Fisheries and aquaculture policy for education, research and extension in Nepal

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Abstract

Fisheries and aquaculture policy for education, research and extension is derivatives of the main national agriculture policy. Fisheries and aquaculture is a dynamic sub-sector of agriculture sector having high growth potential but with low organizational stature in Nepal. The modern aquaculture along with fisheries practices contributes nearly 1% of Gross Domestic Production (GDP) and 2.68% of Agriculture Gross Domestic Production (AGDP). This positive achievement of the sub-sector, contrary to others whose contribution in GDP has declined over the years, suggests its popularity among farmers. Similarly, Government of Nepal has recognized the importance of fisheries and aquaculture for nutritional supply and poverty reduction. The primary objective of the national fisheries and aquaculture policy is to contribute to economic growth and poverty reduction through inclusive, equity- based and Ecosystem Approach of Aquaculture (EAA). Specific laws and legislation on aquaculture development have to be formulated or enforced for building capacity and facilitating entrepreneurship, especially in the context of the World Trade Organization (WTO). Besides, Best Management Practices (BMPs) also need to be identified and adopted to achieve sustainable growth of the sub-sector.

Keywords: Policy; Legislation; Aquaculture; Fisheries; WTO; Research; Extension; Education

1. Introduction

Overall fisheries activities in Nepal are primarily governed by policy laid down by the government (MoAC, 2009). Fisheries have a long-rooted tradition and custom in Nepalese society. Aquaculture is a relatively new and dynamic sector of agriculture in Nepal (APP, 1995). The growth rate of fisheries and aquaculture sector is more than 9% in the last decade (FPP, 2000). Experiences have shown that there has been a significant impact of fisheries and aquaculture development on communities in terms of relatively high returns on investments compared to other agriculture sub-sectors (Mathema, 1992; FPP, 2000). Fish farming is currently one of the popular agriculture enterprises among Nepalese farmers. The aquaculture in the country started with the introduction of carps in the early 1950s (Woynarovich, 1975).

Government of Nepal has recognized the contribution of aquaculture to poverty alleviation, and food and nutritional security. Fisheries and aquaculture development has been prioritized, with special attention paid to productivity and production enhancement (MoAC, 2009; NARC, 2010). As per the current national plan, fisheries has been focused as a tool for mainstreaming deprived, marginalized and poor communities in the society (NARC, 2009; NARC, 2010). The specifc attention is on livelihood improvement and poverty alleviation for economic growth through active participation of deprived and poor communities.

2. Vision of fisheries and aquaculture policy

The vision of fisheries and aquaculture policy is transformation of small-scale fisheries into competitive and commercial aquaculture.

3. Objectives of fisheries and aquaculture policy

For achieving food security, poverty alleviation and sustainable economic development, transformation of small-scale aquaculture into competitive and commercialized sector has been envisaged. The main objectives of the fisheries and aquaculture policy are to:

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- Increase fish productivity and production;
- Strengthening the foundation of commercial aquaculture to make the product competitive in regional and global market; and
- Utilization, promotion and conservation of natural resources, fish biodiversity and environment.

4. Fisheries and aquaculture policy

To achieve the above objectives by mobilizing resourceful and resource-poor communities, the following specific policy measures have been adopted.

4.1. Aquaculture production and productivity enhancement

- Based on local feasibility, comparative advantage, and specific opportunities, suitable technologies will be developed, scaled up and extended to increase fish production and productivity. In addition, commercialization and diversification of aquaculture production will be promoted for income and employment opportunities.
- The sloppy land on hills will be used for increasing fish production through developing cold water aquaculture technologies.
- In the North-South road corridor, high-valued fish production will be prioritized.
- Based on the local need, specific fisheries programs will be implemented and subsidized.
- For the extension of food and nutritional technologies, farmers' group will also be mobilized, through government extension services and Institute of Agriculture and Animal Science (IAAS), Tribhuvan University, Chitwan. For fisheries extension, media will be used to provide information services to the stakeholders.
- Fisheries and aquaculture research that is compatible to specific location will be promoted through competitive grant system.
- National and international collaboration on fisheries research and extension will be promoted through exchange of technologies and experts.
- International and private investment will be encouraged to enhance fisheries and aquaculture sub-sector.
- Supply of the main production material such as fingerlings will be monitored and guaranteed.
- Bank loan will be made available for the promotion of aquaculture.
- An insurance system for commercial aquaculture development will be promoted.
- For capability enhancement, of the farmers, various training programs will be organized.
- For sustainable human resource development, establishment of agricultural university in the country will be made a priority. There will also be a provision of expert exchange among academic institutions, research and extension related institutions.
- Women's participation in all sectors will be encouraged up to 50%.
- Common water bodies, such as community ponds, lakes, rivers, reservoirs and swamps, will be leased for fisheries and aquaculture activities to the deprived, marginalized and poor.

4.2. Promotion of commercial aquaculture

- For the promotion of commercial fish production, pocket or large potential areas will be identified. In such areas, support services will be furnished in an integrated manner.
- In suitable locations, government farms will adopt Double Track Model, or lease out farms for cooperatives management.
- For high-value organic farming, use of hybrid and high-yielding species will be prioritized as far as possible.
- Local and indigenous knowledge of fish production will be promoted for identification and registration
- Special opportunities to educate the unemployed youth will be provided.

4.3. Natural resource management

- Eutrophication of water bodies will be regulated.
- Degraded water bodies will be restored, conserved and used.
- In-situ and ex-situ measure will be promoted for biodiversity conservation.

5. Implementation and monitoring management

To monitor and evaluate the special projects and regular achievements, participatory approach will be adopted.

6. Fisheries and aquaculture educational network

The importance of education in the fisheries sector got priority during the 1980s (Mathema, 1992). Fisheries trainings are provided to farmers, entrepreneurs, national and international personnel. Tribhuvan University, through its affiliated institutions, also provides basic fisheries and aquaculture education. In general, following institutions are engaged in different knowledge-based supportive activities related to fisheries research, development, and extension activities:

- Tribhuvan University for education and scientific research;
- Nepal Academy for Science and Technology (NAST) for scientific research; and
- Nepal Fisheries Society (NEFIS) for technical partnership.

7. Fisheries and aquaculture research network

Fisheries and aquaculture research was prioritized in the early 1990s, as a result of which Nepal Agricultural Research Council (NARC) - an autonomous public institution - was mandated to conduct fisheries and aquaculture research. The former focuses on capture fisheries and conservation aspects, while the latter is more culture-based, applied and productivity-related. NARC has the following fisheries research institutions:

- Tarahara and Parwanipur Fisheries Research Programs under the Regional Agricultural Research Centers for warm water aquaculture;
- Fisheries Research Center Pokhara for lake and reservoir fisheries;
- Fisheries Research Center Trishuli on riverine species; and
- Fisheries Research Division Godawari on cold water fisheries.

8. Fisheries directorate for extension

The Directorate of Fisheries Development (DoFD) under Department of Agriculture, Ministry of Agriculture and Cooperatives is responsible for fisheries and aquaculture extension-related policy and implementation. It also coordinates with national and international institutions with focus on fisheries extension (FPP, 2000). The Directorate performs its work through the following major institutions:

- National Inland and Aquaculture Development Program
- Central Fish Laboratory
- Fisheries Development and Training Center
- Fisheries Development Centers situated in different districts
- District Agriculture Development Offices
- Agriculture Development Bank for credit facilities and services

9. Legislation for aquaculture trade promotion

Specific legislation on aquaculture production, development and extension has not yet been formulated or enforced in the country. The aquaculture industry finds this of utmost concern to increase its contribution in fish production. Moreover, specific legislation will be needed for sustainable growth of aquaculture sector, in view of the challenges and opportunities relating to the World Trade Organization (WTO).

10. Legislation for aquatic animal protection act

The importance of fisheries resource conservation was realized long ago in the country. As a result, the Aquatic Life Conservation Act 1961 - "*Jalchar Sanrakshan Ain - 2017*" was promulgated but its execution is limited due to lack of rules and regulations. The Act was revised and amended in 1999 (2056 BS). The amendment has now covered restrictions on killing and capture methods of specific vulnerable and rare fish species. Provisions of punishment to culprits, obligations of citizen and role and responsibility of local and technical authorities have also been included. The Act has also provisioned for establishment of fish hatcheries in regulated water bodies like-hydropower reservoirs and irrigation dams. The Actstill needs additional rules and regulations for its smooth implementation.

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