

Differentiation of Gender Roles in Sericulture: A Case Rural Household in Wajo Region Indonesia

¹Andi Maslia Tenrisau Adam, ²Sitti Bulkis, ²Nursini and ²Andi Sadapotto

¹Faculty of Agriculture, Indonesia Timur University, Jl. Rappocini Raya No.171-206, Makassar, 90222 South Sulawesi, Indonesia

²Faculty of Forestry, Hasanuddin University, Jl. Perintis Kemerdekaan 10 km, 90245 Makassar, South Sulawesi, Indonesia

Abstract: The gender role in domestic activity on the mulberry cultivation and silkworm maintenance, wife or women family member has a greater role and the gender role in social activity is performed together by husband and wife but the wife is more dominant and then the gender role in production activity is dominant played by the wife. In general that gender roles in mulberry cultivation and silkworm maintenance of businessman household is dominant performed by the wife. The results of this study reinforce the Parsons that value system is always working and functions to create a balance in society such men as hunters and women as gatherers. It also occurs in households rural in the study areas where the household wives as gatherers who performs the role of reproduction and a more limited were around the house but interrupted his busy in the role of domestic/reproduction and to remain at home, wives do the role as a hunter or seeker breadwinner in the family but do not leave home and family with making a living as maintainers silkworm (sericulture).

Key words: Gender roles, mulberry cultivation, silkworm maintenance, household sericulture, production role, Indonesia

INTRODUCTION

Research about gender still remain actual and interesting, given the many problems that occur in the life of gender such studies that have been done by Dungumaro (2008), Sati and Juyal (2008), Yeboah (2010), Kasi (2013), Razavi (2016), Best and Maier (2007), Brown and Roberts (2014), Boraas and Rodgers (2003), Fortin (2005), Kaspereit *et al.* (2016), Kusumo *et al.* (2014), Kath (2002), Rochmayanto and Kurniasih (2013), Srinath (2008), Supriyantini (2002) and Thamizoli (2001). Activity mulberry cultivation and silkworm maintenance in Wajo Region concentrated in Sabbangparu District and scattered of regional development in the District Pammana, District Tempe, District Bola, District Gilireng and District Majauleng. Type species of mulberry plants developed in Wajo is *Morus nigra*, *Morus cathayana*, *Morus alba*, *Morus multicaulis*, *Kanva* dan S54. With pure cropping systems, crop intercropping and garden plants. According to the data BPSKW (2015) seems to have grown back interest in the public to cultivate mulberry plants in 2014, it can be seen in the data of four consecutive years (2011-2014) in which the Mulberry

cultivation land area is only about 30.5 ha in 2011 became 77.8 ha in 2014 (Table 1). Silkworm *Bombyx mori* sp. is a type of white worm that produce cocoon to processed into silk thread. Until the year 2012 (DCSMEs, 2012), silkworm developed in Wajo Region generally derived from the seeds of silkworm eggs F1 type Bivoltine production Perum Perhutani Soppeng and imported from China in addition to the innovation community is also developing seed by doing hybrid silkworm seed F1 types Bivoltine with silkworm seed types Polyvoltine. However, in 2014 the silkworm seeds developed or used by farmers of silkworm is the seed of Natural Silk Hall and Perhutani. In 2014 (BPSKW., 2015) distribution of silkworm silk seeds to farmers has decreased drastically that 793 boxes in 2013-434.75 box in 2014. The range of cocoon production in Wajo Region since, 2011-2014 is 20-24 kg/box. According to Jun *et al.* (2015) some of the factors that affect business of natural silk in Wajo Region is quality seeds/silkworm eggs, climatic conditions, availability of food sources (mulberry leaf), the selling price of the product and labor (Table 2).

Table 1: Land, total group, total mulberry farmers in wajo region, the year 2010-2014

Years	Mulberry crop area (ha)	Number of groups	Number of farmers (KK)
2010	155.8	13	261
2011	30.5	6	142
2012	30.5	7	157
2013	30.5	7	157
2014	77.8	8	151

Department of Forestry and Plantation Wajo Region (BPSKW., 2015)

Table 2: Distribution of silkworm seed, cocoon and silk yarn production in wajo region, the year 2010-2014

Years	Distribution of silkworm seed (box)	Cocoon production (kg)	Yarn production (kg)
2010	557.75	11.900.70	1.615.21
2011	593.00	13.809.00	1.716.05
2012	672.00	16.255.91	1.880.99
2013	793.00	22.201.70	2.864.33
2014	434.75	8.681.90	1.226.49

Forestry and Plantation Agency Wajo Region (BPSKW., 2015)

According to the study of Tarigan (2008) that in fact natural silk agroindustrial undeveloped for several agro-industry are built not based on the linkages agricultural development the people's is strong. Natural silk activity in Indonesia from year to year also looks increasingly sluggish, many companies that eventually folded. This has an impact on the sustainability livelihood of mulberry cultivation and silkworm maintenance. However, until now, natural silk business is still cultivated by farmers and silk weavers in South Sulawesi as a source of livelihood. In other words, natural silk business is still a focus for their lives. Therefore there needs to be policies that pro farmers to benefit the farmer and weaver of silk can be further increased.

Facts on the field show, the majority of natural silk business made by women of ± 60 and $\pm 40\%$ of men (DCSME, 2012) but based on the gender of business owners of weaving silk in Wajo Region, men business owners more advanced and developed the natural silk business than women business owners (Tenrisau, 2010). The ratio of women in natural silk business indicated due to cultural factors in the area, that the business of natural silk is a hereditary business that requires precision and patience that are worth doing are women. While Sadapotto (2012) argued in his study that the human factor is very important is observed besides technical factors for successful operation of natural silk.

The problem is who wants to be appointed by the researchers as to how differentiation of gender roles in the household mulberry cultivation and silkworm maintenance because the reality of women in natural silk business helped in the family economy is not uncommon even of them have changed the role of became the backbone the economy for their families. The changing role and double burden women are certainly very influential either little or much for household life. Then who does domestic chores, social and production in the household becomes something to be studied more deeply by the researcher.

Therefore, the objectives of this research are analyzing the differentiation of gender roles in the form of a domestic role a social role and a role in the production at the businessmen household of mulberry cultivation and silkworm maintenance.

MATERIALS AND METHODS

This research is descriptive qualitative approach (Gunawan, 2013). This type of research is a case study about condition of management of natural silk and the position of ongoing events at this time as well as the interaction of social environment what existence (Vang, 2009; Gunawan, 2013). The location research in Wajo Region because Wajo is producing areas the largest natural silk in South Sulawesi. Wajo Region consists of 14 sub districts which includes 128 villages. Sengkang is the main division of the Tempe sub district. Sengkang which is the capital of the Wajo Region has the smallest area but with a high population density. Wajo spreads over an area of 2.506.19 km² and owns 4.01% of the South Sulawesi land mass, Wajo is located between 3°39'-4°16'LS and 119°53'-120°27'BT. Wajo has a tropical type B climate with temperature ranging between 29°-31°C. An average annual rainfall of 8000 mm can be expected from April-July and August-October.

Land use: About 2,506.19 km² land area is under the cultivations of paddy, gardens and buildings. Labor condition: population majority of the Wajo (696 people or 22.02%) that are employed in trade, food and hotel, industries. About 639 people (20.22%) work in finance and insurance sectors while 453 people (14.33%) involve in agriculture sector, Fishery, Farming and Forestry.

Economy: Wajo economy is yet predominantly supplemented by the agriculture sector followed by the trade and service sectors respectively. Agriculture sector

comprises of crops, plantations and fishery. Trade and service sectors that is industries such as hotels and restaurant (hospitality), manufacturing, mining, transportation, communication, construction, electricity, gas and purified water.

Ethnic and religious composition: Majority of the Wajo people are Muslims who practice Islam. Other minorities include protestant, catholic and Hindu followers. Bugis is the mother tongue of the Wajo Region.

While the district that chosen the Sabbangparu District that based on consideration of the production centers of mulberry and silkworm. The total area of the Sabbangparu District is 132.75 km² (5.30%) of the total area of Wajo Region. Sabbangparu district consists of 15 villages/wards, consisting of 12 villages and 3 districts. The research was conducted in April until June 2015. Informants early taken in this study were selected purposely in accordance with the purpose of research (Moleang, 2010). The informants subsequently are determined by snowball sampling. Informants are taken in this research is a member of the household who does the mulberry cultivation and silkworm raiser. Another, informant is forestry extension, village heads and community leaders, Forestry and conservation, cooperatives, SMEs and industry and private sector.

This research uses qualitative data analysis model taxonomy using three stages analysis activities namely data reduction, data display and conclusion drawing/verifying (Gunawan, 2013).

RESULTS AND DISCUSSION

The village community in the Sabbangparu district planting mulberry plants, since, long ago because it serves as a guardrail around the yard of the house and as feed silkworms. Mulberry plants can live long until decades and easily cultivated, namely through the planting of cuttings. Plants ready to be harvested to feed the silkworms at least the age of about 1 year. With good maintenance system, these plants can also be cultivated on lands less fertile and as the greening plants. While the jobs silkworm maintenance can be done at home without leaving the family at home. Later, other benefits of mulberry cultivation and silkworm maintenance is requires much labor start with the mulberry cultivation until maintenance of silkworms. Best and Maier (2007) and Geetha and Indira (2011) found that sericulture is industry a very labor intensive and occupies an important position in terms of providing employment and additional income.

Sericulture basically is a village based industry that providing jobs to labor both skilled and unskilled (Lakshmanan and Jayram, 1998). Currently, it is estimated that each ha of mulberry plants provide employment for about 16 people (Kasi, 2013).

Some households or farmers mulberry and silkworm maintenance in Sabbangparu district claimed that this business can be used as economy of guarantee for additional family income regularly, although, most households only have a narrow land Mulberry cultivation. The land is only able to production of mulberry leaves to ½-1 box silkworms per month. Silkworms maintenance it self is the relatively short about 3 and 4 weeks is the harvest that is acceptable income every month, in contrast to crops and plantation businesses such as paddy, corn, green beans, coconut and chocolate which have a lifespan of more than one month of harvest, so it can not for harvest every month. Then the silkworm production in the form of cocoon that spun into silk yarn can be sold at a price of Rp. 40,000/kg (US\$ 3.07) while the selling price silk yarn of Rp 550,000/kg (US\$ 42.27). This is in line with studies, Kasi (2013) that sericulture is an important means to produce employment, increase in income and is the most appropriate household activities.

Gender roles in reproductive/domestic activity: Gender role differentiation is the time devoted by members of the household in domestic activities, social activities and production activities. Levy (1971) explains the role differentiation is the way a person's relatives seated according to their respective functions by considering differences in age, sex, economic position and power sharing.

The division of roles in the family is indispensable in order to give responsibilities among family members to meet the needs together with mutual benefit (symbiosis mutualism). Similarly, domestic activities that happens to household mulberry cultivation and silkworm maintenance which wive more dominant role in reproductive activities. Domestic activities such as cooking, washing clothes, washing dishes done before leaving for the garden or rice fields and continue the reproductive activities such as caring for children, cleaning the house or the care of her husband after returning from the garden or rice fields. Sometimes reproductive activities such as caring for children are done on the sidelines of production activities such as silkworm maintenance or feeding silkworms.

"I Mrs. KR (35 years) in household almost all domestic activities I do. My husband sometimes helps. If someone helps keep my child I also went to the garden taking mulberry leaves when the silkworms has entered instar 4 and 5 because it requires a lot of feed. I have to do domestic activities like cooking, wash in the morning before feeding of silkworms. Silkworms fed around 7.00 am for approximately 1 and 2 h. After that I care for children while cleaning the house. Sometimes I would be sunning of grain beside to the house when I was paddy fields harvested. Then I take care of my husband the come back from the garden take mulberry leaves after the break. After break, I lunch with my husband and child feeding me then feed the silkworms at about 1.00 p.m. at the same time clean up the remaining feed silkworms falling on the floor. After that, I still have time to rest and play with my children while waiting for my husband who come back from the gardens around 6:00 p.m. because my husband every day twice into the garden that is morning and afternoon. At night I cook dinner for the family and then eat with my husband and son then about 7.30 p.m. I feed the silkworms about 1 and 2 h. After that, I continue to do domestic activities such as washing dishes, folding clothes and then sleep at night. Every Friday I went to the market Salojampu to buy foodstuffs, sometimes too if it has any thread that has spun I bring it to market for sale" (Interview ranges date 2/4/2015-28/5/2015)

In the domain of domestic, women a greater role than men in activities govern the provision of family foods (such as creating a menu of food and processing and presentation) and set the household activities (such as washing clothes, washing dishes, cleaning the house, grocery shopping household, childcare and education of children). However, only the responsibility of maintenance and repair of the house and yard dominant performed by husband (Table 3). The activities govern the provision of family foods in terms food menu and for processing and presenting, wife or adult women family member plays an important role while the husband does not seem to play a role in this case. Husband fully devolved to the wife or adult women family member. Husbands understand that the wives know more about the food menu and processing methods are better than him. The cooking is done in the morning, noon and night, depending on the availability of food or time of wife. The process of cooking food is usually done about 1 and 2 h. The activities of organize household like washing the clothes more used by a wife or family member of adult woman. Washing clothes them usually to do in the

morning before the productive activity conducted for approximately 1 and 2 h. Whereas husband minimal role because some husbands thought that the laundry is the duty of a wife. Most households have also used the washing machine to wash the clothes for convenience, ease and speed up the house work. Further, the activities of organize household like washing the dishes, played by wives or family members of adult women. While the husband almost no role in this matter. This activity has no special time they can do anytime. Later, household activities cleaning the house such as sweeping the floor, mopping, tidying up of household appliances and others conducted by wives or other women family members. Usually is done every day in the morning around 1 and 2 h before doing productive activities. Furthermore, household activities such as shopping for purposes household, played by wives or other women family members. Going to the market is not done everyday, depending on market day near their homes (Salojampu market) is Monday, Wednesday and Friday. Time activity in the markets they usually do about 1 and 2 h.

Other activities include responsibility for the care and education of children, seemingly dominant conducted by the wife. In the area of research most of their children are grown. Furthermore, the responsibility of maintenance and repair of the house and its grounds, the husband has a greater role. However, the husband is more dominant on maintenance and repairs that require strong physical example fix leaky of roofs, paint the houses and others.

Verily, the role of both the husband and wife but the wife is dominant in the care and education of children. This is due to the attitude of mutual respect between husband and wife as the embodiment of compassion (Supriyantini, 2002), let alone these activities interact with the public or another person where men usually do household work tends to be helped by others (Sullivan, 1996; Shelton, 2006). The role of the husband alone in household activities is only responsible for the maintenance and repair of the house and yard. This can be caused the husband had physically stronger than wives or women where these jobs require physically strong to do. The other reason according to in Supriyantini (2002) that the factors that affect the husband to engage in household activities is leisure time the husband. The more time, the husband tends more time to be involved in the family.

When seeing domestic activities on the mulberry cultivation and silkworm maintenance, it can be said that the wife or women has a greater role. It can be influenced by the values and norms of society (Eswarappa, 2011) that all kinds of work that is both domestic and feminine that does not require a strong labor done by women. Then

Table 3: Gender roles in domestic activities at the businessmen household of mulberry cultivation and silkworm maintenance

Domestic activities	Husband (h/day)	Wife (h/day)	MFM (h/day)	WFM (h/day)
Arrange the provision of family foods				
Food menu	-	0.53	-	0.220
Process and present	-	1.44	0.22	1.000
Household activities organize				
Washing the clothes	-	0.78	0.17	0.560
Wash the dishes	-	0.61	0.17	0.500
Cleaning the house	-	0.83	0.11	0.390
Household grocery shopping	0.22	1.17	0.11	0.280
Parenting and education of children	1.33	2.00	-	-
Maintenance and repair of houses and yard	1.03	0.22	0.44	0.080
Total	2.58	7.59	1.22	3.030

MFM = Men Family Members, WFM = Women Family Members

Table 4: Gender roles in social activities at the businessmen household of mulberry cultivation and silkworm maintenance

Social activities	Husband (h/month)	Wife (h/month)	MFM (h/month)	WFM (h/month)
Social activities	3.00	7.33	-	0.56
Attending the meeting in the village	1.56	1.88	-	0.33
Total	4.56	9.21	-	0.89

MFM = Men Family Members, WFM = Women Family Members

there are still restrictions on the customs and norms of the society that begins on stereotypes (labeling) that the men taboo perform domestic activities such as washing the dishes, washing the clothes and cooking because it is “women’s work”. Men are willing to do the work of the women feared could be degrade and authority as a leader in the family. In addition, attach the role of women in domestic activity, causing a sense of guilt if not running domestic activity. In other words, the appearance of tradition and society’s belief that they should be responsible for the overall implementation of domestic work in and a perception the husband that he was responsible to make a living while the wife works at home, in addition to the everyday the man much spent in the public sector.

Gender roles in social activity: The gender role in social activities on mulberry cultivation and silkworm maintenance includes all activities in the community, voluntary and unpaid. Social activities are usually done by mulberry farmers and silkworm maintenance as help other communities if there are an event or celebration example weddings, aqiqah and death. Woman or wife most often or at least plays a role in this kind of activity or other women household members who have grown. At wedding ceremony, community or neighbors usually help deliver a wedding invitation to a neighbor or to families who have urination, helping to make cookies for a wedding event and help cook food during the celebration event. At the social activities such as weddings, the event aqiqah and death in addition to helping rural communities in the form of materials they also give the financial aid with amount according to their ability. Other social activities every year they do is Maulid of Prophet Muhammad SAW. This event was done in the mosque.

Customs or traditions of the local community at this event bringing the conducting form of eggs and songkolo to eat together or take home. However, for the recitation event seems no longer active do people in this village.

While for the social activities usual conducted by the husband is the community service activities in the maintenance of public facilities such as community service grass or weeds in the mosque. This shows the close togetherness still villagers (Tengah, 2012). Meanwhile, activities to the meeting in the village is played together between husband and wife such as attending counseling development of natural silk, the counseling of making flour puri, providing assistance to businessmen of silk such as repair the place of maintenance silkworm in the form of boards, triplex, cement, sand, rack pengokonan, sacks and cover silkworms. In general, the role of gender in social activities on mulberry cultivation and silkworm maintenance is performed together husband and wife but the wife is more dominant (Table 4).

Gender roles in production activity: In general, the process of mulberry cultivation and silkworm the maintenance among households conducted together between household members of men and women with different proportions. The following 2 sections will be described separately in gender roles in mulberry cultivation and silkworm maintenance. Although, the actual these activities are interlinked into a single unit that produces silk yarn.

Gender roles in production activities at the household of mulberry cultivation: Mulberry cultivation is concentrated in Sabbangparu District. The cropping pattern mulberry done by people in the Sabbangparu

District is diverse, namely as garden plant, garden plants are intercropped with coconut and cocoa or pure mulberry crop (monoculture). The role of gender in the process of mulberry cultivation activities are as follows.

Making the mulberry cuttings: A process that was originally set up seedling of nursery or seedling of cutting, generally, the mulberry plants grown by farmers in the Sabbangparu District are *Morus nigra*, *Morus alba* and *Morus cathayana*. This activity is performed both husband and wife but in this case the husband is more dominant role. According to the interviews they only grow once they have never rejuvenation because long-lived plant and production of mulberry leaves are still many.

Land processing: The process of tillage plowed or dug to a depth of about 20-30 cm. This activity is performed by a husband or men because activity it requires physical or strong force that usually performed by a husband or men.

Mulberry planting: The process of planting the seeds into the ground with a spacing of 2×0.5 m. However, it appears the mulberry planting mostly do not notice a spacing because they grow just as a plant-stream in the garden or as a hedge. Only a small portion is planted in monoculture. This activity is performed by a husband or men in the household.

Mulberry cultivation: The mulberry plant maintenance such as watering, fertilizing, weeding and pest/disease and than the leaves pruning. This maintenance activity is usually done both husband and wife together. The advantage of this mulberry plants according to them this plant does not require special maintenance has been able to grow by them and therefore they do not often do fertilization.

Mulberry leaf harvesting: the activity that picked up the leaves for silkworms food. The leaves are harvested adjusted for age silkworm that maintained whether old caterpillars stadia 1 s/d 3 or stadia 4 and 5. At the regular harvesting activities conducted by the husband or men because this work is quite heavy. The harvested leaves must be transported/carried from the garden to the house (the place maintenance caterpillars). After the mulberry leaves were taken the home then the wife to feed silkworms.

Gender roles in production activities at the household of silkworm maintenance

Preparation of silkworm maintenance: Are activities such as provision of feed, the arrangement of the room,

preparing materials and equipment as follows). The leaves of mulberry will be given to silkworm the need to qualify among other age leaf according to age caterpillar. Small caterpillars (stage 1 s/d 4) were fed green leaf. For large caterpillar (stage 5 and 6) were fed leaves from branches those 2 and 3 months old. The leaves must be clean, fresh, not wilted and free of pests and diseases). Arrangement of the room where the room maintenance silkworm must meet the requirements of temperature, light, humidity and ventilation also must be cleaned of dirt and dust as well as disinfektan with chlorine solution or formaldehyde is done about 2 and 3 days before the room is used). Materials and equipment used should be washed first with a chlorine solution and then dried in the hot sun. All of these activities performed jointly between husband and wife but the wife is more dominant.

The hatchery and silkworm displacemmnt: Silkworm eggs are hatched with evenly distributed in hatcheries of a small box (size 30×50 cm) made of triplex. Usually about 2 and 3 days the eggs are hatched. After all the eggs hatched caterpillars moved to the maintenance (sasag). A few moments later, the caterpillars were fed in the form of soft mulberry leaves (still young) are cut to the size of 0.2 and 0.3 cm. Then sasag covered with oil. The cover is opened again when the next feeding. This activity is performed by the wife or women in the household. Usually the wife is done in the house so easier to control while doing the housework.

Maintenance of small silkworm: Small caterpillar is a caterpillar aged 1-11 and 12 day, consists of three instars, namely). Instar 1 the caterpillars 1 and 4 days old, 2). Instar 2 the caterpillars 5-7 days old, 3). Instar the caterpillars aged 8-11 days. Instar is a period in which caterpillar will experience a period of sleep and suffered skin replacement. Feeding for the first instar by young mulberry leaves from the stalk section above while for caterpillar instar 2 and 3 by the leaves from the stalk down. All of these activities played dominat by the wife. But the number of mulberry leaves (feed) is given no specific measure based only on approximations.

Maintenance of large silkworm: Large Silkworm is a caterpillar phase since the age of 12 up to 22-25 days when the caterpillar will undergo a phase pengokonan or large caterpillar is a caterpillar that has reached instars 4 and 5 (late stage). The process activity is similar to the maintenance of small caterpillars, only feed given different that instar 4 and 5 require more food. The leaves were given to large caterpillar does not need to be cut but can be provided in the form intact. Give feeding instar

Table 5: Gender roles in production activities at the businessmen household of mulberry cultivation and silkworm maintenance

Production activities	Husband (h/one cycle)	Wife (h/one cycle)	MFM (h/one cycle)	WFM (h/one cycle)
Mulberry cultivation				
Making the mulberry cuttings (1 day)	0.72	0.33	0.28	0.06
Land processing (2 days)	1.67	0.06	0.89	0.06
Mulberry planting (1 days)	0.94	0.06	0.44	0.06
Mulberry cultivation (3 days)	3.00	2.56	0.17	0.33
Mulberry leaf harvesting (20 days)	38.89	22.22	3.33	10.00
Silkworm maintenance				
Preparation of silkworm maintenance (1 day)	0.61	0.74	0.11	0.06
The Hatchery and silkworm displacement (2 days)	0.11	1.44	-	-
Maintenance of small silkworm (12 days)	3.33	12.67	0.67	-
Maintenance of large silkworm (10-12 days)	2.78	20.56	0.56	0.89
The formation of cocoon (4 days)	-	7.33	-	4.44
Harvesting of cocoon (3-5 days)	-	6.67	0.33	4.33
Spinning (3-5 days)	-	6.83	-	5.17
Total	52.05	81.50	6.78	25.39

MFM = Men Family Members, WFM = Women Family Members

5 to be done four times a day, morning, noon, afternoon and evening. Instar 5 should be increased to 5 or 6 times. All of these activities played by the wife and by family members of women but the wife's role is more dominant as always control the caterpillars feed supplies.

The formation of cocoon: Is the phase in which the caterpillar will be transformed into a pupa, before it turns into a butterfly. During this phase, the caterpillar will issue a cocoon which is a material that serves to wrap him in order to avoid interference from the enemy. Cocoon is actually the saliva from the mouth of the caterpillar (larva) butterfly silk after dried would be fibers. The formation of cocoon lasted about 4 days. Usually caterpillars begin mengokan fifth instar ie at age 22-25 or 26 days. In order pengokonan process goes well then the caterpillar was transferred to a special place called pengokonan rack. This activity is dominant played by wife and assisted by women family members in the household.

Harvesting of cocoon: Approximately 6 and 7 days after the caterpillars moved somewhere made cocon, usually cocoon has been harvested. Harvesting time should be precise should not be too early or too late. If too fast too young pupa so, easily broken and caused cocoon becomes dirty. Conversely, if harvested too late, pupa an existing in the cocoon will turn into a butterfly and came out with a cocoon of skin damage. Therefore, in order to harvest right then the first need to be checked. When pupae in cocoons had turned brown and hard skin means the harvest can be performed. Activity cocoon harvesting is dominant conducted by the wife or women in the household. Usually in one box, the wife needs 4 and 5 days to harvest. The wife do this work usually with family members of women who.

Spinning: Before unspun, the first cocoon soaked in cold water and then put in hot water while pressed into. The

volume of water is reduced so that the number of cocoons which sank about 75%. Then cocoon brought to the spinning wheel. To search the fiber ends can use a brush or small broom. Each yarn typically consists of 10-12 cocoon fibers. The fiber is inserted into a filter, then to the launcher, next to haspel (a silk yarn rolling) then dried or aired. This activity is performed by the wife or women in the household, usually performed by 2 women, one woman to pull the fiber and that one more person to play the loom because in general they are still using the traditional loom by dynamo. For one box of silkworm usually they need 2 and 3 days to spin yarns. While time spinning yarn usually they do in the morning until noon because they had to work in domestic activities beforehand as cooking, washing the clothes and cleaning the house and was continued in the afternoon for spinning yarns. Gender roles in production activities can be seen in (Table 5).

In detail the division of gender roles in the activities of production of mulberry cultivation in the Sabbangparu District form mulberry plant breeding activities performed by the husband proportion greater than the wife land cultivation is done by the husband, mulberry planting is usually done by the husband, mulberry cultivation (only in the form of fertilizing, weeding, pruning) is done with greater proportion of the wife than the husband, mulberry leaf harvesting activities done by the husband. Thus it can be said, mulberry cultivation activities more performed by the husband. Then silkworms maintenance such as preparation activities (supply of feed, the arrangement of the rooms and the provision of materials and tools performed together by a husband and wife with the proportion of the wife is more dominant; the activities of the hatchery and the removal of silkworm dominant performed by the wife, the maintenance of small silkworm performed with proportions the wife more than the husband, the maintenance of large silkworm performed together with proportion of the wives greater than the

husband, activities the formation of cocoon dominant performed by the wife, harvesting of cocoons dominant performed by the wife, activity spinning of yarn dominant performed by the wife. Thus we can say here that the silkworm maintenance is done mostly by the wife. This is similar to the results of research Kasi (2013) that women can generally be trusted to carry out their duties with care and attention. No wonder the women have played a very important role in the sericulture industry. Their quality is such as maternal instinct and loving care that proved very helpful in the maintenance of silkworm. Women contribute about 50 and 60% from the workforce for mulberry cultivation and silkworm maintenance (Gate, 2001; Goyal, 2007; Kasi, 2013; Panda, 2007; Srinath, 2008; Thamizoli 2001; Vijayalakshmi, 2002).

CONCLUSION

The gender roles in domestic activity on the mulberry cultivation and silkworm maintenance, wife or women family member has a greater role and the gender role in social activities is performed together by husband and wife but the wife is more dominant. The gender roles in production activities on mulberry cultivation dominant performed by a husband or men in the household while silkworm maintenance is performed dominant by wife in the household. However, the research shows that gender roles in production activities on the mulberry cultivation and silkworm maintenance is dominant played by the wife. In general that gender roles in mulberry cultivation and silkworm maintenance of businessman household is dominant performed by the wife.

IMPLICATIONS

The results showed that the role of gender in the form of a domestic role a social role and a role in the production of household businessman mulberry cultivation and silkworm maintenance is dominant performed by the wife. The results of this study reinforce the theory of Levy (1971) found differences in the position of men and women in the family is not only due to biological reasons that are based on weak or strong physically. More important consideration comes from the social and cultural patterns which determine who reigns in the kinship system who is care for and educate the child who is making a living who appears in ritual activities and so forth. This occurred in households in the village of studies showing that the wife even though physically weak but able to play a role in the household,

performing the role of domestic/reproduction (caring for and educating children), social roles (performing ritual activities and social in the village) and the role of production (earn a living). This role is performed not because of compulsion and felt that there was no balance of gender roles in the household but solely due to a sense of sincerity and affection towards the family and household members as well as a great desire to help the family economy so that even though of wives do three roles the harmony and the integrity of the family still in progress.

Then the results of this study also advanced the theory Parsons (1951) that value system is always working and functions to create a balance in society such men as hunters and women as gatherers. Women with reproductive functions demanded to be on the domestic role. While the men holder of a public role. As a hunter, a men more outside the home and is responsible for bringing food to the family. The role of women is limited around the house in matters of reproduction such as contain, preserve and breast feeding. The division of labor such as has been functioning well and managed to create continuity of a stable society. It also occurs in households in the study areas where the household wives as gatherers who performs the role of reproduction and a more limited were around the house but interrupted his busy in the role of domestic/reproduction and to remain at home, wives do the role as a hunter or seeker breadwinner in the family but do not leave home and family with making a living as maintainers silkworm (sericulture).

ACKNOWLEDGEMENTS

The researcher are grateful to the Ministry of Research of the Republic of Indonesia at the doctoral scholarship at the University of Hasanuddin. The researchers also wishes to thank Professor Piyadasa Ratnayake at the Faculty of Economics, University of Saga in Japan who sincerely provide help and guidance for of study in Japan and the completion of this study. Finally, the researchers are grateful to all of which support through a variety of ways during the study period to make it a success.

REFERENCES

- BPSKW., 2015. [Wajo in figures 2015]. Badan Pusat Statistik (BPS) Kabupaten Wajo, Indonesia. (In Indonesian)
- Best, M.L. and S.G. Maier, 2007. Gender, culture and ICT use in rural South India. *Gender Technol. Dev.*, 11: 137-155.

- Boraas, S. and W.M. III. Rodgers, 2003. How does gender play a role in the earnings gap-an update. *Monthly Lab. Rev.*, Vol. 126
- Brown, H. and J. Roberts, 2014. Gender role identity, breadwinner status and psychological well-being in the household. Master Thesis, The University of Sheffield, Sheffield, England.
- DCSMEs, 2012. [Silk weaving developments in Wajo]. Department of Cooperatives SMEs and Industry Wajo, Wajo Regency, Indonesia. (In Indonesian)
- Dungumaro, E.W., 2008. Gender differentials in household structure and socioeconomic characteristics in South Africa. *J. Comp. Family Stud.*, 39: 429-451.
- Eswarappa, K., 2011. Developmental initiatives and sericulture in a South Indian Village. *South Asia Res.*, 31: 213-229.
- Fortin, N.M., 2005. Gender role attitudes and the labour-market outcomes of women across OECD countries. *Oxford Rev. Econ. Policy*, 21: 416-438.
- Gate, S., 2001. Empowerment of women in watershed management guraiya panchayat, Madhya Pradesh. *Indian J. Gender Stud.*, 8: 247-256.
- Geetha, G.S. and R. Indira, 2011. Silkworm rearing by rural women in Karnataka: A path to empowerment. *Indian J. Gender Stud.*, 18: 89-102.
- Goyal, A., 2007. Women making choices masked but aware?. *Indian J. Gender Stud.*, 14: 409-437.
- Gunawan, I., 2013. [Qualitative Research Methods, Theory and Practice]. Bumi Aksara, Jakarta, Indonesia, (In Indonesian).
- Jun, H., D.R. Nurrochmat and C.M. Kusharto, 2015. Natural silk business development wajo, South Sulawesi. *Proc. Agric. Policy Environ.*, 2: 129-136.
- Kasi, E., 2013. Role of women in sericulture and community development: A study from a South Indian Village. *J. Hum. Resur.*, 3: 1-11.
- Kaspereit, T., K. Lopatta and Z. Matolcsy, 2016. Board gender diversity and dimensions of corporate social responsibility. *J. Manage. Sustainability*, 6: 50-66.
- Kath, P., 2002. Gender analysis for sustainable livelihoods frameworks, tools and links to other sources. *Resour.*, 2: 1-6.
- Kusumo, R.A.B., A. Charina and G.W. Mukti, 2014. [Gender analysis in family life fishermen in district pangandaran ciamis district (In Indonesian)]. *J. Soc. Econ. Agric.*, 2: 42-53.
- Lakshmanan, S. and H. Jayram, 1998. Manpower utilization in mulberry sericulture: An empirical analysis. *Manpower J.*, 33: 50-63.
- Levy, M.J., 1971. *The Family Revolution in Modern China*. Octagon Book, New York, USA., Pages: 390.
- Moleang, L.J., 2010. [Qualitative Research Methodology]. PT Remaja Rosdakarya, Bandung, Indonesia, (In Indonesian).
- Panda, S.M., 2007. Mainstreaming gender in water management: A critical view. *Gender, Technol. Dev.*, 11: 321-338.
- Parsons, T., 1951. *The Social System*. Free Press, New York, USA.,
- Razavi, S., 2016. The 2030 agenda: Challenges of implementation to attain gender equality and women's rights. *Gender Dev.*, 24: 25-41.
- Rochmayanto, Y. and P. Kurniasih, 2013. [Role of gender in climate change adaptation of ecosystems mountains in Solok, West Sumatra (In Indonesian)]. *J. Forestry Policy Anal.*, 10: 203-213.
- Sadapotto, A., 2012. [Natural silk policy process in South Sulawesi (In Indonesian)]. *Perennial*, 8: 1-5.
- Sati, M.C. and R.P. Juyal, 2008. A gender approach to sustainable rural development of mountains: Women's successes in agro-enterprises in the Indian Central Himalayan Region. *Mt. Res. Dev.*, 28: 8-12.
- Shelton, B.A., 2006. Gender and Unpaid Work. In: *Handbook of the Sociology of Gender*, Shelton, B.A. (Ed.). Springer, New York, USA., ISBN:978-0-387-32460-9, pp: 375-390.
- Srinath, K., 2008. Gender and coastal zone biodiversity. *Gender Technol. Dev.*, 12: 209-227.
- Sullivan, O., 1996. Time co-ordination, the domestic division of labour and affective relations: Time use and the enjoyment of activities within couples. *Sociol.*, 30: 79-100.
- Supriyanti, S., 2002. Relationship between gender role views husband with involvement in household activities. Master Thesis, Utah State University, Logan, Utah.
- Tarigan, D., 2008. [Alam sutera agro-industry development strategy through the cluster approach]. Master Thesis, Bogor Agricultural University, Bogor, Indonesia. (In Indonesian)
- Tengah, P.J., 2012. [Gender roles in household decision making fishermen in the North of Semarang City (In Indonesian)]. *Soc. Econ. KP.*, 7: 113-125.
- Tennisau, A.A.M., 2010. [Analysis of comparative advantage and competitiveness in wajo silk fabrics]. Master Thesis, Hasanuddin University, Makassar, Indonesia. (In Indonesian)
- Thamizoli, P., 2001. Integrating gender concerns into natural resource management: The case of the Pichavaram Mangroves, Tamil Nadu. *Bull. Centre Womens Dev. Stud.*, 8: 195-206.
- Vang, C.Y., 2005. The lao: Gender, power and livelihood. *Contemp. Sociology*, 34: 28-30.
- Vijayalakshmi, V., 2002. A report on the politics of inclusion: Adivasi women in local governance in Karnataka. *Gender Technol. Dev.*, 6: 269-283.
- Yeboah, M.A., 2010. Urban poverty, livelihood and gender: Perceptions and experiences of porters in Accra, Ghana. *Afr. Today*, 56: 42-60.