

Project Proposal

Development of Rural Aquaculture through Entrepreneurship in Women in Myanmar

(Short title: e-Women)

Project Period:
1 year

Prepared and submitted

by

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Partnering with

Environmental and Economic Research Institute (EERi)
Union of Myanmar

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The University of Tuscia – Viterbo, Italy, in collaboration with the Asian Institute of Technology – Bangkok, Thailand, is promoting a development project in Myanmar entitled, “Development of Rural Aquaculture through Entrepreneurship in Women in Myanmar (Short title: e-Women).

The project aims to develop food security and livelihoods among women and most vulnerable households in the delta region of Myanmar by promoting integration of aquaculture with agriculture and favouring access to markets.

In Myanmar, unfavourable economic situation, extreme weather, protection issues, poor social cohesion adversely affect livelihood opportunities, resulting in inadequate access to food and living standards. A recent nationwide survey revealed that a third of the population live below the poverty line. In the delta region natural calamities have exacerbated chronic livelihood problems due to social disruption, reduced job opportunities, and reduced availability of land and credit, which eventually deprived households from a positive outlook in their future. In this context women and most vulnerable households are more prone to insecurity, the former due to their role mainly confined at household level the latter for their scarce access to means of subsistence. Lack of income opportunities, marginalisation and limited mobility deprive women from fully develop their potential at household level, which eventually brings to a cascade of insecurity that not only implies nutrition but also health and children education.

Food security and income generating activities are key issues to improve women and household livelihoods in rural areas. The development of micro-scale farming and market access is seen as a key issue to improve living conditions and to support Millennium Development goals 1, 3, 4 and 5.

The main objective of the project is to promote food security and livelihood to women and most vulnerable households living in rural areas of the delta region. Specific objectives of the proposed project are identified in the development of aquaculture/agriculture systems either at micro-scale levels; in the delivery of technical assistance and extension for the improvement of farm output; in supporting village groups to promote women empowerment and entrepreneurship.

Key activities consist in the technical and material supports to women and poor households to the development of aquaculture/integrated agriculture systems. Participatory training for development of good aquaculture/agriculture practices will be provided with special emphasis to women and vulnerable people. A participatory credit scheme and support for market access is developed.

Partners for the present project are the University of Tuscia (UoT) – Italy, the Asian Institute of Technology – Thailand and the Environmental and Economic Research Institute (EERi) – Myanmar. The specific expertise brought by each partner is seen as a key factor for the project success: AIT is acknowledged for the on-field experience in many aquaculture projects at regional level and for its ongoing programmes for higher education in the whole South East Asia, Tuscia University is acknowledged for its leading role in sustainable agriculture/horticulture systems, the Environmental and Economic Research Institute (EERi) for its strategic role in education and economic auditing at governance level in the country.

The project seeks to have the financial support of the Italian Foreign Ministry and will be developed on a year basis.

1. Context

1.1 Socio-Economic Situation

Myanmar, the second largest country in Southeast Asia after Indonesia, has a land area of 676,578 km² and a population of 52 million divided among 135 ethnic groups; it is prone to cyclones, landslides, earthquakes and drought. In May 2008, cyclone Nargis struck the southern delta region, Myanmar's breadbasket, causing widespread destruction and the loss of 140,000 lives. Floods occur regularly during the mid-monsoon period from June to August.

Despite abundant natural and human resources, Myanmar is less developed than many of its neighbours: it ranks 135th of 179 countries in the 2008/09 United Nations Development Programme (UNDP) human development index. Annual per capita gross national income is US\$250 with agriculture set as the backbone of the economy contributing to 43.7% of the GDP in 2007/08 while industry (manufacturing, mining/energy, and power) and services generated respectively 20% and 36.5% of the national GDP. Both industry and commerce include many micro-enterprises that typically represent easy entry, subsistence activities of poor households, including those headed by women. According to the Organisation for Economic Co-operation and Development, Myanmar receives US\$2.88 per capita per year in official development assistance, excluding post-Nargis relief and early recovery assistance; this is less than any of the other 50 poorest countries.

Myanmar has a great potential to become prosperous country through agriculture development . Recent economic policy frameworks issued by the Government of Myanmar identified self-sufficiency in food production and food security as key economic objectives. However, unfavourable economic policies, extremes of weather, protection issues, poor social cohesion and the marginalization of some population groups adversely affect livelihood opportunities, resulting in inadequate access to food. The Food and Agriculture Organization of the United Nations (FAO)/WFP 2009 crop and food supply assessment mission (CFSAM) estimated that 5 million people are food-insecure.

Nutritional surveillance undertaken by the National Nutrition Centre showed that the lowest cost of a nutritionally balanced menu for a family of five was 108.5 kyat per day in 1995, while a menu based on recommended food intake was calculated to cost 147.7 kyat. These findings point to the need to promote nutritional security in urban and rural households. Most percentages of families in urban areas suffer from economic mis-management such as unemployment, lack of wages and incomes, sky-rocketed commodity prices, inflation, corruption and labour exploitation

Since 1988 the country has progressively opened up to market-oriented economic policies, which allow farmers some freedom of choice in agricultural production. The Ministry of Agriculture and Irrigation is presently encouraging the participation of the private sector in commercial production of agricultural crops and livestock by granting agricultural land, fallow land or wasteland and supplying fiscal incentives either to foreign and local investors or farmers.

However, despite the liberalization of agricultural production food prices in Myanmar have increased. In 1995/96, the consumer price index (CPI) for food and beverages increased to 8.5-fold that of the CPI in 1986/87. Wages have also increased according to the government, but only up to the level of a minimum daily wage of 20 kyat.

In Myanmar a significant percentage of rural population is landless and mostly lives below the government poverty line. National statistics show that 33% of the landless are below the poverty line, but the ratio is higher (e.g. 44 %) in the delta region. Landless condition is a high factor of vulnerability since the "very poor" level attains for 85% of the cases to this category of people.

Lack of land exacerbates the need to find proper livelihoods and landless people often rely on casual labour, animal husbandry, home gardens, and fishing.

Despite agriculture playing the major role in Myanmar economy, four main constraints limit the agricultural sector from adequate development:

- low technology level
- lack of economic incentives to support investment or input purchase by rural producers
- poor nutrition and health standard of majority of the rural population
- difficult access to land

These factors keep smallholder production near the subsistence threshold. Low technology is linked to low use of fertilizers, whose use is recently seen in decline, poor quality of seeds and management. Lack of water availability or irrigation means that most farmers are exposed to climatic variability and discouraged from investing in technology. Lack of credit and indebtedness limit the adoption of advanced production systems. Research and extension services in Myanmar suffer from shortage of equipment and qualified staff and need to be adapted to become more demand-driven and participatory-minded or flexible to respond to a diversity of agro-ecological situations and farmers' needs. In this condition marginal groups and landless people could directly benefit from increases in farm productivity (i.e. production of pulses in dry season, improvement of farm techniques) or indirectly through the expansion of job opportunities.

In many cases rice production is declining due to excessive exploitation. While better-off farmers have been able to offset declining soil fertility by increasing application of commercial fertiliser, using water pumps for summer paddy production and tractors for ploughing at subsistence level the difficulties in purchasing crop inputs confine farmers in a spiral of vulnerability.

In most rural villages, the villagers are totally relying on their paddy farms. Although the rice prices have been slightly increasing along with inflation, the commodities' prices have also increased. The farmers have to sell their paddy crops in order to buy supplement foods and basic commodities. Most said, they spend more for buying supplementary foods and commodities.

1.2 Gender situation

Myanmar ranks 120th of 163 countries on the gender-related development index (FAO/WFP CFSA 2009), which reviews gender inequality in life expectancy, educational attainment and living standards.

Patriarchy is the traditional rule everywhere. Men normally provide the financial needs and women manage food, clothing, schooling and so on. In traditional culture women are told that their place is in the home and that their identities are limited to being a mother, daughter, or wife. In Burmese society, there is the strong belief that only male qualifications are essential in being a good and capable leader. It is generally thought that women should not be involved in politics because they are not as qualified as male candidates. This belief reflects social prejudices against women as actors of equal value in the public sphere in Burma. Men have been accepted as better leaders not because of any innate superior abilities but simply because they have been given the opportunity to become leaders.

Women may go out to work, but are still looking after family in order to balance both responsibilities without going against the cultural norms and values. However, women still under-represent in most professional occupations. In most families women have control over finance. But

at the same time, they are over burdened by household chore and suffered by the poverty which is widespread in rural areas.

In urban areas, the general livelihood of women usually involves in works such as a sewing and making dresses, trading, shop keeping, water-selling (most towns and cities have a very limited water resources), construction works, as factory workers, waiters in restaurants and entertainment places. Most of women are day labourers and it is very difficult to know how much they earn each day in order to support family needs. In rural areas many women especially work at homes and farms outside of their village and Sub-Town communities. They almost engage in works such as weaving, sewing and making dresses, day-labourers in farming/fishing, rubber plantations, farmlands and fruit plantations with very low income.

At household level women are responsible for the family works, for light farm work, vending, livestock breeding and water collection. Women have to pay respect to their husbands if not give priority about daily food for their families, which makes women more vulnerable in nutrition. The situation has worsened off during labour crisis and with increases in commodity prices, leaving women with less sufficient food ration. Even women who work outside in workplaces or markets could not seek sufficient income to support the whole family as a consequence many families in both urban and rural areas seldom eat meat, fish and eggs that allow body growth. At individual level, pregnant and lactating mothers, infants, preschool children and adolescents were found to be the most vulnerable groups to malnutrition, as they consume much fewer calories and less protein than required.

Food insecurity is particularly affecting pregnant women, who also suffer from anaemia. Lack of sufficient reproductive health services and risks of starvation are among the causes of high maternal deaths, which is 1 in 12 in eastern conflict zones and 1 in 75 in the rest of country, very high rates if compared to neighbouring countries.

Similar trend to food security are also observed in healthcare. Most women hardly ever pay a visit to the clinics or hospitals to check their health or receive treatment and just take traditional herbal medicines in their homes, while their husbands and children are always urged to take treatments in health care services. Another problem is the cost of healthcare in Burma that is extremely expensive and even clinics and hospitals that provide a simple treatment could not fulfil proper needs to the general population.

During the last two decades the welfare system, such as social, education and health sectors, suffered from a progressive worsening that affected women and children. Lack of social protection, joblessness as well as lack of sufficient income forced thousands of women and households in Burma to migrate to urban areas and neighbouring countries. In several cases poverty increasingly forced women to engage in sex industries both in Burma and in neighbouring countries. Such situation is also a contributing factors of HIV/AIDS spread where ignorance regarding transmission and the importance of safe sex has directly contributed to the disease's proliferation. UNAIDS have reported that 27% of sex workers, tested in Burma in 2004, were found to be HIV positive. In addition, women are often exposed to the risk of infection due to the high risk behaviour of their husbands, and a lack of empowerment to escape such situations.

In the case of children in very poor households they have no opportunities attending the primary schools as they cannot afford education costs or because they need to help their parents to earn money, which eventually limit children opportunities to gain a better future though education.

Although there are few women's associations e.g. Myanmar Maternal and Child Welfare Association, Myanmar Women Entrepreneurs' Association, they hardly reach to rural areas and

agriculture sector. Women, especially the minority groups hardly get jobs neither in government nor private sector which indicates that programs which focus on leadership and entrepreneurship development in women is highly needed.

1.3 Post Cyclone Nargis situation

In project areas farmers and landless livelihoods have not yet been restored to normal conditions, tailing the socio-economic problems with wider impacts. In the farming sectors, farmers who lost their harvest during the cyclone are still struggling with the burden of heavy indebtedness and are not able to invest well in the farming sector, which means they cannot use sufficient farming inputs, and hire sufficient labour. As a result, not all cultivable lands are fully utilized, and the production from cultivations has decreased. On the other hand landless people, who lost their tools, livestock and fishing equipments during the storms, have been struggling for their survival. Currently, the underlying problems for them can be identified in limited labour opportunities, lost access to credit and scarce chances of advanced labour sale.

The most significant downward pressure is the decline in yields of summer and monsoon paddy due to declining soil fertility and declining returns on draught power use. There have been negative consequences for on-farm employment. With respect to seasonality, the best time for villagers follows the harvest of monsoon paddy (January-February) and summer paddy (March-April), when food and income are at their peaks. During the rainy season and in October and November, prior to the monsoon paddy harvest, people have the least money.

According to interviews more men were victims of the cyclone than women. Many men were killed because they were at work in vulnerable areas, like shrimp farms, paddy fields, salt production sites or fishing huts. Many survivors left after the cyclone because of family and livelihood loss. Among women interviewed by field workers two primary reasons were identified for leaving cyclone affected areas:

- Forget the pasts and the death of family members. In many cases survivors tried to contact friends and relatives outside of the cyclone-hit area in an attempt to get support.
- Loss of male family members, who often earned significant portions of the family income, left many women struggling to earn enough to support their families. Recovery and reconstruction looked slow and unreliable to many, and the attendant spectre of protracted unemployment caused many to leave in search of work.

Unfortunately, many families that left in search of work have struggled to find employment. The majority of women interviewed spoke of Rangoon as the primary place for female survivors to seek work. This, combined with the fact that residents of the old capital are themselves rebuilding after the storm, means that many women in the city have not actually been able to find work.

Interviews indicate that survivors face a variety of difficulties, both physical and psychological. There is also a dearth of responses to the physical and mental needs of women and children recovering from the cyclone. Even with help, these survivors will face a long and difficult recovery process. Without support, this process will be even more difficult and people – even whole communities – will struggle to recover and rebuild.

Nevertheless communities at village level are relatively socially cohesive and have strong capacities for collective problem solving and decision-making due to lack of development resources from higher levels, which accentuates the importance of working together at the community level and carefully prioritizing resources for public goods. In addition the absence of a state or employer

safety net, community members, families and kinship relationship among villages support each other in times of need.

2. Project Rationale and Justification

2.1 Problem statement

Overall food insecurity and malnutrition

In rural Myanmar most of the landless and nearly half of the farm households are affected by food insecurity. Because of low or no productive assets, seasonal unemployment, low income/wage, low productivity, lack of access to inputs and credit, landless people face chronic food deficiency while small and medium farm households are partially unable to attain food sufficiency for some time during the year. The two main ways to address food insecurity problems are own-production and/or market purchases.

Constraints that affect a households' ability to produce own-food include inadequate access to cultivable areas, credit for buying agricultural inputs, and post-harvest storage facilities. Chronic and acute access to food by households relying on market purchases results from inadequate demand for labour and increase in food commodity prices due to market dynamics and inflation.

The percentage of expenditure on food items as a percentage of total household expenditures in all states/divisions exceeds 60%, which shows the high vulnerability to food security. Although average consumption expenditures of non-poor households are nearly twice that of poor households, the percentage spent on food is also high, indicating that vulnerability to food insecurity is not limited to the poor in Myanmar.

Food security affects a wide part of rural society as most of the household (women, landless, small farmers) cannot gain their living from casual labour or limited crops production potential. As a consequence people have to purchase food from markets whose prices have risen sensitively in the last decade. The food insecurity is particularly harsh for women who have limited freedom to contribute to family income due to mobility restrictions and child care responsibilities. In addition any home-based jobs that can serve both to raise family nutritional level and support livelihood are retained due to lack of credit.

In the delta region marginal livelihoods are households living from forest scavenging, cutting wood who may depend on local safety nets. They are often households headed by women, widows, or handicapped people, who have increased tremendously in number due to Nargis. This group is the worst-off and chronically food insecure. Female-headed households are more food insecure and are more likely to have a poor food consumption pattern or to apply severe coping strategies in response to food insecurity. Female-headed households are often single-headed and lack the possibility of alternative income generating activities, such as out-migration for work, due to children care. Education levels in households seem to be another important factor defining the vulnerability of a household, as understood from the focus group discussions. Most food insecure households lack sufficient education.

Low income - unemployment

In recent year the increase of inflation rates and the increase of commodities prices have exacerbated household spending capacity to the extent that workers can hardly earn sufficient money for supporting their families. As a consequence women have to find a job or to migrate to

towns to earn a living. However women do not have access to receive equal payment as men due to cultural barriers.

Scarcity of income or job also forces children work, as they are required to give income support to families or carry out tasks previously done by parents.

Among the households landless and casual labourers are the most fragile groups, as they are dependent on the demand for labour, local wage rates and market performance to earn money, factors that are highly volatile. Surveys carried out in the different divisions outlined that such sector of population raises its livelihood in farm or fishery work or by finding personal source of income in vegetable production or animal husbandry. Home gardens and small animals can both sustain family nutritional needs and are seen as assets to be sold in period of need.

In the delta region the occurrence of cyclone Nargis affected employment opportunities in many ways. Severe limits to productivity in both agricultural and aquaculture sector depress job opportunities.. Land unavailability and destruction of tools deprived farmers to run agriculture and aquaculture with consequent limits in household incomes. The recovery process is still coping with lack of credit, which affects use of farm inputs or to set up small businesses.

Recovery efforts by international organizations and NGOs start to bring back to production these two key sectors, though at not fully operative level. As a consequence demand for workers is still stagnating and brings landless people to find job opportunities outside their villages or region with consequent disruption of the existing social linkages. Lack of education among landless people also determines limited job opportunities and reduced income.

Status and role of Women

As in other countries, Myanmar women are also burdened by household chores, although they enjoy more freedom. In rural areas where there is poverty, women get sufferings more than men. Women especially from minorities groups are lagging behind and hardly get chances to get jobs.

Life-cycle pressures associated with the childbearing years, coupled with high fertility rates, are probably the most frequently cited factor precipitating deterioration in living standards of worse-off women. This underscores the need for an effective population policy which does not exclude worse-off women. In a significant number of villages, processes leading to female headship (e.g. death, separation, abandonment or illness of a spouse) were instrumental in precipitating a decline in living standards. It appears likely that there are sub-groups of female-headed households who face severe social deprivation and who may be good candidates for targeting.

There is lack of programs that focus on leadership and entrepreneurship development in women. Although, domestic violence is not a problem, trafficking of women for prostitution is increasing through porous boarder with Thailand. The main cause the problem is rural poverty or lack of income and employment. In light of this, some home-based income earning activities such as fish farming, vegetable gardening, processing and marketing coupled with micro-credit schemes for the rural women to carry out in groups is necessary so that they would not need get involved in such unwanted activities.

In addition to poverty, there is a need for uplifting of fitness and family health aiming at reducing the mortalities of infants and their mothers than can be relieved through better nutrition and better incomes to favour maternity health as well as gender empowerment through education at local level.

Credit access

According to Myanmar Law 1990 financial institutions are not allowed to provide uncollateralized credit. All bank credit has to be collateralized either with real estate or by a fixed deposit account. Millions of small and micro-entrepreneurs who could not provide collateral to banks have to rely on informal money lenders for credit, with average reported monthly interest rates of around 10%. Farm-workers and casual labourers also borrow informally from their employers at similar interest rates, or take advance on their wages, fixed at a lower rate. The poor who are “unbanked”, such as women, landless, and other vulnerable and marginalized groups, are thus prevented from access credit and then have no chances to run micro enterprises. In the case of women lack of opportunities in doing jobs away from homes precludes any possibility to improve household livelihood.

2.2 Priority needs

Work carried out at village level has identified clusters of specific needs by villages through a strong participatory work and baseline data collection:

- Improve women and vulnerable households food security and livelihood
- Favour women and vulnerable household entrepreneurship and empowerment

The needs firstly outline the urgency to improve food production at household level to support nutritional balance of family groups. The amelioration of women conditions at this level is tightly linked with household recovery, due to the cohesive characteristics of the societal structure in rural areas.

So far economic crisis and excessive food prices do not allow people to support the nutritional needs that they deserve, which have a massive impact on the weakest groups and at household level. Nevertheless the support in developing integrated aquaculture-agriculture systems would favour income opportunities with limited time demand, which mainly favour women and their family groups.

Food security and livelihoods are tightly linked in rural areas. Establish better living conditions in villages thus implies from one side recovering farm assets and increasing productivity in landholders, on the other side finding new opportunities to produce food and raise incomes in landless groups. For landless there are potentials to develop micro-farming through backyard productions, small husbandry or micro-aquaculture. For smallholders recovery not only implies the need to support investment in inputs and equipments, but also the amelioration of farm management under more sustainable and productive outlooks. As already outlined, while better-off people could afford expenses to maintain crop productivity with fertilization and irrigation, poor people do not have any credit access. As a consequence any increase in food production should find its way through alternative ways that are found in integrated management, good farming practices and quality of seeds.

Limited income generating capacity, credit access and lack of education are important issues in women and widows-headed households who are constrained in subsistence living. Empowerment is then a fundamental issue in the way of helping the weakest groups to reorganize their livelihoods through a multi-factorial responses, which covers education/training, micro-credit, advocacy and health.

The opening to market has been outlined at village level where ongoing talks are being developed for rice production and for fish governance. Direct access to markets and winning farm practices would help households to raise their income in sustainable way and favour new jobs.

2.3 The proposed approach

The general objective of the project is: Improve living standards in women and most vulnerable people.

Two main specific objectives have been identified:

- a) Support and re-establish the nutrition status and livelihoods of women and the most vulnerable and food-insecure groups
- b) Women and vulnerable households empowerment

International organizations all agree that raising the health, education, and economic status of women is essential to promote the positive development of a nation. There are many statistics to bear out this correlation between the condition of women and the condition of the nation. When the situation of women improves, the situation of the whole community improves. Women are more likely to invest additional household income in children's health and education, raising child survival rates and improving the welfare of the whole community. Nevertheless in the proposed project intervention on women is not disjoined from household support, given the particular structure of the Burmese society. In the same way food security is not disjoined from livelihood as food surplus from farming can guarantee for additional incomes at household level.

The proposed project aims to empower women and vulnerable households' food production, income and employment opportunities. On practical terms the project focuses on one side to support worse-off farmers who cannot afford farm inputs but can develop integrated farming, on the other side it assists vulnerable groups (women and landless) to develop alternative ways to produce food and increase their livelihood opportunities.

The project aims to develop the program in a timeline of one year. For the first year the project will implement training and set up food security strategies, mainly for household consumption. A micro-credit scheme will also support women and households to further develop their livelihood strategies at family level. The beneficiaries are villagers from Twantay division. Project partners will also work in developing a horizontal transfer of knowledge on livelihood-coping strategies with neighbour countries, which depends on a number of factors, aiming at building experience and ideas among beneficiaries on the impact of integrated aquaculture at household level.

The results achieved during the project implementation will serve for sharing the experiences to other townships or divisions to develop self-sustaining development projects among village traits.

Given positive project outcomes, wide impact and funding availability, the proponents wish to implement the project further to develop:

Mid term objectives → Market expansion of household productions. Advocacy, market intelligence and training aim to grow favourable conditions for market access. Micro-credit will focus to support market entrepreneurship among households.

Long term objectives → Develop market access through project planning and cooperatives. Consolidate village committees (VC) to work in developing partnerships with GOs, implement governance and project planning. Develop horizontal exchange transfer of technology.

Specific objective 1 - Support and re-establish the nutrition status and livelihoods of women and the most vulnerable and food-insecure groups

The project focus to support two different categories of beneficiaries: landowners and landless households. For both tailored strategies aim to empower production through farming system integration or the development of micro-production systems, mainly at backyard level.

a) Intervention to vulnerable landowners to restore/empower farming systems

The intervention targets beneficiaries who have limited availability of land or scarce input access. Aid supports specific production systems that are most representative of the region:

- Fish farming with vegetables
- Rice with fish farming

Village Committees (VCs) will help to identify beneficiaries and to monitor ongoing activities. Use of micro-credit schemes or money-free strategies like livestock banks or input banks will avoid indebtedness risks and favour horizontal participation among beneficiaries.

Farm productivity will be pursued through farm restoration, good farm management and adoption of innovative growing techniques. Activity will focus on aquaculture/agriculture system integration, land intercropping and improvement of seed quality to increase productions. All the proposed activities will be supported by preliminary training and extension supports carried out by facilitators at village level.

Fish farming with vegetables

Fish production is one of the most sustainable animal production systems. Compared to warm blooded animals fish consume 3-4 less feed to grow the same quantity of body biomass. This eventually results in a very cost-effective protein production for human nutrition. Aquaculture has several advantages for being developed in rural areas:

- fish take advantage of water primary production (algae, plankton, benthic organism), which increases their feed intake efficiency
- fish are the best suppliers of polyunsaturated fatty acids that are essential for a correct children brain development and to enhance immune systems in people
- water bodies serve as reservoirs and avoid women daily water collection from wells to get the water for domestic uses
- fish water from aquaculture operations serves as irrigation water in dry seasons and fertilizer for vegetable productions, which limits the effects of seasonality

In South East Asia aquaculture is well developed, however the situation in Burma differs as farmers have not adequate know-how to make more profitable and efficient fish production systems.

Following the success pond management techniques in use in neighbouring countries where aquaculture is the backbone of farm protein production, the proposed strategy focuses on the development of fish farming in ponds with (semi-intensive management) or without feeding (extensive management). While the extensive option is partially maintained to meet domestic water requirements and provide refuges for wild fish and fauna, the semi-intensive management is more integrated with vegetable productions, as water is used both to irrigate and fertilize plants with dissolved nutrients from fish excreta. The indigenous farming techniques have always taken advantages of vegetable productions from water bodies stocked with fish as a cheap nutrient source for plants. The proposed project aims to scale up such indigenous techniques in more productive designs and managements (vegetable farming on pond banks, ditch dike systems) that can avoid the purchase of expensive chemical fertilizers to the benefit of worse-off farmers. The semi-intensive

system allow for higher yields wherever farmers can afford the costs for fish feeding with the goal to return on their additional management costs through access to markets.

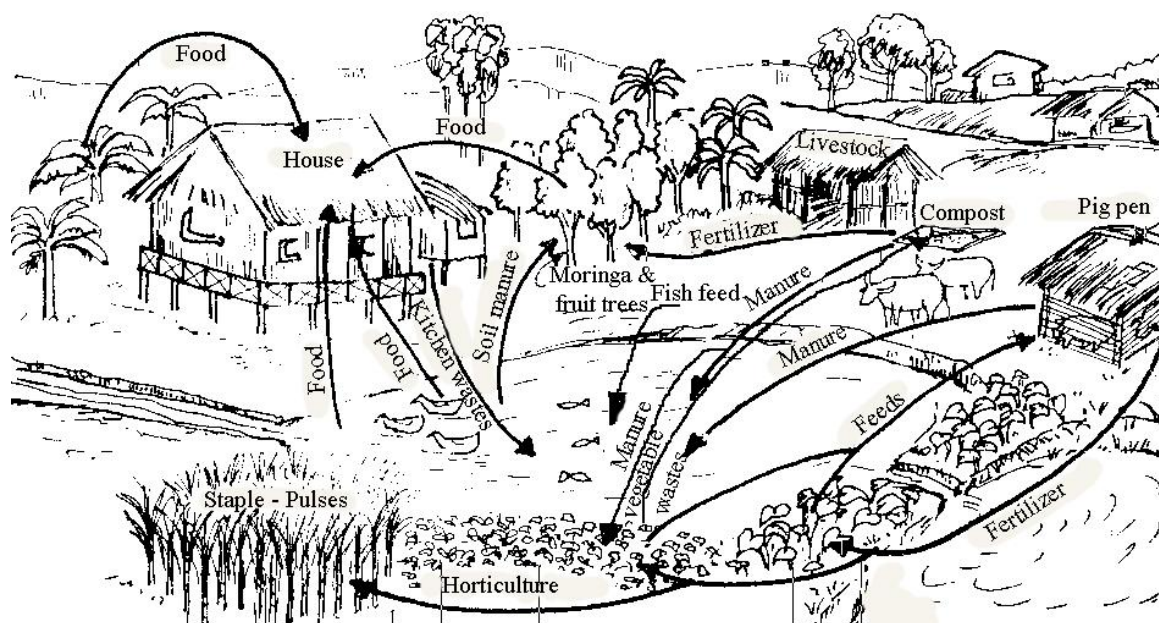
The program implementation will identify beneficiaries at community level from the most vulnerable farm households and coordinate contextual activities to local conditions.

The aquaculture part of the project will focus on the choice of local or commercial fish species particularly suited for polyculture and productivity. Trainings on pond best practices, management and breeding programmes for quality seed production will be carried out with presence of experts and extensions officers. The agronomic part will focus in the development of pond feeding management, which will be carried out by means of chemical (urea) or organic fertilizers to favour pond primary production. Composting techniques and use of manure from integrated animal-fish husbandry manure will be adopted to increase optimal reuse of farm by-products.

As for the vegetable productions a particular attention will focus on choice of plants with high nutritional values. In the case of *Moringa oleifera*, a plant widely cultivated in South and SE Asia, plantations will be favoured within farming systems to support nutritional deficiencies considering the wide availability of leafs at the end of the dry season. The nutritional characteristics of this plant, also called “mother best friend”, are in fact quite outstanding and are expected to cover many of the nutritional deficiencies in women and children: the plant has 2 times more protein than milk, 7 times higher concentrations of vitamin C than oranges and 4 times more vitamin A than carrots and three times more iron than almonds as well as high mineral content and strong antimicrobial effects.

Expected results:

1. increased household productivity and food production
2. reduction of seasonality due to extension of production season
3. reduced expenses in production input due to use of fish by-products
4. amelioration of household and women nutritional status
5. reduced women and children work in household water supply
6. increased household income from farm production



Integrated fish-vegetable production (source Infocollections - modified)

Rice with fish farming

As mentioned in the introductory part the most important crop in Myanmar is rice. At farm level rice is a trade commodity that is sold for purchasing goods and food. However several constraints affected rice production in the region: decrease in productivity, lack of adequate production inputs and irrigation/mechanisation. Worse-off and food insecure farmers do not have adequate farm aids to enhance productivity for this staple, due to lack of money to purchase fertilizers or to irrigate crops in dry seasons. As a consequence low yields and a production limited to monsoon season affect both households' nutritional status and income capacity. Experiences from University of Stirling - Scotland and AIT projects in Bangladesh and other SE Asia countries have proven the efficient use of fish in rice production. Integrated rice-fish systems have been developed as a strategy to raise productivity, control weeds and pests in paddies and produce proteins at zero costs. Through this technique people benefited of 10% increases in rice yields and increased their food security/income opportunities with several hundreds of kg fish per hectare. In addition to this technique other systems with fish simply stocked upstream paddies' water inlets were able to enrich water with enough nutrients to improve rice yields. According to experiences matured from other projects rice-fish farming is particularly indicated to support most vulnerable farm households in a sustainable and economic way.

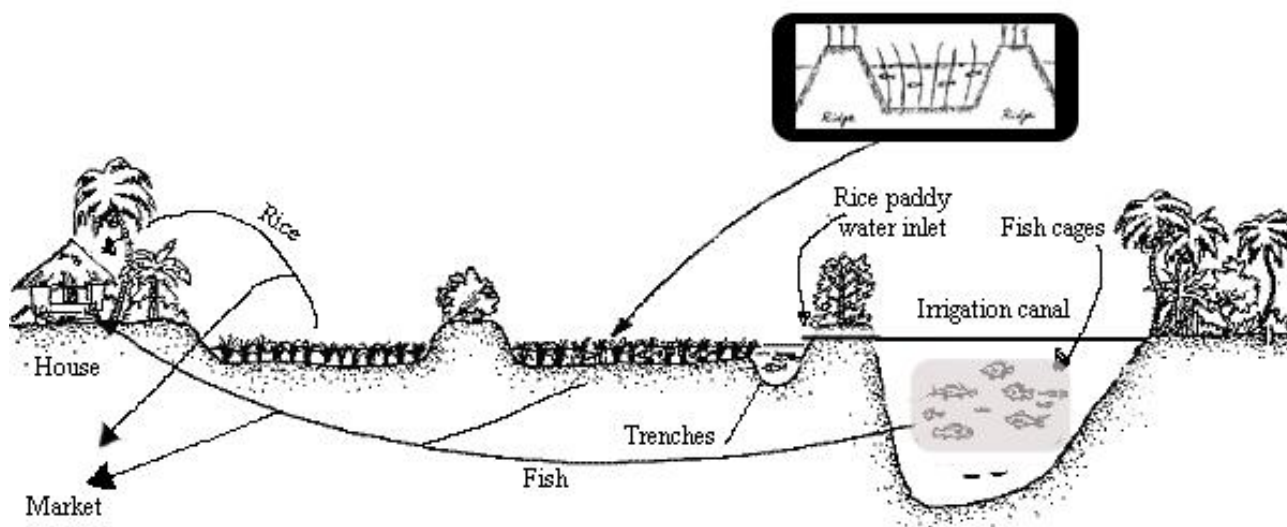
Furthermore the feeding habit of fish on insect larvae is undoubtedly a strategy to reduce the impact of mosquito-transmitted diseases such as malaria and dengue fever. Such biological control, already in use in ponds among farmers in SE Asia, if applied to paddies would have a considerable impact on local populations who may benefit from lower disease incidence with no use of pesticides.

The project aims to support aquaculture with rice productions wherever agreements with townships and government agencies (Ministry of Agriculture) are reached. Rice-fish systems can be developed in paddies, under very limited use of cultivable land through the enforcement of trenches at the side of rice fields, which allow fish to refuge when water levels in paddies are not sufficient for swimming. Alternatively, stocking of fish can occur at paddy water inlets where fish cages positioned to improve plant nutrient levels. The set up of such integrated systems imply earthwork and reinforcement of paddy dykes to sustain higher levels of water. Choice of suitable fish species like carp and tilapia will be considered for market reason. However, local fish species will be also encouraged for replenishment and to diversify production.

Expected results:

1. increased paddy productivity by 5%
2. reduced paddy workload due to fish weed control
3. reduced use of pesticides due to fish pest control
4. reduced expenses in fertilization due to use of fish by-products
5. increase of 15% fish intake at household level
6. amelioration of women and household nutritional status
7. increased household income from farm production
8. reduction of mosquito-borne diseases

Support to household livelihood also targets seasonality-prone farmers who cannot crop rice during dry season. Project implementation in such case sees rice-fish systems in monsoon period alternated with vegetable productions in dry season. Rotations with pulses in rain-fed lands will enhance household nutrition through the supplement of vegetable proteins and cash in the slack season. Crop rotation strategy would improve farm productivity for increased soil fertility and would abate monoculture-derived problems, such as rice diseases and pests.



Integrated Fish-Rice system (source FAO - modified)

b) Intervention to landless households to improve food security and livelihood

Interventions on this part focus primarily on women, poor households headed by women, widows and landless people. Project would supply easy tools to improve livelihood at backyard level. The project aims to raise income and secure food at family level in all those cases where no land or very little land is available.

Fish, livestock and vegetable

The activities are developed towards specific production systems that are representative of the region:

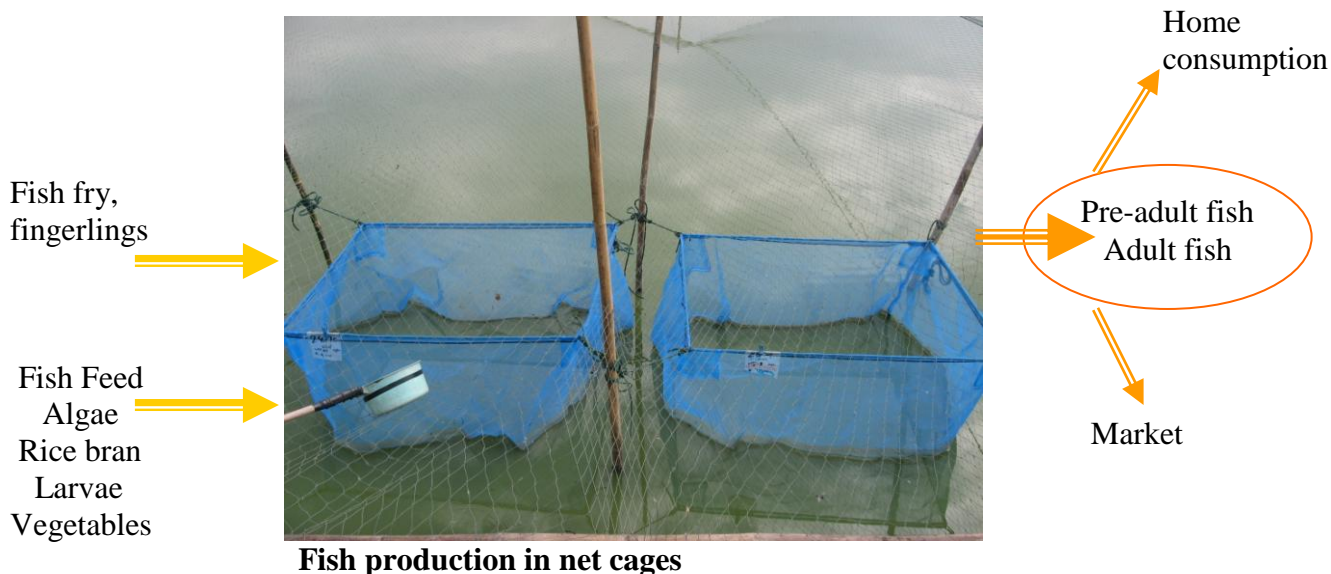
Cage aquaculture in water bodies

Myanmar governmental agencies are currently leading development projects in Delta area, which are mainly targeted towards small-scale fishery households. The interventions aim to raise livelihoods in small-scale fishery people and improve fishery governance at community and township level. Synergies with ongoing projects could speed up people access to common water bodies or to get fishing licences in order to start production in common water bodies, lakes or reservoirs, both for commercial and conservation purposes. Use of small nylon net (hapas) from 1 m² allow production of fry and fish with very low management needs and investment costs. Conversely use of bigger nets allow for higher production. Small cage fish culture can provide interesting business opportunities.

Following project success achieved in Bangladesh women and very poor people with limited/no access of land could earn a living from fry production. The production of baby fish in small hapa nets is possible in small water bodies or flooded crops. It requires minimum maintenance and feed costs, which is optimal for people with limited mobility or time availability. Fry could be reared all year long, which allow people to bypass seasonality problems. Minimum transportation efforts make small fish production a reliable business due to the low transport costs for small fish biomass. In the same way a very cage aquaculture of pre-adult fish can easily integrate landless livelihoods. Cage aquaculture, likewise baby fish production in hapa requires minimum maintenance and husbandry management and can be easily run by women with no major time commitment.

Upon training on fish management women and poor households will be given nets and fish seeds. Fish and equipment can be supplied by “livestock banks” run under a “community credit system” at

village level. Likewise the AIT's project in Nepal, part of the revenues are reinvested to increase access of new producers, whom will be asked to "sponsor" future newcomers by supplying fry or eggs. Such strategy is expected to make the expansion of small-scale aquaculture a self-sustaining process and with a wide impact on local communities.



Expected results:

1. improvement of households incomes
2. diversification of livelihood coping strategies in vulnerable people
3. market access
4. improvement of fish consumption at family level
5. reduced seasonality in vulnerable people

Integrated fish pond-animal husbandry and vegetable gardens

Integrated aquaculture can scale-up households output with very limited use of external inputs. AIT experiences in Nepal for Aquaculture without Frontiers (AwF scale up - Nepal Project in mid-hills of Nepal through empowering women) showed that backyard productions are quite effective in raising-up household livelihoods and food security and secure a huge impact. The set up of small ponds next to houses allows women not only to self-employ in a compatible way with other household tasks, but also provide food and cash.

In Myanmar small animal husbandry is already a livelihood coping strategy adopted by people to have an additional source of food or an asset to be sold in periods of needs. Most of the work is carried out by women and landless. The scale-up of animal husbandry with backyard aquaculture is an additional resource that uses household by-products to improve household productivity.

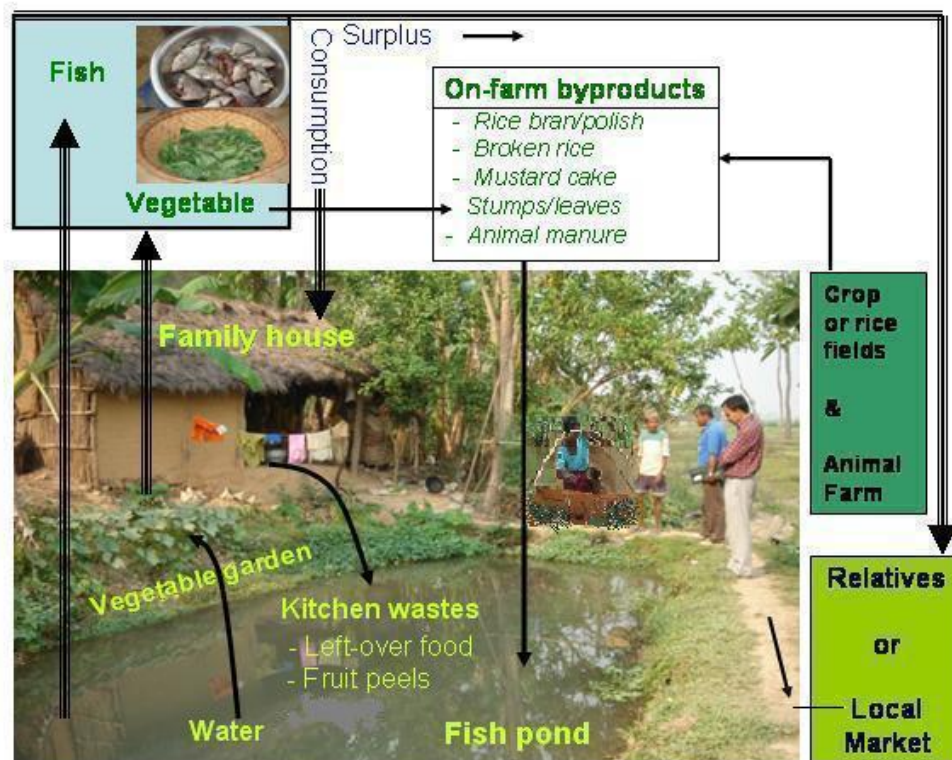
Ponds are common in Myanmar as they are built for domestic water supply. However, the fertilization practices to improve water primary production to feed fish in ponds are not well developed. Algae and plankton can be in fact facilitated in their growth through animal manure or compost fertilization. In addition the development of horticulture on pond banks can take advantage of the synergic use of compost both for water and plant fertilization. The use of land nearby houses allows women and family members to have a immediate source of proteins and an asset to refer to

in case of financial needs. At community level training is given on aquaculture and horticulture management, feeding, composting, fertilization and integrated pest management. Tools for earthwork and seeds for stocking the pond with fish will be supplied to each household under credit scheme.

Following the success stories in projects promoted by AIT it is expected to produce fish for consumption (15%), generate supplemental income and valorise un-used land, labour and household by-products. The project aims to bring social change and develop gender-balanced communities.

Expected results:

1. improvement of households incomes
2. diversification of livelihood coping strategies in vulnerable people
3. access/increased access to market
4. improvement of fish/animal consumption at family level
5. improvement of vegetable consumption at family level
6. reduce seasonality in vulnerable people



Micro-scale horticulture

Is a livelihood aid widely experimented worldwide by FAO involving urban and periurban horticulture to secure food and incomes. Well-known examples of urban agriculture are found in Havana and other Cuban cities under the economic blockade in the nineties, Eastern Europe after the collapse of the former USSR, and more recently, cities in Eastern Congo or Gaza Strip.

In Brazil the PROVE programme, which was designed to fight urban poverty by promoting small-scale agricultural production, processing and trade in marginalized households, not only proved changes in productive practices, but also paved the way for a gradual change in people mentality.

Development of micro-scale horticulture allowed women and poor households to benefit from home-grown food and to capitalise family labour. Use of small acreages of land for vegetable productions or adoption of soilless agriculture (hydroponics) allow for very flexible outputs. Use of materials such as family compost can also valorise wastes as a way of reducing fertilizer use.

The project will be developed through initial inception meetings and training finalized to plant production, fertilization, composting and integrate pest management. Production output will be monitored at community level and market-oriented meetings will be held to build market-oriented production through cooperative planning, market information and improvement of production quality standards to better meet market demand.

Providing fish availability soilless production can be developed using aquaponic system with fish waste-water and family-made compost, which would further reduce the household dependency for the purchase of hydroponic fertilizers.

Expected results:

1. improvement of vegetable consumption at family level
2. access/increased access to market
3. improvement of women incomes



Specific objective 2 - Women and vulnerable household empowerment

Livelihood is not just a matter of lack of work opportunities: Many are in fact the factors that determine a raise in living conditions. Although in Myanmar there is no discrimination against women it appears that females cannot easily access jobs. Cultural factors and lower wages prevent women from fully develop their potential and to contribute to family sustain. In addition lack of education and credit prevent most vulnerable people to improve work skills or to develop their entrepreneurships. Lack of opportunities brings to a spiral of uncertainty that bring to food insecurity and social vulnerability. To confirm such theorem the recent erosion in households spending capacity has brought harsh consequences on children schooling. Offspring could not access education system due to lack of money and because they tended to substitute adults’ work at home. Consequences in this are clearly imaginable as future generation face the risks of not being adequately educated to get better jobs. Empowerment of women and vulnerable households is a key factor in promoting development, since supplying people with tools allow for progressive amelioration of living standards in families. Giving women the opportunity to contribute with food

and money means not only improving women status and roles into rural society but also favour better perspectives in young generations.

Target of the intervention focuses on

- a) Capacity building
- b) Gender and poor entrepreneurship
- c) Micro-credit

At operative level project will be implemented in close connection with villages committees (VC). Beneficiaries will be chosen at village level among most vulnerable people: women, farmers and landless. Beneficiaries will be trained and coordinated by project developers and facilitators who will support group empowerment in villages. Reporting of activities, information sharing through production of booklets or brochures and exchange of knowledge among different villages is encouraged to promote horizontal participation, entrepreneurship and sustainability of the project.

a) Capacity building

Lack of education in women and most vulnerable households constrain people into a spiral of uncertainty. Marginal households are in fact prone to scarce work opportunities as lack of means is often accompanied by lack of chances to improve working skills or to raise awareness about own rights. In rural Myanmar there is neither a capillary extension network nor extensive training opportunities. As a consequence the majority of the population could not get suitable transfer of technologies, which eventually lead to low farm productivity or insufficient opportunities to meet demand for more skilled work. Capacity building is an important tool to support people livelihood in their farming systems or micro enterprises. In the proposed project activities will focus on aquaculture and agriculture training through facilitators who will work at village level and production of extension material. Workshops will also include horizontal exchange of technology with winning livelihood stories at local or regional level. Monthly cluster meetings with local stakeholders, government representatives and local NGOs will be regularly set in order to update current activities, report operational challenges and learn ways of working or approach each other in addressing issues or cover specific knowledge needs.

Expected activities:

1. workshops on aquaculture and animal husbandry
2. workshops on agriculture and post harvest management
3. production of training material
4. networking and participative training/planning

b) Gender and entrepreneurship

The project will focus on raising the opportunities for women and poor households to earn their living through self-production and access to market. Economic independency is undoubtedly the best way to reduce gender unbalances and to reduce the spiral of vulnerability in families. In the case of market access women have a key role, as selling goods is believed to be the work of women. In the majority of markets women are the main salespersons because they are talented in compromising the price, the quality of goods, can create attractive surrounding and have effective communication with customers.

The project aims to establish links with market and government representatives to develop networking and advocacy to best address governance and commercial issues. At village level market information, domestic politics and business news will be shared through the issue of

periodic reports. In the envision to create producers' cooperatives with the goal to reach more valuable markets, community-based groups will be set to enable producers for effective and efficient development efforts, utilizing the external assistance for developing community-owned development sources.

Expected activities:

1. market intelligence
2. networking

c) Micro-credit

The system targets the poor who are “unbanked”: women, landless, and other vulnerable and marginalized groups. The approach consists of facilitating access to microfinance services, using the group lending methodology and stimulating small business ventures. Building on the Grameen Bank model of Bangladesh, adapted for the local culture of Myanmar, the project practices a “solidarity Group lending methodology” recognizing that the power of the group is a more successful cultural indicator for motivation than the individual. Loans are given to individuals in the group and it is the individual’s responsibility to repay on time. There are no restrictions on loan utilization. Each member invests the money in her own chosen business. The average loan size is rather small, with an average of US \$60; however, this is enough to make a significant difference to people struggling to make ends meet. Moreover after repaying earlier loans and their businesses grow, they are eligible to access to bigger loan sizes.

2.4 Beneficiaries/target groups

At the local level, the organizations to be involved are villages committees (VC) that relate directly to project beneficiaries: women and most vulnerable households.

In this proposed action, VCs select women and vulnerable livelihoods who can actively participate in the project activities. VCs will work closely with trainers to develop knowledge sharing. The VCs will be responsible for regular updating the project team on the progress of the project activities and to help project team to tailor interventions to changed conditions. VCs will also share the experience and learning from the project activities with other villages through coordination meetings and knowledge sharing workshops.

2.5 The implementing organisation

The implementing organization is composed of three partners:

- University of Tuscia (UoT) – Italy,
- Asian Institute of Technology (AIT)– Thailand,
- Environmental and Economic Research Institute (EERi)

The three academic institutions are actively involved either in research excellence, sustainable production systems, market-oriented productions and in transfer of technology, which are key points in the development of the proposed objectives. While Tuscia University expertise is more on

integrated agroecosystems (agriculture + aquaculture) and small/large-scale plant production, and AIT are more focused in fishery management and livelihood. For all the three proposed institutions the wide experience in development projects and the deep knowledge of the environmental and socio/economic contexts of the region make them the perfect members to implement the proposed project. On the operative point of view EERi is committed in education and economic development and support sustainable development at governance level.

A brief description of each member is provided below.

Asian Institute of Technology - AIT - The Asian Institute of Technology promotes technological change and sustainable development in the Asian-Pacific region through higher education, research and outreach. Established in Bangkok in 1959, AIT has become a leading regional postgraduate institution and is actively working with public and private sector partners throughout the region and with some of the top universities in the world. The mission of AIT in the context of the emerging environment is "to develop highly qualified and committed professionals who will play a leading role in the sustainable development of the region and its integration into the global economy".

AIT recognizes the significant contribution of aquaculture to food security and economic growth within the carrying capacity of natural and manmade ecosystems. It emphasizes the promotion of sustainable aquatic systems through improved production technology with due consideration given to social, economic and environmental issues. AIT is committed to improving regional institutional capacity in aquaculture and aquatic resources management and related fields through innovative approaches that integrate education, research and outreach. AIT cross-cutting research and projects include small-scale aquaculture, seed production and genetics, aquaculture nutrition and feed technology/management, participatory approaches to aquatic resources management for sustainable livelihoods and integrated coastal management. Most of the projects focus on South and SE Asia aquaculture livelihood under participatory approaches. The institution is actively working on poverty alleviation, sustainable local development, women empowerment, rice-fish systems and small-scale aquaculture.

The University of Tuscia and its agricultural science faculty has been an active institution in the European research excellence for sustainable agriculture for the last 30 years. The faculty mission is to join the need of market oriented productions upon the highest attention to environmental sustainability and wise use of resources.

The faculty is carrying out researches with many national and international food industries in the field of biotechnologies and integrated management with the aim to reduce the use of chemical fertilizers and residues in industrial and farm food production. Since 2007 the faculty has started to work either in Italy and in Thailand on integrated agriculture aquaculture systems (IAAS), developing horticulture on fish wastewater (aquaponics - soilless production of plants on aquaculture wastewater) and compost, thus becoming one of the leading institutions in Europe in such field. Among the different fields of application Tuscia University has optimized in South East Asia either floating agriculture systems for integrated agriculture/horticulture productions and rice-fish systems, obtaining outstanding results with no use of any chemical fertilization.

The university has been internationally acknowledged for the multidisciplinary approach adopted in its projects in developing countries, which achieved good results in socio-economic impacts as well as environmental sustainability. Its area of expertise ranges from animal husbandry (rabbits in South America), forest plantations in saline environment, rural development (in Africa, in partnership with several Italian NGOs) up to market expansion of olive production in new devoted areas - Promotion of Olive Production and Consumption in Nepal.

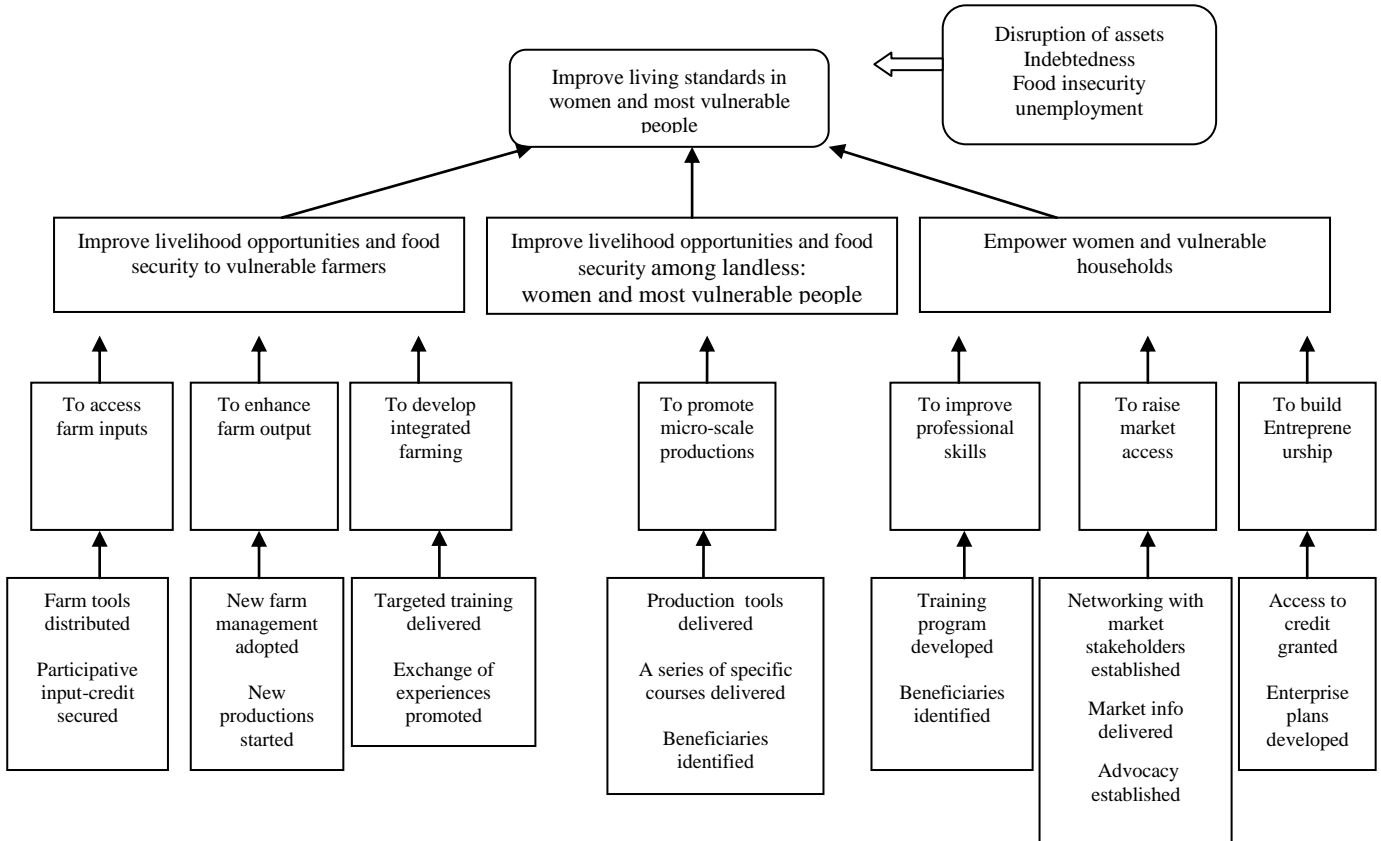
Environmental and Economic Research Institute (EERi): is a newly launched institution in the panorama of higher education and economical development auditing for Myanmar government agencies. Specifically EERi has two objectives: the first is to facilitate research work by postgraduate students and the second, and most important, is to provide research to the government on sustainable economic development for Myanmar. EERi would cooperate with governments on project planning and management, capacity building, research and development, environmental and natural resource management, and other areas. For its advisory services EERi. The institute offers degrees in cooperation with the Thailand-based Asian Institute of Technology and cooperate on research projects with experts from universities in Japan, Thailand and Israel, as well as local groups.

3. Project aims

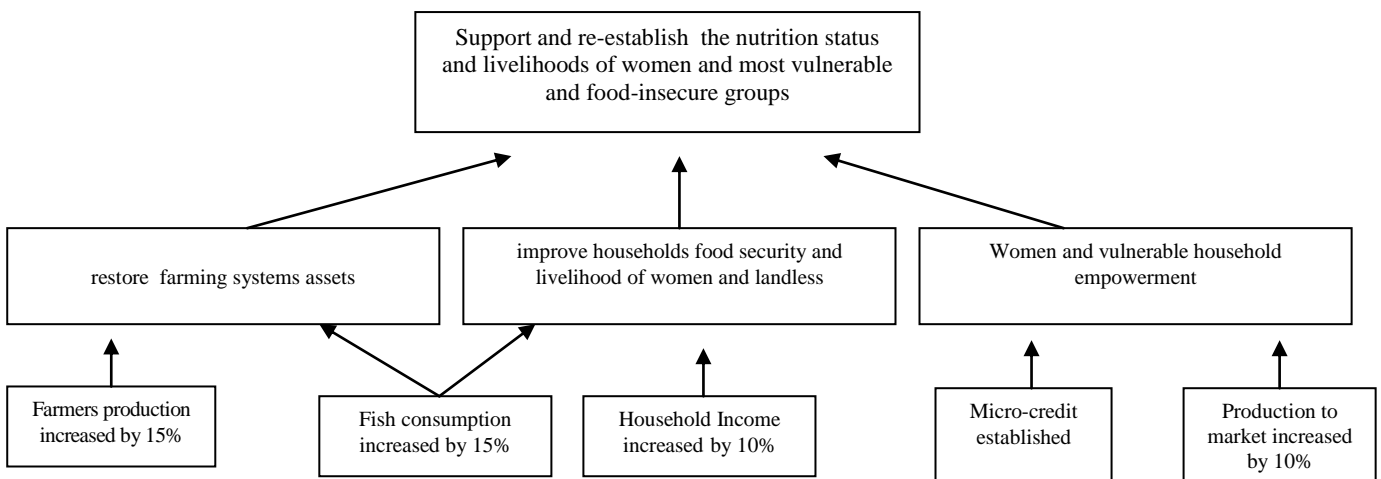
3.1 Project goal

Improve living standards in women and most vulnerable groups.

3.2 Project Objectives



3.3 Expected Results



3.3 Logical framework

| Objectives | Activities | Results | Indicators |
|--|---|--|--|
| General objective Improve living standards in women and most vulnerable people | | | |
| Purpose/Outcome Integrated aquaculture provides increased opportunities to women and poor households to raise livelihood through production and market access | Develop integrated farming systems and backyard production Empower people Favor market access Develop micro-credit schemes | 350 households increase food production Fish and vegetables consumed at household level in 11 villages is increased by 15% Household income from market activity raises by 10% | Harvest assessment Project reports Statistical and market data |
| Specific objectives 1. Support and re-establish the nutrition status and livelihoods of women and the most vulnerable and food-insecure groups 2. Empower women and vulnerable households | 1.1 Households are identified 1.2 Livelihood groups are set 1.3 Strategic development agenda is set 1.4 Training to facilitators is supplied 1.5 Training and workshops to beneficiaries is organized 1.6 Farm tools are supplied 1.7 Credit is provided 1.8 Farming systems are established 1.9 Peer to peer farm management support is supplied 1.10 Market access is facilitated 2.1 Beneficiaries are identified 2.2 Strategic development agenda is set 2.3 Training program is developed 2.4 Market support group is created 2.5 Meetings with market stakeholders are planned 2.6 market info is supplied 2.7 micro-credit scheme is developed | 1.1 surveys, stakeholder meetings 1.2 350 households from different village traits join project program 1.3 farming system planning 1.4 Training sessions, field visits, meetings, training material 1.5 Workshop agenda, extension material, farmers meetings 1.6 Budget is allocated 1.7 Money is lent to a number of borrowers 1.8 Farmers and micro-farmers running new farming systems, households fish and vegetable production increased by 15%, Fish consumption increased by 15%, 1.9 On-field training and production assistance 1.10 Market information sharing 2.1 Livelihood surveys, baseline data is collected 2.2 Vulnerable beneficiaries empowerment planning and agenda 2.3 Workshops, training material 2.4 Market development strategic plan, agenda 2.5 networking with Gos, market enforcement agreements, governance appeals. 2.6 Marketing research, market bulletins 2.7 quantity of money lent, number of borrowers | 1.1 Project reports, GOs reports, department of fishery (DoF) surveys 1.2 Baseline survey records and monitoring reports by project staff 1.3 development planning document 1.4 Course agenda, attendees register, training material 1.5 Training agenda, attendees register, training material 1.6 Budget reports 1.7 Microcredit budget reports 1.8 number of ponds created, % of farmers with IAA systems, number of people with micro-farming systems. Harvest records, amount of food produced from farming activities. % of food increase from household farming, number of people undernourished 1.9 project records, village extension workshops reports 1.10 market reports, marketing reports. % increase of household selling fish, % increase of family income consumption Number of people undernourished 2.1 Livelihood surveys, baseline data is collected 2.2 development planning document 2.3 Number of people trained. Training agenda, attendees register, training material 2.4 Course agenda, attendees register, training material 2.5 Project reports 2.6 Market reports, market enforcement documents 2.7 Market info material, market reports. Number of people accessing markets. Number of micro-credit loans |

| | | |
|--|--|---|
| | | <p>Assumptions: Policies favoring aquaculture integrated in wider development strategies GOs interest in participating in aquaculture development People interest/ Partnership among stakeholders Land permissions Enabling environment for adoption of technologies and strategies Target farmers' groups cannot manage investment, strategies Favorable conditions for market development Restrictions on credit policy Government restrictions of transport and food selling</p> |
|--|--|---|

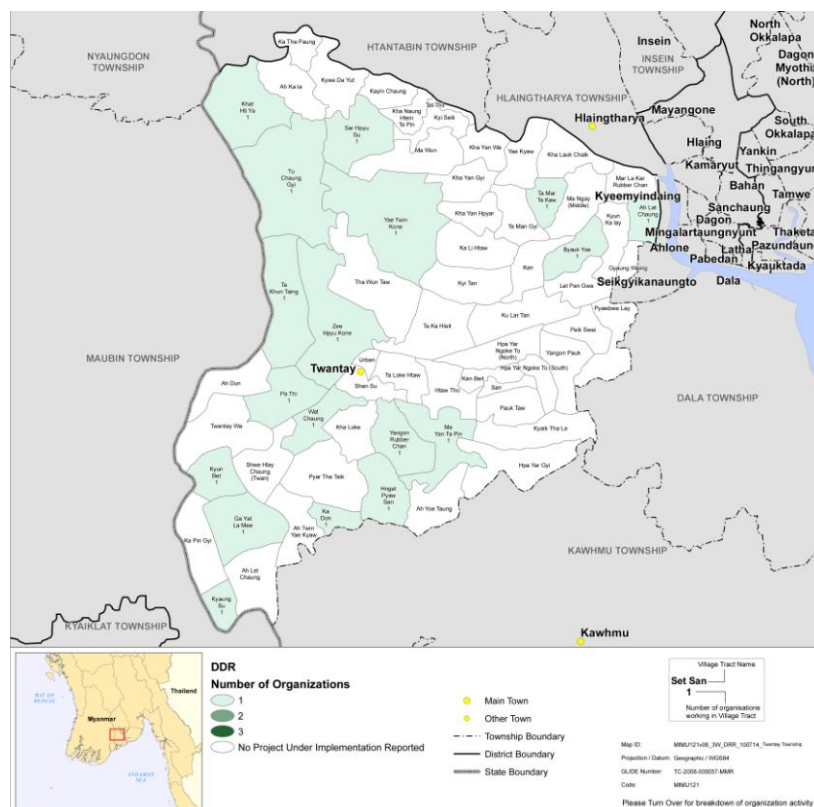
4. Target groups

- 1) Fish farming with vegetables program specifically targets vulnerable farm households with reduce land availability and scarce resources with the goal to enhance own food production and market access.
- 2) Fish, livestock and vegetable program targets women and vulnerable groups with no land and very scarce access to job. The goal is the improvement of food security and increased income through backyard productions.
- 3) Integrated rice-fish culture groups focus on vulnerable farmers who can benefit from improved production through rice-fish integration or improved agronomic practices in rice paddies.

Table 1 shows the list beneficiaries and the location of programs which will be prepared during the inception workshop to be organized in Myanmar.

Table 1. List of proposed beneficiaries and project locations

| Townships | Fish farming with vegetable | Beneficiaries (HH) | Fish, livestock and vegetables | Beneficiary (HH) | Rice with fish farming | Beneficiary (HH) |
|-----------|-----------------------------|----------------------|--------------------------------|----------------------|------------------------|----------------------|
| | Village | Number of Households | Village | Number of Households | Village | Number of Households |
| Twantay | Pa Thi | 30 | Tha Wun Taw | 30 | Phaya Ngutto (north) | 30 |
| | A Don | 30 | Pyat Tha Tike | 30 | Phaya Ngutto (south) | 30 |
| | Kha Mon Kha | 30 | Kone Wet Chaung | 30 | Ye Twin Kone | 30 |
| | | | | | Tetlet | 30 |
| | | | | | Tha Wun Taw | 30 |



Map of Twantay division

5. Project implementation

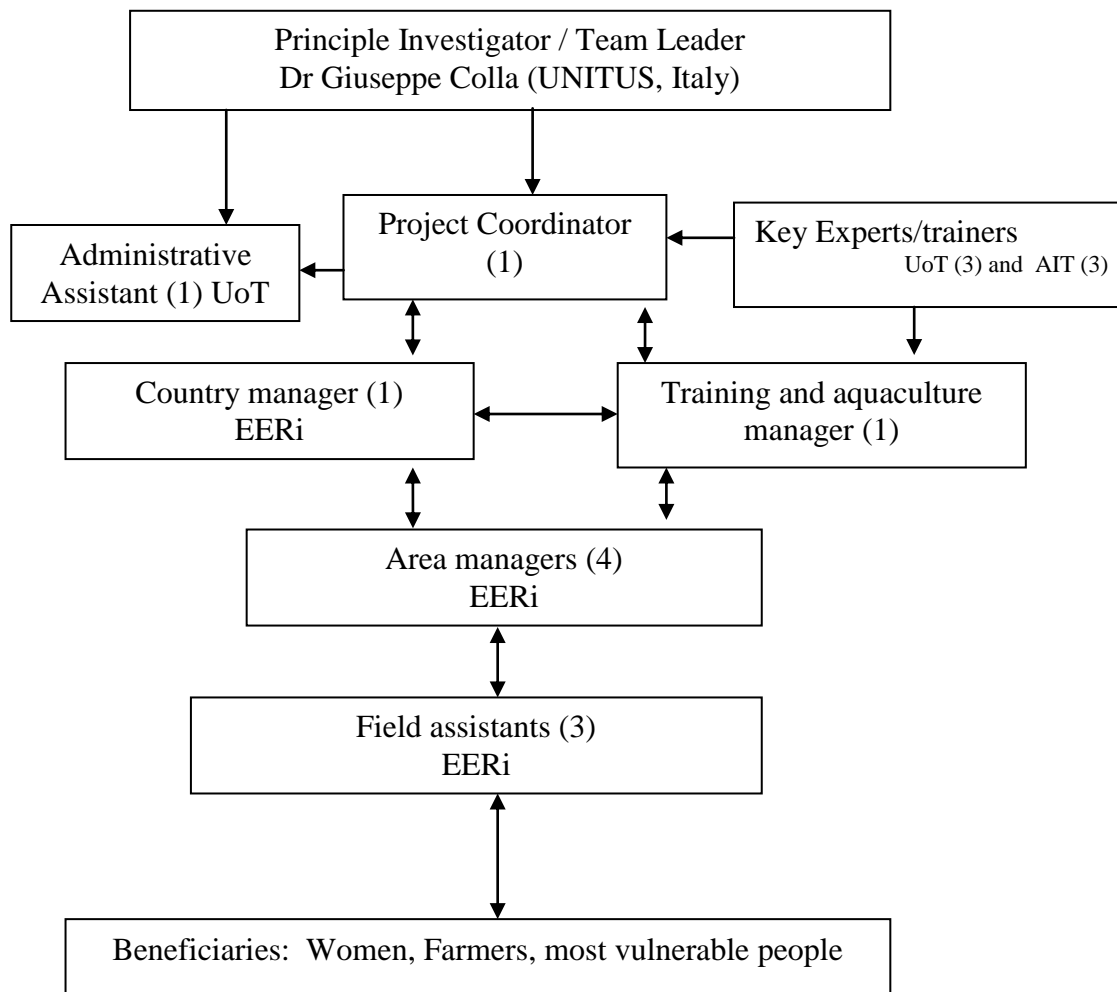
5.1 Activity plan

| | Activities | When | Purpose | Where | Who will be involved |
|------------|---|--------------------------|--|---|---|
| Activity 1 | Project inception meeting | Within 1 month | Initiation of the project | In capital city or any city nearby the project site | All stakeholders (Project Team, Local partners, Government officers, farmers) |
| Activity 2 | Formation of women's and vulnerable groups, development of strategic planning and training | Within 3 months | Farmers selection | All project sites | Project Team and farmers |
| Activity 3 | Procurement of equipment/ materials | Within 6 months | | Farmer's field | Project Team and farmers |
| Activity 4 | Start setting up farming units (e.g. micro-scale horticulture, ponds, cage aquaculture, etc.) | 7 th month | To set up each systems of income generating activity | Farmer's field | Farmers assisted by Project Team |
| Activity 5 | Growing fish and vegetables/animals | 7-12 th month | Produce fish & vegetable for family consumption and sale | Farmer's field | Farmers |
| Activity 6 | 1 st year reporting and evaluation and impact assessment meeting | 12 th month | Review and plan for the following year | Farmer's field | All stakeholders |

5.2 Resources

The proposed budget will be covered by the Italian Government. University of Tuscia (UoT) and AIT will co-financing the project. The time-frame of the present project is one year.

6. Project steering committee



7. Contact information

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