

# Why Vetiver Grass Fails to Show its Miracles in Central Java, Indonesia?

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**Abstract:** Problems encountered in promoting vetiver as miracle grass for solving land degradation issues in Central Java Province can be categorized into several aspects; (1) Supporting system, (2) farmers' preferences, (3) expertise, and (4) budget availability. Several attempts have been made and its impacts proved yet vetiver is still being considered to be less useful than other approaches in combating land degradation, as it is just a grass. Users find it hard to believe that a grass can prevent slope erosion or purify water from contagious related poisonous water; for example, even it costs much less than existing solutions. At the initiation phase of any new prospective technologies, government still plays an important role in developing them. In this case the government put vetiver grass technology under non-priority issues until it is proved to be useful. The supporting system such as research institutions, extension stations, local government administrations upon which farmers groups rely on will not consider any important technology related input nor dissemination to the end users due to low priority funding. At the same time farmers who suffer from land degradation mostly depend on their relatively small scale of land possession and live under stressful conditions. Those who raise cattle or goats prefer to grow elephant grass than vetiver grass for forage and optimize their land for cassava without considering the negative impact that might be generated. The lack of professionals with expertise in vetiver grass technology is so obvious that vetiver promotion effort fails to find the right path due to a lack of expert design and implementation advice. There are people still working on it because they have faith and concern about the sustainability of the environment. An in-depth study on every aspect of vetiver technology is essential and can also be considered as one of the root problems. Above all, the budget provided (especially from government expenditure) in attempting to develop and disseminate vetiver knowledge and skill is almost zero. Most access to information of new vetiver technology remains unproved at local specific conditions due to the lack of several aspects stated earlier.

**Key words:** vetiver, miracle grass, sustainable development, central Java

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## 1 INTRODUCTION

Central Java, a province squeezed by West and East Java Provinces, covers an area of 32,548 km<sup>2</sup> and is divided into 35 districts. Central Java has enormous potential of natural resources, which is known as the origin of several agricultural commodities. Tropical agricultural sector is becoming the core of economic growth. As competition among agribusiness-based commodities raised, farmers and agribusiness sectors tend to exploit their land up to limit. The use of what so called "modern approach" to agriculture finally neglects the conservation aspects that cause disaster. In responding to the critics people are forced to do so. As a consequence, people suffer from several natural disasters that relates to conservation negligence.

In the countryside, farmers hold only 0.47 ha of land, potential farm labor was only 2-3 per household, and most of the young generation tend to go outside the village to get off-farm jobs. Their basic education relatively low (60 % of the head of the family only completed elementary education), and training programs given by extension workers were only conducted when necessary. Besides managing their only small size of land and raising 1-2 live stocks, 20-45 % of the farmers go for temporary off-farm job in nearby town from July to September (Kuscahyo, 2002).

Food crop, perennial crop, and livestock are the major commodities practiced by upland farmers. Maize, groundnut, soybean, and cassava are among major food crop that produce very low yield due to the poor soil condition and unpredictable rainfall. The important perennial crops, banana, cashew, mango, coconut, and durian are planted along the terrace edge.

Experiences showed that farmers have difficulties to meet soil conservation package of technology required due to economic reasons although they are aware of the impact of the land degradation. Considering some misconducts in promoting conservation technologies, several re-approaches are being introduced, including vetiver one.

## **2 EFFORTS AND PROBLEMS**

### **2.1 Changing Agricultural Development Policy**

Martaamidjaja (1999) stated that agricultural development in Indonesia is aimed toward a modern and sustainable agriculture, which is characterized by efficient, competitive, flexible, and market-oriented management. That is the reason that the agribusiness policy leads farmers toward market-oriented production activities. This policy will demand not only a change orientation and behavior of both farmer and government officials but also an organizational restructuring as well as management reorientation of all institutions dealing with services to farmers, including extension and research institutions.

Among other agricultural development policies that go in line with and in favor of agribusiness are:

- *Agricultural human resources development policy* that puts emphasis on empowering farmers toward achieving competencies and capacities in developing agribusiness-oriented-farming.
- *Sustainable agricultural policy that puts emphasis on optimizing production without depleting natural resources and on producing safe products for human as well as animal consumption.*
- *Competitive-commodity-based regional/local development policy* that puts emphasis on promoting the most marketable potential and profitable agricultural products of each region or locality.
- *Agricultural decentralization policy* that puts emphasis on optimizing authority delegation to the local government in managing agricultural development based on local potentialities and capacities.

Those policies have encouraged provincial administration to implement any approach to agriculture development programs that show its quick yields. Competitive-commodity based agricultural products are to be stimulated to a certain degree that starts to show its negligence to natural resources sustainability. Soil and water degradation become a major concern of environmentalist who predict that if agricultural development abandon soil and water degradation related programs, it will ruin all the accomplishment.

### **2.2 Supporting System**

Government and farmers mostly react cautiously and similarly when they asked to invest in new agricultural technology, both having a tendency to avoid risk. When vetiver technology was introduced,

reason. From the government point of view, there were two major aspects related to the refusal of the newly introduced technology:

- Vetiver (*akar wangi*, local language means fragrance root) known as source of fragrance oil was accused to bring about landslide and erosion. In fact, later, it was caused by mismanagement in harvesting the root of this grass.
- Vetiver has not yet proved to be the best way for solving land degradation. On the other hand, farmers had their own reason. Most of the farmers living in rain fed area preferred other grasses than Vetiver for practical reason. Most of them raised cattle and goat and vetiver fell into the fourth for forage.

For example, study in 1991 and 1992, when vetiver was chosen as an approach to conservation, showed that the use of vetiver in alley cropping can reduce erosion to 13.21 tons/ha and 0.56 tons/ha as compared to control of 106.47 tons/ha and 133.68 tons/ha respectively. Since then vetiver was promoted as an effective technology to solve land degradation. However no extension effort was made to promote the results.

Several reasons that discourage vetiver to be the acceptable technology for combating land degradation are:

#### *2.2.1 Research programs*

Research program puts more emphasis on developing commodity-based activities that directly relate to alleviate farmers' income. At the provincial level, there is almost no research activity and in-depth study of the use of vetiver for soil conservation purpose.

#### *2.2.2 Extension activities*

When vetiver promotion failed to get positive response at various levels, extension activity put it aside. Meanwhile, extension program also considered vetiver technology as an additional activity instead of a major concern.

#### *2.2.3 Farmers preferences*

Adnyana (1999) indicated that most of the poorest people are from the farming population, particularly those in marginal rainfed upland areas. Since the average farm size in Java is 0.47 ha, farmers do not have enough time to think of the conservation of their land possession. They tend to exploit their land up to the limit for survival. However, observation also showed that they do understand about conservation concept, including vetiver, but only apply it for economic reasons. Family needs come first.

### **2.3 Unequal Level of Farmers' Progress**

Although farmers in Central Java are getting more educated and development oriented, the level of progress is different from one district to another. Differences even occur among locations within districts or sub-districts. Those who live in marginal rainfed areas are poorer than those who live in lowland and coastal ones. The poverty situation is also related to lack of social, technical and management capacities of farm household and communities.

For a long time marginal rainfed was always considered to be areas where conservation programs should be carried out for the benefit of land and water conservation only. Rarely did farmers living there were encouraged to get involved in implementing newly introduced technology of conservation. They just performed as spectators to the project. Even though they are physically tough and discipline, their vision to the global environment sustainability is relatively low.

Now, any attempt to promote vetiver technology to farmers has to face the fact that they always express their rejection. Lack of communication and access to information make them think that any newly introduced project will not give them any advantages

## **2.4 Technology Deficiency and Expertise**

Since the first International Conference on Vetiver held in Thailand in 1997, vetiver technologies have been widely spread out and adopted by many countries in the world. On going studies on vetiver technology seem to be continuously developed. Reports, newsletters, and other forms of information are available. Unfortunately, that precious information remains as references. There is not enough support to develop and doing in-depth-study.

So, it is important to note here that Central Java has been left behind on vetiver technology as miracle grass for conservation. Knowledge and skill of the vetiver technology is very limited.

Anyhow, there are few people who still devote their time and energy to promote vetiver in Central Java. Considering all the possibilities of the advantages of the use of vetiver, this small group still doing their job even in a stressful condition. Effort has been made seems to be getting response even it is still in a small scale.

## **2.5 Budget Concern**

For the last few years, budget provided for vetiver technology development is almost zero. Government expenditure goes to established technology for conservation even though its cost is higher than that of vetiver technology. Vetiver technology based project that have been proposed, so far, always fail to attract decision makers attention.

# **3 LOOKING TO THE FUTURE**

## **3.1 Efforts**

Although vetiver technology has not been accepted yet as an important approach against several established methods, promotion efforts toward the use of the grass is still being conducted to attract the awareness of the various level of key persons within the provinces.

Leaflets, Radio Programs, and Meetings are most common medias used to promote vetiver in Central Java. Most of the source of technology is taken from newsletters and Internet, then, translated into local language. The main objective of this effort is to introduce and promote the use of vetiver grass as the effective way to solve land and water conservation. Meanwhile, demonstration plot and technology showcase has been abandoned due to the lack of budget and expertise. However, for some reasons, several farmers still practice vetiver technology as part of their farming system.

## **3.2 Reorientation Program**

For the last three years, there have been forces that urge decision maker to reevaluate the way to approach conservation program. Natural disaster, drought and flood, cause loses in several aspects of live. In July 2002, medias covered several natural disasters that relate to conservation issues, 15,909 ha of rice field suffered from drought, and 12,889 ha rice field suffered from flood.

This natural disaster occurs not only in the countryside, where most farmers live, but also in the major and capital city in Central Java Provinces. Thousand of dollar lost and the infrastructure within the cities were severely damaged. Landslides even took lives.

This unpredictable and un-expectable situation has force program makers to do thorough study to find best solution for the existing problems. Several study showed that mismanagement in conducting conservation programs were the major caused why the natural disaster occurred.

When I told and explained about The ICV-3 held in China to the Governor Administrations they

reacted positively and the Governor assigned a 4-member team to attend the conference to study more about vetiver grass.

### **3.3 Supporting Condition**

Considering possibilities that might be generated from the use of vetiver as a technology against conservation problems and several policies changing in agricultural development, mentioned before, hopefully this approach can be taken into account as a system to help support vetiver technology to be a key element in conservation programs in Central Java Province.

Recent policy changing in research – extension – farmer linkages has given a new perspective and direction to agricultural development. Martaamidjaja (1999) summarized the characteristic of the new extension system as follows:

- An integrated extension system oriented toward promoting agribusiness.
- A decentralized extension system aimed toward promoting location-specific undertakings.
- A partnership and participatory-based extension system aimed at promoting cooperative extension activities among farmers, extension workers, researchers, private sectors, NGOs, and other related parties.

He also identified some changing of emphasis that marked the shifting policy of agricultural research:

- Promotion of farming-system based research in addition to commodity-based research to produce location-specific technology.
- Promotion to farmer-need-driven research in addition to program based research to serve farmers' need for specific technologies.
- Promotion of closer linkages among researchers, extension workers, and farmers in the transfer and adoption of agricultural technology and recommended innovations.

## **4 APPROACHES PROPOSED**

Having lessons learnt from some parts of the world about the use of vetiver grass, several activities are being proposed to deal with the conservation problems in the future. Step by step phase in promoting vetiver now is being reviewed by decision makers at the provincial administration level. Vetiver-based program being discussed consists of:

- Vetiver technology orientation from other countries.
- In-depth study of vetiver technology from advanced sources.
- Expertise exchange program.
- Research and development of vetiver on the basis of specific purposes.
- Media use for promotion.

Considering the negative impact that might be generated from soil and water degradation to both human and infrastructure, approach toward the way to select related technology seems to be thorough examined before it is released. Vetiver now becomes priority to be studied.

## **5 CONCLUSION**

- Although vetiver technology has been promoted since its acknowledgment as a miracle grass for solving soil and water conservation in Central Java, response given by authorities and farmers was far from the expectation due to the lack of recognition and economic purposes.

- Sustainable agricultural policy that puts emphasis on optimizing production without depleting natural resources can be seen as a starting point to integrate vetiver technology as a major element in keeping environment sustainable.
- International assistance is needed due to the lack of vetiver-based technology and development.

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### **A Brief Introduction to the Author**

Kuscahyo Budi Prayogo, extesionist, is working at Assessment Institute for Agricultural Technology, Central Java Province. Since 1996, he has been working closely with farmers in developing technology for soil conservation programs and alleviating farmers' income. Vetiver now is being his major interest of study. He has 21 extension and vetiver related publications published.