

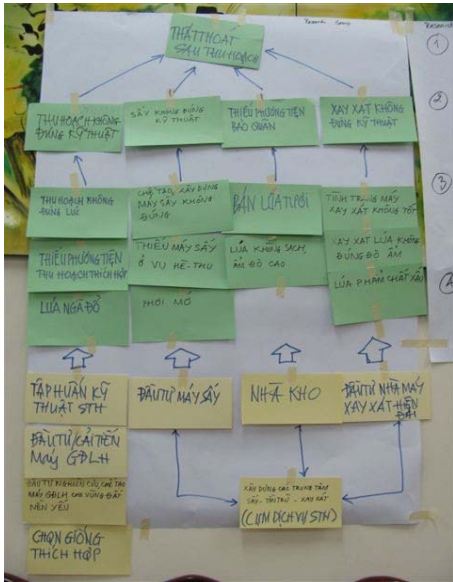
List and Directory of Participants

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Participants' grouping

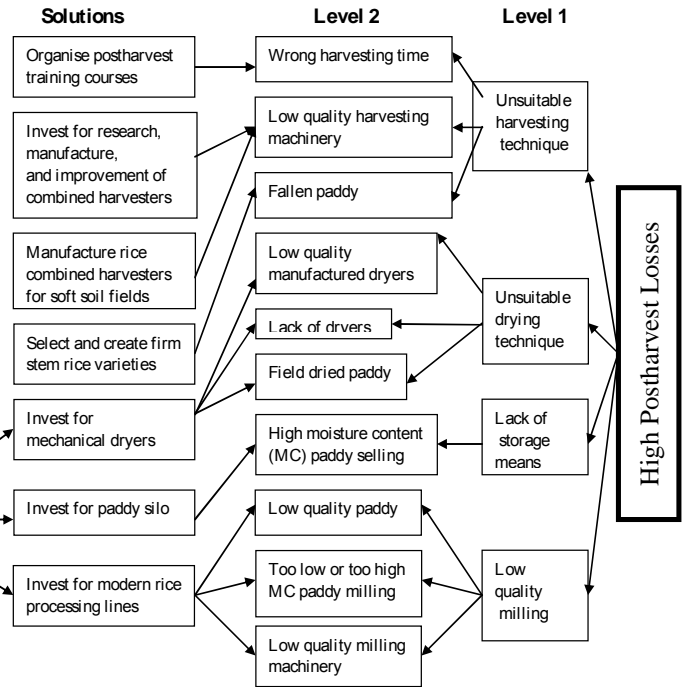
No.	Name	Organization / Agency	Position / Title
Group 1: Researchers			
1	Nguyen Bong (Group Leader)	College of Engineering Technology, Can Tho University (CTU)	Senior lecturer, Mr.
2	Nguyen Ngoc De	Mekong Delta Development Research Institute, (CTU)	Senior scientist, Dr.
3	Bui Ngoc Hung	Faculty of Engineering, Nong Lam University (NLU)	Dean, Dr.
4	Vu Cong Khanh	Department of Agricultural Engineering, Southern Sub-Institute of Agricultural Engineering & Postharvest Technology (SIAEP)	Head, Mr.
5	Trần Ngọc Linh	Department of Scientific and Technological Development, SIAEP	Researcher, Mr.
Group 2: Farmers and Private Sector			
6	Le Huu Ma (Group Leader)	Technical Division, Long An Mechanical Company (LAMICO), (for paddy combined harvester)	Head, Mr.
7	Mai Quoc Dung	Farmer, paddy harvesting contractor and lecture at Tra Vinh Univ.	Lecturer, Mr.
8	Pham Tan Khuong	Farmer and paddy drying contractor	Farmer, Mr.
9	Nguyen Van Thien	Tu Sang Engineering Manufacturer (for paddy combined harvester)	Vice Director, Mr.
10	Le Tan Dai	Dai Loi Engineering Manufacturer (for paddy combined harvester)	Director, Mr.
11	Vo Hung Anh	Department of Agricultural Engineering, Southern Sub-Institute of Agricultural Engineering & Postharvest Technology (SIAEP)	Researcher, Mr.
Group 3: Government Agencies 1			
12	Phan Van Khong (Group Leader)	Ben Tre Agricultural Extension Centre, Ben Tre province	Director, Mr.
13	Huyhn Quang Duc	Ben Tre Agricultural Extension Centre, Ben Tre province	Extension agent, Mr.
14	Ma Van Ut	Tra Vinh Agriculture and Fishery Extension Centre, Tra Vinh province	Extension agent, Mr.
15	Nguyen Van Tam	Agricultural Division, Cho Gao District, Tien Giang province	Head, Mr.
16	Le Van Be Thuan	Rural Development Division (under DARD), Dong Thap province	Deputy director, Mr.
17	Nguyen Van Trang	Vinh Long Agricultural Extension Centre, Vinh Long province	Extension agent, Mr.
Group 4: Government Agencies 2			
18	Nguyen Thanh Tung (Group Leader)	Long An Agricultural Extension Centre, Long An province	Director, Mr.
19	Trinh Cong Minh	Department of Agriculture and Rural Development (DARD), Tien Giang province	Vice Director, Mr.
20	Tran Thanh Phong	Tien Giang Agriculture & Fishery Extension Centre (under DARD), Tien Giang province	Vice Director, Mrs.
21	Phan Tan Tai	Vinh Long Agricultural Extension Centre, Vinh Long province	Director, Mr.
22	Le Van Lam	Tra Vinh Agriculture and Fishery Extension Centre, Tra Vinh province	Director, Mr.
Support/Administrative			
23	San Tram Anh	Department of Postharvest Technology, (SIAEP)	Researcher, Ms.
Facilitators			
24	Phan Hieu Hien	NLU	Senior scientist, Dr.
25	Pham Van Tan	SIAEP	Vice Director, Dr.
26	Nguyen Phu Hoa	Department of International Relations, NLU	Deputy head, Dr.

Group 1 (Researchers) Problem Tree

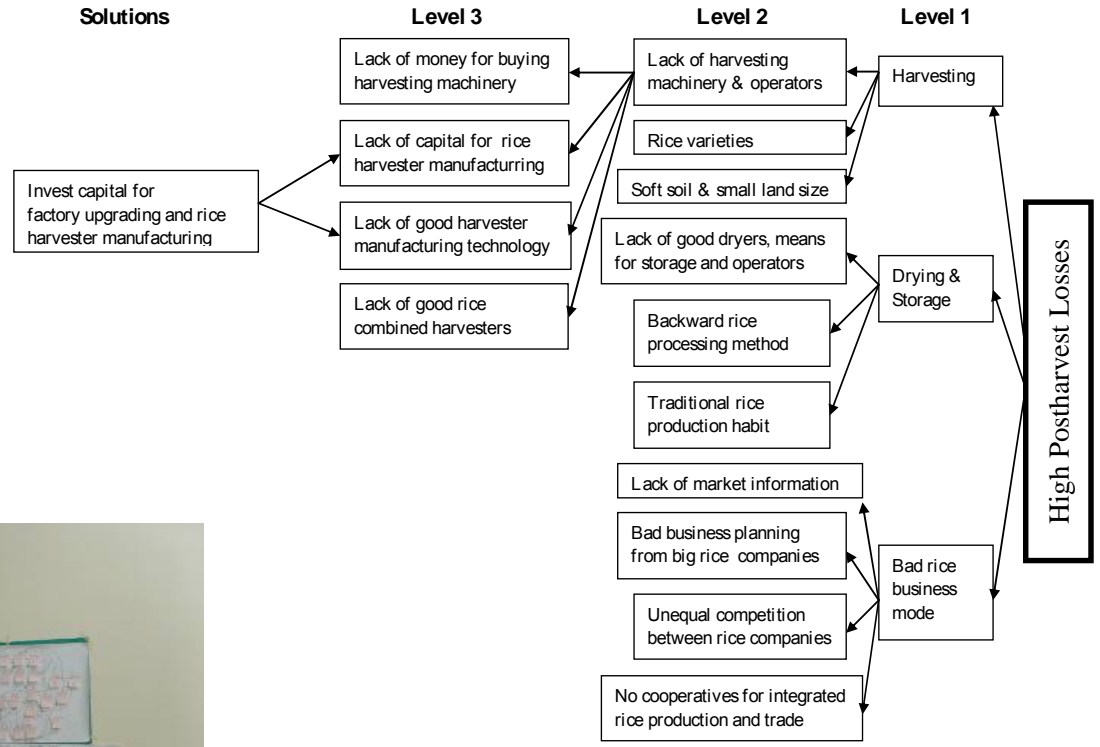


Solutions

Invest and build up integrated rice processing plants including dryers, storage and rice processing lines; set up postharvest servicing groups and agricultural business models.



Group 2 (Farmers and private sectors such as paddy drying contractors, combined harvester manufacturers) Problem Tree



Notes on the translated and cleaned-up problem tree:

1. The third card of the third branch on the left hand side of the picture has not only 1 element but 3 elements together. They are

- Lack of good harvester manufacturing technology
- Lack of accessories for harvesters.
- Lack of capital for rice harvester manufacturing.

The fourth card of the same branch (the same level) is

- "lack of money for buying harvesting machinery":

and the fifth card is

- "lack of good rice combined harvester".

Therefore, all 5 elements above are brought into the same level (level 3) not including "lack of accessories for harvesters"

2. The seventh card of the same (third) branch on the left hand side of the picture is "lack of harvester operators". Thus the second level of the problem tree is labeled "Lack of harvesting machinery & operators".

3. The sixth card of the same (third) branch on the left hand side of the picture has not only 1 element but 3 elements. They are

- Rice varieties
- Weather and harvesting time.
- Unsuitable rice land (for harvesters) (my understanding is soft soil and small land size)

Therefore, these 3 elements are put together with "Lack of harvesting machinery & operators" (above) into level 2 ignoring "weather and harvesting time" as an uncontrollable cause

4. The third branch of the problem tree. They drew that:

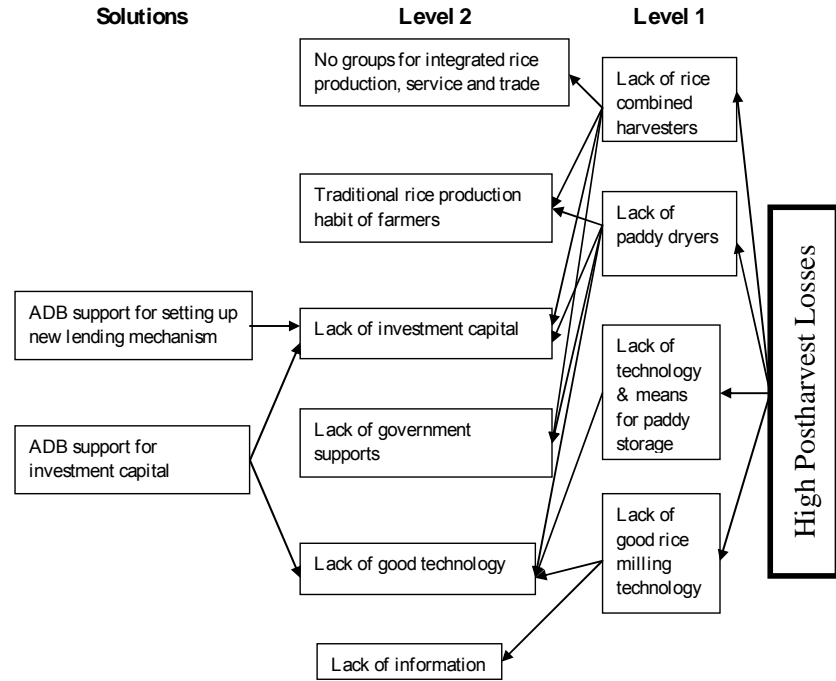
High postharvest loss---> Paddy Harvesters (level 1) ----> Lack of paddy harvesters (level 2) ----> Level 3 consists of

- Lack of good harvester manufacturing technology
- Lack of accessories for harvesters.
- Lack of capital for rice harvester manufacturing.
- Lack of money for buying harvesting machinery
- Lack of good rice combined harvester.
- Lack of harvester operators
- Rice varieties
- Weather and harvesting time.
- Unsuitable rice land (for harvesters) (my understanding is soft soil and small land size)

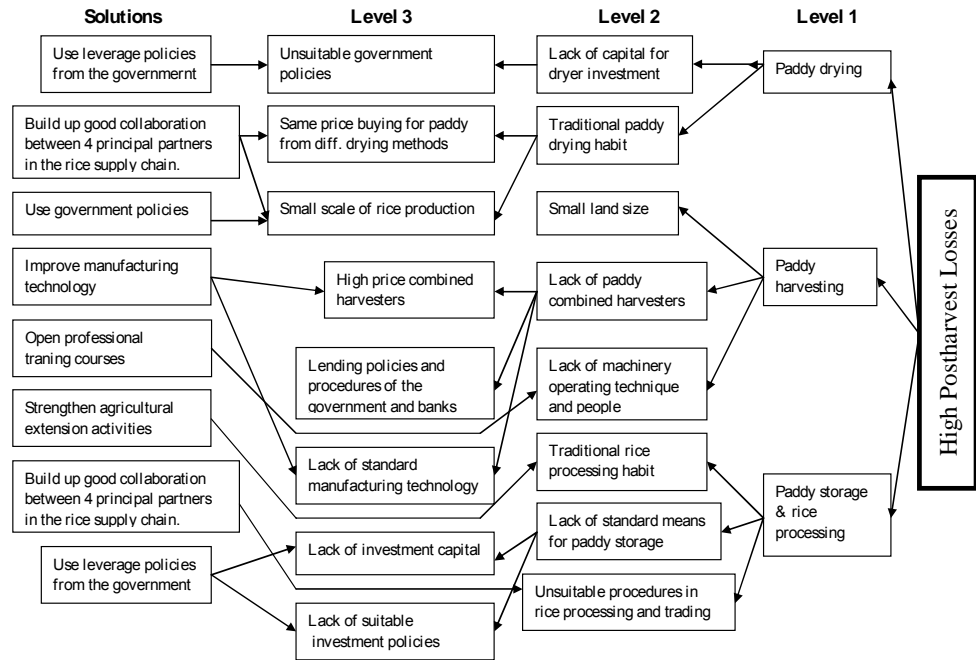
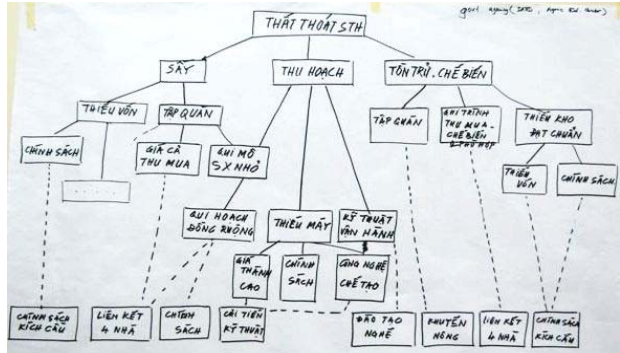
Group 3 (1st government agencies) Problem Tree



Solutions



Group 4 (2nd government agencies) Problem Tree



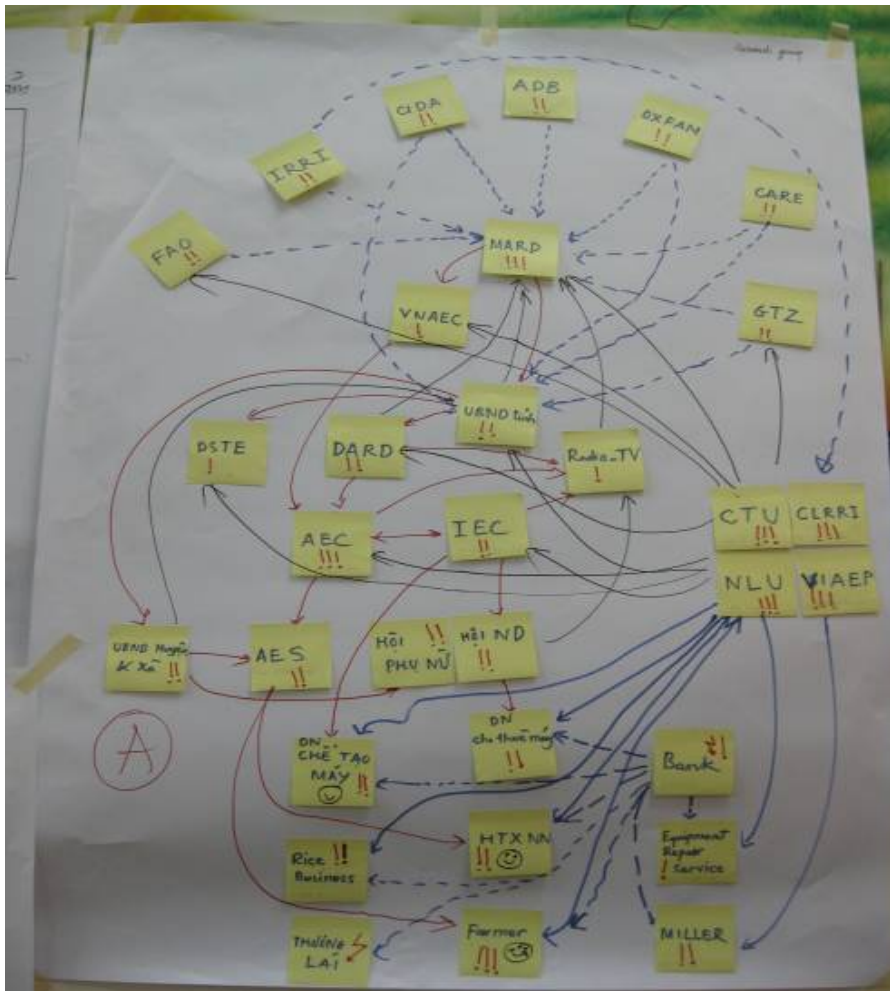
Visions Summaries

Governmental agencies 1, Group 3	Farmers have new methods in rice cultivation. Local authorities have more efficient management to meet requirements of the development. Agricultural extension systems have an enhancement in ability and capacity. Enterprises have good business strategies. Research institutions have advanced technology and new machinery which could be successfully applied to rice production. Banks provide farmers with high financial supports.
Governmental agencies 2, Group 4	Farmers have new methods in rice cultivation. Local authorities have land zones specialised for rice production. Agricultural extension systems have an enhancement in ability and capacity, and have an improvement in methods and skills of technological transfer. Governmental officials/ agencies have an improvement in methods and skills of technology transfer. Rice middle traders have stable schedule and mode for buying paddy from farmers. Rice millers have investments in suitable rice processing equipment.
Farmers and private sectors Group 2	Farmers have application of agricultural mechanization. Machinery manufacturers/ servicing groups have advanced technology for design and manufacture of rice harvesting machinery and postharvest equipment and have full mechanisation in rice harvesting. Rice middle traders buy diverse products with ensured quality. Rice millers have good planning for buying up paddy surplus from farmers. Banks provide farmers with high financial supports.
Researchers Group 1	Farmers have appropriate rice varieties, have proper harvesting techniques, have appropriate technologies and equipment for paddy drying and rice processing to ensure high quality rice, have reconstruction of rice fields, and have good relations between farmers and the other 3 partners in the rice supply chain. Local authorities have postharvest supporting policies and motivation for agricultural and industrial extension activities. Governmental officials/ agencies have suitable policies to support rice postharvest and enforce agricultural and industrial extension activities, have a close co-operation between relative organizations to enhance efficiencies in activities and have an improvement in methods and skills of technology transfer. Donors have valuable supports. Rice millers have awareness of their responsibility to farmers and rice production, have an improvement in rice processing technology and equipment, have shortening the rice supply chain. Researchers have positive changes in methods of research and technology transfer, have advanced technologies and new machinery successfully and efficiently applied to practical production.

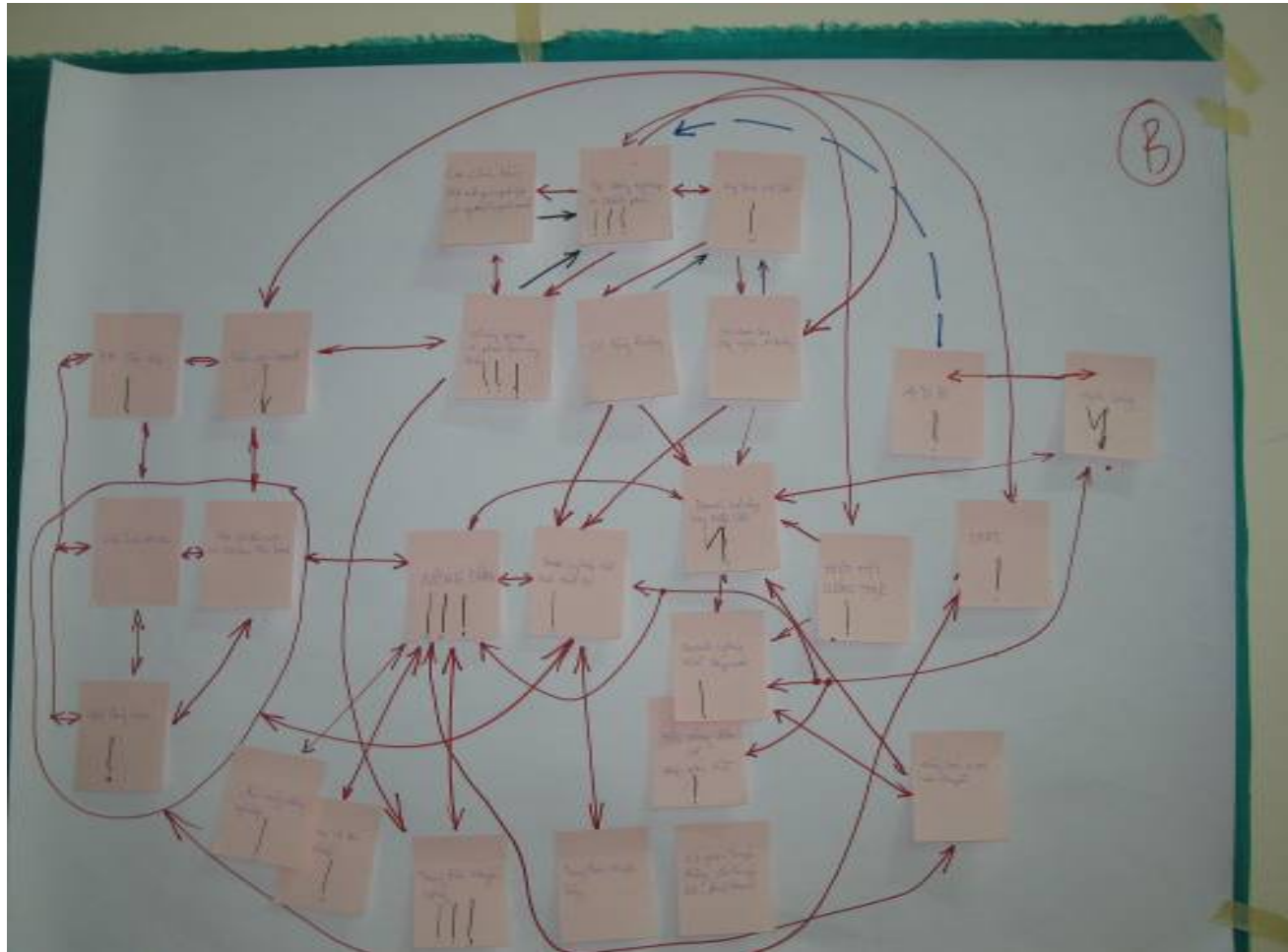
Actor (or group of actors)	Group 1 (Researchers)	Group 2 (Farmers and private sectors)	Group 3 (Governmental agencies 1)	Group 4 (Governmental agencies 2)
Farmers	Have appropriate rice varieties, have proper harvesting techniques, have appropriate technologies and equipment for paddy drying and rice processing to ensure high quality rice, <i>have reconstruction of rice fields</i> , and have good relations between farmers and the other 3 partners in the rice supply chain	Have application of agricultural mechanisation	Have new methods in rice cultivation	Have new methods in rice cultivation
Local authorities	Have postharvest supporting policies and motivation for agricultural and industrial extension activities		Have more efficient management to meet requirements of the development	Have land zones specialised for rice production
Agricultural extension systems			Have an enhancement in ability and capacity	Have an enhancement in ability and capacity, and have an improvement in methods and skills of technological transfer
Governmental officials/ agencies	Have suitable policies to support rice postharvest and enforce agricultural and industrial extension activities, have a close co-operation between relative organizations to enhance efficiencies in activities and have an improvement in methods and skills of technology transfer			Have an improvement in methods and skills of technology transfer
Enterprises			Have good business strategies	
Machinery manufacturers/ servicing groups		Have advanced technology for design and manufacture of rice harvesting machinery and postharvest equipment and have full mechanisation in rice harvesting		
Rice middle traders		Buy diverse products with ensured quality		Have stable schedule and mode for buying paddy from farmers.
Rice millers	Have awareness of their responsibility to farmers and rice production, have an improvement in rice processing technology and equipment, have shortening the rice supply chain	Have good planning for buying up paddy surplus from farmers		Have investments in suitable rice processing equipment, have changes in paddy buying methods (no more buying high moisture content paddy), have large-scale rice producing areas with high quality, have an improvement in cooperation with the other partners for rice trading, and have good trademarks in rice business
Research institutions			Have advanced technology and new machinery which could be successfully applied to rice production	Have advanced technology and new machinery which could be successfully applied to rice production
Researchers	Have positive changes in methods of research and technology transfer, have advanced technologies and new machinery successfully and efficiently applied to practical production.			
Donors	Have valuable supports			
Banks		Provide farmers with high financial supports	Provide farmers with high financial supports	Provide intermediate or long-term loan for farmers
Social associations				Have new methods of farmer encouragement and better cooperations with research institutions

	Vietnamese Name	Acronym	Full Name	Type of Organization	Group 1 Researchers	Group 2 Farmers & Ag.1	Group 3 Gov. Ag.1	Group 4 Gov. Ag.2
1	Ngân hàng Phát triển Châu Á	ADB	Asian Development Bank	Bank	x		x	x
2	Ngân hàng Thế giới	WB	World Bank	Bank	x			
3	Viện Nghiên cứu Lúa gạo Quốc tế	IRRI	International Rice Research Institute	Research institution	x		x	x
4	Tổ chức Lương Nông Liên Hiệp Quốc	FAO	Food and Agriculture Organization	International organisation	x	x	x	
5	Bộ Nông nghiệp & Phát triển Nông thôn	MARD	Ministry of Agriculture and Rural Development	Governmental agency	x	x	x	x
6	Sở Khoa học & Công nghệ	DOST	Department of Technology & Science	Governmental agency	x	x	x	x
7	Cục Chế biến Nông sản và Nghề Muối	DPP	Department of Agricultural Products Processing	Governmental agency		x	x	
8	Trung tâm Khuyến nông Việt nam	VNAEC	Vietnam Agricultural Extension Center	Governmental agency	x	x	x	
9	Sở Nông nghiệp & PTNT	DARD/SO NN	Department of Agriculture and Rural Development	Governmental agency	x	x	x	x
10	Trung tâm Khuyến nông tỉnh/TTKN	AEC	Agricultural Extension Centre (Provincial)	Governmental agency	x	x	x	x
11	Trung tâm Khuyến Công tỉnh/TTKC	IEC	Industrial Extension Centre (Provincial)	Governmental agency	x	x	x	
12	Đại học Nông Lâm TP. Hồ Chí Minh	NLU	Nong Lam University	Research institution	x	x	x	x
13	Viện Chính sách - Chiến lược (thuộc Bộ NN & PTNT)	IPSARD	Institute of Policy and Strategy for Agriculture and Rural Development	Research institution	x	x	x	
14	Đại học Cần Thơ	CTU	Can Tho University	Research institution	x	x	x	x
15	Viện Nghiên cứu Lúa Đồng bằng sông Cửu Long	CLRRI	Cuu Long Rice Research Institute	Research institution	x	x	x	x
16	Viện Cơ điện Nông nghiệp & Công nghệ Sau Thu hoạch	VIAEP	Vietnam Institute of Agricultural Engineering and Postharvest Technology	Research institution	x		x	x
17	Phân Viện Cơ điện Nông nghiệp & Công nghệ Sau Thu hoạch	SIAEP	Southern Sub-institute of Agricultural Engineering and Postharvest Technology	Research institution	X			
18	Tổng Công ty Lương thực Miền Nam	VINAFOOD II	Food Corporation	State-owned company		x	x	
19	Tổ chức Phi Chính phủ	NGO	Non-Government Organization	Non-Government Organization	x	x		x
20	Ủy Ban Nhân Dân tỉnh	UBND tỉnh	People's Committee (provincial)	Governmental agency	x	x	x	x
21	Nhà Tài trợ	Sponsor	Sponsor	Sponsor		x	x	x
22	Trường Đại học	University	University (general)	Research institution		x		
23	Viện Nông nghiệp		Agronomy Institute	Research institution			x	
24	Viện Quy hoạch		Planning Institute	Research institution	x	x	x	
25	Viện Lúa		Rice Institute (general)	Research institution	x	x	x	
26	Doanh nghiệp		Company (general)	Company	x	x	x	x
27	Hiệp hội của nông dân		Farmer group/ cooperative (small)	Farmer association	x	x	x	
28	Ngân hàng	Bank	bank	bank	x	x	x	x
29	Nhà máy xay xát gạo		rice miller	Private enterprise	x	x	x	x
30	Nhà máy chế tạo thiết bị		equipment manufacturer	Private/state-owned enterprise	x	x	x	x
31	Dịch vụ sửa chữa thiết bị		equipment repairing service	Private servicing groups	x	x	x	x
32	Dịch vụ kinh doanh		business service (general)	Private servicing group	x	x	x	x
33	Nông dân		farmer (general)	Farmer	x	x	x	x
34	Ủy ban Nhân dân xã		people's committee (village level)	Governmental agency	x	x	x	x
35	Viện + Trường		University + Institute (general)	Research institution		x	x	
36	Chính phủ + Cơ quan Trung Ương		Government & Central government entities	Governmental agency		x		
37	Khuyến Nông/ Khuyến Công		Agricultural Extension/ Industrial Extension	Governmental agency		x	x	
38	Chính phủ		Government	Governmental agency			x	
39	Trạm Khuyến Nông		Agricultural Extension station (commune or district level)	Governmental agency	x	x	x	x
40	Thương lái		Middlemen/ intermediaries	Private enterprise	x	x	x	x
41	Dịch vụ Vận chuyển		Transportation services	Private enterprise	x	x	x	x
42	Cơ quan Truyền thông/Thông tin Đại chúng		Mass media		x	x	x	
43	Tổ chức Đoàn thể		Organization	Political organisation	x		x	x
44	Trung tâm Khuyến Nông Quốc Gia	NAEC/TT KNQG	National Agricultural Extension Centre	Governmental agency	x	x	x	x
45	Phòng Nông nghiệp (cấp huyện)		District level DARD	Governmental agency	x	x	x	x
46	Hợp tác xã Nông nghiệp	HTXNN	Farmers Cooperative	Jointventure	x	x	x	x
47	Chủ trang trại		large-scale farmers	Private enterprise			x	
48	Bộ Khoa học & Công nghệ	BKH&CN	Ministry of Science and Technology	Governmental agency			x	
49	Bộ Công Thương	BCT	Ministry of Industry and Trade	Governmental agency			x	
50	Sở Công Thương	SCT	(Provincial) Department of Industry and Trade	Governmental agency			x	
51	Công ty Cơ khí Long An	LAMICO	Mechanical Company of Long An Province	Shareholder company		x		x
52	Nhà máy chế tạo máy nông nghiệp	Machine producer	Agricultural machinery producer	Private/state-owned enterprise		x	x	
53	Chủ máy Nông nghiệp	Machine owner	Agricultural machinery owner (service provider)	Private servicing group	x	x	x	x
54	Hội- Đoàn thể	Mass org	Mass organization (includes women, farmers etc)	Political organisation		x	x	x
55		GTZ			x			
56		CIDA	Canadian International Development Agency		x			
57	Công ty TNHH Cơ khí Công Nông nghiệp	Bùi Văn Nào	Bui Van Ngo Company	Private company		x		
58	Khuyến Nông viên Cơ sở		Agricultural extension agents	Governmental agency			x	
59	Ban Nông nghiệp xã		Village agricultural division	Governmental agency			x	

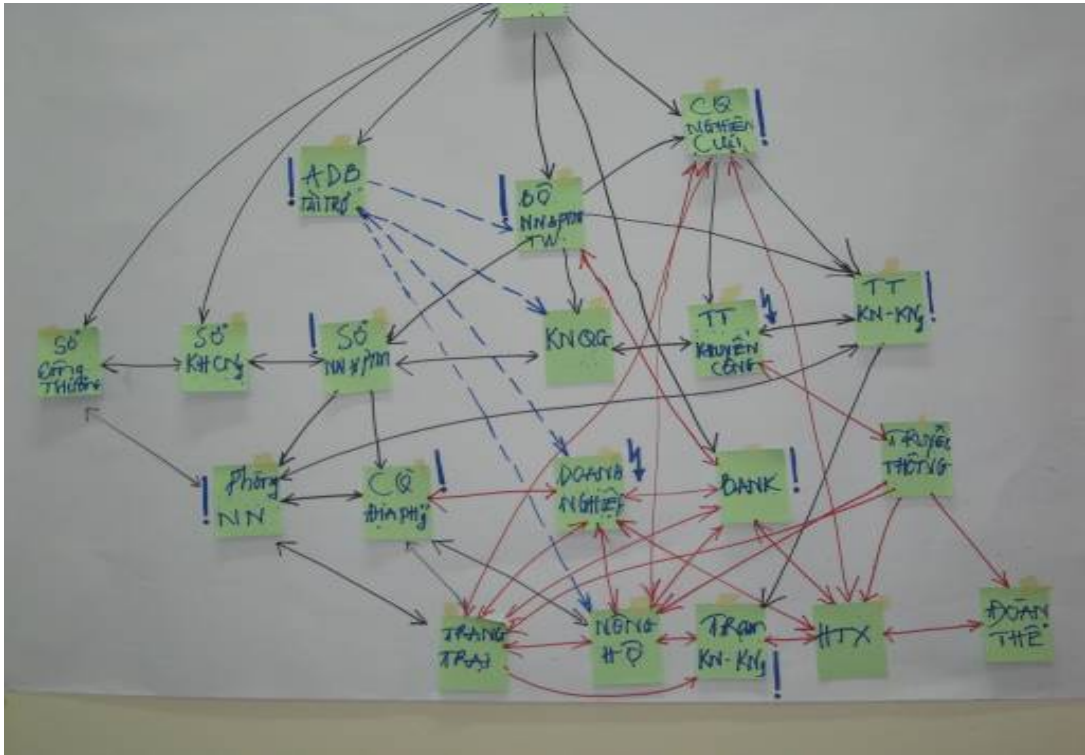
Network Map of Group 1 (Researchers)



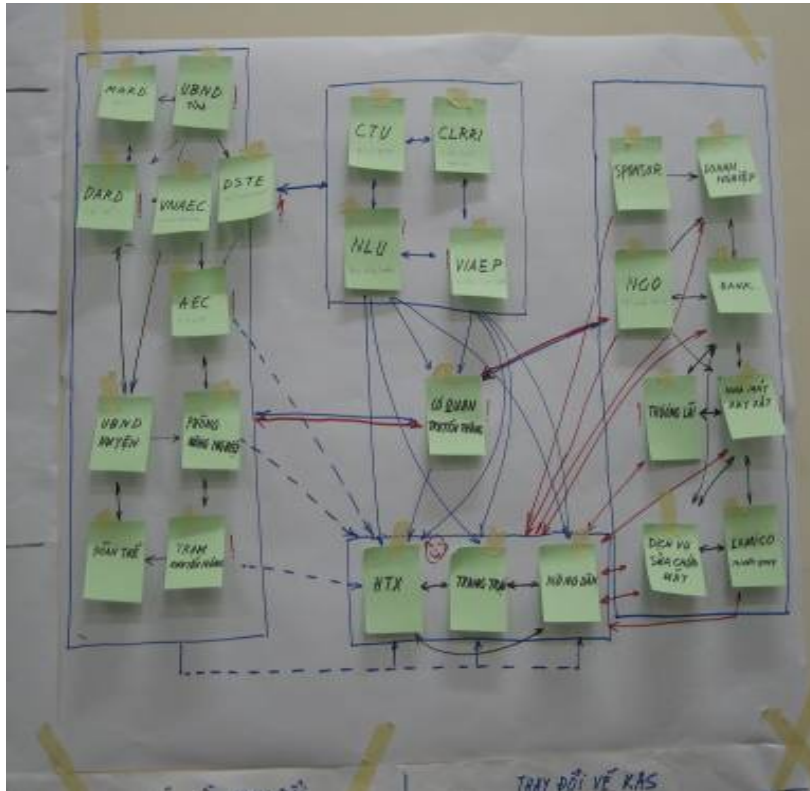
Network Map of Group 2 (Farmers and private sectors)



Network Map of Group 3 (Government agencies 1)



Network Map of Group 4 (Government agencies 2)



Combined Outcome Logic Model (Group 1-4) Summary with comments and feedback (My Tho)

(1) = Researchers, (2) = Farmers and private sectors, (3) = Government agencies 1, and (4) = Government agencies 2

Explanation: **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	Have new methods in rice cultivation (3, 4), have appropriate rice varieties (1), have application of agricultural mechanisation (2) and proper harvesting techniques (1), have appropriate technologies and equipment for paddy drying and rice processing to ensure high quality rice (1), have reconstruction of rice fields (1), have good relations between farmers and the other 3 partners in the rice supply chain (1).	Have improvements in both knowledge and practice in application of machinery to rice production (2), accept new postharvest technology (1), know how to select and apply postharvest technology and equipment to rice production (1, 3), have enhancement of postharvest knowledge (1, 3), be ready to cooperate (1), know how to search information on rice production and trading (2); know how to use machinery efficiently and apply knowledge to their practice (2).	Train and transfer postharvest technology (1, 2, 3) and provide information (1), organize study tours, field trips and model demonstrations (1, 3), help to study, select appropriate rice varieties and apply the advanced technology to reconstruction of rice fields and to cultivation techniques of rice (1), organize, enforce and develop linkages between farmers (1) and develop farmer associations for sharing experience and knowledge (1, 2, 4), encourage to establish postharvest servicing groups and enhance efficiency of the learning alliances (4)
Local authorities	Have land zones specialised for rice production (4), have postharvest supporting policies and motivation for agricultural and industrial extension activities (1), and have more efficient management to meet requirements of the development (3)	Understand necessity to have land zones specialised for rice production (4), have more attention to the field of rice postharvest (1), and have improvements of managerial knowledge and skills (3)	Suggest lending policies with low or no interest rates (1), suggest the government to have financial supporting policies for investment and development of postharvest technology (1, 3), suggest the government to set-up "the 4-house-co-operation" (farmer, the government, trader and researcher) (1), suggest the government to have priority policies for land zones specialised for rice production and an increase in agricultural extension budget
Agricultural extension systems	Have an enhancement in ability and capacity (3, 4) and have an improvement in methods and skills of technological transfer (4)	Have an improvement in both method and content of agricultural extension activities (3)	Train and transfer postharvest technology (2, 3, 4), provide financial supports and means for extension activities (3), improve the agricultural extension method (4), organize study tours and model demonstrations (3).
Governmental officials/agencies	Have suitable policies to support rice postharvest and enforce agricultural and industrial extension activities (1), have a close co-operation between relative organizations to enhance efficiencies in activities (1) and have an improvement in methods and skills of technology transfer (1, 4)	Have more attention to rice post-harvest issues (1), establish projects on rice producing areas with high yield and quality, and support small and medium scale enterprises for rice processing and trading (4)	Suggest the government to have interest-supporting policies (1, 4), suggest the government to have more investment for developing postharvest technology (harvest, drying, storage and processing) (1), suggest the government to establish four-actor-co-operation (4-house-co-operation) (1), suggest the government to have priority policies (on rice varieties producing high yield and quality, and farm mechanization) for rice producing areas (4), suggest local governments to setup projects on small and medium scale enterprises (4), suggest the government to have suitable policies to have qualified staff and increase budget for extension activities (4), suggest the government to have appropriate policies to create an equal competition between rice processing enterprises, especially between state-owned and private rice companies, and suggest to establish a rice price stabilising budget (2)

Enterprises	Have good business strategies (3) and have good link with farmers and scientists (1).	Have awareness of benefit from co-operations (3)	transfer postharvest technology and support to establish mutual trading and production plans (3).
Machinery manufacturer s/ servicing groups	Have advanced technology for design and manufacture of rice harvesting machinery and postharvest equipment (2) and have full mechanisation in rice harvesting (2)	Have awareness of benefit from standardisation in design and manufacture of machinery (2)	Suggest the government to have supports for investments in advanced technology, new equipment, standardisation in design and manufacture (2)
Rice middle traders	Have stable schedule and mode for buying paddy from farmers (4) and buy diverse products with ensured quality (2)	Have awareness of benefit from good cooperation with farmers and rice producing zones (4) and knowledge of rice quality during rice trading (2)	Invite rice middle traders to join the project and workshops (4) and suggest the government to have financial supports for buying, drying and storing paddy and build up rice trading co-operatives (2)
Rice millers	Have awareness of their responsibility to farmers and rice production (1), have an improvement in rice processing technology and equipment (1) have investments in suitable rice processing equipment (4), have shortening the rice supply chain (1), have good planning for buying up paddy surplus from farmers (2), have changes in paddy buying methods (no more buying high moisture content paddy) (4), have large-scale rice producing areas with high quality (4), have an improvement in cooperation with the other partners for rice trading (4), and have good trademarks in rice	Share the benefit reasonably/equally with farmers and the other partners in the rice supply chain (1, 2, 3), have transparency in rice business (1), buy paddy directly from farmers and farmer groups and use leverage capital from the government for buying, drying, storing and milling rice (4).	Establish rice business models (or called new agricultural communities) including activities of rice production, processing and distribution (1), suggest investments in new rice technology and equipment (1), suggest to use the leverage capital from government to upgrade equipment, priority for paddy dryers and silos (4), suggest to build-up project to develop high-quality rice producing areas and setup detailed plans for the 4-house-co-operation (4).
Research institutions	Have advanced technology and new machinery which could be successfully applied to rice production (3, 4)	Understand that new technology and machinery must be applicable to practical rice production (3) and transfer achievements of technology and new machinery to rice production (4)	Provide technological information for farmers (3), have good contact with farmers and deep understanding practical conditions of rice production (4), suggest the government to provide more financial supports for research and technology transfer (3).
Researchers	Have positive changes in methods of research and technology transfer (1), have advanced technologies and new machinery successfully and efficiently applied to practical production (1).	Be closer with practical production and update frequently advanced knowledge and technology (1)	Study and evaluate the current situation to propose proper policies and strategies to the government (1), apply new research methods (1), research to improve and develop proper technology/equipment (1), and strengthen technology transferring activities (1)
Donors	Have valuable supports (1)	Be satisfied with the project results (1)	setup feasible projects (1)
Banks	Provide farmers with high financial supports (2, 3), provide intermediate or long-term loan for farmers (4)	Recognise economic efficiency on rice production (2) and simplify lending procedures (3, 4).	Have certain interest in rice postharvest (2) and join to development projects (4); help farmers, enterprises or companies to setup projects (3), provide proper lending policies (3) and provide farmers with intermediate-term loan with low or no interest
Social associations	Have new methods of farmer encouragement and better cooperations with research institutions (4)	Provide professional training courses for local association leaders and encourage cooperation among farmers (4)	Build-up good cooperations with relevant organisations and individuals (4)

Outcome Logic Model of Group 1 (researchers)

(1) = Researchers, (2) = Farmers and private sectors, (3) = Government agencies 1, and (4) = Government agencies 2

Explanation: **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?
1	Farmers	Have appropriate rice varieties, have proper harvesting techniques, have appropriate technologies and equipment for paddy drying and rice processing to ensure high quality rice, <i>have reconstruction of rice fields</i> , and have good relations between farmers and the other 3 partners in the rice supply chain	Accept new postharvest technology, know how to select and apply postharvest technology and equipment to rice production, have enhancement of postharvest knowledge and be ready to cooperate.	Train and transfer postharvest technology and provide information, organize study tours, field trips and model demonstrations, help to study, select appropriate rice varieties and apply the advanced technology to reconstruction of rice fields and to cultivation techniques of rice, organize, enforce and develop linkages between farmers and develop farmer associations for sharing experience and knowledge.
2	Local authorities	Have postharvest supporting policies and motivation for agricultural and industrial extension activities	Have more attention to the field of rice postharvest	Suggest lending policies with low or no interest rates, suggest the government to have financial supporting policies for investment and development of postharvest technology, and suggest the government to set-up "the 4-house-co-operation" (farmer, the government, trader and researcher).
3	Governmental officials/ agencies	Have suitable policies to support rice postharvest and enforce agricultural and industrial extension activities, have a close co-operation between relative organizations to enhance efficiencies in activities and have an improvement in methods and skills of technology transfer.	Have more attention to rice post-harvest issues, and establish projects on rice producing areas with high yield and quality.	Suggest the government to have interest-supporting policies, suggest the government to have more investment for developing postharvest technology (harvest, drying, storage and processing), suggest the government to establish four-actor-co-operation (4-house-co-operation),
4	Rice millers	Have awareness of their responsibility to farmers and rice production, have an improvement in rice processing technology and equipment, have shortening the rice supply chain	Share the benefit reasonably/equally with farmers and the other partners in the rice supply chain and have transparency in rice business	Establish rice business models (or called new agricultural communities) including activities of rice production, processing and distribution, and suggest investments in new rice technology and equipment.
5	Researchers	Have positive changes in methods of research and technology transfer, have advanced technologies and new machinery successfully and efficiently applied to practical production.	Be closer with practical production and update frequently advanced knowledge and technology	Study and evaluate the current situation to propose proper policies and strategies to the government, apply new research methods, research to improve and develop proper technology/equipment, and strengthen technology transferring activities.
6	Donors	Have valuable supports	Be satisfied with the project results	setup feasible projects

Outcome Logic Model of Group 2 (Farmers and private sectors)

(1) = Researchers, (2) = Farmers and private sectors, (3) = Government agencies 1, and (4) = Government agencies 2

Explanation: **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?
1	Farmers	Have application of agricultural mechanisation	Have improvements in both knowledge and practice in application of machinery to rice production, know how to search information on rice production and trading and know how to use machinery efficiently <i>and apply knowledge to their practice</i>	Train and transfer postharvest technology, and develop farmer associations for sharing experience and knowledge
2	Machinery manufacturer s/ servicing groups	Have advanced technology for design and manufacture of rice harvesting machinery and postharvest equipment and have full mechanisation in rice harvesting	Have awareness of benefit from standardisation in design and manufacture of machinery	Suggest the government to have supports for investments in advanced technology, new equipment, standardisation in design and manufacture
3	Rice middle traders	Buy diverse products with ensured quality	Have knowledge of rice quality during rice trading	Suggest the government to have financial supports for buying, drying and storing paddy and build up rice trading co-operatives
4	Rice millers	Have good planning for buying up paddy surplus from farmers	Share the benefit reasonably/equally with farmers and the other partners in the rice supply chain.	
5	Banks	Provide farmers with high financial supports	Recognise economic efficiency on rice production	Have certain interest in rice postharvest and provide farmers with intermediate-term loan with low or no interest rate

Outcome Logic Model of Group 3 (Governmental agencies 1)

(1) = Researchers, (2) = Farmers and private sectors, (3) = Government agencies 1, and (4) = Government agencies 2

Explanation: **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?
1	Farmers	Have new methods in rice cultivation	Knew how to select and apply postharvest technology and equipment to rice production, and have enhancement of postharvest knowledge	Train and transfer postharvest technology, and organize study tours, field trips and model demonstrations
2	Local authorities	Have more efficient management to meet requirements of the development	Have improvements of managerial knowledge and skills	Suggest the government to have financial supporting policies for investment and development of postharvest
3	Agricultural extension systems	Have an enhancement in ability and capacity	Have an improvement in both method and content of agricultural extension activities	Train and transfer postharvest technology, provide financial supports and means for extension activities, and organise study tours and model demonstrations.
4	Enterprises	Have good business strategies	Have awareness of benefit from co-operations	Transfer postharvest technology and support to establish mutual trading and production plans
5	Research institutions	Have advanced technology and new machinery which could be successfully applied to rice production	Understand that new technology and machinery must be applicable to practical rice production	Provide technological information for farmers, and suggest the government to provide more financial supports for research and technology transfer.
6	Banks	Provide farmers with high financial supports	Simplify lending procedures	Help farmers, enterprises or companies to setup projects, and provide proper lending policies

Outcome Logic Model of Group 4 (Governmental agencies 2)

(1) = Researchers, (2) = Farmers and private sectors, (3) = Government agencies 1, and (4) = Government agencies 2

Explanation: **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?
1	Farmers	Have new methods in rice cultivation		Develop farmer associations for sharing experience and knowledge, and encourage to establish postharvest servicing groups and enhance efficiency of the learning alliances.
2	Local authorities	Have land zones specialised for rice production	Understand necessity to have land zones specialised for rice production	Suggest the government to have priority policies for land zones specialised for rice production and an increase in agricultural extension budget .
3	Agricultural extension systems	Have an enhancement in ability and capacity, and have an improvement in methods and skills of technological transfer	Have an improvement in both method and content of agricultural extension activities	Train and transfer postharvest technology, and improve the agricultural extension method.
4	Governmental officials/agencies	Have an improvement in methods and skills of technology transfer	Support small and medium scale enterprises for rice processing and trading	Suggest the government to have interest-supporting policies, suggest the government to have priority policies (on rice varieties producing high yield and quality, and farm mechanization) for rice producing areas, suggest local governments to setup projects on small and medium scale enterprises, and suggest the government to have suitable policies to have qualified staff and increase budget for extension activities.
5	Rice middle traders	Have stable schedule and mode for buying paddy from farmers.	Have awareness of benefit from good cooperation with farmers and rice producing zones.	Invite rice middle traders to join the project and workshop
6	Rice millers	Have investments in suitable rice processing equipment, have changes in paddy buying methods (no more buying high moisture content paddy), have large-scale rice producing areas with high quality, have an improvement in cooperation with the other partners for rice trading, and have good trademarks in rice business .	Buy paddy directly from farmers and farmer groups and use leverage capital from the government for buying, drying, storing and milling rice..	Suggest to use the leverage capital from government to upgrade equipment, priority for paddy dryers and silos, and suggest to build-up project to develop high-quality rice producing areas and setup detailed plans for the 4-house-co-operation.
7	Research institutions	Have advanced technology and new machinery which could be successfully applied to rice production	Transfer achievements of technology and new machinery to rice production	Have good contact with farmers and deep understanding practical conditions of rice production.
8	Banks	Provide intermediate or long-term loan for farmers	Simplify lending procedures.	Join to development projects.
9	Social associations	Have new methods of farmer encouragement and better cooperations with research institutions	Provide professional training courses for local association leaders and encourage cooperation among farmers.	Build-up good cooperations with relevant organisations and individuals.