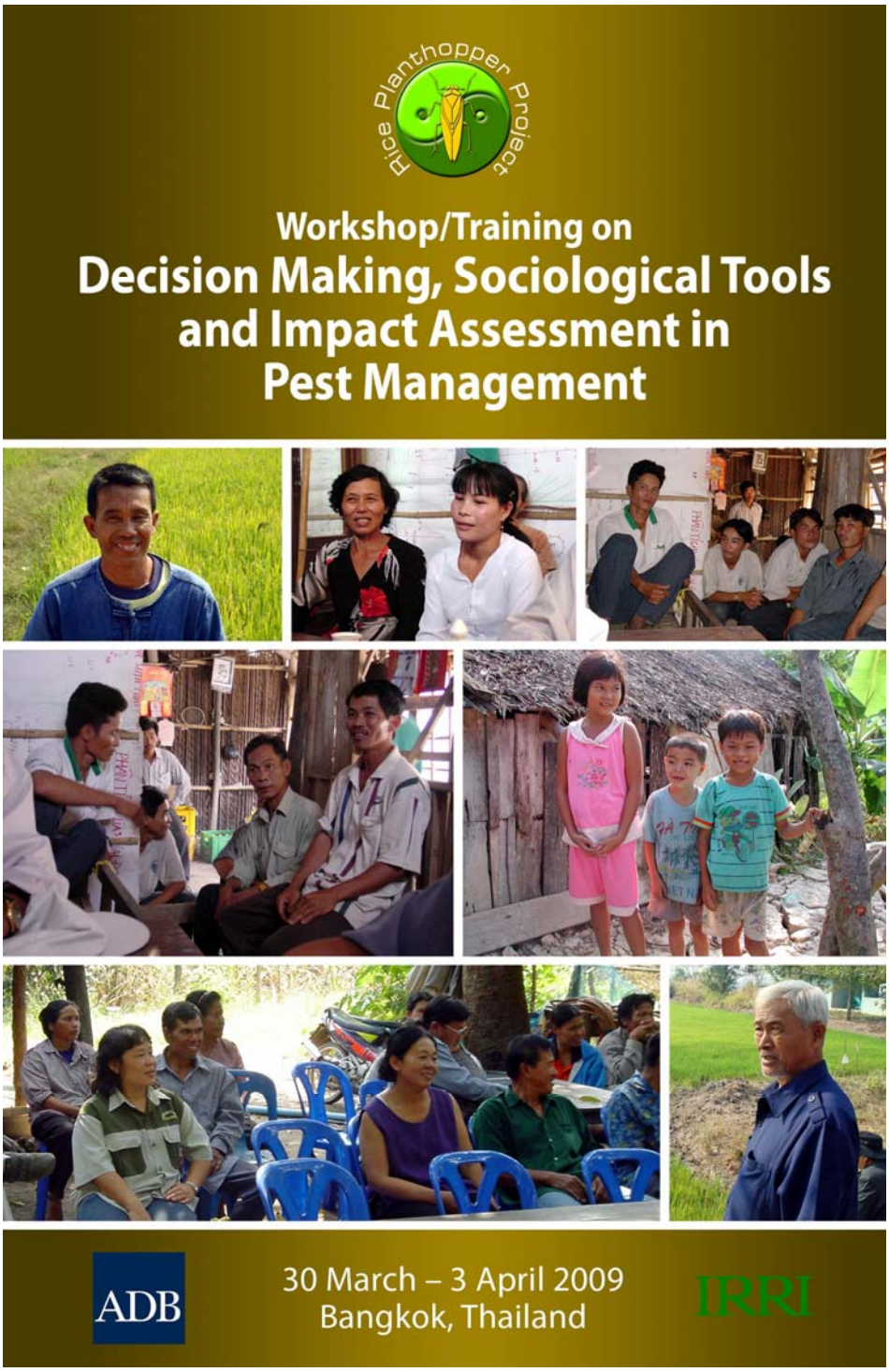
WORKSHOP REPORT



16 April 2009

SUMMARY

After the consultation workshop in Thailand in January 2009, the first in-country workshop-training course on "Decision making, sociological tools and impact assessment in pest management" was conducted on 30 March – 3 April 2009 in Thailand. The five-day workshop/training was carried out in Kasetsart University in Bangkhen and field work in Ang Thong and Chainat provinces.

Dr. Samlee Boonyaviwat, Director of the Bureau of Rice Research and Development, on behalf of Mr. Prasert Gosalvitra, Director-General of the Rice Department, formally opened the training with a welcome address. In her speech, Dr. Boonyaviwat expressed her gratitude to ADB and IRRI for initiating the training course which will build the capacity of Rice Department staff to better understand farmers' planthopper management and stakeholders' response to planthopper outbreaks. Outbreaks have been reported in Thailand almost every year despite the Rice Department's release of resistant rice varieties. Most of these outbreaks are due to misuse of insecticides. Eliminating natural enemies, insect pest resurgence and insecticide resistance have complicated rice ecosystem problems.

Eleven staff members from the Rice Department participated in the workshop-training conducted by three resource persons from IRRI and the Philippines. After the opening session, Dr. Heong, principal investigator, presented the background of the project and the expected outputs. This was followed by a description of the workshop/training objectives and expected outcomes by Dr. Escalada, Output 4 coordinator. The four training modules were tackled by the various resource persons as planned. The training had the following features: interactive, participatory, competency-based and hands-on.

Group exercises and focus group discussions with farmers in Ang Thong and Chainat provinces provided participants with insights into the use of sociological methods to understand farmers' decision making, e.g., focus group discussions, emic-etic, folk taxonomy and folk partonomy. Results of group exercises and FGDs with farmers and extension workers, folk taxonomy and partonomy are presented in the report.

Background

Between 2004 and 2007 several countries in Asia suffered heavy pre harvest losses caused by outbreaks of the planthopper pests and virus diseases they carry. In 2005/06, rice production in Vietnam particularly in the Mekong Delta suffered an estimated loss of ~ 400,000 tons (or 1.1 % of Vietnam's total). In China the planthopper problems are persistent and in 2005 about 2.8 million tons loss was reported. Also in 2005/06 extensive outbreaks of BPH occurred in Korea, Japan and Vietnam bringing about yield losses of more than 3 million tons. Planthopper outbreaks are continuously being reported in other Asian countries (see *http://ricehoppers.net/?s=outbreaks*).

In April 2008 as a response to the rice crisis, ADB invited IRRI to submit a proposal that will help reduce losses, both pre and post harvests under the 13th RETA program (Regional Technical Assistance). The project entitled "Bringing about a Sustainable Agronomic Revolution in Rice Production in Asia by Reducing Preventable Pre- and Postharvest Losses" or the "Rice Planthopper Project" in short, was approved in October 2008.

The project will employ a multistakeholder participatory process in planning, review and monitoring of project outputs in target countries. The participatory process will engage policymakers and stakeholders in research, extension, the private sector, NGOs, local government, and farmer groups to contribute toward developing detailed research plans, help implement and review results, have policy dialogues, and provide feedback. Research on farmers' knowledge, attitude, and practices (KAP) to document impacts on farmer and policy adoption of new ecological ideas will be conducted. The KAP studies will involve conducting focus group discussions and structured interviews of farmers and key stakeholders.

To achieve project outputs in target countries, the in-country workshop-training course aims to impact knowledge and build the capacity of project partners in decision making, sociological tools and impact assessment. With enhanced skills, partners can participate in planning, implementing and reporting baseline research activities to understand farmers' planthopper management and key stakeholders' response to planthopper outbreaks.

Workshop objectives

1. To provide workshop participants with a theoretical understanding and conceptual framework on decision making – bounded rationality, procedural rationality and substantive rationality.
2. To improve participants' understanding and skills on emic-etic approach, farmer survey techniques including focus group discussions, and impact assessment.
1. To develop belief statements to explore farmers' knowledge and beliefs in planthopper management and ecological engineering and extension officials and policy makers' response to planthopper outbreaks at the provincial, regional and central levels.
3. To conduct focus group discussions with farmers and extension officers to explore their knowledge and beliefs in planthopper management and non-rice habitats.

4. To finalize the baseline instruments and develop a survey work plan, including questionnaire pretesting, fieldwork, data processing and analysis.

Resource persons: Drs MM Escalada, KL Heong and Z Huelgas

Participants

1.	Ms. Wantana Sriratanasak	BRRD, Rice Department, Bangkhen
2.	Mr. Wichit Sirisantana,	BRRD, Rice Department, Bangkhen
3.	Ms. Nuchaya Na Songkhla	BRPE, Rice Department, Bangkhen
4.	Mr. Somkid Popan	BRPE, Rice Department, Bangkhen
5.	Mr. Manit Luecha	Director of Chainat Rice Seed Center
6.	Mr. Somsak Thongdeethae	Director of Chainat Rice Research Center
7.	Ms. Nalinee Chiengwattana	Chainat Rice Research Center
8.	Ms. Narisara Juroonwong	Chainat Rice Research Center
9.	Mr. Chairat Channoo	Chainat Rice Research Center
10.	Ms. Wannaphan Janlapa	Prachin Buri Rice Research Center
11.	Ms. Somrote Prakobbun	Prachin Buri Rice Research Center

Workshop Outputs

Key outputs of the workshop- training were a set of belief statements for the baseline survey, a work plan and an estimated survey budget, as follows:

1. Belief statements

Box 1 - Group 1- Planthoppers

Identification of rice hoppers

1. The brown planthopper migrates from other rice fields.
2. Migration of BPH is caused by wind.
3. The brown planthopper lays eggs on leaf sheath
4. A mature insect is the most harmful to the rice crop.
5. BPH causes stunting of rice plants.

Seriousness of planthopper damage on rice crop

1. BPH causes loss in rice yield.
2. When a rice crop is attacked by BPH, the damage can be 100 percent.

Management of planthoppers

1. Farmers who plant resistant varieties can reduce the amount of insecticide sprays they use for BPH.
2. If my neighbor sprays insecticides for planthoppers, I must spray too.
3. Insecticide spraying for insect control increases yield
4. Insecticide spraying to control insects can harm your health
5. Spraying knockdown insecticides can cause more pest problems.
6. Insecticide droppings can kill BPH.
7. Calendar spraying can reduce the BPH problem.
8. During a BPH outbreak, a farmer can always go to the extension worker for help.

Box 1 continued …

Knowledge of the ecosystem

1. Spiders are beneficial to the rice crop.
2. All insects in the field are harmful.
3. Insecticide application can kill natural enemies.

Cultural practice

1. Resistant varieties can withstand BPH attack.
2. A resistant variety must never be sprayed with insecticides.
3. High seed rates can cause BPH outbreak.
4. High fertilizer rate can cause outbreak of BPH
5. Planting the same rice variety in a large area can cause BPH outbreak.
6. Continuous rice cultivation can cause BPH outbreak.

Box 2 - Group 2- Non-rice habitat

Benefits of non-rice habitat

1. Planting flowers on rice bunds can eliminate the need for insecticide sprays.
2. Planting flowers on rice bunds can reduce a farmer's expenses for insecticide sprays.
3. Planting flowers on rice bunds will help protect our environment from chemical pollution.
4. Planting flowers on rice bunds can help protect the health of farmers and their families.
5. Planting flowers on rice bunds can increase beneficial insects.
6. A farmer can prevent BPH outbreaks by planting flowers on his rice bunds.
7. Planting flowers on rice bunds can reduce the rat population.
8. If we plant flowers on rice bunds all year round, we can increase the population of beneficial insects.
9. Maintaining more beneficial insects will lower BPH population.

Maintaining non-rice habitat

1. Planting flowers on bunds is easy to do.
2. It is difficult to plant flowers on bunds because nearby paddy fields use herbicide.
3. We cannot plant flowers on bunds because burn our rice straw.
4. Planting flowers on bunds is additional burden to farmers.
5. If every farmer grows flowers on bunds, BPH outbreaks can be reduced.

Work plan

		2009												2010											
	ACTIVITIES	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	**Qualitative description of decision making processes on hopper and disease management done at three levels-- farmers, extension and policy makers**																								
	1.1. Pretest draft interview guide				X																				
	1.2. Finalize Interview guide					X																			
	1.3. Identify key stakeholders at various levels					X																			
	1.4 Conduct interviews					X	X	X																	
	1.4. Review transcripts & analyze data								X	X															
	1.5 Write qualitative description									X	X														
2	**Baseline surveys of farmers' KAP on planthopper & disease management**																								
	2.1. Develop survey instrument				X	X																			
	2.2. Translate & pretest survey instrument					X																			
	2.3. Conduct survey						X	X	X																
	2.4. Data processing & analysis									X	X														
	2.5 Write report											X													
3	**Baseline survey of extension officials and other government officials' KAP on planthopper and disease management**																								
	3.1. Develop survey instrument				X																				
	3.2. Pretest survey instrument					X																			
	3.3. Conduct survey							X	X	X															
	3.4. Data processing & analysis										X	X													
	3.5 Write report												X												
5	**Review Workshop**																								
	5.1. Consolidate results														X	X	X								
	5.2 Identify intervention opportunities															X	X								
6	**Documentation**																								
	6.1 Baseline survey report																X	X							
	6.2 Paper for publication																	X	X						

2. Focus group discussions

Workshop participants, divided into two groups, conducted a total of six focus group discussions with farmers and extension technicians, as follows:

Participants	Number of focus groups	
	April 1	April 2
Farmers	3	2
Extension technicians	2	0

On April 1, 2009,two groups of participants conducted focus group discussions (FGD) with rice farmers and extension workers at the Samko municipality office in Ang Thong province. Ang Thong is located 108 kilometers from Bangkok, and 35 kilometers from Ayutthaya. Topographically almost all of the Ang Thong area is low plain comprising mostly agricultural land. The two rivers -- Chao Phraya River and Noi River – provide

sufficient water for rice farming. Amphoe Samko has a total area of 56,000 rai[1], of which 37,000 is devoted to rice by 1,800 farmers. Rice is the principal crop cultivated three times a year. Other crops grown are fruit trees and vegetables.

3.1 Focus group discussion with farmers

3.1.1 Planthoppers

Themes	*Ang Thong 1*	*Ang Thong 2*
1. Knowledge of planthoppers	When farmers were shown a picture of BPH from a Rice Department pamphlet on rice pests, they could recognize it. They said that it is found in the lower part of a rice stalk. It is carried by wind and storm and it lays eggs. They learned about BPH from extension workers.	When shown a picture of the BPH, some farmers thought it was the green leaf hopper, some recognized it as brown planthopper, which they learned from the extension officer. Farmers did not know where it came from or whether or not it lays eggs. They learned that it was BPH during an outbreak.
2. Seriousness of planthopper damage on rice crop	Farmers reported that BPH can reduce rice yield from a small percentage up to total loss. When presented a picture of hopperburn, farmers recognized it and noted that sometimes the entire rice field could have hopperburn. They have seen grassy stunt virus and knew what caused the virus.	Farmers believed that the BPH could cause total yield loss. When shown a picture of hopperburn, they said they have seen it where clusters of rice plants become yellow and look burned. They have also seen stunted rice plants but did not know its cause.
3. Planthopper management	When they saw a lot of planthoppers, they applied chemicals when the crop was already severely damaged. While farmers went to the field often, they did not closely observe their rice plants. Insecticides used were confidor (Admire) dinotefuran (Starkle), fenobucarb and isoprocarb (Mipcin), which they learned from the local extension worker and local	Farmers did not visit their field often but when they did, they would spray insecticides if BPH was seen in their rice crop. During a BPH outbreak, farmers consulted the extension officer who suggested using confidor (Admire), dinotefuran (Starkle), buprofezin, isoprocarb (Apcin) abamectin and fenobucarb. They also applied a knockdown

[1] 1 ha = 6.25 rai

	trader. Abamectin was applied to control BPH regardless of whether it was a nymph or adult. First application was done at 30 days after sowing (DAS). Drainage of irrigation water was also done to control BPH. For farmers, stopping insecticide application for BPH control was unacceptable as they were worried about yield loss.	chemical, i.e., abamectin mixed with herbicide. Insecticide application frequency depended on the presence of yellowing symptom (early hopper burn) and if the population looks dense. They could not recognize a young or mature BPH. Farmers also used Beauveria for BPH control. If they stopped using insecticide for BPH control, farmers were worried that they would suffer yield loss.
4. Knowledge of ecosystem	Farmers appeared to have some knowledge about natural enemies. They named the spider as one natural enemy that spins a web to trap BPH. They knew that insecticides are harmful to natural enemies. Farmers observed that when insecticides are applied, in some cases, they are effective; in other cases, they lead to an outbreak.	Not every farmer in the focus group knew about natural enemies. One farmer who had attended the farmer field school specified the spider and dragonfly. Most farmers did not know the functions of natural enemies and the effect of insecticide sprays on them. After insecticide application, farmers noted that some insecticides tended to lose efficacy so they would shift to new ones.
5. Cultural practices	Farmers planted Pathumthani 1, a genetically altered variant of the Thai Hom Mali. Pathumthani 1 needs less time to mature and turns insensitive to light exposure. Farmers had 3 rice croppings a year using a seed rate of 25 kg/rai or 156 kg/ha. First fertilizer application consisted of 100 kg of 16-20-0 + 50 kg urea for 5-7 rai, followed by 25 kg of 16-20-0 25 per rai. The rice field is left to fallow for only 11 days.	Most farmers planted only Pathumthani 1, until a serious BPH outbreak occurred. They used a seeding rate of 30 kg/rai or 187.5 kg/ha, which is higher than the national recommendation of 156.25 kg/ha. Two to three rice crops were grown per season. The turnaround time between crops was only 4-7 days.

3.1.2 Non-rice habitat

Themes	*Ang Thong*	*Chainat*
1. What farmers do on bunds, crop free area nearby paddy field and water reservoir	Farmers reported that they have not planted anything on non-rice areas near the paddy field because their bunds are narrow. Instead, they kept the area weed-free to keep rats and insects away by spraying herbicide on the bunds.	Like their Ang Thong counterparts, Chainat farmers said that that they have not planted anything on their bunds as these are narrow. To keep them clean and prevent rats and insect pests, they always sprayed herbicide on the bunds.
2. Functions or benefits of non-rice habitat	One farmer planted vegetables, lotus and a fruit tree for additional income. Farmers thought that planting crops on the bunds will result in more BPH. Some farmers thought that gourds can be planted on bunds because these are easy to plant and tend which will generate extra income. Crops on bunds would have both insect pests and natural enemies, according to farmers. A mango tree near the paddy field is a haven for BPH, said another. Farmers have seen bees and butterflies on plants on the bunds but admitted not knowing that plants on the bund are the habitat of natural enemies that can control BPH.	Farmers admitted that if crops were planted on the bunds, there would be more natural enemies. Vegetables, such as chili, eggplant, yard long beans, can be planted. They have not observed insects on the bunds. Farmers have seen bees and ladybird beetles on plants on the bunds but had no idea that plants on bunds are the habitat of natural enemies that can control BPH.
3. Maintenance of non-rice habitat	Most farmers would prefer not to plant flowers or other crops on bunds.	Most famers prefer to keep their bunds plant-free.

3.2 Focus group discussion with extension officers on planthoppers

Themes	*Group 1*	*Group II*
1. Reporting of planthopper outbreaks	The extension worker surveys the field to assess damage and report it directly to DOAE online. At the same time, recommendations are broadcast on radio for farmers. In turn, provincial directors assess information on rice varieties and their damage.	The extension worker has to directly assess damage in the field. Damage is reported online to the DOAE central office, the leader in sub-district and broadcast to farmers.
2. Government management procedure for dealing with outbreaks	A committee is formed within 3 days to investigate and assess damage. If the damage exceeds 50% of the rice area, that area will be declared a disaster area. Decisions on pesticide subsidy will be made based on official recommendation.	They invite a rice specialist from the Rice Department to advise them on BPH management. The government declares the disaster area and provides subsidies for insecticides and money compensation for area damaged.
3. Role expectations of extension workers during a pest outbreak	Extension workers are expected to use new methods for technology transfer using new media.	Invite a professional from the Rice Department.
4. Worries about planthopper outbreaks	The decision making process takes too long.	The farmers use more insecticide to control BPH. Loss of yield and money.
5. Extension methods used to mobilize farmers during an outbreak	Farmer field schools are conducted in every sub-district area. Each field school holds 8 meetings per cropping season.	To campaign using light trap with vacuum to suction insects in outbreak areas.
6. Ways to minimize planthopper outbreaks	Farmers should monitor their rice field and reduce misuse of insecticides.	To introduce effective insecticides to farmers, reduce seed rate, reduce chemical fertilizer, set up light traps and use resistant rice variety.

7. Causes of outbreaks	Climate change, change in rice ecology, and continuous rice cultivation in a large area.	The farmers used excessive amounts of insecticide and planted mono variety in wide area; BPH migration by wind.

4. **Folk taxonomy – leaffeeding insects (Appendix 1a)**
5. **Folk partonomy – stages of a rice crop (Appendix 1b)**

Workshop Materials

Workshop handouts and PowerPoint presentations are found in Appendices 2 and 3, respectively.

Workshop Program

IRRI-ADB-Rice Department Project
Reducing vulnerability of crops to pre harvest losses caused by planthopper pest outbreaks

Workshop/Training on Decision Making, Sociological Tools and Impact Assessment in Pest Management

Bangkhen & Chainat, Thailand
30 March – 3 April 2009

Program

30 March 2009 (Day 1)

0800 - 0830	Registration & pre-workshop evaluation	
0830 - 0845	Welcome remarks	Prasert Golsalvitra Director-General Rice Department
0845 - 0915	Background of the ADB-IRRI planthopper project and expected outputs	K.L. Heong
0915 - 0930	Workshop/training objectives and expected outcomes	M. Escalada

Module 1 - Introduction to Decision Making

0930 - 1015	Decision models and how policy makers make decisions – concepts of bounded rationality, procedural rationality, substantive rationality	K.L. Heong

1015 – 1045	Coffee break	
1045 - 1100	Discussion	
1100 – 1130	Understanding farmers' decisions – theoretical framework and quantification	M. Escalada
1130 - 1200	Discussion	
1200 – 1330	Lunch break	
1330 – 1430	Group work – identifying variables for decision models in general	Participants
1400 - 1500	Group presentation and discussion	Participants
1500 - 1530	Coffee break	

Module 2 – Diagnostic Tools in Pest Management

1530 - 1600	Diagnostic tools and farmers' knowledge Ethnoscience - folk taxonomy, emic-etic	M. Escalada
1600 - 1620	Discussion	
1620 - 1640	Focus group discussions: uses and methodological guidelines	M. Escalada
1640 - 1730	Discussion	Participants
1730	End of day	

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31 March 2009 (Day 2)

Module 3 – Impact Assessment

0800 - 0815	BPH as a common property resource or public liability	Z. Huelgas
0815 - 0830	Concepts of externality and collective action	Z. Huelgas
0830 - 0900	Basic economic impact principles & analytical approaches	Z. Huelgas
0900 - 1000	Baseline data collection • To guide technology identification – constraints and opportunities • As basis when measuring impact – impact indicators • Via farm survey using structured questionnaires	Z. Huelgas
1000 - 1030	Coffee break	
1000 – 12:00	Discussion	Participants

1200 - 1300	Lunch break	

Module 4: Understanding sociological research methods

1300- 1430	Group exercise: Work groups to determine issues for emic-etic and focus group discussion (FGD)	Participants
1430 - 1530	Reporting on emic-etic and FGD issues for field exercise	Participants
1530- 1545	Discussion	
1545 – 1600	Coffee break	
1600 - 1630	Revision of FGD guides for extension officials and farmers and emic-etic questions	Participants
1630 – 1700	Arrangements – groupings, logistics for focus group discussion next day	Manit Luecha
1700	End of day	

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1 April 2009 (Day 3)

Fieldwork

0700	Travel to Chainat	
1000 - 1230	Field exercise: Emic-etic	Participants
1230 - 1330	Lunch break	
1330 - 1700	Focus group discussions with extension officials	Participants
	Overnight in Chainat	

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2 April 2009 (Day 4)

0830 - 1200	Focus group discussion with farmers	Participants
1230 - 1330	Lunch break	
1330 - 1500	Field work report preparation	Participants
1500	Return to Bangkok	

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3 April 2009 (Day 5)

0830 - 0930	Field work report preparation - continued

0930 - 1000	Field exercise reporting and lessons learned	Group rapporteurs
1000 - 1030	Coffee break	
1030 - 1100	Farmer surveys: theory, practice and logistics	M. Escalada
1100 - 1200	Group work : Developing belief statements for survey	Participants
1200 - 1330	Lunch	
1330 - 1400	Post-survey tasks: data entry, processing and analysis, data consolidation	M. Escalada
1400 - 1530	Developing the survey work plan and budget	M. Escalada Participants
1530 -1600	Coffee break	
1600 - 1630	Discussion and wrap up	
1630	End of workshop	