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## STRATEGIES' FORMULATION FOR EMPOWERING TENGGER TRIBE WOMEN FARMERS IN PROBOLINGGO REGENCY

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#### ABSTRACT

The 5th Sustainable Development Goals (SDG's) is about gender issues, including the role of women in political and economic problems. In the financial sector, women have a role in agriculture, but there are still many inequalities and fairness in gender empowerment. So, a gender-oriented women's empowerment program is needed to narrow gender gaps and injustice in the potato sub-sector of agriculture. This research aims to analyze the role of Tengger Tribe women farmers based on Gender Framework Analysis (GFA) and formulate a strategy for empowering Tengger Tribe women farmers. The research location was determined purposively, namely the Tengger Tribe community in Sukapura Village, Sukapura District, Probolinggo Regency. The respondents used were 78 samples from a population of 78 women rice farmers in Sukapura Village, so we used the census method. Data collection methods are observation, in-depth interviews and questionnaires. The analytical method used to answer the first objective is qualitative descriptive; the second objective is gender analysis, which will analyze the workload on potato production; the second is social capital analysis; and the fourth is SWOT analysis. The results of the strategy analysis from this research are: (1) Establishing a group of women farmers in Sukapura Village with facilitation by relevant stakeholders, (2)

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Training and assistance in cultivating food crops by the characteristics of Sukapura Village, (3) Holding a women's farming school for women to increase the knowledge of women farmers. The suggestion is that various aspects be considered in the policy implications for this empowerment strategy for women farmers, including innovations that can be beneficial for women farmers in Sukapura Village and mechanisms for implementing and financing empowerment activities.

Keywords: empowerment strategies, gender, SDGs, woman farmers

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#### INTRODUCTION

Sustainable Development Goals (SDGs) are a global and national commitment to improve community welfare with 17 international goals and targets by 2030 (Bappenas, 2023). The 5th target is Gender Equality. The role of improving the economy in the agricultural sector is carried out by men, and women also have a large role in the farm sector (Mangowal, 207). Statistical data for 2018 shows that in Indonesia, in the agricultural sub-sector of food crop cultivation, 78.91% was carried out by male farmers and 21.09% was carried out by female farmers (Badan Pusat Statistik, 2018) whereas in 2023, men carry out the agricultural sub-sector female farmers carry out 86.41% of food crops and 13.59% (Badan Pusat Statistik, 2023). Based on this data, women's role in the agricultural sector from 2018 to 2023 is declining by 7.5%. This reflects that in Indonesia the role and participation of women in the agricultural sector is low and has even decreased. According to Fauziah (2024), in the agricultural sector there are still many injustices and gender gaps. The lack of women's participation causes gender inequality in the agricultural sector (Central Statistics Agency, 2023).

Apart from optimizing biological resources, agricultural development also requires optimizing human resources (Houshyar et al., 2018). According to Suprihatin & Dartiara (2021), gender equality is stated in point 5 of the Village SDGs, which clearly states the need for gender justice in various sectors. However, the problem of injustice and gender gaps in the empowerment of women farmers occurs among Tengger Tribe women farmers in Probolinggo. The philosophy of life of the Tengger Tribe community, which tends to be simple and in harmony with nature, can be a strong foundation for sustainable empowerment programs. so that empowerment strategies can be communitybased by utilizing this local wisdom as the core of training programs, providing access to technology, and strengthening women's economy. This is supported by the results of the Probolinggo Gender Development Index (IPG), namely 85.39% (Badan Pusat Statistik, 2022), where the closer the IPG value is to 100, the higher the development gap. For generations, the Tengger tribe has been involved in agriculture supported by natural conditions, with the main commodity being vegetable crops such as potatoes (Wulansari, 2023). Women, as the main actors in household activities, are also involved in potato farming activities. From interviews and field studies, female Tengger tribe farmers in Sukapura Village felt that there was a gap and injustice between male and female farmers. The problems experienced by women farmers are not having access to information, no control in making decisions about potato cultivation, not being given the opportunity to express opinions, no participation in farmer forums, no institutional access and the use of agricultural technology that is not friendly to women.

Gaps and injustices in gender empowerment in the agricultural sector can be resolved using a gender approach (Rumagit, 2019). In the case of Tengger Tribe female farmers in Sukapura Village, based on the results of interviews and field studies, these Tengger Tribe female farmers did not have the opportunity to take part in counseling and empowerment activities. This results in these women farmers not having access to information and resources.

The Tengger Tribe people who live in Sukapura Village, Sukapura District, Probolinggo Regency have culture and traditions that are identical with sociocultural meaning. Based on the results of the description above, it is necessary to formulate an empowerment strategy for women farmers that is in accordance with the conditions, characteristics, social and cultural characteristics of the Tengger Tribe. For this reason, the aim of the research is to analyze the role of Tengger tribe women farmers in potato cultivation based on Gender Framework Analysis (GFA), and to formulate a strategy for empowering Tengger tribe women farmers.

This research will use a gender mainstreaming approach as a strategy taken to achieve gender equality through planning, implementation, monitoring and evaluation of all empowerment program policies (Morgan et al., 2016). The reason is that the sustainability of program implementation is dependent on the active participation of members which influenced by satisfaction with the role of the group (Alfayanti et al.,2021). Gender analysis of Tengger tribe women farmers is very important for decision makers and planning in the agricultural sector, because the specific aim of this research is to be able to formulate a gender-oriented women's empowerment program so that it can narrow gender gaps and injustice. The gender analysis used is Gender Framework Analysis (GFA), which is a gender analysis framework and gender empowerment planning strategy at the initial stage. (Walter & Wannitikul, 2022). Environmental impacts of rice production analyzed via social capital development in Iranian. Based on the assessment of the socio-economic status and life cycle of the community, several types of social capital groups are suggested to achieve cooperative rice production with lower environmental burden. (Houshyar, 2018). Another research was conducted by Aziz et al. (2018). They concluded that trust, networks and social norms, which are part of a farmer's social capital by one unit, would increase agricultural productivity by one unit and vice versa. The significance of social capital in improving farm productivity and food security in Southwestern Nigeria is shown by Kehinde (2021). These factors contribute to improve cocoa farming households' access to productive resources and thereby achieve financial leverage which will further increase agricultural productivity. In case in UK, concluded that there is high levels of bonding capital and low levels of bridging and linking capital.

Based on previous research, the similarity of previous research is using gender framework analysis. This research also uses the same analysis. However, in previous research, no research has used gender framework analysis based on socio-economic conditions. The state of the art of this research is to formulate a strategy for empowering Tengger Tribe women farmers using a Social Capital approach that is in accordance with gender-oriented empowerment using gender analysis and is based on socio-economic conditions and still carries the knowledge of the local wisdom of the Tengger Tribe Community.

### **RESEARCH METHOD**

#### **Problem Identification and Formulation**

This identification stage is carried out by identifying and formulating existing problems. The problem in this research is that there is no gender equality in the Tengger Tribe Community in Sukapura Village between male and female farmers. Based on the results of interviews and field observations, men are still the dominant player in potato cultivation.

#### **Determining Research Objectives**

Determining research objectives is carried out after identifying and formulating the problem. So by determining the research objectives, it will provide direction for implementing further research.

#### Method for Determining Research Locations

In this research, the location determination method was purposive because Probolinggi Regency has a Gender Development Index (IPG) of 85.39%, where the closer the IPG value is to 100, the higher the development gap. Sukapura Village is located in the Tengger area, which has unique cultural,

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social, and geographical values. Its strategic location makes it representative for studying the dynamics of the Tengger Tribe society more specifically. The village is mostly populated by farmers who rely on traditional farming techniques. This condition is relevant to explore the need for innovation while introducing empowerment strategies that remain in accordance with local wisdom. The Tengger Tribe community in Sukapura Village was chosen because it is 59 km from the Probolinggo Regency Government Center, this indicates that empowerment in the area is not optimal and is in accordance with the results of observations and interviews conducted by researchers.

### **Literature Review**

In this research, a literature study was carried out to obtain research topics and information by searching for information from various sources, books, scientific journals and research reports.

## **Field Study**

In this research, a field study was carried out to find out the facts in the field according to the topic to be researched. This field study was carried out by means of field observations and in-depth interviews with the Head of Sukapura Village and the Head of the Farmer's Group.

## **Data Collection**

The data collection technique that will be carried out in this research is by using field studies on the research object. Data collection methods are as follows:

1. Observation Method

This observation method is carried out by directly observing the research object, namely using the Gender Framework Analysis (GFA) approach. Which consists of (1) Productive work activities, (2) Reproductive work activities, (3) Activities towards resources, (4) Access to resources, (5) Control over resources and (6) Benefits and impacts of resources. (Benhura & Venganai, 2022)

2. Questionnaire

This method is carried out by giving a series of questions that have been prepared for respondents to answer (Manto et al., 2023). Respondents for this research will be selected using a census method from the total population of 78 female potato cultivating farmers in Sukapura Village. This method is combined with quantitative and qualitative methods, such as indepth interviews or focus group discussions (FGDs), to gain a richer understanding.

3. In-depth Interview Method

The in-depth interview method is carried out with key respondents who are considered able to provide information to achieve the research objectives (Pribadi et al., 2021). The key respondents in this research were the Head of the Farmer's Group, the Village Head, the Head of the Probolinggo Regency Agricultural Service and the Agricultural Extension Officer who were selected purposively.

## Data Analysis

The analysis that will be used in this research is divided into 3 according to the research objectives:

1. Socio-economic Condition

According to Soekanto (2012), there are 4 socio-economic indicators to assess female farmers: (1) age, (2) education level, (3) family members and (4) income.

2. Gender Framework Analysis (GFA)

This analysis is used to answer the second objective. Gender analysis Gender Framework Analysis (GFA). will determine the role of women and men in potato cultivation. According to Evekine & Bacchi (2020), the indicators are the profile of productive, reproductive, socio-cultural and community activities, the profile of access and control as well as analysis of factors that influence access and control activities.

3. SWOT Analysis

The SWOT analysis in the research will analyze the strengths, weaknesses, opportunities and threats used to formulate an effective empowerment strategy for women potato cultivation farmers by adapting to gender mainstreaming and having a gender perspective (Kurniasari & Dianto, 2021)

# **RESULT AND DISCUSSION**

### **Socio-Economic Conditions**

In this study, the census method was used with 78 respondents. In the socio-economic discussion, the researcher will conduct interviews with 78 female potato farmers in Sukapura Village. This sub-chapter will explain the socio-economic conditions of female potato farmers in Sukapura Village, Sukapura District, Probolinggo Regency. According to Soekanto (2012), there are 4 socio-economic indicators to assess female farmers: (1) age, (2) education level, (3) family members and (4) income. The socio-economic conditions of female potato

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farmers in Sukapura Village, Sukapura District, Probolinggo Regency can be explained as follows:

## a) Age of Female Farmers in Sukapura Village

Age is the first indicator to determine the socio-economic conditions of female farmers. Table 1 shows the age of female farmers in Sukapura Village who were interviewed

No	Age (Year)	Numbers (People)	Percentage (%)
1	53-55	18	23.08
2	56-58	36	46.15
3	59-61	24	30.77
	Total	78	100.00

Table 1. Age of Female Farmers in Sukapura Village

Table 1. shows that the age of Female Farmers in Sukapura Village in the 53-55 age group is 23.08%, in the 56-58 age group it is 46.15% and in the 59-61 age group it is 37.50%. The number of female farmers in Sukapura Village, which is the largest age category, is 56-58 years, with a percentage of 46.15%. These data show that most female farmers in Sukapura Village are in a relatively old age group, dominated by the 56-58 year old group. This can impact agricultural productivity, family economic welfare, and workforce regeneration. This shows that most female farmers are in their late years, which can have various impacts on the socio-economic conditions in the village. The majority of female farmers are in a fairly advanced age range. This could be a sign that the regeneration of female farmers is still low, because not many younger farmers are involved in the agricultural sector. If there is no regeneration, in the next few years the number of female farmers could decrease drastically, which could impact agricultural production.

b) Last Education of Female Farmers in Sukapura Village

This level of education will measure the current level of education of the Female Farmers in Sukapura Village who were surveyed. Table 2 below shows the level of education of the female farmers interviewed.

No	Last Education	Numbers (People)	Percentage (%)
1	Elementary School	24	30.77
2	Junior High School	34	43.59
3	Senior High School	20	25.64
	Total	78	100.00

 Table 2.
 Last Education of Female Farmers in Sukapura Village

Table 2. explains that Female Farmers in Sukapura Village who have Elementary School Education are 30.77%, Junior High School Education is 43.59%, Female Farmers in Sukapura Village with a final education of Senior High School (SMA) contribute 25.64%. The education level of female farmers in Sukapura Village is still low to medium. This has an impact on agricultural skills, productivity, economic welfare, and future farmer regeneration. If there is no increase in access to education and training, female farmers may have difficulty adapting to economic and technological changes.

c) Number of Family Members in Female Farmers in Sukapura Village

Table 3 will show the number of family members in Female Farmers in Sukapura Village

No	Number of Family Members (people)	Number of People	Percentage (%)
1	1	20	22.64
2	2	22	28.21
3	3	15	19.23
4	4	21	26.92
	Total	78	100.00

Table 3. Number of Family Members in Female Farmers in Sukapura Village

Table 3. shows the number of female farmer members in Sukapura. The largest number of family members is 2 people, which is 28.21%. The majority of female farmers in Sukapura Village have small families (only 2 family members). This condition can reduce the economic burden, but it can also limit the workforce in the household and increase economic risks if there is only one breadwinner. The economic resilience of the family is very dependent on the female farmers themselves, so strategies are needed to improve their welfare.

### d) Income of Female Farmers in Sukapura Village

Table 4. shows the amount of income of Female Farmers in Sukapura Village per month.

No.	Income (IDR/Month)	Number of People	Percentage (%)
1	1,000,000 - 2,000,000	39	50.00
2	2,100,000 - 4,000,000	29	37.18
3	> 4,000,000	10	12.82
	Total	78	100.00

Table 4. Income of Female Farmers in Sukapura Village

Table 4. shows the income of Sukapura Village Women Farmers. From these data, it can be seen that the highest income of Sukapura Village Women Farmers is the income of Sukapura Village Women Farmers per month with an amount of IDR 1,000,000-2,000,000 of 50%. The majority of female farmers in Sukapura Village have an income of IDR 1,000,000 - IDR 2,000,000 per month, which is still relatively low and vulnerable to economic changes. This income is sufficient for basic needs, but is limited to investment in agriculture, health, and children's education. If there is no effort to increase income, female farmers can remain in a stagnant economic cycle.

Sukapura Village, located at the foot of Mount Bromo, is known as one of the potato-producing areas in Probolinggo Regency. The socio-economic life of farmers, including female farmers, provides a diverse picture of the dynamics of household economy and social conditions in this area.

Looking at the average age of female potato farmers, agricultural productivity could be at risk of declining because the majority of the workforce is approaching old age. Farmer regeneration is very low, which could lead to a labor crisis in the agricultural sector in the next few years. Family economic resilience is still vulnerable, especially if there are no other sources of income outside the agricultural sector. Access to social security, health, and economic empowerment needs to be improved, especially for elderly female farmers. So, to increase the productivity of female farmers in Sukapura, it is necessary such as (1) agricultural mechanization to ease the workload of elderly female farmers, (2) Farmer regeneration program, so that the younger generation is attracted back to the agricultural sector, (3) Economic diversification by providing additional skills training for female farmers, get better economic protection, (5) Women's economic empowerment in the agricultural sector, including access to credit, business training, and more efficient marketing of agricultural products. If these steps are implemented, the agricultural sector in Sukapura Village can be more sustainable, with more prosperous and productive female farmers

Based on low level of female farmers' education, as presented in Table 2, this condition can have an impact on agricultural productivity, family economic welfare, and the regeneration of the agricultural workforce. In order for the agricultural sector to remain sustainable and for female farmers to improve their welfare, several steps can be taken, including (1) Special education and training programs for female farmers, such as financial literacy training, the use of agricultural technology, and agricultural business management. (2) Increasing access to information through farmer groups or assistance from agricultural technology. (3) Economic diversification, such as developing agricultural-based side businesses (for example, processing agricultural products or marketing agricultural products digitally). (4) Encouraging the younger generation to get

involved in innovation-based agriculture so that agriculture is not just a last resort for them. If there are no efforts to improve the capacity and skills of female farmers, then in the long term there could be stagnation in village agriculture, low competitiveness of farmers in the market, and increased dependence on less productive traditional farming methods.

The average number of family members of female potato farmers in Sukapura Village is 1-4 people (see Table 3). This family size is quite standard in rural areas and often influences household strategies in dividing tasks between farming and other family needs. In this study, other family members, including husbands and children, also helped with farming work. The majority of female farmers in Sukapura Village have small families (only two family members). This condition can reduce the economic burden, but it can also limit the workforce in the household and increase economic risks if there is only one breadwinner. The economic resilience of the family is very dependent on the female farmers themselves, so strategies are needed to improve their welfare. So to increase the productivity of female farmers in Sukapura, it is necessary such as (1) Economic empowerment programs for female farmers, so that they can have additional income outside the agricultural sector, (2) Financial literacy training and access to capital, to ensure that female farmers can manage family finances better, (3)Agricultural technology support, so that productivity remains high even though the workforce in the household is limited. (4) Social and health security, to protect female farmers from unexpected economic risks. If these steps are taken, then the families of female farmers in Sukapura Village can be more economically independent and better prepared to face challenges in the future

By examining Table 4, the income of female potato farmers varies depending on the size of land they own, the quality of the harvest, and the selling price of the potatoes. Their average monthly income is estimated to range between IDR 1 million and IDR 4 million, depending on the harvest of a particular season. Dependence on market prices is a major challenge. Potato prices often fluctuate, making farmers' incomes unstable. High production costs, such as for fertilizers, pesticides, and labor, also reduce profit margins. Some female farmers even engage in other jobs to supplement their income, such as selling other vegetables or offering services around the Bromo tourist area.

The socio-economic conditions of female potato farmers in Sukapura Village reflect a complex reality where education level, family size, and income mutually influence their lives. Despite their limitations, they demonstrate resilience and adaptability when facing challenges in the social and economic fields. Increasing access to education and modern agricultural technology can be an important step to improving their welfare. In addition, government support in the form of potato price stabilization and production subsidies can help increase the income of female farmers in this area.

### **Gender Analysis Results**

Traditional cultures often define gender roles by confining women to the domestic sector, while men are given control over productive resources, such as land or means of production. In Tengger society, although women are involved in economic activities (agriculture, distribution of agricultural products), important resource management decisions often remain in men's hands. So this research uses the Gender Framework Analysis (GFA) approach. According to Faraz (2013), this Gender Framework Analysis (GFA) analysis consists of (1) productive work activities, (2) reproductive work activities, (3) activities towards resources, (4) access to resources, (5) control over resources and (6) benefits and resource impacts.

a) Productive Work Activities

The first discussion of GFA analysis is productive work activities. Productive work activities among female farmer respondents in Sukapura Village. According to Husodo et al., (2020), cultivation productivity work activities consist of the participation of women farmers in potato cultivation activities such as (1) planting, (2) land management, (3) essential fertilization, (4) stitching, (5) fertilizing, (6) dumping, (7) weeding, (8) Pesticide dan Disease Control, (9) Harvest, (10) Transport. In this analysis of productive work activities, those involved are Mr, Mrs, Mr and Mrs, and Farm Workers. Table 5. will show productive work activities.

No	Category	Father (%)	Mother (%)	Laborer (%)
1	Planting	20.00	20.00	60.00
2	Land Management	0.00	0.00	100.00
3	Basic Fertilization	30.00	0.00	70.00
4	Stitching	45.00	55.00	0.00
5	Fertilization	70.00	30.00	0.00
6	Dumping	25.00	0.00	75.00
7	Weeding	40.00	60.00	0.00
8	Pest and Disease Control	100.00	0.00	0.00
9	Harvest	11.67	43.33	45.00
10	Transport	100.00	0.00	0.00

Table 5. Productive Work Activities

Table 5 shows that 20% of potato planting activities are carried out by fathers, 20% by mothers, and 60% by workers. In this category, fathers or male farmers have a high share in potato planting activities. This is because male farmers understand more about planting potatoes suitable for the current planting season. This activity is, then, followed by Potato Land Cultivation

activity. In this activity, father has a percentage of 0%, Mother has 0%, and Farmer has a percentage of 100%. The potato land processing activity that has the largest contribution is farm labor at 100%. In this potato land processing activity, workers have the highest role because this work is included in the heavy category, so it can be done by male workers.

The third category, namely basic potato fertilization activities, are carried out by fathers or male farmers at 30%, mothers or female farmers at 0% and carried out by farm workers at 70%. The basic potato fertilization activity requires a very large workforce so that Mr and the male Farm Laborer are the ones implementing this activity. This activity id followed by embroidery. Embroidery is an activity that checks plants that are not growing so that they can be replaced with new seeds. In this embroidery activity, 45% is carried out by fathers or male farmers, 55% is carried out by mothers or female farmers and 0% is carried out by agricultural workers. This activity is carried out by the family itself along with caring for the potato plants. Farmers will come to the land to inspect the land and carry out embroidery, so the embroidery does not require farm labourers.

Potato fertilization activities are the fifth category of productive work activities. In this category, 70% of potato fertilization is carried out by fathers or male farmers, 30% is carried out by mothers or female farmers, and 0% is carried out by workers. In this activity, male farmers have the highest role because for fertilization activities, male farmers are the ones who receive direction from farmer groups or extension workers regarding the level of fertilizer or type of fertilizer to be given. The following category is hilling activities in potato plants. Topping of potato plants is carried out by mothers or female farmers, and farm workers carry out 75%. In the hilling activity of potato plants, workers have the highest role because this work is included in the heavy category, so male workers can do it.

The activity of weeding on potato plants falls under the sixth category. Weeding is carried out by fathers or male farmers with a percentage of 40%, carried out by mothers or female farmers at 60%, and carried out by farm workers at 0%. In this activity, female farmers have a greater share because this work is easy for them to do (Permana et al., 2020). Pest and disease control which is conducted by fathers or male farmers. Mother of female famers do no involve in this activity. In other words, this activity is 100% controled and performed by by fathers or male farmers. This happens because rat pest control in Sukapura Village uses traps. Controlling rat pests in this way is very dangerous for those who don't understand how. So this also has an impact on female farmers, who are not allowed to approach the land to do their work if there are traps on the land. However, so far no alternative control of rat pests has been found in Sukapura Village other than dangerous traps.

In the eighth category is potato harvesting. This potato harvesting activity is carried out by fathers or male farmers at 11.67%, mothers or female farmers at 43.33% and carried out by farm workers at 45%. The potato harvesting activity was carried out by the three activity actors because it was carried out in collaboration. Farmers need the help of female farmers to prepare the harvest and farm laborers who will pull potatoes from the ground. Finally, the sale of this harvest is 100% carried out by middlemen. These middlemen come to the farmers' homes to buy their crops. Apart from that, middlemen also come to the harvest location on the land so they directly buy the farmers' potatoes. The father or male farmer then carries out the sale of the results. Male farmers will sell the potatoes at the market. On the other hand, according to the subsystem, the supporting role in the agribusiness systems of potatoes is women farmers, so special attention is required (Siallagan et al., 2016).

b) Reproductive Work Activities

According to Hubies (2010), the reproductive role is the role that a person plays to carry out activities related to maintaining human resources (SDI) and household tasks, such as preparing food, collecting water, looking for firewood, shopping, maintaining family health and nutrition, caring for and educate children. In this gender analysis of reproductive work activities, the categories that will be discussed are (1) Caring for children, (2) Cooking at home, (3) Washing clothes and (4) Cleaning the house. Table 6 shows the reproductive work activities of female farmer respondents in Sukapura Village.

No	Category	Father (%)	Mother (%)	Laborer (%)
1	Parenting	0	100	0
2	Cooking at home	0	100	0
3	Washing clothes	0	100	0
4	Cleaning the house	0	100	0

Table 6.Reproductive Work Activities

In Table 6. it can be explained that the four categories of reproductive work activities are 100% carried out by mothers or female farmers. The culture in Indonesia indeed imposes reproductive roles on women, this also happens to female farmers in Sukapura Village. This reproductive role can be replaced by men, but the culture that has been passed down makes women the only ones who carry out this role. (Marlin et al., 2020).

#### c) Access to Resources

The gender analysis of access to resources will discuss the extent to which male and female farmers can access or use existing resources available in their environment. According to Fitrah & Luthfiyah (2018), access to resources is divided into 5 categories, namely (1) Access to the use of agricultural equipment, (2) Access to sales of harvested produce, (3) Access to participation in farmer groups, (4) Access to extension activities , (5) Access to cooperative/bank/KUD loans.

Table 7.	Access to Resources
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No	Category	Father (%)	Mother (%)	Laborer (%)
1	Use of agricultural equipment	68	12	10
2	Sale of crops	80	20	0
3	Farmer group participation	92	8	0
4	Participation in outreach activities	92	8	0
5	Cooperative/bank/KUD loans	63	23	4

From Table 7. it can be explained that in the use of agricultural equipment, fathers or male farmers have the most significant access, namely 68%. More male farmers use access to agricultural equipment because agricultural equipment, such as tractors, hoes, and fertilizer sprayers, tends to be heavy. So female farmers can only use light tools such as sickles. The second category, namely the sale of crops from fathers or male farmers, has the highest access, namely 80%. This happens because male farmers manage the harvest. Usually, mothers or female farmers will get the money from sales. In the third and fourth categories, namely access to participation in farmer group activities and extension, you have the most significant percentage, 92%. In this category, only male farmers can participate in farmer group activities and extension services, even though these female farmers also need the latest additional knowledge about potato cultivation. In the fifth category are cooperative/bank/KUD loans, with the highest percentage being 63% owned by male farmers. In this category, it is easy for male farmers to access loans because they are heads of families and it is easy to apply for loans. (Kurniasari et al., 2022).

d) Control Over Resources

Gender analysis of control over resources is the respondent's ability to manage the resources they own. Control over resources is divided into 5 categories, namely (1) Control over the use of agricultural equipment, (2) Control over the sale of harvested produce, (3) Control over participation of farmer groups, (4) Control over extension activities, (5) Control over cooperative/bank/KUD loans.

In Table 8, it can be explained that the father or male farmer has the highest control over the use of agricultural equipment, with a percentage of 86.67%. In this category, male farmers choose the tools for cultivating potato plants, with female farmers following suit. In the category of control over the sale of crops, fathers or male farmers have the highest control with a percentage of

60%. Male farmers are responsible for determining the location and timing of harvest sales. The third and fourth categories, namely control of participation in farmer group activities and counseling, have the same percentage, namely 86.67%. In this category, only male farmers can take part in farmer group and extension activities, even though these female farmers also need the latest additional knowledge about potato cultivation. According to Kadasah et al. (2023), there was a relationship between gender and knowledge of agriculture banks. The fifth category is cooperative/bank/KUD loans, with the highest percentage being 73.33% owned by male farmers. Due to their status as family heads, male farmers can easily apply for loans.

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No	Category	Father (%)	Mother (%)	Laborer (%)
1	Use of agricultural equipment	86.67	13.33	0.00
2	Sale of crops	60.00	13.33	26.67
3	Farmer group participation	86.67	13.33	0.00
4	Participation in outreach activities	86.67	13.33	0.00
5	Cooperative/bank/KUD loans	73.33	10.00	16.67

### e) Benefits and Impact on Resources

This sub-chapter will explain the benefits and impacts felt by male farmers and female farmers on the resources available in their environment. The categories to be analyzed are (1) Agricultural equipment, (2) Agricultural products, (3) Farmer groups, (4) Extension and (5) Cooperatives/banks/KUD. Table 9 shows the benefits and impacts on resources.

No	Category	Father (%)	Mother (%)	Laborer (%)
1	Agricultural equipment	26.67	13.33	60.00
2	Sale of crops	0.00	13.33	86.67
3	Farmer group participation	86.67	13.33	0.00
4	Participation in outreach activities	86.67	13.33	0.00
5	Cooperative/bank/KUD loans	50.00	13.33	36.67

Table 9.Benefits and Impact on Resources

Table 9. reveals that Mr. and Mrs., or male or female farmers, experience the most significant benefits and impacts from agricultural equipment, accounting for 60% of the total. In this category, both male and female farmers can feel the impact of having access to agricultural equipment. In the second category, Mr. and Mrs. experience the greatest benefits and impacts on harvests. Both of them feel the benefits and effects of the sales results. The proceeds from the sale of this harvest will usually be used to meet household needs, and Mr. will use the money as capital for the next potato planting season. In the category of mandates and their impact on farmer groups and extensions, 86.67% of only fathers or male farmers can feel it. The knowledge gained from these activities can be used to increase potato production. The fifth category, namely the benefits to cooperatives, banks, and KUDs, is the largest for male farmers, with a percentage of 50%. In this category, male farmers receive benefits from cooperative/bank/KUD loans; apart from that, female farmers also receive impacts advantages and from the ease of making loans to cooperatives/banks/KUD with a percentage of 36.67%. To make the group successful in handling banks and their economy, it is necessary to base indicators of the success of the planning, implementation, monitoring, and control to determine the success. (Deselina et al., 2014).

The Tengger community, which mostly lives around Mount Bromo including Sukapura Village, has unique cultural values and traditions. This culture influences how gender roles are formed in social and economic life, including in the management of agricultural resources. Some cultural factors that contribute to gender gaps in control and access to resources between male and female Tengger farmers. Traditional Tengger culture generally positions men as the primary decision-makers, including access to and control over agricultural land, harvests, and business capital. Meanwhile, women are often positioned in supporting roles related to domestic work and assistance in the fields. According to Sarungallo (2022), in traditional agrarian societies, the division of gender roles is often rooted in cultural values that see men as heads of households and managers of the economy. This results in unequal access for women to resources, such as land, capital, and technology.

One important aspect that influences the gender gap is the inheritance system. In the Tengger tradition, agricultural land is often inherited by sons as the main heirs. Although daughters can receive inheritance, usually the portion is smaller or in a different form. According to Hayati et al (2024), in rural communities with strong patriarchal norms, inheritance of resources tends to favor men, which reinforces gender inequality in control over land and the economy.

The Tengger community highly values local Hindu-Buddhist religious traditions, which place rituals and religious roles as an important part of their lives. In carrying out traditional rituals, women are often involved as implementers and guardians of tradition. Still, decision-making roles are generally dominated by men, both at the household and community levels. These roles, although important, do not directly increase women's access to material resources, such as land or business credit. This is because the appreciation for women's contributions is more social than economic. According to Nggai (2022), in his research on indigenous communities, the burden of

tradition often strengthens women's domestic roles without providing equal economic access.

Traditional culture that focuses on women's domestic roles also affects their education levels. Tenggerese women's education levels tend to be lower than men's, limiting their access to modern agricultural information and technology, such as the use of organic fertilizers or online marketing systems. Behrman et al. (2014) explained that education level is directly related to the ability to access technology and increase agricultural productivity. Inequality in education affects women's access to innovation.

Cultural factors such as gender role division, inheritance system, religious values, limited education, and dual expectations are the main causes of gender gaps in control and access to resources among Tenggerese female farmers. The literature supports that patriarchal social norms significantly affect women's roles, placing them in a subordinate position in the economic field, despite their significant contribution to agricultural practices. To reduce this gap, a gender-based approach that takes into account cultural aspects is needed. These efforts can include agricultural training for women, changes to a more inclusive inheritance system, and affirmative policies that provide women with direct access to land and business capital.

The conclusion from this analysis is that an empowerment strategy is needed that is appropriate to the conditions of women farmers in Sukapura Village. In formulating a strategy for empowering women, a strategy with gender mainstreaming that is in line with the characteristics of women farmers is needed. (Yuwono, 2015). An appropriate empowerment strategy is to use the Gender and Development (GAD) approach. According to Farida (2016), GAD starts from a holistic perspective, namely looking at social, economic, political and cultural organizations to understand the subordinate position of women in society. GAD does not only pay attention to women, but pays attention to women in the social construction of gender which assigns certain roles to women and men (Frola, et.al., 2024). So training and mentoring are needed that can increase the knowledge of women farmers. In addition, family development and business development can be used as empowerment activities that can improve the knowledge and economy of women farming families. (Handani et al., 2015).

#### **Empowerment Strategies**

The design of the empowerment strategy begins with an analysis of the internal and external environment that surrounds women farmers. The internal environment is characterized by the strengths and weaknesses inherent in women in peasant women, On the other hand, external factors consist of opportunities and threats that cannot be controlled by peasant women themselves. The results of the analysis of internal and external factors are presented in tables 10 and 11.

Parameter	Indicator	Weight	Ratings	Score
Strengths				
Age of female farmers	43.33% of female farmers are of productive age.	0.30	2	0.6
Farming Experiences of Women Farmers	46.67% of female farmers have 40- 45 years of farming experience	0.34	3	1.02
Women's ownership of yard land	98% of farmers have home gardens	0.36	3	1.08
	Sub-total	1.00		2.70
Weaknesses				
Educational Level of Women Farmers	76.20% of women's education is elementary school	0.36	2	0.72
Lack of knowledge and information outside the field of potato cultivation	Since childhood, he only had knowledge about potato cultivation. There is no knowledge of horticultural plant cultivation	0.30	2	0.60
Reduced work activity on potato farming land	Due to the presence of rat pests and traps, women farmers are prohibited from entering the land by reducing their work on the land	0.33	2	0.66
Sub-total				1.98
Total S+W Factors			4.68	

Table 10. Analysis of Internal Factors

The table above shows that the internal factor Strengths (S) has a score of 2.70 and the internal factor Weaknesses (W) has a score of 1.98. This shows that this strength factor can minimize the weaknesses as above. Furthermore, in the external factors table it can be explained that the external factors Opportunities (O) have a total score of 2.97 and the external factors Threats (T) with a score of 2.00. So that external factors, opportunities, can minimize existing threats

In explaining the factors from the table 11, internal factors (S+W) have a total score of 4.67 and external factors (O+T) have a total score of 4.97. From this explanation, it can be interpreted that the external environmental conditions are greater than the external environmental conditions, so that the empowerment program that will be carried out can run well because of the support from a strong external environment.

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Table 11. Analysis o	f External Factors
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Parameter	Indicator	Weight	Ratings	Score
Opportunity				
Availability of business capital institutions in the area	There are people's credit banks and people's cooperatives in Sukapura Village	0.31	3	0.93
There is a market	There are markets on a village and sub-district scale in Sukapura Village	0.37	3	1.11
There is a farmer group in the village	There are farmer groups that are active in agricultural institutional activities	0.31	3	0.93
	Sub-total	1.00		2.97
Threats				
Potato production decreases every year	The rat pest attack is getting worse until now. This caused potato production to fall	0.34	2	0.68
Male dominance	The predominance of agricultural work is carried out by men. Apart from that. the result of the presence of rat pests which are controlled using traps means that female farmers are prohibited from entering the land	0.38	2	0.76
Agricultural machinery that is not female friendly	Agricultural machinery that is not friendly to women also causes female farmers to lose some parts of their work	0.28	2	0.56
	Sub-total	1.00		2.00
Total O+T External Factors				4.97

## **Empowerment Strategy Formulation**

Empowerment strategy formulation are to leverage the strengths and opportunities that exist in addressing weaknesses and threats, it is important to adopt an approach strategy that is sensitive to the prevailing cultural context and social norms. The design of this empowerment strategy is based on the results of an analysis of internal and external factors, which can be explained as follows:

	Strength (S) Age of female farmers Farming Experiences of	Weakness (W) Educational Level of Women Farmers Lack of knowledge and
	Farming Experiences of	Women Farmers
		Lack of knowledge and
	Women Farmers	information outside the field of potato cultivation
	Women's ownership of yard land	Reduced work activity on potato farming land
Opportunity (O)	SO Strategy	WO Strategy
Availability of business capital institutions in the area	Forming a group of women farmers	Post-harvest processing skills training
There is a market	Utilize yard land for cultivating vegetable plants	Assistance to women farmers until they become independent
There is a farmer group in the village		Providing access to facilitate capital
Threat (T)	ST Strategy	WT Strategy
Potato production decreases every year Male dominance Agricultural machinery that is not female	Carrying out cultivation other than potatoes (vegetables, polowijo)	Agricultural school for women farmers
c t T T I I I I I I I I I I I I I I I I I	Availability of business apital institutions in he area There is a market There is a farmer group in the village Threat (T) Potato production lecreases every year Male dominance Agricultural machinery hat is not female	yard landOpportunity (O)SO StrategyAvailability of business apital institutions in he areaForming a group of women farmersThere is a marketUtilize yard land for cultivating vegetable plantsThere is a farmer group n the villageFor ST StrategyThreat (T)ST StrategyPotato production lecreases every yearCarrying out cultivation other than potatoes (vegetables,

Table 12.Strategy for Empowering Women Farmers Cultivating Potatoes in<br/>Sukapura Village

## 1. Strength-Opportunity Strategy (SO)

a. Forming a group of women farmers

One of the effective empowerment strategies to improve the role of women potato farmers in the Tengger tribe, Sukapura Village. This strategy provides a collective platform for women to share knowledge, gain access to resources, and improve their bargaining position both economically and socially. The purpose of this strategy are (1) to improve technical skills in potato cultivation, farm management, and financial management. (2) to improve women's solidarity, cooperation, and advocacy capabilities to obtain rights and support from external parties and (3) to make it easier for women to obtain agricultural assistance, training, and access to wider markets.

b. Utilize yard land for cultivating vegetable plants

Utilizing yard land to cultivate vegetables is an innovative and relevant empowerment strategy for female potato farmers in the Tengger Tribe, Sukapura Village. This strategy allows women to maximize the small land around their homes to support the family economy, food diversification, and environmental sustainability. The purpose of this strategy is (1) In addition to potatoes as the main commodity, vegetable plants from the yard can provide additional income, (2) Meet the family's vegetable needs so as to reduce dependence on external markets, (3) Use unproductive land to become a source of food and economy and (4) Provide space for women to be more empowered in managing domestic resources

#### 2. Weakness- Opportunity Strategy (WO)

a. Post-harvest processing skills training

The empowerment strategy of female potato farmers in the Tengger Tribe, Sukapura Village, by providing training in post-harvest processing skills aims to increase the added value of potato harvests, open up new business opportunities, and strengthen the role of women in the agricultural value chain. This strategy aims to (1) Process potatoes into derivative products that have higher economic value than just being sold raw, (2) Tell about product variations to expand the market and increase income, Equip women with technical and managerial skills to be able to start their own businesses and (3) Utilize aesthetically imperfect harvests (low-grade potatoes) to be processed into quality products.

b. Assistance to women farmers until they become independent

The mentoring strategy for female potato farmers in the Tengger Tribe, Sukapura Village, to achieve independence is an important step in empowering female farmers. Mentoring not only equips them with technical skills, but also provides moral support, business management, and network strengthening so that they are able to farm independently, productively, and competitively. The purpose of this mentoring strategy are (1) to help female farmers build sustainable agricultural businesses without relying on other parties, (2) to provide technical knowledge, access to information, and the skills training needed, (3) to increase women's confidence to participate in decision-making in the family and community. AND (4) to optimize the role of women in supporting the household economy and children's education. c. Providing access to facilitate capital

The empowerment strategy for female potato farmers in the Tengger Tribe, Sukapura Village, through providing access to capital is a key step to help them increase production capacity, process crops, and develop agricultural businesses. The objectives of Providing Access to Capital are (1) Capital is used to buy superior seeds, fertilizers, or more efficient modern agricultural tools. (2) Capital allows female farmers to process potatoes into value-added products. (3) With additional capital, female farmers can develop their businesses to create a more stable income.

### 3. Strenght-Threat Strategy (ST)

a. Carrying out cultivation other than potatoes

The empowerment strategy of female potato farmers in the Tengger Tribe, Sukapura Village, through cultivation other than potatoes aims to diversify sources of income, reduce the risk of dependence on one type of commodity, and improve the welfare of female farmers. The objectives of this strategy are (1) Reducing the Risk of Crop Failure because Dependence on potatoes makes farmers vulnerable to price necks or pest attacks that attack one type of plant, (2) Increasing Income by Planting other commodities that have high economic value can expand sources of income, (3) Optimizing Land Cultivation of plants other than potatoes can utilize land or yards that are less than optimal to produce additional products.

## 4. Strenght-Weakness Strategy (SW)

a. Agricultural school for women farmers

The empowerment strategy of female potato farmers in the Tengger Tribe, Sukapura Village, through the establishment of an Agricultural School for Female Farmers is an innovative step aimed at improving their knowledge, skills, and confidence in managing agricultural businesses. The objectives of this female farmer school are (1) Improving Skills by Providing an in-depth understanding of potato cultivation techniques and other crop diversification, (2) Strengthening Independence by Equipping female farmers with sustainable farming management skills, (3) Building Networks by Forming a community of female farmers who support each other and share knowledge and (4) Increasing Economic Resilience by Helping female farmers face agricultural challenges, such as increasing prices or climate change.

In the case of Sukapura Village, it is necessary to formulate a strategy that is appropriate to the social, economic and cultural conditions that characterize Sukpura Village. Moreover, Sukapura Village is inhabited by the Tengger Tribe people who still pay great attention to customs and culture. In formulating this empowerment strategy, a mainstreaming analysis is needed that is appropriate for the Tengger Tribe Women Farmers in Sukapura Village. Formulating a strategy that suits the characteristics of the Tengger Tribe Women Farmer community is the Gender and Development (GAD) approach. According to Niyonkuru et al., (2021) Gender and Development (GAD) approach. is the achievement of equality and equality, justice.

According to Wulpiah (2017) Gender and Development (GAD) is an approach to formulating strategies that is appropriate to empowering women. This GAD approach focuses on the role of women in their activities, so that women will have a big role. This effort is made to increase women's contributions and make women empowered. Apart from that, according to Prasetyo, et.al (2022) communication can be a bridge in empowering women and stage holders. So, in formulating empowerment, effective communication within the group is also needed. Motivation in developing farmer groups is essential because without motivation members will easily give up and there will be no sense of mutual belonging and solidity. So it is the stageholder's duty to continue to motivate women farmers to remain active and empowered. (Lantarsih et al., 2022).

The recommended formulation for a strategy to empower women farmers in Sukapura Village, Sukapura District, Probolinggo Regency was analyzed using SWOT analysis. In this SWOT analysis, it is based on Internal Factors and External Factors which are presented in table 10 Strategy for Empowering Women Farmers Cultivating Potatoes in Sukapura Village

Based on the results of the SWOT analysis, alternative strategies for empowering women farmers in Sukapura Village, Sukapura District, Probolinggo Regency have been formulated as follows: (1) Form a women's farmer group; (2) Utilize yard land for cultivating vegetable plants; (3) Postharvest processing skills training; (4) Assistance to women farmers until they become independent; (5) Providing access to facilitate capital; (6) Carrying out cultivation other than potatoes; and (7) Agricultural school for women farmers. Accroding to Iqbal et al., (2023) farmers group can help member as a learning class and can improve the knowlage.

#### CONCLUSION AND SUGGESTION

#### Conclusion

The strategy for empowering women farmers in Sukapura Village, Sukapura District, Probolinggo Regency resulting from the SWOT analysis above is as follows: (1) Establishing a group of women farmers in Sukapura Village with facilitation by relevant stakeholders, (2) Training and assistance in cultivating food crops that in accordance with the characteristics of Sukapura Village, (3) A women's farming school was held for women to improve the knowledge of female farmers.

## Suggestion

Various aspects need to be considered in the policy implications for this empowerment strategy for women farmers, including innovations that can be beneficial for women farmers in Sukapura Village, mechanisms for implementing and financing empowerment activities. This empowerment program will not be successful without assistance and support from the Regional and Central Government from various stakeholders. The suggestion is (1) to involve traditional figures in supporting women's open involvement in the public sector through a cultural approach, for example through village forums that involve the entire community. (2) Hold regular collaborative forums between women farmers and stakeholders to discuss challenges and potential, for example through regular discussion groups or village forums. (3) Collaborate with banks or microfinance institutions to provide access to special business loans for women farmer groups, with flexible requirements and financial assistance training.

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