

# Understanding Community Capacity for Bottom-up Management of Mount Hakusan UNESCO Biosphere Reserve

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## ABSTRACT:

The aim of the study was to understand the potential of Shiramine villagers for bottom-up administration of Mount Hakusan UNESCO Biosphere Reserve (MHBR). We investigated the various aspects of community capability using data from numerous sources, including interviews, surveys, and published reports. 23 people participated in a survey. Results has showed that the issues such as depopulation (35%), accessibility problems (especially for the elderly), difficulties with tourism, and the effects of school and municipal mergers were the biggest concern for the locals. However, the biggest values of Shiramine was rated as interpersonal interactions (56%), followed by the environment and traditional culture. Most of the residents expressed the high level of happiness by living inside the community (87%), which was related to the strong community bonds and natural surroundings.

The survey showed the presence of a variety of jobs, such as farmers, students, freelancers, housewives, and people working in administrative and governmental positions. These results showed a wide range of community involvement and the possibility of utilizing this diversity to boost the bottom-up management strategy. For the effective and sustainable management of BR, developing inclusivity and active participation, by using variety of talents and knowledge will play crucial role.

*Keywords: Community development, UNESCO Biosphere Reserve, Bottom-Up approach, Regional management, Sustainability*

## 1. Introduction

Biosphere Reserves (BRs) are protected areas of terrestrial, coastal and marine ecosystems, established by the national government and recognized under the UNESCO's Man and the Biosphere (MAB) Programme, with conservation, development and educational functions [Base, 1982]. They are also considered as the reservoirs for the biological and cultural diversity, and keepers of the genetic materials of the living organism in the specific region. This allow BRs to function as the hubs for the preservation of the local cultural identity, which is very important for the development of national identity. Until now, researches in BRs were focused mainly in biodiversity monitoring to prevent the biodiversity loss, and the demand to the scientific and data-based knowledge played the main role for the ecosystem management. However, this created a severe concern about the role of the local communities who are the main actors in sustainable natural

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resource utilization and management [Bradshaw, 2003]. Community plays the main role as the keepers of regional bio-cultural diversity and identity, and more research must be conducted in evaluating the community capacity in managing BRs. To evaluate the role of the community, we need to understand first the structure how community is built and what creates the obstacles for their sustainable development. Understanding the community capacity in ecosystem management can help rural areas to deal with depopulation problems and attract younger people, by providing the job opportunities inside the region and using the natural resources, such as in promoting eco- and green-tourism, local and safe food production, forestry and others. The local communities direct involvement in the management of BRs, along with sustaining research and monitoring, serve as the most reliable assurance for the global preservation of genetic resources in the long run [Batisse, 1982].

The Mount Hakusan UNESCO Biosphere Reserve (MHBR) is one of Japan's ten Biosphere Reserves (BRs). The reserve has become well known and esteemed because of its mountainous landscapes, rich wildlife, and vibrant local communities. As part of MAB Programme, the role of community capacity inside MHBR is essential in nurturing bottom-up management approaches. Bottom-up management of BRs provides communities' involvement in the decision-making process, enhances their sense of responsibility and connection to the reserve and promotes sustainable practices that align with their cultural values [Fraser, et al 2006]. Community studies have been conducted by several foreign researches by assessing the communities well-being [Marchak, 2004], resilience [Harris, et al 1998], sustainability [Force and Machli, 1997, Perkins, et al 2011] and quality of life [Vogel, 1997]. However, until now in Japanese BRs no research has been conducted within the community to elucidate the role of each local people and the structural formation of the community. There is a need to understand the role of every resident who live inside the villages and contributes for the regional development. The inadequacies of conventional "top-down" techniques have led to a greater emphasis on formalizing "bottom-up" community involvement in environmental management projects [Conley and Moote, 2003]. To assess the additional benefits obtained through the fusion of top-down and bottom-up techniques, extensive study of several case studies is still required, particularly in relation to community-driven ideas and the evaluation of sustainability indicators. Bottom-up management helps local people to take control of their resources, participate in decision-making, and put sustainable practices in place for the management of their environment and well-being. Communities can become more resilient, independent, and able to deal with their complex and connected difficulties through building up their capacity.

The term "community capacity" describes a community's collective ability to recognize and respond to its own needs, resolve issues, and achieve sustainable development [Chaskin, 1998]. It encompasses the community's abilities, assets, networks, and information, facilitating efficient decision-making, teamwork, and action toward shared objectives. In the framework of the MHBR, this study intends to investigate community capacity-building initiatives, assess their efficacy, and determine solutions to deal with the difficulties associated with bottom-up management. Bottom-up approaches and community participation strategies differ in different parts of the world. In some areas, a "bottom-up" strategy driven by the local community predominates, stressing the

extensive participation of local populations in decision-making activities. Some study found that the Geoparks had more community involvement than the BRs. This distinction can be linked to the Geopark's bottom-up strategy, which places an emphasis on involving the local population through the growth of tourism [Mammadova et al 2021, Mammadova et al 2022]. Although community capability is essential for bottom-up management, there are obstacles to overcome. Within the MHBR, community capacity development may be hampered by a lack of resources, a lack of knowledge, institutional obstacles, and competing interests [Price, 2002]. Considering all mentioned above, in this study we decided to investigate the following question:

1. What are the main challenges and barriers in building community capacity for bottom-up management inside MHBR?
2. What are the opportunities and possibilities to enhance and improve community capacity buildings activities in order to promote effective bottom-up management?

## 2. Methodology

Shiramine is a small village inside MHBR, with total population approximately 700 people. The area is surrounded by the mountainous landscapes at the remote location. In 2021, we have visited the Shiramine village and conducted key informant semi-structured interviews and collect the initial data from the village leaders, as well as met with some administrative official who worked inside MHBR. Later the survey was designed with open-ended and close-ended questions and the data was collected from the villagers who live and work inside the community. The questionnaire was distributed by the village leaders, and the anonymity of the responses was guaranteed. Participants were divided into 4 main parts to elucidate the structural organization of the community: Native residents - those who have been born in village and spend all their lives there; Adaptive residents - those who came from outside of the village and adapted to the village; Returned residents – those who left the village and later returned back, and Left residents – those who completely moved away from the village, but sometimes come back to visit their families. The questionnaire was distributed among 40 local villagers, who were actively involved in the community practices, but only 23 villagers responded to the survey. Moreover, to investigate the different dimensions of community capacity inside BRs, the study utilized data from diverse sources, including interviews with community leaders, literature reviews, and references to existing reports. All data collection and analysis were conducted at Kanazawa University.

## 3. Results

In terms of age, the respondents were predominantly in their 20s (35%), followed by the 40s (17%), and the 50s (13%). Gender distribution showed a slight majority of men (57%) compared to women (39%). The results concerning the social aspects of the residents are shown below.

### 3.1 Residents

76% have been living in Shiramine for more than 10 years. Only three people arrived in the last 5 years, one over the last year. 53% of the respondents were born and raised in Shiramine: both the youngest and oldest involved persons spent all their life in Shiramine. Nobody completely left Shiramine. Three people made a U-turn, which means they ended up coming back living in Shiramine after spending some years in big cities (Tokyo and Osaka). 6 people made an I-turn, sometimes coming from far away (Tokyo, Chiba), of which 4 are in their twenties: there seems to have a positive dynamic where young generations are attracted by the lifestyle in Shiramine village and its location. 26% of the respondents made the choice to come to Shiramine to settle down. Those numbers tend to highlight the quality of life in the village.

### 3.2 Working in the village

Wide range of professional profiles with the occupational content of the community highlighted diverse professions, with food and beverage service (13%) and forestry (13%) being the most common. 78% of respondents have Shiramine as their only workplace, where they spend the vast majority of their time. Only 22% have to travel elsewhere in the course of their work.

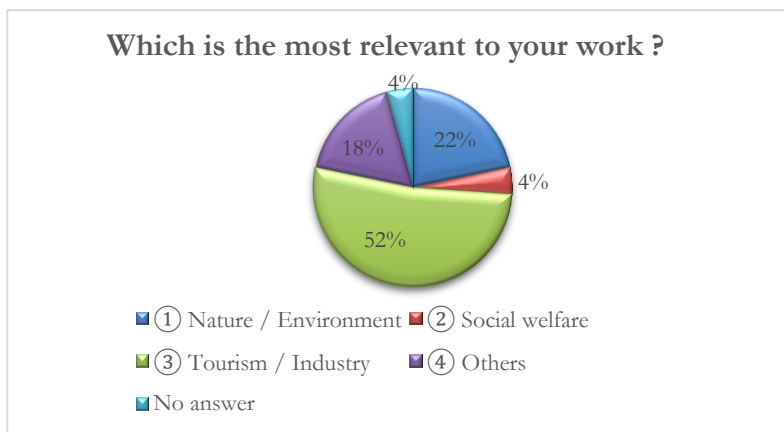


Figure 1: Work at Shiramine

This graph (Fig 1) clearly illustrates the importance of the tourism sector (52%) and its many opportunities (particularly in terms of nature and the environment). The village seems to be ready to cope with an influx of tourists, and at least half of its residents are already involved in the tourism sector.

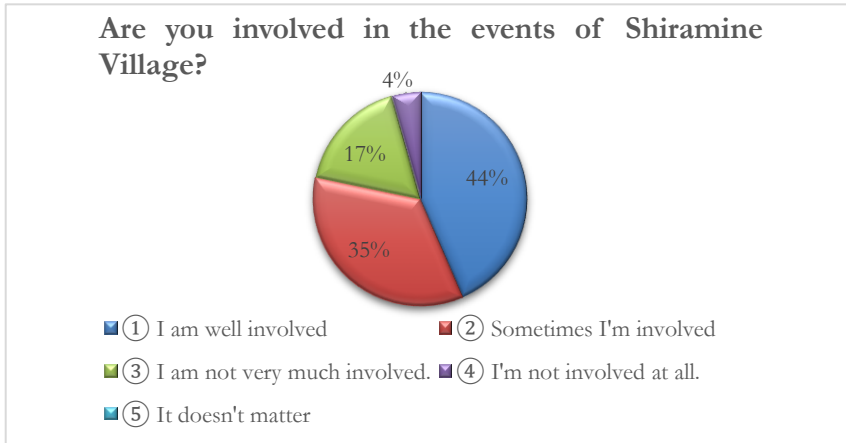


Figure 2: Involvement in the events of the Shiramine

Regarding involvement in Shiramine's events, 44% reported being well involved, while 35% indicated occasional involvement (Fig 2).

### 3.3 Life in the village:

The survey also revealed the primary concerns of the community, including depopulation (35%), following the accessibility issues (particularly for the elderly), tourism challenges, and the impact of school consolidation and municipal mergers. Concerning the most attractive side of the life in Shiramine the most common response was the personalities of the residents and the fulfilling human relationships inside the community (56%). Many respondents felt happy to be involved with people. Being close to both friends and family, and the feeling of belonging to a community.

A significant majority expressed happiness (83%) about living in Shiramine (Fig 3), attributing it to the close-knit community and the serene natural surroundings. Other popular responses were related to natural environment and traditional culture.

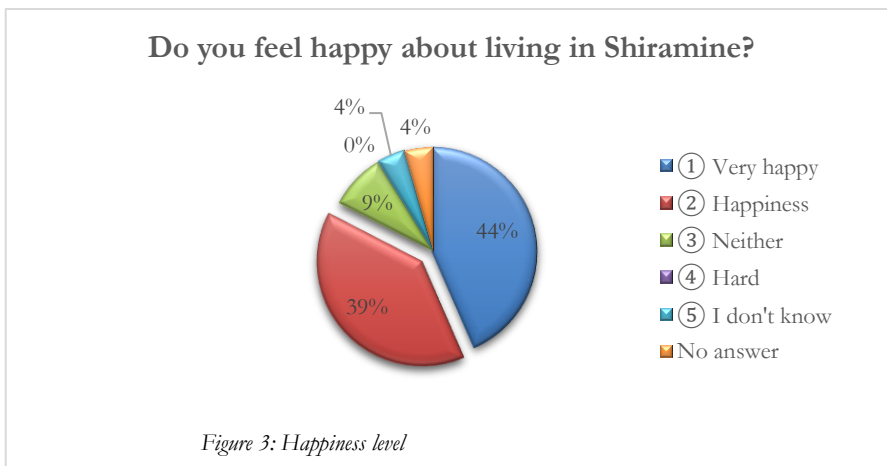


Figure 3: Happiness level

### 3.4 Awareness level of international designations and initiatives:

In terms of their knowledge of the different international and national designations of their village, residents' responses are slightly contrasting. 100% of them knew that Hakusan is registered as the Hakusan Tetorigawa Geopark in Japan. When it comes to UNESCO Biosphere Reserve, only 83% of the respondents were aware about the registration of Hakusan in this program.

Finally, when it comes to concrete theoretical knowledge related to the content of the sustainable development goals which are the main objectives inside the Hakusan City, the results are even more divided (Fig 4).

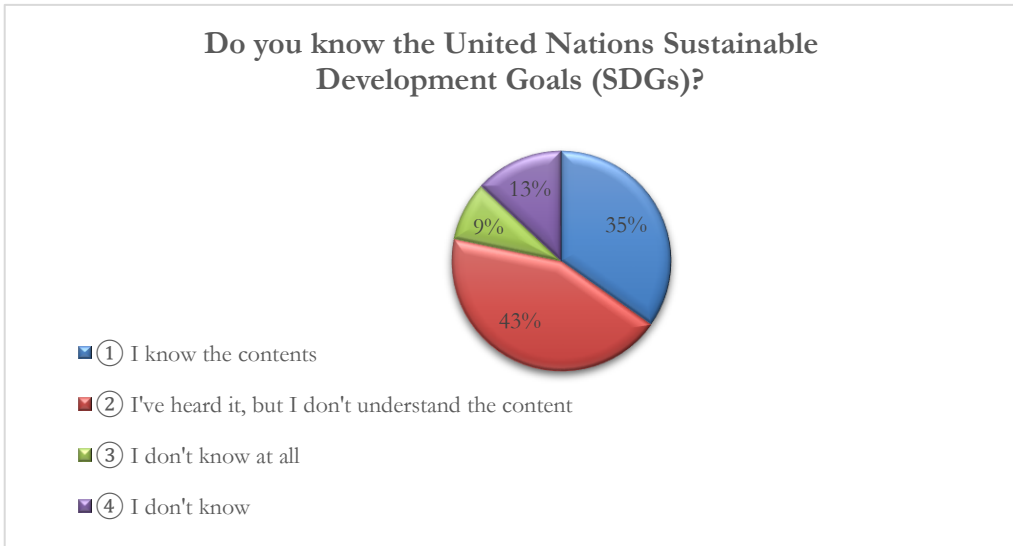
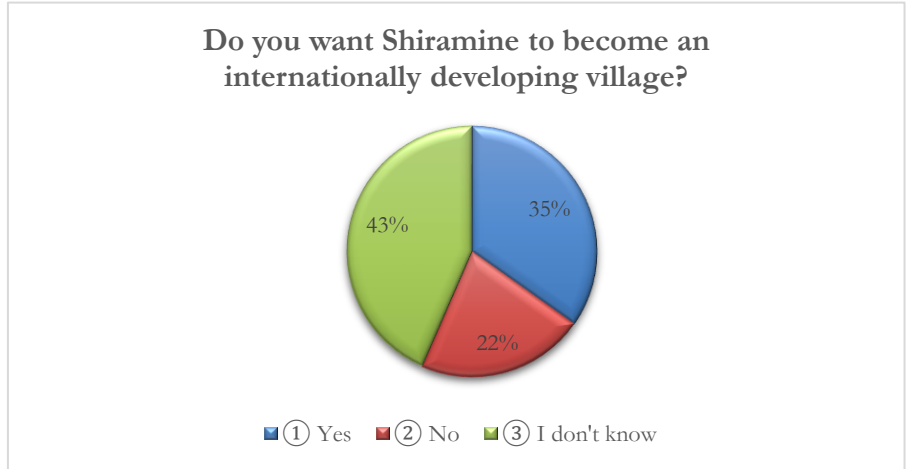


Figure 4: Awareness about SDGs

### 3.5 The future of the village:

Finally, the participants were asked to think about the future of their village. None of the residents seemed to want to move elsewhere: 91% (21 people) wanted to continue living there.

When it comes to international expansion, only 35% of respondents were in favor. 22% were firmly against, while the rest were in a grey area, not really knowing what to think (Fig 5).



*Figure 5: Replies on International development*

Finally, on a question what type of village do they want Shiramine to become? Rather than hoping for a major change, many expressed a desire for the continuation of the existing settlements and local communities.

#### 4. Discussion

This kind of study inside MHBR was conducted for the first time, and has shown important understandings on the structural organization of the community, such as demographics, working and living conditions, primary concerns and their capacity for the bottom-up management.

Majority of the responders were in their 20s, indicating that younger generation are becoming more attractive to the village and potentially contributing for its sustainable development. In terms of gender, Shiramine has shown the slight dominance of the men, compared to women, which may indicate to the dominance of the male in the decision-making process and community participation.

One of the most positive observations was, that 76% of the villagers have been living in the village for more than 10 years, which demonstrated a strong sense of belongings and deep connection to the community. Moreover, most of the responders have shown their willingness and desire to remain in the village, and none of them have completely left the village, which was connected to the level of happiness by living inside the community. Also, the active engagement in the communities' activities, reflected the willingness to contribute for the communities well-being and development.

Community has shown the presence of the diverse occupations, including students, freelancers, housewives, employees on private sectors, government workers and management officials. Food services with forestry were the most common professions, indicating on the development of the tourism sectors inside the village. These results point to a wide range of community involvement and the possibility of utilizing this diversity to

boost the bottom-up management strategy, and potential opportunities to increase the economic activities by promoting sustainable tourism activities inside MHBR.

Strong bond and the close-knit human relationships were mainly attribute to the high happiness level inside the village, and this sense of connection together with the sense of the attachment to the village, may play as an important factor in fostering the community capacity and provide the foundation for the bottom-up management. However, even though that the community is facing the population decline, opinions regarding the international expansion were divided between responders with 22% being firmly against it, and 35% in favor, the rest of the responders were uncertain. This can be interpreted as a form of mistrust, doubt or even polite refusal for the internalization and accepting of foreign residents. Local people may find it difficult to project themselves into globalized future and imagine the potential consequences for their current protected and secured lifestyle. Very common expressions were like: *“The population decline must stop on a scale that allows the local community to maintain a safe and secure lifestyle. Also, consumption services should be maintained”*. Or such as: *“I want Shiramine to be the place where young people can live in peace, and everyone can help each other”*. This may indicate to the need of the further dialog between local authorities and community members to ensure a common vision for the future development of the village.

Besides, the awareness level for the international designation was also divided, where all responders knew the designation of the territory as the Hakusan Tedorigawa Geopark, but awareness for the UNESCO Biosphere Reserve was fewer. Here we can see a lack of dissemination of information and a lack of popularization of key concepts between different designations. It may also be that residents don't seek out the information, as these notions and concepts may remain abstract for them and have little impact on their day-to-day lives for the time being.

A better understanding of these concepts can lead to a better understanding of the conditions linked to their village and therefore to a more pronounced, more organized investment in terms of the tourism offer.

Below we highlight the main concerns of the villagers, which were mainly observed:

1. Depopulation: Building community capacity is becoming more difficult by the diminishing population since fewer people are available to actively participate in community initiatives and decision-making processes.
2. Remoteness and accessibility issues: Accessibility problems exist in the village, especially for the elderly. The active participation of community members in activities aimed at building capacity is hampered by a lack of accessible transportation and infrastructure problems.
3. Tourism issues: While there are chances for economic growth and development, there are also difficulties associated with tourism. Effective community capacity-building initiatives are necessary for managing tourism in a sustainable way, balancing the influx of visitors with the preservation of the natural environment and local culture.
4. Lack of finances and human capital: Initiatives to develop the ability of communities may be hampered by a lack of human and financial resources.



Effective bottom-up management requires adequate finance, qualified employees, and access to appropriate tools and resources.

5. Merge of municipalities and schools: The community's sense of identity and attachment to the region was impacted by municipal and school mergers, due to the depopulation. The continuity of regional customs and practices as well as community involvement may be disrupted by these changes.

Within all of these issues, Shiramine has also showed several opportunities and possibilities for the promotion of bottom-up management and the development of community capacity-building.

1. Partnership and collaboration: The resources available for community capacity-building projects can be increased by establishing partnerships and collaborations with regional industries, organizations, and educational institutions. Engaging stakeholders from different industries can bring in knowledge, financing, and a range of new viewpoints.
2. Maintain the existing strength: The survey found that Shiramine people value their small-town atmosphere, considerate interactions with others, peaceful nature, and traditional culture. The capacity-building activities of the community can be strengthened by utilizing these strengths and encouraging a sense of belonging, pride and ownership.
3. Sustainable tourism development: Utilizing the possibilities offered by tourism needs a balanced strategy that supports sustainable practices. Enhancing community capacity and sustainable management can be accomplished by including the community in tourism planning and decision-making, supporting cultural heritage and eco-friendly projects, and ensuring that local beneficiaries receive benefits.
4. Education to increase awareness: Increasing educational programs' and awareness of the importance of bottom-up management and community capacity-building can help to create a society of active engagement. Giving community members access to training, workshops, and information-sharing platforms can equip them with the knowledge and abilities needed for productive engagement.
5. Empowerment of newcomers and youth: Engaging youth and newcomers into the decision-making processes and active engagement with proper mentorship by the local villagers, can ensure the continuation of the communities' locals lifestyle, nature conservation activities, and introduction of the novel ideas.
6. Utilizing the international designations: Applying the international designations into their activities, may lead for the collaboration, information sharing and access to the resources. Designations such as UNESCO Biosphere Reserves and Hakusan Todorigawa Geopark, can strengthen community capacity and develop efficient bottom-up management.

## 6. Conclusion

Understanding community capacity for the bottom-up management is essential for the sustainable regional development of MHBR, which is facing the issues of

depopulation, lack of resources, identity loss and low awareness level about the international designations. However, despite all those issues, the community has shown wide range of diverse of occupations and willingness to contribute for the development of the village. Communities have shown the strong bond and deep sense of belonging among its residence, linked to the high level of happiness, which was attributed to the human relationship and surrounding nature. These findings may indicate to the importance of the utilization of the communities' capacities and talents to enhance the bottom-up approaches, by fostering the active participation, inclusivity, harnessing diverse skills and expertise, and creating dialogs between the local authorities and villagers. Policymakers, local officials, and community stakeholders can use these insights to establish strategies and activities that support local efforts for conservation and sustainable development.

The data has shown some limitations, which is the relatively small sample size, which might not fully represent the diversity within the community, and also the study focuses on one specific village, limiting the generalizability of its findings to other Biosphere Reserves. But nevertheless, by examining the case of the Shiramine village, the research demonstrates how a strong sense of belonging, community bonds, and a connection to nature can increase happiness and motivate community members to actively engage in their community's activities. The study also uncovers significant challenges, including depopulation, accessibility issues, and economic constraints, and those challenges requires a multi-faceted approach, involving local authorities, regional industries, and educational institutions. In line with adaptive co-management concepts, which place a strong emphasis on local people' active involvement in resource management and decision-making, further studies with more data collections must be conducted in future studies.

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