



Asset Mapping of Hulun Hyang Farmer Group in Sustainable Management of Edelweiss Park Based on Asset-Based Community Development in Bromo Tengger Semeru National Park Area

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Abstract— One of the endemic flora that has become an icon in the Bromo Tengger Semeru National Park (TNBTS) area is the Edelweiss Flower. The existence of tourism developments in the Bromo Tengger Semeru National Park (TNBTS) area makes the demand for Edelweiss flowers as souvenirs even more excellent. It affects the economic value of these commodities. It affects the population decline and threatens its availability for the Tengger indigenous people who use Edelweiss flowers as offerings that other components cannot replace. Since 2017, the Wonokitri Village community has collaborated with Bromo Tengger Semeru National Park (TNBTS) area to form the Hulun Hyang farmer group to conserve Edelweiss Flower ex-situ. The Hulun Hyang Farmer's Group has also obtained a breeding permit for Edelweiss Flowers from the Ministry of Environment and Forestry regarding wanawiyata widyakarya, which is realized through the development of the Edelweiss Park. It is essential to increase the capacity of managers in Edelweiss Park Development to ensure the sustainability of their activities. This development needs to be fostered endogenously through the active participation of each member of the Hulun Hyang Farmer Group to form a firmly rooted mechanism and responsive to existing local dynamics. In this case, the Asset Based Community Development (ABCD) approach is considered suitable to be applied as a methodology to map assets owned by the Hulun Hyang Farmer Group. ABCD accommodates seven mapped capitals: physical capital, financial capital, environmental capital, technological capital, human capital, social capital, and spiritual capital. This asset mapping is hoped that it can encourage members of the Hulun Hyang Farmer Group to find out detailed information on their capital, which can later be used as a basis for formulating programs to improve skills and collective understanding so that they can develop a sustainable Edelweiss Park agro-ecosystem independently

Index Terms— ABCD Methode, Edelweiss Flower, Ex-situ Conservation, Farmer Group.

I. INTRODUCTION

The Bromo Tengger Semeru National Park area (TNBTS) has a native ecosystem, a habitat for a variety of flora and fauna with sub-montane, montane, and alpine ecosystem types [1]. One of the endemic flora that has become an icon in the TNBTS area is the Edelweiss Flower. Edelweiss flowers can only grow in mountainous areas, especially in rocky and calcareous areas at an altitude between 1600 to 3600 meters above sea level, which is usually a cliff on mountain slopes and is intolerant can live in nutrient-poor soils [10]. Bromo Tengger Semeru National Park (TNBTS) is included in the tropical climate group with temperatures between 15-25 °C, average rainfall of 3,712 mm every year, and experiences two seasons: the rainy season and the dry season [9]. Specific climatic conditions in the TNBTS area meet the growing criteria for Edelweiss Flowers (*Anaphalis* spp).

The existence of tourism developments in the Bromo Tengger Semeru National Park (TNBTS) area makes the demand for Edelweiss flowers as souvenirs even more excellent. It affects the economic value of these commodities, and high market demand makes people interested in getting them. However, the sale of Edelweiss Flowers has been carried out illegally because the flower is one of the protected flora. The number that continues to decrease in their natural habitat can threaten the existence of Edelweiss Flowers [2].

Edelweiss flower also affects the traditional ceremonial activities carried out by the Tenggerese people because this flower is an essential component in offerings that cannot be replaced [3].

Based on these conditions, residents of Wonokitri Village, Tosari District, Pasuruan Regency, formed a farmer group called Hulun Hyang (Servant Sang Hyang Widhi) in 2017. This farmer group was specially trained by the Bromo Tengger Semeru National Park Center (BBTNBTS) to encourage local communities to carry out conservation efforts by developing the Edelweiss Park as a means of ex-situ conservation and a display case for Edelweiss flower cultivation. The initial development program was only intended for the needs of residents in fulfilling traditional interests. However, with the encouragement of various parties, Edelweiss Park was developed into an alternative tourist attraction in the TNBTS area. Until November 2018, BBTNBTS, together with the BKSDA of East Java Province and the Pasuruan Regional Government, launched Edelweiss Village tours, one of which was in Wonokitri Village.

The Hulun Hyang Farmers Group also officially obtained the Edelweiss (*Anaphalis* spp) flower breeding permit from the Ministry of Environment and Forestry. Ka. BP2SDM:No.6361/MENLHK-BP2SDM/LUH/OTL.0/7/2019 regarding Wanawiyata Widyakarya. Wana Widyakarya itself is a business model in the forestry and or environmental

sector owned and managed by community groups or individuals set by the Minister of Environment and Forestry as a pilot, training place, and internship for other communities. Wanawiyata Widyakarya is intended to provide quality learning facilities for the community in the forestry/environmental business sector and give appreciation to community groups and individuals who have succeeded in developing businesses in the forestry/environment sector [4].



Fig1. Edelweiss flowers in Edelweiss Park, Wonokitri Village, Pasuruan Regency



Fig 2. Location of Edelweiss Park, Wonokitri Village, Pasuruan Regency

Edelweiss Park, which the Hulun Hyang Farmers Group manages, is the only tourist park with official permission from the Ministry of Environment (KLH) to cultivate Edelweiss flowers. Edelweiss Park is expected to become an ex-situ conservation area for Edelweiss flowers through captivity activities. The interests of the Tengger indigenous people can be fulfilled, and there is an increase in community welfare, especially in Wonokitri Village, through the development of Edelweiss Village tourism. In order to achieve this, the role of local communities through the Hulun Hyang Farmer Group in Ex-situ Edelweiss Flower cultivation activities is significant.

Based on the analysis of the situation presented, what needs to be addressed in the advanced stages of the development of Edelweiss park is the mapping of assets owned to strengthen the group foundation as further consideration for developing human resource capacity in managing sustainable agroecosystems. This development needs to be fostered endogenously through the active participation of every member of the Hulun Hyang Farmer Group to form a firmly rooted mechanism and responsive to existing local dynamics. In this case, the Asset Based Community Development (ABCD) approach is considered appropriate to be applied as a methodology to determine the capacity assets of the Hulun Hyang Farmer Group. This study aims to analyze and map the assets that exist in the Hulun Hyang Farmer Group, which can be carried out for the sustainable development of Edelweiss Park and can be carried out further research in making an empowerment

strategy for the Hulun Hyang Farmer group a group of people who are economically and socially independent so that they can develop a sustainable Edelweiss Park agroecosystem

II. MATERIAL AND METHODS

The research was conducted from October to December 2021 in Edelweiss Park, Wonokitri Village, Tosari District, Pasuruan Regency. Wonokitri Village is one of the main Tengger villages located outside the Bromo Tengger Semeru National Park (TNBTS). The village boundary in the north is Sedaeng Village, in the west is Keduwung Village; in the east, it is bordered by Ngadiwono Village, while in the south, it is bordered by Podokoyo village. The coordinates for the location of Edelweiss Park are S -7.88478, E 112.9117. The area of Wonokitri Village is 1,120,295 Hectares consisting of 887,598 Hectares of agricultural fields, 14 ha of shrubs, 212,556 hectares of Forest Protection and Nature Conservation, and 20,127 hectares of plantations. Details of the research location are shown in Fig 3.

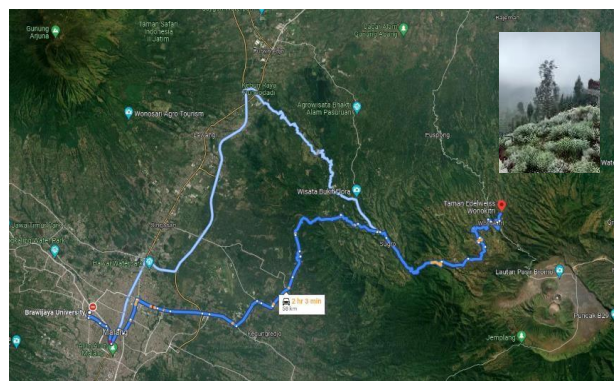


Fig 3. Research Location Map

A. Material

Data mining was carried out by semi-structured interviews and FGDs, which required tools in the form of draft questions as a guide in the implementation of data mining, stationery, and cameras to document data in the field and voice recorders to assist researchers in carrying out data mining. The types of data used are primary and secondary data. Primary data was obtained during data mining in the field and carried out directly by researchers, while secondary data was obtained from farmer group documents or literature studies. Data mining was carried out on 30 members of the Hulun Hyang farmer group who are over 17 years old.

B. Methods

This study uses the ABCD approach. Assets Based Community Development is a concept of community development based on local assets in an area. The area has assets that can then be developed to be used to solve problems in the area. According to [5] in Asset Based and Community Development explains that seven capitals can be developed in ABCD: 1) physical capital consisting of buildings and infrastructure; 2) financial capital in the form of financial support; 3) environmental capital in the form of natural potential; 4) technological capital (technological capital). In the form of the technology used; 5) human capital in the form of human resources; 6) social capital in the form of social and cultural conditions, and 7) spiritual capital in

the form of values passed down from generation to generation from ancestors.

Qualitative data analysis was done by the triangulation method. The triangulation method is a data checking technique that utilizes something other than the data for checking purposes or as a comparison against the data. The triangulation technique used in this research is source triangulation, method triangulation, and time triangulation—first source triangulation, namely collecting similar data from several different data sources. Triangulation of sources compares the information that researchers get from critical informants, key informants' families, relatives or neighbors of key informants, and other supporters—the second triangulation method, namely collecting similar data using different data collection techniques. The researcher used several data collection methods such as independent interviews, observation, and document review in terms of obtaining data. Besides that, time triangulation was also carried out by confirming the informants' answers on different occasions [6].

III. RESULTS AND DISCUSSION

A. Physical Assets

In 2018 the Bromo Tengger Semeru National Park and several communities took new steps to cultivate Edelweiss Flowers and develop Edelweiss Park tourism to form a farmer group named Hulun Hyang (Servant of Sang Hyang Widhi). The Hulun Hyang Farmers Group is the manager of Edelweiss Park. The physical capital owned by Edelweiss Park is in the form of 7,000 m² which is village land. This land was previously agricultural land belonging to one of the people who had no descendants and was later donated to become the village's property. The status of this land is loan-free land, which means that it can be used at any time without charge as long as it can benefit the welfare of the village community. The village road to Edelweiss Park has been paved using village funds. In addition, Edelweiss Park has a parking area managed by the community. In addition, the front gate as a marker for the Edelweiss Park Area has also been built.

In the interior of Edelweiss Park, two nursery units are used for nursery activities until the seedlings are three months old. Other physical capital includes counters, cafes, and several gazebo units as assets in the development of tourism activities in Edelweiss Park. Other physical capital is in the form of land that is managed to plant Edelweiss Flowers from nurseries treated to harvest activities. Edelweiss Park also has irrigation channels, lighting, and internet access to support conservation activities.

1. Hulun Hyang Farmer Group Physical Assets

Assets Type	Owned Capital	Information
Physic	Village Land	7000 m ² for edelweiss garden construction
	Nursery House	2 units for edelweiss flower nursery up to 3 months
	Counter	1 unit for the purchase of entry vouchers and storage of goods belonging to the Farmer Group
	Gazebo	5 units as facilities for Edelweiss

Assets Type	Owned Capital	Information
		Park tourists
	Irrigation	1 unit as irrigation channel to support Edelweiss Flower conservation
	Lighting	1 unit as a lighting channel to support Edelweiss Flower conservation and tourism activities
	Internet Access	1 unit as communication access and promotion to support Edelweiss Flower conservation and tourism

B. Financial Assets

In 2020, the Hulun Hyang farmer group received sponsorship from Bank Indonesia of 900 million rupiahs, which were then used to build facilities and infrastructure. In addition, the financial capital used by the Hulun Hyang Farmers Group came from the sale of entry vouchers for Rp. 10,000.00 per person, which can be exchanged for tea or coffee in the cafe section. Tourists who visit can also buy food or drink options that have been provided with a price range of Rp. 5,000.00 to Rp. 20,000.00. In addition, financial capital was obtained from the sale of edelweiss flower souvenirs managed by Hulun Hyang Farmer's group members, with prices ranging from Rp. 20,000.00 to Rp. 50,000.00.

2. Hulun Hyang Farmer Group Financial Assets

Assets Type	Owned Capital	Information
Financial	Grant Fund	From Bank Indonesia for the construction of facilities and infrastructure in Edelweiss Park
	Entrance Voucher	For Rp. 10,000.00 per person which can be exchanged for tea or coffee in the cafe section.
	Cafe menu	Food or drink options that have been provided with a price range of Rp. 5,000.00 to Rp. 20,000.00
	Souvenir	Souvenirs from the cultivation of edelweiss flowers which are managed by members of the Hulun Hyang Farmer's group with prices ranging from Rp. 20,000.00 to Rp. 50,000.00

C. Enviromental Assets

The types of Edelweiss flowers in Wonokitri Village are *Anaphalis javanica*, *Anaphalis longifolia* and *Anaphalis viscidia*. The difference between the three can be seen clearly from the stems and flower petals. *Anaphalis javanica* flowers have yellowish flowers with greenish stems, while *Anaphalis longifolia* has white flowers and greenish-white stems. *Anaphalis viscidia* is almost similar to *Anaphalis javanica*, but the leaves are green without a white layer, and the flower petals are larger. Edelweiss flowers are reported to act as pioneer plants. In their natural habitat, Edelweiss flowers grow in mountainous areas with steep slopes with sand media from volcanoes which are still the parent material and have not yet developed into the soil at an altitude of more than 2,000 meters above sea level. (Vans)

Wonokitri Village is located close to Mount Bromo, an active volcano. Based on the results of field observations, the type of soil found in an active volcano area is usually formed from the parent material in the form of ash and intermediate volcanic sand. The earth formed is light brown (10 YR 6/4) with a crumbly granular structure and loamy sand texture where the composition of sand, silt, and clay in the soil is almost the same but is still dominated by sand. For the level of fertility, it is necessary to carry out a laboratory analysis related to the chemical content of the soil in the soil.

Based on [8], Wonokitri Village has a soil type of Typic hapludans with good drainage conditions, rough soil texture, slightly acidic pH, medium Cation Exchange Capacity with low Base Saturation. Landform Lungur Vulkan with Basalt Andesite Material. Then topographically, it is in the area and landscape starting from Mountainous relief with a land slope of >40%. Wonokitri Village has an altitude of about 1,600-3600 masl with 3,712 mm of rainfall per year, this village has six months of rainy months [9].

The maximum air temperature around Wonokitri village is 23 degrees Celsius, and the minimum air temperature is 16 degrees Celsius. The environmental conditions that support edelweiss flowers can only grow in this area. Edelweiss plants that grow in clusters can be a barrier to erosion due to their roots and provide soil cover to prevent surface runoff due to rain.

3. Hulun Hyang Farmer Group Enviromental Assets

Assets Type	Owned Capital	Information
Enviroment	Type of soil	Typic hapludans with good drainage conditions, rough soil texture, slightly acidic pH, medium Cation Exchange Capacity with low Base Saturation. Landform Lungur Vulkan with Basalt Andesite Material. [8]
	Air temperature	15-25 ⁰ C [9]
	Altitude of place	1600-3.600 masl [9]
	Rainfall	3.712 mm per year [9]
	Land slope	Mountainous relief with land slope >40%. [8]
	Flower Type	<i>Anaphalis javanica</i> , <i>Anaphalis longifolia</i> , <i>Anaphalis viscida</i> [10]

D. Technology Assets

The technological capital owned by the Hulun Hyang farmer group is related to cultivation technology, starting from the preparation of planting media, seed preparation, nurseries, planting, and plant care to the harvesting process.

4. Hulun Hyang Farmer Group Techonology Assets

Assets Type	Owned Capital	Information
Technology	Preparation of planting media	For breeding, it is necessary to prepare the soil with a mixture of chicken manure in a ratio

Assets Type	Owned Capital	Information
		of 1: 1
	Seed preparation	Edelweiss flowers that have flowered over time will dry up and have blackish seeds. The seeds are then sown.
	Nursery	The seeding is done in a greenhouse to maintain the humidity of the air and water. Watering is carried out twice a day (morning and evening, does not get flooded). When it has grown into a sprout, then weaning is done. Where each sprout is carefully separated and transferred in polybags.
	Cultivation	After the Edelweiss Flower is three months old, then it is moved to the prepared land. The land is fertilized with a composition of 0,5 kg of chicken manure per plant.
	Plant Management	Fertilization with chicken manure once a month to maintain nutrients for plants. When the edelweiss flowers are moved to the field, they are only watered once a day in the dry season and during the rainy season they only rely on rainwater
	Harvest	The harvest period = one year, from May to August. Harvesting by trimming the flower stems and drying them for three days in a dry room. Puddles of water will cause the rotting of flowers due to fungus. After the flowers dry, the flower seeds are taken for the following seed material. The dried Edelweiss flowers are then assembled into various forms of souvenirs.

E. Human Resources Assets

This Edelweiss Village farmer group named Hulun Hyang was founded on Wednesday, February 14, 2018, and is domiciled in Wonokitri Village, Tosari District, Pasuruan Regency, East Java Province, based on Pancasila and the 1945 Constitution. Members of this group consist of the

Wonokitri Village community. The goals of this group include:

- a. Strengthening ties of brotherhood and friendship among members.
- b. Fostering the spirit of cooperation among members.
- c. Encouraging and developing productive businesses to increase the income and welfare of members.
- d. A place to learn and exchange experiences about Edelweiss/ Tana Layu and environmental sciences, Edelweiss Village, plant cultivation, and forestry.
- e. Develop a culture of frugal living, wise in the use of money, and build a people's economy in stages, directed and planned.
- f. Carry out service to group members in particular and non-group in general.
- g. Preserving the Edelweiss/Tana Layu plant and Yadnya plants/Tengger Community Ceremony and preserving the forest around the village in general.

To achieve the goal, the Edelweiss Hulun Hyang Village Farmer Group carries out the following efforts:

- a. Strive for ecotourism based on Edelweiss/Tana Layu Cultivation in the village and its surroundings.
- b. Managing Edelweiss Production Facilities and Infrastructure needed by members of the Edelweiss Hulun Hyang Village Farmer Group.
- c. Development of a souvenir business to support craft-based ecotourism and edelweiss cultivation for group members and the village community.

5. Hulun Hyang Farmer Group Human Resources Assets

Assets Type	Owned Capital	Information
Human Resource	Membership	30 members
	Age	>30 years = 6 members ; < 30 years = 24 members
	Level of education	6 members = Bachelor ; 24 members = Senior High School

F. Social Assets

Edelweiss flowers are an essential component and cannot be replaced by other flowers. Edelweiss flowers always bloom from May-July, so the need for customs is consistently met. In Wonokitri Village, there are 3 types of Edelweiss flowers, namely *Anaphalis javanica*, *Anaphalis longifolia* and *Anaphalis viscidia*. The types of Edelweiss flowers used are *Anaphalis javanica* and *Anaphalis longifolia*. This type of Edelweiss *Anaphalis viscida* is not used in traditional ceremonies; it is reported that the number is not too much, so it is not the type of edelweiss flower used in traditional ceremonies.

For the Tengger tribe, the Edelweiss flower is a flower of eternal hope, with the local name tana wither. The name tana wilt comes from the Sanskrit language, which means a flower that never wilts. Edelweiss flowers are used in traditional ceremonies such as Kasada, Karo, Leliwet, Entas-Entas and Unan-Unan

Kasada traditional ritual or Yadnya Kasada Day, which is carried out once a year according to the Hindu Tengger calendar in Kasada month on the 14th day is usually carried

out in July on the Christian calendar, which is centered at Pura Poten.

Karo is a big day of the Tenggerese community, held once a year in the month of Karo on the 15th or two months after the Kasada ceremony. The Karo ceremony is often called Pujan Karo or Yadnya Karo, the second holiday after Kasada. The tradition has a long series: gathering, which means preparing and deliberation to welcome Pujan Karo.

The entas-entas event, or Javanese custom, called nyewu, is carried out to relieve ancestral spirits with the peak event of burning petra. Meanwhile, Unan-Unan is a Tenggerese traditional ceremony that uses Edelweiss Flowers as an essential component, where this ceremony is held every five years to clean the village.

It was related to the reduced number of edelweiss flowers due to illegal taking to be traded to tourists. It has been regulated in the Law of the Republic of Indonesia Number 5 of 1990 concerning Conservation of Biological Natural Resources and Ecosystems. Article 33 has explained that (1) Everyone is prohibited from carrying out activities that can result in changes to the integrity of the core zone of the national park, (2) Changes to the integrity of the core zone of the national park as referred to in paragraph (1) include reducing, eliminating the function and area of the zone. the core of the national park and adding other non-native plant and animal species. (3) Everyone is prohibited from carrying out activities that are not by the function of the utilization zone and other zones of national parks, grand forest parks, and natural tourism parks where the original habitat of the Edelweiss Flower is included in the National Park area. Those who violate this article will be further explained regarding fines and imprisonment as described in article 40. Whoever intentionally violates article 33 paragraph 1 will be punished with a maximum imprisonment of 10 (ten) years and a maximum fine of Rp. 200,000,000.00 (two hundred million rupiahs). Those who intentionally violate Article 33 paragraph (3) shall be sentenced to a maximum imprisonment of 5 (five) years and a maximum fine of Rp. 100,000,000.00 (one hundred million rupiahs). Because of his negligence, whoever violates Article 33 paragraph (1) shall be sentenced to a maximum imprisonment of 1 (one) year and a penalty of Rp. 100,000,000.00 (one hundred million rupiahs). Meanwhile, those who fail to violate Article 33 paragraph (3) shall be punished with a maximum imprisonment of 1 (one) year and a penalty of Rp. 50,000,000.00 (fifty million rupiah).

People affected by operations related to illegally taking Edelweiss Flowers have also often been followed up, ranging from light to severe punishments. It's just that this is not the best solution because when the sentence is over, the violation still occurs. Finally, the Bromo Tengger Semeru National Park tried to cultivate Edelweiss flowers with the Hulun Hyang farmer group and set rules if you want to sell Edelweiss flowers, the community must grow them. So far, there are still as many as 10% of people interested in voluntarily cultivating Edelweiss Flowers. This is because people are unfamiliar with Edelweiss Flower cultivation and are more interested in growing vegetable crops whose market prices are transparent and the harvest period is relatively short. However, the Bromo Tengger Semeru National Park

continues to socialize to obtain a mutually beneficial agreement.

In addition to these regulations, the Hulun Hyang farmer group also has rules regarding cooperation as a supplier of Edelweiss Flowers for businesses outside Wonokitri Village. According to farmer groups, many entrepreneurs have asked Hulun Hyang farmer groups to become suppliers for their businesses. However, the farmer groups have rules if they want to fulfill the needs of the Edelweiss Flowers. The business owners must teach how to make souvenirs just like the business owners do so that the surrounding community has more knowledge of how to make souvenirs.

6. Hulun Hyang Farmer Group Social Assets

Assets Type	Owned Capital	Information
Social	Traditional ceremonies	Kasada, Karo, Leliwet, Entas-Entas and Unan-Unan
	Customary law	Edelweiss flowers (tana layu) are essential in several traditional ceremonies and cannot be replaced with other flowers.
	Country law	Law of the Republic of Indonesia Number 5 of 1990 concerning the Conservation of Biological Natural Resources and Ecosystems in Article 33. For those who violate this article, further details on fines and imprisonment are explained in Article 40.

G. Spiritual Assets

The traditional rituals of the Tengger people include events related to the general public, formal events related to individual life such as births, marriages, and deaths, as well as traditional events related to agriculture, building houses, and natural and environmental phenomena. The Tenggerese people have unique customs, distinctly different from the Javanese people, and issues of religion and belief that develop differently from Balinese Hinduism. Shaman Pandhita is a traditional leader and the head of the Hindu religion, which the Tengger people highly respect.

In carrying out formal events, they feel happy, carried out together, and look familiar because of the sense of brotherhood of the Tengger tribe. The implementation of rituals carried out by the Tenggerese is an exciting culture to be preserved and enriches the unique culture of the archipelago. The tradition passed down during the Majapahit kingdom is a social capital that the Tenggerese people have well maintained. It is beautiful for domestic and foreign tourists to visit.

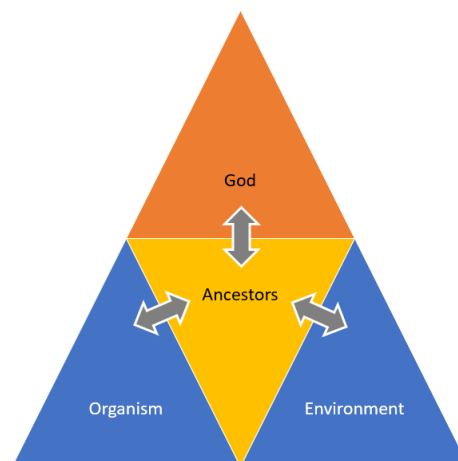


Fig. 4 The relationship between God, Ancestors, Living Creatures and the Environment for the Tengger Community

7. Hulun Hyang Farmer Group Spiritual Assets

Assets Type	Owned Capital	Information
Spiritual	Ancestral and religious values	There is a close relationship between environmental humans and their God in interpreting gratitude for the abundance of existing natural resources, which are maintained very well from generation to generation.

Natural resource assets are related to the ownership or control of natural resources such as land, plants, and water as production assets [11]. Given its nature that is difficult to change, farmers use natural resources according to their ownership. One of the essential natural resource assets for farmer groups is the environment's carrying capacity, which is very specific and supports Edelweiss Flowers to grow. Biological wealth in forests as part of natural resources plays a significant role in people's lives, especially in applying cultural values [12] [13]. In addition, social assets have an essential role in maintaining natural resources to preserve livelihoods [14]. The management of existing natural resources needs to be supported by the existence of institutions. Institutions are a collection of values, norms, and rules in a group of people that are used to achieve specific goals [15]. In the Hulun Hyang Farmer group, the goals that will be shared are related to the conservation of Edelweiss Flowers outside the Area so that the flowers remain sustainable because they are also related to the sustainability of the culture and customs of the Tengger people.

Physical assets are the next priority because farmer groups are aware that edelweiss flower conservation activities can also be linked to tourism activities. *Physical assets* are the basic infrastructure and goods needed to support livelihoods. In addition to infrastructure, physical assets also include ownership of equipment and infrastructure facilities for production activities. In a regional context, it can be in the form of road infrastructure, irrigation, and access to information and communication [11]. The infrastructure in question is public goods that everyone can access at no cost.

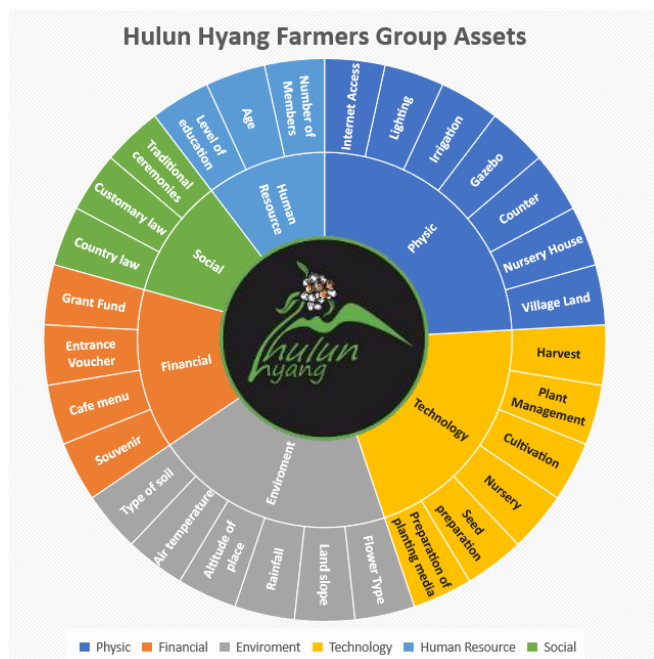


Fig 5. Mapping of Hulun Hyang Farmer Group Assets

Financial assets are significant because they are the most liquid among other assets, so that they can be directly used or exchanged with other assets. Financial assets can be used to buy products or consumer goods. Social assets depend on the participation of individuals and group members in social networks through communication, knowledge, and support provided [16]. Communication, knowledge, and support for managing Edelweiss Gardens are essential because it determines farmer group members' perceptions of the ex-situ conservation area for Edelweiss Flowers. The perceptions formed will affect the forms of interaction that positively or negatively impact Edelweiss Park [17], [18]. The subsequent domination of assets is human resource assets. Human resources are active agents to collect assets, exploit natural resources, build social, economic, and political relations, and bring about changes in the future [19].

Human resource development is significant because the adoption of technology and knowledge in community is very dependent on the capacity of the management. Several factors that influence the adoption of technology in the management of Edelweiss park are human resources related to age and education. The age of farmer group members dramatically influences their behavior towards technology adoption. Younger farmers will be more innovative and more open to new technologies. Age is an individual characteristic that plays a significant role in determining workability and work productivity [20], [21]. Likewise, with the level of education, farmers with higher education tend to be more open to adopting new technologies [22]. According to [23], the essence of social capital lies in the ability of the community to work together to build a network to achieve common goals. This collaboration is characterized by reciprocal and mutually beneficial interrelationships and is built on trust, supported by positive and robust social norms and values. Where social norms and values are built based on values from ancestors that have been taught from generation to generation

IV. CONCLUSION

The mapping of livelihood assets determines the forms of intervention that can be carried out to increase the role of Edelweiss Park as an Ex-Situ Edelweiss Flower Conservation area in the livelihoods of the Hulun Hyang farmer group. Asset mapping is visualized in a pie chart to see if each asset owned is related to the other. For the Hulun Hyang farmer group, the priority of asset use is environmental, social, spiritual, human, and financial assets.

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