

STRATEGIC ROLE OF WOMEN IN CHRYSANTHEMUM-BASED ENGINEERING DESIGN ON DISASTER AFFECTED AREAS

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ABSTRACT

Strategic role of women makes a positive contribution in chrysanthemum-based engineering design on disaster affected areas. The Merapi eruption in 2010 in Special Region of Yogyakarta (DIY), Indonesia, especially in the village of Hargobinangun, brought tremendous impact in the field of environmental damage, social economy, and agriculture. Post-Merapi eruption, chrysanthemum flower cultivation in the Hargobinangun village became stagnant. Some farmers have started to despair and lost determination. But thanks to the encouragement and the strategic role of women as husbands' companions, farmers began to rise up to build sustainable and competitive green areas. This is a primary research and the data obtained was from questionnaires and interviews with some respondents. This research also used a secondary data obtained from publications of related institutions. The statistical technique used is Partial Least Square. This research concludes that the strategic role of women (as strategic partners, fighters, administrative experts, agents of change) was able to provide a significant contribution to labor productivity, family welfare, and green environmental performance.

Keywords: Strategic Role of Women; Affected Areas; Chrysanthemum.

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1. INTRODUCTION

In order to support the strategy of the Medium Term Development Plan or Rencana Pembangunan Jangka Menengah (RPJMN) 2010-2014 Sleman and the Strategic Plan of Indonesian Ministry of Agriculture 2010-2014, the need to increase the competitiveness and performance of agricultural areas, especially green areas, is necessary. Agricultural development in green areas is expected to have a strategic role in improving a sustainable development, creating harmony and balance in the process of economic empowerment, and transferring environmentally friendly technologies.

The strategic role of agriculture in supporting food sovereignty is outlined in the Strategic Plan of the Ministry of Agriculture that targets the development of horticulture, one of which is chrysanthemum as one of non-food national commodities and as an import substitution. Achievements of this target is certainly not easy, given that the agricultural development is still faced with some fundamental problems.

Some of these problems include an increase in environmental degradation and global climate change, limited availability of infrastructure, national seed and breeding systems that are not optimal, farmers have limited access to capital, and weak institutional capacity. This is presumably due to the unavailability of overall agricultural development engineering design that enables the creation of inter-regional cooperation so that agricultural development can be carried out effectively and efficient (RI Regulation No. 50/Permentan/CT.140/8/2012).

The Merapi eruption in 2010 brought tremendous impact in the field of environmental damage, social economy, and agriculture. The affected area of chrysanthemum plant development was in Hargobinangun village, Pakem, Sleman, Special Region of Yogyakarta (DIY), Indonesia. Whereas since 2005, the region has been appointed as the center of chrysanthemum plant in DIY Province considering the altitude of the area is 700-900 meters above sea level and could be eligible for the growth of chrysanthemum plants. Activities concerning chrysanthemum plants, such as flower cultivation, have been done by more than 100 local farmers from 13 farmer groups and could manage an area of 20,000 m² with a production capacity of 15,000 flowers per week (Bappeda, 2003). After the eruption of Merapi in November 5th, 2010, chrysanthemum flower cultivation in the Hargobinangun village became stagnant. Most farmers did not know what to do because crops were destroyed. That was because the area is very close to Mount Merapi and is just 4-10 km from the peak of Merapi. Back in 2008, farmers of Hargobinangun have actually had a successful chrysanthemum business in which at the time obtained steady assistance from several University in Yogyakarta.

Therefore, at this time, both men and women farmers need to be synergized to emerge from the downturn as a result of the Merapi eruption. Men should not ignore the role of women because they can serve as agents of change. Women have an important involvement in family decision making, and some even become the backbone of the family. Well-educated women will create a generation of good and prosperous country

(Khomeini, 2004; Nizar, 2014). Some research shows that women in Indonesia have a strategic role in building green areas and competitiveness (Nizar, 2014; Sujarwati, 2013; Sajogyo, 1985).

2. LITERATURE REVIEW

2.1. *Strategic role of Human Resources Management (HRM)*

One business issue that has been going on for the past few years is the ongoing number of important developments in literature on issues related to human resources management – strategic human resource management in particular. Some academics and practitioners focus their attention on strategic human resource management approach. This means that approach in the functions of human resource management are not limited to the functions of personnel alone, but also extended to the involvement of strategic management process as a whole.

Armstrong (2008) added that the major business issue affecting HR strategy includes: (1) the company's purpose, (2) an increase in competitive advantage, (3) the need to develop a more positive and performance-oriented culture, and (4) culture management. Human resource strategy is expected to help make the company's business strategy to work well. The business strategy must take opportunities and organizational barriers into account to achieve superior performance and competitive advantage. HR strategy is a series used by human resource to help the company achieve its strategic goals (Dessler, 2013). Mathis and Jackson (2008) suggested that the role of HR as a strategic partner has three views, namely;

- (1) HR activities are seen to be not strategic at all. This is because human activities are just mere operational.
- (2) The strategic role of HR is to adjust individual HR practices (recruitment, rewards, etc.) to fit in with the company's strategy and competitive strategy. According to this view, the top management forms a particular strategy for the company, in which they ask and require HR to create human resources programs to successfully implement the company's strategy.
- (3) HR management is an equal partner in the process of strategic planning. According to this view, the role of HR management is not just adjusting their activities to the demands of business strategy; they also do not only run daily operational tasks. HR management should be equal partners, both in the formulation and implementation of competitive strategy and includes the entire company organization.

Ulrich (1997) added that the role of HR in building a competitive organization is represented in two points; focus and activities. Focus ranges from long term/strategic to short term/operational. HR professionals must learn to be both strategic and operational, focusing on the long and short term. Activities ranges from managing processes (HR tools and systems) to managing people. Furthermore, if this is associated with the strategic role

of women farmers in Hargobinangun, it means that the organization managed by them should be focused on a few HR strategies and organizational practices in terms of a business strategy. Working professional women farmers should be strategic partners that can help to ensure the business strategy to run successfully. Translating business strategies in human resources practices can be done in three ways: (1) the business can adapt to changes since the time of conception to execute a strategy is short, (2) the business can be better if it meets customer demands because the strategy of customer service is translated into specific policies and practices, and (3) the business can achieve financial performance through a number of its effectiveness in executing the strategy (Ulrich, 1997). Women farmers that join Gapoktan (farming group) ASTHA BUNDA should, together with the management of SMEs, create a business strategy as a framework that directs the specific activities designed for HR, such as the process of recruitment and selections of employees, appropriate staffing, training and development, and performance assessment. This is expected to be able to generate competence and employee behavior, which in turn will definitely help the business and implement their business strategy according to the organization's objective (Dessler, 2013). The approach of strategic human resource should be able to ensure that the human capital SMEs (knowledge, skills, and abilities) can contribute to achieve the business organization's objectives (Huselid., Jackson, and Schuler, 1997).

2.2. Strategic Role of Women in Economic Development and Green Environment

Developments in society always include women's role in supporting the process of change. Women can play a role in starting, moving, and disseminating the change process. Woman as an agent of change is one who plays as a catalyst and estimates responsibilities for managing the change activity (Robbins, 2001). Being an agent of change means having to build organizational capacity to capture and capitalize on change (Nurhayati, 2001; Ulrich, 1997). In organizations, experience shows that the success of change starts with changing individuals and then changing the organization, which is often referred to as an "individual out" approach (Black & Gregersen, 2003). Thus, the success of women in their role as agents of change needs to be focused on individuals prior to the conduct of re-drawing a mental map of every members involved in the organization (Zhou et al., 2004). If the individual has changed and is ready for a change, then the next role of agents of change is to motivate their members to behave accordingly and in harmony with the enthusiasm of the organization. One of the key indicators of using a role as an agent of change is that one is able to build a good relationship with others (Soetjipto, 2009). Change must begin by preparing all human resources to accept the change because human is always the subject and the object of change due to human nature, as well as having the nature to resist change. Changes in human resources must be initiated by the getting rid of the old behavior patterns that tend to maintain the status quo to be changed to be willing to accept a new mindset that evolve dynamically (Victor, 2002).

Zaltman and Duncan (1977) suggested that a person, including women, who acts as agents of change must have these competence: (1) technical qualifications, (2) administrative capabilities, and (3) and interpersonal relationships. In this case, technical qualifications

means having technical abilities in determining business locations, scale of operations, and production processes. Administrative capabilities means having administrative skills associated with business group activities. Interpersonal relationships means that women should have the abilities in dealing with other people or have a good empathy on community members and the surrounding environment. Besides, Zaltman and Duncan (1977) added that the effectiveness of the strategic role of women is needed to stimulate and accelerate the process of collaborative problem solving. Havelock and Havelock (1973) explained that in fact if someone wants to act as an agent of change, there are four ways that can be done, which includes:

1. As a Catalyst, who encourages people to change;
2. As a Solution Giver, who provides ideas about how change should occur;
3. As a Process Helper, who encourages the process of change;
4. As a Resource Linker, who helps others to obtain relevant resources and bridging people together to solve problems.

The purpose of Millennium Development Goals 2015 in including women in environmental management so that women understand the importance of environments, thus women will maintain, preserve the environments well, and also keep the environments clean (Sudarwanto, 2010). This research is focused on the strategic role of women in economic development for families, especially in the development of chrysanthemum plants that is expected to have a broad impact on the competitiveness and performance of particular areas. Chrysanthemum as one of the commodities that can be used as ornamental plants, potted plants, and flowers is included as a major product in the production of ornamental plants nationwide. Currently, chrysanthemum is included as the most popular flower in Indonesia because of its advantages, namely a flower that is rich in color, relatively more durable, and also affordable. This is shown by an increase in the amount of production and the addition of chrysanthemum harvest areas each year in order to meet consumer demand. Increased production of chrysanthemum flowers indicates that consumer demand for these commodities is also increasing. Along with the increasing demand of chrysanthemum flowers, agribusiness opportunities need to be developed (Butaflika, 2008).

So far, we know that plants can act as a filter, a source of aesthetic and stress relievers (Soekartawi, 1996), provide coolness and comfort, creates a greener environment, lower the air temperature and clean the air at the same time (Sudarmono, 1997; Endah, 2001), a source of education, economic and social matters, as well as medicinal plants (Rukmana, 1997). Therefore, women as agents of change should be able to act as a catalyst, provides solutions, helps the change process, and links resources in matters relating to both the technical and non-technical aspects of business, and also production, institutional, and social aspects related to the chrysanthemum-based areas affected by the Merapi disaster.

Besides being agents of change, women can have strategic roles for instance: (1) as a strategic partners, in which women encourage the organization to implement a strategy, (2) administrative experts, in which women must improve the efficiency of the traditional

functions and the overall organization, (3) fighters, in which women must continuously increase their performance so as to improve organizational commitment (Nurhayati, 2001; Ulrich, 1997). Several studies prove that there is a positive relationship between the strategic role of HR on productivity (Becker & Huselid, 1998; Huselid, 1995). Some research findings also give the same conclusion that the strategic role of HR is indispensable both in business and social organizations to increase organizational performance (Alleyne, et al., 2005; Bou & Beltran, 2005; Edelman, et al., 2005; Carmeli, 2004; Gilley, et al., 2004; Muafi, et al., 2016; Muafi, 2016). Schuler and Jackson (1987) added that if an organization is to manage its human resources, every individual there will be involved and that it will need quite a long time. This means that in solving the problems that exist now, the organization must keep having a long-term vision and continue to improve their ways of working so that the desired results can be obtained quickly. Walters (1985; Werther & Davis, 1996) added that human resource management is a life of organizations that focuses on the management and utilization of people effectively to increase their productive contributions to the organization through strategic ways, is ethical, and also is accountable. Ulrich (1997) stated that the role of HR strategy focuses on HR strategies and practices in business strategies. HR professionals work to become strategic partners and help to ensure business strategies. In essence, the functions of HR can no longer be administrative, but must simultaneously be strategically oriented. Ulrich's opinion (1997) is also reinforced by Husehild et al. (1997) which splits the functions of HR into technical and strategic HR. Technical HR emphasizes on settings functions and administrative processes, while strategic HR emphasizes more on empowerment functions and social interactions. Findings of Husehild et al. (1997) stated that there is a significant inter-relationship between strategic HR with employee productivity, cash flow, and market value.

- H1*: Strategic role of women (strategic partners, administrative experts, fighters, and agents of change) has a significant positive effect on labor productivity.
- H2*: Strategic role of women (strategic partners, administrative experts, fighters, and agents of change) has a significant positive effect on family welfare.
- H3*: Strategic role of women (strategic partners, administrative experts, fighters, and agents of change) has a significant positive effect on performance improvement of green environments.

3. RESEARCH METHODS

This research was conducted on SMEs of chrysanthemum farmers in Hargobinangun village, District of Kaliurang, Yogyakarta, Indonesia. These chrysanthemum farmers have a Farmers Group Association (Gapoktan) called ASTHA BUNDA. They are traumatized and are almost desperate since the Merapi eruption in 2010, which has brought tremendous impact on the aspects of environments, socioeconomic, and agriculture. Chrysanthemum farmers that only relied on their businesses by planting chrysanthemums then have lost motivation and passion to develop chrysanthemum because all the land has been covered by volcanic ashes. But due to the role of women, the husbands have a strong

will and motivation to bounce back. The population in this research is every SME chrysanthemum farmers that join ASTHA BUNDA farming group, represented by a women chrysanthemum farmer – an SME owner – with a total population of 122 SMEs. The targeted number of respondents is 100 SMEs. This already meets the requirements for the survey research, with a Partial Least Square (PLS) statistical technique (Hair et al., 1995). The sampling technique used was purposive sampling. This is because the criterion of respondents has been chosen in advance; women chrysanthemum farmers that join Gapoktan ASTHA BUNDA. Respondents who returned the questionnaire were 89 (response rate 73%).

This research consists of primary and secondary data, obtained through questionnaires and some publications of relevant agencies. Publications are in the form of data regarding the number of employees, the types of chrysanthemums, varieties preferred by consumers, production cost, total income, and others issued by government agencies, universities, and from Gapoktan ASTHA BUNDA. This secondary data was very helpful to support the primary data used by researchers. The type of questionnaires given to the respondents were closed and asked the women's perceptions who manage SMEs of chrysanthemum in Hargobinangun, Kaliurang, DIY. The scaling technique used for the woman role variable (strategic partners/MS, fighters/PJ, administrative experts/AA, and agents of change/AP), productivity (prod), family welfare (welfare), and green environmental performance (Envir) was a Likert scale of 1 to 7. The number of items is referred to and modified from Ulrich's research (1997; Muafi et al., 2014); with 4 items of women as strategic partners, 4 items of women as administrative experts, 5 items of women as fighters, and 4 items of women as agents of change. Additionally, 4 items of labor productivity, 4 items of family welfare, and 4 items of green environmental performance, modified from Klein (2008; Chenoweth, 2011; Karnani, 2007). Data was analyzed using PLS (Partial Least Square) because it serves as a powerful technique for analyzing latent variables in structural equation models with a variety of indicators (Sirohi, et al., 1998; Roostika, 2011).

4. RESULTS

4.1. Description

Most respondents in this research have more than 5 years of business experience amounting up to 58 SMEs (84%), have a workforce of less than 5 employees (14%) and plant varieties of flowers such as Reegan, Puma, and Town Talk. Varieties in consumer preferences are the ones in yellow, white, and red with all the variance (60%). In order to produce 5,000 stalks of chrysanthemum flowers, it requires a 120 m² building area of plastic house, with a cost of Rp.6,000,000.00. The cost of production for 4 months requires Rp.2,021,388. If the selling price per stalk is Rp.1,000.00, the net income earned would make total of Rp.2,978,612.00. Meanwhile if farmers plant corn on the same area, they could only earn Rp.300,000.00. Chrysanthemum needs in DIY reach up to 5,000 belts/week (250,000 belts / year) with a price range of Rp.10,000-15,000/belt. This level

of demand has only been met 30% from the local DIY, and the rest is fulfilled from outside the province.

4.2. *Validity and Reliability Testing*

4.2.1. *Discriminant validity index*

The model validity was evaluated by discriminant validity. Discriminant validity index was measured using cross loading and correlation comparison to the latent constructs (Muafi, 2015), as can be seen in Table 1.

Table 1: Cross loading Results

	Envir	Welfare	Prod	WR
IC1	0.894	0.690	0.621	0.620
IC2	0.916	0.757	0.682	0.605
IC3	0.841	0.640	0.497	0.506
IC4	0.831	0.604	0.522	0.517
aa1	0.488	0.558	0.447	0.824
aa2	0.426	0.448	0.505	0.818
aa3	0.305	0.396	0.356	0.777
aa4	0.446	0.448	0.450	0.732
ap1	0.322	0.339	0.362	0.772
ap2	0.292	0.396	0.361	0.703
ap3	0.313	0.320	0.347	0.780
ap4	0.349	0.439	0.412	0.705
kk1	0.690	0.877	0.611	0.624
kk2	0.457	0.643	0.312	0.328
kk3	0.746	0.919	0.697	0.759
kk4	0.652	0.881	0.663	0.614
ms1	0.480	0.587	0.448	0.817
ms2	0.345	0.411	0.269	0.757
ms3	0.343	0.481	0.333	0.708
ms4	0.374	0.481	0.351	0.791
pj1	0.483	0.468	0.434	0.774
pj2	0.274	0.298	0.221	0.669
pj3	0.431	0.367	0.295	0.756
pj4	0.321	0.372	0.311	0.605
pj5	0.522	0.506	0.441	0.777
pr1	0.580	0.613	0.875	0.520
pr2	0.459	0.464	0.782	0.404
pr3	0.508	0.606	0.763	0.484
pr4	0.629	0.630	0.859	0.628

Based on Table 1, it seems clear that the value of loading items of each construct is greater than the value of the other loading indicator constructs. Furthermore, the discriminant validity index can be seen from its value towards the latent constructs, as can be seen in Table 2.

Table 2: Correlation

	Envir	Welfare	Prod	WR
IC	0.871			
KK	0.775	0.837		
PR	0.672	0.711	0.821	
WR	0.649	0.726	0.632	0.598

Table 2 shows that most of the variables have a greater value than the correlation of other variables. There is only one variable that has a smaller value than the correlation of other variables. It is clear that the items in this study had a good discriminant validity that can be used as an instrument of data measurement.

4.2.2. Reliability Test

The reliability test results can be seen from cronbach's alpha and composite reliability, listed in Table 3.

Table 3: Values of *cronbach's alpha* and *composite reliability*

	Composite Reliability	Cronbachs Alpha	Description
Envir	0.926	0.894	Reliable
Prod	0.892	0.839	Reliable
WR	0.904	0.886	Reliable
Welfare	0.902	0.856	Reliable

Based on Table 3, it can be seen that cronbach's alpha and composite reliability have a value greater than 0.7. This indicates that the questionnaire item in this research is reliable.

4.3. PLS Model Evaluation

4.3.1. Determination Coefficient (R^2) of Endogenous Variable

Determination coefficient (R^2) is a measure that states the variance proportion size of a modifier with its predictor. In SEM, the value of determination coefficient (R^2) in an endogenous latent variable indicates the amount of variance, which can be explained by an exogenous latent variable. The endogenous variables in the inner model of structural comparison shows that productivity (prod), family welfare (welfare), and green environmental performance (Envir) are determined by women role (WR).

Table 4: R^2 Values of Endogenous Latents on *Inner Model*

Determinants	Endogenous Variables	R^2 Value
<i>Woman Role</i>	Productivity	0,400
<i>Woman Role</i>	Welfare	0,528
<i>Woman Role</i>	Green Environmental Performance	0,421

Based on Table 4, the total value of determination coefficient (R2) can be calculated as follows:

$$\begin{aligned}
 Q2 \text{ predictive} &= 1 - (1 - 0,400)(1 - 0,528)(1 - 0,421) \\
 &= 1 - (0,600 \times 0.472 \times 0.579) \\
 &= 0,836
 \end{aligned}$$

The total determination coefficient (R2) in this research is 0,836. This means that exogenous latent variables can be used to predict a model with an 83.6% value, while the remaining 16.4% is caused by other variables outside the model.

The evaluation of PLS model can also be done with Q2 predictive relevance, or as often called predictive sample reuse. This technique represents the synthesis of cross-validation and fitting function with using predictions of the observed variables and estimations of construct parameter, as listed in Table 5.

Table 5: Q² predictive relevance Result

Variable	1-SSE/SSO
Envir	0.301
Prod	0.257
WR	0.347
Welfare	0.367

Based on Table 5, it can be seen that the Q2 of all variables has a value greater than 0. This indicates that the model has a good predictive relevance.

4.4. Hypothesis Testing

Analysis results can be seen in Figure 1, as follows:

Figure 1: Structural Model (Inner Model) between Latent Variables

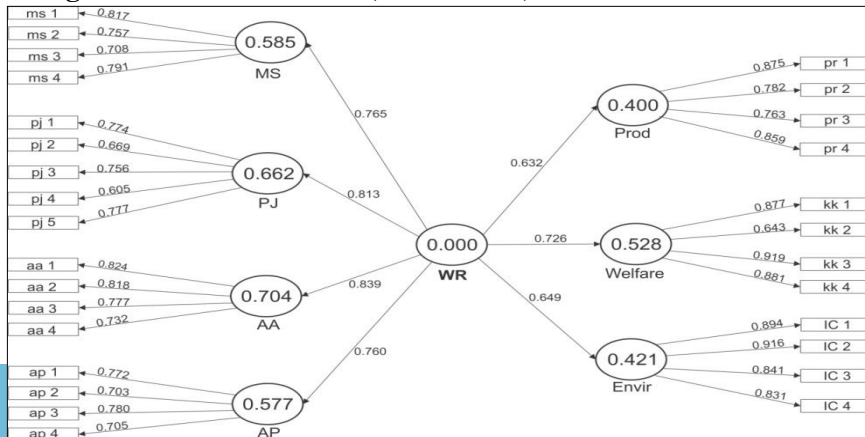


Table 6: Inner Model Test Result

Correlation	Original Sample Estimation	Mean of Subsamples	Standard deviation	t-Statistic	Result
WR → Prod	0,632	0,633	0,071	8,920*	H1 accepted
WR → Welfare	0,726	0,725	0,066	11,052*	H2 accepted
WR → Envir	0,649	0,644	0,073	8,925*	H3 accepted

Note: *significant at 5% alpha.

The test result of inner model, as listed in Table 6, shows that out of the three correlations, they are all significant. Which means; (1) woman role has a significant positive effect on productivity, (2) woman role has a significant positive effect on welfare, and (3) woman role has a significant positive effect on green environmental performance.

5. DISCUSSION

It is recognized that the role of women as workers in the family is very important especially for husbands with a relatively small income. This research concludes that the strategic role of women has a significant positive effect on labor productivity, family welfare, and performance of green environments. This also supports the results of previous studies of Alleyne, et al. (2005; Bou & Beltran, 2005; Edelman, et al., 2005; Carmeli, 2004; Gilley., et al., 2004; Husehild et al., 1997) which confirmed that there is a significant inter-relationship between the role of strategic HR with employee productivity, cash flow, and market value. The first hypothesis is accepted. This indicates that the strategic role of women (as strategic partners, fighters, administrative experts, and agents of change) in improving labor productivity. The strategic role of women farmers should be stressed that the people involved in the organization is an important resource, as well as future investment. In order for HR to play a strategic role, the organization should focus on long-term human resource problems and implications. The strategic role in improving productivity can be done by not only addressing short-term needs but it also should be involved in solving problems related to programs effectiveness and strategic planning of the organization. In this role, they are required to solve the problems faced by the organization, such as productivity issues, work life quality, and an increase in competition, especially the invasion of flowers outside chrysanthemums and chrysanthemum supplies from outside Hargobinangun. The recent increased price of chrysanthemum production inputs can cause a decrease in farmers' income, so it is feared that this could lead to a slack of ornamental plants agribusiness. In addition, the application of SOP (Standard Operating Procedure) is one of the effective ways to get flower quality and high competitiveness. By referring to the SOP, farmer manufacturers can meet the quality standards appropriate to the preference of international consumers as this will open up export opportunities to earn maximum foreign exchange (Direktorat Budaya Tanaman Hias, 2007). Flower qualities are factors that greatly affect the selling price of chrysanthemum cut flowers. In order for chrysanthemum cut flowers produced by women farmers in Hargobinangun to have high qualities, then an increase in production should be accompanied by improved farming technologies to improve the production quality to finally expect an increase in

the selling price. This reparation of cultivation technique was done by applying a cultivation technology for chrysanthemums, both in specific locations and in an integrated manner.

Associated with labor productivity, the efforts continued to be made by women are: (1) restore and develop the system of managing chrysanthemum plants in an innovative way, (2) develop and cultivate chrysanthemum seed crops, (3) share their knowledge on the implementation of chrysanthemum plant technology to the ASTHA BUNDA Gapoktan group, (4) cooperate with banking companies and economic enterprises in the aspect of capital to develop their businesses, (5) arrange the overhauls of Gapoktan ASTHA BUNDA into a credible governance, transparent, and professional. Women who work will be able to increase family income which will then improve the quality of nutrition needed and family health. For women in Indonesia, it is not surprising if women have a dual role in which they have to work and be a housewife at the same time (Mudzhakhar, 2001). This research needs to consider the model of GAD (Gender Analysis Pathway) which offers a social construction of gender and equal roles between men and women, including when women are positioned equally with men as agents of change in terms of social change. Women can be treated as subjects of change and not merely empowered or simply viewed as objects of change (Abdullah, 2006). The findings of further research conclude that women have a strategic role (as strategic partners, fighters, administrative experts, and agents of change) in improving family welfare (the second hypothesis is accepted). As suggested by BKKBN (1995), family welfare is a family established by a legal marriage; is able to meet worthy spiritual and material needs of life; is devoted to God Almighty; has a harmonious relationship, and has a balanced life between family members, as well as between families within the community/society, and the environment. This means that a prosperous family is not only about the welfare aspects, but also includes the aspect of a meaningful and peaceful life. Women can complement the tasks of men and are an integral part of the role and responsibilities of the Father, family, community, and government. A family function that is well run and effective will clarify and strengthen the direction and purpose of the formation of a prosperous family with a good quality. Gender equality will occur if the wife and husband can fully put their human rights into realization and are equally potential to contribute ideas and energy to their family and community development. The third hypothesis was also proved acceptable. Women have a significant strategic role (as strategic partners, fighters, administrative experts, and agents of change) in improving green environmental performance. The attitude and behavior of women farmers should be oriented towards pro environmental (Bissing-Olson et al., 2012; Muafi et al., 2016; Muafi, 2016). Likewise, they must change their mindset, lifestyle, and even business practices by considering the environmental aspects around them. If the area that was built by women farmers in Hargobinangun can be made “green,” then the public, both from inside and outside the area, has the potential to accelerate sustainable resources for economic development (McCauley and Stephens, 2012; Muafi et al., 2016). The impact will be able to grow and develop a sustainable cluster (Allen and Ptiowsky, 2008). Nevertheless, it needs the support of various stakeholders, namely the government, organizations, the surrounding communities, and media (Hendriques and Sadorsky, 1999). All of these parties are expected, if they have a high commitment in

implementing environmental management towards green area developments, to have an impact on improving the competitiveness of the region (Muafi, et al., 2016; Muafi, 2016). In the scope of chrysanthemum SME organizations, Aragon-Correa (1998) explained that organizations should adopt a consistent and proactive environmental management. This is in line with the research results of Aragon-Corea (1998; Muafi et al., 2016; Muafi, 2016), which found that there is a relationship between the dimensions of natural environment approach and proactive business strategies in order for SMEs to produce high competitiveness.

Tandon (2012) stated that in green economy, there are three things that need to be considered by women, namely environments, socioeconomic development, and gender equality. As an empowered individual, women should be productive, responsible, and have a high involvement in environmental health management. According to Sudarwanto (2010), the great potentials women have can be developed in fields of maintenance, preservation of environments, and prevention of environmental pollution. This is because in addition to the great number of women around, it has also been proven that women have been able to overcome problems surrounding the environments. Up until now, women are not included in environmental management, whether in the aspects of access, participation, control, or benefits. Women are also less educated in terms of the knowledge about environmental management given. Women are only referred to as objects of users in household consumption, without being given any knowledge of the harms from the materials given to them, their families and the environments.

5.1. *Research Implications*

Women can have a strategic role in the improvement of labor productivity, family welfare, and green environments. Increased labor productivity and family welfare can be done through: (1) improving their competence (technical and administrative qualifications as well as family relationships), professionalism, work ethic and work motivation, entrepreneurship skills, and the ability to lead organizations, (2) women could serve as strategic partners, fighters, administrative experts, and agents of change, and (3) women can also develop in fields of maintenance, preservation of environments, and prevention of environmental pollution. (4) increasing access to capital/credit, market information, and networking markets, both in collaboration with banks, economic enterprises, and state-owned or private enterprises. One thing to keep in mind is that running a business cannot be separated from the support of the community, so that the business itself should have a positive impact on the population and the surrounding environments (Smith, 2007). The findings of this research provide important implications that the strategic role of women is very important in chrysanthemum-based engineering design on disaster affected areas.

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