EFFORTS IN DISSEMINATING VETIVER GRASS IN CENTRAL JAVA

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Abstract

Indonesians (especially the Javanese) have known vetiver grass as a source of fragrant oil, which was extracted traditionally. Due to the lack of knowledge of the farmers in managing the root, the government considered that vetiver grass destroyed soil fertility and caused soil degradation and erosion. However, recent studies show the opposite to be true. Based upon the Thai experience, the Ungaran Assessment Institute for Agricultural Technology has been conducting small-scale research and assessment of this miracle grass and its conclusion was that vetiver grass failed to compete with other grasses as cattle feed but showed high performance in conserving soil erosion. Researchers, extension workers, and farmers have been working together to understand the nature of this grass.

In order to accelerate the introduction of the technology, dissemination activities have been carried out to the various target groups, which can be categorized into policymakers, field extension workers, researchers and private-sector and other actors. The goal of the activity is to push for the wide use of vetiver grass as a natural resource conservation and rehabilitation tool. Until now, however, the results have been unsatisfactory; most of the parties involved do not consider vetiver grass worthwhile.

Evaluation had been carried out and its conclusions were that (1) research and development as well as dissemination should be developed to meet locally specific technology requirement, (2) science and technology exchange should be initiated among countries such as an international vetiver training program, and (3) there should be collaboration among countries to help develop a holistic program.

Introduction

Among 80 watersheds in Indonesia, 11 of which are located in Java, are in critical condition due to soil erosion. The upland Jratunseluna watershed, one of the 11, plays an important role as a source of water irrigation for various uses, including agriculture.

Efforts to introduce sustainable upland farming system development show that agricultural innovation on upland is not always suitable environmentally. However, technologies for controlling land degradation and increasing farmers' income have been continually introduced. Even their implementation on a small scale has faced constraints due to the farmers' lack of access to capital, information and skills.

So that, when vetiver was introduced as a vegetative erosion control rather than as an economic commodity source, farmers were reluctant to adopt it for two reasons: they felt that they had to sacrifice part of their relatively small land to vetiver without any immediate return; and vetiver grass failed to compete with other grasses such as King grass, elephant grass, etc., as animal forage.

The Existing Farming System

Most farmers hold tiny pieces of land, potential farm labour is only two or three per household and most youngsters leave the village in search of jobs. Their basic education is relatively low (60% of the heads of household only completed elementary education) and training programs given by extension workers are only conducted when necessary. Besides managing their small land and raising a couple of livestock, in certain months, 20-45% of the farmers go for jobs in the nearby town from July to September.
Food crops, perennial crops and livestock are the main agricultural commodities practised by the upland farmers. Maize, groundnut, soybean and cassava are the main food crops, with very low yields due to poor soil condition and unpredictable rainfall. The important perennial crops, banana, cashew, mango, coconut and durian, are planted along terraced edges. Basically, most farmers are well aware

of the importance of perennial crops in reducing soil erosion. But, since they cannot afford to meet technological package requirement, they only plant 75 to 85 plants per hectare instead of 200-300 plants per hectare as recommended.

Livestock plays an important role in upland development, not only as an organic matter source but also as draft power and source of income. Livestock, cattle, sheep and goats are considered to be the savings account for farming households (in some parts, raising livestock gives social status to the owner). Livestock will only be sold when the owner is in need of immediate cash. This is why the contribution of livestock to the total farmer's income is smaller than the crops'. Nevertheless, livestock and perennial crops have an important role in upland agriculture as soil conservation components and source of farmers' income.

Table 1. Existing farming system contribution to the farmers' total income

Commodity	Contribution to farmers' income (%)
Food crops	44.3
Perennial and horticulture	26.1
Livestock	25.0
Off-farm earnings	4.6

Introduced Farming System

Experience shows that farmers find it difficult to adopt the whole package of soil conservation technology if it merely focuses on technical aspects and considers the farmer merely as an object of the development. They think that they get no benefit from doing it. When they are asked to collaborate on a project, they will respond spontaneously only if they receive subsidy from it: they will follow and carry out all the instructions given and the project will meet its goal. But when the project is terminated and the subsidy is cut, the collaborating farmers gradually abandon the new technology that they just learned and revert back to their own traditional way. To break this vicious cycle, an assessment was conducted in the upland Jratunseluna watershed of Semarang, Central Java, where the site has more than 45-% slopes. Soil erosion was the main problem that decreased the production. The strategy used was to improve traditional practices, introduce newly practiced concepts and have them implemented. To achieve its objective, the process was conducted through various stages.

The objective of the activity was to find out the existing problems, technical, environmental and socio-economic that might influence the possibility to achieve the project's goal. The steps were:

a) preparation
b) selection of the location
c) diagnostic survey
d) establishment of a farmers' group.

Farmers were asked to get involved voluntarily at every step of the activity, from planning to evaluation. Focus group discussions were held at every opportunity. Farmers were asked to identify and to solve their own problems under the guidance of the researchers and extension workers.

The results of the research and assessment were presented and disseminated to the non-collaborating farmers. Discussion among farmers took place with researchers and extension workers acting as facilitators. In explaining their activities, the collaborating farmers detailed every step of their assessment activities. Later, they were encouraged to become voluntary extension workers.

Participation of related institutions, researchers, extension workers and farmers was the key to the success.

Communication and Dissemination

Farmers are aware of the existence of vetiver grass and of its use as effective vegetation towards soil conservation but they still tend to measure its advantages by comparing this grass with others. Since most farmers raise livestock, King grass and elephant grass are popular forage. Unfortunately, farmers'

ability and knowledge to use the vetiver leaf as a home industrial material from which they may generate additional family income is relatively low.

Among soil and water conservation programs undertaken in Central Java, vetiver grass has little opportunity to be considered for combating soil erosion or for increasing farmers' income. Information on and dissemination of the advantages of this miracle grass are very low. The only sources of reference in which efforts have been made by translating them into the local languages are *Vetiverim* and the *Pacific Rim Vetiver Network Technical Bulletin* from Thailand. Technical information within those publications is so valuable that it needs time to comprehend it before spreading it to the users.

The other fact is that willingness to disseminate is obstructed by expertise and budget availability. Only a small number of the researchers stationed at the Assessment Institute for Agricultural Technology in Central Java possess the educational background and are qualified enough in this particular field. Meanwhile, very little budget is available to conduct vetiver-related activities.

Even so, considering all the possibilities for using vetiver grass for soil conservation, information on vetiver research findings is disseminated in limited form to target groups by using printed material such as brochures and leaflets as well as the rural radio programs. Technical information, which mostly derives from vetiver network publications, is translated into simple local language and distributed to the field extension workers and farmers.

Conclusion

To some extent, the idea of using vetiver is beginning to be adopted in such a way that the approach to farmers should be reconsidered and implemented in the existing system. Agricultural development in Indonesia has brought about considerable changes among farmers. Not only are farmers becoming more productive and earning more income but they are also getting more responsive to innovation and have aspirations to better living.

The following are some ideas to improve the performance of vetiver grass in Central Java:

1. To strengthen and expand participatory farming-system research with special attention to marginal and lesser priority areas.
2. To give more attention to the development and use of indigenous technology by encouraging and assisting farmers to organize their own assessment of it.
3. To foster collaborative linkage among researchers, extension workers, farmers and industrialists through periodical meetings in the field (discussions, participatory workshops, field days, field visits, etc).
4. To strengthen collaboration among countries to develop vetiver-related programs through workshops, training, research, expertise exchanges, etc.

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