

Participatory Impact Pathway Analysis (PIPA)

Regional Workshop Report

Rice Postharvest Management in Vietnam

27-28 July 2009

Hue University of Agriculture and Forestry, Hue City, Vietnam

ADB RETA No. 6489

Bringing about a Sustainable Agronomic Revolution in Rice Production in Asia by Reducing Preventable Pre- and Postharvest Losses



Figure 1: Workshop Participants

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1. Background

Postharvest losses in the Vietnam as in other Southeast Asian countries are typically 15–20% in weight loss. When quality is factored in, it can result in a 10–30% loss of value in the market. From 2005 to 2008, the Asian Development Bank (ADB) / Japan Fund for Poverty Reduction (JFPR) 9036 project “*Improving Poor Farmers’ Livelihood through Improved Rice Postharvest Management*” began pilot testing improved postharvest technologies in four villages in Viet Nam and eight villages in Cambodia. Results from this project and also from the Swiss Agency for Development and Cooperation (SDC)-funded Postproduction Work Group of the Irrigated Rice Research Consortium (IRRC) with activities in Indonesia, Lao PDR, and Myanmar demonstrated that losses can be significantly reduced and income from rice harvests increased if farmers and processors are enabled to use improved postharvest management options and technologies like mechanized harvesters, paddy dryers, hermetic storage systems and improved milling practices. Additional benefits can come from the use of up-to date market information. Both projects included private sector stakeholders as implementing partners in project activities. This was successful on a pilot basis in Cambodia but not yet sufficient for a wider adoption. Farmers and millers in the project villages have now realized the benefits of the improved postharvest management and are increasingly asking for more assistance in sourcing the technologies that they find beneficial (especially hermetic storage and drying systems).

Rationale

The International Rice Research Institutes (IRRI) new ADB funded postharvest initiative has the objective to scale out these postharvest innovations, which have been piloted in the limited number of villages, to a large number of farmers. The objective is to reach a minimum of 300,000 households in three countries (Cambodia, Philippines and Viet Nam) after five years. This will require an increased focus of project activities on strengthening agricultural and industrial extension provided by both public- and private-sector stakeholders. It will also need better linkages to support service providers for financing for investment and operating capital and for marketing. A major component will be the development of business models for farmers and postharvest practitioners (see appendix 1).

In order to facilitate the dissemination of the proven technologies listed above, the project will strengthen country postharvest innovation systems by facilitating in-country Learning Alliances. These Learning Alliances can be understood as the platforms for working with established national partners from the public research and extension systems and for embracing new partners, especially from the private sector and Non Government Organizations (NGOs). The Learning Alliances will seek to widen stakeholders’ choice of technologies and business models, foster adaptation and innovation and, through regular reflection, lead to better understanding of what works where and why. Regular cycles of experimentation, reflection and adaptation is expected to promote interaction and learning among members. The Learning Alliances are expected to (1) increase diversity of options (through prototyping and experimentation), (2) increase interaction among stakeholders (through regular group reflection), and (3) improve stakeholders’ ability to identify and choose what works (through research). We expect that they will provide more flexible and more participatory means for project management and the possibility to accommodate new partners.

As a result of the national PIPA-LA workshop in Vung Tau, Vietnam, in 26th-28th May 2009, the representatives suggested that the PIPA-LA methodology should be applied and implemented on a sub regional level. Participants from the provinces should be invited and ensure that the specific needs of the region will be addressed during the project implementation. The responsibility was divided among five institutions with Nong Lam University being the coordinating lead institute for overall Vietnam.

Objectives

The overall workshop objective is to provide the input for the development of the region specific sub-projects for VietNam, including identification of key stakeholders in the region, identification of the project's impact pathways, and to form the Learning Alliance in the region as a step to merge with the National Learning Alliance.

The specific objectives of the sub-workshops are exactly like those of VungTau workshops, except that they are confined to the regional level (consisting of 7 - 10 Provinces) so that they can be more regionally specific

- Clarify project objectives, its planning logic and guiding principles in the Viet Nam regions
- Identify key stakeholders, their roles and foster ownership of the project amongst different stakeholders on the regional and provincial level.
- Identify the project's impact pathways (i.e. project strategies to bring about specified changes) and document inputs to develop an impact evaluation plan for the regional and provincial level.
- Clarify the Learning Alliance concept and reach agreement on the next steps to launch one in Viet Nam as a multi-stakeholder platform and support mechanism for the project planning, steering, monitoring and evaluation (M&E) and capturing the learning.

With the addition of

- Capacity building and training of partners in Vietnam in participatory methodologies and facilitation skills.

Workshop deliverables

- Network maps showing who is working with whom in the region (useful for planning and monitoring sector level integration).
- Project vision for five years.
- Description for the project short-term expected changes resulting from project activities, and longer-term contribution to developmental impact in Central Vietnam in so-called logic models.
- Identification of likely members of the Central Vietnam Postharvest Learning Alliance.
- Identification of draft list of topics for investigation by the Learning Alliance, the inquiry/ experimentation needed and initial allocation of responsibilities (this would be firmed up after the workshop).
- Central Vietnam Learning Alliance consisting of key stakeholders from private and public sectors (to be finalized in follow up activities after the workshop).
- To develop a regional network
- Opening the occasion for participants learning and sharing the postharvest informations and also techniques.

Prior to the workshop some participants have prepared a brief summary on the rice post-harvest situation in their respective provinces, some of which were presented during the introductions at the beginning of the workshop see appendix 2.

Schedule of sub-regional workshop series

The workshop in Nha Trang was scheduled to be for one and half day, part of a series of total five regional workshops in Vietnam, see appendix 3 and appendix 4 for detailed program.

Workshop languages

English was the working language for the conceptualization and preparation. All preparatory documents and the presentations were translated into Vietnamese, which was also the main language of the workshops. Questions asked by participants were translated for the PIPA-LA experts to ensure that the answers are in line with the concept and methodology. As soon as possible (to ensure not to disrupt the process) the content of the group work was translated into English for the workshop responsible to ensure understanding and necessary action with regards to the exercise results produced.

The PIPA process

A major component of the workshop is a Participatory Impact Pathways Analysis (PIPA) which follows the road map shown in Figure 1. Guided along certain questions a group of project participants and stakeholders describe what they think is going to happen in their project and beyond. This is done by looking at two things: 1) the main problem the project tries to solve and asking why this problem exists, and 2) the stakeholders, their relationships and influences. These are all in the context of the region.

Project impact pathways specify who needs to change for the project to achieve its vision and what the project has done/needs to do, to achieve those changes. The changes are quantified as far as possible as a way of predicting actual and future project impacts as well as providing the basis for an evaluation plan. Through the PIPA process key leverage points will be identify for achieving these changes as a basis for the activities of the Learning Alliance. All this will be captured in a so-called outcomes logic model.

Participation

The 35 participants in the workshop were staff from government agencies (#7), extension (#9), and researchers working on postharvest (#12), as well as representatives from the private sector (#2), manufacturers (#2), farmer collectives' representatives (#3) and non-government organizations (#0), (see appendix 5 and worksheet participants in *VTN_5_WS_Workbook_Hue_ENG.xls*). Dr. Do Thi Bich Thuy and Mr. Nguyen Quang Lich facilitated the workshop in Hue supported by Dr. Phan Hieu Hien, expert consultant, and the translator Mr. Ve Ouoc Linh. The regional facilitation team (2) Tonya Schuetz, Impact Specialist, and Rica Flor, IRRC Anthropologist in the project prepared the workshop concept, directed and backstopped the facilitation of the sub-regional workshop series.

Figure 1 shows the workshop participants.

Note on additional documentation:

*This report contains a synthesis of all the group results and some examples from individual groups. The individual group outputs are captured in a separate Excel document referred to as *VTN_5_WS_Workbook_Hue-ENG.xls*. See this workbook for the problem trees of the other groups and other group work outcomes (Figure 2)*

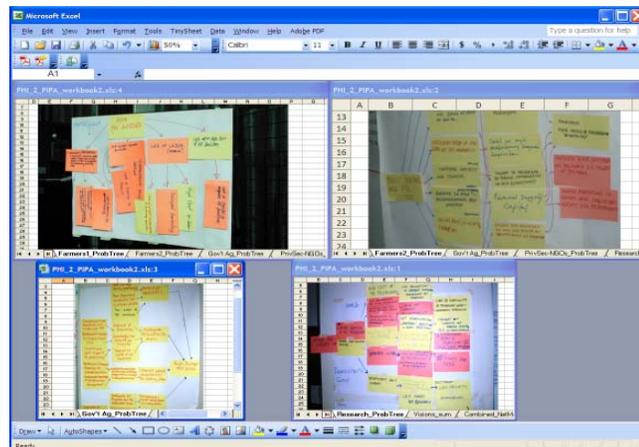


Figure 2: Excel workbook containing problem trees and other group work output

The roadmap followed throughout the workshop is presented in Figure 3 and see appendix 4 for an agenda of the workshop.

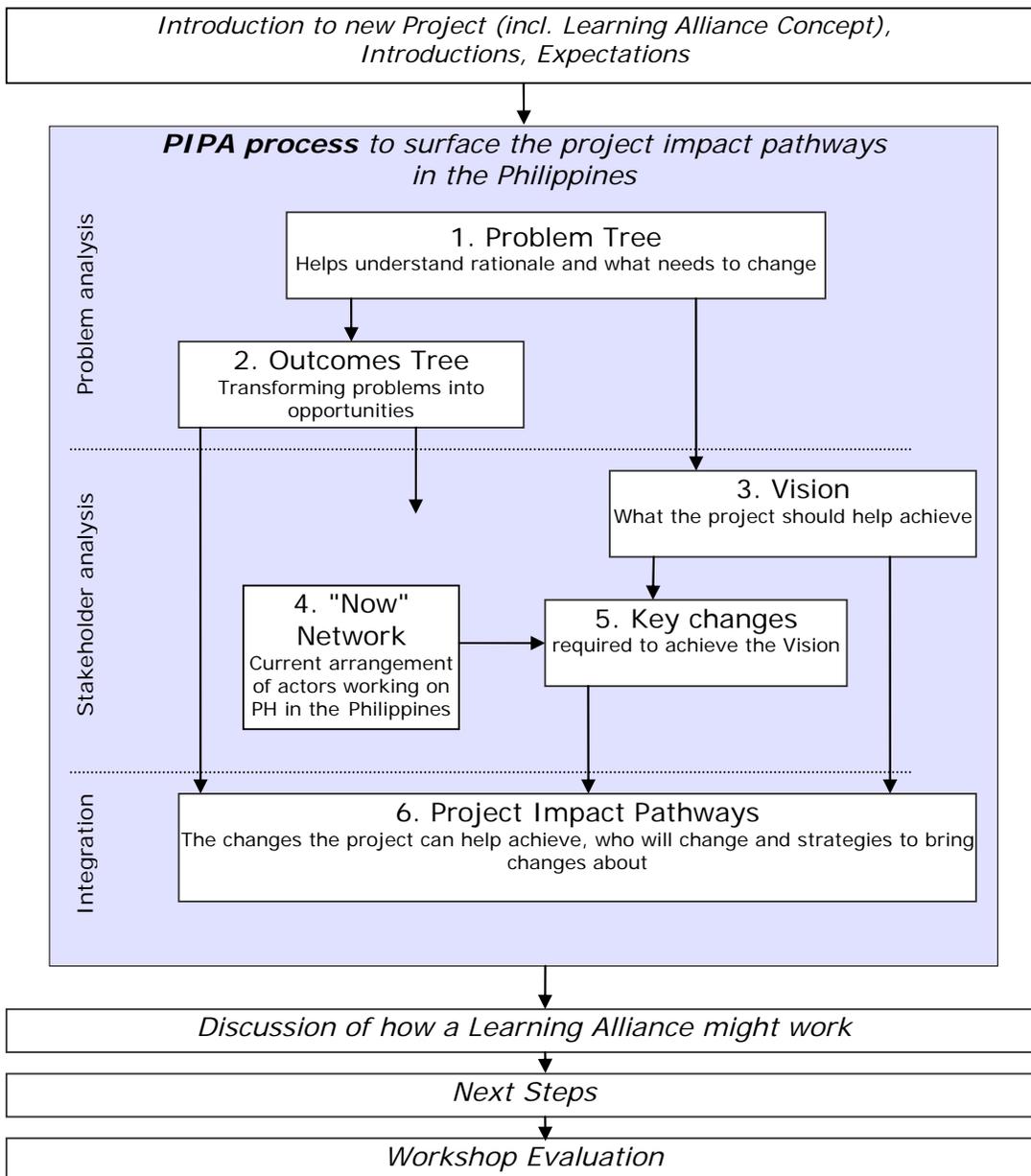


Figure 3: Workshop Road Map

2. The workshop

Day 1: Status of postharvest, beginning impact pathways for new project

The workshop was opened by Rector of HUAF, Prof. Tran Van Minh. The Dr. Phan Hieu Hien gave an overview of the postharvest situation in Vietnam, and then Dr Dinh Vuong Hung presented the region-specific situation. A background of the IRRI postharvest activities and the new ADB-funded postharvest project ADB RETA No. 6489 “*Bringing about a Sustainable Agronomic Revolution in Rice Production in Asia by Reducing Preventable Pre- and Postharvest Losses*”, was also presented. All presentations and workshop documentation were handed out to participants on a CD.

Before lunch participants were introduced to the PIPA process and the Learning Alliance concept. They were assigned to four groups according to sectors as shown in Table 1.

Table 1: Group composition

Count	GROUPS	Count	GROUPS
	Farmers and Private Sector (Group 3)		Government Agencies 1 (Group 1)
1	Nguyen Cong Thanh	1	Tran Quang Phuoc
2	Tran Chi Lynh	2	Le Van Duong
3	Le Mau Hoai	3	Hoang Trung Hau
4	Vo Van Khinh	4	Le Dinh Doan
5	Vo Hong	5	Ho Khac Minh
6	Nguyen Thanh Vu	6	Tran Van Tuong
7	Luu Thi Tuong	7	Nguyen Huu Phuoc
8	Dinh Vuong Hung	8	Vo Van Nghi
	Researchers (Group 4)		Government Agencies 2 (Group 2)
1	Le Thanh Long	1	Le Hong Vien
2	Nguyen Thanh Long	2	Van Thi Thu Mai
3	Hoang Minh Tam	3	Nguyen Huu Ngoc
4	Nguyen Thi Thuy Duong	4	Nguyen Van Lap
5	Do Minh Cuong	5	Le Van Viet
6	Nguyen Thi Ngoc	6	Tran Thanh Hien
7	Nguyen Quoc Sinh	7	Nguyen Thi Tuyet Suong
8	Le Van Luan	8	Nguyen Thi Thu Van

The process of developing impact pathways for reducing postharvest losses in the region followed the roadmap shown in Figure 3 and the agenda (see appendix 4). The first step was to construct a **problem tree** (see figure 4a and 4b) identifying the main causes of high postharvest loss in the region by asking ‘why’ this problem is happening. By asking this question several times (between three to maximum five times) the main problem is broken down into smaller units. At the final stage participants derive at intervention points where the project can make a difference.



Figure 4a (left):
Government group
discussing



Figure 4b (right):
Government group
presentation of
problem tree

Participants were introduced to the concept of problems being opportunities and how to convert a problem tree into an outcomes tree defining the positively changed behavior of an actor. With the focus on the positive, participants developed a vision of project success in reducing postharvest losses in five years time, in 2014. The last part of the morning session was for groups to come up with a common vision describing the future scenario along the questions below in Table 2.

Table 2: The vision example of Researchers (Group 4)

What are the next users doing differently? How are men benefiting? How are women benefiting?	<ul style="list-style-type: none"> • <i>Universities, research Institutes strengthen researching and transfer technologies in PH</i> • <i>Agri. Extension systems improve their knowledge and handle the PH chain.</i> • <i>Agri. machinery manufacturers improve their technologies for providing the equipments, machines and</i> • <i>Agri. service providers (harvesting, drying, processing, purchasing, etc.) enhance activities suitably with state of rice producer in Cetral Vietnam</i> • <i>Developing and scaling up the progressive production models.</i>
How are project outputs disseminating (scaling out)?	<ul style="list-style-type: none"> • <i>Supporting the finance</i> • <i>Managing and supervising</i> • <i>Training & showing PH tech. for farmers</i>
What political support is nurturing this spread (scaling up)?	<ul style="list-style-type: none"> • <i>Putting forward the policies</i> • <i>Strengthening extension activities</i>
What are the end users doing differently? How are they benefiting? <i>Famers</i>	<ul style="list-style-type: none"> • <i>Carrying out the project</i> • <i>Enjoying revenue from the project:</i> <ul style="list-style-type: none"> - <i>Having the progressive post-harvest technologies</i> - <i>Having knowledge of post-harvest technology</i> - <i>Improving the income from the rice.</i>

While Table 2 above gives the detailed vision of the research group (Group 4), the following Table 3 is a summary the visions that were presented back to participants.

Table 3: Summary of visions of the groups

<p>Government Agency Group 1 (Group 1) <u>Universities, Institutes:</u> researching and encouraging farmers to use modern equipments and apply new technologies in PH, developing models <u>Agri. Extension:</u> Handing over PH, having the activities of community groups. <u>Enterprises:</u> Applying new researched results from universities and institutes for producing suitable machines for and in Central Vietnam. <u>Policy makers:</u> Supporting capital, technologies, land. <u>Farmers:</u> Improving labour capacity, knowledge, Improving income.</p>
<p>Government Agencies Group 2 (Group 2) <u>Universities, Institutes:</u> researching the affordable machines, Going for a site evaluating, scaling up; <u>Agricultural extension:</u> Putting forward the supporting policies, Developing the showing models, Training for handing over technologies, developing models. <u>Enterprises:</u> supporting services, manufacturing the suitable machines, Spreading information. <u>Policy makers:</u> having the policy of preferential capital borrowing, supporting the finance to go for a sightseeing. <u>Farmers:</u> Limiting the losses in PH, increasing the income from rice, Improving the environment and conditions for working , Improving the position of the farmers in society.</p>
<p>Farmers Private and Famers Group (Group 3) <u>Universities, Institutes:</u> researching the affordable machines, improving of technologies in PH. <u>Agricultural extension system:</u> Broadcasting to support technologies, Developing models. <u>Producers:</u> <i>Producing rice</i> (planning, holding productional process), <i>Processing:</i> buying the products with suitable price, supplying the suitable equipments</p>

Research Group (Group 4)

The agents (universities, institutes, enterprises, agricultural extension system, providing service, counselor): Researching, handing over the technologies, providing the equipments, machines, developing and scaling up the progressive production models.

Government: Putting forward the policies, managing and supervising.

The donor (ADB): Supporting the finance

The farmers: Enjoying revenue from the project (Having the progressive post-harvest technologies; Having knowledge of post-harvest technology, Improving the income from the rice).

Network mapping

The topic of network concepts, network mapping and the possibility how to visualize networks were introduced to the participants. In their groups, participants were asked to develop their network maps to describe how organizations are currently linked together in the postharvest sector in the region (see Figure 5). Participants drew maps with four relationships – funding flows; research links; scaling-out and scaling up; considering five stakeholder/actors categories (Table 4)

Table 4: Different Stakeholder Categories

Actors	Examples	People and/or organizations ...
First users	Extensionists, Government agencies (People Committee Province, Department of Agriculture and Rural Development, ...)	... who directly use project outputs (technology, methods, knowledge)
Final Users	Farmers	... that ultimately benefit
Politically-important Actors	Government agencies: Ministry of Agriculture and Rural Development, Agricultural Extension station	... whose support is needed for project success
Donor	ADB	... who provide funding
Project Implementer	IRRI, PhilRice, Researchers	... who work on project activities

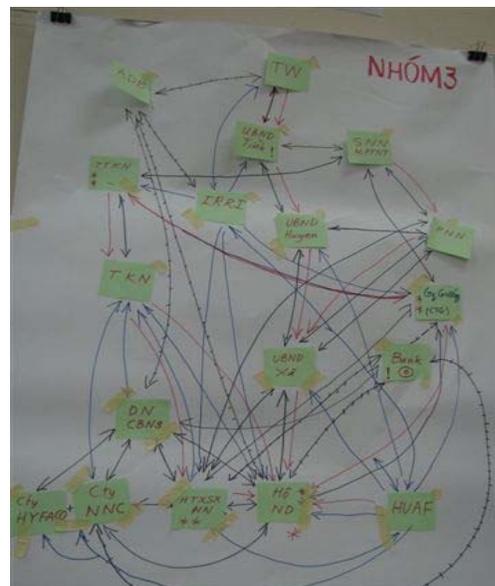


Figure 5: Map of the postharvest network drawing by Group3

Scaling-out (adoption) is the spread of technology and knowledge from farmer to farmer, community to community, within the same stakeholder groups. Scaling-up is an institutional expansion, based largely on first-hand experience, word-of-mouth and positive feedback, from adopters and their grassroots organizations to policy makers, donors, development institutions, and the other key stakeholders to building a more enabling environment for the scaling-out process. In other words, scaling-up is the process by which policies and norms change in such a way that they support a scaling-out process. Participants also flagged actors whom they think to be extremely influential (with exclamation point) and those that they think may have a significantly negative attitude to the project (with lightning stroke). See appendix 6 and 7.

In the next activity, participants identified the main network changes required to achieve their respective visions. They identified the actors whom they think should change with respect to their vision of success and the actors they brought out in the network maps. They identified the practice change needed for each actor and the change in knowledge, attitudes and skills needed for that specific actor to change in practice as in Table 5.

Table 5: Table of changes done by Government agencies group 1 (Group 1)

Who will change?	What is changed?	Change in KAS
Farmers	<ul style="list-style-type: none"> Using means of harvesting and presivating process. Increasing income 	<ul style="list-style-type: none"> Improving understanding and increasing production level. skillfull sensitive, positive
Researchers Managers Leaders	<ul style="list-style-type: none"> Understanding Improving professional knowledge Increasing income 	<ul style="list-style-type: none"> Raising knowledge in practice Being enthusiastic, getting the actual need
Enterprises	<ul style="list-style-type: none"> Changing in business method Increasing effect 	<ul style="list-style-type: none"> Innovating technology→ suitable for the need of market. Raising the capacity of supplied services.

Participants were brought together in a plenary where each group was given time to present to the other groups the main points that have emerged from their problem tree, vision, network map and changes required to achieve their vision of project success.

The first day closed with participants coming together for a go-around for each to briefly express what was important to them in the entire day (see section 6. and annex 8).

After the closing of Day 1, participants were taken to a field trip. We visited two enterprises.
 1) Thua Thien Hue Seed Processor (150.000 USD investment of machinery and building), see figure 6, who is building a flat bed dryer there and has several ones out station.
 2) (Harvesting) machinery producer (see figure 7), started as a machinery trader and moved to producing the equipment himself. Sold 80 combine harvester in the last two years for each 10,000 USD.



Figure 6. Thua Thien Hue Seed processing company



Figure 7. Huy Phat Company

Day 2, morning: Outcome Logic Models and Learning Alliance

The morning started with an exercise that introduces the outcome logic models. The groups formed small circles. With each participant's hands randomly holding another participants', the groups will have formed a knot which they then untied. The first group to untie themselves back into a circle wins. This exercise allowed participants to see which person/actor needed to change or move, then decide what effective strategy they will use so that they can untie themselves first.

From their work the previous day on changes needed to achieve their vision of success, participants generated an **outcome logic model**, in which each row describes an impact pathway as seen in the Template in Table 6. The outcomes logic model synthesizes the information from the Vision, Network Maps actors, and project entry points from the problem-opportunities tree. It describes who needs to change, how that actor's knowledge, attitude and skills (KAS) need to change, and what the project will do to make these changes happen, so that the project can achieve its vision.

Table 6: Template for outcomes logic model

Actor (or group of actors who are expected to change in the same way)	Change in practice	Change in Knowledge, Attitudes or Skills	What are/were the project's strategies for achieving these changes in KAS and practice?

Each line in the table below contains an outcome hypothesis and impact hypothesis:

- 1) That the strategy or strategies the project proposes will bring about the desired outcomes;
- 2) That the outcomes, if realized, will contribute to livelihood impacts on the ultimate beneficiaries.

The former are tested by the project's Monitoring & Evaluation, which is the project's responsibility. The latter will generally be tested by external ex-post impact assessment, either at or after the end of the project.

For the individual groups outcome logic models see spreadsheets in the Excel workbook (VTN_WS_Workbook_Hue_ENG.xls).

While the OLM from the four groups were synthesized the participants developed ideas how to further the regional post-harvest Learning Alliance see section 3. below.

The **impact pathways** generated by the groups were synthesized and presented by the regional facilitators. Participants then made comments and additions resulting in the Table 7 below.

Table 7: Combined impact pathways to reduce postharvest loss and increase farmers incomes from postharvest in Central Vietnam

 Explanations: I =name of Government Agencies group 1, II =name of Government Agencies group 2, III = name of Farmers Private Organizations Group, **IV**= name of Researchers group.

Bolded = Project intervention, normal = project can help facilitate, *italics = beyond the scope of the project*,

Actor (or group of actors)	Change in practice	Change in Knowledge, Attitudes or Skills	Strategies for achieving these changes in KAS and practice?
Farmers	<ul style="list-style-type: none"> • Using means of harvesting and preserving process. (1, 2, 4) • The habit of cultivation and post-harvest (3, 4) • Change understanding (3) • Increasing income (1, 4) 	<ul style="list-style-type: none"> • Know how to apply the new technology, equipment and machine. (1, 2, 3, 4) • Understanding the vital role of application in mechanization (2) • Understanding and applying the mass value of agricultural produce. (1, 4) • Increase the production scale. (3) 	<ul style="list-style-type: none"> • Training delivery, training module (1, 3, 4) • Develop showing models (machines, drying ground, storage, harvester, drying machines, seeds producing) (1, 3, 4) • Broadcasting (brochures, workshop) (1, 2, 4) • Support funding in order to buy machines preservation equipment (1, 2, 3) • Survey the standard and effect model. (2, 4) • Do contract with enterprises (3). • Gather up the small fields in order to form large fields (3). • Carry on close business in rice (in South regions and in Nghe An) (4)
Enterprises	<ul style="list-style-type: none"> • Changing in business method (1, 2) • -Technology and equipment in process (2, 3) 	<ul style="list-style-type: none"> - Guarantee the equal benefit of contract. Tend the market (I, III). - Innovating technology → suitable for the need of market. (1, 2, 3) - Raising the capacity of supplied services. (1) 	<ul style="list-style-type: none"> - Support the borrowing capital, Carry on close business in rice, in South regions & in Nghe An (1, 4). - Invest in changing technologies. (1, 3) - Create a product trading name on production areas. (3) - Give enterprises opportunity to learn from other enterprises. (1)
Manufacturer	<ul style="list-style-type: none"> - Research, invent and improve the suitable machines (3) - Catch the need of farmers (3) 	<ul style="list-style-type: none"> - Choose inventing the sort of the machines to mechanize and process rice. (3) - Marketing the product and the price. (2I, 3). - Tend the need of the market (3). - Approaching the progressive technologies. (2). 	<ul style="list-style-type: none"> - <i>Government support the finance to develop the technologies (2,3I)</i> - Manufacture the machines with suitable price. (3) - Give the enterprises opportunity to approach the farmers to manufacture the suitable machines with suitable price. (2) - Training in order to improve the understanding to apply the progressive science technologies (2) - Organize the workshops, showing models about the post-harvest machines. (3)
Manager	<ul style="list-style-type: none"> - Forming the suitable policies (2) - Improving professional knowledge. (1) 	<ul style="list-style-type: none"> - Changing in management methodology. (2) - Strengthening the relationship amongst researchers, manufacturers and farmers.(2) 	<ul style="list-style-type: none"> - Raising the capacity, training the managers who are good at professional knowledge, the post-harvest technologies and management skills. (1, 2) - <i>Policies of finance to support the managers.(1)</i> - Develop the models → Scaling up. (1)

Actor (or group of actors)	Change in practice	Change in Knowledge, Attitudes or Skills	Strategies for achieving these changes in KAS and practice?
Science research institutes, universities	<ul style="list-style-type: none"> - Strengthening the connectivity ability and science research. (2, 4). - Strengthening the transformation and the application. (2, 4) - -Improving professional knowledge. (1, 2) - -Changing the science research's target. (4) - Changing the organization structure. (4) 	<ul style="list-style-type: none"> - Widening collaboration with the domestic and international organizations. (2, 4) - Raising knowledge in practice (1) - Being enthusiastic, getting the actual need. (1) 	<ul style="list-style-type: none"> - Combine with the local region in the field of post-harvest. (2, 4) - Develop post-harvest network (build a website to update daily information) (4) - Identify the science research target which is suitable with the local region. (3, 4) - Change the organization structure, raise the quality of science research (in post-harvest). (1, 4) - Buiding the connectivity amongst farmers, researchers and enterprises through workshop, training and platform. (2). - Support the finance in organizing the study from the domestic and international organization.(1, 4). - <i>Put forward the policies to the ministry. (4)</i> - <i>Government must have the policies to support, encourage researchers in approaching the progressive science technologies. (2)</i>

3. Furthering the Learning Alliance

Then, participants were introduced to the concept of a **Learning Alliance**, which is shown in Figure 8. They understood that the PIPA workshop represented the first stage in planning for a learning alliance.

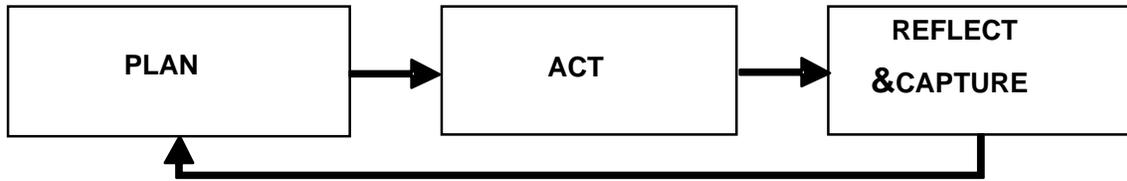


Figure 8: Learning Alliance repeated learning circle

In randomly selected multi-stakeholder groups participants discussed what a postharvest Learning Alliance in the Philippines might look like using four guiding questions.

- *Who should participate as a stakeholder and what could be their role?*
- *What could be topics of interest to be discussed in further detail among members of the Learning Alliance?*
- *How can we share what we learn and how can we capture and document what we learn?*
- *What are necessary next actions (for individuals as well as organizations)?*

Ideas were collected and generated in a World Café¹ Session, and brought together to populate the Learning Alliance concept for North Vietnam, see on question discussed in figure 9. Each question host reported back to the plenary the *key issues* discussed at his/her table.



Figure 9: Outcome of the Learning Alliance group work

See below the detailed results and outputs of the Learning Alliance session.

¹ See <http://www.kstoolkit.org/The+World+Cafe>

What do we share - Topics?

1. *The actual situation of mechanization in post-harvest technology in the Central*
2. *Harvest (the suitable operation of harvester combine machine in the Central Vietnam), Preservation and process (the preservation and process methodologies, The drying information)*
3. *The market information (agricultural produce, machines)*

Who (stakeholders) should participate and what is there role??

- | | |
|--|--|
| 1. <i>Farmers:</i> | 2. <i>Unions:</i> |
| - <i>produce rice</i> | - <i>Department of Agriculture and rural development</i> |
| - <i>invest and make post-harvest services</i> | - <i>Department of Commercial Industry</i> |
| | - <i>Collaborative</i> |
| | - <i>Rice producing and processing company</i> |
| | - <i>Farmer club</i> |
| | - <i>Service company.</i> |

How do we document our learning?

1. *Make brochures*
2. *Invite the experts to make the documents*

How do we share our learning?

1. *Organize the workshop to share the information, develop CDs in order to train for the farmers*
2. *Broadcast on the public information equipment, Inform the the market price of machines on the public information equipment,*
3. *Organize the actual visit.*

What action is needed (Next Steps)

1. *Develop the plan of the project.*
2. *Develop and gather up the ideas in order to put forward to the project.*
3. *Scale up the workshop to the provinces in the Central.*
4. *Organize the workshop of harvester combine machine and the household drying machine.*
5. *Develop the learning alliance network (government, enterprise, science researcher and farmers).*

Following the training of the regional facilitating team and the national coordinators on participatory methodologies, in a discussion with the national coordinating team and the regional responsables it was agreed that the PIPA and in particular the learning alliance as a mechanism for them to use (e.g. for monitoring and learning) was done.

4. Next steps

The regional coordinator then gave a workshop summary and in a plenary brought out with the participants the possible next steps to be taken in the region (Table 8):

Table 8. Next steps to be taken in the region

What activities to take	Who will do it	When
<i>Investigate; evaluate the actual situation of post-harvest need</i>	The Agricultural Extens. center in Quang Nam	3/2010
- Synthesize the reports after workshop. - Connect the participants in the workshop, set up the post-harvest network, open a website of PH in Central Vietnam	Faculty of Agricultural Engineering and Food Technology, HUAF	10/2009
<i>Evaluate the need of using of harvester combine machine.</i>	The Agricultural Extension Center in Quang Binh:	10/2009
- Adjust the policy for application of agricultural machines <i>Investigate; evaluate the actual situation of post-harvest mechanization.</i>	DARD, Nghe An The Agricultural Extension Center in Quang Ngai	10/2009
<i>Evaluate the effect of using harvester combine machine and develop the showing models</i>	The Agricultural Extension Center in Ha Tinh	5/2010
<i>Develop the drying machine in households and collaborative</i>	The Agricultural Extension Center in Quang Tri	9/2010
- Investigate the situation of agricultural mechanization and the actual situation of post-harvest technology in Thua Thien Hue in order to contribute the suitable policies. - Combine with the universities to train, improve the capacity of the member in district, commune.	DARD in Thua Thien Hue	2010
<i>Put forward to develop the model of high quality rice processing company</i>	Thuong Phong Cooperative, Le Thuy, Quang Binh province	1/2010
<i>Put forward to the department of agriculture to develop the model of seed preprocessing and storing company</i>	Phu Hoa Cooperative	4/2010
- Compare the rice dried under the sun with the rice dried by machines. - Evaluate the effect of using the 1,2 harvester combine machine	Huy Phat Company	4/2010
<i>Contribute the ideas to the people committee province the policies of harvester, drying, processing machine. Combine with the HUAF to research the suitable line sowing machine.</i>	DARD in Quang Binh	6/2010
<i>Carry on the service of buying and selling product, preservation and process, consuming rice.</i>	Bich La Cooperative, Trieu Phong, Quang Tri	9/2009
<i>Put forward the policy of post-harvest mechanization to the people committee province.</i>	DARD in Quang Ngai	2010
<i>Propose the policy to support the ship for the sunken region</i>	DARD in Quang Tri	2010
<i>Drying machine: ensure the quality of seed of rice</i>	Hung Trung Viet Company	9/2009
<i>Manufacture the small and medium harvester.</i>	Cong Thanh Company	9/2009
<i>Reflect to the leader of project to set up the collaborative plan in the post-harvest program in VietNam.</i>	The organization of coordinating project	10/2009
<i>Investigate the post-harvest losses in Nam Dong and A Luoi region.</i>	The Agricultural Extension Center in Thua Thien Hue	2/2010

5. Participants' Contribution to the Project (Self-assessment)

The participants were then asked to reflect on the outputs of the workshop, how and what they think they themselves as individuals and their institutions can contribute to the project. The responses included the whole range from the application of new technologies by farmers, out-scaling through being model farmers and providing extension services to scaling-up and passing resolutions that favor postharvest development. This provides a good starting point the initial activities in the provinces.

Table 9: Participants' self assessment what and how they can contribute to the project

Province, office, company	Name of Participant (email, mobile phone)	What/How they can contribute to the project
NLU	Phan Hieu Hien phhien1946@yahoo.com	<i>Translator and promotor for project (This was given as an example by Dr. Hien)</i>
Ag. Ext. Center Quang Ngai	Le Van Viet, 0905732195	<i>Survey the situation of combine machines's application in Quang Ngai provine.</i>
Ag. Ext. Center Thua Thien Hue	Tran Quang Phuoc	<i>Researching PH losses of rice</i>
Ag. Ext. Center: Quang Tri	Nguyen Trung Hau ttknkngt@gmail.com	<i>Surveying PH losses in Quang Tri in oder to transfer the PH technology methods for farmers.</i>
Ag. Ext. Center:Ha Tinh	Nguyen Huu Ngoc huungocknknht@gmail.com , 0912999388	<i>Evaluating PH activities in Ha Tinh provine in oder to establish a plan for project.</i>
Ag. Ext. Center:Quang Binh	Le Hong Vien khnkquangbinh@gmail.com	<i>Provide the application of PH technology in Quang provine for project</i>
Ag. Ext. Center:Quang Nam	Nguyen Huu Phuoc huuphuoc@gmail.com.vn , 0905060109	<i>- Survey the requirements of models (rice storage for people in flood areas, rural areas.) and provide for project</i>
Ag. Ext. Center:Thua Thien Hue	Le Thi Ngoc Suong ngocsuong.ptnthue@gmail.com , 0975544282	<i>Establishing a network between proceducers, farmers and researchers. Taking part as a engineering person and communication person of project.</i>
DARD, Nghe An	Nguyen Van Lap lapsnna@yahoo.com , 0912249069	<i>Direct for survey in oder to establish policies of application machines in PH technology</i>
DARD, Quang Binh	Ho Khac Minh hkminhqb@yahoo.com.vn	<i>Training for farmers about the advances of PH technology Evaluating the situation of PH loss and the state of application of PH technology and suggesting the practical requirements in PH in local.</i>
DARD, Quang Ngai	Le Van Duong duongsnn@gmail.com	<i>- Taking part as a member in PH network of Central Vietnam. - taking part the activities of Project in Quang Ngai provine</i>
DARD, Quang Tri	Tran Thanh Hien Tranthanhvien58@gmail.com , 0975436146	<i>- Evaluating PH losses in Quang Tri Provine. - Training methods for decreasing PH losses. - Suggesting provine for support boats for rice harvest in sunken areas.</i>
DARD, Thua Thien Hue	Duong Thi Hong Van Hongvan2211@gmail.com , 0987980060	<i>- Surveying the requirement and effect of application of combine machines in local -Taking part as a communication person of project.</i>
Central Vietnam Center of reseaching and tranfering technology	Nguyen Thi Thuy Duong thuyduong1003@yahoo.com , 0982206737	<i>Associating and tranfering the technological products for producers.</i>

Province, office, company	Name of Participant (email, mobile phone)	What/How they can contribute to the project
HUAF	Le Thanh Long	<i>Training for posharvest technology</i>
HUAF	Nguyen Quang Lich nqqlich@gmail.com , 0935757273	- <i>Writing the report of workshop in August, 2009</i> - <i>Promoting the activities of project.</i>
HUAF	Nguyen Thi Ngoc nngoc05@gmail.com , 0987366956	<i>Survey situation in PH and preservation of rice in local.</i>
HUAF	Do Minh Cuong docuong72@gmail.com , 0986349252	- <i>Training, showing and Transferring PH machines for farmers.</i>
HUAF	Nguyen Thanh Long longdhh@yahoo.com , 0914114861	- <i>Training famers, Ag. Ext. officers in PH technology.</i> - <i>Researching and guiding of application in rice PH technology.</i>
HUAF	Nguyen Thi Van Anh nl.vananh@gmail.com	<i>Training for engineering officers and farmers about decreasing PH losses in Central Vietnam.</i>
Bich La Cooperative, Quang tri	Le Mau Hoai hoaimau@yahoo.com.vn , 0984570968	- <i>Helping farmers to apply postharvest technology.</i> - <i>Provide the PH information for project.</i>
Huy Phat Company	Tran Chi Lynh lynhchi@gmail.com , 0982522430)	<i>Guide for new models of PH in local</i>
Phu Hoa Cooperative, Thua Thien Hue	Vo Hong, 01694401945	<i>Encouraging farmers carrying out the project of decreasing PH losses.</i>
Thua Thien Hue, Company of Ag. Machines proceducer.	Hoang Cong Thanh, 0905364801	- <i>Proceducing Ag. machines suitable for local.</i>
Thuong Phong Cooperative, Le Thuy, Quang Binh	Vo Van Khanh, 0905688746	- <i>Encouraging farmers for using PH machines</i> - <i>Establishing rice processing factories.</i>

6. Workshop Monitoring and Evaluation

At the end of Day one people were asked to give a brief statement of how they think the day went for them. The most important thing – good or bad – what they liked or for the facilitation team to improve. Most of the comments were positive like, *lots of experience and knowledge, good group work, new method, difference with other workshop before, lots of informations in PH, it is very useful for farmers in central areas*. For detailed statements see appendix 8.

At the end of the workshop a simplified After Action Review was done with the focus for the feedback on ‘what to improve?’ and what ‘worked well?’, and a dart board evaluation checking how much for the objectives we targeted were achieved (*Clarify project objectives and regional plan, Identify key stakeholders and foster ownership, Identify project’s impact pathways OLM, Clarify the LA*), and some additional administrative and logistics were asked how much participants were satisfied and content with the workshop (*Venue, Organization + Facilitation, Methodology PIPA, part. Approaches, Materials provided*).

Some selected comments on ‘WHAT TO IMPROVE’ were e.g. *the final content of the workshop is not clear. The hotel is not good (about the water), the receptionist is not good, checking the hotel before booking, the time for the workshop is so short that we don’t achieve the final goal, need to put forward the specific goals, the time for field trip need to be longer*. Some examples of comments on ‘WHAT WORKED WELL’ are *the preparation is good; the document is good; the results are suitable for the local areas; the content is good, the method is new, it is easy to get the goals; there is much information about the post-harvest technologies; the organization methodologies is skillful*.

In the dartboard evaluation overall 84% of the participants’ marks indicated that we have hit the target, top score of 3 for the given criteria and 11% voted for the score of 2, and 5% marked the outer circle, for a detailed listing of the marked evaluation criteria see appendix 8.

Appendices

Appendix 1: Key information about the new ADB funded project and its linkages

ADB Reta No. 6489

Title:	Bringing about a Sustainable Agronomic Revolution in Rice Production in Asia by Reducing Preventable Pre- and Postharvest Losses
Timeframe of project design:	5 years
Approved by ADB:	Initial phase to be implemented within 1-2 years
Funding ensured:	1 year
Project start:	November 2008

Project sub components

ADB Reta No. 6489, IRRI component	Subcomponent 2: Reducing postharvest losses and increasing income by producing better- quality rice.	Subcomponent 2: Reducing postharvest losses and increasing income by producing better- quality rice.
Countries	China, Thailand and Vietnam	Cambodia, Philippines and Vietnam
Timeframe	5 years, 1-2 year inception phase	5 years with a 1-2 year inception phase 10 years for wide scale impact
Approach	Mainly research Some field trials Multi stakeholder meetings	Outreach to min. of 300,000 of farmers Impact pathway orientation Learning alliance platforms

Postharvest sub component of the ADB Reta No. 6489

Objectives

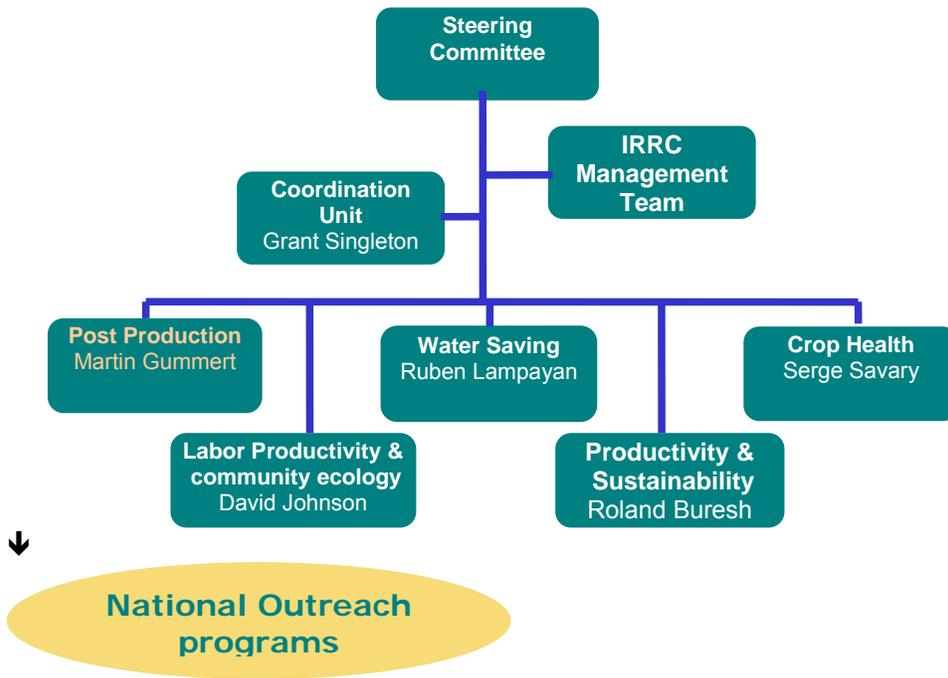
- The **reduction of postharvest losses** by wide scale out-scaling postharvest interventions that were piloted in the previous ADB/JFPR 9036 project in Vietnam and Cambodia.
- Increasing farmers' incomes from their rice harvests.
- Strengthening national public and private **extension systems**
 - For rice farming communities (agricultural extension)
 - For manufacturers of postharvest equipment (industrial extension).
- Facilitate a **policy dialogue** for sustainable development of PH sector

Goals, in line with national policy and MDGs

- Contribute to **food security** nationally and globally
- **Poverty reduction** in poor rice farming communities

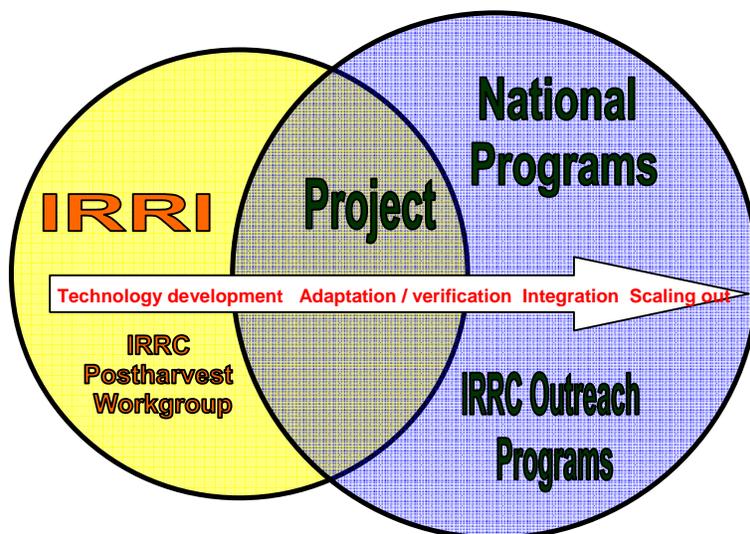
IRRC country outreach programs (ICOPs)

At IRRI we consider the new ADB Reta No. 6489 postharvest component as complementary to the Postproduction Workgroup of the Irrigated Rice Research Consortium (IRRC). The IRRC is a consortium consisting of IRRI and NARES in Southeast Asia working on best agricultural practice in five problem oriented workgroups. The consortium is coordinated by a Coordination unit, which also supports the work groups with socio economic expertise, baseline and impact studies etc. The Postproduction Workgroup of the IRRC has activities in Viet Nam, Lao, Myanmar, Indonesia, Cambodia and the Philippines and through this consortium the ADB project will be linked with a bigger international postharvest network for information exchange and cross country technology transfer.



How to reach out to thousands of farmers?

How do we envision to reach hundred thousands of farmers? The project does not have the resources to finance wide-scale in-country extension activities. It is also not the purpose of the project to fund national extension activities or re-place national institutions with extension mandates. Instead the project will add value to national programs by using the approach championed by the IRRC where the project will feed into national extension and outreach programs. This is shown in the simplified diagram below. The yellow circle constitutes the postharvest activities at IRRI and in the IRRC Postharvest Workgroup, where mainly technology and methodology development takes place. The blue circle represents the partner country, in this case the Philippines, which usually has many own national extension and outreach programs for technology verification, integration and scaling out. These national programs are implemented with own funding or supported by other donors. The ADB Reta No. 6489 Postharvest project is represented by the overlap in grey. These are the joint activities mainly on technology and methodology adaptation and verification which are directly supported with project resources as listed under “Project contribution”.



Project contribution

- Training at IRRI
- Training in country
- Studies
- Facilitation and coordination (Learning alliances)
- Technology concepts,
- Cross country technology transfer
- Pilots in selected sites
- Extension methodology development
- Business model development
- Support for local team
- Capture the learning and make it available

It needs to be understood that we will not reach the targeted number of end users with the project resources alone. The project will rely on these national outreach programs for a wide scale dissemination of the postharvest technologies. A key task of the project management will therefore be to engage with these outreach programs and evaluate options and foster collaboration. This also will require a dialog on the decision making level so that national resources can be allocated to outreach activities that include the projects technologies and methodologies.

We propose the Learning Alliance as a multi stakeholder platform for this engagement.

Basket of interventions to choose from

Based on the previous ADB/JFPR 9036 and the IRRIC Postharvest activities in other countries the following technologies and management options are verified in farmers' fields and are available for inclusion in the project based on the still to be determined need of the end users in the target areas. New promising technologies can be included as well, which might need some adaptive research component. (See also the slides presented during the first day.)

- Mechanical harvesting (mini combine harvester)
- Mechanical drying (Flat bed dryer)
- Hermetic storage systems for seeds and grain
- Rice mill improvement
- Marketing assistance
- Understanding quality
- Training
- Policy dialog

Outputs

The project has the following outputs based on the functions and inputs needed for a successful wide- scale introduction of improved postharvest management options.

Output 1: Appropriate **postharvest technologies** (PHT) and improved PH management options are available to farmers and processors.

Output 2: Country- and technology specific **agricultural extension methodologies** are developed and agricultural extension systems are strengthened.

Output 3: **Business models** for improved PHT are developed, links to financing established and support market oriented production established.

Output 4: National **outreach programs** include postharvest technologies and management options on a wide scale. .

Output 5: National **learning alliances** capture the learning experiences and feed them into project management, **policy**, decision making, and extension.

Expected outcomes and impacts

We are expecting the following outcomes and impact from the project:

- Local manufacturers are producing equipment and adopting it to users needs and are getting the assistance needed in the adaptation.
- Improved postharvest equipment is available nation wide.
- Public and private extension systems are providing advice and training on postharvest technologies according to users needs.
- Postharvest chain actors have access to financing for purchasing equipment.
- National market info systems includes rice prices, timely data is available at the villages.
- Learning is captured and used in policy and decision making.
- Farmers sell more and better quality rice (300,000 in 3 countries within 5 years)

Activities

Activities will be planned and agreed on in annual planning meetings, for which the proposed Learning Alliance can provide a platform. The list below is included in the project document but will need to be discussed and fine tuned in the national context based on the need.

- Baseline studies, need assessments, impact pathway workshops
- Adaptive research to adapt technologies to end users needs
- Industrial extension: technology transfer to manufacturers, manufacturers training, production techniques, advisory service
- Agricultural extension: development of extension methodologies and materials, demos, training
- Workshops for cross country learning and technology transfer
- Training, capacity building
- Linking to support services (financing, markets, etc)
- Capture learning and make available in RKB
- Initiate and facilitate a Learning alliance

Guiding principles

Some of the guiding principles for the project are:

Need based value chain approach from harvest to market.

Activities should be based on the actual needs of the end users for reducing losses and increasing their incomes. The project will consider interventions based on available technology options along the whole postharvest value chain and not focus on one simple operation.

Building entrepreneurial skills.

Investment in postharvest means that a farmer often needs to make the transition from being a production focused farmer into being an entrepreneur using a business approach for investment in equipment and selling services (e.g. drying service) to others. The project will support this process.

National learning alliances embrace all relevant public and private stakeholders.

The project will be inclusive and work with all key stakeholders in the value chain and not focus on one group only

Impact culture established with impact pathway analysis and fostered through facilitation of learning alliance meetings

Make maximum use of existing knowledge

Many technologies and methodologies are being used commercially in other countries. Rather than re- inventing the wheel the project will draw on existing solutions and assist with transfer and adaptation to local conditions.

Don't re-invent the wheel, facilitate cross-country learning and learning from the history

Building on and adding value to national initiatives

- Work done and decisions made where they are done best
- IRRI building on and adding value to national initiatives
- (e.g. through IRRC outreach programs)
- **Letting go as stakeholders take over**

Appendix 2: List abstracts from Hue PIPA Participants

RICE POSTHARVEST SITUATION IN QUANG NGAI PROVINCE

Le Van Viet

Vice Director of Quang Ngai Agricultural and Fishery Extension Center

Summary:

This paper is presented a result of investigation on Rice Post-harvest in Quang Ngai Province. The results show that Quang Ngai is a large area for rice plant with area of 27.000ha and yield of 380.000Ton per year for two crops per year.

Although there has got a high rice yield but Quang Ngai also got a high rate of Postharvest losses, approximately 15-20% of yield.

In Quang Ngai Province, Agricultural Mechanization has also applied initially on many steps of rice plant cultivation process as cultivation, postharvest, process, storage... but not efficiency. By analysing a lot of reasons, we propose some solutions to enhance a higher efficiency on postharvest.

RICE POSTHARVEST SITUATION IN QUANG TRI PROVINCE

Nguyen Trung Hau

Vice Director of Quang Tri Agricultural and Fishery Extension Center

Summary:

With 47.000ha for rice cultivation area and high rate of agricultural worked labour, major income of most people base on the rice product in Quang Tri Province. Postharvest process are done mostly by hands. The Postharvest losses in Quang Tri are considered especially by the local government. Many development policies on agriculture are applied here. Efficiency coefficient of investment is very high but not in the pre- and postharvest. Total rate of loss in pre- and postharvest estimated at 7% to 9% of yield.

In this paper, we also present our Agricultural development Strategy. It is cooperation of four members: local government, rations trade company, researcher, and farmer. At the first phase, we focus on calling project to research and apply modern technology in the pre- and postharvest.

RICE POSTHARVEST LOSSES IN QUANG BINH PROVINCE IS BEING A BIG CONCERNS

Ho Khac Minh

Quang Binh Department of Agriculture and Rural Development

Summary:

Quang Binh has an area of planting rice near 27.000ha, production of rice in 2 crops /year, the winter-spring planting area reached 26.700ha, and Summer-autumn planting area reached 17.000ha, with total output estimated to reach 240,000 tons/ year. Rice is the main crop of the province. Rice production is a source of income of people in Quang Binh with over 70% of the population working in agricultural area. Product rice is the basis stable economic - social and food security of the province. Currently the losses after harvest in rice production in Quang Binh are a big concern. Rate of loss estimated between 7 to 8% yield. The loss is 4-5% when the rice harvest and 3-4% in the processing and storage.

RICE PRODUCTION AND POSTHARVEST IN NGHE AN PROVINCE

Nguyen Van Lap

Vice Director of Nghe An Department of Agriculture and Rural Development

Summary:

Nghe An is located in the North-Central of VietNam. It has the largest area of natural land of 1,648,729 ha, in which, the land for forestry is up to 1,178,182.2 ha. In order to ensure the foods for the province, the yearly output has to reach from 850,000 to 900,000 tons of rice. In recent years, 183,000-186,000 ha of rice has been used , with the average output of about 5.1 - 5.2 tons/ha, and the total output of rice is 930,000 – 950,000 tons per year. However, due to the harvest, drying methods and storing methods are carried out by hand, so the loss from the harvesting stage to the drying one is about 4-5% (in the storing stage, the loss is about 2-3%).

RICE POSTHARVEST SITUATION IN QUANG BINH PROVINCE

Le Hong Vien

Director of Quang Binh Agricultural and Fishery Extension Center

Summary:

Quang Binh is a coastal agricultural province in the Central, with the area of planting rice for 2 crops of approximately 50,000ha, in this, the area of planting rice in Spring-winter and in summer-autumn (including other crops) is 27,000ha and 23,000 ha, respectively. Otherwise, the terrain is not event and flat, some areas shapes the pan and are lower than the sea level up to 50-60cm (Le Thuy, Bo Trach province), and are easy to be flooded, so the average area of planting rice is 0.06 ha/person/year. However, the disposition of these areas is not even among the regions in the province. Beside that, the local economy and the income of the local people are difficult, so the harvesting and storing stage are done by hand. Therefore, the investment of machines in order to mechanization in agricultural production is an important problem in Quang Binh province.

RICE POSTHARVEST SITUATION IN QUANG NAM PROVINCE- STATUS AND SOLUTIONS

Quang Nam Agricultural and Fishery Extension Center

Summary: Quang Nam is an agricultural provine which belongs to the coastal area in the South-Central of VietNam. It has the area of natural land of 10,408 km², in this, the area of agricultural production is only 111,187 ha. However, the area of planting rice is the largest, about 55,294 ha (63,86% in comparison with the total area of other trees, 86,590ha). The income of the farmers from rice is 60% of the total income of farmer household, so it can be said that the rice production is very important for the farmers in Quang Nam. In the last few years, although the farmers has applied the progressive technologies in producing rice such as: new high output kinds of rice, the better technical cultivation, the harvesting problem and the post-harvest management are insufficient. The rate of post-harvest loss is not under 15% and it focuses on some stages: cutting and plucking off rice, drying and cleaning rice, storing and grinding rice.

RICE POSTHARVEST ACTUAL SITUATION IN HA TINH PROVINCE

Ha Tinh Agricultural and Fishery Extension Center

Summary:

The area of natural land in Ha Tinh is 6.025 km², with approximately 80% population live mainly on agricultural, forestry and fishing production. In agricultural production, rice has the largest area of land and is the most important plant to the farmers. However, the mechanization in agriculture is low and the harvest and the post-harvest preservation are done by hand, so the post-harvest loss is very high, approximately 3-5%. Otherwise, due to the high investment expenditure , whereas the rice price is low, so the income of the farmers from the rice is not so high as that from other plants. Therefore, the development of post-harvest services is essential requirement for the agricultural produce in general and rice in particular in Ha Tinh.

RICE POSTHARVEST SITUATION IN THUA THIEN HUE PROVINCE

Tran Quang Phuoc

Rector of Thua Thien Hue Agricultural -Forestry and Fishery Extension Center

Summary:

The area of planting rice in Thua Thien Hue province is nearly 50.149 ha per year. Rice is mainly planted in 2 crops: spring-winter and summer-autumn crop, with the average productivity of about 6,0846 tons/ha and the output of about 273.705 tons per year. Now, in some main regions, rice is harvested by power reapers with their capacity of about 1-1,2 ha/day, which is popular. However, in some other regions, rice is also harvested by hand and 100% of rice is dried under the sun. So the post-harvest loss is big

MECHANIZATION OF RICE POSTHARVEST IN CENTRAL OF VIET NAM- SITUATION AND SOLUTIONS

MSc. Nguyen Quang Lich
Faculty of Engineering and Postharvest Technology, HUAF

SUMMARY

In the last few years, the mechanizations in rice production and post harvesting in central of Viet Nam has more advance, the number of machineries per ha is increasing day by day. But it is limited at some works such as plough, irrigation, pluck and rice husking. All most work in rice post harvest is implemented by handicraft. Rice drying is very important on guarantee of rice quality, but the ratio of rice drying in Central of Viet nam is estimated about 0,02% equivalent two dryer per 10000ha. Therefore, the post harvest losses is still very high, the ratio of rice post harvest losses is more than 8% yearly, the broken rice after husker is from 10% to 15%. So improve rice qualities by applying the advances technology in rice production and post harvesting is necessary and urgently especially using suitable techniques in drying and preserving to reduce the preventable and postharvest losses of rice.

SEALED STORAGE SYSTEMS FOR RICE SEED IN THUA THIEN HUE PROVINCE, VIET NAM

Đỗ Thị Bích Thủy, Nguyễn Hiền Trang
Faculty of Engineering and Postharvest Technology, HUAF

Summary:

This research aimed to compare the commercially available sealed storage systems with the 50kg IRRI super bags and the traditional systems to determine their effect on rice seed in Thua Thien Hue province, Viet Nam. There were 3 treatments in this experiment: Treatment 1: Open storage (traditional storage system) using regular nylon bags (capacity 50 kg); Treatment 2: Sealed storage using super bag(capacity 50 kg) provided by the IRRI; Treatment 3: Sealed storage using commercial hermetic system (capacity 4.2-4.3 tons) provided by the IRRI. All treatments were kept at the storage. After 0, 3, 6, 9 and 12 months the samples were taken (600 gram from each bag) for analysis. Results showed more advantage of the sealed storage than the open storage. The sealed storage included both super bag and commercial hermetic system provided insect control without pesticides due to the modified atmosphere inside the storage systems. It made the insects can not live. The sealed storage also limits the moisture content increase because the storage system prevents the grains adsorbing water from the ambient air. As a result the seeds are not discolor and the seed vigor is stable so the germination rate high. The sealed storage method is effective, easy to use, and it is suggested that the Agricultural extension center will advise and transfer the technology to farmers who live in cultivate areas.

SOLUTION FOR REDUCTING RICE POSTHARVEST IN CENTRAL AREAS OF VIET NAM

Pham Huu San
Center of Research & Apply of Agricultural Engineering Technology in Central Areas, Viet Nam

Summary:

In the past few years, with the application of the new kinds of paddy and the reasonable methods of cultivation, the output of agricultural produce has remarkably increased. However, the terrain of central region is not even and flat, the weather is critical, floods often happen, and the harvest as well as the post-harvest preservation is not good, the post-harvest loss of rice is very high, especially in drying stage, up to 10-20%. Therefore, the finding out of some measures to reduce the loss of rice in post-harvest stage is very important in the Central.

RESEARCHING THE STATUS AND SOLUTIONS TO RAISING OF MECHANIZATION ON
RICE POSTHARVEST AND PRE-PROCESSING IN THUA THIEN HUE PROVINCE

Asc.Prof. Phan Hoa, MSc Nguyen Thi Ngoc
Faculty of Engineering and Postharvest Technology, HUAF

Summary:

Thua Thien Hue is located in Central of VietNam, the area of land used for planting rice is 50,200 ha and the output is 252,000 tons per year . In the last few years, with the increase of agricultural production, the application of mechanization in agriculture has significantly changed. However, only some stages in rice production are mechanized highly, included: working land (82%), water pumping (68%), rice threshing (85%) whereas, other stages are carried out by hand such as: sowing, harvesting, drying...

Although Thua Thien Hue province has put forward the agricultural and rural development policies, it is also short of concrete measures. The investment of machines in order to serve for agriculture is spontaneous, it leads to the distribution of machines which is not even. Beside that, the farmers don't have a thorough grasp of technical process and use of machines, so the effect of using machines is not high and it leads to reduce the life of machines. Therefore, in order to use machines reasonably and effectively, we have to carry out researching general based on estimating the actual situation to put forward the comfortable measures of technical science, economy, management policies and manpower source training... to raise the mechanization level in harvesting.

RESEARCH ON PADDY PROCESSING OF NATURAL CONVECTION TYPE SOLAR TUNEL DRYER

MSc. Do Minh Cuong, Dr. Dinh Vuong Hung
Faculty of Engineering and Postharvest Technology, HUAF

SUMMARY

The proposed solar drying equipment was designed and constructed simply with low accuracy, low cost. The used material is available locally and made easily by farmers. This equipment can shorten a half of drying time to compare with natural sunlight drying in the same condition ensuring the quantity and quality of drying paddy to prevent the humid air. It also can be used for drying some other agricultural products.

Appendix 3: Regional workshop series in Vietnam

The workshops were scheduled to be for one and half day and arranged in a series as listed below.

Date	Location	Responsible	Responsible person	Translator + email
21st- 22nd Jul.	My Tho WS 1	Sub-Institute of Agricultural Engineering and Post- harvest Technology SVIAEP	Pham Van Tan, PhD, Vice director of the Southern Sub-Institute of Agricultural Engineering and Post-harvest Technology (SIAEP), 54 Tran Khanh Du Street, Tan Dinh Ward, District 1, Ho Chi Minh City, Vietnam, tavisdney@yahoo.com.au , Tel: +(84.8) 3526 7192, Cell ph.: +(84) 126 5748 560 Nguyen Duy Duc, Director the Southern Sub-Institute of Agricultural Engineering and Post-harvest Technology (SIAEP), HCMC, s.a. ducnguyenduy2003@yahoo.com	Nguyen Phu Hoa, Aquaculture and Aquatic Resource Mgt., NLU phuhoa0203@yahoo.com , phuhoa0203@gmail.com
24th- 25th Jul.	Nha Trang WS 2	Nong Lam University NLU	Nguyen Le Hung, PhD, Vice Rector, NLU HCMC Mob:+(84) 913768957; Email: lehungn@gmail.com Nguyen Van Xuan, MSc, Director, Centre of Energy and Agricultural Machinery NLU Mob: +(84) 918 002 312; Email: vanxuan310156@gmail.com Bui Ngoc Hung, PhD, Vice Dean, Faculty of Agricultural Engineering & Technology, Nong Lam University, Ho Chi Minh City hungbuingoc@gmail.com Tran Van Khanh, MSc, Lecturer Centre of Energy and Agricultural Machinery NLU Mob: +(84) 903 737 498, Email: tvkhanh1958@yahoo.com.vn Dr. Phan Hieu Hien, Consultant, Nong Lam University, Ho Chi Minh City 091 312 7481 phhien1948@yahoo.com , phhien@hcm.vnn.vn	Truong Thuc Tuyen, Lecturer, Faculty of Food Science & Technology Nong Lam University, HCMC thuctuyen@hcmuaf.edu.vn , thuctuyentruong@gmail.com Nguyen Thi Hong Ngoc, Director, Ideal Agriculture Joint-stock Co.
27 th - 28 th Jul.	Hue	Hue University of Agriculture and Forestry HUAF	Dr. Do Thi Bich Thuy, Vice Dean, Faculty of Engineering and Technology, Hue University of Agriculture and Forestry (HUAF), 102 Phung Hung, Hue Vietnam, chieuthuy64@yahoo.com Mr. Nguyen Quang Lich, Lecturer, Faculty of Engineering and Technology, Department of Agricultural Engineering, Hue University of Agriculture and Forestry (HUAF), +84.54.3931150, +84.935757273; quanglichckn@huaf.edu.vn , ngqlich@gmail.com	Ve Ouoc Linh, Department of Engineering and Technology, HUAF linhi@gmail.com
30th- 31st Jul.	Ha Noi WS 4	Vietnam Institute of Agricultural Engineering and Post- harvest Technology VIAEP	Dr. Tran Thi Mai, Vice Director, Vietnam Institute of Agricultural Engineering and Post-harvest Technology (VIAEP) tranthimai05@yahoo.com Dr. Nguyen Thi Duong Nga, Lecturer, Faculty of Economics and Rural Development, Hanoi University of Agriculture ngatd@hua.edu.vn , ngantd@gmail.com	Dinh Thi Tam, Vice Head Division of Science, training and International Cooperation, VIAEP dinh tam vn 2002@yahoo.com
3rd- 4th Aug.	Can Tho WS 5	CanTho University CTU	Dr. Nguyen Ngoc De, CanTho University, Farming Systems nde@ctu.edu.vn Dr. Vu Anh Phap, Lecturer, Can Tho University Email: vaphap@ctu.edu.vn ; cell ph.: 098600616	Please add translators details as soon as available

Appendix 4: Workshop Agenda**Day 1, 27th July 2009**

Time	Time min.	Description of topic and activity	Resource Person
7:30	15	Registration	Nguyen Hien Trang
	5	Introduction the delegates	Mr Nguyen Quang Lich
	10	Welcome remark by rector of HUAF	Prof. Tran Van Minh
	5	Speaker from IRRI	Dr Tonya Schuetz
	5	Housekeeping issues	Mr Nguyen Quang Lich
	10	Participants introduce in pairs (5min for interview and 5min for put the Expectations)	All participants
	30	The participants present partner (one min per each)	
	5	Workshop Objectives	Dr Do Thi Bich Thuy
	15	Overview (updated) on PH sector in Viet Nam	Dr Phan Hieu Hien
	15	Overview (updated) on PH sector in Central of VN	Dr Dinh Vuong Hung
	15	Overview on PH project	Dr Phan Hieu Hien
	20	<i>Coffee and picture taking</i>	Mr. Vo Cong Anh
	10	Introduction to Impact Pathways and Learning Alliances	Mr Nguyen Quang Lich
	10	Introduction to how to develop a problem tree	Dr Do Thi Bich Thuy
	40	Drawing PH regional problem trees and identifying potential project leverage points (working in stakeholder groups): To clarify and communicate the project rationale in terms of the problems it is addressing, and how solving these problems will contribute to eventual impact	4 Groups will work independents.
	10	Explanation of different stakeholder groups and dreaming of a project success by 2014	Mr. Nguyen Quang Lich
	20	Filling worksheet 1	4 Groups
11:30-13:00		<i>Lunch break</i>	
	20	Networks introduction exercise Participants become familiar with key concepts related to social networks and 4 group (worksheet 2).	Dr Do Thi Bich Thuy
	50	Develop the network map. Construction of 'now' networks (a form of institutional analysis): Groups map how they see the current PH network in Central areas. 4 groups will develop the network map on PH in central areas	4 groups
	15	The necessary changes in network and the Vision of a successful project by 2014.	Mr Nguyen Quang Lich
	20	<i>Coffee break</i>	
	60	Presentation of PH problem trees, opportunities and visions, the network map and worksheet 3. (each group will presentation a main result for all issues)	Each group will presentation (10 min) and 5min for discussion
	20	Contribution to in build evaluation	All participants
16:30	90	Visiting to Huy Phat Joint-Stock Company (manufacture of Mini- combine) (<i>spend 10 min in Hotel for refresh</i>)	Tran Chi Lynh, Director
18 :00	90	Evening : Welcome Dinner	Nam Chau Hoi Quan Restaurant (Ms Huong)
19:30	120	Pleasure-Boat in Huong Giang River	Mr May
21:30		Coming back Hotel	Mr May

Day 2, 28th July 2009

Time	Time min	Description of topic and activity	Resource Person
7:30	15	Check-in	Nguyen Quang Lich
	10	Introduction th OLM	Nguyen Quang Lich
	60	Development project impact pathways:Participants prioritize changes required to reduce PH losses based on other workshop outputs in the form of an outcomes logic model	4 groups work independent
	60	Discussion of how the Learning Alliance (world café methodologies) concept might work as a platform for prototyping and shared learning: Participants give input and reach common understanding of how the Vietnamese Postharvest Learning Alliance might work in their region	Do Thi Bich Thuy and All participants
	15	<i>Coffee</i>	
	60	Peresent by group on OLM in central of Viet Nam	4 groups work
	60	Discussion Of activities that can be implemented in 2009 Next steps Each participants contribution	Nguyen Quang Lich and All participants
	30	Workshop evaluation (<i>should be done real thorough so that we can each time learn for the next one</i>)	Nguyen Quang Lich
	5	Thank for participant from IRRI	Dr Tonya
	5	Thank for participant from HUAF	Dr Dinh Vuong Hung
		<i>End of the Day 2</i>	
13:00		<i>Farewell Lunch</i>	Hoang Gia Phat Restaurant

Appendix 5: Participants List

No	Name	Designation/ office	Email address	Mobile phone
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No	Name	Designation/ office	Email address	Mobile phone
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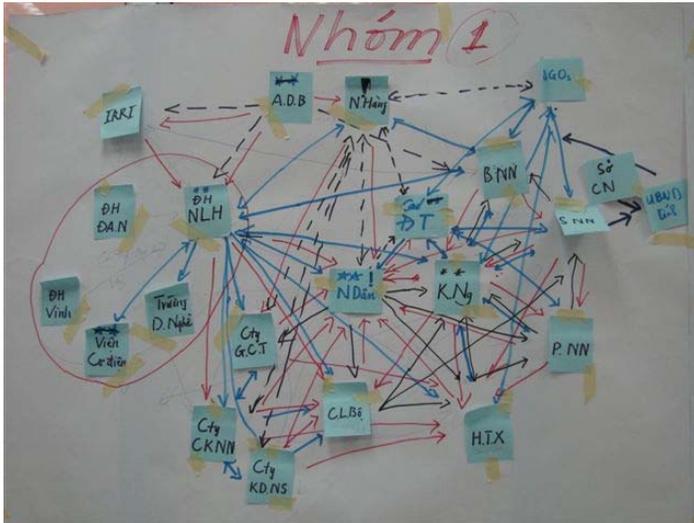
Appendix 6: Abbreviations and terms used in network maps

Acronym	Full Name	Location
GROUP I (Government Agencies Group 1)		
NGOs	NON-GOVERNMENT ORGANIZATIONS	
BNN	MINISTRY OF AGRICULTURE	
SNN	DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT	
UBND TỈNH	PEOPLE COMMITTEE PROVINCE	
PNN	DEPARTMENT OF AGRICULTURE	
HTX	COOPERATIVE	
CÁC ĐT	UNIONS	
ND	FARMER	
CLB ND	FARMER CLUB	
CTY CKNN	AGRICULTURAL ENGINEERING COMPANY	
CTY GCT	SEEDS COMPANY	
ĐHNLH	HUE UNIVERSITY OF AGRICULTURAL AND FORESTRY	
ĐH VINH	VINH UNIVERSITY	
ĐH DAN	DA NANG UNIVERSITY	
GROUP II (Government Agencies Group 2)		
HUAF	HUE UNIVERSITY OF AGRICULTURAL AND FORESTRY	
VINHU	VINH UNIVERSITY	
TTKNKN	AGRICULTURAL EXTENSION AND FISHERY CENTRE	
GCT	SEEDS COMPANY	
MNN	MACHINE PRODUCING COMPANY	
CB	PROCESSING ENTERPRISE	
TM	CONSUMING ENTERPRISE	
ND	FARMER	
HND	FARMER CLUB	
HTX	AGRICULTURAL COOPERATIVE	
MARD	MINISTRY OF AGRICULTURAL AND RURAL DEVELOPMENT	
KHCN	DEPARTMENT OF SCIENCE TECHNOLOGY	
TNMT	DEPARTMENT OF ENVIRONMENT AND RESOURCES	
GROUP III (Farmers/Private Sect)		
ADB	ASIAN DEVELOPMENT BANK	
TW	GOVERNMENT	
UBND TỈNH	PEOPLE COMMITTEE PROVINCE	
TT KN	AGRICULTURAL EXTENSION CENTER	
SNN&PTNT	DARD (DEPARTMENT OF AGRICULTURE AND RURAL DEVELOPMENT)	
IRRI	INTERNATIONAL RICE RESEARCH INSTITUTE	
UBND HUYỆN	PEOPLE COMMITTEE DISTRICT	
PNN	ARGRICULTURAL DEPARTMENT	

Acronym	Full Name	Location
UBND XÃ	PEOPLE COMMITTEE VILLAGE	
TKN	AGRICULTURAL EXTENSION CENTER	
BANK	BANK	
CTY GIỐNG	SEEDS COMPANY	
DNCBNS	AGRICULTURAL PRODUCT PROCESSING COMPANY	
CTY HYFACO	HYFACO COMPANY	
CTY NNC	NNC COMPANY	
HTX SXNN	COOPERATIVE OF AGRICULTURAL PRODUCT	
HỘ ND	FARMER HOUSEHOLD	
HUAF	HUE UNIVERSITY OF AGRICULTURAL AND FORESTRY	
MARD	MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT	
GROUP IV (Research Group)		
ADB & BANKS	ASIAN DEVELOPMENT BANK & BANKS	
TT KNKC	AGRICULTURAL EXTENSION AND INDUSTRY CENTER	
IRRI	INTERNATIONAL RICE RESEARCH INSTITUTE	
DOANH NGHIỆP	BUSINESS	
CÁC SỞ, PHÒNG CẤP HUYỆN	DEPARTMENTS (DISTRICT)	
TT GIỐNG	SEEDS CENTER	
CHÍNH QUYỀN	GOVERNMENT	
ĐH HUẾ	HUE UNIVERSITY	
ND - HTX	FARMERS - COOPERATIVE	
VIỆN CỨU	RESEARCH INSTITUTE	
TỔ CHỨC CHÍNH TRỊ XÃ HỘI	COMMUNITICAL AND POLITICAL ORGANIZATION	

Appendix 7: Current postharvest network and vision

Government Agencies Group 1 (Group 1)



NOW

1. The agent:

- Universities, Institutes: researching
- Agricultural extension: Handing over
- Enterprises: applying.

2. How to do?

- Develop the showing models
- Spreading, Broadcasting
- Activities of community groups

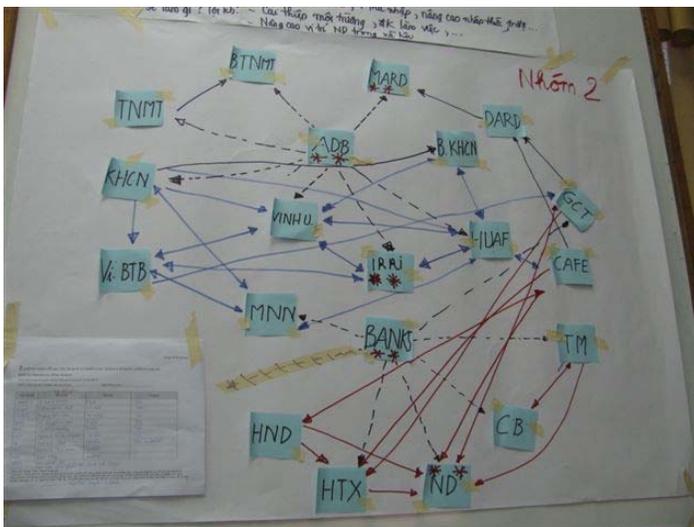
3. Policies, training:

- Supporting capital, technologies, land

4. People who enjoy revenue:

- Improve labour capacity, knowledge
- Improve income.

Government Agencies Group 2 (Group 2)



NOW

1. The agent:

Universities, Institutes:

- research affordable machines.

Agricultural extension:

- Putting forward the supporting policies
- Training for handing over technologies, developing models.

Enterprises:

- supporting services,
- manufacture suitable machines

2. How to do?

- Develop the showing models
- Going for **sightseeing (site visits?)**, evaluating, scaling up
- Spreading information

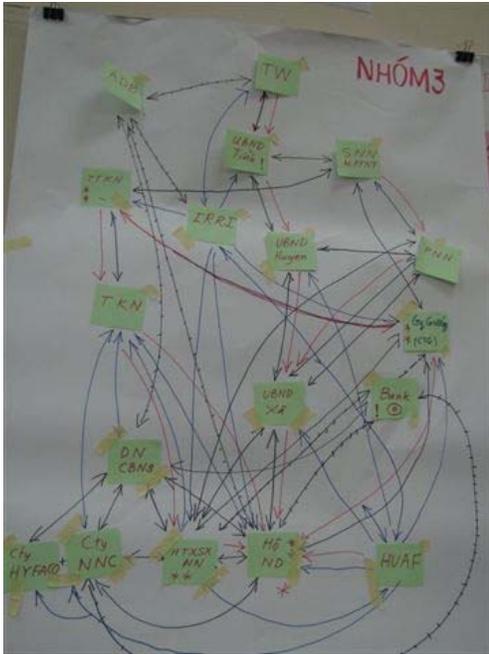
3. Supporting policies:

- the policy of preferential capital borrowing, developing the showing models, supporting the finance to go for a **sightseeing (site visits?)**.

4. What will the users do? Income?:

- Limiting the losses, increasing the income, improving the consciousness
- Improving the environment, the working conditions
- Improving the position of the farmers in society.

Farmers/Private Sector (Group 3)



NOW:

1. The agencies:

Universities, Institutes: researching affordable machines.

Scientists:

- Putting forward concrete measures to reduce PH losses
- Researching, handing over improved technologies.

Agricultural extension:

- Broadcasting to support technologies
- Developing models.

Enterprises:

- Producing rice (planning, holding production process)
- Processing: buying the products with suitable price
- Supplying suitable equipments

2. How to do?

- Develop the locally showing models
- Going for a sightseeing
- Spreading information

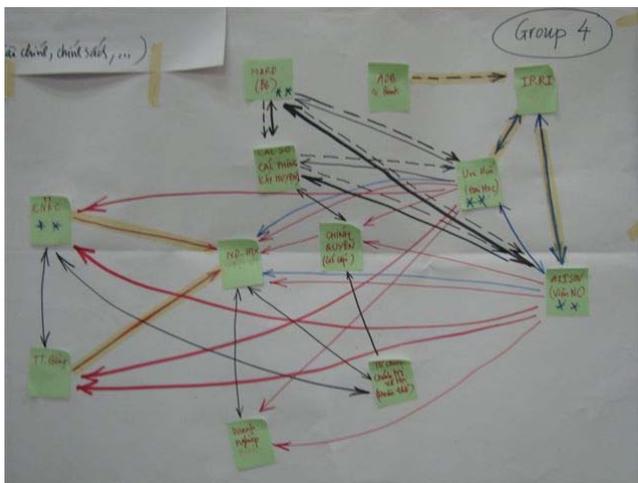
3. Supporting policies:

- Supporting the production area, expanding the factory
- Training
- Supporting the development plans
- Ensuring the post-selling services

4. The final users (get income)

- Applying the technologies during the harvesting process.
- Improving the economic effectivity.
- Investing machines (harvester, drying machine, threshing machine, means of transport, storing machines, storage)

Research Group (Group 4)



NOW:

1. The agencies:

Universities, Institutes, enterprises, agricultural extension, providing service, counsellor:

- Researching, handing over the technologies
- Providing the equipments, machines
- Putting forward the policies
- Purchasing the agricultural produce.
- Developing and scaling up the progressive production models.

2. Government, the donor (ADB):

- Putting forward the policies
- Supporting the finance
- Managing and supervising

3. The farmers (who enjoy the revenue from the project)

- Carrying out the project
- Enjoying revenue from the project:
 - o Having the progressive post-harvest technologies
 - o Having knowledge of post-harvest technology
 - o Improving the income from the rice.

Appendix 8: Workshop monitoring and evaluation

“Go-around” at the end of Day 1 detailed responses of participants

Feedback from Day1

- lots of experience and knowledge
- good group work
- difference with other workshop before
- lots of informations in PH, it is very useful for farmers in central areas

Suggestions

- To provide a brief summary of the workshop in addition to the full documentation
- To have further detailed discussions on specific topics
- Putting forward a general discussion after each discussion.
- Need to have a band, Increase the time of individual discussion
- Each group has a soft board, should discuss after finishing each issue → shouldn't load.
- Variety in agriculture → give the key points → give the essential issue after finishing workshop.
- Give a general comment in each issue.
- Change the understanding
- Tell the essential issue.
- Increase the harmonization → each table should have a person to explain.
- Don't tell the vital role of the farmers.
- Not to tell the details of rice post-harvest losses yet.
- Lack of time for each group → increase the presentation time.

End of Workshop Evaluation Simplified After Action Review

WHAT TO IMPROVE	WHAT WORKED WELL
<p>The final content of the workshop is not clear</p> <p>The time table should be specific</p> <p>The content of the discussion is much but not specific.</p> <p>The information is not close</p> <p>The information need to be clearer.</p> <p>The hotel is not good (about the water), the receptionist is not good, checking the hotel before booking.</p> <p>The time for the workshop is so short that we don't achieve the final goal.</p> <p>Need to put forward the specific goals.</p> <p>The time for field trip need to be longer.</p>	<p>The preparation is good</p> <p>The document is good .</p> <p>The results are suitable for the local areas.</p> <p>The content is good, the method is new, it is easy to get the goals.</p> <p>The organization is good, the main content is good.</p> <p>The discussion content is good</p> <p>The workshop content is suitable.</p> <p>The workshop methodologies are good.</p> <p>Can achieve the targets of the workshop.</p> <p>There are much information about the post-harvest technologies.</p> <p>There are much good information.</p> <p>The content is very interesting.</p> <p>The organization methodologies is skillful.</p>

Dartboard Evaluation

1 = outside, 2 = middle, 3 = right on target	Hue 27-28/07/2009		
	1	2	3
<i>Clarify project objectives and regional plan</i>	1	0	8
<i>Identify key stakeholders and foster ownership</i>	0	1	9
<i>Identify project's impact pathways OLM</i>	0	2	9
<i>Clarify the LA</i>	0	2	9
<i>Venue</i>	0	0	9
<i>Organization + Facilitation</i>	1	1	7
<i>Methodology PIPA, part. Approaches</i>	0	1	10
<i>Materials provided</i>	0	0	11
<i>Field Trip</i>	3	3	5
Total	5	10	77
%	5	11	84

