

Cooperative Governance in Common Pool Resources: A Case Study of Rupa Lake

**Research Team
Tara Prasad Kharel**

**Submitted to
Research Committee
Research and Consulting Services Department
Nepal Administrative Staff College**

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**Submitted by:
Tara Prasad Kharel
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Tara Prasad Kharel

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Abstract

Lake governance does not simply mean the governing the resources only. However, it also includes the management and conservation of biodiversity as well as the protection of the livelihood dependent on such lake. Therefore, this study tried to analyzes the picture of lake governance under the cooperative governance system. This study reviewed the relevant documents of Rupa lake governance qualitative data based on the principles and frameworks of cooperative and resource governance. The results showed that even though Rupa Lake cooperative has successfully restored and nurtured human rights in the surrounding area, new challenges arise due to unresolved human rights issues, potentially arising between upstream and downstream communities and within the region. A cooperative approach in line inclusive governance can restore deteriorated ecosystems, demonstrating the cooperative's ability to achieve sustainable development and improve local livelihoods.

Kew words: Inclusive governance, Cooperative, Common pool resource, Sustainable development

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Chapter I: Introduction

1.1 Background

Millions of the poor people all over the world depend on common pool resources (CPR) for their livelihood either directly or indirectly. Such common pool resources ('commons' in short) are not regulated clearly but serve for the common objective. According to Berkes (1989), forests, water resources, fisheries, pasturelands etc. can be thought as such resources. Livelihood of such people is dependent either in fish products or forest products. But the traditional governance system does not address and include such people as state policy, usually, does not cover the interest of such people or does not have good policies to govern the commons.

First United Nations Water Development Report (2003), stated water crisis as the crisis of governance and societies facing a number of social, economic and political challenges to govern water more effectively.

The most used approaches for the governance of commons is direct centralization where the state has primary responsibility to management such resources, which Hardin (1968) also believed as alternative to 'tragedy of commons'. But the empirical study of Wade (1982) opposed such direct centralization approach as it is being failed due to the involvement of state agents in charge for rent seeking which not only leading ineffectiveness but also negative impacts on resource sustainability and local people's well-being. Similarly, Hardin (1968) also thought privatization as an alternative to the centralization but which is opposed by Shiva (2002). According to him, privatization does not serve the poor and led to increased inequity because poor have a higher stake in the commons but less money to pay for using them.

Many researchers (Hardin, 1968, Ostrom, 1990 etc.) argue that care of the commons cannot be left in the hands of individual users and further suggested that a better governance system needs to be employed to change the appropriation and provision arrangements of natural resources.

1.2 Statement of the Problem

Nepal has geological, geographical, ecological diversity which led to make this country rich in water bodies too. The available water is found in surface water and ground water forms. In surface water, it is wide spread in to rivers, glaciers, Glacial lakes and lakes, ponds etc. National Lakes Strategic

Plan Preparation Report (2010) identified 5,358 lakes in Nepal except artificial ponds built for fisheries. Same report illustrates the presence of 42 lakes in Kaski district.

Rupa Lake is the third largest lake in the Pokhara valley. Lake itself and its watershed area is a popular tourist area. It is situated at an elevation of 600m asl (Kafle et al., 2008) and covers an area of one square kilometer. Agriculture is the main occupation of the people living in the watershed. Fisheries is another source of livelihoods of the people of that area. It is developing as an important agro-ecotourism destination in Nepal.

The communities of this area perceived the increased temperature and more erratic and intense rainfall over the past ten years. Kaski district has high vulnerability to landslides due to increasingly erratic and intense rainfall (MoE, 2010). Such climatic scenario further worsens the livelihood of lake dependent population. The Rupa watershed has multiple political institutions. This further makes somewhat complex and overlapping system of governance.

In 2000, Bioresources Conservation Movement and Farmers to Farmers along with representatives from both downstream and upstream communities organized to form the Rupa Lake Rehabilitation and Fishery Cooperative (Cooperative). After the establishment of cooperative, the governance of lake along with watershed became easier and fish production had also increased. Hence, Rupa Lake and cooperative should be studied to understand and explore how cooperative governance is practiced in common pool resources.

1.3 Purpose and Research Question of the study

The main purpose of this study will be to explore the effectiveness of cooperative governance along with its sustainability. In order to achieve this purpose, following research questions have been formulated:

1. How cooperative governance is practiced in common pool resources?
2. Is cooperative governance useful for governing the commons?

1.4 Rationale of the Study

Nepal has many lakes which can be used for fisheries and used to improve the livelihood of the poor people dependent on that watershed area. Many lakes has already been used as fisheries from long ago. Such fisheries either has been used as common pool resources or as a private

property (the fisheries has been lent to entrepreneur who collects fishes and sells to the market by paying nominal tax to government).

There has been no cooperative system established in other lakes for lake governance and still many layers are governing the lakes making it more complex. Rupa Lake cooperative has been established earlier and giving more benefit along with benefit sharing (payment to ecosystem) to upstream users and watershed management as well.

The findings of this study can lead the planners, policy makers, evaluators in the field of commons and lake governance as well. There have been immense research, discussions and debates on governance of commons but still less effort applied to produce meaningful solution. Hence, it is expected that, this study would provide a good reference for the researcher and planner for understanding the effectiveness and sustainability of the cooperative for lake governance in similar types of lakes.

1.5 Limitation of the Study

This study is only focused on the effectiveness of the cooperative in lake governance and its sustainability. The physical aspects, sociological aspects, political aspects and ecology, biodiversity of the lake and watershed has not been analyzed in this study.

Chapter II: Study Area

Rupa is an advancing eutrophic lake in Nepal, covering 115 ha and 30 km², with a humid upper tropical and lower subtropical climate. Rupa Lake is harnessed for household water requirements, irrigation, recreation, and fisheries. Overexploited wild fish stocks, unsustainable agricultural practices, use of chemical fertilizer and pesticides, deforestation, soil erosion, sedimentation, destructive fishing methods, untreated effluent discharges, road and building construction have all degraded its watershed.

This Lake is located approximately 16 km northeast of Pokhara, at an altitude of 600 meters above sea level. It is the third largest lake in Kaski district situated just south of the massive Annapurna range. The average water depth of the lake is 3.0 meters and maximum depth is 4.79 meters. Rupa's water holding capacity is 3.1 million cubic meters and its watershed extends over 30 km² of steep slope comprising of forest and arable land.

The basin areas consist of 49,749 people, with 47% male and 53% female (CBS, 2058). The ethnicity is 28.8% Janajati, 53.5 percent Brahmin-Cheetri, 14.5% occupational caste, and 3.2% others (CBS, 2058). The major occupation is subsistence agriculture, with a low percentage engaged in small business and hotel operations. The population is predominantly engaged in subsistence agriculture (Oli, 1996).

Rupa's watershed is also rich in biodiversity. The forests on the eastern and western part of the lake are dense whereby the major forest species include Sal (*Shorea robusta*), Chilaune (*Schima wallichii*) and Katus (*Castanopsis indica*). The surrounding forest and lake provides habitat for a number of different animal species, and more than 150 species of birds and ducks (Kafle et al. 2008). The lake drains south to Tal khola at Sistani ghat, joining the Seti Gandaki River.

The northern and eastern parts of the lake's watershed are densely populated. It is where most of the cultivated lands are found. With respect to fishing, the three major lakes of Kaski district (Phewa, Begnas, and Rupa) collectively provide approximately 1.5 megatons of fish a day to the expanding city of Pokhara, a short distance away (Gurung 2003).

Until the mid 1980s, direct lake users were composed mostly of fishermen, known as Jalahari – an ethnic group of over 50 shoreline households whose livelihoods are traditionally associated with fishing at Rupa. Over a short period, these households were gradually joined by a slow but steady influx of migrants, mostly other fishermen, from the surrounding hills. Although the new households had no direct user right, they nevertheless became important system stakeholders. Their communities integrated: both groups practiced rod and net fishing, and both introduced more recent aquaculture activities together, leading, predictably, to increased catches.

Chapter III: Methodology

3.1 Theoretical Framework

In this study, attempt made to analyze and interpret the collected data, to answer the principal research questions and fulfill the objectives of the study, within and beyond the theories of commons.

Uphoff (1986), further elaborates the organizational structure of common property in the four basic sets of the activities viz. decision making and planning, resources mobilization and management, communication and coordination and conflict resolution.

Ostrom (1990) argues about the prevalence of the appropriation and provision problems in any common property resources. Further he suggests the solution of such problems by individuals by learning about the structure of the physical system on which they jointly rely, about their own appropriation and use patterns, about the norms of behavior that are followed in a community, about the incentives they will encourage or discourage as they change rules, and about how all of these factors will cumulatively affect their net benefits and costs over time.

3.2 Approaches of the Study

The approach used in this study is mainly based on qualitative research approach. As the study is primarily based upon effectiveness of the cooperative in lake governance, the qualitative approach will be best suited.

3.3 Data Collection Tools

Both primary and secondary data collection methods used to gather information.

3.3.1 Primary Sources of Data Collection

Primary data was collected by using the semi-structured interview with members of different committees of cooperatives. Similarly, different rounds of interview was conducted with locals, local NGO associated for watershed management for the validity and cross verification of data collected. The interview was carried in Nepali Language for simplicity, which was translated in to English latter during data coding.

3.3.2 Secondary Data Collection

Secondary data were collected from various sources such as annual reports, newspapers/media reporting, publication etc.

3.4 Data Analysis

Data management, analysis and interpretation has been carried out immediately after the collection of data to make it more sensible, valid and avoid the probable data impurity.

Chapter IV: Result and Discussion

Lake governance in Rupa has evolved through various stages, starting with ignorance and progressing to acceptance. The community struggled to find natural linkages between fish and the lake, leading to the loss of fish. Elephant grasses invaded the lake, and siltation from road construction accelerated the process, causing the lake to shrink by 60%. Concerned about the environment, some citizens formed the Save Rupa Movement to protect the lake. Tek Bahadur Gurung took the initiative to form the Rupa Lake Restoration and Fisheries Cooperative (RLRFC) in 2001. Collective activities like tall grass removal, afforestation, and bio-fertilizer use improved lake water levels and fish production, leading to cooperative governance after 2004. The Pokhara Fisheries Research Station, a unit of the Nepal Agricultural Research Council, co-manages the cooperative, which is officially registered in the Kaski district cooperative office and began full operation in 2002. (Gurung, 2007). A constitution was drafted following numerous stakeholder meetings, consultations, and public hearings to guarantee the success of the restoration efforts (Research Gate, 2018). This constitution states that the president must be democratically elected and may come from any ethnic group. According to the constitution, vice presidents must be from the Dalit or Jalari people. There is also a quota set out for one female vice president. The Jalari community will also nominate candidates for two executive member slots, one of which must be filled by a woman. All other positions will be filled by election (Gurung, 2007). Fishing is not simply a means of subsistence for the Jalari people; it also plays a significant role in their heritage and culture. By ensuring their involvement, elite communities can benefit from their traditional fishing knowledge.

The cooperative's first membership included 36 households, including the 11 members of the interim executive committee. Each of these members gave NPR 5000 toward the cooperative's initial setup. The membership thereafter grew significantly, with around 40% women, reaching an astounding 444 in 2008 and 746 in 2013. According to Chaudhary et al. (2015), the cooperative set up a system to disperse benefits among upstream and downstream communities with the help of the Local Initiative for Biodiversity, Research and Development (LI-BIRD), a Pokhara-based NGO. As a part of ongoing programs in community-based biodiversity management, LI-BIRD also

provided capacity-building training, including in management, leadership, sustainable practices, and biodiversity conservation.

The cooperative established a strategy in 2008 to provide up to 25% of its yearly net profit to initiatives aimed at sustaining management of the upper Rupa Lake watershed. In order to generate fingerlings for rearing native fish, it made an investment in the construction of a fish hatchery and six nursery ponds on the north bank of the lake in 2012. Additionally, the cooperative funded NPR 95 000 in six Mothers' Groups and 17 Community Forestry Users' Groups in 2013 out of NPR 150 000 spent on watershed health programs (Chaudhary et al., 2015). These initiatives show how coordinated efforts can restore and sustainably manage degrading lake ecosystems and fisheries (Gurung, 2007; THT, 2017).

The Rupa Lake cooperative made sure that marginalized groups that depended on the lake for their livelihood, like the Dalits and indigenous peoples, would be included on committees that make decisions about fisheries restoration. The cooperative gave preference to hiring people from traditional fishing communities. Participating in governance and management activities for lake and fisheries restoration has given members of fishing communities who have been marginalized more authority. These members are now more informed on issues that have a significant impact on their livelihoods, such as natural resource management, the effects of climate change, and other topics. Additionally, employees are more comfortable chatting to people when conducting business, such as selling fish. The cooperative has implemented unbiased and open procedures for making decisions. During the AGM and through direct conversations with executive committee members, members can learn more about management, loss and profits, and future plans. The decision-making and governance process can be evaluated as transparent because the members are free to speak in favor of and against various acts done by the cooperative and because their concerns are taken into consideration during the AGM. The distribution of benefits is also very fair, open, and egalitarian because each household is entitled to an equal part of the dividends. A significant section of the relevant community has been represented by the cooperative as general members, executive committee members, or staff. Through the "up to 25% income sharing" approach, upstream communities also profit. By implementing numerous generous procedures to recruit members from marginalized populations, such as allowing them to pay their dues in

installments, the issue of access equality is addressed. The cooperative has a well-established management system in place with the necessary laws, rules, and guidelines. The cooperative's efficient operation, free from any issues or irregularities, can be attributed to its effective governance. Members from various communities are pleased with their level of participation, and decisions are also made fairly. During the AGM, members who are not represented on the executive committee can voice any concerns or inquiries they may have for the office holders to address. The rehabilitation of the lake has had the full backing of government institutions like the Pokhara Fisheries Research Station of the Nepal Agricultural Research Council, the District Cooperative Office in Kaski and Lekhnath Municipality, and the Village Development Committee. The cooperative has been successful in enlisting the aid of and working in conjunction with numerous NGOs, INGOs, and organizations from the private sector, including LI-BIRD, the International Union for Conservation of Nature, the World Wide Fund for Nature, the International Centre for Integrated Mountain Development, the Hotel Association Nepal, and the district chapter of the Federation of Nepalese Chamber of Commerce and Industries.

4.1 Lake Governance: Effective Cooperative Governance Model

RLRFC aimed to improve the lake environment for fish production, partnering with DDC to manage Rupa lake. Communities have adopted practices that enhance the basin's environmental quality, such as forest management, afforestation, increased water retention, and manual removal of tall grasses. This has led to a decrease in encroachment on agriculture and settlements. Local government, like Lekhnath Municipality, has influenced the community to undertake lake-centered development programs. Ramchandra Sapkota, the cooperative's leader, believes that reverting the siltation phenomenon in Rupa would have been a significant challenge. They are eager to seek outside assistance in desilting the lake and restoring the environment for prosperity. The cooperative has organized communities into groups for various economic activities, such as goat farming, apiculture, and vegetable farming. Communities have also enhanced their economy by using lake resources like white lotus seeds and Kokre, which have medicinal and economic value. They have prepared a management plan for white lotus conservation and started selling lotus seeds since 2007. Rupa cooperative has also used solar drying techniques to add value to local fish, packaging and selling it to the local market. The Environment Payment System (EPS) was

initiated in 2002 in the Rupa area, with a 10% allocation from the cooperative's net income from fishery. The system supports conservation and income generation activities, focusing on poor, resource-dependent, and vulnerable communities in the lake basin. The cooperative realized the importance of up-and-downstream issues and demanded equal shares in RLRFC, requiring them to adopt environmentally friendly agriculture, animal husbandry, bioengineering, and Community Forest management. Effective linkages between up-and-downstream communities have led to positive outcomes. Women Groups (WGs) have been formed to sustain micro-credit and conserve biodiversity. The cooperative provides scholarships for students and cash incentives for forest management upstream. These practices improve basin environment by enhancing participation in plantation, conservation block management, and green belt development. RLRFC has developed participatory protocols with other institutions, integrating stakeholder concerns like gender, social exclusion, ethnicity, and environmental governance. This has led to a cooperative network for lake biodiversity, agriculture, horticulture, and NTFPs. Members actively participate in environmental fairs, conservation actions, and livelihood programs, such as manure management, sustainable farming practices, insect pest management, bio-fertilizer pesticides, and adult education. A cooperative-run information center in Rupa lake is functioning, managing a wetland museum, conference hall, and library for community discussions and sharing information on lake management. The center organizes training, meetings, and awareness materials, allowing communities to observe and learn about wetland flora and fauna. It also prepares an electronic database on wetland resources, an aquarium of indigenous fish diversity, a living garden of floral diversity, photographs, paintings, posters, video documentary, and a traditional fishing museum. The center also hosts conservation events like World Environment and Wetlands Days, which involve school children, teachers, women, and government institutions. RLRFC has established a sustainable financing mechanism for conserving Rupa lake, allocating a percentage of the cooperative's benefits for lake management.

Chapter V: Conclusion

The Rupa Lake cooperative has successfully restored and nurtured inclusive local governance in the surrounding area, transforming past conflicts into collaboration. However, new challenges arise due to unresolved issues, potentially arising between upstream and downstream communities and within the region. The cooperative must include women and marginalized members to ensure its success. The expansion of boundaries to include more downstream communities is crucial, as membership from marginalized communities has decreased in recent years. Addressing women's concerns is essential, as their participation is currently passive. Efforts must be made to empower women and ensure inclusive cooperative governance is truly in need. A cooperative approach in line with governing the commons can restore deteriorated ecosystems, demonstrating the cooperative's ability to achieve sustainable development and improve local livelihoods.

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