Educating Rubber Farmers On The Use Of Chemical Substances Affecting The Generation Of B3 In Panca Desa Banyuasin I

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Abstract.

A program to educate rubber farmers on the use of chemicals with B3 impacts has been implemented in Panca Desa Banyuasin I by Serasan University. The program aimed to increase farmers' awareness and knowledge of the dangers of hazardous chemicals and encourage the adoption of more environmentally friendly agricultural practices. Several rubber farmers participated in extension and training that included materials on chemical management, organic fertilizer use, and environmentally friendly farming. The results of the activities showed that farmers' level of understanding of the materials improved significantly. However, farmers still need further guidance to completely abandon the use of chemicals. Initial changes in farming practices are starting to be seen, where farmers are starting to reduce direct contact with chemicals and consider organic alternatives. This activity is having a positive impact in minimizing health and environmental risks in Panca Desa Banyuasin I. However, to ensure sustainability, further assistance, financial support, and strengthening of policies related to environmentally friendly agricultural practices are needed.

Keywords: *Rubber farmer education, hazardous waste and chemical substances.*

I. INTRODUCTION

Based on the ministerial decree no 187 year 1999 hazardous chemicals are chemicals in single or mixed form based on chemical and or physical properties and or toxicology harmful to labor, agencies and the environment. One of the chemicals included in the category of hazardous materials is materials that have toxic properties. The material is declared as a toxic material if exposure by mouth LD50> 25 or 200 mg / kg body weight, or exposure through the skin LD50> 25 or 400 mg / kg body weight or through breathing LD50> 0.5 mg / L or 2 mg / L. Toxic chemicals are defined as chemicals that in small amounts cause poisoning in humans or other living things.

Situation Analysis

Rubber farming in Panca Desa Banyuasin I is one of the vital economic pillars for the local community. It not only provides livelihoods but also significantly affects the local ecology. However, the use of chemical substances such as pesticides, herbicides and chemical fertilizers in rubber farming practices is often poorly managed. In some cases, excessive or inappropriate use of these chemicals can have adverse impacts.

Environmental Risks

The use of harmful chemicals in rubber farming can cause soil and water pollution. Chemical residues deposited in the soil can disrupt the balance of local ecosystems and affect the life of soil microorganisms that are important for soil fertility. In addition, inappropriate use of pesticides can contaminate ground and surface water sources, which can negatively affect the sustainability of aquatic ecosystems.

Regulations and Policies

While there are government regulations regarding the use of chemicals in agriculture, their implementation in the field is often not optimal. There is a need for better understanding and adherence to these regulations to ensure sustainable and safe agricultural practices for the environment and public health. In this context, a holistic and structured educational approach is an appropriate step to increase rubber

farmers' awareness and knowledge on the safe and sustainable use of chemical substances. By understanding the challenges and potential negative impacts of chemical use, we designed this proposal as a concrete step to support positive changes in rubber farming practices in Panca Desa Banyuasin I.

Activity Objective

The objective of this activity is to increase the awareness and knowledge of rubber farmers in Panca Desa Banyuasin I regarding the safe and sustainable use of chemical substances. Specifically, the objectives to be achieved through this proposal are as follows:

1. Education on the Use of Hazardous Chemical Substances: Provide rubber farmers with an in-depth understanding of the types of hazardous chemicals often used in rubber farming, such as pesticides and chemical fertilizers, and their potential negative impacts on the environment and human health.
2. Improved Environmentally Friendly Agricultural Practices: Promote the adoption of more environmentally friendly agricultural practices, including the use of safer chemical alternatives, integrated pest management, and sustainable soil management.
3. Environmental Protection: Reduce the risk of soil, water and air pollution due to the use of hazardous chemicals, and promote the conservation of natural resources and local biodiversity.

Through the achievement of these objectives, it is expected that there will be positive changes in rubber farming practices in Panca Desa Banyuasin I towards a system that is more sustainable, environmentally friendly, and safe for the health of the local community.

Benefits of Activity Outcomes

1. Increased Farmer Knowledge
   Rubber farmers in Panca Desa Banyuasin I gained a better understanding of the dangers of hazardous chemicals (B3) and how to use more environmentally friendly alternatives. This knowledge is the basis to encourage changes in mindset and safer farming practices.
2. Changes in Agricultural Practices
   After the educational activities, farmers began to reduce direct contact with chemicals and gradually tried to use organic fertilizers and implement integrated pest management (IPM). This contributed to the reduction of environmental contamination due to chemicals.
3. Positive Impact on the Environment
   As the use of hazardous chemicals is reduced, the risk of soil and water pollution in the neighborhood decreases. This first step supports the sustainability of the local ecosystem.
4. Improved Farmer Safety and Health
   By reducing exposure to chemicals, the risk of health problems that farmers often experience due to the use of hazardous materials can also be minimized.
5. Awareness of Sustainable Agriculture
   This activity builds community awareness of the importance of agricultural practices that not only produce quality products but also maintain environmental balance.

II. RESULT AND DISCUSSION

2.1 Community Conditions and Habits

The community service program was carried out on December 15, 2024 in Panca Desa, Air Kumbang District, Banyuasin I Regency. Panca Desa has a total population in 2016 of around 1,550 people, increasing to 2000 people in 2020. Based on the results of research conducted by researchers in Panca Desa, researchers found that the agricultural and plantation sectors still play a very important role and are the main foundation in the community's economy.


Fig 1. Panca rubber farmers in Banyuasin I village

The village community generally works as farmers and planters. The main livelihood of people in the village is as rubber farmers (owners / tappers / laborers) who cultivate privately owned rubber plantations. Panca farmers have a habit of planting up to the management of rubber plants quite a lot involving herbicides, chemical fertilizers, plant growth regulators (in rubber can stimulate the release of sap) and other agricultural chemicals. This has the potential to become hazardous and toxic waste (B3). B3 waste is the residue of a company and/or activity which, due to its nature and/or concentration and/or amount, contains hazardous and/or toxic substances that directly or indirectly pollute the environment, human health and can endanger the survival of other living things (Dewi.et al, 2016).

Fig 2. The use of ZPT to maximize rubber sap output

Fig 3. Use of herbicides to eradicate grasses

Community Service Activities

This community service activity was carried out in several natural rubber farmers' gardens or also in the homes of farmers who were very enthusiastic about receiving the arrival of the research team. The Panca Desa natural rubber farming community voluntarily came to hear the educational explanation of this

activity. The implementation of the service was carried out by explaining that it is very dangerous to use chemicals that are not in accordance with the dosage so that it has an impact on the availability of B3 waste. After direct exposure, questions and answers were held with several farmers who enthusiastically took turns asking questions.

Fig 4. Educational activities in a rubber farmer's garden

The use of chemicals that can have an impact on B3 waste is sought as much as possible so that it can be prevented. Regarding the procedures and requirements for the maintenance of hazardous and toxic waste starting in 2021, according to the Regulation of the Minister of Environment and Forestry Number 6, it is clarified that hazardous and toxic waste is the remnants of materials from activities or production processes that contain materials that have hazardous and toxic properties.

Fig 5. Educational activities at a rubber farmer's house

2.2 Activity In

Community service out with a holistic approach, including counseling, traini rubber farmers, showed high enthusiasm for the material of hazardous chemicals (B3), environmentally friendly al ed pest management (IPM). However, some obstacles v ers faced challenges to fully transition away from chemi s well as higher initial costs. In addition, old habits and lack of in-depth understanding of environmentally friendly practices are barriers that require continued assistance.

2.3 Changes in Farmers

From the evaluation conducted, some positive changes have been observed:

Level of Understanding: Most farmers understand the hazards of hazardous chemicals as well as the importance of adopting sustainable agricultural practices.Changes in Practices: Some farmers have started to distance themselves from direct contact with chemicals and reduce the use of chemical pesticides, although they have not yet fully switched to organic fertilizers.Environmental Awareness: Communities are beginning to understand the importance of preserving the environment to support the sustainability of their farming businesses.

2.4 Environmental and Health Impacts

Reducing the use of hazardous chemicals is expected to reduce the risk of soil and water pollution. This initial step also reduces the potential exposure to chemicals that can harm the health of farmers and surrounding communities. While concrete environmental and health outcomes may take longer to measure, increased awareness is an important foundation for greater change.

2.5 Effectiveness of the Solution Applied

The solutions implemented, such as education, the use of alternative methods, and collaboration with related parties, proved effective in building initial understanding among farmers. However, to achieve sustainable change, a long-term approach in the form of intensive mentoring, financial support, and policy strengthening from the local government is needed.

III. CONCLUSION

The rubber farmers' education activity on the use of hazardous chemicals (B3) in Panca Desa Banyuasin I succeeded in improving farmers' understanding of the importance of using more environmentally friendly materials. Farmers involved showed enthusiasm and better awareness of the dangers of chemicals as well as safe alternatives, such as organic fertilizers and integrated pest management (IPM).Initial changes have seen a reduction in farmers' direct contact with chemicals, which is expected to reduce the risk of environmental pollution and negative health impacts. However, the transition to sustainable agricultural practices still requires further assistance and support, especially to fully replace the use of chemicals.important to the rate of decomposition of soil organic matter.

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