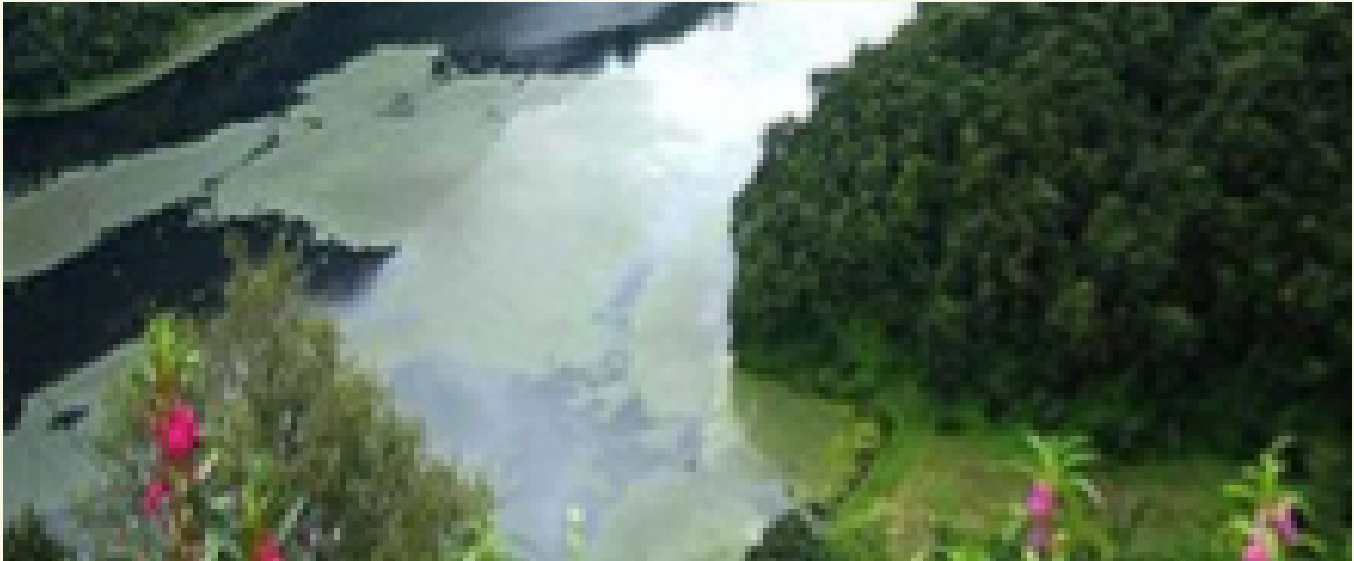


# Smallholders' initiatives for environmental justice: Restoring degraded Lake Rupa and its fisheries in Nepal



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Lake Rupa is a shallow body of water, occupying approximately 135 hectares with an average depth of 4.5m. It is located 600m above sea level in Central Himalayas, Nepal. In the past, Rupa Lake was at the center of traditional fishery that supported livelihood of more than 100 families. However, in the mid-1980s, Rupa Lake became heavily degraded by eutrophication, silt deposition, overgrowth and subsequent demise of macrophytes. As a result, the amount of dissolved oxygen in the water column decreased, killing fish and diminishing biodiversity. The already impoverished fishermen lost their source of income.

In Nepal, the majority of lake resources are owned by the government and available for public use, including fishing. However, the government shows little interest in restoring degraded resources, especially lakes. When no action was taken in Rupa Lake, impoverished small-scale fishers decided to work together and restore the degraded lake and its fisheries. Currently, the small-scale fisheries cooperative has more than 870 members, making it one of the largest and most successful in the region.

Photo: *Degraded Lake Rupa with heavy aquatic vegetation and other associated problems. Rupa Lake, Pokhara, Nepal. 1998/99.*

Location:  
Pokhara, Nepal

Ecosystem type:  
Freshwater

Main gear:  
Cast net, Gillnet, hook & line

Target species:  
Chinese & Indigenous major carp

No. of small-scale fishers:  
801



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## Justice in context

Types of justice:

- **Distributive**
- **Social**
- **Economic**
- **Market**
- **Infrastructure/wellbeing**
- **Regulatory**
- **Procedural**
- **Environmental**
- COVID-19 related

The cooperative has offered distributive, social, economic, market, infrastructure, wellbeing, regulatory, and procedural justice. In the cooperative, the Constitution dictates that one Vice President and one Member of Executive Committee must come from minority fisher community, respecting their traditional knowledge in the lake fishery. Additionally, one Vice president and one Member must be women, promoting gender inclusion. The cooperative includes all eligible men and women living up and downstream of the lake in an inclusive manner. The cooperative's income is not only spent on restoration of the lake, but also offered to nearby public schools as scholarships to poor but deserving students; single woman parent families; and environmentally friendly agricultural practices, especially in catchment areas, for the purpose of controlling the soil erosion and agricultural run-off.

The traditional fishers had limited capability to capture fish. Now, with the adoption of cooperative governance and usage of bio-manipulation approach, the amount of fish captured has increased more than 100 times than before, with an annual income of around \$150K USD. Twenty local fishers have been permanently employed. The restoration has also created job opportunities for hundreds of people in fish marketing and local tourism. Local tourism has also contributed to the development of infrastructure such as roads, dams, hospitals, schools, restaurants, hotels, boats and public transportation, enhancing wellbeing of the local inhabitants who used to live in remote hills. The cooperative has offered more efficient regulatory mechanism for lake and biodiversity conservation than before. This restoration has demonstrated the importance of surrounding natural resources for the global, societal, economic and environmental wellbeing.

### Definition of small-scale fisheries (unofficial definition)

In Nepal, a landlocked country, mostly all fisheries are operated at a small-scale using primitive technologies and small capital investment. The small-scale fisheries in Nepal occur on ponds, raceways, cages, rivers, reservoirs, rice fields and lakes; nomads, traditional ethnic fishers, especially women, are involved in capture fisheries for food security and livelihood.

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*'Rupa Lake Restoration and Fisheries Cooperative' was founded (...) With restoration of fisheries, local inhabitants are reaping the benefits that lake restoration brought (i.e., income from fish recapture).*

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## Dealing with justice

'Rupa Lake Restoration and Fisheries Cooperative' was founded about 20 years ago when the author was the Chief of Fisheries Research Center, Pokhara, under Nepal Agricultural Research Council, Government of Nepal, working in collaboration with local NGO, CSO, local fishers and local government agencies. The opening statement of the cooperative's constitution reads that the Lake Rupa is inseparable from the Government of Nepal.

The lake has been successfully restored following warm water carp (fish) bio-manipulation of stocking and recapture. As a result, the coverage area of aquatic plants in the lake has been substantially reduced, helping dissolving oxygen in lake water column at normal levels. By reducing the submerged aquatic vegetation, the abundance of phytoplankton was increased because phytoplankton might have advantage on submerged plants for nutrient use in water column. With restoration of fisheries, local inhabitants are reaping the benefits that lake restoration brought (i.e., income from fish recapture).

Encouraged by local community's success, the Government of Nepal has recently approved a renewable annual budget and program plan for the Rupa Lake conservation and tourism promotion, hoping to facilitate further social development and environmental justice initially promoted by local small-holder fishers.

### How to cite

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