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STRATEGY FOR IMPROVING THE WELFARE OF THE COMMUNITY IN RW 15 BASED ON ENVIRONMENTAL CONCERN BY OPTIMIZING VACANT LAND INTO A LIVING APOTHECARY GARDEN AND AN INTEGRATED WASTE MANAGEMENT PROGRAM

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Abstract. An environmentally-based community empowerment program aimed at improving community welfare has been implemented in RW 15, Sei Pelunggut Village, Sagulung District, with a focus on transforming vacant land into a living pharmacy garden, carrying out community service activities, making trash bins, and installing trash education signs. The results of the implementation show the creation of a living pharmacy garden with a variety of traditional medicinal plants, the installation of waste management systems in each neighbourhood unit, increased community participation in mutual assistance activities, and growing awareness of the importance of waste to the environment. This program proves that the integration of ecological awareness and community participation can create a sustainable impact on the socio-ecological welfare of the community. Program evaluation shows that this holistic approach not only provides practical solutions to environmental problems but also strengthens social cohesion and creates further models with the potential to generate additional economic value through the sale of medicinal plants, thereby supporting household economic empowerment. Thus, this initiative serves as a replicable model for other regions, proving that small changes from the grassroots level can create a ripple effect for global sustainability.

Keyword: Living Pharmacy Garden, integrated waste management, Community Welfare, and Environmental Education.

INTRODUCTION

Based on initial observations and discussions with the management and residents of RW 15, Sei Pelunggut Village, Sagulung District, several urgent problems have been identified that require immediate intervention:

1. Productively unused land.
2. Public awareness and participation in waste management is still low, marked by the lack of waste storage facilities and the large number of wild garbage spots.
3. Decreasing spirit of mutual cooperation and citizen participation in environmental activities.
4. There is no living pharmacy park management model that involves the active participation of the community.

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These conditions indicate urgency for an integrative and sustainable intervention. As a solution, this service activity offers the implementation of the eco-community-based community concept through:

a. Integrated Living Pharmacy Park Model The development of a living pharmacy park that serves not only as a source of medicinal plants, but also as a public educational and recreational space. This model adopts the principle of permutation with optimal use of vertical and horizontal land.
b. Community-Based Waste Management System Implementation of a waste management system involving active participation of the community through the provision of sustainable infrastructure (garbage can) and educational media (informative plaque).
c. The Modern Cooperative Participatory Approach Revitalizes traditional cooperative values with a structured and measurable modern approach to increasing social cohesion.

Based on the identification of the problems and solutions offered, this community service activity aims to:

1) Optimizing the use of idle land into a well-organized, productive, and educational living pharmacy park to provide access to family medicinal plants that are easily accessible and free of charge
2) Improve waste management systems through the provision of wastewater infrastructure in each RT to reduce wild garbage points and improve environmental cleanliness
3) Improve community environmental awareness through the creation of informative waste education boards on the long-term impact of waste on the environment
4) Strengthen social cohesion and community cooperation through sustainable joint activities to create a clean, healthy, and harmonious environment

Creating a model for community empowerment that can be replicated in other regions as an example of sustainable community development.

METHODOLOGY

Community service activities targeting RW 15 Sei Pelunggut Village, Sagulung District, Batam, using a participatory and educational approach, actively involving the community in every stage of the program. The method used is based on the Triple Bottom Line (3P: People, Planet, Profit) to ensure This approach emphasizes a balance between social, environmental, and economic aspects in efforts to improve sustainable community welfare through:

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- Participatory Rural Appraisal (PRA): Involving the community in problem analysis and solution planning
- Learning by Doing: Hands-on practice in making trash bins and planting
- Community Organizing: Building awareness and organizing collective action (Dewi & Prasetyo, 2024)
- Peer Education: Residents who already understand become agents of change for other residents

The implementation of each program in this community service is carried out through several stages and techniques, starting from:

Stage 1: Preparation and Observation (August 23, 2025)

Techniques: Field surveys, in-depth interviews, and Focus Group Discussions (FGD)

Activities:

1. Conducting location surveys to identify available vacant land
2. Coordinating with local neighbourhood and community leaders for permits and support
3. Interviewing residents to understand their specific needs
4. Analysing land conditions based on:
    - Land ownership status
    - Level of accessibility
    - Soil fertility
    - Availability of sunlight and water
5. Identify strategic points for the placement of trash bins and educational signs.

Stage 2: Socialization and Team Formation (August 24, 2025)

Techniques: Participatory Rural Appraisal (PRA) and community organizing

Activities:

1. Socialization of the program to all residents of RW 15
2. Formation of a joint working team consisting of students, residents, and RW officials
3. Distribution of tasks and responsibilities for each party
4. Preparation of a mutually agreed work schedule

Stage 3: Development of Living Pharmacy Garden (August 25-30, 2025)

Techniques: Participatory action research and sustainable agriculture practices

Activities:

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1. Land Clearing and Preparation:
   - Clearing the land of weeds and trash
   - Loosening the soil with hoes
   - Making beds or planting plots
   - Preparation of planting media (fertile soil + organic fertilizer)
2. Planting:
   - Planting medicinal plant seeds together:
     a. Ginger (Zingiber officinale)
     b. Turmeric (Curcuma longa)
     c. Lemongrass (Cymbopogon citratus)
     d. Temulawak (Curcuma xanthorrhoea)
     e. Other herbal plants as available
   - Proper planting techniques for each type of plant
3. Initial Maintenance:
   - Regular watering (morning and evening)
   - Application of additional organic fertilizer
   - Pruning of plants that are not growing optimally

Stage 4: Waste Management Infrastructure Development (August 31 – September 7, 2025)

Technique: Learning by doing and community development

Activities:

1. Waste Bin Production:
   - Identification of the number of waste bins needed per neighbourhood unit (RT)
   - Provision of environmentally friendly materials (used paint buckets, paint, wooden supports)
   - The production process involves students and residents working together
   - Stages: cutting materials → assembly → painting → finishing
   - Placement of waste bins at strategic points that are easily accessible (Suwerda, 2012)
2. Production of Waste Education Signs:
   - Design of educational content about the decomposition time of various types of waste (Permatasari & Rahman, 2023)
   - Production of signs using durable and environmentally friendly materials
   - Use of attractive and easy-to-understand visual designs

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Stage 5: Community Mutual Assistance Activities (September 13-14, 2025)

Technique: Community mobilization and collective action

Activities:

1. Coordinate with all neighbourhood associations to determine priority areas for cleaning
2. Provide equipment: hoes, brooms, trash bags, grass cutters
3. Cleaning clogged drains
4. Collecting and sorting trash
5. Repainting public facilities
6. Installing trash education signs in strategic locations

Stage 6: Monitoring and Evaluation (Ongoing)

Technique: Participatory monitoring and evaluation

Activities:

1. Regular monitoring of plant growth (weekly)
2. Evaluation of trash bin usage and effectiveness
3. Measurement of changes in community behaviour towards environmental cleanliness
4. Documentation of progress and challenges encountered
5. Development of a program sustainability mechanism after the activity

COMMUNITY SERVICE ACTIVITY IMPLEMENTATION FLOWCHART

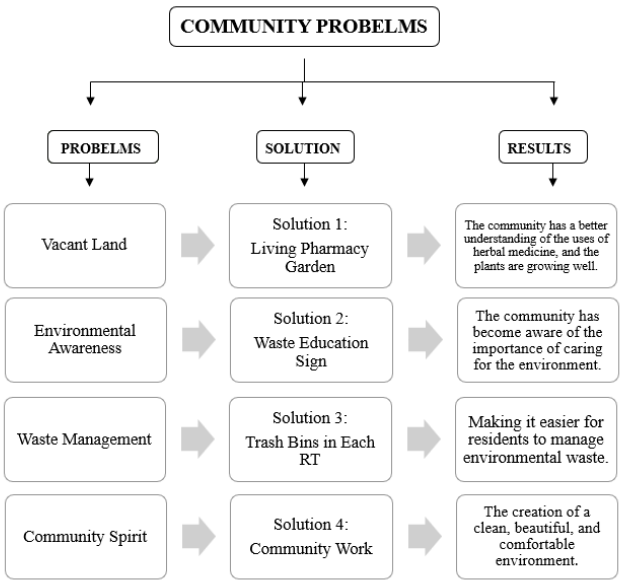

Figure 1. Rw 15 Sei Pelunggut Village, Sagulung District

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RESULT AND DISSCUSION

The implementation of the community service program in RW 15 Sei Pelunggut focuses on improving welfare through environmental concerns. The initial conditions show abandoned vacant lots, the lack of waste management facilities, the low awareness of residents in disposing of garbage, and the weakening of the mutual cooperation culture. Against this background, four core programs were implemented: the use of vacant land into a living pharmacy park, mutual cooperation activities, the creation of garbage cans in each neighbourhood, and the installation of garbage education boards.

1. The Use of Empty Land Becomes a Living Pharmacy Park

Before the activity, the existing land was only covered with bushes and did not benefit. Through mutual cooperation with students, the land is cleared, given a growing medium, then planted with family medicinal plants such as ginger, turmeric, lemongrass, and curcuma (Sari & Wahyuni, 2023). As a result, the land that was not originally productive has now turned into a green space that is useful for residents.

In addition to being a source of free medicinal plants, this park also serves as an educational facility. Children and adolescents are invited to learn to recognize herbs and their benefits, so cross-generation knowledge transfer occurs. Another impact is the emergence of simple economic opportunities, such as the sale of medicinal plant seeds (Prasetyo & Setiawan, 2022). This suggests that land optimization has not only an ecological impact, but also a social and economic impact.

Figure 2. Before and after utilizing vacant land to create a living pharmacy garden)

2. Revitalization of Community Cooperatives

Before the program, residents' participation in filial piety decreased, marked by the infrequent clean environmental activities. Through this program, coordination is carried out with

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RT/RW devices to revive the spirit of mutual cooperation. Residents, students, and environmental devices together clean waterways, trim weeds, paint public facilities, and transport garbage to the disposal points (Dewi & Prasetyo, 2024).

The impact is evident: the environment becomes cleaner, puddle free, and organized. More importantly, this activity restored solidarity among citizens. People realize that preserving the environment cannot be done alone, but requires collective involvement.

Figure3. community service activities

3. Trash Creation in Each RT

The main problem of garbage in RW 15 is the lack of landfills, so a lot of garbage builds up on empty land or roadsides. To overcome this, the team made simple trash cans from used buckets and environmentally friendly materials (Suwerda, 2012). The barrels are then painted, labelled, and placed at the strategic points of each RT.

After a few weeks of walking, there was a change in people's behaviour. They are more orderly in disposing of garbage, the number of wild garbage spots decreases, and the environment looks cleaner (Prasetyo & Setiawan, 2022).

The initial evaluation also showed residents' enthusiasm to add new garbage cans with organic and inorganic sorting systems. Effective waste management infrastructure not only

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addresses environmental issues but also creates economic value through waste sorting and recycling opportunities (Andinar et al., 2023).

Figure 4. the making of trash cans before and after completion

4. Trash Education Plang Generation

Public awareness of the long-term effects of garbage is still low. For this reason, an educational field was installed in a strategic location, containing information about the length of time for the decipherment of various types of garbage (Permatasari & Rahman, 2023). Plang is designed with striking images and colours to be easily understood by both children and adults.

Once the sign is installed, residents pay more attention to how to dispose of garbage. Several RTs began to hold small discussions regarding the sorting of household waste. Thus, the educational board not only serves as an information board, but also triggers a continuous change in collective behaviour (Permatasari & Rahman, 2023).

The four programs are complementary. Living pharmacy parks provide health benefits as well as green space, mutual cooperation restores a sense of togetherness, garbage cans create neater environmental governance, and educational boards strengthen residents' awareness.

From a sustainable community development perspective, this program successfully builds balance: ecological aspects (greener and cleaner environments), social aspects (increasing citizens' cohesion), and economic aspects (seed selling opportunities and saving family medicine costs). This community-based development approach demonstrates how participatory methods can transform communities from passive recipients to active agents of change in their own development (Agunggunanto et al., 2016).

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Figure 5. making educational signs about waste

CONCLUSION AND RECOMMENDATION

Community service activities in RW 15 Sei Pelunggut Village with the theme of Strategies for Improving Community Welfare Based on Environmental Care have succeeded in achieving the expected goal. Through the use of vacant land into a living pharmacy park, the implementation of mutual cooperation, the creation of garbage cans in each neighbourhood, and the installation of garbage education fields, the community benefits from both health, cleanliness, and strengthening social solidarity.

The living pharmacy park, which was previously an empty land, is now a productive green space that provides family medicinal plants and becomes an educational facility (Sari & Wahyuni, 2023). Cooperative activities can restore the spirit of togetherness and create a cleaner environment (Dewi & Prasetyo, 2024). The strengthening of social capital through collective action has proven essential in fostering community resilience and sustainable development (Suhaeb, 2023). The creation of garbage cans helps reduce wild garbage points and organize waste management systems (Suwerda, 2012), while education boards provide a continuous understanding of the long-term impact of garbage on the environment (Permatasari & Rahman, 2023).

Although the results achieved are quite significant, the program's implementation also faces challenges in the form of resource constraints for park maintenance and limited waste sorting facilities. Therefore, the need for long-term assistance for the community in maintaining a living pharmacy park to remain productive, garbage can facilities should be improved with organic and inorganic sorting systems with these steps, this environment-based community service activity is expected to continue to grow and serve as a replicable model for other

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communities seeking sustainable development solutions through integrated approaches that balance ecological, social, and economic dimensions (Elkington, 1997; Slaper & Hall, 2011).

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