Adaptation to Climate Change

Agroforestry and Sustainable Farming Practices in Kaule, Nepal

Submitted by: KEN
Submitted to: ____ Embassy, Kathmandu
Project Location: Kaule, Nepal
Project Duration: 12 months
Project Contact: _____

Project Rationale

The farmers in Kaule, a small village in the Mid hills of Nepal are facing serious problems in recent years. Past reliance on monoculture and cash crops has brought about economic threats, increased dependency, and severe ecological problems. The effects of climate change and the unpredictable weather changes have further struck the farmers hard as their resilience is low.

KEN, a local NGO, is supporting the reintroduction of agroforestry in Kaule. Agroforestry is an agricultural system that supports intercropping of different cash crops, shrubs, grasses and trees. In this way, resilience grows and farmers are not as vulnerable to sudden changes or weather events. In the coming year, the organization wants to provide the farmers with more trainings and resources to enable them to adapt agroforestry in their fields.

Project Objective

The focus of the project is to enhance the resilience of small scale farmers to the effects of climate change and to open up new possibilities for income generation. Eliminating the reliance on cash crops, and diversifying farmers income sources allows for a long-term, stable, and environmentally sound lifestyle for all 762 residents of Kaule.

Project Activities

Agroforestry uses diverse methods to improve livelihoods and the environment. For this reason, KEN proposes four separate activities that will intertwine to provide the most impact. The activities for this project are: improving lemongrass production, training additional bee farmers, training farmers in silage making, and spreading composting practices.

Improving Lemongrass Production

During the initial agroforestry training in 2009, the farmers were supplied with different kinds of plants. One of them was lemon grass. Out of the 15 participants, 5 have big lemon grass plants now and are able to harvest two to three times per year up to 3 kg of lemon grass. *KEN* supports its members also in the marketing of the products, and since February 2013 a lemongrass tea mix is packed at the office and sold to interested visitors. For the further development of the selling of the lemongrass, also other members now got saplings and will be able to harvest from next year on.

The selling of the lemon grass is a very good way for the farmers to earn supplemental income, as it is uncomplicated and the plants do not need a lot of care. Sold as a tea mix, the price the farmers receive is much higher than the usual price for lemon grass.

The only difficulties that result are in the processing of the product. Especially in rainy season it is very difficult to properly dry the lemon grass. A well-dried product is of crucial importance for the quality of the tea mix though and therefore of utmost importance. Without further equipment, it will not be possible for the farmers to harvest any lemon grass during rainy season. Therefore, *KEN* wants to establish a solar dryer at the office to give their members the opportunity to bring the fresh leaves there and dry them in the facility. In this way, it is also easier to control the quality of the product.

Furthermore, it is very difficult and time consuming for the farmers to cut the lemon grass in adequately small pieces. This is important for the tea properties though, when the pieces are too big, the tea cannot have its distinct taste and also does not look particularly appealing. Due to these facts, *KEN* wants to purchase machinery to cut the lemon grass into smaller pieces easily and to be able to guarantee same size of the pieces.

Training Additional Bee Farmers

Bee farming has the ability to create supplemental income for small scale farmers without having to dedicate land especially to this activity. Furthermore, it has ecological benefits and is an important component of agroforestry. Honey production is flourishing in Nepal, the demand for honey - especially organic honey - is very high and cannot be met by the current producers right now.

In 2011, the organization already organized a beekeeping training for five of its members. This training was very successful and the participants are currently producing honey and have an extra income that is considerable. However, the demand for honey cannot be met by the five farmers. The organization will replicate this successful training for five more members.

It can be concluded from the experience with the first training and subsequent honey production that beekeeping is suitable for the area. Also, market access and demand are apparent, so introduction of beekeeping for more people of Kaule would be a very good additional income

source for the small holders. Besides the possibilities for further income generation, bee keeping also has ecological benefits that are considerable especially considering the introduction of agroforestry. It ensures pollination and improves crop yields; this provides profits for the farmers and maintains biodiversity.

Training Farmers in Silage Making

Livestock farming is an integral component of the current farming system of Kaule as well as of agroforestry. Almost every family in the village has a couple of goats, some even have water buffaloes. Feeding of the animals is a big problem, as fodder is not always available. Many families do not have enough supply on their own farms and are forced to collect fodder in the community forest. In dry season, the supply is low and women and children often spend entire days in search of enough food for the livestock. However, in rainy season there is a surplus of grasses and other plants that could be fed to the animals.

The members of *KEN* expressed a huge interest in learning about conservation techniques to store fodder that is available in rainy season for being able to feed it to the animals in dry season. The preparation of silage seems to be most adequate for this in the village of Kaule.

Spreading Composting Practices

The soils in the Mid hills in general and in Kaule especially lack nitrogen, one of the most important nutrients for plant growth. For intensive farming, it is always necessary to apply fertilizer. Many farmers buy mineral fertilizer in Kathmandu, which results in a high economic burden as well as ecological problems, as the constant application of mineral fertilizer destroys the properties of a good soil. Application of organic fertilizer made of organic materials would help a lot, as it is a natural and cheap source of nutrients and also enhances the soil properties.

Most of the farmers know about the advantages of organic fertilizer and also know that they can make it themselves by means of composting. A well planned and constructed compost is rarely seen though. *KEN* plans to introduce an easy to implement compost system, which produces good outputs.

Project Results

As a result of these activities, Kaule farmers will be able to generate more income while mitigating risks and improving the environment. Long-term, the effects of this project will protect farmers from the increasing dangers posed by climate change.

Additionally, the benefits of increased income and a better environment will have impact well beyond the scope of this project.

Impact on Children and Education

The cultivation of fodder grasses onsite would lessen the work burden of women and children drastically. As examples from the Kaule area show, children who do not have this chore have higher school attendance than those who do.

Increased Innovation and Women Financial Empowerment

Experiences from former projects show that the women of the organization *KEN* tend to be particularly active in adopting new ideas and new income generating possibilities. The additional income that is created by their initiatives also tends to be under their own administration and is more likely to be invested in education or health care.

Budget

EXPENSES	AMOUNT (NPR)
Improving lemongrass production	656,120
Training additional bee farmers	410,075
Training farmers in silage making	328,060
Spreading composting practices	246,045
Total	**1,640,300**
INCOME	AMOUNT (NPR)
Farmer co-payments from earned income	122,200
Volunteer support	213,850
Other funding sources	274,950
Total	**611,000**
TOTAL GRANT REQUEST	**1,029,300**

Sustainability

Besides from the co-payments and the personal contributions the farmers will account for, they will furthermore contribute their manpower. Farmers are also responsible for maintenance and any follow-up costs after the project duration. If there is need for further support, *KEN* will fill the gap.