

Perspective Article

Fishery Production and Development Perspective of Nepal

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Abstract

The purpose of this paper was to analyze the Nepal fishery production and its current development status. In the year 2016, domestic production increased by 59 times more than the year 1960. Nepal import amounting NRS 5.4 billion fishery from 26 nations from last 7 years. Most of the fishery import from India that was 92% and Vietnam 6% in total monetary value. Nepal export fishery amounting NRS 12.1 million to 4 nations. Most of the fishery export to China that was 76% and India 23% in total monetary value. Nepal has 1.1 Billion NRS trade deficit from a fishery in the year 2016. Nepal needs to grow more fisheries by adopting modern technology and utilizing available resources so that, it in near future it will help reduce the trade deficit and become self-sufficient in the fisheries sector.

Keywords

Fishery Production; Nepal; Trade

Introduction

Nepal is landlocked country located between two bordering nation India at South, East and West and China at North. It covers an area of 147,181 km² with a population of 29.8 million in 2016. Its geography is divided into three physiographic areas: Mountain (high altitude along with colder climate conditions in the northern belt), Hill (Moderate climate conditions), and Terai (warmer climate conditions in southern belt). The country experiences special season and climate conditions, such as there are 5-climate zones and 5 seasons in a year. Nepal has a large amount of water resource availability in the form of snow covers (3,252 glaciers with total coverage of 5,323 km²), rivers (6,000 rivers including tributaries and rivulets), springs, lakes (5,358 lakes including 2,323 glacial lakes), and groundwater (12 km³) [1]. Nepal has been dreadfully dependent on inland water resources for their fish production. There are many inland water resources available like lakes, water reservoir, rivers, irrigated field and fishponds

that are suitable for fisheries and aquaculture development. Nepal has a relatively short history in aquaculture which begun on the mid-1940s with Indian major carp seed from India in small-scale ponds [2]. The purpose of this paper was to analyze the Nepal fishery production and its current development status.

Water Resources for Fishery Production

At present (2015-2016), about 77,000 metric tons of fish were produced in Nepal. The fishery production from rivers, lakes, reservoirs, marginal, swamps, ghools, etc., and paddies are shown in table1. Nepal has huge fishery resources, but these have not yet been properly evaluated.

Water Bodies	Estimated Area (ha)	Fish Production (Mt.)
Rivers	395000	7110
Lakes	5000	850
Reservoirs	1500	385
Marginal/Swamps/ ghouls	11100	5990
Paddies	398000	7165
Total	810600	21500

Table 1: Estimated Water Surface Area and Fish Production from Capture Fishery (2016).

Fish Species

In Nepal, 239 species reported to be found in Nepal but at the current situation, 202 species are available [3]. According to The IUCN Red List threat category (Table 2), currently, 8 Species are listed as threatened due to the high geographical variation, conservation dependent and uncommon or lower risk least concern species [4]. Chuchee asala (*Schizothorachthys spp*), katle (*Neolissochelius hexagon ole pis*), Snow trout (*Schizothorax spp*), locally also known as asala, and mahseer (*Tor spp.*) is the economically most valuable home-grown species [5].

No.	Taxonomy	Common Name	Location	IUCN Category
1	<i>Cyprinion semiplotum</i> Animalia Chordata Actinopterygii Cypriniformes Cyprinidae Cyprinion	Khurpe, Chepti (Nepali); Assamese kingfish (English)	Kali Gandaki, Trisuli, Koshi, Kaligandaki, Karnali and Mahakali rivers	Vulnerable (decreasing)
2	<i>Schizothorax nepalensis</i> Animalia Chordata Actinopterygii Cypriniformes Cyprinidae Barbinae Schizothorax	Asla , Tikheasla (Nepali)	Lake Rara	Critically Endangered (decreasing)
3	<i>Schizothorax raraensis</i> Animalia Chordata Actinopterygii Cypriniformes Cyprinidae Barbinae Schizothorax	Hiu asla (Nepali); Rara snowtrout (English)	Lake Rara	Critically Endangered (unknown)
4	<i>Schizothorax richardsonii</i> Animalia Chordata Actinopterygii Cypriniformes Cyprinidae Barbinae Schizothorax	Asala, Siyae, Suiree, Soal, Budheasla, Bucheasla (Nepali); Common snow trout (English)	Bagmati river, Narayani river	Vulnerable (decreasing)
5	<i>Tor putitora</i> Animalia Chordata Actinopterygii Cypriniformes Cyprinidae Tor	Sahar, Ratar, Mahaseer, Pahale Sahar (Nepali); Gold mahseer, Himalayan salmon, (English)	Gandaki, Koshi, Karnali and Mahakali rivers	Endangered (decreasing)
6	<i>Tor chelynooides or Naziritor chelynooides</i> Animalia Chordata Actinopterygii Cypriniformes Cyprinidae Tor or Noziritor	Karange (Nepali); Ray- finned fish (English)	Terai, Indrasarobar reservoir, Pokhara lakes, Trisuli Sun Koan and Preserved in temple ponds for religious purpose	Vulnerable (decreasing)
7	<i>Physoschistura elongata</i> Animalia Chordata Actinopterygii Cypriniformes Nemacheilidae Physoschistura (Nepali), Stone loach fish (English)	Sunkoshi, Khimti, Roshi and Tamakoshi rivers	Vulnerable (unknown)
8	<i>Glyptothorax kashmirensis</i> Animalia Chordata Actinopterygii Siluriformes Sisoridae Glyptothorax (Nepali), Cat fish (English)	Kali Gandaki, Mahakali, Chamelia and Babai river	Critically Endangered (unknown)

Table 2: List of Threatened Fishery.

Production Areas

In Inland production, major fishery areas were located at Terai belt that has lowland region characteristics. More than 88% of pond numbers are located in Terai and rest other 11% and 1% located at Hill and Mountain region, respectively [6]. In Terai region, production efficiency level was higher than Hill and Mountain region due to the climate condition. The warmer conditions are favorable for fish growth [7] (Table 3).

Pond Fish Culture	Fish Production (Mt.)	Yield Kg/ha
Mountain	28	2545
Hill	1205	2770
Terai	47310	4986

Table 3: Pond Fish Culture (data of the year 2016).

Domestic production

In the year 1960, Nepal was able to produce only 1,300 tons of fishery per year. Slowly and gradually in the year 2015 [8], Nepal was able to produce 69,500 tons per year (Figure 1). From the year 1960-2015, mean value of production was 19,140 tons and the standard deviation was 20,005.

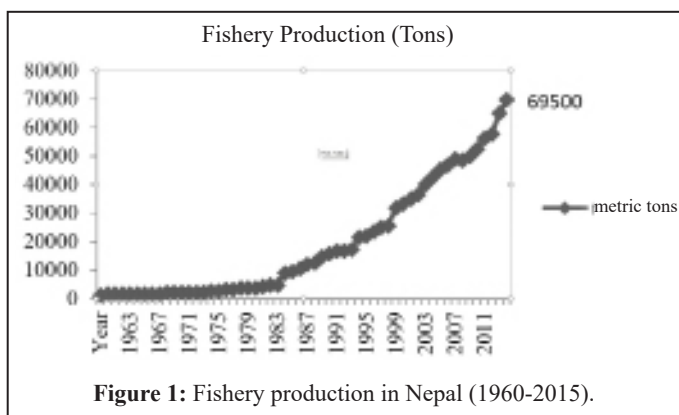


Figure 1: Fishery production in Nepal (1960-2015).

Import fishery

In the year 2009-2016, Nepal import fishery from 26 nations. The total cost was NRS 5.40 billion for imported fishery from 26 nations in last seven years (Table 4). Nepal mainly imports fishery from India which was worth NRS 4.9 billion and followed by Vietnam and Thailand amounting NRS 299.4 and NRS 34.3 million, respectively. Nepal mainly imported fishery from India which was 62,809.9 tons and followed by Vietnam and P.R. China 1,455.8 tons and 128.5 tons, respectively [9]. The least monetary and quantity, Nepal had imported from France was NRS 1,847 and Saudi Arabia was 2 kg, respectively.

S.N.	Country	Quantity (Kg)	Value (NRS)
1	India	6,29,09,906	4,99,39,78,417
2	Vietnam	14,55,849	29,94,04,267
3	Thailand	88,849	3,43,19,109

4	P. R. China	1,28,507	2,37,17,466
5	Norway	27,773	2,07,58,340
6	Singapore	36,139	1,52,20,660
7	Malaysia	19,052	40,16,218
8	Chile	1,040	27,53,659
9	Denmark	460	12,88,714
10	U.S.A.	374	12,60,972
11	Australia	2,770	12,20,258
12	Germany	285	8,97,847
13	U.K.	1,000	5,09,107
14	Baharain	1,856	4,36,693
15	Netherlands	339	2,61,612
16	Korea R	1,729	2,21,861
17	Hongkong	610	1,89,510
18	Indonesia	1,080	1,85,072
19	Italy	102	1,50,389
20	Japan	89	1,35,767
21	Maldives	129	83,449
22	Bangladesh	3	35,886
23	Brunei	39	21,195
24	Taiwan	5	9,516
25	Saudi Arabia	2	5,200
26	France	10	1,847

Table 4: Major Importing Nation (2009-2016).

Export fishery

In the year 2009-2016, Nepal export fish to 4 nations [9]. The total NRS 12.10 million was exported to 4 nations during 7 years' period (Table 5). The highest fish export goes to China that was 76% and followed by India 23% in total monetary value. The least monetary value, Nepal had export to Sweden, which was NRS 11,297.

S.N.	Country	Quantity (Kg)	Value (NRS)
1	P. R. China	55833	9273609
2	India	40415	2764048
3	Hongkong	340	116069
4	Sweden	25	11297

Table 5: Major Exporting Nation (2009-2016).

Trade deficit

In the year 2016, Nepal has 1.10 Billion NRS trade deficit from a fishery that was increased by 7.3 times compared to the year 2009. In the year 2009, the trade deficit was 158 million (Figure 2). From the year 2009-2016, mean value was NRS 693.4 million and the standard deviation was NRS 389,994,853.12.

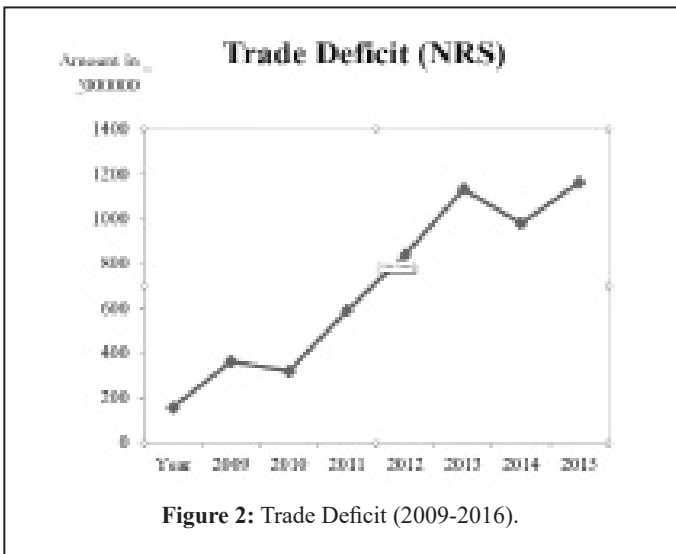


Figure 2: Trade Deficit (2009-2016).

Conclusion

Nepal has huge fishery resources, but these have not yet been properly explored and utilized. In Nepal, 239 species were found in various places. At the current situation, among these, only 8 species were listed as threatened. In Nepal, Terai region has great scope for fishery due to a relatively warmer temperature which is more suitable for fish growth. Domestic fishery production was increasing year by year, but the trade deficit was growing side by side. Nepal has been a major importer of fish from India and

exporter to China in terms of money and quantity, during last few years. In near future, Nepal needs to work on the commercial production of the fishery in order to minimize the trade deficit and become self-sufficient in the fisheries sector.

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