



EXPANDING MODELS OF RICE-SHRIMP CULTIVATION

for efficient management and sustainable use
of alkaline lands in Bac Lieu

BRIEF INTRODUCTION ABOUT THE PROJECT

Project:

“Expanding models of rice-shrimp cultivation for efficient management and sustainable use of alkaline lands in Bac Lieu”

Project code:

VNM/SGP/OP5/Y4/STAR/2014/08

Implementing agency:

Farmers’ Association of Bac Lieu Province

Location:

Phuoc Long Commune, Phuoc Long District,
Bac Lieu Province

Project duration:

7/2015 - 12/2017

INTRODUCTION



Bac Lieu is located on the Ca Mau Peninsula, the southernmost land of Viet Nam, in the tropical monsoon climate zone near the equator, with total hours of sunshine are over 2,745 hours/year. Annual rainfall ranges from 1,600-2,300 mm, of which rainfall during dry season accounts only for 5.5-7.4% of the total annual rainfall. Therefore, the Bac Lieu climate is suitable for development of many crops and animals. However, hot and humid weather also creates conditions for pests, diseases and molds to develop around the year. Bac Lieu has two seasons: dry season and rainy season. Bac Lieu is located near the sea so, it is not affected by flooding. This area is less stormy but mainly suffers impacts of cyclones, which usually occur during the period from June to August. Droughts often occur, causing shortages of fresh water for the community life and crop cultivation.

Phuoc Long commune is a purely agricultural commune in the east of Phuoc Long district, about 10 km from the district center. The agricultural land area is 4,130 hectares, including 3,700 hectares of land under the model of two shrimp crops - one winter rice crop; 430 hectares is not suitable for rice cultivation and hence should be used for polyculture of black tiger shrimp - crab - fish. The total population of the commune (in 2012) was 16,662 people, 3,832 households, of which 213 Khmer ethnic households have 762 people. There are 277 poor households, accounting for 7.23%

“One red bush” rice variety, which is drought-tolerant and high salinity-tolerant, is severely mixed and degraded, reducing the yield and quality of the grains and hence affecting the income of the coastal communities in the Mekong Delta. In addition, the sources of seed supply do not meet the farming needs in the region. Therefore, it is necessary to organize cooperative groups of farmers producing a new “one red bush” rice variety that can supply enough seeds for large areas.

In the coastal Mekong Delta, at the end of the “one red bush” rice crop, fresh water is in shortage and there is a dispute between fresh water and salt water between rice growing areas and black tiger shrimp farming. Therefore, the productivity of rice is seriously reduced if there is no fresh water or the shrimp farming is adversely affected if the sewer is blocked to prevent saltwater intrusion in the rice field. Proper management of saltwater and fresh water to produce rice and cultivate farm shrimp is essential.



The rice-shrimp model is a closed model that is mutually supportive and a suitable production model in the conversion zone under current climate change conditions. The production area under the rice-shrimp model has gradually been increasing since the conversion in 2001 with 5,800 hectares; at present, Bac Lieu province now has nearly 30,000 hectares of this model (Bac Lieu Department of Agriculture and Rural Development, 2016. Report on effective models). There have been many demonstration models, science topics, projects, technical training courses for producers, etc. with the aim of contributing to the improvement of productivity and economic efficiency of the model. Considering at the average level, the economic efficiency of the model compared to the first

years of the conversion has much improved. However, the rice-shrimp farming model still faces many challenges and do not correspond with the potential and advantages of the region, especially in the shrimp crop. Besides, due to the fact that during the shifting period from inefficient rice cultivation to aquatic polyculture, irrigation works are not quite suitable, many sub-areas lack of fresh water for rice cultivation and are passive, mainly depend on the weather; sources of high quality shrimp fry have not been paid due attention by farmers; water environment is polluted and shrimp diseases in this model are much more and the frequency is closer, some production sub-areas pay more attention to shrimp and are less interested in rice; experience in production of local people is not yet much, mainly the farming activities follow the old practices, a number of farmers lack of investment capital as well as lack of new technical information, and hence



the economic efficiency of this model for many years is still low compared to the potential of production land, the risk of disease and pests is high.

Recognized the above-mentioned issues, in 2015 the UNDP-GEF SGP supported the Bac Lieu Farmers' Association a project entitled *“Expanding models of rice-shrimp cultivation for efficient management and sustainable use of alkaline lands in Bac Lieu”*. The project aims to raise the awareness and capacity of the community to manage resources and water, and effectively exploit the acid sulphate soil areas under wet rice cultivation through expanding and developing the model of rice-shrimp cultivation to produce organic products, and contribute to poverty reduction and new rural area development.

APPLIED ADAPTIVE SOLUTIONS

Technical solutions:

- Improve and design rice-shrimp fields that are adapted to climate change, drought, and salwater intrusion.
- Cultivated ponds (fields) must have storage/rearing ponds.
- For families that are better-off and have large land area, it is possible to construct additional nursery ponds, which help more proactive in cultivating, adapting new living conditions of shrimp (acclimatizing), controlling shrimp density, enabling shrimps to have good resistance right from the start. On the other hand, nursery ponds can also be used to raise freshwater aquatic species, or can be used to store freshwater on site for irrigation when local drought occurs.
- Periodically dredge the surrounding ditches, strengthen the embankments to ensure a stable water level, limit water to penetrate in the dry seasons and overflow in the rainy seasons.
- Extend the surrounding ditches and design “fish bones” ditch inside shrimp pond area to create more shelters for shrimp when the weather changes and facilitate flushing and washing out salinity alum. The ratio of total area of ditches is 25-30% of the field is considered reasonable of the rice-shrimp model in Bac Lieu province.



For shrimp crop in the dry season

It is recommended to follow the techniques on number of stocking/crop and stocking density, it should not stock a lot in a crop, and/or stock densely. The most appropriate stocking number for the rice-shrimp model in Bac Lieu province is 2-3 times/crop and density is 2-5 juveniles/m². Small number of stocking/crop with low density will help shrimp grow faster and get less risky.

It should choose appropriate shrimp size, it can choose shrimp fry postlarva 13-15 at the first stockings, but the larger shrimp size (can stock locally hatchery-bred shrimp) at the following rounds should be chosen. The target is to shorten farming time, harvest in time, and better wash out salts in the soil to prepare for the rice crop in the rainy season.

Regularly monitor salinity in the field and in supply canals/ditches to actively supply, drain, regulate the appropriate salinity, avoid the increased salinity, gradually accumulate into the soil, and cause challenges for the rice cultivation in the rainy season and subsequent years.

For rice crop in the rainy season

Wash out salts in the soil is considered the most important technique of rice cultivation on shrimp farming land. It should use the first heavy rains of the season to accumulate fresh water, wash out salts of the field. The best salinity before sowing is recommended as <1%.

Choose suitable rice varieties: Select the appropriate rice varieties depending on the conditions of each region. Local winter rice varieties, long-day rice, middle and short-day rice can be selected. In areas that lack of fresh water, and totally depend on the rainy water, it is recommended to select short-day rice varieties, saline-tolerant and alkaline-tolerant varieties.

Water management: To limit increased salinity and salt accumulation in the soil, it is important to keep the water level steady, avoid letting the pond become dry. When heavy rains take place, it should drain the pond; when local droughts are foreseen, the water level should be kept in a high level; water should be stored in whatsoever (reservoir/settling pond, nursery pond) so that water can be timely replenished for rice when needed.

Communication solutions to maintain the rice-shrimp model:

Phát huy hiệu quả trong việc xây dựng phát triển mô hình, cần tuyên truyền rộng rãi đến người dân canh tác tôm-lúa hiểu được mối quan hệ tương tác, hỗ trợ lẫn nhau giữa vật nuôi (tôm, cua, cá) và cây trồng (cây lúa) trong hệ sinh thái đồng ruộng. Phải chú trọng cả hai đối tượng vật nuôi và cây trồng, không xem nhẹ đối tượng nào; Bởi chất thải của vật nuôi sẽ là nguồn dinh dưỡng cho cây lúa hấp thụ sinh trưởng; Ngược lại rơm, rạ từ cây lúa sẽ là nguồn dinh dưỡng tự nhiên cho vật nuôi.

Community-based model development solutions:

- Reorganize production and product marketing: advocate, mobilize, support and create all favorable conditions for farmers to voluntarily participate in the production in the form of production clubs, cooperative groups, cooperatives, etc., in the fastest and most efficient way, to have close links, mutual support in production, environmental protection and product sale.
- Appeal processing enterprises, domestic and foreign investors to support funds (if any) for creating trademarks, supporting to overcome natural disasters and epidemics; contact the raw material purchasing establishments, processing and export enterprises to have appropriate price policies for organic raw materials, ensure food hygiene and safety standards (commitment to buy products with reasonable prices ...).
- Implement good production process, apply biological process, produce with responsibility associated with the environmental protection and food hygiene and safety, apply GlobalGAP, VietGAP criteria ..., protect the environment, minimize the use of antibiotics, chemicals, pesticides for sustainable production purpose.



OUTSTANDING INITIATIVES/IMPROVEMENTS

- Provide guidance to and create conditions for farmers to study the rice-shrimp model, draw experiences and establish cooperative groups and teams to save production costs, to create organic products in large quantity and suitable for technical support and product sale.
- Provide training to strengthen the capacity of local farmers in production techniques, household economy management, seizing market price, production organization, cooperation and stabilization of output sale.

Shrimp farming techniques

farming, design and construction of farming field, preparation of farming fields, water collection, water treatment before stocking, seed selection and stocking; shrimp care; environmental management; shrimp health inspection; shrimp disease prevention; harvesting and handling, impacts of global climate change and adaptation production arrangements, good aquaculture practices under VietGAP/ASC standards, etc.



Rice cultivation techniques

Cleaning, field improvement, sowing technique (transplanting), methods of quantifying fertilizer and fertilizer application, care and management of natural enemies and benefits of natural enemies, management of pest and disease prevention, postharvest handling; rice production under SRI/VietGAP; impacts of climate change, climate change adaptation action plan,...



Improve shrimp farming method to reduce the risk from shrimp disease and increase shrimp productivity such as rearing ponds, nursery ponds, use of probiotics to manage water environment ... shrimp crop, recording, and management of production dossiers in the VietGAP sustainable manner (previously not implemented by farmers).

- Use of microbial fertilizers to decompose organic humus in rearing ponds.
- Improve rice cultivation practices. Apply measure “three reductions, three increases”, “one must, five reductions”, integrated pest management (IPM), use of saline tolerant rice variety and apply VietGAP to increase the sustainability of the rice-shrimp farming system.
- Strengthen capacity for local extension officers, heads of associations and their branches, and farmers through training, workshops and study tours.
- Establish community-based water resources management mechanism for sustainable rice and shrimp production:
 - Invest in dredging irrigation and inland irrigation systems to meet sufficient water sources for production.
 - Rationally regulate water at each time of rice-shrimp production.
 - Expand surrounding ditches, stock with high quality shrimp fry (tested).
 - Implement selective harvest and supplementary stocking at reasonable time.



CÁC KẾT QUẢ NỔI BẬT

- Four cooperative groups established with *129 members participating in the project.*
- Models developed with an area of 90 ha, 2 crops/year: one crop of green crayfish – “one red bush” rice (July of years: 2015, 2016 and 2017); one crop of black tiger shrimp – white shrimp (early years: 2016 and 2017). *The project has supported an amount of VND 340,200,000.*
- *129 households self-financed* shrimp seed valued *over VND 400 million* as the counterpart fund.
- Investigation, data collection, comparison and evaluation of the model effectiveness on acid sulphate soils in four hamlets of Phuoc Long commune.
- The rice-shrimp farming model adaptive to the acid sulphate soil built, capacity and skills of agricultural extension of 129 farmers in the project area raised.
- In collaboration with the Agriculture-Aquaculture Seed Breeding Center, the FFS training on transferring the prototype rice seed production procedure and certification organized, certificates granted to 50 farmers in Phuoc Tho hamlet.
- The rice-shrimp rotation model has been confirmed to be suitable with the production capacity of the majority of farmers in the area, bringing high efficiency and sustainability, having less negative impacts on the surrounding environment due to its closed production, mutual support, contributing to ecological stability, suitable in current climate change conditions. In fact, many households followed this farming model have brought high economic efficiency, low risk, ...





Since 2001, realizing the policy of changing the provincial production structure, rice-shrimp model has been planned, basically production investment is stabilized in the conversion areas of the districts and towns in the province, such as Gia Rai, Dong Hai, Phuoc Long, Hong Dan districts and Hung Thanh commune of Vinh Loi district; the rice-shrimp model is considered as one of the efficient and sustainable production models in the conversion area. This is a non-adversely affected production model for the surrounding environment, is suitable for the current climate change conditions, with the appropriate investment norm to the majority of farm households in the region (Department of Agriculture and Rural Development of Bac Lieu province, 2015, 2016). In fact, soil becomes more fertile after shrimp crop, the paddy grow well in the following rice crop, that reduces the cost of fertilizers as well as pesticides thanks to very good sources of nutrition for paddy from organic humus, microorganism, shrimp feed and wastes left after the shrimp crop. In contrast, the land is renovated after the rice crop for the shrimp crop, paddy straws decomposed after a rice crop is a nutrient source stimulating phytoplankton growing and become a rich nutritious food source. Therefore, shrimp grows quickly, faces much less diseases in the shrimp crop compared with other farming forms (intensive, semi-intensive, improved extensive farming, mixed extensive farming, ...), as the paddy is able to regulate the environment, reduce harmful factors for shrimp. On the other hand, rice cultivation in the field right after the shrimp crop costs only 70-80% compared with the cost for the only rice cultivation. Straws left on the field after the harvest of "one red bush" rice gradually decayed and become shrimp feed, partly increase the organic matter of the soil. Wastes of shrimp are a source of nutrients for paddy in the next crop, reducing production costs, increasing income from shrimp farming by 15-20% thanks to the higher rice-shrimp productivity and yield, as well as reducing risks; hence farmers have additional incomes from the rice-freshwater shrimp (prawn) polyculture. This will increase the yield and value of products, meet food safety standards and improve the economic efficiency of the model.



With the aim to increase the productivity, quality and value of shrimp and rice, the rice-shrimp model is cultivated in an environment-friendly and sustainable manner, control of soil degradation, and hygiene and safety guaranty, commercial rice has been sold out after each harvest, and increased profitability for farmers. Therefore, the establishment of linkage between inputs and outputs will create a favorable direction for farmers in the integration of rice production with shrimp farming. The model is maintained and developed sustainably.

PROJECT IMPACTS

Economic impacts:

- Improvement of economic efficiency, increase of income per unit area.
- Rice-shrimp has the mutual supportive effect that helps stabilize the ecological environment, stabilize and use land resource in a long-term sustainable manner.

Paddy impacts

Minimize toxins for shrimp farming environment, help shrimp grow well, partially limit disease outbreak for shrimp.

A part of paddy stalks and roots have been left after rice harvest, when this amount is totally decomposed, it will stimulate the development of plankton for becoming feed for shrimp.

Shrimp impacts

After each growing season, there is more accumulated sedimentation, so the soil has high fertility, thus reduces the amount of fertilizer for rice.

Shrimp farming water environment is less polluted.

Straw left on the field after harvesting "one red bush" rice is gradually decayed and becomes shrimp feed, partly increases the organic matter of the soil. Wastes of shrimp are a source of nutrients for rice in the next crop, reducing production costs, increasing income from shrimp by 15-20% thanks to the higher rice-shrimp productivity and yield, as well as reducing risks; hence farmers have additional income from the rice - freshwater shrimp (green crayfish) polyculture.

Reduce costs of "one red bush" rice production; increase the yield of shrimp and increase profitability of both "one red bush" rice and tiger shrimp (in a cycle of "one red bush" rice-shrimp farming) equivalent to 12-15%. By using traditional "dredging" technique when preparing land, the amount of NPK fertilizer applied for paddy can be reduced by 20-25%, reducing the use of chemical fertilizers for paddy, helping reduce the environment pollution.

The model is closed, mutually supportive, producing organic products, keeping the environment stabilized and adapting to climate change.

MODEL PROFITS

Shrimp crop:

Unit (hamlet)	Rice shrimp area (ha)	Damaged area (ha)		Harvested area (ha)		Average yield (kg/ha)		Average total shrimp production (kg/ha/year)
		Crop 1	Crop 2	Crop 1	Crop 2	Crop 1	Crop 2	
Phuoc Tho Tien	525	270	82	255	443	210	280	490
Phuoc Truong	487	154	0	333	487	300	290	590
Phuoc Tho	212	32	0	180	212	320	270	590
Phuoc Thanh	236	100	6	136	230	250	320	570
Total	1.460	556	82	904	1.372	270	290	560

Total shrimp production of *90 ha/129 households* involved in the project *reached 50,400kg/year*, of which, black tiger shrimp: 20,137.5kg, white shrimp: 30,262.5kg; total revenue reached VND 6,097.5 million (black tiger shrimp: VND 2,919.5 million, white shrimp: VND 3,177.6 million). *Average income: VND 67.75 million ha/year* (black tiger shrimp: VND 32.439 million, white shrimp: VND 35.311 million). Compared to previous production, *the income from "one red bush" rice-shrimp increased by 15-20%*.

Blue shrimp polyculture:

Besides the favorably developing rice area, households put blue shrimp in the paddy field to increase income, improve value per unit area, shrimps stocking density of 1-2 individuals per m², at the time of the report acceptance (20/12), farmers selectively collected large shrimp individuals, and gradually collecting all the shrimp *with the yield of 70-200 kg/ha (30-40 individuals/kg, selling price from VND 90,000 - 105,000/kg)*. However, yields of hamlets were uneven (in Phuoc Truong and Phuoc Thanh hamlets, *the average yield was 150-200 kg/ha*, Tho Tien and Phuoc Tho hamlets had an average yield of 70 kg/ha due to the uneven shrimp size, mixed small and large sizes), *most of the households have profits from VND 7-13 million/ha*.



Social impacts:

- The capacity of 562 farmers/times, 04 heads of branches, 18 heads of the Farmers' Association teams, extension workers and local officials strengthened. The income of the 129 project participating farmers will be more sustainable thanks to improved rice-shrimp farming. *The project helped 198 farmers* benefit directly and indirectly.
- *The project helped over 20% of women* raise their capacity, gain more confidence and knowledge in production, *8% of ethnic minority households* participate and access to technology, *30% of youth benefit from the project*, and join the production organization.
- Particularly, through the model farmers have been persuaded and mobilized to act as the core for local action movements on economic, cultural and social development, building new rural areas and cultural family, contribute to stabilizing the political security in the locality.
- Employment opportunities created for poor households through creating sustainable rice-shrimp production services.
- Successful results and lessons learned from the pilot project disseminated to communities and other neighborhoods.

Environmental impacts:

- The surface water quality in the project area will be improved through the application of advanced techniques combined with indigenous knowledge of the "field dredging" to reduce the amount of fertilizers and pesticides, do not negatively affect the surrounding environment, and use the environmentally-friendly rice-shrimp farming method.
- By integrating construction and non-construction interventions, *productivity is expected to increase by 15-20% compared to the current one*, resulting from reduction of risk, drought and water pollution jeopardy. In addition, freshwater shrimp farming will be integrated with rice cultivation during the rainy season to increase farmer income, contributing to stimulate investment in the production expansion; the success of the model contributes to the maintenance and development of the sustainable agriculture.

Policy impacts:

- The project contributes to the stable development of the provincial conversion zone, creates employment opportunities for poor households and *helps over 20% of women in the commune to strengthen their capacity*. The replication of adaptive rice cultivation techniques proposed through the "large sample field program" of the province.
- The project mobilizes and acts as the core of rural farmers' action movements on economic, cultural and social development; builds new rural areas; builds cultural families; takes care of all life aspects for farmers.

LESSONS LEARNED

Experience helping the project success:

- The attention and support of the departments, branches and local authorities in the project locations help the project be implemented in a timely manner and bring practical benefits to farmers.
- The project has had positive impacts on community awareness on local policies in the environmental protection.
- Active participation and accountability of the stakeholders have enabled the project activities to be implemented in time as planned and effective.
- The information disseminated through newspapers, radio channels and propaganda activities of the Farmers' Association from provincial to grassroots levels have significantly contributed to the project implementation and promoted the access of local organizations.
- Farmers' capacity has been strengthened. The policy on transfer of science and technology creates people's confidence in the State.
- With the aim to increase the productivity, quality and value of shrimp-rice, sustainable and environmentally-friendly rice-shrimp farming is conducted, land degradation is controlled, safety and hygiene is guaranty, commercial rice is sold out after each harvest and profits for farmers is increased. Therefore, the





establishment of input-output linkage will create a favorable direction for farmers in rice production combined with shrimp farming. The model is maintained and developed sustainably.

- By integrating construction and non-construction interventions, productivity is expected to increase by 15-20% compared to the current one, resulting from reduction of risk, drought and water pollution jeopardy. In addition, freshwater shrimp will be integrated with paddy during the rainy season to increase farmer income, contributing to stimulate investment in production expansion towards sustainable production.
- Technical solutions is the most important step to achieve the project objectives, with on the job training through sample production model, direct guidance to farmers from small to large work, from low to high level, from simple to complex, to change habits in the most beneficial direction, and to transfer new and progress knowledge to farmers. Technical solutions have promoted community capacity, improved understanding of climate change impacts, and application of farming techniques according to the process of reducing risks of drought and saltwater intrusion.
- Adhering to the production schedule, serious application of trained technical measures of rice-shrimp farming, effective application to production to limit risks of diseases, contribution to increased productivity and value of products on the same unit area.
- Actively participate in agricultural extension work to improve the production qualification and techniques, regularly learn and exchange new scientific and technical progress in production (through training, seminars, newspapers) to enrich our experience and then effectively apply it in the production process.

- It is necessary to take initiative in coordinating production with other households and proactively join cooperative groups/cooperatives in order to increase capacity in production, capital mobilization and product sale, as well as to increase product competitiveness. The model is highly appreciated by the local authorities, agriculture branch, and farmers have been actively involved in the model.
- Create a basic foundation to build step by step a concentrated material area and at the same time orientate farmers to apply biological processes and responsible production associated with the environmental protection and safe production, raising the product value for sustainable production purpose.
- The support and consensus of the concerned agencies, the attention of the local authorities, the close coordination and agreement of the Steering Committee and the Expert Group helped the project be effectively implemented.
- Effectively mobilize counterpart funds from farmers, reaching over 60% of VND 492 million of the project budget (including agricultural materials, production costs).
- Regularly check and monitor production activities of farmers.

Policy advocacy experience and role of stakeholders:

- The project personnel: The composition of the Steering Committee includes leaders of the District and Commune People's Committees, where the project is implemented, and leaders of the Farmers' Association from the province to the project location. There are representatives from the agriculture branch (Agriculture Extension Center, Agriculture Seed Center, Phuoc Long District Agriculture Section), four hamlet leaders, cadastral officers and commune agriculture officers in the Experts group. They helped the project to perform smoothly and effectively.
- Collaboration with other projects through the integrated and coordinated implementation of programs and projects with the similar objectives such as the CLUES project (climate change affecting land use in the Mekong Delta: adaptation of rice cropping system) funded by the Government of Australia and has been implementing in Phuoc Long.
- Organize communication activities on environment and the project model, training courses on techniques of seed production, techniques of fertilizer application for paddy under the "three reductions three increases" process; water management; Integrated Pest Management (IPM).

Experience on maintaining and developing the project results:

- The project has been implemented very smoothly, the farmers participating in the project directly benefit, set up household-based agriculture development orientation, develop teamwork skills, and better understand the organic production process. It is possible to link up and create the value chain of supplying organic rice-shrimp products, and sustainably maintain it.
- Annually, coordinate with the Central Farmers' Association and other related departments to develop and implement the co-ordinated program and support the farmers fund in order to support capital, plant and animal seed, training, technical transfer, vocational training, help farmers to build models, demonstration points ... to develop production, change old production practices, switch to large-scale production of goods. The most successful projects include: Guiding the poor how to do business, agricultural extension, fishery extension, forestry extension conducted by the national target program on poverty reduction.

Experience on building and developing organizational capacity:

- Determined aspirations and needs of farmers on the application of advanced science and technology in accordance with the traditional production practices of farmers, in line with the orientations, guidelines, directives and resolutions of the Party and the State, following the production layout under the general planning of the province.
- Established partnerships with relevant agencies and organizations, such as the Agriculture and Fisheries Extension Center to mobilize support for the implementation of models, training, workshops and improvement of seed production processes, rice-shrimp farming process in the conditions affected by climate change. The composition of the Project Steering Committee includes representatives of the People's Committee, Farmers' Association of Phuoc Long District, and the Phuoc Long Commune People's Committee and Farmers' Association to support the project implementation.
- The project has impacts on local policies on the environmental protection and natural resource development, which is likely to be replicated. The rice-shrimp model is suitable for implementing in the provincial conversion zone, and is get interest of the relevant branches. The project activities are practical and helpful to raise capacity for the project stakeholders.



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