. The integrated technologies for conservation and efficient use of natural resources suitable for rainfed areas of the Philippines including soil and water management, crop management, genetic enhancement, along with enabling policies and institutional mechanisms for achieving the impacts were covered. This would enable young and potential researchers-cum-leaders of the country to lead promising innovative strategies for boosting agricultural productivity while managing the natural resources effectively and efficiently for the smallholder farmers.

***Figure 1. The trainees at the briefing (on top) and at the ICRISAT field experimental farm***

The season-long training course had four participants as shown in Table 1 representing the two pilot regions of the program and participants from the province of Ilocos Sur to work on the implementation of the (Sustainable Intensification for Prosperity and Growth) SIPAG project. At the end of the training course, they presented and submitted their outputs to ICRISAT's training management group for evaluation. See Annexure 1 for more details of the training course.

**Table 1. Participants as research fellows of the integrated crop and natural resources management training course**

| File No | Name | Gender | Position & Affiliation | Supervising Scientist | Focused Crop | Joining Date | Completion Date |
|---|---|---|---|---|---|---|---|
| 6187 | Julius Agsano Bragado | Male | Agriculturist 2, Provincial Government of Ilocos Sur | Dr. PM Gaur | Chickpea | 11/30/2013 | 04/01/2014 |
| 6188 | Rictibert Pamunag | Male | Research Assistant, DA-ZAIARC | Dr. P Janila | Groundnut | 11/30/2013 | 04/01/2014 |
| 6189 | Janet de Leon Villamor | Female | Instructor II, Ilocos Sur Polytechnic State College | Dr. Myer G Mula | Pigeonpea | 11/30/2013 | 04/01/2014 |
| 6190 | Dennis Bihis | Male | Researcher, DA-QAES | Dr. P Janila | Groundnut | 11/30/2013 | 04/01/2014 |

## II. Soil Sampling, Analysis & Mapping

A group of experts and key officials from DA-BSWM visited ICRISAT during February 15-22, 2014 to familiarize and learn the processes involved in stratified sampling technique in the watershed followed by the institute. They visited ICRISAT's Soil and Plant Analytical Laboratory (SPAL) and learned the different management and operation schemes that they may also impose in the Philippines. The team comprised of Dr Gina Nilo, Head, Laboratory Services Division and Acting Assistant BSWM Director; Ms Juliet Manguerra, Head, Integrated Soil and Water Resources Information Services; and Mr Dominicano Ramos Jr, Head of Soil Survey Division. This is a team at the national level to provide technical assistance to the three pilot regions as well as to train local staff in managing and facilitating soil sampling, analysis and mapping activities of the Yamang Lupa program.

***Figure 2. Experts and officials of DA-BSWM discussing the techniques of soil sampling and sample preparation before bringing to laboratory for analysis with Mr Pardhasardhi G, ICRISAT SPAL Manager.***

Following the exposure visits of BSWM technical staff, ICRISAT organized a seminar on Soil Sampling, Analysis and Mapping in the Philippines in cooperation with DA-BSWM and DA-BAR on February 24-25, 2014 at the BSWM Convention Hall. The seminar was organized for the members and staff of the three pilot regions working on soil sampling, analysis and mapping to provide them with relevant information on how to do and facilitate needed activities in the ground. The seminar was facilitated and assisted by technical staff of BSWM with proper guidance of Mr Pardhasardhi of ICRISAT as resource person. After the two-day seminar, each group has worked for soil sampling in the target areas of the three pilot regions through the assistance of BSWM and ICRISAT staff. Sampling was done in the villages through a briefing or group discussion with selected farmers and discussed the objectives and importance of the program as well as the need for and relevance of soil sampling and analysis. Actual soil sampling, preparation, bagging and eco-tagging were demonstrated to the farmers and agricultural technicians. Soil sampling and getting GPS readings in all sampling points was completed in three pilot sites or regions covering around 600 hectares in each pilot site last month. These samples were transported to BSWM main office in Manila for analysis and are expected to be analyzed by mid-May. Further analysis and interpretation of results must be done towards the end of May through the guidance of Mr Pardhasardhi and BSWM technical staff.

***Figure 3. Agricultural workers of Sariaya, Quezon interacting with Mr Pardhasardhi, during the briefing on soil sampling and sample preparation held on February 27, 2014.***

Relative to the implementation of the program starting this coming season (June-November 2014), specific recommendations on Balance Nutrient Management (BNM) must be available before June, so that farmers get the desired fertilizer recommendations. BNM is an important and major intervention that must be followed in all farmers' field and expected to be the major factor to contribute higher productivity of identified major crops in the pilot sites.

## III. Scientific/Exposure Visits

The scientific visits were organized and top executives and officials of the Consortium Partners involved in the program took part in them for deeper appreciation of the *Bhoochetana* principles and understanding of the *Yamang Lupa* program as well as to benchmark good planning and M&E practices done by ICRISAT. *Table 2* presents the summary of the scientific or exposure visits organized by ICRISAT in coordination with DA-BAR.

**Table 2. Participants of the scientific/exposure visits at ICRISAT and GoK, India**

| Sl No | Name of Visit | Conducted Date | List of Participants | Position & Affiliation | Gender | Visited Places |
|---|---|---|---|---|---|---|
| 1 | Scientific Visit of Delegates from the Philippines | 9-17 November 2013 | Joell H. Lales | Executive Assistant for Planning and Project Development, DA-BAR | Male | ICRISAT Headquarters and Government of Karnataka (Bangalore City and Tumkur & Kolar Districts) |
| | | | Renato Dela Cruz | Chief, Extension Programs and Partnerships Division, DA-ATI | Male | |
| | | | Joseph Rojales | Agriculturist II, DA-BSWM | Male | |
| 2 | Scientific Visit of Delegate from the Philippines | 17-22 November 2013 | Custer Deocaris | Faculty Researcher, Technological Institute of the Philippines | Male | ICRISAT Headquarters |
| 3 | Scientific Visit of Delegates from the Philippines (*Yamang Lupa* Program Management Group and Workshop on Program Implementation in Region IVA & IX) | 27 Nov-7 Dec 2013 | Ronald C. Garcia | Instructor, Southern Luzon State University (SLSU) | Male | ICRISAT Headquarters and Government of Karnataka (Bangalore City and Mandya & Kolar Districts) |
| | | | Emmanuel S. Querrubin | Research Assistant, SLSU | Male | |
| | | | Eraldwin A. Dimailig | Forest Ranger, SLSU | Male | |
| | | | John Paul Guadalupe, | Facilitator Western Mindanao State University (WMSU) | Male | |
| | | | Eriberto Salang, | Dean, College of Agriculture - WMSU | Male | |
| | | | Peter Andalahao | Regional Technical Director, DA-ZAMPIARC | Male | |
| | | | Rictibert Pamunag | Researcher, DA-ZAMPIARC | Male | |
| | | | Nelia Panganiban | Agricultural Technologist, MAO of Sariaya, Quezon | Female | |
| | | | Daisynette C. Manalo | Agricultural Technologist, DA-STIARC | Female | |
| | | | Aida P. Luistro | Senior Agriculturist, DA-STIARC | Female | |

| Sl No | Name of Visit | Conducted Date | List of Participants | Position & Affiliation | Gender | Visited Places |
|---|---|---|---|---|---|---|
| 4 | Scientific Visit of *Yamang Lupa* Program Management Group and Workshop on Program Implementation in Region VIII | 12-22 February 2014 | Gloria Borja | Research Coordinator of PAO, Province of Samar | Female | ICRISAT Headquarters and Govt. of Karnataka |
| | | | Leonarda Londina | Assistant Manager, DA-EVIARC | Female | |
| | | | Suzette Lina | Instructor, Visayas State University (VSU) | Female | |
| | | | Othello Capuno | VP for RET, VSU | Male | |
| | | | Samuel Contreras | Program Leader, Yamang Lupa Program &Head, Soil Conservation & Management Division, DA-BSWM | Male | |
| | | | Teresita Sandoval | Head, Water Resources Management Division , DA-BSWM | Female | |
| 5 | Scientific Visit/ Exposure of Philippine DA-BSWM Technical Staff on Soil and Plant Analytical Laboratory (SPAL) Management and Operation | 15-22 February 2014 | Dominicano Ramos, Jr. | Head, Soil Survey Division, DA-BSWM | Male | ICRISAT Headquarters |
| | | | Gina Nilo | Head, Laboratory Services Division, DA-BSWM | Female | |
| | | | Juliet Manguerra | Head, Integrated Soil and Water Resources Information Services, DA-BSWM | Female | |
| | | | Janet Villamor | Instructor, ISPSC | Female | |
| 6 | Scientific Visit of DC-SUC III/CIRPS Members, Philippines | 23- 26 March 2014 | Honorio M Soriano Jr | President, PSAU | Male | ICRISAT Headquarters |
| | | | Gregorio J Rodis | VP, RET-BPSU | Male | |
| | | | Remigio C Sacdalan Jr | Senior Staff, BPSU | Male | |
| | | | Glenn M Calaguas | Senior Staff, PSAU | Male | |
| | | | Alicia SP Gomez | Professor, BASC | Female | |

Six scientific visits have been organized by ICRISAT from July 2013 to April 2014. The five scientific or exposure visits consisted of 24 members including 10 women. A scientific visit was also organized for the future partners of the program with five (including 1 woman) top officials of state universities and colleges in Central Luzon.

All involved officials and management staff of the program at the national and regional level were given the opportunity to visit GoK sites where *Bhoochetana* has been scaled-out and ICRISAT Headquarters based in Patancheru Andhra Pradesh, India. During the visit, there were fruitful interactions with key officials of GoK, ICRISAT scientists, farmer leaders/facilitators and some policy makers. Along with the learnings on *Bhoochetana* during field visits in selected districts of Karnataka, information on different watershed development and management projects in the state was also provided. The concept of watershed projects could be integrated in the *Yamang Lupa* program to achieve a greater impact towards improving rural livelihoods in the country.

***Figure 4. A good learning experience in GoK where women have been involved as farmer facilitators and they have shown comparable advantage over men***

***Figure 5. In April 13, 2014, a very rare and memorable meeting with the top level officials of GoK headed by Hon. Minister of Agriculture, Mr Krishna Byre Gowda, during the scientific visit of Yamang Lupa program management group at the national level and TWG of Region VIII***

Towards the end of the exposure trips and visits, we facilitated a planning workshop with the members of the implementing groups of the program to develop the 2014-2015 work plans based on their learnings at India, concept of the *Yamang Lupa* program and experiences in the Philippines. Outputs of the individual group were presented and reviewed by selected experts/members of ICRISAT technical working group for the *Yamang Lupa* program. Individual outputs have been presented in Annexure 2-4.

## IV. Project Management, Monitoring and Review

**Conducted Strategic Planning Workshop and Related Seminar:** A National Strategic Planning and Participatory Rapid Appraisal Workshop was conducted at the Southern Luzon State University, Lucban, Quezon on August 12-14, 2013. Dr Junel B Soriano represented ICRISAT at the event and presented the overall concept of *Bhoochetana* for the Philippines. The activity was facilitated by the technical working of the University of the Philippines, Los Baños (UPLB) and DA-BAR. Project team members from three lead agencies of the pilot regions took part in the workshop. Outline of the work and financial plan for 2013-2014 in three pilot regions was accomplished through the efforts of the lead agencies. Other key highlights of the workshop are:

- Dr Reynaldo Velasco discussed the operational framework to be set up in order to achieve the target of 10,000 hectares/farmers throughout the program's implementation. The project teams from each pilot site are to identify strategic focal points, which would serve as model farms where the Bhoochetana principles and approach will be applied, based on the needs of the community recognized in the Participatory Rural Appraisals (PRAs) done in the community. These focal points could be a barangay or cluster of barangays, which are contiguous and with similar biophysical landscape and time and space scenario.
- Needed information following the supply chain framework per region at the macro and micro levels were identified during the first day of the workshop.
- Pilot regions were able to identify barangays to serve as pilot sites for the 1st year of implementation. Each region has presented the target sites to the group according to the physical, social, political, etc. situations in their area, aside from the primary criteria that the sites should be rainfed
- The participants were able to identify appropriate PRA protocols to be used vis-à-vis with the information needs that were identified prior in the workshop.
- Director Eleazar suggested collecting the details of the *Magsasaka Siyentista* of regions 4A, 8 and 9 to involve them in the program and tap them as resource persons in Farmer Field Schools especially those who have farms which are strongly oriented towards soil and water conservation practices.
- The work and financial plans of the regions were presented at the end of the workshop. It was emphasized that it would be best if we could present these activities vis-à-vis the objective they address. The regions are required to submit their logical framework on or before August 21, 2013.
- Explore geo-tagging as a tool to be used for more efficient monitoring and evaluation process.
- Conduct of program launching at the local level to get commitment from the people, or as part of sensitization of the program in the locality.
- Make a database of the farmers in the pilot sites (registration of farmers) to avoid duplication of intervention and involvements of farmers.
- Conduct semi-annual meetings at the national level, quarterly meetings at the regional level.
- The tentative schedule for the *Bhoochetana* immersion of the team consisting of Dr. Luis Rey Velasco and his team, the three representatives from each pilot region, 1 PAO per pilot region, 1 representative from BSWM and ATI, is either on the last week of September or first week of October 2013.

***Figure 6. Dr Junel B Soriano's participation to the first national strategic planning held on August 12-14, 2014 at SLSU with the Yamang Lupa program management group headed by DA-BAR Executive Director, Dr Nicomedez P Eleazar and experts/facilitators from UPLB***

Some issues and concerns were discussed during the activity:

1. *Project Launching.* It will be done by the pilot region along with MOA signing among all local partners.
2. *Steering Committee.* Quarterly meeting must be organized and facilitated by DA-BAR.
3. *Capacity Building.* The project must ensure capacity building activities at all levels with mandatory attendance of the Project Team Members from different partners including Farmer Facilitators or Farmer Scientists and Farmer Leaders as extension agents. Training on soil analysis and mapping depicting macro and micro nutrients using GIS must be done as soon as possible.
4. *Soil Laboratory.* Upgrading of existing soil laboratory in every pilot region is a must, and to be considered for funding allocation in 2014. With the *Bhoochetana* concept and principles, nutrient management using the results of the soil analysis is the major intervention to be followed for the identified crops.
5. *Consortium Partners.* LGUs and SUCs will have an immense and distinctive role for the project towards sustainability. Roles and responsibilities of each partner to the program will be formalized and they should commit to do specific activities. A matrix of activities with the implementing partners will be discussed and decided among the local partners who will be facilitated by the lead agency in the region.
6. *Technical Working Group*. A technical working group under the supervision of the program leader or coordinator will be organized at the national and regional levels to extend all forms of technical assistance needed by the program.
7. *Project Team Members*. There will be a regular Project Staff assigned by each participating agency who will implement the activities in respective areas.

On April 11, 2014, Drs William D Dar, Director General, ICRISAT and Suhas P Wani, Assistant Research Program Director, Resilient Dryland Systems, ICRISAT and other ICRISAT scientists took part in a seminar "Adoption of Bhoochetana Principles and Approaches for Natural Resources Management towards Sustainable Philippine Agriculture" held at DA-BSWM. The seminar was attended by more than 50 participants including senior faculty and researchers from State Universities and Colleges, research managers and senior agricultural workers from all over the country. It was organized in support of the implementation of the *Yamang Lupa* program and to provide broader and deeper information about natural resources management towards developing climate resilient communities and improving livelihoods of the farming families. Welcome remarks were made on behalf of the BSWM Director, Dr Silvino Q. Tejada and the key message was delivered by Dr William D Dar. In his address, Dr Dar stressed on the need for integrated systems to be adopted by the *Yamang Lupa* program through convergence and capacity building of all the stakeholders. Undersecretary of DA, Mr Dante S Delima in his address highlighted the importance of *Bhoochetana* to benefit smallholder farmers in the Philippines with the help of ICRISAT.


***Figure 7. Dr William D Dar delivering the address***

Members of the Steering Committee of the *Yamang Lupa* program met after the seminar. During the deliberations, Undersecretary Delima promised all support from DA and indicated that DA and

BSWM will co-lead the Steering Committee of the program and requested all the partner institutions from DA attached agencies, State Universities and Colleges and local government units to ensure convergence of various activities that will support the implementation of the program. Dr Suhas P Wani, presented key successful case studies, and experiences of ICRISAT RDS team in India and Africa. He also discussed the importance of holistic approach in managing natural resources which includes soil, water, crop and human.

***Figure 8. Members of the Steering Committee of the Yamang Lupa program chaired by Usec. Dante S. Delima of DA met on April 11 at BSWM and discussed the 2014-2015 work and financial plans as major agenda for approval***

## Organized *Yamang Lupa* Program Management Group

Through ICRISAT's experiences and guidance, steering committee (SC) and program management group (PMG) were organized both at the national and regional levels. The program has tapped Mr Dante S Delima, Undersecretary for Operations of DA and Dr William D Dar, Director General of ICRISAT as program advisers. The composition and responsibilities of SC and PMG are presented below where ICRISAT scientist/staff are involved as members.

Steering Committee (SC)

| | |
|---|---|
| Chair: | Dir. Silvino Tejada, DA-BSWM |
| Co-Chair: | Dir. Nicomedes Eleazar, DA-BAR |
| Members: | Dir. Asterio Saliot, DA-ATI |
| | Dir. Clarito Barron, DA-BPI |
| | Exec. Dir. Ariel Cayanan, DA-NAFC |
| | Dir. Jenny Remoquillo, DA-HVCDP |
| | Dir. Vilma Dimaculangan, DA-STIARC |
| | Dir. Bernadette San Juan, DA-EVIARC |
| | Dir. Constancio Alama, DA-ZAMPIARC |
| | Dr. Suhas P Wani, ICRISAT |

The SC shall perform the following functions: (1) Facilitate convergence of different line bureaus or departments and consortium partners as well as policy-makers and other concerned stakeholders through appropriate policy recommendations in support to the Program and identify suitable strategies for successful implementation of the mission program by mobilizing necessary support

from the concerned line departments as well as policy and decision makers to make the program successful; (2) Oversee target setting and strategies to be adopted to ensure achievement of program objectives; and (3) Spearhead periodic program review and monitoring at the national and/or regional levels as deemed necessary to assess performance.

Program Management Group (PMG)

| | |
|---|---|
| Program Leader: | Engr. Samuel Contreras, DA-BSWM |
| Members: | Mr. Joell Lales, DA-BAR |
| | Ms. Salvacion Ritual, DA-BAR |
| | Mr. Anthony Obligado, DA-BAR |
| | Ms. Digna Sandoval, DA-BAR |
| | Dr. Junel B Soriano, ICRISAT |
| | Dr. Heraldo Layaoen, ICRISAT |
| | Engr Renato Dela Cruz, DA-ATI |
| | Mr Joseph Rojales, DA-BSWM |
| | Ms. Rhoda Grace S. Pintuan, DA-BPI |
| | Ms.Digna Narvacan, DA-STIARC |
| | Dr. Elvira Torres, DA-EVIARC |
| | Engr. Peter Andalahao, DA-ZAMPIARC |

Likewise, the PMG shall perform the following functions: (1) Conduct/organize periodic/regular meeting with all concerned technical Working Groups (TWGs) or implementing units for this program to review and monitor program implementation and performance at both national and regional levels; (2) Facilitate capacity building activities such as trainings and scientific visits to enhance program coordination and implementation; (3) Formulate appropriate policy recommendations subject to consideration by the Steering Committee to support program implementation through strategic stakeholder linkages and partnerships and other enabling mechanisms; and (4) Provide technical advisory support/guidance to all Region TWGs.

## Launch of *Yamang Lupa* Program in the Pilot Regions

To officially start the implementation of the program in three pilot regions and to build awareness in the community, amongst farmers and government officials working in DA and politicians, the program was launched by at the pilot site through the initiatives and cooperation of the regional TWG.

The launching of the *Yamang Lupa* program in Zamboanga Sibugay was done on 5 February, 2014 at the Crystal Ballroom of the Grand Astoria Hotel in Zamboaga City. It was well-attended by representatives of all CPs such as the Directorate of the Department of Agriculture - Region IX (DA-RFO IX) being the lead agency, Western Mindanao State University (WMSU), the municipality of R.T Lim, Zamboanga Sibugay, Zamboaga Peninsula Integrated Agricultural Resource Center (ZAMPIARC), BAR, BSWM and ICRISAT. Also present were the Barangay Captains (Village Chief) of the four initial barangays, farmer facilitators and lead farmers, municipal/city agriculturists and technicians and local media. The mayor of Zamboanga City, Hon. Maria Isabella G. Climaco delivered the welcome address and emphasized on soil-plant-water relationship and why crop yields are seemingly declining. The regional program coordinator, Engr. Peter M. Andalahao presented the rationale of the project in which he talked about the Bhoochetana success stories in the state of Karnataka, India with emphasis on 4Cs and 4Es. Honorable Mayor Michael Piodena of R.T. Lim has pledged to support the program with all the resources that could be locally and legally used for its implementation.


***Figure 9. Conducted launching of the Yamang Lupa program in Region IX held on 5 February, 2014 with the active participation of the regional TWG and farmer leaders and government officials of the province of Zamboanga Sibugay***

Launching and MOA signing was done at the Nazarette Hall, St. Francis of Asisi Parish, Sariaya, Quezon on 27 February, 2014. During the launch, a message was delivered by Mr Joell H. Lales on-behalf of Dr Nicomedez P. Eleazar, DA-BAR Director, discussing the rationale of the program and its significance in rainfed agriculture of the country. The success and history of *Bhoochetana* in Karnataka, India, was jointly presented by Dr Pardhasaradhi and Dr Heraldo Layaoen. Engr. Samuel M. Contreras, National Program Leader, presented an overview of the program. He emphasized that continued commitment to the program would ensure its sucess. Composition of the TWG in the region was presented by the president of SLSU, Dr. Cecilia N. Gascon. She also presented some data from ICRISAT and the program of works particularly on how to achieve 10,000 ha as target area in the province within three years. She pledged support of SLSU and emphasized that the senior faculty and staff of the College of Agriculture can be tapped to work on the program anytime their services are needed.

Dr Vilma M. Dimaculangan, Regional Executive Director of DA-RFU 4A also pledged support of her agency. All farmer cooperators, barangay officials of the selected initial barangays, local government officials and selected SLSU faculty staff were present at the launch and MOA signing.

Initially, an orientation-cum-pre-launching of the *Yamang Lupa* program in Region VIII was conducted on 4 March, 2014 at Barangay Magsaysay, Sta. Rita, Samar. It was attended by key officials of the province of Samar, the local government of the municipality of Sta. Rita, barangay captains, farmer leaders, agriculture technicians, DA regional officials and professors of the Visayas State University (VSU). Recently, *Yamang Lupa* program in Region VIII was formally launched on 5 April 2014 at Catbalogan City, Samar, Philippines. The inauguration was attended by the Department of Agriculture (DA) officials, Municipal and Provincial Local Government Officials and management staff of the *Yamang Lupa* program - Region VIII. The Vice Governor of Samar, Hon. Stephen James T. Tan said, “We are fortunate to be part of this innovative mission mode program for transforming the rainfed agriculture in the region.” Messages of support and commitments were delivered by Regional Executive Director Bernadette F. San Juan of the DA-Region VIII; Visayas State University President, Dr. Jose L. Bacusmo; Executive Director of the Bureau of Agricultural Research, Dr Nicomedes P. Eleazar who was ably represented by the *Yamang Lupa* program leader, Engr. Samuel Contreras of DA-Bureau of Soil and Water Management (BSWM). On behalf of Dr William D. Dar, Dr Suhas P Wani delivered the message of support and commitment highlighting the support to make *Yamang Lupa* successful in the Philippines to the benefit of farmers by providing technical support and other complementary services. Dr Wani also highlighted that he is bringing the best wishes of Dr William D Dar who is a strong supporter and initiator of the program. He also stressed that the main objective of the program is not only to increase the productivity of food grains for achieving the

security but also to bring honor to the farmers of Philippines through economic development and achieving food security by adopting Inclusive Market Oriented Development (IMOD) strategy.


Following the Inaugural function of the *Yamang Lupa* program, management team of ICRISAT including Drs Suhas P Wani, Junel Soriano and Heraldo Libed Layaoen along with DA staff interacted with the farmers to provide more details on the program. The said interaction was productive and most of the farmers keenly enquired about the institutional arrangements as well as the type of interventions which could help them unlock the potential of rainfed agriculture.

***Figure 10. Dr SP Wani of ICRISAT and Director Bernadette F. San Juan of DA Region VIII during the launching of the Yamang Lupa program on April 5 held at the Provincial Gymnasium Catbalogan City,***

## Field Monitoring & Review

### *Program Management Group (PMG) Meeting*

The first PMG meeting was conducted at 3F BAR Conference Room on 9 January 2014 and was presided by Engr. Samuel Contreras of BSWM, newly designated program leader. It was attended by 18 members from the different CPs and conducted to exchange updates and discuss several concerns related to the implementation of the Yamang Lupa Program. Dr Eleazar of BAR and Dr Dar of ICRISAT gave their messages and word of challenges to the group for effective implementation of the program. They also announced some important development and progress of the program in the national level as well as in the regional and local levels. Several regional offices of DoA were committed to support and implement the program.

The status and accomplishment report of program was discussed in the meeting. Scientific/exposure visit and workshop with the PMG members and working group in Visayas will be done on 12-22 February, 2014 at ICRISAT. Exposure visit of technical/management staff from BSWM responsible for the management and operation of the proposed soil laboratory in the Philippines under YLP will also be done on 15-22 February, 2014. After the visit, training on soil sampling, analysis and mapping will be held in the Philippines on 24-26 February and will be facilitated by BSWM and ICRISAT. The training shall be attended by representatives from BSWM, DA- Regional Offices, SUCs and provincial/municipal agriculturist. Field soil sampling in the three pilot sites (more or less 700 hectares each) will be done after the training from 27 February to 3 March, 2014. Samples will be brought to Manila on 3 March, then to ICRISAT by 5 March for analysis. It is expected that by April, we will have the soil analysis results for the initial target areas this year.

The group has finalized the title of the program and now written as, *Yamang Lupa Program: Adoption of Bhoochetana Principles and Approaches for Natural Resources Management towards Sustainable Philippine Agriculture.* Other concerns that transpired during the meeting are as follows: (1) quarterly meeting of the Program Management Group; (2) applying the program title (Yamang

Lupa Program) for Intellectual Property Rights; and (3)develop a portal for the program under the BAR website.

The second PMG meeting was held at DA-BAR on 26 March, 2014 and was presided by Engr. Samuel Contreras, chair of PMG and staff of DA-BSWM. The meeting was called to finalize the 2014-2015 work and financial plans for submission and approval of the Steering Committee. The program's implementing guidelines and policies was also reviewed during the meeting. Status and accomplishment report of the program both in the national and regional levels was presented in the meeting. In preparation of the forthcoming SC meeting scheduled on April 11, the group has finalized the agenda for discussion and approval by SC members.

Other important matter being discussed in the meeting is the expansion of the program to other regions or provinces to be initiated by the Local Government Units (LGUs). The concept proposals submitted to two Municipalities for funding and support by concerned DA-regional and provincial government offices were presented. More LGUs are likely to show interest and implement the program this year. Thus, the program has set arrangement at the national level through the PMG that only technical assistance & guidance will be committed for the LGUs to implement the program and funding must be borne by the LGUs and DA-regional field offices if possible.

## *Steering Committee (SC) Meeting*

Members of steering committee of the program met on 11 April, 2014. During the deliberations, Undersecretary Delima promised complete support from DA and indicated that DA and BSWM will co-lead the steering committee of the program and asked all the partner institutions from DA attached agencies, State Universities and colleges and local government units to ensure convergence of various activities that will support the implementation of the program. Dr Suhas P Wani presented key success histories and experiences of ICRISAT that RDS group has done in India and Africa. He also discussed the importance of holistic approach in managing natural resources which includes soil, water, crop and human. Good interaction took place between the participants and Dr. Wani clarifying the various institutional arrangements and the success for *Bhoochetana* in Karnataka, India.

The concept proposal on integrated *Yamang Lupa* program was presented to the group but Usec Delima suggests that the proposal will be submitted next year for funding consideration using the 2016 budget of DA.

## *Process Documentation of the Program*

Flow chart on program management and process documentation is shown below as guiding instrument in the implementation of the program through the efforts of the management group in the national and regional or local levels. *Figure 11* shows the flow chart on process documentation for the program developed by ICRISAT.

## *Yamang Lupa Program Implementation Eligibility with Local Government Units (LGUs)*

Flow chart for *Yamang Lupa* program implementation eligibility with LGUs is presented in *Figure 12.* This approach has been considered by the PMG as guide in dealing with interested LGUs to implement the program both in the municipal and provincial levels.

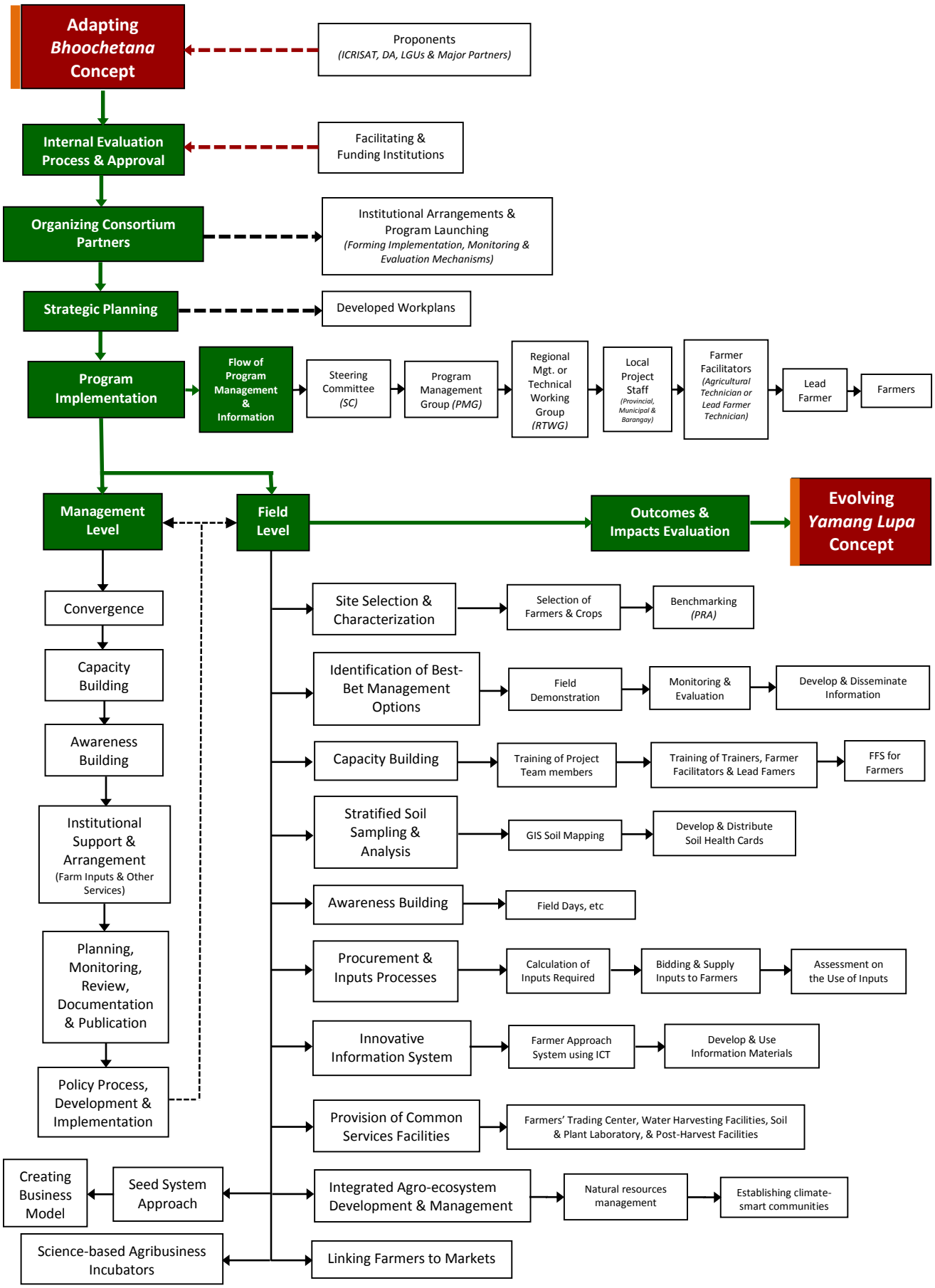


***Figure 11. Flow chart on process documentation for Yamang Lupa program implementation***

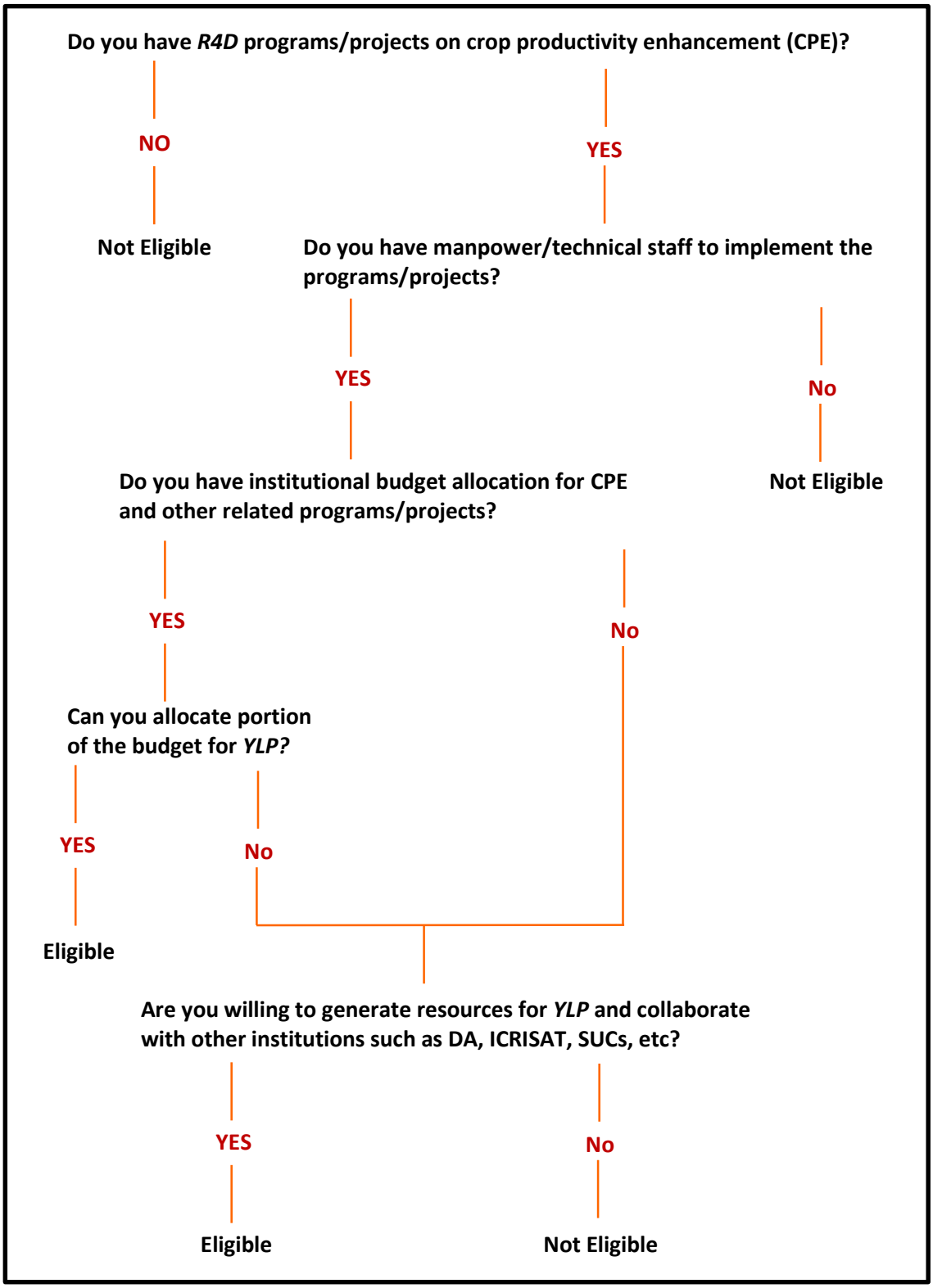


*Figure 12. Flow chart for Yamang Lupa program implementation eligibility with LGUs*

Till date, LGUs who signified intention to implement the program are: (1) San Ildefonso, Bulacan; (2) Ilagan City, Isabela; (3) Sta Maria, Cabugao and San Emilio, Ilocos Sur; and (4) Bacnotan, La union. ICRISAT is helping these LGUs to generate funds for the program to be implemented through the leadership of the Municipal or City Mayors. As proposed, the budget will be source-out from DA-RFOs and Provincial Government Units in addition to the budget that can be allocated by the Municipal Government Units.

***Figure 13. Hon. Mayor Josemarie Diaz of Ilagan City during the initial introduction of Yamang Lupa program on 17 April, 2014***

***Figure 14. Meeting/briefing with local government officials on July 2013 in Ilocos Sur headed by Vice Gov Savellano***

***Figure 15. ICRISAT scientist/staff met Hon Mayor Gerald Galvez & his staff of San Ildefonso, Bulacan at BSWM on April 11, 2014***

## *Yamang Lupa* Program Implementing Guidelines and Policies

To ensure effectiveness and maintain the quality of works to be done on the ground, common implementing guidelines and policies for the program have been drafted through the guidance of ICRISAT and initiatives of the management group. Details of the implementing guidelines and policies are listed below. This was approved by the SC Committee during its meeting held on 11 April, 2014 at BSWM with minor modifications as suggested.

1. Farmer Facilitators, FFs (Lead Farmer Technicians, LFTs or Agricultural Technicians, ATs)
   - The program will identify and train LFTs or assign ATs, whichever is most appropriate, practical and convenient in the pilot site.
   - For every 200 ha, one FS/AT will be hired or assigned to undertake the following activities:
     - Registration of farmers with the help of MAO and build the capacity of the FLs to undertake extension works among the farmers.
     - Act as resource person during FFS and facilitate the conduct of farmers' cross visits in coordination with MAO.
     - Assist in data collection, information dissemination and other activities to be done in the communities.

- Required to develop and maintain agricultural farm that showcases potential and viable agricultural technologies and serves as agricultural learning center in the community.
- Submit weekly report to MAO.

- They will be given monthly honorarium at Php3,000 to be charged from the program funds or other programs of DA-RFO and/or LGUs, whichever is available and applicable.
- The minimum criteria for the selection of FFs are the following:
  - a reputable citizen and AT/farmer in the community
  - an educated AT/farmer having at least 5 years of experience in actual farming
  - own and manage at least 1 hectare farm that showcasing diversified farming
  - excellent in communicating with other farmers and technical staff
  - with broader knowledge and deep experiences on farming
  - shall be endorsed by the farmer constituents and barangay officials in the community
  - he/she is well trained in the field of agriculture
  - with background on community leadership and involvement in farmers' groups/organization in the community

2. Lead Farmers, LFs

- Hire LFs to work hand in hand with the FFs in coordination with the Barangay Chairman
- For every 50 ha, on LF will be hired to undertake the following activities:
  - guide, train and assist other farmers in the barangay in demonstrating and implementing various technology interventions and other needed services
  - required to develop and maintain his/her farm showcasing potential and viable agricultural technologies and venue for FFS
  - LFs are directly reporting to the FSs and they should submit data or information weekly to FSs.
  - assist NGOs and other stakeholders in organizing field activities and other related social mobilization/development of the farmers.
- They will be given monthly honorarium at Php 1,000 to be charged from the program funds or other programs of DA-RFO and/or LGUs, whichever is available or applicable.
- The minimum criteria for the selection of LFs are the following:
  - A reputable citizen and farmer in the community
  - With at least 5 years of experience in actual farming
  - Shall be endorsed by the farmers in the community
  - With relevant training on crop production
  - With involvement in farmers' groups or organization in the community

3. Farmer Cooperators (FCs)

- FCs will be involved in field demonstration/trials where various interventions will be tested and they should share their resources at all times.
- FCs shall adopt at least one intervention wherein 50% of the cost involved will be shouldered by the program and the remaining 50% will be shouldered by FCs.
- FCs may participate in field experiment cum research of new cultivars, technologies or production systems of partner research institutions and shall agree with the terms and conditions necessary for the establishment of the field experiments.

4. Establishment of Field Demonstration/Trials

- The total number of field demonstration/trials is at least 5% of the total number of farmers.
- LFs will select FCs in accordance with the number of trials and must represent certain number of farmers to follow the assigned interventions.

- Field demonstration/trials must be accessible at all times.
- Field demonstration/trials will be divided into parts namely; (1) Farmers' Practice Field, and (2) YLP Field with a minimum area depending on crops as follows:
    - Lowland Rice 0.25 ha
    - Upland Rice 0.10 ha
    - Corn 0.25 ha
    - Peanut 0.10 ha
    - Taro 0.05 ha
    - Sweet Potato 0.10 ha
    - Vegetables 0.10 ha
- Actual crop-cutting experiment or recording crop yield in both FP and YLP fields will be done by representatives from DA-RFO, SUC, MAO, NGO and adjacent Farmers with the help of FFs, LFs and FCs.

5. Best-Bet Management Options or Interventions
- The lead institution will organize a team which composed of representatives from DA-RFOs, SUCs, MAOs, DA-RFOs, NGOs and Farmer Groups to identify, screen and approve best-bet. management options or interventions on crops, soil and water management, and nutrient and pest management necessary for increased productivity and income.
- Experts from SUCs and research institutions will be identified and invited to present possible interventions for increased yields of the target crops or cropping systems.
- The lead institution in coordination with MAO will organize training for the FFS and LFs for them to learn the different interventions identified and accepted by the program with the help of the experts as resource persons.
- Services of the experts will be compensated by giving honorarium at rate of Php 500/hr of engagement during the training with the FFS and LFs.
- Training for the farmers by commodity will be organized and facilitated by ATs as focal person in the cluster barangay, FFS and LFs
- Farmers' field schools by commodity with the interventions will be organized for the farmers if needed and applicable.

6. Fund allocation for the program in pilot regions
- Financial resources must be allocated more on action research activities in the ground with active participation of the farmers. Funds provided by DA shall be utilized for common services and intended activities such PS, MOOE, CO & Representation. Funds will be distributed for the following items at certain percentage out of the total fund provided by DA.

    a. Personnel Services *(Incentives/Honorarium of Farmer Scientist/Leaders & Project Staff)* 25%

    b. MOOE *(Field Day, Demo Farms Establishment, FFS Training, Soil sampling & Analysis, S&T Interventions, Travel, Communication & Other Action Research Activities in the Field)* 60%

    c. Capital Outlay *(GPS if not Available, Tablet for Smart Farmer Video Development & Extension Services, & Other Needed Facilities for Action Researches/Activities to be done)* 10%

    d. Representation *(Local Meetings/Visits/Training)* 5%

- Other forms of financial support or counterparts shall be generated from other sources and used based on prescribed and approved plans.

7. Program Management Team Members
- The team must compose of multi-disciplines from various institutions involved in the program.

- MOA/MOU among the local partners in each pilot site will be prepared by the lead institution for signing.
- The program must organize a team with the members at the national and regional level to work closely and independently especially for the three major components of the program.

| Component/Activity | National Management Level | Regional/Field Level Management |
|---|---|---|
| Productivity Enhancement | DA-BPI, ICRISAT, DA-BAR | DA-RFOs, PAOs, MAOs, FFs, LFs, FCs, Farmers |
| Soil Sampling, Analysis & Mapping | DA-BSWM, ICRISAT, DA-BAR | DA-BSWM, DA-RFOs, SUCs, PAOs, MAO, FFs, LFs, Farmers |
| Capacity Building | DA-ATI, ICRISAT, DA-BAR | DA-RFOs, SUCs, PAOs, MAO, NGOs, FFs, LFs |

8. Program Monitoring and Review
- YLP-National management group must organize an annual program review and planning workshop for 5 days within the month of April, while YLP-Regional management group will organize end-season review and monitoring for three days within the month of October and March.
- There will be a quarterly meeting and review of the YLP-National management group and SC.
- YLP-RTWG must organize a monthly meeting and review of the program at the field.

9. Gender Sensitivity
- The program management team both in the national and regional levels as well as the FFs, LFs and FCs groups shall involve women representing at least 10% of the group.
- Farmers, housewives and landless must be part of the program and they shall be recognized in terms of their involvement or participation to the program.

10. Support from LGUs, NGOs & PSs

Provincial Agriculture Office (PAO):
- Initiate necessary convergence of different line departments under the provincial government and municipal levels.
- Identify suitable strategies for successful implementation of the mission program by mobilizing necessary support from the concerned line departments as well as policy makers and politicians to make the program successful.
- Assist in the preparation detailed action plans along with members of Consortium by identifying the target sites, crops and other relevant activities for implementation.
- Resource allocation to ensure financial support at reasonable schemes for the program especially on farm inputs required for best-bet management options or interventions to be followed by the farmers.
- Establishment and strengthening of farmer-industry market linkages for enabling better price to the farmers' produce with a flexible pricing.
- Support the rewarding mechanisms for the best farmers at clustered barangay and municipal with outstanding performance as well as agricultural technicians.

Municipal Agriculture Office (MAO):
- Identify target areas, crops and famer cooperators through proper consultation with PAO and other stakeholders.
- Identify additional area during the subsequent year within the municipality to ensure that the target areas for the selected crops will be covered at the end of the program.

- Assign one AT to work closely within the clustered barangays covering around 1,000 ha and serve as focal person of the program.
- Acknowledge FFs, LFs as extension workers to work closely with the focal person and farmers.
- Initiate the collection of soil samples in the barangays for laboratory analysis with the help of FSs and FLs and technical guidance from DA-BSWM, SUCs & PAO.
- Provide financial support at reasonable schemes for the program especially on farm inputs required for best-bet management options or interventions to be followed by the farmers.
- Link with NGOs who may help the program implementation as desired by the consortium, as well as helping the FFS & LFs in day-to-day monitoring, supervision and provide guidance to the farmers in the community.
- Recording of data at cluster barangays indicating the progress, challenges and also opportunities for planning and implementing the program for achieving targets.
- To establish pilots projects for product value addition with the help of women's and farmer's group as additional source of livelihoods.
- Review reports submitted by FFs and assigned ATs and prepare consolidated reports for submission to DA-RFOs through PAO.

Barangay:

- Barangay officials need to be further strengthened and must aware about the significance and benefits of the program.
- Recommends FFS to work hand in hand with the LFs and farmers.
- Mobilize women, landless, youth and other sectors in building awareness and strategies for the promotion of the program at the Barangay level.
- Provide financial support to livelihoods activities of the women and landless.
- Assist in the establishment of village seed banks (VSB) as business model of Barangay to give farmers access to quality seeds at reasonable price.

Non-Government Organizations (NGOs) and Private Sectors (PSs):

- NGOs and PSs will encourage to participate in the implementation of the program with the following areas of collaborations:
    - Advocacy campaign and building awareness
    - Livelihoods activities
    - Extension delivery system using print media, ICT equipment, etc.
    - Farmer registration
    - Support for field demonstration/trials

## Project Development: Integrated *Yamang Lupa* Program

An integrated *Yamang Lupa* program was developed by ICRISAT to boost rural livelihoods of smallholder farmers, enhance food and nutrition security while maintaining healthy ecosystems through building resilient and prosperous Philippine agriculture. See *Attachment 5* for the details of the proposal submitted to the Office Undersecretary Delima. The said proposal was presented during the SC meeting held on April 11, Undersecretary Delima has emphasized that the proposal will be considered for possible funding by 2016.

## V. Developed Information, Education and Communication (IEC) Materials

ICIRSAT in consultation with DA-BAR, DA-BSWM and implementing groups has developed posters, brochures and flyers about the program. The material has been translated to local dialect by the implementing groups headed by DA-RFOs & SUCs and distributed by LGUs concerned. See *Attachment 6a, 6b & 6c* for the copy of the poster, brochure and flyer, respectively.

## Annexure 1. Information about the Training Course on Integrated Crop (Pigeonpea, Groundnut/ Peanut & Chickpea) and Natural Resources Management

**Introduction**

ICRISAT has pioneered, developed and evaluated integrated watershed development (IWM) approach to sustainably harness the potential of rain-fed agriculture through integrated genetic and natural resources management (IGNRM) to improve rural livelihoods. The integrated watershed management approach takes into cognizance soil and water conservation along with genetic enhancement, policies and institution to harness the benefits through enhanced resource use efficiencies. ICRISAT has been successful in this regard, however, several concerns have to be addressed which led to the development of a program on Bhoochetana (soil rejuvenation). It was realized that crop and water alone can't address productivity enhancement and profitability for the farmers. Soil fertility is another concern that has been neglected. Bhoochetana is not only a productivity enhancement program but it is a scaling-up model to achieve the impacts on ground through Research for Development (R4D) approach. This brought in number of processes, policies and institutions together to achieve the impacts on ground by adopting a holistic system and an inclusive market-oriented development (IMOD) strategy.

ICRISAT has piloted and implemented Bhoochetana in the state of Karnataka for harnessing the potential of rain-fed agriculture by adopting holistic approach and improved livelihoods of 3.75 million small holder farmers in the state. Given ICRISAT's experience in the implementation of the Bhoochetana program and in up-scaling, ICRISAT and the Government of the Philippines have joined hands to implement this program in the provinces of Quezon, Samar, Leyte, Zamboanga and Ilocos Sur as pilot areas. Important component of such partnership is to build and strengthen the capacity of a critical mass of Filipino researchers to lead in its implementation.

**Goal**

To capacitate the Bhoochetana team members from the Philippines to understand the nuances of Bhoochetana strategies, principles, technology components, implementation and monitoring mechanisms for increased productivity and profits of smallholder farmers in rainfed areas.

**Objectives**

1. To enhance the awareness on the principles, strategy and implementation processes for operationalizing Bhoochetana program in Philippines.
2. To strengthen the skills of trainees in crop and natural resource management through a holistic R4D approach using IGNRM and IMOD strategies.
3. To intersperse relevant concepts of upscaling, ICT-mediation, knowledge sharing, value addition, markets, impact assessment and strategic communication.
4. To develop strategic action plans that will support the implementation of the Bhoochetana program in Philippines.

**Outputs**

Most important output of the exposure cum hands-on training is the empowerment of the Bhoochetana team members in Philippines for effective implementation of the mission program. The specific outputs are:

1. Prepared action plan for the *Yamang Lupa* program and Sustainable Intensification for Prosperity and Growth (SIPAG) project in the Philippines with the following elements: implementation strategies; assessing institutional and policy gaps for effective implementation; improved crop and natural resources management options; potential knowledge and seed delivery systems; and monitoring, documentation and evaluation.
2. Developed crop-based methods as baseline information for monitoring, evaluation and impact assessment.
3. Enriched the level of understanding about ICRISAT's global research for development programs in rainfed agriculture.

**Training Management Team**

| | | |
|---|---|---|
| Adviser | : | WD Dar |
| Supervisor | : | SP Wani |
| Training Course Facilitators | : | JB Soriano & RP Mula |
| Overall Training Coordinator | : | Ragini R |
| Support Staff | : | KNV Satyanarayana, Prabhakar & SV Prasadrao |
| Supervising Scientists | : | PM Gaur, P Janila & MG Mula |
| Resource Persons | : | Team of Multi-disciplinary ICRISAT Scientists/Experts |

**Training Methodology**

The main methods are lectures and hands-on activities in field. These have been substantiated with laboratory visits and field exposures to other relevant activities within ICRISAT and nearby community watershed areas.

The training course content and schedule are based on the recommendation of resource persons and management team and served as the guide for both the learner-participants (LPs) and key scientists. However, the chronology of activities as contained in the schedule is flexible depending on the current activities in the field during the time of the training. The prepared individual work plans towards the end of the first week (during the induction program) has defined the specific or detailed activities for the entire four (4) months. A designated focal person from RDS program to coordinate with the scientists and laboratory in-charge was assigned to ensure the day-to-day activities, weekly interaction of scientists and LPs if required, and other resource requirements deemed important.

During the course, technical support was provided by ICRISAT Technical Working Group (TWG) for the Bhoochetana program in the Philippines. Learners together with key scientists have required for weekly meetings/consultations to assess learning and identify gaps for mediation. The weekly meetings/consultations were facilitated by the Learning Systems Unit (LSU) with the technical coordinator leading the meeting.

Part of the learners' induction program will include leveling of their expectations and their commitment to the Bhoochetana program. At the end of the training, learners have presented their action plans and research proposals for evaluation.

## Integrated Groundnut Production and Natural Resources Management Training Course

## PROGRAMME

**Scientist Supervisor: P. Janila**

| | | | | |
|---|---|---|---|---|
| **Trainees:** | **(1) Rictibert Pamunag**<br>Research Assistant<br>DA-Zamboanga Peninsula Integrated Agricultural Research Center<br>Ipil, Zamboanga Sibugay, Philippines | | **(2) Mr. Dennis Bihis**<br>Researcher<br>Quezon Agricultural Experiment Station (QAES)<br>Tiaong, Quezon, Philippines | |
| | **Time** | **Venue** | **Course Topics or Activities** | **Resource Person** |
| **1st Week: 9 - 13 December 2013** | | | | |
| Dec 9 | 0930-1130 | LSU | Meeting with LSU briefing & id process | RP Mula |
| | | | General introduction about course, ICRISAT & RDS Program | |
| | 1130-1230 | DG's Office | Courtesy Call to the Director General | WD Dar |
| | 1230-1330 | | Lunch | |
| | 1330-1630 | 302 Conference Room | About Bhoochetana Program & SIPAG project in the Philippines | JB Soriano |
| Dec 10 | 0800-1100 | LSU Office | Compliance with LSU Requirements | RP Mula |
| | 1100-1630 | LSU Office | Briefing on Field Trials/Demonstration | Ankush Nimjie |
| Dec 11 | 0800-1630 | | Visit to SAT Venture and ICRISAT Campus | MM Sharma |
| Dec 12 | 0800-1630 | RDS Office | RDS Office Protocols | R Ragini |
| Dec 13 | 0800-1630 | Watershed Area | Crop Establishment - RDS Watershed Area | AM Nimjie |
| **2nd Week: 16 - 20 December 2013** | | | | |
| Dec 16 | 0800-1630 | 302 Conference Room | Preparation of individual work plans based on the training course outline and availability of the Scientists | RP Mula & JB Soriano |
| Dec 17 | 0800-1200 | | Introduction to groundnut production and breeding | P Janila |
| | 1300-1500 | | Target ecosystem and required climatic condition | P Janila |
| | 1500-1630 | | Potentials of groundnut in the Philippines | P Janila |
| Dec 18 | 0800-1630 | | Understand how the trials and breeding material are planted in field | Yadagiri |
| Dec 19 | 0800-1630 | | Understand how the trials and breeding material are planted in field / | Yadgiri/Surendra |

| | | | | |
|---|---|---|---|---|
| | | | How to use Agrobase for documentation | |
| Dec 20 | 0800-1630 | | How to use Agro-base for documentation | Surendra |
| **3rd Week: 23 -27 December 2013** | | | | |
| Dec 23 | 0800-1630 | | Lecture on field design, data documentation, data analysis | Abhishek Rathore |
| Dec 24 | 0800-1630 | | Presentation and Discussion | Abhishek Rathore |
| **Dec 25** | | | **Christmas Holiday** | |
| Dec 26 | 0800-1200 | | Office & Field Works | P Janila/Ankush |
| | 1300-1630 | | Establishment of Field experiment, demonstration as allocated by the scientists or/and demonstration in watershed area of RDS | P Janila |
| Dec 27 | 0800-1630 | | Field Work on Groundnut | P Janila |
| **4th Week: 30 December 2013 - 3 January 2013** | | | | |
| Dec 30 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Dec 31 | 0800-1200 | | Nutrient Management for Groundnut | P Janila |
| | 1300-1630 | | Soil Sampling and analysis | Pardhasaradi |
| **Jan 01** | | | **Holiday** | |
| Jan 2 | 0800-1200 | | Field & Water management for Groundnut | P Janila |
| | 1300-1630 | | Cropping Systems for Groundnut | P Janila |
| Jan 3 | 0800-1630 | | Observation on plant stand | P Janila |
| **5th Week: 6 - 10 January 2014** | | | | |
| Jan 6 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 7 | 0800-1630 | | Management of diseases for Groundnut | P Janila |
| Jan 8 | 0800-1630 | | Management of insect pests for Groundnut | P Janila |
| Jan 9 | 0800-1630 | | Integrated pest management for Groundnut | P Janila |
| Jan 10 | 0800-1630 | | Observations on plants, using tablet for recording data | P Janila |
| **6th Week: 13 - 17 January 2014** | | | | |
| Jan 13 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 14 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 15 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 16 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 17 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| **7th Week: 20 – 24 January 2014** | | | | |
| Jan 20 | 0800-1200 | | Post-harvest associated technologies for Groundnut | P Janila |
| | 1300-1630 | | Aerobic microbial and vermicomposting | Jangawad |

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|---|---|---|---|---|
| Jan 21 | 0800-1630 | | Bio-organic fertilizer for crop production | Gopalikrishnan & Prathista Staff |
| Jan 22 | 0800-1200 | | Crop-livestock integration | M Blummel |
| | 1300-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 23 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 24 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| **8th Week: 27 – 31 January 2014** | | | | |
| Jan 27 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 28 | 0800-1630 | | Visit to Community Watershed models | Jangawad |
| Jan 29 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 30 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Jan 31 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| **9th Week: 3 – 7 February 2014** | | | | |
| Feb 3 | 0800-1630 | | Value Addition | P Janila |
| Feb 4 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| Feb 5 | 0800-1630 | | Agri-business incubation | KK Sharma & Saikat Dattamazumdari |
| Feb 6 | 0800-1630 | | Discussion on extension delivery system and visit to farmer entrepreneurs | Saikat Dattamazumdar & Akruthu Representative |
| Feb 7 | 0800-1630 | | Research Activities (Field or Office Works) | P Janila |
| **10th Week: 10 – 14 February 2014** | | | | |
| Feb 10 | 0800-1200 | | Climate Resilient Agriculture | Kesava Rao |
| | 1300-1630 | | Office & Field Works | P Janila/Ankush |
| Feb 11 | 0800-1630 | | Soil & Water Management Options for Pigeonpea Production | P Janila |
| Feb 12 | 0800-1630 | | Integrated and participatory watershed Management | SP Wani |
| Feb 13 | 0800-1630 | | Observation on Plants, using tablet for recording data | P Janila |
| Feb 14 | 0800-1630 | | Field works on Groundnut | P Janila |
| **11th Week: 17 – 21 February 2014** | | | | |
| Feb 17-18 | 0800-1630 | | Community immersion & farmer interactions (Watershed models)<br>Field works on Groundnut | SP Wani |
| Feb 19 | 0800-1630 | | Marketing Strategies | C Bantilan |

| | | | | |
|---|---|---|---|---|
| Feb 20 | 0800-1630 | | Impact Assessment | C Bantilan |
| Feb 21 | 0800-1630 | | Market Immersion for the three crops | P Janila |
| **12th Week: 24 – 28 February 2014** | | | | |
| Feb 24 | 0800-1630 | | Strategic marketing and communication | Joanna Kane Potaka |
| Feb 25 | 0800-1630 | | Development Communication | C. Bejosano |
| Feb 26 | 0800-1630 | | Innovative knowledge sharing, ICT-based extension services(Video conferencing, SMS, digital green concept) | G Dileepkumar |
| Feb 27-28 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| **13th Week: 3-7 March 2014** | | | | |
| March 3 | 0800-1630 | | Office & Field Works | P Janila/Ankush |
| March 4 | 0800-1630 | | Lecture, Discussion, Visit and Field Work | P Janila |
| Mar 5-6 | 0800-1630 | | Observed data processing and analysis (from field experiment/ demonstration) & To understand selection and record observation on Final Plant stand | P Janila |
| March 7 | | | Wrap-up discussion with Scientist- Supervisor, LSU and RDS | P Janila |
| **14th Week: 10 – 14 March 2014** | | | | |
| March 10 | 0800-1630 | | Wrap-up discussion with Scientist- Supervisor, LSU and RDS | P Janila |
| March 11 | 0800-1630 | | Discussion, Data Analysis & Post Harvest Observations | P Janila |
| March 12-13 | 0800-1630 | | Action plan preparation for Bhoochetana program | SP Wani/JB Soriano |
| March 14 | 0800-1630 | | Report Writing and Project proposal preparation | P Janila, JB Soriano & RP Mula |
| **15th, 16th & 17th Week: 17 – 29 March 2014** | | | | |
| March 17-21 | 0800-1630 | RDS Office | Report Writing | P Janila/RDS |
| March 24 | 0800-1630 | 302 Conference Room | Presentation of outputs and critique | DG, Supervisors, SP Wani, JB Soriano, RP Mula |
| March 25, 28 | 0800-1630 | 302 Conference Room | Action planning, discussion, writing and presentation | SP Wani, JB Soriano & RP Mula |
| March 29 | 1000-1200 | DG Conference Room | Closing Program | RDS |

**Integrated Chickpea Production and Natural Resources Management Training Course**

**PROGRAMME**

**Scientist Supervisor: P. Gaur**

| | | | | |
|---|---|---|---|---|
| **Trainee:** | **JULIUS A. BRAGADO**<br>Agriculturist II<br>Provincial Agriculture Office<br>Province of Ilocos Sur, Philippines | | | |
| **Date** | **Time** | **Venue** | **Course Topics or Activities** | **Resource Person** |
| **1st Week: 9 – 13 December 2013** | | | | |
| Dec 9 | 0930-1130 | LSU | Meeting with LSU briefing & id process | RP Mula |
| | | | General introduction about course, ICRISAT & RDS Program | |
| | 1130-1230 | DG's Office | Courtesy Call to the Director General | WD Dar |
| | 1230-1330 | | Lunch | |
| | 1330-1630 | 302 Conference Room | About Bhoochetana Program & SIPAG project in the Philippines | JB Soriano |
| Dec 10 | 0800-1100 | LSU Office | Compliance with LSU Requirements | RP Mula |
| | 1100-1630 | LSU Office | Briefing on Field Trials/Demonstration | Ankush Nimjie |
| Dec 11 | 0800-1630 | | Visit to SAT Venture and ICRISAT Campus | MM Sharma |
| Dec 12 | 0800-1630 | RDS Office | RDS Office Protocols | R Ragini |
| Dec 13 | 0800-1630 | Watershed Area | Crop Establishment – RDS Watershed Area | AM Nimjie |
| **2nd Week: 16 – 20 December 2013** | | | | |
| Dec 16 | 0800-1630 | 302 Conference Room | Preparation of individual work plans based on the training course outline and availability of the Scientists | MG Mula/ RP Mula/ J Soriano |
| Dec 17 | 0800-1200 | | Introduction to Chickpea production and breeding | MG Mula |
| | 1300-1500 | | Target ecosystem and required climatic condition | P.Gaur |
| | 1500-1630 | | Potentials of Chickpea in the Philippines | P.Gaur |
| Dec 18 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Dec 19 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Dec 20 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |

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|---|---|---|---|---|
| **3rd Week: 23 – 27 December 2013** | | | | |
| Dec 23 | 0800-1630 | | Lecture on field design, data documentation, data analysis | Abhishek Rathore |
| Dec 24 | 0800-1630 | | Presentations and Discussion | Abhishek Rathore |
| **Dec 25** | | | **Christmas Holiday** | |
| Dec 26 | 0800-1200 | | Office & Field Works | P.Gaur/Ankush |
| | 1300-1630 | | Establishment of Field experiment, demonstration as allocated by the scientists or/and demonstration in watershed area of RDS | P.Gaur / Srinivasan |
| Dec 27 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **4th Week: 30 December 2013 – 3 January 2014** | | | | |
| Dec 30 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Dec 31 | 0800-1200 | | Nutrient Management for Chickpea | P.Gaur |
| | 1300-1630 | | Soil Sampling and analysis | Pardhasaradi |
| **Jan 01** | | | **Holiday** | |
| Jan 02 | 0800-1200 | | Field & Water management for Chickpea | P.Gaur/BV Rao |
| | 1300-1630 | | Cropping Systems for Chickpea | P.Gaur |
| Jan 03 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **5th Week: 6 – 10 January 2014** | | | | |
| Jan 06 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 07 | 0800-1630 | | Management of diseases for Chickpea | Dr.Mamta Sharma |
| Jan 08 | 0800-1630 | | Management of insect pests for Chickpea | Dr HC Sharma |
| Jan 09 | 0800-1630 | | Integrated pest management for Chickpea | Dr.GV Ranga Rao |
| Jan 10 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **6th Week: 13 – 17 January 2014** | | | | |
| Jan 13 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 14 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 15 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 16 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 17 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **7th Week: 20 – 24 January 2014** | | | | |
| Jan 20 | 0800-1200 | | Post-harvest associated technologies for Chickpea | P.Gaur/BV Rao |
| | 1300-1630 | | Aerobic microbial and vermicomposting | Jangawad |
| Jan 21 | 0800-1630 | | Bio-organic fertilizer for crop production | Gopalikrishnan & Prathista |

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|---|---|---|---|---|
| | | | | Representative |
| Jan 22 | 0800-1200 | | Crop-livestock integration | M Blummel |
| | 1300-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 23 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 24 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **8th Week: 27 – 31 January 2014** | | | | |
| Jan 27 | 0800-1630 | | Field works on Chickpea | P.Gaur |
| Jan 28 | 0800-1630 | | Visit to Community Watershed models | Jangawad |
| Jan 29 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 30 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Jan 31 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **9th Week: 3 – 7 February 2014** | | | | |
| Feb 03 | 0800-1630 | | Value Addition | Saikat Dattamazumdar |
| Feb 04 | 0800-1630 | | Field works on Chickpea | P.Gaur |
| Feb 05 | 0800-1630 | | Agri-business incubation | Karuppan Chetty, AIP |
| Feb 06 | 0800-1630 | | Discussion on extension delivery system and visit to farmer entrepreneurs | Saikat Dattamazumdar & Akruthu Representative |
| Feb 07 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **10th Week: 10 – 14 February 2014** | | | | |
| Feb 10 | 0800-1200 | | Climate Resilient Agriculture | Kesava Rao |
| | 1300-1630 | | Office & Field Works | P.Gaur/Ankush |
| Feb 11 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| Feb 12 | 0800-1630 | | Integrated and participatory watershed Management | SP Wani |
| Feb 13 | 0800-1630 | | Observation on plants, using tablet for recording data | P.Gaur/Srinivasan |
| Feb 14 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **11th Week: 17– 21 February 2014** | | | | |
| Feb 17 - 18 | 0800-1630 | | Community immersion & farmer interactions (Watershed models) | SP Wani |
| Feb 19 | 0800-1630 | | Marketing Strategies | C Bantilan |
| Feb 20 | 0800-1630 | | Impact Assessment | C Bantilan |

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|---|---|---|---|---|
| Feb 21 | 0800-1630 | | Market Immersion for the three crops | |
| **12th Week: 24 – 28 February 2014** | | | | |
| Feb 24 | 0800-1630 | | Strategic marketing and communication | Joanna Kane Potaka |
| Feb 25 | 0800-1630 | | Development Communication | |
| Feb 26 | 0800-1630 | | Innovative knowledge sharing, ICT-based extension services(Video conferencing, SMS, digital green concept) | G Dileepkumar |
| Feb 27 - 28 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| **13th Week: 3 – 7 March 2014** | | | | |
| March 3 | 0800-1630 | | Office & Field Works | P.Gaur/Ankush |
| March 4 | 0800-1630 | | Post-harvest observation | P.Gaur |
| March 5 - 6 | 0800-1630 | | Observed data processing and analysis (From field experiment/ Demonstration) | P.Gaur |
| March 7 | 0800-1630 | | Wrap-up discussion with Scientist- Supervisor, LSU and RDS | P.Gaur/Srinivasan |
| **14th Week: 10 – 14 March 2014** | | | | |
| March 10 | 0800-1630 | | Wrap-up discussion with Scientist- Supervisor, LSU and RDS | P.Gaur/Srinivasan |
| March 11 | 0800-1630 | | Discussion and Dara Analysis | P.Gaur |
| March 12-13 | 0800-1630 | | Action plan preparation for Bhoochetana program | SP Wani/JB Soriano |
| March 14 | 0800-1630 | RDS Office | Report Writing and Project proposal preparation | P. Gaur, JB Soriano & RP Mula |
| **15th, 16th & 17Th Week: 17 – 29 March 2014** | | | | |
| March 17-21 | 0800-1630 | RDS Office | Report Writing | P. Gaur/RDS |
| March 24 | 0800-1630 | 302 Conference Room | Presentation of outputs and critique | DG, Scientist-Supervisor, SP Wani, JB Soriano, RP Mula |
| March 25-28 | 0800-1630 | 302 Conference Room | Action planning, discussion, writing and presentation | SP Wani, JB Soriano & RP Mula |
| March 29 | 1000-1200 | DG Conference Room | Closing Program | RDS |

**Integrated Pigeonpea Production and Natural Resources Management Training Course**

**PROGRAMME**

**Scientist Supervisor: Myer G Mula**

| **Trainee:** | **JANET DE LEON-VILLAMOR**<br>Instructor II<br>Ilocos Sur Polytechnic State College<br>Sta Maria, Ilocos Sur, Philippines | | | |
|---|---|---|---|---|
| | **Time** | **Venue** | **Course Topics or Activities** | **Resource Person** |
| **1st Week: 9 – 13 December 2013** | | | | |
| Dec 9 | 0930-1130 | LSU | Meeting with LSU briefing & id process<br>General introduction about the course, ICRISAT &RDS Program | RP Mula |
| | 1130-1230 | DG's Office | Courtesy Call to the Director General | WD Dar |
| | 1230-1330 | | Lunch | |
| | 1330-1630 | 302 Conference Room | About Bhoochetana Program & SIPAG project in the Philippines | JB Soriano |
| Dec 10 | 0800-1100 | LSU Office | Compliance with LSU Requirements | RP Mula |
| | 1100-1630 | LSU Office | Compliance with LSU Requirements | Ankush Nimjee |
| Dec 11 | 0800-1630 | | Visit to SAT Venture and ICRISAT Campus | MM Sharma |
| Dec 12 | 0800-1630 | RDS Office | RDS office protocols | R Ragini |
| Dec 13 | 0800-1630 | Watershed Area | Crop Establishment – RDS Watershed Area | AM Nimjie |
| **2nd Week: 16 – 20 December 2013** | | | | |
| Dec 16 | 0800-1200 | 302 Conference Room | Preparation of individual work plans based on the training course outline and availability of the Scientists | MG Mula/ RP Mula/ J Soriano |
| | 1300-1700 | | | |
| Dec 17 | 0800-1200 | | Introduction to Pigeonpea production and breeding | MG Mula/ RP Mula |
| | 1300-1500 | | Target ecosystem and required climatic condition | MG Mula |
| | 1500-1630 | | Potentials of Pigeon pea in the Philippines | MG Mula |
| Dec 18 | 0800-1630 | | Establishment of field experiment, demonstration as allocated by the scientists or/and demonstration in watershed area of RDS | MG Mula |

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|---|---|---|---|---|
| Dec 19 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Dec 20 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| **3rd Week: 23 – 27 December 2013** | | | | |
| Dec 23 | 0800-1630 | | Lecture on field design, data documentation, data analysis | Abhishek Rathore |
| Dec 24 | 0800-1630 | | Presentation and Discussion | Abhishek Rathore |
| **Dec 25** | | | **Christmas Holiday** | |
| Dec 26 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Dec 27 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| **4th Week: 30 December 2013 – 3 January 2014** | | | | |
| Dec 30 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Dec 31 | 0800-1200 | | Nutrient Management for Pigeonpea | MG Mula |
| | 1300-1630 | | Soil Sampling and analysis | Pardhasaradi |
| **Jan 01** | | | **Holiday** | |
| Jan 2 | 0800-1200 | | Water management for Pigeonpea | MG Mula |
| | 1300-1630 | | Cropping Systems for Pigeonpea | MG Mula |
| Jan 3 | 0800-1630 | | Best-bet crop management options for Pigeonpea | MG Mula |
| **5th Week: 6 – 10 January 2014** | | | | |
| Jan 6 | 0800-1630 | | Field data observation and monitoring field demonstration for pigeon pea | MG Mula |
| Jan 7 | 0800-1630 | | Management of diseases for Pigeonpea | Mamta Sharma |
| Jan 8 | 0800-1630 | | Management of insect pests for Pigeonpea | RangaRao |
| Jan 9 | 0800-1200 | | Integrated pest management for Pigeonpea | Rangarao |
| | 1300-1630 | | Field data observations and monitoring field demonstration for Pigeonpea | MG Mula |
| Jan 10 | 0800-1630 | | Visit to field experiments and laboratories for pigeonpea | MG Mula |
| **6th Week: 13 – 17 January 2014** | | | | |
| Jan 13 | 0800-1630 | | Participate in research activities for pigeonpea | MG Mula |
| Jan 14 | 0800-1630 | | Seed production and seed systems for pigeonpea | MG Mula |
| Jan 15 | 0800-1630 | | Field data observations and monitoring field demonstration for pigeonpea | MG Mula |
| Jan 16 | 0800-1630 | | Visit to seed processing unit and laboratories for pigeonpea | MG Mula |
| Jan 17 | 0800-1630 | | Lecture, Discussion, Visit and Field work | MG Mula |

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|---|---|---|---|---|
| **7th Week: 20 – 24 January 2014** | | | | |
| Jan 20 | 0800-1200 | | Post-harvest associated technologies for Pigeonpea | MG Mula |
| | 1300-1630 | | Aerobic microbial and vermicomposting | Jangawad |
| Jan 21 | 0800-1630 | | Bio-organic fertilizer for crop production | Gopalikrishnan & Prathista Representative |
| Jan 22 | 0800-1200 | | Crop-livestock integration | M Blummel |
| | 1300-1630 | | Office & Field Works | MG Mula/ Ankush |
| Jan 23 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Jan 24 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| **8th Week: 27 – 31 January 2014** | | | | |
| Jan 27 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Jan 28 | 0800-1630 | | Visit to Community Watershed models | Jangawad |
| Jan 29 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Jan 30 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Jan 31 | 0800-1630 | | Lecture, Discussion, Visit and field work | MG Mula |
| **9th Week: 3 – 7 February 2014** | | | | |
| Feb 3 | 0800-1630 | | Value Addition | AIP |
| Feb 4 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| Feb 5 | 0800-1630 | | Agri-business incubation | KK Sharma & Saikat Datta Mazumdar |
| Feb 6 | 0800-1630 | | Discussion on extension delivery system and visit to farmer entrepreneurs | Saikat Datta Mazumdar & Akruthi Representative |
| Feb 7 | 0800-1630 | | Lecture, Discussion, Visit and field work | MG Mula |
| **10th Week: 10 – 14 February 2014** | | | | |
| Feb 10 | 0800-1200 | | Climate Resilient Agriculture | Kesava Rao |
| | 1300-1630 | | Office & Field Works | MG Mula/ Ankush |
| Feb 11 | 0800-1630 | | Soil & Water Management Options for Pigeon pea Production | MG Mula |
| Feb 12 | 0800-1630 | | Integrated and participatory watershed Management | SP Wani |
| Feb 13 | 0800-1630 | | Observation on plants, using tablet for recording data | MG Mula |
| Feb 14 | 0800-1630 | | Lecture, Discussion, Visit and field work | MG Mula |
| **11th Week: 17 – 21 February 2014** | | | | |
| Feb 17 - 18 | 0800-1630 | | Community immersion & farmer interactions (Watershed models) | SP Wani |
| Feb 19 | 0800-1630 | | Marketing Strategies | C Bantilan |

| | | | | |
|---|---|---|---|---|
| Feb 20 | 0800-1630 | | Impact Assessment | C Bantilan |
| Feb 21 | 0800-1630 | | Market Immersion for the three crops | MG Mula |
| **12th Week: 24 – 28 February 2014** | | | | |
| Feb 24 | 0800-1630 | | Strategic marketing and communication | Joanna Kane-Potaka |
| Feb 25 | 0800-1630 | | Development Communication | MG Mula |
| Feb 26 | 0800-1630 | | Innovative knowledge sharing, ICT-based extension services(Video conferencing, SMS, digital green concept) | G Dileepkumar |
| Feb 27-28 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| **13th Week: 3 – 7 March 2014** | | | | |
| March 3 | 0800-1630 | | Office & Field Works | MG Mula/ Ankush |
| March 4 | 0800-1630 | | Lecture, Discussion, Visit and field Work | MG Mula |
| March 5-6 | 0800-1630 | | Observed data processing and analysis (From field experiment/ Demonstration) | MG Mula |
| March 7 | 0800-1630 | | Wrap-up discussion with Scientist- Supervisor, LSU and RDS | MG Mula |
| **14th Week: 10 – 14 March 2014** | | | | |
| March 10 | 0800-1630 | | Wrap-up discussion with Scientist- Supervisor, LSU and RDS | MG Mula & RDS |
| March 11 | 0800-1630 | | Discussion and Data Analysis | MG Mula |
| March 12 - 13 | 0800-1630 | | Action plan preparation for Bhoochetana program | SP Wani/JB Soriano |
| March 14 | 0800-1630 | RDS Office | Report Writing and project proposal preparation | MG Mula, JB Soriano & RP Mula |
| **15th, 16th & 17Th Week: 17 – 29 March 2014** | | | | |
| March 17-21 | 0800-1630 | RDS Office | Report Writing | MG Mula/RDS |
| March 24 | 0800-1630 | 302 Conference Room | Presentation of outputs and critique | DG, Scientist- Supervisor, SP Wani, JB Soriano, RP Mula |
| March 25-28 | 0800-1630 | 302 Conference Room | Action planning, discussion, writing and presentation | SP Wani, JB Soriano & RP Mula |
| March 29 | 1000-1200 | DG Conference Room | Closing Program | RDS |

# Annexure 2. 2014 Work Plans for *Yamang Lupa* Program in Region IX

| MAJOR FINAL OUTPUTS (MFOs) /PROGRAM ACTIVITIES and PROJECTS (PAPs) | PERFORMANCE INDICATORS | PREVIOUS YEAR (2013) | CY 2014 PHYSICAL PLAN | CY 2014 QUARTERLY PHYSICAL TARGETS | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1st | 2nd | 3rd | 4th |
| 1 | 2 | 3 | 4 | 5 | | | |
| | | | | | | | |
| **MFO 1. Agriculture and Fishery Policy Services** | | | | | | | |
| **A. Pre-implementation** | | | | | | | |
| Consultation meeting between DA and WMSU | Number of meetings | 4 | 4 | 1 | 1 | 1 | 1 |
| coordination meetingl with PLGUs, MLGU, BLGU and PO's | Number of meetings | 4 | 4 | 1 | 1 | 1 | 1 |
| Barangay/community/proposed site visitation/assessment | Number of visitation | 2 | 6 | ***3*** | 3 | | |
| Validation of the existing secondary data from the BDP | | | | | | | |
| **B. Institutional Arrangement** | | | | | | | |
| PRA/Benchmarking | No of sites/farmers interviewed | 4 sites with 502 farmers | 9 sites with 1080 farmers | 270 | 340 | 370 | 100 |
| Farmers registration | Number of farmers registered | 502 | 1,080 farmers | 200 | 200 | 100 | 100 |
| **C. capacity Building** | | | | | | | |
| Orientation on Bhoochetana concept to stakeholders | Number of orientation | 1 | 9 | 3 | 6 | | |
| Signing of MOA | | 1 | | | | | |
| Poject launching | | 1 | | | | | |
| Kick-off meeting | Number of meetings | 1 | | | | | |
| Soil sampling techniques training | Number of farmer pax | 120 | 135 | | 90 | | 45 |
| RTWG orientation and meetings | Number of meetings | 4 | 4 | 1 | 1 | 1 | 1 |
| Training of trainers, farmers Faciliatator and lead farmers | Number of meetings | 1 | 2 | | 1 | 1 | |
| Farmers Field School (FFS) @15 pax/demo site | Number of farmers | 450 | 1,350 | | 700 | 650 | |
| Filed days (one per barangay) | number of sites | 4 | 9 | | 5 | 4 | |
| Linking farmers to market | Number of meetings | | 6 | 1 | 2 | 2 | 1 |
| Cross visit | Number of visits | 1 | 2 | | 1 | | 1 |
| Attendance to meetings | number of meetings | 12 | 12 | 3 | 3 | 3 | 3 |
| **MFO 2. Technical and Support Services** | | | | | | | |
| **A. Soil sampling Analysis and mapping** | | | | | | | |
| Conduct of stratified soil sampling | Area covered (ha) | 650 | 4,875 | 2000 | 2,875 | | |
| Soil samples collected and analyzed | Number of samples | 60 | 150 | 50 | 100 | | |
| Geo tagging of sampling sites | Number of sites | 4 (Barangays) | 9 (barangays) | 4 | 5 | | |
| Develop soils map | Number of map (s) | 1 | 5 | | 3 | 2 | |
| **B. Productivity Enhancement** | | | | | | | |
| Provision of inputs to farmer cooperators | number of cooperators | 30 | 65 | 15 | 20 | 20 | 10 |
| Identification of best bet management options | number | | 4 | | 4 | | |
| Field demonstration farm establishment | Number of sites | 30 | 65 | 15 | 20 | 20 | 10 |
| Watershed management | | | | | | | |
| Monitoring and evaluation (time sheet, workplans, PAAR, technicalreports) | frequency /no | | 8 | 2 | 2 | 2 | 2 |
| Output/outcome documentation | Number | | 4 | 1 | 1 | 1 | 1 |
| Submission of report | Number of reports | 4 | 4 | 1 | 1 | 1 | 1 |
| | | | | | | | |
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| | | | | | | | |
| **Total** | | | | | | | |

**Prepared By:**

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| Date: | Date: | Date: | Date: |

## Annexure 3. *Yamang Lupa* Program in Region IVA Work Plans for 2014-2015

| ACTIVITY | EXPECTED OUTPUTS | TIMEFRAME | COOPERATING AGENCY | BUDGETARY REQUIREMENT |
|---|---|---|---|---|
| **PRE-IMPLEMENTATION ACTIVITIES & INSTITUTIONAL ARRANGEMENT** | | | | **P 1,000,000.00** |
| Coordination/Awareness Building, Linkaging/ networking | 9 orientation and coordination meetings conducted | June-July 2014 | SLSU, STIARC, OPA, OMA, Barangay Officials, Farmers' Organization | |
| Site Selection & Characterization and Secondary data validation | Additional 9 barangays selected and characterized | June – August 2014 | SLSU, STIARC, OMA, Barangay Officials, Farmers' Organization | |
| -Benchmarking/PRA | 9 barangay profiles | | SLSU, STIARC, Barangay Officials, Farmers' Organization | |
| -Selection and Registration Farmers & Identification of Suitable High-Value Crops | Farmers registration and list of potential crops | | OMA, Barangay Officials, Farmers' Organization | |
| Identification of additional Farmer Facilitators (FFs) and Lead Farmers (LFs) | 9 new FFs and 45 new LFs | | OMA, Barangay Officials, Farmers' Organization | |
| Formulation and MOA Signing | Signed MOA among SLSU, DA-4A, OMA, NGOs and Fos | August 2014 | SLSU, STIARC, OPA, OMA, Barangay Officials, Farmers' Organization | |
| | | | | |
| **SOIL SAMPLING, ANALYSIS AND MAPPING** | | | | **14,000,000.00** |
| Stratified Soil Sampling & Analysis | Soil samples from additional 5,000 ha collected, analyzed, and data generated | August to September 2014 | ICRISAT, SLSU, STIARC, OPA, OMA, Barangay Officials, Farmers' Organization | |
| GIS Soil Mapping | Soil nutrient maps from additional 5,000 ha | October 2014 | ICRISAT, SLSU | |
| Develop & Distribute Soil Health Cards | Soil health cards provided for additional 5,000 ha | October to November 2014 | OMA, Barangay Officials, Farmers' Organization | |
| Upgrading of Existing Soil Analysis Laboratories | 3 Soils Laboratories upgraded (SLSU, DA-4A, OPA) | April to June 2015 | ICRISAT, BSWM, BAR | |

| | | | | |
|---|---|---|---|---|
| **PRODUCTIVITY ENHANCEMENT** | | | | **10,000,000.00** |
| Identification of Best-Bet Management Options | Package of technology, and application of micro-nutrients identified | November 2014 | Regional TWG, ICRISAT, OPA, OMA, Barangay Officials, Farmers' Organization | |
| Field Demonstration | 10 Demo farms maintained<br>45 New Demo farms established | July 2014 to June 2015 | OMA, SLSU, Barangay Officials, Farmers' Organization | |
| Monitoring & Evaluation | Weekly M&E visit/activities per barangay | July 2014 to June 2015 | SLSU, STIARC | |
| Calculation of Inputs Required | Input recommendations per barangay | October to November 2014 | STIARC, OPA, OMA | |
| Bidding & Supply Inputs to Farmers | Low cost, high quality input sources identified | October to November 2014 | OMA, Barangay Officials, Farmers' Organization | |
| Establishment/Strengthening of Common Services Facilities | Establishment/strengthening of common services facilities (2 farmers' center with seed warehouse, inputs storage facilities, training/learning center, field office) | July 2014 to June 2015 | ATI, OPA, OMA, Barangay Officials, Farmers' Organization | |
| Establishment of Techno-demo Farm for Peanut | 1 Techno-demo Farm for Peanut Production in 1 Barangay | July 2014 to June 2015 | DA-4A, OPA, OMA, SLSU | |
| Identification and Establishment of Market Linkages (Market matching) | Market linkages identified and established | July 2014 to June 2015 | DTI, SLSU, STIARC, OPA, OMA | |
| Provision of equipment/materials for product development and assistance on labelling and packaging | 3 RICs assisted for tomato and peanut product development | July to August 2014 | DOST, DTI, OPA, OMA | |

| | | | | |
|---|---|---|---|---|
| **CAPACITY BUILDING AND AWARENESS CAMPAIGN** | | | | **5,000,000.00** |
| Orientation on Bhoochetana Concept and Approach to Farmer Facilitators & Lead Famers | 1 meeting for 10 new FFs and new 45 LFs | July 2014 | SLSU, STIARC, OPA, OMA | |
| Training on POT and Precision Farming | 1 Training for 10 new FFs and 45 new LFs | November 2014 | TWG, OPA, OMA, Project Team Members | |
| Training on Geo-tagging and Innovative Knowledge Delivery System | 1 trainings and demonstrations on geo-tagging and video conferencing for additional FFs and LFs | November 2014 | DA-BAR, SLSU, STIARC, TWG, OPA, OMA, | |
| Trainings on Product Development and Value Adding | 1 Training on Tomato and 1 Training on Peanut for RIC Federation (6 barangays) | December 2014 | DA-4A, | |
| Training on Peanut Production | 1 Training for 1 Barangay | January 2015 | | |
| Farmers Field School | 1 FFS in 1 Barangay | July to November 2014 | TWG, OPA, OMA, Project Team Members | |
| Develop & Use IEC Materials | IEC Materials for dissemination (per commodity, soil, Bhoochetana) | July to October 2014 | RTWG, ATI, SLSU, STIARC, OPA, OMA | |
| Cross Visit to Other Bhoochetana Areas | 1 Cross Visit to Bhoochetana Zamboanga (Team members, FFs, LFs) | August 2014 | SLSU, STIARC, OPA, OMA, Barangay Officials, Farmers' Organization | |
| **TOTAL** | | | | **P 30,000,000.00** |

## Annexure 4. *Yamang Lupa* Program in Region VIII Work Plans for 2014-2015

| ACTIVITY | EXPECTED OUTPUTS | TIMEFRAME | COOPERATING AGENCY | BUDGETARY REQUIREMENT |
|---|---|---|---|---|
| **PRE-IMPLEMENTATION ACTIVITIES** | | | | **P 3,000,000.00** |
| Coordination/Awareness Building, Linkaging/ networking | 10 orientation and coordination meetings conducted | July 2014 | DA-RFO8, VSU, OPA, OMA, Barangay Officials, Farmers' Organization | 50,000 |
| Site Selection & Characterization and Secondary data validation | Additional 10 barangays selected and characterized | July to August 2014 | DA-RFO8, VSU, OPA, OMA, Barangay Officials, Farmers' Organization | 200,000.00 |
| -Benchmarking/PRA | 10 barangay profiles | | DA-RFO8, VSU, OPA, OMA, Barangay Officials, Farmers' Organization | 300,000.00 |
| -Selection and Registration Farmers & Identification of Suitable High-Value Crops | Farmers registration and list of potential crops | | DA-RFO8,OMA, Barangay Officials, Farmers' Organization | 150,000.00 |
| Identification of additional Farmer Facilitators (FFs) and Lead Farmers (LFs)<br>*(10 LF @ 4,000.00/FF x 12 months = P 480,000.00)*<br>*(50 FF @ P 3,000.00/FF x 12 months = P 2,280,000.00)* | 10 new FFs and 50 new LFs | | DA-RFO8, OMA, Barangay Officials, Farmers' Organization | 2,280,000.00 |
| Formulation and MOA Signing | Signed MOA among VSU, DA-RFO8, OPA,OMA, NGOs and FOs | August 2014 | DA-RFO8, VSU, OPA, OMA, Barangay Officials, Farmers' Organization | 20,000.00 |
| | | | | |
| **SOIL SAMPLING, ANALYSIS AND MAPPING** | | | | **12,000,000.00** |
| Stratified Soil Sampling & Analysis | Soil samples from additional 1,900 ha collected, analyzed, and data generated (total of 4,400 ha at the end of year 2) | August 2014-June 2015 | DA-RFO8, BSWM, VSU, OPA, OMA, Barangay Officials, Farmers' Organization | 3,800,000.00 |

| | | | | |
|---|---|---|---|---|
| GIS Soil Mapping | Soil nutrient maps from additional 1,900 ha | August 2014-June 2015 | DA-RFO8, BSWM, VSU, OPA, | 100,000.00 |
| Develop & Distribute Soil Health Cards | Soil health cards provided for additional 2,500 ha | August 2014-June 2015 | DA-RFO8, BSWM, VSU, OPA, OMA, Barangay Officials, Farmers' Organization | 100,000.00 |
| Upgrading of Existing Soil Analysis Laboratories | 1 Soil Laboratory upgraded (VSU, DA-RFO8,BSWM-8) | April to June 2015 | ICRISAT, BSWM, DA-BAR | 8,000,000.00 |
| | | | | |
| **PRODUCTIVITY ENHANCEMENT** | | | | **20,350,000.00** |
| Review and Identification of Best-Bet Management Options | Package of technology, and application of micro-nutrients identified | November 2014 | Regional TWG, ICRISAT, OPA, OMA, Barangay Officials, Farmers' Organization | |
| Field Demonstration | Demo farms maintained New Demo farms established *(Total of 264 demo farms for the remaining 4,400 hectares in Year 2 @ P 50,000.00/demo farm)* | July 2014 to June 2015 | DA-RFO8, OPA,OMA, VSU, Barangay Officials, Farmers' Organization | 13,200,000.00 |
| Monitoring & Evaluation | Weekly M&E visit/activities per barangay | July 2014 to June 2015 | DA-RFO8, OPA,OMA, VSU | 750,000.00 |
| Calculation of Inputs Required | Input recommendations per barangay | October to November 2014 | DA-RFO8, OPA,OMA, VSU | 3,000,000.00 |
| Bidding & Supply Inputs to Farmers | Low cost, high quality input sources identified | October to November 2014 | DA-RFO8, VSU-ViFARD, OPA OMA, Barangay Officials, Farmers' Organization | |
| Establishment/Strengthening of Common Services Facilities | Establishment/strengthening of common services facilities (2 farmers' center with seed warehouse, inputs storage facilities, training/learning center, field office) | July 2014 to June 2015 | ATI, OPA, OMA, Barangay Officials, Farmers' Organization | 1,500,000.00 |

| | | | | |
|---|---|---|---|---|
| Establishment of Techno-demo Farm for Rootcrops and Upland Rice (wet & dry croppings) | 1 Techno-demo Farm for Rootcrops and Upland Rice Production in (6) Barangays | July 2014 to June 2015 | DA-RFO8, OPA, OMA, VSU, PhilRootCrops | |
| Identification and Establishment of Market Linkages (Market matching) | Market linkages identified and established | July 2014 to June 2015 | DTI, DA-RFO8, VSU, OPA, OMA | 900,000.00 |
| Provision of equipment/materials for product development and assistance on labelling and packaging | 4 RICs assisted for Rootcrop product development | July to June 2015 | DOST, DTI, OPA, OMA | 1,000,000.00 |
| | | | | |
| **CAPACITY BUILDING AND AWARENESS CAMPAIGN** | | | | **2,590,000.00** |
| Orientation on Bhoochetana Concept and Approach to Farmer Facilitators & Lead Famers | 1 meeting for (3) new FFs and new (12) LFs | July 2014 | DA-RFO8, VSU, OPA, OMA | 140,000.00 |
| Training on Package of Applicable Technologies | 1 Training for (3) new FFs and (12) new LFs | November 2014 | TWG, OPA, OMA, Project Team Members | 50,000.00 |
| Training on Geo-tagging and Innovative Knowledge Delivery System | 1 trainings and demonstrations on geo-tagging and video conferencing for additional FFs and LFs | November 2014 | DA-BAR, DA-RFO8, VSU, TWG, OPA, OMA, | 50,000,000 |
| Trainings on Product Development and Value Adding | 1 Training on Rootcrops and 1 Training on Upland Rice for RIC Federation (6) barangays) | December 2014 | DA-RFO8, | 200,000.00 |
| Training on Rootcrops and | (2) Trainings for (6) Barangays | January 2015 | DA-RFO8, PhilRootCrops, | 100,000.00 |

| | | | | |
|---|---|---|---|---|
| Upland Rice Production and Processing of Novel Products | | | ATI, OPA, OMA | |
| | | February 2015 | | |
| Field Days | (1)Field days | August 2015 | DA-RFO8, VSU, OPA OMA, Barangay Officials, Farmers' Organization | 150,000.00 |
| Cross-visits/Lakbay-aral | 2 cross-visits | August 2014 | DA-RFO8, VSU,OPA, OMA, Project Team Members/farmers | 100,000.00 |
| Develop & Use IEC Materials/Mass media info dissemination | IEC Materials for dissemination (per commodity, soil, Bhoochetana) | July to October 2014 | DA-RFO8, VSU,OPA, OMA, Barangay Officials, Farmers' Organization | 100,000.00 |
| Cross Visit to Other Bhoochetana Areas | 1 Cross Visit to Bhoochetana DA-4A (Team members, FFs, LFs) | September 2014 | DA-RFO8, VSU,OPA, OMA, Barangay Officials, Farmers' Organization | 200,000.00 |
| **Other Services 1,000,000.00** | | | | |
| **Support on Livelihood** | | | | **500,000.00** |
| **TOTAL** | | | | **P 37,940,000.00** |

# Annexure 5. Integrated *Yamang Lupa* Program: A proposal submitted to DA

## *Yamang Lupa* Program (YLP): Building Resilience and Prosperity for Philippine Agriculture

### Background

Globally, agriculture is the major consumer of water, accounting for 70-80% of water withdrawal. By 2025, one-third of the global population will face physical scarcity of water, and most of those affected will be from the developing countries including Philippines. Producing food for the ever-growing population to achieve food and nutrition security, and improving rural livelihoods are challenges to be met today as well as in the near future.

The role of agriculture in the Philippine economy has undergone dramatic changes through the decades. The agriculture sector's contribution to Gross Domestic Product (GDP) and export is declining, consistent with the country's transition to middle income status. It accounted for only an average of 11% of GDP in 2012, from 20-30% in the last two decades. Agricultural areas of the country are predominantly rainfed, covering three-fourths of the 10 million hectares total cultivated area. Farming in rainfed areas is quite risky mainly due to recurrent droughts, pest infestation, and poor and degraded soils, lack of physical infrastructure and weak social services. Rainfed agriculture is an important economic activity in the country, producing about 40% of its food supply and generates 60% of the countries staple food. While rural entrepreneurs play an important role in ensuring food security for future generations, they face many challenges including limited knowledge about business opportunities in the agriculture sector, more risk exposure associated with agribusiness, and lack of encouragement and motivation from the social system.

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid or dryland tropics has over 2 billion people, and 644 million of these are the poorest of the poor. ICRISAT has developed credible expertise and innovations in the area of sustainable management of natural resources in the rainfed areas which have improved the livelihoods of millions of farmers in Asia and sub-Saharan Africa.

The Department of Agriculture-Bureau of Agricultural Research of the (DA-BAR) launched the Philippine Rainfed Agriculture Research, Development and Extension Program (PhiRARDEP) with the goal of developing, coordinating, monitoring and evaluating the implementation of a vigorous rainfed agriculture research, development and extension program to enhance food, nutrition and energy security, improve livelihoods and empower communities in the country's rainfed areas.

The proposed integrated program to be spearheaded by DA and ICRISAT will focus on sustainable intensification while maintaining healthy ecosystems for reducing poverty, enhancing food and nutrition security and improving rural livelihoods by developing resilient and prosperous Philippine agriculture. The program is composed of several components to be integrated and plugged in to improve productivity, enrich natural resources and stimulate rural entrepreneurship using science-based and participatory approach. The program will serve as a platform model that could be out-scaled throughout the country after three years.

**Goal**

The overall goal of the program is to develop climate-smart agriculture to improve rural livelihoods of smallholder farmers, enhance food and nutrition security while maintaining healthy ecosystems through building resilient and prosperous Philippine agriculture.

**Objectives**

Objectives of this program are as follows.

1. To adopt the *Bhoochetana* principles and approaches in strategic rainfed areas of the Philippines to improve rural livelihoods by increasing crop productivity of selected crops through sustainable intensification and market-led diversification of systems resulting to an increase in farmers' income by 20%.
2. To enhance the impact of integrated agro-ecosystem development and management approach in the Philippines through models establishment as site of learning and capacity-building initiatives.
3. To improve productivity while maintaining ecological stability by implementing strategic approaches of developing and managing small water impounding projects (SWIP) of the government.
4. To establish smart laboratory facilities for soil and plant analysis to augment research and development trusts of the country towards sustainable growth and prosperity.

**Strategies**

- We will adopt the principle of 4 Cs i.e., Consortium, Convergence, Capacity building and Collective action. The consortium will be composed of development agencies such as departments of the government, NGOs and farmer groups along with academic and research institutions.
- YLP will be implemented through 4Is i.e., Innovation, Inclusiveness, Integration and intensification.
- Addressing the mission goal through 4 Es i.e., Efficiency, Economic gain, Equity and Environment protection, which are the important pillars of sustainable, inclusive and comprehensive development in the country.
- Resource integration and generation from different attached agencies of DA, non-government organizations and private sectors to ensure financial support for this program through convergence.
- Assigning lead agency and program leader to manage the overall implementation of the program with the support of the technical working group and local management committees under the supervision of the Program Steering Committee.
- Ensuring timely supply, availability and access to the necessary vital inputs such as knowledge-based soil nutrient management options, acquiring micro-nutrients and availability of good quality seeds for increasing agricultural productivity.
- To undertake improved best-bet management practices on large scale and share knowledge through peer groups.
- The scientific approach of mapping soil nutrient deficiencies is the starting point for scaling-up the soil analysis based integrated nutrient management practices for sustainable growth in rainfed areas. This approach not only increases the productivity of the land, but also

reduces the cost of cultivation by advising the farmers not to apply fertilizers that are not needed by their soils.

- Establishment of village seed banks (VSBs). The most important constraint in rainfed areas is the lack or non-availability of good crop stand and good quality seeds of high yielding and improved cultivars. The mission program emphasizes the establishment or strengthening of village seed banks to give farmers access to quality seed. The farmers shall be trained to create village seed banks to ensure the timely supply of seeds at reasonable prices.
- Strengthening the approaches of managing natural resources at various capacities for improved livelihoods and sustained impacts of the program using the Adarsha Watershed Model at Kothapally, India through farmer participatory integrated management and development approach.
- Develop strategies for farmers to mitigate risks of climatic variability and change for sustainable crop production and rural incomes through efficient management of natural resources by applying traditional or indigenous knowledge combined with new knowledge such as low-cost but effective soil and water conservation structures.
- Establishment and strengthening of farmer-industry market linkages for enabling better price to the farmers' produce with a flexible pricing.
- Women and small-scale farmers are the important stakeholders and to ensure their "inclusiveness", they will have deeper integration in the development of farming, post-harvest and value adding initiatives.
- To utilize the expertise and experience of AIP and its programs, especially ABI and NPK, in promoting and nurturing entrepreneurship in the agricultural sector of Philippines. Adopting ICRISAT's strategy of Inclusive Market-Oriented Development (IMOD), the focus will be on engaging the small-holder farmers in the agricultural value chain and thereby become part of the development process of the sector.
- Micro-entrepreneurship development using market information and value-addition for enhancing incomes of farming families.
- Regular and effective monitoring strategies through the establishment of coordination committees using standardized formats for progress monitoring at the barangay, municipal and provincial levels.
- To work out a system of knowledge dissemination using trained and empowered farm facilitators through ICT- enabled services including the establishment of a project website for data management and best practices.
- Conduct rapid baseline studies to map household data, incomes and village dynamics to capture the cost-benefit ratio over the program duration.
- The mission will adopt rewarding mechanisms for the best farmers at clustered barangay and municipal with outstanding performance. Similarly, agricultural workers and municipalities in the province with outstanding performance will also be recognized by DA.
- To establish credible evidence through the documentation of program outputs for policy makers for scaling out the program to other provinces.
- Develop enabling policy guidelines and institutional arrangements on building resilience in rainfed agriculture for sustainable development and intensification

**Module 1: Adoption of *Bhoochetana* Principles and Approaches for Natural Resources Management Towards Sustainable Philippine Agriculture**

The general objective is to adopt the *Bhoochetana* principles and approaches in strategic rainfed areas to improve rural livelihoods by increasing crop productivity of selected crops in the pilot provinces through sustainable intensification and market-led diversification of systems resulting to an increase in farmers' income by 20% in three years, and enhance food and nutrition security.

The specific objectives are as follows:

1. To *assess* the soil health status in selected pilot sites from Luzon (Quezon), Visayas (Samar) and Mindanao (Zamboanga) using stratified soil sampling, share information with stakeholders and *prepare* GIS-based soil fertility status maps for developing barangay-wise specific nutrient management recommendations.
2. To *develop, evaluate and popularize* best-bet soil, water, nutrient and crop management options to increase crop productivity, cropping intensity and farmers' income by 20% using the Inclusive Market-Oriented Development (IMOD) framework.
3. To *develop and strengthen* existing seed delivery system to sustain good quality seeds of improved high-yielding cultivars to improve productivity of smallholder farmers.
4. To *develop and pilot test* farmer-friendly ICT-enabled innovative extension and delivery system to reach smallholder farmers.
5. To *build capacity* of the different stakeholders for increasing agricultural productivity through sustainable intensification using integrated scaling-up model in the pilot provinces.

**Expected Outputs**

- Increased agricultural production and farmers' income by 20% in the pilot sites in the target provinces by science-driven agriculture.
- Increased cropping intensity in rainfed ecosystem of the pilot sites by 30%.
- Improved seed availability of high-yielding cultivars through VSBs with enhanced or developed seed delivery and production system model.
- Soil health and land use maps depicting micro and macro-nutrient status and deficiencies.
- Intensified system on market-led agricultural products with better price for smallholder farmers through cost reduction, risk management and value addition opportunities.
- Documented learnings, impacts and successes of the program as an exemplary up-scaling model on agriculture RDE program for other provinces of the country.

**Module 2: Sakahan ni Pinoy: Integrated Agro-ecosystem Development and Management for Sustainable Intensification and Rural Livelihoods**

The overall goal of this initiative is to improve the livelihoods of rural poor in fragile areas through sustainable development for achieving food and nutritional security for smallholder farmers by enhancing the impact of integrated agro-ecosystem development approach in the Philippines through the establishment of agro-ecosystem models as site of learning and capacity-building initiatives.

The specific objectives are as follows.

1. To ***establish*** ten (10) integrated community watershed management models as "site of learning" through farmer participatory integrated model for demonstration by adopting integrated NRM and development approach.
2. To ***prepare*** training modules and build the capacity of stakeholders in the selected sites in the areas of integrated NRM for sustainable intensification.
3. To ***develop enabling*** policy guidelines and institutional arrangements for integrated watershed management to guide the policy makers for sustainable intensification and livelihoods of smallholder farmers.

**Developing Integrated Agro-ecosystem Model Farms**

*Sakahan ni Pinoy Model Community* is described in this program as delineated areas that demonstrate the most appropriate integrated agro-ecosystem approach, the strength of farming families and the potential to sustain rural growth and prosperity.

Impact assessment studies conducted by several researchers suggest that the desired impacts are not realized largely because of poor community participation, lack of technical support, and lack of sustainable institutional arrangements. In order to build the capacity of different stakeholders in the area of agro-ecosystem development, there is an urgent need to establish sites of learning in rainfed lowland, irrigated and upland agro-ecosystems of the pilot provinces. Such facilities for training in specific ecosystems will go a long process in building the capacity of private sectors, community leaders and concerned government line staff.

Holistic and integrated agro-ecosystem development approach calls for a "paradigm shift" in the implementation of this initiative in the Philippines. Concerned institutions must demonstrate the power of a holistic approach for providing technical backstopping not only for improved water availability but also increased farming productivity and farmers' incomes, enhanced NRM, improved livelihood opportunities and empowered human capital.

**Expected Outputs**

- Ten models as "site of learning" in three provinces or regions established (three sites for rainfed lowland, irrigated and upland agro-ecosystems in each province/region).

- Sustainable intensification of smallholder farmers at benchmark sites with increased crop yields by 30% increased cropping intensity by 30% and increased per capita income of the farming families by 20%.
- Established Field Laboratory sites to undertake strategic research in the area of integrated agro-ecosystem for LGUs, academic institutions, farmers group and others.
- Available well-trained human resources to plan, develop, execute and evaluating impacts of integrated agro-ecosystem development projects.
- Long-term data on impacts of agro-ecosystem development in terms of hydrology, crop production, farm income and social development will be available for rainfed, irrigated and upland agro-ecosystems.
- Developed enabling policy guidelines and institutional arrangements on integrated agro-ecosystem development for sustainable intensification.

**Module 3: Strengthening Small Water Impounding Projects (SWIP) for Improved Productivity and Livelihoods**

The overall objective of this initiative is to enhance productivity and improve livelihoods while maintaining ecological stability by implementing strategic approach of developing and managing SWIP in rainfed agro-ecosystems.

The specific objectives are as follows:

1. To *characterize* natural resource-base, and identification of physical and socio-economic constraints for sustainable production.
2. To *develop and integrate* cost-effective and viable soil-water-nutrient management (SWNM) practices appropriate to farmers' and natural resources of the ecosystem.
3. To *build* the capacity of stakeholders through integrated and collective approach in developing and managing SWIP.
4. To *develop* policy guidelines and institutional arrangements in developing and managing SWIP for sustainable intensification of rainfed agro-ecosystems.

**Integrated Approach on Strengthening SWIP**

*Consortium approach:* The consortium will be composed of development agencies such as departments of the government, NGOs and farmer groups along with academic and research institutions.

*Community participatory approach:* Farmers in the watershed area of the SWIP must collectively identify and prioritize the problems for possible technical interventions. Participatory planning and implementation of watershed research and development involves all stakeholders. Farmers' groups selected the sites for rainwater harvesting structures, as well as cropping systems and varieties with technical support from the consortium partners. Increased individuals' participation must ensure to provide tangible economic benefits. The emphasis on in situ conservation of rainwater is translated into increased soil-water availability that in turn translated into increased productivity.

*Resource characterization approach:* A detailed baseline survey of the watershed area will be conducted to study major socio-economic and biophysical constraints to sustainable crop

production. The following information is to be collected: (1) socio-economic status of the farmers and landless people (household and demographic characteristics, land ownership, land use, livestock and other assets), crop production, cropping patterns, yields, markets and livelihood opportunities; (2) soil characteristics, climate, cropping systems, their productivity and inputs (GIS maps with the soil types, soil depth and crops grown in the village); (3) soil, water, nutrient and pest management practices followed by the villagers; and (4) production constraints, yield gaps and opportunities for crop intensification.

*Science-based and community interventions approach:* Additional low-cost but effective soil and water conservation structures will be developed. New science tools such as remote sensing, geographical information system, photogrammetry; digital terrain modeling and crop simulation models will be applied for sustainable development. Knowledge flow is facilitated by linking successful on-station watersheds and on-farm watersheds for strategic research. Traditional or indigenous knowledge is combined with new knowledge for the efficient management of natural resources. Cost-effective and environmentally friendly soil, water, nutrient, crop and pest management practices are used for wider and quicker adoption, and to raise the carrying capacity of the system.

*Livelihood improvement approach:* A holistic systems approach for watershed management for livelihood improvement must be adopted, instead of solely soil and water conservation. There is a need to investigate and explore a range of opportunities through on-farm and off-farm activities to encourage and promote village level micro-enterprises, such as giving value addition to agricultural produce to help the landless, educated youth and women to ensure a more equitable sharing of the benefits of SWIP.

*Capacity building approach:* Empowerment of communities, individuals and the strengthening of village institutions can be achieved through concerted efforts to stimulate sustainable development. Capacity building of local farmers and NGOs will be carried out to promote the effective dissemination of technologies. Scaling up and technology dissemination is facilitated by using bench mark sites as training sites for partners and farmers, and for sensitizing policy makers. Youth, women and landless people shall be involved in the capacity building activities.

*Monitoring and evaluation approach:* Continuous monitoring and participatory evaluation by researchers and stakeholders must be carried out to assess the overall performance of SWIP. The following parameters will be monitored to assess impacts, and to better understand the processes of integrated approach of developing and managing SWIP as follows; reduction in runoff and soil loss, agro-climatic data, improvement on groundwater levels, integrated pest management, improvement on land cover or vegetation, productivity level, household or per capita income, changes in cropping pattern, developed human resource, adoption rate and public awareness initiatives.

*Policy advocacy approach:* SWIP management and development programs need to be initiated with knowledge-based entry-point activities associated with natural resources management at the community level that puts tangible benefits for the farmers. All stakeholders, especially women and the landless need to be included in the decision making process during all phases of the project. Benchmark model SWIP need to be monitored to

effectively plan, implement and assess the impacts of the interventions in future projects by adopting simulation models and assessing the trade-offs between upstream and downstream areas. Socio-economic and policy issues to promote the equitable sharing of costs and benefits of improved natural resources management must be explored.

**Expected Outputs**

- Characterized natural resource base, and identified physical and socio-economic constraints for sustainable production
- Developed and integrated cost-effective and viable soil-water-nutrient management (SWNM) practices appropriate to farmers' and natural resources of the ecosystem
- Enhanced capacity of stakeholders through integrated and collective approach in developing and managing SWIP
- Developed policy guidelines and institutional arrangements in developing and managing SWIP for sustainable intensification of rainfed agro-ecosystems
- Increased crop production by 20 %, family incomes by 40 % thru sustainable and market oriented crop diversification.

**Module 4: Establishment of Soil and Plant Analytical Laboratory (SPAL) in the Philippines**

The need for analytical support in agricultural research has long been recognized, especially in the context of soil fertility evaluation and nutrient management, and crop quality assessment and monitoring for selecting and breeding nutritious food staples.
Analytical support provided through soil and plant testing and crop quality assessment has been receiving attention in the past few decades.

The demand for analytical research support in the general areas of agricultural research interfacing human health and environmental quality is most likely to increase in the future. To meet such diverse and increasing demand, there is an obvious need to lay appropriate stress on the teaching and training of students and young researchers for preparing them in the use of modern analytical research support tools for providing effective, efficient and timely service.

Soil analysis and mapping depicting macro and micro nutrients is an important component of the *Yamang Lupa* Program in the country being initiated by the Department of Agriculture through the Bureau of Agricultural Research in partnership with ICRISAT. The results of analysis will be used as decision tools for crop selection and nutrient management to optimize yield and income of the farmers. This can be done through the establishment of accessible soil and plant analytical laboratory in Bhoochetana program pilot provinces/regions namely, Quezon, Samar and Zamboanga. The laboratory will be equipped with complete facilities as source of credible information on soil, plant and water parameters necessary for agricultural research, development and extension services.

**Objectives**

The overall goal of this initiative is to establish smart laboratory facilities for soil and plant analysis to augment research and development trusts of the country towards sustainable growth and prosperity.

The specific objectives are as follows:

1. To e*stablish* state of the art laboratory with complete facilities for soil and plant analysis in the provinces of Quezon, Samar and Zamboanga;
2. To *train* pool of experts who will be responsible for the operation and management of the laboratory; and
3. To *develop* business model of operating the laboratory to sustain its function as source of credible information on soil, water and crop parameters which are integral part of agricultural research for development.

**Service Description**

The Soil and Plant Analytical Laboratory (SPAL) is an analytical service provider of the Department of Agriculture through the Bhoochetana program in partnership with key implementing institutions and other concerned agencies. The purpose of the laboratory is to analyze the soils, plants, fertilizers, animal feeds and water to augment agricultural research and development trusts of the province and other parts of the country. This will also serve as training venue for young professionals and students who are specializing soil and crops research. For quality control, the laboratory must subscribe the Philippine Standards for water, soil and plant analysis developed and published by BSWM.

**Components & Activities**

*Establishment of Soil Laboratory Building*: Building for the laboratory must ensure provision of highly secured space for the equipment. A separate space for processing of samples will be apportioned within the building and as storage rooms for processed samples and samples taken from the field.

*Soil Laboratory Equipment*: Required equipment will be purchased with the help of ICRISAT procurement office. Other equipment and supplies available locally will be purchased directly by the DA in consultation with ICRISAT.

*Capacity Building:* Qualified and appropriate staff will be identified and trained at ICRISAT for 1 month on soil sampling technique, soil mapping and analysis. Trained staff members are required to organize re-echo training for other concerned and interested staff from other provinces of the country including agricultural technicians. Training on soil sampling techniques will be designed for farmers with the assistance and guidance of the trained agricultural technicians of the province. Management and operation of the laboratory must be included in the training module to be facilitated by ICRISAT. The proposed composition of each team or site responsible for the operation and management of the laboratory who will be sent to ICRISAT for training is as follows:

- Manager
- Assistant Manager
- 2 Scientific Officers

- 2 Laboratory Technicians
- 2 Support Staff

*Operation and Management:* ICRISAT will organize and facilitate the capacity building and explain the proposed business model schemes of the laboratory with DA & other partners. A business model and scheme must be imposed to generate income to augment cost of the laboratory operation including the salary and incentives of staff. ICRISAT will assign one senior staff to guide and demonstrate the processes and systems of operating the laboratory for 12 months. The DA or responsible agencies will assign staff with permanent position to manage the laboratory. Rate of service fee per sample will be collected based on the nature of analysis. Young and subsistence farmers in the province who will bring samples in the laboratory for personal farm use will be given exemption on certain service fees. A protocol on soil sampling techniques and transport system from the field to the laboratory will be established. Other relevant policies will be implemented to ensure efficiency and productivity of the laboratory. It is expected that the laboratory will cater all forms of analysis on soil, water and plant needed by covering regions of the pilot provinces.

**Expected Outputs**

- Established three state of the art soil and plant analytical laboratory in Quezon, Samar & Zamboanga to serve the entire Luzon, Visayas and Mindanao islands, respectively
- Enhanced capacity and developed awareness of the stakeholders including the farmers on the importance and use of SPAL for the *Yamang Lupa* program
- Developed policy guidelines and institutional arrangements or schemes in operating and managing the SPAL for the benefits of the farmers, students, development workers and scientists working in private and public research institutions.

## Annexure 6. Developed information materials by ICRISAT about the *Yamang Lupa* program

## Annexure 6a. Poster

# *Yamang Lupa* Program: Towards Sustainable Philippine Agriculture

### Background

To enhance agricultural productivity of millions of hectares of rainfed areas in the state of Karnataka, India, ICRISAT in partnership with the Department of Agriculture (DoA) and State Agricultural Universities (SAUs) developed a scaling-up model called "*Bhoochetana*" (meaning soil rejuvenation). *Bhoochetana* uses soil health assessment as an entry point to plan science-based interventions that can lead to tangible benefits for farmers through a convergence of sustainable technologies for increasing productivity of farm households with an effective integrated watershed management approach.

*ICRISAT Director General Dr William D. Dar with the Secretary of the Department of Agriculture Hon. Proceso J. Alcala.*

The impact of *Bhoochetana* during the last four years has clearly demonstrated the power of a science-led development and partnership approach in the state as millions of smallholder farmers are benefiting from increased crop productivity ranging from 23 to 66% in different districts with various crops. Consequently, the state recorded an impressive growth rate of above 5% during the last four years compared to <2% during 2000-2008 before the launch of *Bhoochetana*.

The Philippines has a total land area of 30 million ha, 33% (9.3 million ha) is arable land, of which 75% (6.98 million ha) is rainfed. With Philippines' population estimated to increase by roughly two million annually, producing food, achieving food and nutrition security, and improving rural livelihoods while maintaining natural resources are daunting challenges that need to be addressed urgently.

ICRISAT in partnership with the Philippine government and Research & Development (R&D) institutions, will adopt the Bhoochetana principles and approaches in strategic rainfed areas of the Philippines to increase crop productivity of selected crops that will improve rural livelihoods in the pilot provinces.

### Goal

To develop climate-smart agriculture to improve rural livelihoods of smallholder farmers, enhance food and nutrition security while maintaining healthy ecosystems by building a resilient and prosperous Philippine agriculture.

### Objectives

- To *assess* the soil health status in selected pilot sites in Luzon (Quezon), Visayas (Samar) and Mindanao (Zamboanga) using stratified soil sampling and *prepare* Geographic Information System-based soil fertility status maps to develop specific nutrient management recommendations for 30,000 hectares.

*The program's management group during an exposure visit to Karnataka State, India, to gain knowledge on the Bhoochetana program.*

- To *develop, evaluate and popularize* best-bet soil, water, nutrient and crop management options to increase crop productivity, cropping intensity and farmers' income by 20% using the Inclusive Market-Oriented Development (IMOD) approach.
- To *develop and strengthen* the existing seed delivery system to sustain good quality seeds of improved high-yielding cultivars to improve productivity of smallholder farmers.
- To *develop and pilot test* farmer-friendly Information and Communication Technology (ICT)-enabled innovative extension and delivery system to reach smallholder farmers.
- To *build capacity* of the different stakeholders for increasing agricultural productivity through sustainable intensification.

### Implementing strategies

- Adopt the principles of 4 Cs – Consortium, Convergence, Capacity building and Collective action; 4Is – Innovation, Inclusiveness, Integration and Intensification; and 4 Es: Efficiency, Economic gain, Equity and Environment protection.
- Resource integration and generation from different attached agencies of the Department of Agriculture (DA), non-government organizations and private sector.
- Map soil nutrient deficiencies for scaling-up the soil test-based integrated nutrient management practices for sustainable growth in rainfed areas.
- Women and smallholder farmers to be deeply integrated in developing farming, post-harvest and value adding initiatives.
- Putting in place a system of knowledge dissemination using trained and empowered farm facilitators through ICT- enabled services.
- Conduct rapid baseline studies to map household data, incomes and village dynamics to capture the cost-benefit ratio during the program.
- Evidence-based documentation of the program outputs for policy makers for scaling out to other provinces.
- Develop policy guidelines and institutional arrangements on building resilience in rainfed agriculture for sustainable development and intensification.

### Activities

#### Soil sampling, analysis & mapping

*Soil sampling was done in Sariaya, Quezon; Sta. Rita, Samar; and R.T Lim, Zamboanga Sibugay.*

#### Productivity enhancement

*Vice Governor Savellano visits the fields under the Bhoochetana program in Karnataka, India.*

#### Strengthening seed system

*Farmers of Samar visit the rice seed production area.*

#### Innovative extension & delivery system

*R&D managers, politicians and policy makers from the Philippines visit ICRISAT to gain insights into the Bhoochetana program.*

#### Capacity building

*Faculty and students of Pampanga State Agricultural University with participants of the seminar on Yamang Lupa Program.*

### Expected outcomes

- Increased agricultural productivity and farmers' income by 20% in the pilot provinces.
- Increased cropping intensity by 30%.
- Greater seed availability of high-yielding cultivars through Village Seed Banks with enhanced or developed seed delivery and production system.
- Soil health and land use maps depicting micro and macro-nutrient status.
- Intensified system on market-led agricultural products with better price for smallholder farmers through cost reduction, risk management and value addition opportunities.
- Documented program learnings, impacts and successes as an exemplary up-scaling model on agriculture Research, Development and Extension (RDE) for other provinces of the country.

### How to reach us?

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ICRISAT is a member of the CGIAR Consortium

Republic of the Philippines
Department of Agriculture (DA)

**Implementing/Collaborating Institutions:**

- Bureau of Agricultural Research (BAR)
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  - Visayas State University (VSU)
- Farmer Groups (FGs)
- Non-Government Organizations (NGOs)
- Private Sectors (PSs)

## Annexure 6b. Frequently Asked Questions (FAQ)

### What are the complementary projects or activities of *Yamang Lupa* Program?

All existing and upcoming government programs or projects, NGOs striving to increase productivity, improve rural livelihoods, prevent environmental degradation, ensure crop improvement, sustainable natural resource management and developing agro-ecosystem will be helpful for the successful implementation of the program.

### What are the program's specific target area?

Although *Yamang Lupa* Program will focus on rainfed areas in its first 3-year phase, irrigated areas will be included in Phase 2.

*Faculty and students of Pampanga State Agricultural University with participants of the seminar on Yamang Lupa Program.*

### Are all crops included?

Only major crops grown by most of the farmers in both the dry and wet seasons will be part of the program. ■

### How to reach us?

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Department of Agriculture (DA)

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Science with a human face
International Crops Research Institute for the Semi-Arid Tropics

**Implementing/Collaborating Institutions:**

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**About ICRISAT**

ICRISAT Science with a human face — International Crops Research Institute for the Semi-Arid Tropics

ICRISAT is a member of the CGIAR Consortium

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, of whom 644 million are the poorest of the poor. ICRISAT innovations help the dryland poor move from poverty to prosperity by harnessing markets while managing risks – a strategy called Inclusive Market-Oriented Development (IMOD).

ICRISAT is headquartered in Patancheru near Hyderabad, Andhra Pradesh, India, with two regional hubs and five country offices in sub-Saharan Africa. It is a member of the CGIAR Consortium. CGIAR is a global research partnership for a food secure future.

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March 2014

Yamang Lupa Program

FAQ

# *Yamang Lupa* Program:

## Adoption of *Bhoochetana* Principles and Approaches for Natural Resources Management towards Sustainable Philippine Agriculture

## Frequently Asked Questions (FAQ) on *Yamang Lupa* Program

### What is *Yamang Lupa* Program?

It is a science-led development and holistic mission mode program that uses the principles and approaches of the *Bhoochetana* (soil rejuvenation) program in India to improve rural livelihoods of smallholder and marginal farmers in the Philippines by increasing productivity through the use of best-bet soil, water, crop and nutrient management options.

### Is it applicable in the Philippines?

Agricultural productivity in the Philippines is currently constrained by diminishing resources. However, there is potential to increase productivity through the *Yamang Lupa* Program, which adopts the principles and approaches of the successful *Bhoochetana* program as a platform model for upscaling to different regions in the country. The program will significantly contribute to poverty alleviation and social empowerment through sustained and improved livelihoods of rural families. It is being implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in partnership with the Philippines' Department of Agriculture (DA), academic and R&D institutions.

### What is the vision of the program?

Its vision is to sustainably improve the rural livelihoods of smallholder and marginal farmers by developing farmer-centric, science-led, inclusive, resilient, market-oriented approaches towards a prosperous Philippine agriculture.

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Republic of the Philippines
Department of Agriculture (DA)

## What is the program's mission?

The program will put in place an integrated and participatory science-led approach to increasing agricultural productivity and farmers' incomes by 20% through a convergence of agricultural research, extension and development institutions.

## What are its objectives?

1. To assess soil health status in select representative sites using stratified soil sampling and prepare Geographic Information System-based soil fertility status maps to develop specific nutrient management recommendations.
2. To develop, evaluate and popularize best-bet soil, water, nutrient and crop management options to increase crop productivity, cropping intensity and farmers' incomes using the Inclusive Market-Oriented Development (IMOD) framework.
3. To develop and strengthen existing seed delivery systems to sustain good quality seeds of improved high-yielding cultivars in order to improve the productivity of smallholder farmers.
4. To develop and pilot test farmer-friendly, ICT-enabled innovative extension and delivery systems.
5. To build stakeholder capacity to increase agricultural productivity through sustainable intensification using an integrated scaling-up model in the pilot provinces.

## Who are the consortium partners?

The consortium will be composed of line agencies of the Department of Agriculture together with academic, research, extension and development institutions such as ICRISAT, State Universities & Colleges (SUCs), Bureau of Agricultural Research (BAR), Agricultural Training Institute (ATI), Bureau of Soil & Water Management (BSWM), Bureau of Plant Industry (BPI), DA-Regional Field Offices (DA-RFOs) and Local Government Units (LGUs) as well as development-oriented private organizations, community-based organizations, farmer groups, civil society organizations and social action groups.

*ICRISAT Director General Dr William D. Dar with the Undersecretary of the Department of Agriculture Mr Dante S. Delima.*

## Who are the prime movers of *Yamang Lupa* Program?

The Department of Agriculture is the prime mover. However, LGUs will play a crucial role in its success and sustainability in terms of providing the services needed and ensuring farmers adopt the different interventions.

## What are the principles to harness synergy among partners?

The program hinges on three important pillars:
**4Cs** – Consortium, Convergence, Capacity building and Collective action;
**4Is** – Innovation, Inclusiveness, Integration and intensification; and
**4Es** – Efficiency, Economic gain, Equity and Environment protection.

## What are the program's key agricultural technologies and management practices?

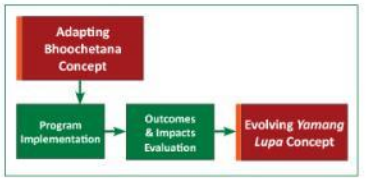
- Developing *site-specific fertilizer recommendations* based on soil tests in order to optimize yields and reduce fertilizer cost.
- Make available good seed of high-yielding, drought-resistant *improved cultivars* through village seed banks and ensure their timely supply at reasonable prices.
- *Soil and water conservation and management* technologies such as broadbed furrow system, contour farming, mulching and precise irrigation.
- *Balanced nutrient management* to correct nutrient deficiency, restore soil fertility of degraded lands and increase nutrient and water use efficiency.
- The use of *low-cost and eco-friendly bio-fertilizers* such as Rhizobium, Azospirillium and Azotobacter and *organic compost* as supplements to chemical (inorganic) fertilizers that will add nitrogen to the soil and make phosphorus more readily available to plants.
- *Bio-control* agents like *Trichoderma viridae* will be used for seed and soil treatment to suppress disease-causing fungal pathogens.
- *Integrated pest management (IPM)* combining biological and chemical pesticides at threshold levels, the use of tolerant varieties and insect monitoring using pheromone traps.
- *Dry and deep plowing* before the rainy season to conserve more moisture for plant use and to improve land preparation.
- *Improved cropping system:* Intercropping, multiple and sequential cropping, especially in the rice-fallow system.
- Introduction of *new crops* such as pigeonpea, corn, peanut, chickpea, sorghum, etc, adaptable to idle and marginal lands.

*Soil sampling has been done in Sariaya, Quezon; Sta. Rita, Samar; and R.T Lim, Zamboanga Sibugay.*

## What roles will the LGUs play in the program?

- Initiate convergence between different line departments of the provincial and municipal government units.
- Identify management strategies by mobilizing support from line departments concerned, policy makers and politicians.
- Assist in preparing detailed action plans
- Allocate resources to support program schemes on farm inputs or interventions for adoption by farmers.
- Set up and strengthen farmer-industry market linkages.
- Support rewarding mechanisms for outstanding farmers and agricultural technicians at clustered barangay and municipal levels.
- Identify target areas, crops and farmer cooperators in consultation with stakeholders.
- Involve farmer facilitators (FFs) and lead farmers (LFs) as extension workers to work closely between agricultural technicians and farmers.
- Initiate the collection of soil samples in the barangays for analysis with the help of FSs, LFs with technical guidance from DA-BSWM, SUCs and Provincial Agriculture Office (PAO).
- Link with NGOs in program implementation, help FFs & LFs in day-to-day monitoring, supervision, and guide farmers in the community.
- Establish and support pilot projects for product value addition with the help of women and farmer groups.

## How will the program be implemented and managed?




## What is the eligibility criterion for LGUs to join and implement the program?

- LGUs must have existing R4D programs/projects on crop productivity enhancement (CPE).
- Available manpower/technical staff to implement the programs/projects.
- Presence of institutional budget allocation for CPE and other related programs/projects.
- Should be able to allocate a portion of the budget for Yamang Lupa Program.
- If not, should be willing to generate resources and collaborate with other institutions such as DA, ICRISAT, SUCs, etc.

## How will the program drive the market for farmers?

ICRISAT's IMOD approach will serve as the development pathway in which value-adding innovations will enable the poor to capture larger rewards from markets, while managing their risks. Farmers will be linked to stable markets to realize a better price for their commodities.

*R&D managers, politicians and policy makers from the Philippines visit ICRISAT to gain insights into the Bhoochetana program.*


Yamang Lupa Program

## Annexure 6c. Flyer

### 4. Innovative extension & delivery system

- Procure tablets and pico projectors for selected pilot sites for information dissemination.
- Develop program website and upload information.
- Train agricultural technicians and farmer facilitators in ICT-enabled delivery extension system.
- Prepare training modules on crop production, food processing and marketing approaches.
- Produce farmer-to-farmer videos and train FLs and LFs in video making.

### 5. Capacity building

- Identified consortium partners to conduct team-building workshops to internalize the program's principles and strategies.
- Identify master trainers from Local Government Units (LGUs) and SUCs for training on different aspects of the program with technical support from ICRISAT and other partners.
- Exposure or scientific visits to India and conduct training for management group, policy makers and government officials for a hands-on exposure to the principles of *Bhoochetana*.
- Conduct demonstration farm and field days for farmers and other stakeholders.
- Document and disseminate program results through different media and submit evidence-based documents to policymakers.

### Expected outcomes

- Increased agricultural productivity and farmers' income by 20% in the pilot provinces.
- Increase cropping intensity by 30%.
- Greater seed availability of high-yielding cultivars through Village Seed Banks with enhanced or developed seed delivery and production system.
- Soil health and land use maps depicting micro and macro-nutrient status.
- Intensified system on market-led agricultural products with better price for smallholder farmers through cost reduction, risk management and value addition opportunities.
- Documented program learnings, impacts and successes as an exemplary up-scaling model on agriculture RDE for other provinces of the country.

### Program Steering Committee and Management Group

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**Spearheaded by:**

Department of Agriculture (DA)

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**About ICRISAT**

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ICRISAT is a member of the CGIAR Consortium

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March 2014

# *Yamang Lupa* Program:

## Adoption of *Bhoochetana* Principles and Approaches for Natural Resources Management towards Sustainable Philippine Agriculture

### Background

To enhance agricultural productivity of millions of hectares of rainfed areas in the state of Karnataka, India, ICRISAT in partnership with the Department of Agriculture (DoA) and State Agricultural Universities (SAUs) developed a scaling-up model called "*Bhoochetana*" (meaning soil rejuvenation). *Bhoochetana* uses soil health assessment as an entry point to plan science-based interventions that can lead to tangible benefits for farmers through a convergence of sustainable technologies for increasing productivity of farm households with an effective integrated watershed management approach.

The impact of *Bhoochetana* during the last four years has clearly demonstrated the power of a science-led development and partnership approach in the state as millions of smallholder farmers are benefiting from increased crop productivity ranging from 23 to 66% in different districts with various crops. Consequently, the state recorded an impressive growth rate of above 5% during the last four years compared to <2% during 2000-2008 before the launch of *Bhoochetana*.

The Philippines has a total land area of 30 million ha, 33% (9.3 million ha) is arable land, of which 75% (6.98 million ha) is rainfed. With Philippines' population estimated to increase by roughly two million annually, producing food, achieving food and nutrition security, and improving rural livelihoods while maintaining natural resources are daunting challenges that need to be addressed urgently.

ICRISAT Science with a human face
International Crops Research Institute for the Semi-Arid Tropics

Republic of the Philippines
Department of Agriculture (DA)

ICRISAT in partnership with the Philippine government and Research & Development (R&D) institutions, will adopt the Bhoochetana principles and approaches in strategic rainfed areas of the Philippines to increase crop productivity of selected crops that will improve rural livelihoods in the pilot provinces.

## Goal

To develop climate-smart agriculture to improve rural livelihoods of small-holder farmers, enhance food and nutrition security while maintaining healthy ecosystems by building a resilient and prosperous Philippine agriculture.

## Objectives

- To *assess* the soil health status in selected pilot sites in Luzon (Quezon), Visayas (Samar) and Mindanao (Zamboanga) using stratified soil sampling and *prepare* Geographic Information System (GIS)-based soil fertility status maps to develop specific nutrient management recommendations on 30,000 hectares.
- To *develop, evaluate and popularize* best-bet soil, water, nutrient and crop management options to increase crop productivity, cropping intensity and farmers' income by 20% using the Inclusive Market-Oriented Development (IMOD) approach.
- To *develop and strengthen* existing seed delivery system to sustain good quality seeds of improved high-yielding cultivars to improve productivity of smallholder farmers.
- To *develop and pilot test* farmer-friendly Information and Communication Technology (ICT)-enabled innovative extension and delivery system to reach smallholder farmers.
- To *build capacity* of the different stakeholders for increasing agricultural productivity through sustainable intensification.

*ICRISAT Director General Dr William D Dar with the Undersecretary of the Department of Agriculture Mr Dante S Delima.*

## Consortium partners

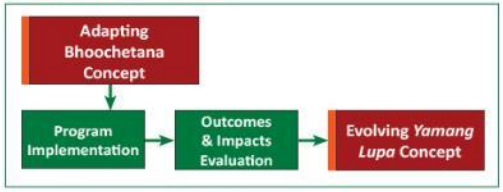
The consortium will be composed of line agencies of the Department of Agriculture (DA) together with academic, research, extension and development institutions such as ICRISAT, State Universities & Colleges (SUCs), Bureau of Agricultural Research (BAR), Agricultural Training Institute (ATI), Bureau of Soil & Water Management (BSWM), Bureau of Plant Industry (BPI), DA-Regional Field Offices (DA-RFOs) and Local Government Units (LGUs) as well as development-oriented private organizations, community-based organizations, farmer groups, civil society organizations and social action groups.



## Principles to harness synergy among partners

The program hinges on three important pillars:
**4Cs** – Consortium, Convergence, Capacity building and Collective action;
**4Is** – Innovation, Inclusiveness, Integration and intensification; and
**4Es** – Efficiency, Economic gain, Equity and Environment protection.

## Program implementation




## Key agricultural technologies and management practices of the program

- Developing *site-specific fertilizer recommendations* based on soil tests in order to optimize yields and reduce fertilizer cost.
- Make available good seed of high-yielding, drought-resistant *improved cultivars* through village seed banks and ensure their timely supply at reasonable prices.
- *Soil and water conservation and management* technologies such as broadbed furrow system, contour farming, mulching and precise irrigation.
- *Balanced nutrient management* to correct nutrient deficiency, restore soil fertility of degraded lands and increase nutrient and water use efficiency.
- The use of *low-cost and ecofriendly bio-fertilizers* such as Rhizobium, Azospirillium and Azotobacter and *organic compost* as supplements to chemical (inorganic) fertilizers will add nitrogen to the soil and make phosphorus more readily available to plants.
- *Bio-control* agents like *Trichoderma viridae* will be used for seed and soil treatment to suppress disease-causing fungal pathogens.
- *Integrated pest management (IPM)* combining biological and chemical pesticides at threshold levels, the use of tolerant varieties and insect monitoring using pheromone traps.
- *Dry and deep plowing* before the rainy season in order to conserve more moisture for plant use and to improve land preparation.
- *Improved cropping system:* Inter-cropping, multiple and sequential cropping, especially in the rice-fallow system.

*Farmers of Samar visit the rice seed production area.*

- Introduction of *new crops* such as pigeonpea, corn, peanut, chickpea, sorghum, etc, that are adaptable to idle and marginal lands.

## Activities

### 1. Soil sampling, analysis & mapping

- Identify barangays within the target municipalities and train farmers to collect representative soil samples by adopting the stratified sampling technique.
- Analyze and interpret data to determine the soil health status.
- Prepare GIS maps depicting nutrient status, develop fertilizer recommendations and disseminate the results analyzed through billboards, posters, pocket books and soil health cards.
- Develop soil test-based nutrient management practices at barangay cluster level.
- Prepare land use maps based on the soil analysis.
- Set up 'state of the art' soil and plant analytical laboratory and attend training at ICRISAT on managing and operating the facilities.

*Soil sampling has been done in Sariaya, Quezon; Sta. Rita, Samar; and R.T Lim, Zamboanga Sibugay.*

### 2. Productivity enhancement

- Collect baseline data on socio-economic and physical parameters.
- Integrate Farmer Facilitators (FLs) and Lead Farmers (LFs) into the program.
- Identify major/priority crops and evaluate best-bet management practices for enhancing their productivity.
- Demonstrate soil test-based integrated nutrient management practices through farmer participatory trials.
- Farmer-participatory development and management of soil and water conservation options.

### 3. Strengthening seed system

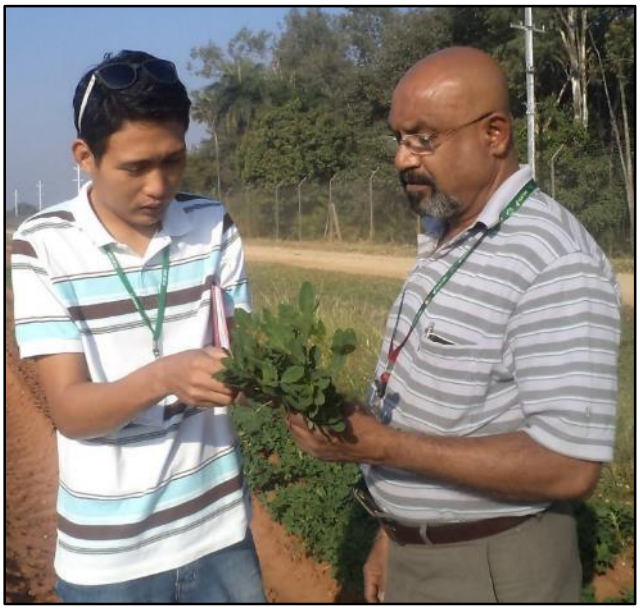
- Assess farmers' perception and choices on access and availability of quality seeds of high-yielding cultivars.
- Farmer participatory evaluation and selection of improved cultivars for multiplication.
- Set up farmer self-help groups (particularly for women) to be trained in seed production, grading, processing and storage.
- Set up cluster-wise Village Seed Banks and empower them to become micro-entrepreneurs by linking them with DA and State Universities and Colleges (SUCs).

# PHOTO DOCUMENTATION


ICRISAT


Watersheds


Excellence in
tions for Agriculture



# ICRISAT Team to Support the Implementation of the *Yamang Lupa* Program in the Philippines

**Composition of Technical Working Group (TWG)**

| | |
|---|---|
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