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Community Empowerment in Developing Family Medicinal Plants to Realize a Green Economy Based on Local Wisdom

Adhi Iman Sulaiman[1*], Shinta Prastyanti[2], Lilik Kartika Sari[3], Ahmad Rofik[4], Muhammad Yamin[5]

[1,3]Department of Agricultural Extension, Postgraduate Program, Jenderal Soedirman University, Purwokerto, Indonesia; adhi.sulaiman@unsoed.ac.id (A.I.S.) lilik.sari@unsoed.ac.id (L.K.S.).
[2]Department of Communication, Jenderal Soedirman University, Purwokerto, Indonesia; shinta.prastyanti@unsoed.ac.id (S.P.)
[4,5]Department of Social and Politic, Jenderal Soedirman University, Purwokerto, Indonesia; ahmad.rofik@unsoed.ac.id (A.R.) muhammad.yamin@unsoed.ac.id (M.Y.).

Abstract. Herbal medicine, as a traditional practice, has become a form of local wisdom among the Indonesian people that needs to be preserved and developed to maintain family and community health. This study aims to design an empowerment program that supports the development of health clinics and herbal tourism based on local wisdom. The research employs Participatory Learning and Action, with data collected through observation, interviews, discussions, and documentation. The research site is the herbal health clinic and herbal tourism area in Kalibakung Village, Balapulang District, Tegal Regency, Central Java Province. Informants were selected purposively, including herbal health tourism managers, family health empowerment groups, integrated service posts, farmer groups, small business groups, academics, and journalists. Data were analyzed qualitatively using reduction, triangulation, and verification techniques. Findings show that herbal medicine, as a traditional practice, represents a form of local wisdom that has long been embedded in Indonesian society and should be preserved and developed to maintain family and community health. Local governments must initiate and facilitate the implementation of such empowerment in collaboration with social institutions, universities, and herbalists through awareness campaigns, counseling, training, and assistance on herbal plant cultivation. Empowerment programs as a medium of participatory communication are crucial to enhance community motivation, understanding, and skills in cultivating medicinal plants, thereby improving socio-economic welfare and supporting the development of health clinics and herbal tourism.

Keywords: Community empowerment, Green economy, Local wisdom, Participatory communication, Tourism.

1. INTRODUCTION

Food security has long been a cultural practice, especially in highland rural areas, both on a large scale in plantations for commercial production and in home gardens and yards for daily and supplementary needs of families and local communities, referred to as local food security.

Therefore, in addition to large-scale food production to meet regional and national food needs, local food security also deserves attention and support for development. This includes using home yards and gardens as horticultural farming land for vegetables, fruits, and cooking spices that meet daily needs. Furthermore, these local gardens can also be utilized to cultivate medicinal plants or herbs as an alternative method to maintain health and treat illnesses.

This culture of food security represents both local wisdom (Dirgahayu et al., 2023; Lubis et al., 2023; Sadaresruwati et al., 2023; Watremny et al., 2023; Qayimah et al., 2024) and indigenous technology (Masango & Mbarika, 2022; Matsekolen et al., 2022; Ndlovu & Gumbo, 2024; Rahayu & Septiani, 2020; Rahman, 2023) passed down through generations. It meets basic food needs, preserves health, maintains physical vitality, and prevents disease through the use of family medicinal plants (FMP).

Local wisdom refers to the worldview, knowledge, and life strategies local communities practice to address their needs. Indigenous technology, meanwhile, is traditional knowledge applied over generations in local innovations such as agricultural cultivation, irrigation systems, livestock farming, and other productivity efforts, all while preserving ecological balance.

As a manifestation of local wisdom and indigenous technology, FMP functions as a "living pharmacy" grown in yards and processed into organic food and herbal drinks, commonly known as herbal. These practices offer a natural, appealing, and sustainable alternative to the increasing availability of unhealthy instant foods and drinks containing preservatives, sugar, and monosodium glutamate (MSG).

Due to the high costs of modern healthcare and pharmaceutical treatments, many people are now returning to natural alternatives, using traditional herbal medicine, or FMP, cultivated in home gardens as a preventive and self-treatment method. Common FMP plants include ginger, aromatic ginger (kencur), lempuyang, galangal, turmeric, cogon grass, belimbing wuluh (Averrhoa bilimbi), lime, noni fruit, cardamom, guava, betel leaf, cat's whiskers (kumis kucing), and moringa (Abdel-Aziz et al., 2016; Cahyati, 2022; Suryadi, 2024; Syarif & Gunawan, 2023)

Thus, the preservation and development of FMP cultivation in home gardens is both vital and strategic for health maintenance, disease prevention, and self-treatment using accessible herbal plants. These efforts can also support food and health security while preserving local biodiversity.

As stated in the Ministry of Health Regulation No. 9 of 2016, the Indonesian government has supported

* Correspondence: adhi.sulaiman@unsoed.ac.id

FMP empowerment programs concerning health development through self-care utilizing family medicinal plants and the cultivation and processing skills involved. Traditional self-care refers to health maintenance, health promotion, and basic treatment efforts conducted independently by individuals, families, groups, and communities using medicinal plants and the knowledge to process them.

An example of implementing organic food security and herbal health practices can be seen in the Herbal Health Tourism Area (HHTA) in Kalibakung Village, Balapulang District, Tegal Regency. This initiative is supported by the local government through Regional Regulation No. 1 of 2013 concerning the Implementation of Herbal Health Tourism and Retribution for Traditional Complementary Health Services. The HHTH is a fostered program under the Center for Research and Development of Medicinal Plants and Traditional Medicine under the Ministry of Health in Tawangmangu, Karanganyar Regency, Central Java Province.

Many concepts serve as evidence of innovations in local food security that have become interrelated campaigns for environmental sustainability, local food resilience, and organic farming, such as "Save Our Earth", "Go Green", "Stop Global Warming", "Green Village", "Agrotourism", "Organic Village", and "Back To Nature".

This is especially relevant in the context of the COVID-19 pandemic, short for Corona (CO), Virus (VI), and Disease (D), which occurred between 2019 and 2021 and became a global issue affecting nearly every country, including Indonesia. According to information from the Covid-19 Task Force of the Ministry of Health of the Republic of Indonesia, during the peak of the Covid-19 pandemic in 2020, 209 countries had reported Covid-19 cases totaling 1,435,310, with 82,210 deaths. Specifically in Indonesia, during the 2020 pandemic peak, the number of confirmed positive Coronavirus (COVID-19) cases reached 2,956 deaths.

As a result, everyone had to limit their activities with the implementation of social distancing, physical distancing, self-quarantine, and even regional quarantine, as regulated under the Large-Scale Social Restrictions policy through Minister of Health Regulation No. 9 of 2020, a derivative regulation of Government Regulation No. 21 of 2020 concerning Large-Scale Social Restrictions in the Context of Accelerating the Handling of Corona Virus Disease 2019 (COVID-19), which in turn derives from Law No. 6 of 2018 on Health Quarantine. The threat posed by the Covid-19 pandemic continues to prompt the search for remedies, including the emergence of several alternative medicines, such as traditional remedies or herbal, which have long been part of Indonesia's local wisdom and are derived from family medicinal plants.

Subsequently, based on research conducted in 2024–2025 at the study site, several issues were identified: (1) The demand for herbal plant materials is still supplied 80% from Center for Research and Development of Medicinal Plants and Traditional Medicine in Tawangmangu, while only about 20% is obtained from the cultivation efforts of HHTH and surrounding areas such as Tegal. (2) The local community has not yet optimized the use of home yards and gardens for cultivating medicinal plants (FMP) as a part of self-sufficient health resilience, let alone becoming suppliers of herbal materials to HHTH. (3) Young people have not shown interest in participating in FMP cultivation, which actually holds economic potential. (4) HHTH has already produced post-harvest herbal plant products, but they are currently only marketed or purchased by tourists and have not been expanded to wider markets. (5) Partnerships between HHTH and local business groups, farmer groups, and community health posts (Posyandu) have not been sustainably established to develop FMP's cultivation and post-harvest processing.

Based on these findings, researching the benefits of family medicinal plants (FMP) in maintaining public health during the COVID-19 pandemic becomes critically important and strategic. Such research can provide recommendations for developing herbal health tourism areas to strengthen local or village-level food security, a real and immediate part of daily community life. This includes utilizing home yards and gardens for greenery and environmental and family health, adding value by reducing basic living costs and providing additional income for families and the wider community. This aligns with several goals under the Sustainable Development Goals (SDGs), particularly those related to good health and well-being, responsible consumption and production, and fostering partnerships.

Conducting research and studies on food security through the utilization of home yards and surrounding gardens to build community self-reliance is highly relevant to community empowerment as a medium of participatory communication (McPhail, 2009; Nair, & White, 2004; Servaes, 2008; Tufte & Mefalopulos, 2009). As demonstrated in several research findings, empowerment is defined as a deliberate effort to facilitate local communities in planning, deciding, and managing their local resources through collective action and networking, ultimately enabling communities to achieve economic, ecological, and social independence and resilience.

2. LITERATURE REVIEW

The author conducted a literature review based on previous studies published in reputable academic journals over the last five years (2020–2025). The review focuses on three main areas (Andrew et al., 2025; Astuti et al., 2024; Dushkova & Ivlieva, 2024; Handoko et al., 2024; Jatnika et al., 2024; Lukoff & Zhang, 2025; Prastyanti et al., 2024; Ramadhan & Nurjaman, 2025; Sulaiman & Ahmadi, 2020; Widiastuti et al., 2024; Yohani et al., 2023):

(1) Emerging Trends in Community Empowerment: Several prominent themes have gained increasing attention in the past five years, including: (1.1) Digital and Technology-Based Empowerment: This includes the use of augmented reality for cultural narrative empowerment, digital village transformation, e-governance, and

the deployment of Information and Communication Technology (ICT) platforms in rural areas. (1.2) Social Entrepreneurship-Based Empowerment: This focuses on the collaboration between business models and community empowerment, often explored through bibliometric analyses. (1.3) Environmental Sustainability and Empowerment: Research in this theme explores empowerment for sustainable tourism development within local communities, as well as community empowerment programs aimed at strengthening socio-environmental resilience. (1.4) Gender Empowerment through Cooperatives: Studies in this area investigate women's empowerment through cooperative models. (1.5) Data and Artificial Intelligence (AI)-Driven Resilience: This includes the development of models such as ResiliNet, which utilizes deep learning to assess community resilience.

(2) Theoretical Approaches to Community Empowerment: Several theoretical frameworks underpin recent empowerment research: (2.1) Community-Based Participatory Research (CBPR): An inclusive approach involving communities as equal partners throughout the research cycle, often combined with the transformative learning paradigm to support critical reflection and joint action (e.g., the CLEGs model). (2.2) Participatory Action Research (PAR): A classical method for empowerment through collective action and reflection, particularly in rural communities and environmental justice settings. (2.3) Asset-Based Community Development (ABCD): This approach emphasizes internal community strengths and potentials rather than focusing solely on deficits. (2.4) Multi-dimensional Empowerment Theory: Encompassing psychological, behavioral, and institutional dimensions, this theory includes aspects such as self-efficacy, collective action, and the development of inclusive institutions. (2.5) Theory of Change Using Technology Platforms: This is applied to mobile or digital-based community media platforms.

(3) Innovative Empowerment Research as Sources of Novelty: Recent innovation in empowerment studies includes: (3.1) Bibliometric Analysis and Concept Mapping: The use of VosViewer methodology to map empowerment themes in the context of social entrepreneurship. (3.2) Integration of Empowerment Theory with E-Governance: Studies on how digitalization enhances village-level participation via e-governance platforms. (3.3) AI-Based Resilience Models: For instance, the ResiliNet model, which assesses socio-technical resilience using deep learning techniques. (3.4) Multi-type Sustainable Empowerment Approaches: The development of cross-domain analytical frameworks (economic, social, gender, environmental, digital) for use in sustainability programs. (3.5) Evidence-Based Women's Empowerment through Cooperatives: Global studies mapping research trends in this area and identifying future research directions.

(4) Challenges and Constraints in Community Empowerment Research: Key challenges include power and representation gaps, such as unequal access between elite and marginalized groups, and low levels of public participation and trust. Factors contributing to shallow engagement include normative (uninformed) participation, lack of access to information, and institutional distrust. Social loafing and learned helplessness further hinder active community contribution. Ethical concerns in research, such as parachute research that extracts data without long-term benefit for communities, also present significant obstacles. Measurement and evaluation difficulties persist, as the concept of empowerment still requires consistent and valid indicators. Limited sustainable resources, frequent turnover in community groups, and dependence on volunteers are additional constraints. Communities often lack bargaining power to access funding, express aspirations, and obtain financial support.

(5) Strengths and Opportunities in Community Empowerment: Opportunities include asset-based empowerment approaches that focus on local strengths rather than needs alone, fostering a sense of ownership and authentic decision-making. Multi-stakeholder collaboration—among communities, government, NGOs, and academia—enables co-creation of more sustainable local solutions. Strengthening social capital by reinforcing social networks enhances the effectiveness of collective action and boosts community adaptability during crises. The use of digital innovations and participatory platforms—such as e-governance and mobile-based platforms—can broaden access to information and reduce communication barriers. Culturally relevant approaches, rooted in local wisdom and potential, further support long-term community well-being.

Literature study from the past five years (2020–2025) shows a clear shift toward technology-based, cross-sectoral, and participatory approaches to community empowerment. There is a growing emphasis on theoretical frameworks that elucidate the interplay between internal strengths, digital capacities, and both formal and interpersonal structures. Current empowerment studies face ongoing challenges related to local politics, research ethics, and the lack of validated indicators. Nonetheless, there are significant opportunities through asset-based approaches, digital innovation, social capital development, and multi-stakeholder collaboration. The future of the field lies in hybrid empowerment designs that integrate technology and community participation, supported by adaptive and inclusive evaluation frameworks.

3. RESEARCH METHODS

This study employed the Participatory Learning and Action (PRA) Method as a research approach that prioritizes practical learning processes through interaction with communities or groups in a participatory manner to identify and analyze experiences, knowledge, and capabilities for planning, decision-making, and implementing activities (Wood, 2022)

The main aspects of the PRA method (Vaughn & Jacquez, 2020) as a participatory approach emphasize the following key points:

1) Empowerment. As motivation, knowledge, and skills provided by the government, civil society, and the private sector to individuals or communities in order to enhance power or capacity to progress, prosper, and become self-reliant.

2) Respect. PRA facilitates a process of collaboration and transformation between researchers and the community, which is established on an egalitarian basis, mutual contribution, and solidarity as learners or through knowledge sharing.

3) Localization. The optimal use of resources possessed by the local community, including human, socio-economic, socio-cultural, and environmental assets.

4) Enjoyment. PRA is conducted in a harmonious and enjoyable manner without coercion but through voluntary engagement.

5) Inclusiveness. Greater concern is given to marginalized communities, socio-economically vulnerable groups, and the less fortunate, and priority is given to those most in need of development.

Data was collected through direct observation at the research site, interviews, brainstorming, relevant documentation, and Focus Group Discussions (FGDs).

The research subjects for the qualitative method were selected using purposive sampling, namely informants chosen based on the researcher's judgment of their ability to provide important or relevant data and facts needed at the research location in Tegal Regency, Central Java Province, Indonesia. These informants included the management of Herbal Health Tourism, the Family Welfare Empowerment group, Farmer Groups, Small Business Groups, journalists, and academics.

Participatory data analysis (Cropley, 2022) was conducted qualitatively through the identification, analysis, verification, and triangulation of data from the construction of factual and actual realities to formulate a scientific discussion supported by relevant concepts and theories. Subsequently, unique and interesting findings from each case were reduced and categorized, followed by cross-case analysis Figure 1.

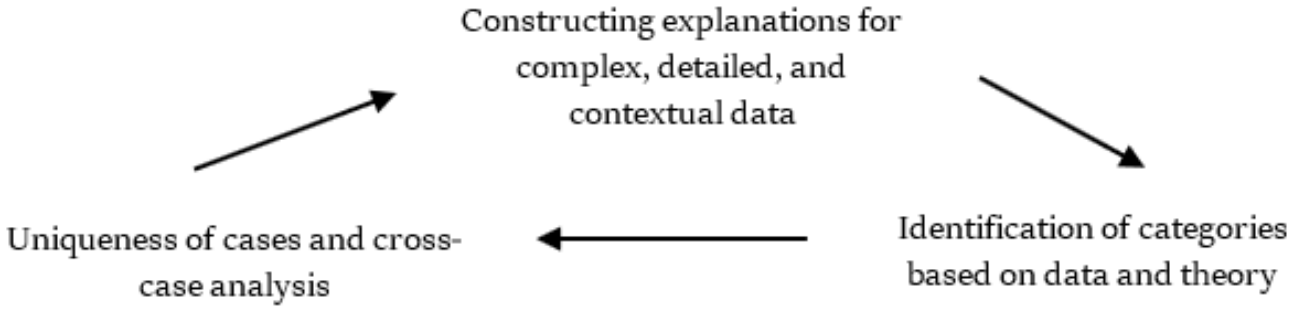

Figure 1: Data Analysis.

4. RESULT AND DISCUSSION

4.1. Challenges of Community Empowerment in Developing Family Medicinal Plant

Development dynamics, particularly in rural areas, face interconnected and inseparable challenges and issues. The findings include the shrinking agricultural land, the declining number of farmers, decreasing interest among younger generations in agricultural production, the increasing population, unemployment, poverty, and malnutrition. As a result, it has become increasingly difficult to meet daily needs due to the rising (expensive) cost of basic necessities and declining public purchasing power.

Motives and lifestyles involving instant and unnatural food and beverage consumption, filled with synthetic flavorings that are widespread and trendy, have pushed aside traditional local foods that are organic or natural. (De Groote et al., 2020; Orjuela-Palacio & Lanari, 2016; Stone et al., 2017; Sulaiman et al. 2022). This is also compounded by issues resulting from the impact of industrialization in the manufacturing, automotive, and textile sectors, which do not adequately support the agricultural sector (agroindustry), including the narrowing of agricultural land due to improper land conversion, environmental pollution such as air pollution, and waste contaminating agriculture and damaging the agricultural ecosystem, as well as global warming. (Muhtarom et al., 2021; Prastyanti et al., 2024; Sulaiman et al., 2024)

These problems are a significant concern in the considerations of Law Number 41 of 2009 concerning the Protection of Sustainable Food Agricultural Land, which states that the increasing population growth, as well as economic and industrial development, have led to the degradation, conversion, and fragmentation of food agricultural land, threatening the regional capacity on a national scale to maintain food independence, food security, and food sovereignty. Furthermore, the explanatory section of the law elaborates that threats to food security have caused Indonesia to import food products to meet domestic needs frequently. In the face of an ever-growing population, these threats to food production have raised concerns about potential food insecurity in the future. Consequently, Indonesia will require additional food availability and agricultural land in the coming years.

One of the development issues thus lies in ensuring food security, which involves the quality of agrarian natural resources and the quality of human resources as the key actors of development. According to Law of the Republic of Indonesia Number 18 of 2012 concerning Food, food is a basic human need, and fulfilling it is part of the right to a quality human life. As a country with a large population and diverse natural and food resources, Indonesia can meet its food needs independently and sovereignly.

Article 1 states that food security is a condition where food is sufficiently available for the state and individuals, reflected in the availability of food in adequate quantity and quality, safe, diverse, nutritious, evenly distributed, affordable, and not contradictory to religion, beliefs, and local culture, enabling a healthy, active, and productive life on a sustainable basis. Article 3 explains that food governance is implemented to fulfill basic human needs that provide equitable, fair, and sustainable benefits based on Food Sovereignty, Food Independence, and Food Security.

According to the regional poverty reduction strategy of Central Java Province for 2015–2018, one of the important and strategic development sectors in tackling poverty is strengthening food security in society, indicated by affordable prices of basic goods, improved nutritional intake, and increased food production. This is also outlined in the Strategic Plan of the Central Java Regional Development Planning Agency, where the priority in economic development includes the preparation of technical policy formulation, coordination, development, facilitation, and implementation of development planning tasks in the fields of natural resources and agriculture. Food security is considered an important and strategic sub-priority.

During the COVID-19 pandemic, there has been no specific medicine for its treatment, whereas herbal (traditional herbal medicine) as an alternative remedy has been increasingly forgotten, resulting in its rare consumption and a declining awareness of cultivating family medicinal plants (FMP) as a source for herbal ingredients. In fact, food security through the cultivation of FMP, which are unique, interesting, and represent local wisdom and indigenous technology, deserves attention through the development of group institutions via empowerment programs. This is particularly recommended for Kalibakung Village, Balapulang District, Tegal Regency, as a HHTH.

4.2. The Role of Herbal Health Tourism in the Utilization of Family Medicinal Plants

The establishment of the health clinic and Herbal Health Tourism was initiated by the Regional Secretary of Tegal Regency supported by the regional government through the issuance of Regional Regulation Number 1 of 2013 concerning the Implementation of HHTH and the Retribution of Complementary Traditional Health Services in Kalibakung Village, Tegal Regency.

The HHTH aims to promote Traditional Health, particularly Herbal, as a potential means to improve public health and increase the Local Own-Source Revenue of Tegal Regency. The Government of Tegal Regency, in establishing and developing the health clinic and Herbal Health Tourism, received support from the Ministry of Health, particularly through the Directorate General of Nutrition and Maternal and Child Health, specifically the Directorate of Alternative and Complementary Traditional Health Services, the Directorate General of Pharmaceuticals and Medical Devices, and the Health Research and Development Agency through the Center for the Development of Medicinal Plants and Traditional Medicines in Tawangmangu, Karanganyar Regency, Central Java Province, by formulating a development plan for the herbal tourism area for the period 2012–2015.

Initially, Herbal Health Tourism (HHTH) was managed by two agencies, namely the Tourism Office and the Health Office of Tegal Regency, which were integrated into one. However, its development later changed to be solely under the Health Office, with the status of a Regional Technical Implementation Unit equivalent to a Community Health Center at the district level.

The health clinic and herbal tourism area in Kalibakung Village, Tegal Regency, is located at an altitude of 650 meters above sea level, with the address Kalibakung Bojong Highway, Kilometer 1, Kalibakung, Balapulang District, Tegal Regency, Central Java Province of Indonesia. The herbal plant display includes 280 types of herbal medicinal plants labeled with their names, with a total land area of 3.2 hectares, in collaboration with the Center for Research and Development of Medicinal Plants and Traditional Medicines in Tawangmangu, Karanganyar Regency, Central Java Province.

Therefore, the Herbal Scientific Clinic in the herbal health tourism area of Kalibakung, Tegal Regency, uses research results from Center for Research and Development of Medicinal Plants and Traditional Medicines as a basis. The outcome includes 11 scientifically-based herbal formulas: Herbal for Gout, Herbal for Hypertension, Herbal for Hemorrhoids, Herbal for Arthritis, Herbal for High Cholesterol, Herbal for Liver Dysfunction, Herbal for Gastritis or Stomach Disorders, Herbal for Urinary Stones, Herbal for Diabetes, Herbal for Fitness, and Herbal for Obesity. Thus, herbal health tourism in Kalibakung, Tegal Regency, aims to utilize natural resources and manage traditional natural potentials sustainably for use as herbal in health services.

Meanwhile, the raw materials for traditional medicine sourced from the community of Tegal Regency only meet 30% of the herbal health tourism needs, while Center for Research and Development of Medicinal Plants and Traditional Medicines in Tawangmangu supplies 70%. There is an effort to develop herbal production plants to complement the service and facility needs in other areas outside the Tegal Regency.

The health clinic and herbal tourism area in Kalibakung, Tegal Regency, has personnel who manage and

provide services at the health clinic and herbal tourism area, consisting of general practitioners certified in herbal medicine, including pharmacists and nurses who are also certified in herbal medicine, as well as herbal tour guides or counselors. The herbal tourism park serves as a learning site for students' practice, Family Health Empowerment groups, Scouts, elementary, junior high, and senior high school students, and the community, guided by health officers. Services provided include health clinic services with a herbal clinical laboratory, general medical procedures, and outpatient care. The number of special patient visits to the herbal health clinic was 3,846 individuals, or an average of 13 people per day, coming from various regions outside the Tegal Regency.

The age composition of patients is mostly 41–55 years (41%), over 55 years (39%), 15–41 years (18%), and under 15 years (2%). The diseases treated include diabetes, hypercholesterolemia, dyspepsia, hypertension, gout, myalgia, osteoarthritis, cough, rheumatoid arthritis, and kidney stones. Based on data from the Kalibakung Health Clinic and Herbal Tourism, Tegal Regency, the most widely used herbal medicinal ingredients in 2019 were: Temulawak as a rhizome type 75.8 kg (3.2 kg per month), Meniran as herbaceous part 56.8 kg (4.7 kg per month), Turmeric as a rhizome type 43.7 kg (3.6 kg per month), Sembung leaves 40.7 kg (3.4 kg per month), Salam leaves 35.6 kg (3 kg per month), Cinnamon 34.5 kg (2.9 kg per month), Secang wood 33.6 kg (2.8 kg per month), Jati Belanda leaves 33.6 kg (2.8 kg per month), Rumput Bolong 33.2 kg (2.8 kg per month), and Pule tree bark 27.3 kg (2.3 kg per month).

The development plan for the health clinic and herbal tourism area in Kalibakung, Tegal Regency, aims to improve health services using herbal-based raw materials for spa services, acupuncture, laboratories, and a center for herbal health research, post-harvest processing, herbal cafés, and even includes plans to build a Herbal Health Hospital as a referral center for traditional and complementary medicine services.

The health clinic and herbal tourism area has the vision to realize a healthy society through high-quality, safe, and efficacious herbal. Its mission is to improve the quality of research and development of medicinal plants based on health services, to develop research results and the development of traditional medicinal plants, and to enhance the utilization of research and development outcomes in traditional medicine with the motto: friendly, informative, educational, and productive. Registration hours for treatment at the health clinic are Monday to Thursday from 08:00 to 11:00, Friday and Saturday from 08:00 to 10:00, and closed on public holidays. Service hours are Monday to Thursday from 07:00 to 14:00, Friday from 07:00 to 11:00, and Saturday from 07:00 to 12:30.

The importance of the health clinic and herbal tourism area, such as that in Kalibakung Village, Tegal Regency, lies in its role in maintaining health and treating illness. Herbal is an herbal medicine that has long been used as a traditional remedy passed down through generations in Indonesia. Beyond health purposes, herbal medicinal plants can also serve as economic commodities for the community and reduce dependence on imported products. According to Law Number 36 of 2009 on Health, the highest attainable public health standard is to be achieved based on the principles of non-discrimination, participation, and sustainability to develop Indonesia's human resources and strengthen national resilience and competitiveness for national development. Article 3 states that health development aims to increase awareness, willingness, and ability to live a healthy life for everyone in order to achieve the highest possible level of public health as an investment in the development of socially and economically productive human resources.

Public health is the science and art of preventing disease, prolonging life, and improving health through organized community efforts to (1) Improve environmental sanitation, (2) Control communicable diseases, (3) Conduct individual education in personal hygiene, (4) Organize medical services and care to achieve early diagnosis and preventive therapy, and (5) Foster social development to ensure a decent standard of living in the health sector.

The scope of public health includes (1) Promotion (optimal health improvement), which involves improving nutrition, maintaining personal health, maintaining environmental health, regular exercise, adequate rest, and recreation; (2) Prevention (disease prevention), which includes preventing disease through immunization of infants and children, pregnant women, and regular health checks to detect disease early; (3) Curative (treatment) efforts for those who are ill, to be treated appropriately and restored to health; and (4) Rehabilitative (health maintenance) measures for individuals who are recovering from illness.

In its development, herbal is a traditional medicine used over generations, made from herbal plant mixtures. Scientific research has developed it into standardized herbal medicine to test its quality, safety, and efficacy. It uses raw materials that meet specific requirements or standards, known as Fitofarmaka. The herbal preparation process involves drying the ingredients and/or grinding them into a fine powder, then boiling them in hot water over low heat for about 15–20 minutes using clay-based pots or pans such as teapots or pendil. Stainless steel or glass containers may also be used, but aluminum should be avoided.

Based on information from the health clinic and herbal tourism area and interviews with herbalists or experts and herbal practitioners, the types of herbal plants used in herbal include: (1) Ingredients from plant stems, such as Lime for antiseptic mouthwash, Castor for toothache, Brotowali for fever and deworming, Cinnamon for shortness of breath and cough, Lemongrass to warm the body, and Pomegranate for deworming; (2) Ingredients from leaves, such as Guava leaves for diarrhea, Alamanda leaves for gastric ulcers, Water spinach for insomnia, Cat's whiskers for urinary tract infections, Gotu kola for canker sores, Moringa leaves for anemia, Landep for

rheumatism, Papaya for fever and dysentery, Celery and Starfruit for high blood pressure, Betel leaves for canker sores and bad breath, Bay leaves for diabetes, Wera leaves for high fever, and Saga leaves for coughs and canker sores; (3) Ingredients from seeds, such as Mahogany for malaria, Jamblang for diabetes, Nutmeg for bloating, and Kedaung for stomach aches, as well as Noni fruit for hypertension; (4) Ingredients from tubers or rhizomes, such as Turmeric for gastric ulcers, Ginger for asthma, back pain, and colds, Temulawak for constipation, Imperata grass for rheumatism, Aromatic ginger for cough, and Lempuyang for diarrhea and appetite stimulation.

Cultivating traditional herbal medicine (herbal) plants is very important and beneficial in meeting human health needs. In the pharmaceutical world, medicinal plants are a source of raw materials for traditional and modern herbal medicines and, thus, must be preserved and patented. The public's return to a back-to-nature lifestyle by consuming traditional herbal medicine, coupled with the high cost of modern medicine, has led to increasing demand for traditional herbal products in Indonesia and abroad. (Dhami, & Dev Mishra, 2015; Elfahmi et al., 2014; Husain et al., 2021; Nurrosyidah, & Syakur, 2024; Sumarni et al., 2019; Tristanti et al., 2025).

4.3. Community Empowerment Model in the Utilization of Family Medicinal Plants to Realize a Green Economy Based on Local Wisdom

The development process of a community empowerment program as a medium of participatory communication for family medicinal plants can be initiated by the local government of Tegal Regency, specifically the Health Office and managers of jamu health clinics, as facilitators who hold the authority, policy, and budget.

Thus, the communities around the jamu health clinics and the jamu tourism area in Kalibakung Village, Balapulang District, can be the target or participants of the empowerment program, serving as producers and suppliers of the required medicinal plants. As a result, the community can utilize their home yards and gardens to meet the needs for family medicinal plants and generate additional income by supplying jamu ingredients to the jamu health clinics and jamu tourism areas. This is feasible because the community in and around the jamu health clinics and tourism areas in Kalibakung Village has significant potential, and their region is well-suited for cultivating herbal medicinal plants, with wide residential yards and plantations.

Efforts to improve food security and family nutrition can be pursued by utilizing the resources available, or that can be provided in the local environment. Such efforts can be implemented through the use of household-managed yards to grow commodities that fulfill daily needs. These efforts aim at community empowerment, particularly for housewives, who can help supplement household income and achieve food independence (Dewi et al., 2024;Pastiniasih et al., 2023; Rosales et al., 2023'; Sulaiman et al., 2023; Syarif et al., 2024; Vidyarini et al., 2021; Windiasih et al., 2023)

The program initiated and facilitated by the Health Office of Tegal Regency includes:
(1) Conducting intensive socialization of the vision, mission, and development program of the jamu health clinic and the jamu tourism area to community groups and students around the jamu tourism area, particularly in Kalibakung Village, Balapulang District, Tegal Regency, involving the local village government. The objective is to ensure that the community becomes aware of, understands, and is motivated to care about preserving and developing herbal medicinal plants or jamu to maintain family health and support the growth of the jamu health clinic and jamu tourism area. (2) Providing ongoing education to community groups, students, and the Kalibakung village government on the importance and benefits of cultivation, types of herbal plants, and the processing of herbal plants as family medicines, which can also have added value and generate income by supplying jamu raw materials and jamu products for tourists. The aim is to motivate the community further to cultivate herbal plants in their yards and gardens to meet their family's medicinal needs and earn extra income by supplying herbal materials to the jamu health clinic and jamu tourism area. (3) Conducting dialogues in community meetings to identify and analyze problems, potential, and interests together with community groups and the Kalibakung village government in developing herbal plants in home yards and plantations as well as the jamu production process. This will result in the formulation of empowerment programs tailored to the needs of community groups and a formal commitment and partnership agreement with the Health Office, jamu health clinic managers, and the jamu tourism area. Consequently, herbal plant products from home yards and group plantations can be accepted and purchased according to the standards set by the Health Office, jamu health clinics, and jamu tourism area.

The dialogue process in these community meetings between the Health Office, jamu health clinic managers, jamu tourism area managers, community groups, and the village government represents participatory planning and implementation of development as a form of empowerment in developing herbal plants for family medicinal use. The community and village government aim to preserve the culture of planting, processing, and consuming jamu as a hereditary tradition for maintaining family health and to continue its development as local wisdom.

Local wisdom is a worldview and knowledge system, along with various life strategies manifested in the activities of local communities in addressing various challenges in meeting their needs. In foreign terms, it is often conceptualized as "local wisdom," "local knowledge," or "local genius" (Chusmeru et al., 2023; Prasetiyo et al., 2022; Sulaiman et al., 2019)

Developing and implementing community empowerment programs for cultivating herbal plants for jamu, besides providing counseling, also includes training and mentoring on the selection and planting techniques of

herbal plants in yards and gardens, as well as processing herbs into jamu beverages. The program targets students and the younger generation from elementary to secondary and higher education levels.

It may also provide recommendations and result in policy support from the Education Office to incorporate this subject matter into the school curriculum as an additional and mandatory subject for students. Empowerment is also targeted at farmer groups and the general public to utilize yards and gardens to cultivate herbal plants for jamu production. This includes training on how to process herbal plants into jamu to maintain family health and supply jamu ingredients to health clinics in the jamu tourism area.

Forming herbal plant resilience empowerment groups from the community, supported by the Health Office and the village government, can start with farmer groups consisting of women farmer groups and youth or student groups. On a micro level, this focuses on utilizing home yards, while on a macro level, it extends to group plantations. The government can also facilitate this by providing land for community groups.

Community empowerment can be established using the Green Economy (Kasztelan, 2017; Sudjono, 2023; Sukhdev et al., 2015) approach, which emphasizes the sustainable use of biological resources, prioritizing developing bioresources to improve welfare while preserving ecology. The Green Economy indicators include (1) agricultural land, (2) food productivity, (3) prevention of land and agricultural degradation, (4) job opportunities in agriculture, and (5) policies promoting organic agriculture.

The local government promotes and marketing, particularly the Health Office, jamu health clinics, and jamu tourism managers, through roadshows to schools, universities, and community groups. Events such as herbal plant and jamu exhibitions, health checks and free treatments, and participation in various exhibitions are organized. Promotional and marketing efforts also utilize internet media such as social media platforms like Facebook, Instagram, websites, and blogs, involving and training youth groups as promotional actors who are knowledgeable, skilled, and agile in using social media in the digital era.

Several research findings have recommended the importance of empowerment as a medium of participatory communication hrough government initiatives and facilitation, particularly through education and empowerment programs targeted at community groups, including the younger generation and students, to foster motivation, awareness, willingness, and skills to utilize existing resource potential and opportunities. (Ife & Tesoriero, 2006; Kincaid & Figueroa, 2009; Handoko et al., 2024; Melkote, & Steeves, 2001; Muhtarom et al., 2020; Musakophas, & Polnigongit, 2017; Sulaiman & Ahmadi, 2020)

Implementing community empowerment programs to cultivate herbal medicinal plants can lead to economic and health resilience and self-reliance. Herbal medicinal plants can also be cultivated independently at home, commonly called apotek hidup. The family medicinal plant garden, or apotek hidup, involves cultivating medicinal plants in home yards or gardens as a preventive measure or self-treatment using available medicinal plants. Medicinal plants are defined as plants in which part or all of the plant is used as medicine or medicinal ingredients or preparations.

Examples of family medicinal plants (FMP) include Ginger, Aromatic Ginger (Kencur), Lempuyang, Galangal, Javanese Turmeric (Temulawak), Alang-alang, Starfruit (Blimbing Wuluh), Lime (Jeruk Mipis), Noni (Mengkudu), Cardamom, Guava, Betel Leaf (Sirih), Cat's Whiskers (Kumis Kucing), and Moringa (Daun Kelor).
Figure 2. shows the empowerment model as a medium of participatory communication for developing family medicinal plants to realize a Green Economy based on local wisdom.

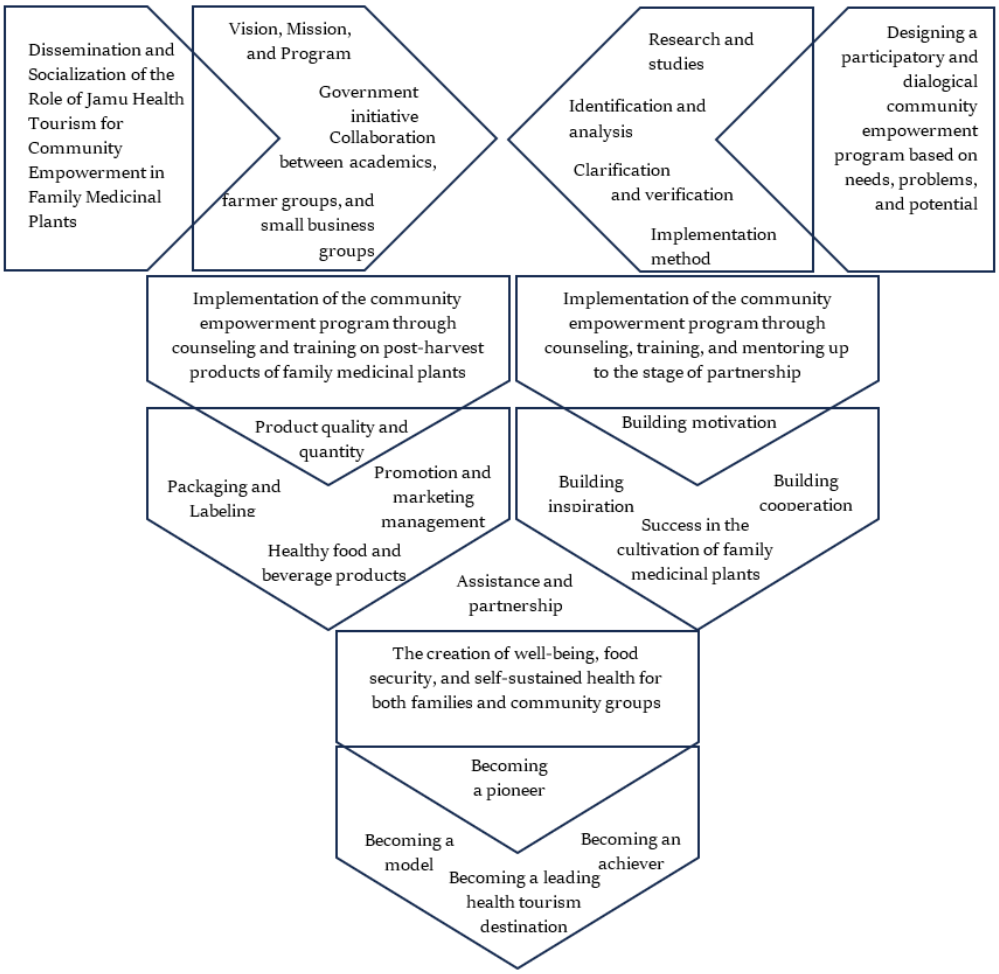

Figure 2: Empowerment Model as a Medium of Participatory Communication.

5. CONCLUSION

The Indonesian people have long had a cultural heritage of cultivating and processing herbal plants into jamu as traditional medicine and local wisdom to maintain family and community health. Herbal plants and jamu have recently regained popularity as alternative medicines and healthy beverages during the COVID-19 pandemic.

Communities are already accustomed to planting crops for daily needs as part of local food security, including herbal plants; thus, it is necessary to preserve and further develop them into family medicinal plants through empowerment programs.

Regional governments can design and implement community empowerment programs as a medium of participatory communication through the health office by involving village governments and community groups as partners in developing health clinics and jamu tourism in Kalibakung, Tegal Regency.

Community empowerment as a medium of participatory communication is implemented by identifying and analyzing problems, potential, and prospects for cultivating herbal plants in home yards as family medicinal plants, herbal plant galleries, and jamu raw material sources, especially for the health clinic and jamu tourism in Kalibakung.

As an initiator and facilitator, the regional government disseminates the vision, mission, and empowerment programs as a medium of participatory communication that already involve village governments and communities, thereby increasing motivation, awareness, and cohesion to grow herbal plants as family medicinal plants, jamu tourism galleries, and raw materials for health clinics.

Community empowerment as a medium of participatory communication is carried out by providing counseling, training, and assistance in cultivating herbal plants in home yards and plantations, followed by processing herbal plants into jamu as an alternative traditional medicine and for maintaining family health. The village's younger generation, students, and farmer groups become participants in the herbal plant cultivation and processing empowerment program.

The empowerment program as a medium of participatory communication involves other stakeholders such as activists and social institutions concerned with herbal plants, herbalists, and universities to serve as resource persons, facilitators, and mentors in education and training on herbal plant cultivation, particularly among the people of Kalibakung Village, to support the development of health clinics and jamu tourism.

The health office, health clinic administrators, and jamu tourism organizers need to conduct promotions by visiting schools and other institutions and participating in exhibitions in various regions. The village youth and

students are empowered to become promotion and marketing agents for the health clinic and jamu tourism through social media, so they can become more widely known to the public.

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REFERENCES

Abdel-Aziz, S.M., Aeron, A., & Kahil, T.A. (2016). Health Benefits and Possible Risks of Herbal Medicine. In: Garg, N., Abdel-Aziz, S., Aeron, A. (eds) *Microbes in Food and Health. Springer, Cham.* https://doi.org/10.1007/978-3-319-25277-3_6

Andrew, L., Borhani, N., Razali, I.H., Ali, J.K & Yacob, Y. (2025). Cooperatives and Women's Empowerment: Mapping Research Trends and Future Directions. *International Journal of Research and Innovation in Social Science (IJRISS), 9*(2), 2871-2889. https://dx.doi.org/10.47772/IJRISS.2025.9020222

Astuti, D., Kisworo, B., Olayinka Shogbesan, Y., & Herwina, W. (2024). The Effect of Local Community Empowerment on Digital Transformation in Cultural and Tourism Preservation. *JPPM (Jurnal Pendidikan Dan Pemberdayaan Masyarakat), 11*(1), 1–13. https://doi.org/10.21831/jppm.v11i1.72325

Cahyanti N.E. (2022) Relationship Level of Knowledge and Community Attitude to Selection of Traditional Medicine to Prevent Covid-19 In Central Jakarta. *Journal of World Science, 1(*4), 155–162. Available from https://doi.org/10.58344/jws.v1i4.26

Chusmeru, C., Sulaiman, A.I., Adi, T.N., Runtiko, A.G., Rofik, A., & Weningsih, S. (2023). Empowerment of Socio-Economic Institutions in Religious Tourism Villages Based on Local Wisdom. *International Journal of Business, Economics, and Social Development, 4*(4), 321-331. https://doi.org/10.46336/ijbesd.v4i4.490

Cross R, Woodall J, Warwick-Booth L. (2019). Empowerment: challenges in measurement. *Glob Health Promot. 26*(2),93-96. https://doi.org/ 10.1177/1757975917703304

Cropley, A.J. (2022). *Qualitative Research Methods: A Practice-Oriented Introduction.* University of Hamburg: Editura Intaglio

De Groote, H., Mugalavai, V., & Ferruzzi M, et al. (2020). Consumer Acceptance and Willingness to Pay for Instant Cereal Products with Food-to-Food Fortification in Eldoret, Kenya. *Food and Nutrition Bulletin, 41*(2), 224-243. https://doi.org/0.1177/0379572119876848

Dewi, P., Khomsan, A., & Cesilia Meti Dwiriani. (2024). The Household Food Security and Stunting of Under-Five Children in Indonesia: A Systematic Review. *Media Gizi Indonesia, 19*(1), 17–27. https://doi.org/10.20473/mgi.v19i1.17-27

Dhami, N., & Dev Mishra, A. (2015). Phytochemical variation: How to resolve the quality controversies of herbal medicinal products?. *Journal of Herbal Medicine, 5*(2), 118-127. https://doi.org/10.1016/j.hermed.2015.04.002

Dirgahayu, D., Karman., & Budhirianto, S. (2023). Potential of Indonesian indigenous community local wisdom for food security. IOP Conference Series: Earth and Environmental Science. *4th International Conference of Food Security and Sustainable Agriculture in the Tropics (FSSAT 4) 1230,*1-6. https://doi.org10.1088/1755-1315/1230/1/012023

Dushkova, D., & Ivlieva, O. (2024). Empowering Communities to Act for a Change: A Review of the Community Empowerment Programs towards Sustainability and Resilience. *Sustainability, 16*(19), 1-25. https://doi.org/10.3390/su16198700

Elfahmi., Herman, J., Woerdenbag., & Kayser, O. (2014). Jamu: Indonesian traditional herbal medicine towards rational phytopharmacological use. *Journal of Herbal Medicine, 4*(2), 51-73. https://doi.org/10.1016/j.hermed.2014.01.002

Handoko, W., Sulaiman, A.I., Sugito., & Sabiq, A. (2024). Empowering Former Women Migrant Workers: Enhancing Socio-Economic Opportunities and Inclusion for Sustainable Development. *Academic Journal of Interdisciplinary Studies, 13*(1), 199-210. https://doi.org/10.36941/ajis-2024-0015

Herawati, J., Thohiron, M., Toheri., & Dhinata, Y.P. (2024) Instant Organoleptic Test of Ginger from Three Ginger Varieties (Zingiber officinale). *Journal of Applied Plant Technology (JAPT), 3*(1), 66-77. https://doi.org/10.30742/5pcdd809

Husain, F., Yuniati, E., Arsi, A.A., Wicaksono, H., & Wahidah, B.F. (2021). Ethnobotanical knowledge on jamu herbal drink among consumer in Semarang. IOP Conference Series: Earth and Environmental Science. *The 11th International Conference on Global Resource Conservation. East Java, Indonesia. 743*, 1-7. https://doi.org/10.1088/1755-1315/743/1/012019

Ife, J., & Tesoriero, F. (2006). *Community Development: Community Based Alternatives in an Age of Globalization.* Australia: Pearson Education

JatnikaD. C., BurhanudinM., Budiarti SantosoM., & SeptiyantiS. P. (2024). Empowerment Theory and Digital Village: Insights from West Java's Digital Village Programme. *The Journal of Indonesia Sustainable Development Planning, 5*(3), 227-245. https://doi.org/10.46456/jisdep.v5i3.623

Kasztelan, A. (2017). Green Growth, Green Economy and Sustainable Development: Terminological and Relational Discourse. *Prague Economic Papers, 26*(4), 487-499. https://doi.org/10.18267/j.pep.626

Kijjoa Suryadi S. (2024). Public Preferences for Traditional Chinese Medicine and Conventional Treatment for Low Back Pain in Salatiga District, Sambas Regency. *Journal of World Science, 3*(12), 1679–1689. https://doi.org/10.58344/jws.v3i12.1253

Kincaid, D.L., & Figueroa, M.E. (2009). Communication for Participatory Development Dialogue, Action, and Change. In L.R. Frey & K.N. Cissna (Ed.). *Routledge Handbook of Applied Communication Research.* New York & London: Routledge

Lubis, R., Yusrizal, Y., Syahriza, R., & Batubara, M. (2023). Food Security Strategy Based on Local Wisdom in Deli Serdang District. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE), 6*(3), 2397-2427. https://doi.org/10.31538/iijse.v6i3.3966

Lukoff, K., & Zhang, X. (2025). *Community Empowerment through Location-Based AR: The Thámien Ohlone AR Tour. Human-Computer Interaction (cs.HC).* New York, USA: Cornell University

Masango, CA., & Mbarika V.W. (2021). Indigenous knowledge application in increasing food security: A measure to consider?. *Journal of African Thought, 14*(1), 1-10. https://doi.org/10.4102/ink.v14i1.20

Mashigo, M., Risenga, I., & Dukhan S. (2024). First-year Health Sciences Students' Perspectives on Indigenous Knowledge and Medical Practices. *African Journal of Research in Mathematics, Science and Technology Education*, *28*(3), 422–436. https://doi.org/10.1080/18117295.2024.2424697

Matsekoleng, T.K., Mapotse, T.A., & Gumbo, M.T. (2022). The role of indigenous games in education: a technology and environmental education perspective. *Diaspora, Indigenous, and Minority Education*, *18*(1), 68–82. https://doi.org/10.1080/15595692.2022.2160436

Melkote, S.R., dan Steeves, H.L. (2001). *Communication for Development in the Third World: Theory and Practice for Empowerment.* UK: Sage.

McPhail, T.L. (2009). *Development Communication: Reframing the Role of The Media.* Malden, Oxford: Blackwell Publishing Ltd.

Muhtarom, A., Djuharyanto, T., & Sulaiman, A.I. (2021). Farmers Empowerment on Food Security Program in Enggal Maju Farmers Group Association of Kebumen Regency. *Agrisocionomics: Jurnal Sosial Ekonomi Pertanian*, *5*(1), 110-125. https://doi.org/10.14710/agrisocionomics.v5i1.8415

Nair, K.S., & White, S.A. (2004). Participatory Development Communication as Cultural Renewal. S.A. White, K.S. Nair., & J. Ascroft. (Eds). *Participatory Communitaion: Working for Change and Development.* New Delhi, Thousand Oaks, London: Sage Publications

Ndlovu, E.C., & Gumbo, M.T. (2024) Decolonising Technology Education: Integrating Indigenous Knowledge for Sustainable Development in Electrical and Mechanical Systems and Control. *African Journal of Research in Mathematics, Science and Technology Education*, *28*(3), 362–372. https://doi.org/10.1080/18117295.2024.2381984

Nurrosyidah, I. H & Syakur, A. (2024). Challenges And Prospects for Implementing Halal Principles In The Jamu Industry In Indonesia. *Journal of Halal Product and Research*, *7*(1), 104-112. https://dx.doi.org/10.192501 /jhpr.vol.7-issue.1.104-112

Orjuela-Palacio, J. M., & Lanari, M. C. (2016). The impact of moisture sorption properties on the color and bioactives concentrations of black currant-yerba mate instant drinks. *Journal of Berry Research*, *6*(3), 303-319. https://doi.org/10.3233/JBR-160131

Pastiniasih, L. Sumantra, K., Pandawani, N.P., & Yastika, P.E. (2023). Analysis of the Potential of Rice and Corn in Supporting Food Availability. *Philipp Agric Scientist. 106(*4), 380-388. https://doi.org/10.62550/BV017023

Prasetiyo, P., Sulaiman, A. I., & Prastyanti, S. (2022). Educational Communication in Learning Batik as Preservation of Local Wisdom Products for the Young Generation. *Technium Education and Humanities*, *3*(1), 1–15. https://doi.org/10.47577/teh.v3i1.7615

Prastyanti, S., Wulandari, R., & Sulaiman, A.I. (2024). Estrategia de comunicación participativa para el desarrollo de un programa de agricultura urbana en Yogyakarta, Indonesia. *Palabra Clave*, *27*(4), 1-34. https://doi.org/10.5294/pacla.2024.27.4.11

Qayimah, N., Sumarwati, S., & Suryanto, E. (2024). Local Wisdom about Food Sustainment in the Bima Community. *Journal of World Science*, *3*(10),1384–1401. https://doi.org/10.58344/jws.v3i10.1185

Rahayu, W.P & Septiani, I. (2020). The Role of Food Science and Technology for Indonesian Indigenous Food Product Development to Achieve Food Security. *Indonesian Food and Nutrition Progress*, *17(*1), 12.15. https://doi.org/10.22146/ifnp.53294

Rahman E, A. (2023). Cochrane T. Pedagogy and Indigenous knowing and learning. *Oxford Review of Education*, *49*(4), 429–445. https://doi.org/10.1080/03054985.2023.2228640

Rosales, A., Young, S., Mendez, T., Shelden, K., & Holdaway, M. (2023). Collaborative Strategies to Improve Nutrition Security and Education: Lessons Learned During a Pandemic. *Journal of School Health*, *93*(2), 148-152. https://doi.org/10.1111/josh.13247

Sadaresruwati., Suryaningsih, D.R., & Haryanta, D. (2023). Strategies to Uphold Food Sovereignty in Indonesia. *Journal of Applied Plant Technology (JAPT)*, *2*(2), 86-99. https://doi.org/10.30742/japt.v2i2.116

Servaes, J. (2008). *Communication for Development and Social Change.* India, UK, Singapore: SAGE Publications

Stone, M. J., Soulard, J., Migacz, S., & Wolf, E. (2017). Elements of Memorable Food, Drink, and Culinary Tourism Experiences. *Journal of Travel Research*, *57*(8), 1121-1132. https://doi.org/10.1177/0047287517729758

Sudjono. (2023). Green Economic Transformation: Opportunities and Challenges for Sustainable Development. *International Journal of Science and Society*, *5*(5), 825-835. https://doi.org/10.54783/ijsoc.v5i5.947

Sukhdev, P., Varma, K., Bassi, A.M., & Allen E., & Mumbunan, S. (2015). *Indonesia Green Economy Model (I-GEM).* LECB Indonesia: United Nations Development Programme (UNDP)

Sulaiman, A.I., & Ahmadi, D. (2020). Empowerment Communication in an Islamic Boarding School as a Medium of Harmonization. *Malaysian Journal of Communication*, *36*(4), 323-338. https://doi.org/10.17576/JKMJC-2020-3604-20

Sulaiman, A.I., Chusmeru, C., Kuncoro, B. (2019). The Educational Tourism (Edutourism) Development Through Community Empowerment Based on Local Wisdom and Food Security. *International Educational Research*, *2*(3), 1-14. Available from https://doi.org/10.30560/ier.v2n3p1

Sulaiman, A.I., Prastyanti, S., Adi, T.A., Chusmeru, C., Novianti, W., Windiasih, R., & Weningsih, S. (2023). Stakeholder Communication and Its Impact on Participatory Development Planning in Rural Areas. *International Journal of Sustainable Development and Planning*, *18*(8), 2513-2521. https://doi.org/10.18280/ijsdp.180822

Sulaiman, A. I., Rosyadi, S., Handoko, W., Masrukin, M., Putri, D. D., Wijayanti, I. K. E., & Faozanudin, M. (2024). The Importance of Participatory Communication in Development Planning Deliberations for Agritourism Village Enhancement. *Journal of Intercultural Communication*, *24*(1), 144–160. https://doi.org/10.36923/jicc.v24i1.246

Sumarni, W., Sudarmin, S., & Sumarti, S.S. (2019). The scientification of jamu: a study of Indonesian's traditional medicine. *Journal of Physics: Conference Series. 1321*, 1-7. https://doi.org/10.1088/1742-6596/1321/3/032057

Sumngern, C., Azeredo, Z., Subgranon, R., Matos, E. (2011). The perception of the benefits of herbal medicine consumption among the Thai elderly. *The Journal of nutrition, health and aging*, *15*(1), 59-63. https://doi.org/10.1007/s12603-011-0013-9

Syarif, F.F. & Gunawan, S. (2023) The Students Knowledge on The Benefits of Traditional Medicine for Health. *Science Midwifery*, *10*(6), 4770-4774. https://doi.org/10.35335/midwifery.v10i6.1103.

Syarif, I., Lubis, S., Nurhayati, A., Muntasir, & Mardiana, N. A. (2024). The Relationship Between Family Food Security and The Nutritional Status of Toddlers in Tamalate Sub-District, Makassar City. *Jurnal Penelitian Pendidikan IPA*, *10*(5), 2642–2647. https://doi.org/10.29303/jppipa.v10i5.6184

Tristanti., Sujarwo., Santi, F. U., & Hermawan, Y. (2025). The Chemical Science of Javanese Herbal Medicine (Jamu Jawa) as a Tourism

Potential in Karangrejek, Wonosari, Yogyakarta. *Jurnal Penelitian Pendidikan IPA*, *11*(1), 183–187. https://doi.org/10.29303/jppipa.v11i1.9690

Tufte, T., & Mefalopulos P. (2009). *Participatory Communication.* Washington D.C, USA: The World Bank

Vaughn, L. M., & Jacquez, F. (2020). Participatory Research Methods – Choice Points in the Research Process. *Journal of Participatory Research Methods*, *1*(1), 1-13. https://doi.org/10.35844/001c.13244

Vidyarini, A., Martianto, D., & Syarief, H. (2021). Evaluation of Food and Nutrition Security Level at Provincial Level Based on Outcome Indicators in Indonesia. *Indonesian Journal of Nutrition and Food*, *16*(1), 1-10 https://doi.org/10.25182/jgp.2021.16.1.1-10

Wahdy, A.A., Maksum, I.R., & Darmajanti, L. (2017). The Challenges of Enhancing Participation in Urban Community Empower-ment (The Case of Community Empowerment Program for Villages (PPMK) Implementation in 4 Villages in Jakarta). *JKAP (Jurnal Kebijakan dan Administrasi Publik*, *21*(2), 99-116. https://doi.org/10.22146/jkap.25061

Widiastuti, A., Mulyani, E., Riani, L. P., Saputri, A., & Samsudin, N. (2024). Community Empowerment Strategy Based on Social Entrepreneurship Values Through Village-Owned Enterprise in Indonesia: The Contribution for Social Studies Education. *JIPSINDO (Jurnal Pendidikan Ilmu Pengetahuan Sosial Indonesia)*, *11*(2), 194–213. https://doi.org/10.21831/jipsindo.v11i2.76897

Windiasih, R., Sari, L. K., Prastyanti, S., Sulaiman, A. I., & Sugito, T. (2023). Women Farmers Group Participation in Empowering Local Food Security. *International Journal of Community Service*, *3*(3), 186–194. https://doi.org/10.51601/ijcs.v3i3.200

Wood, L. (2020) Par*ticipatory Action Learning and Action Research Theory, Practice and Process.* UK: Routledge

Yohani S, Kirova A, Georgis R, Gokiert R, Taylor M and Tahir S (2023) Creating community learning for empowerment groups: an innovative model for participatory research partnerships with refugee communities. *Front. Educ*, *8*, 112. https://doi.org/10.3389/feduc.2023.1164485