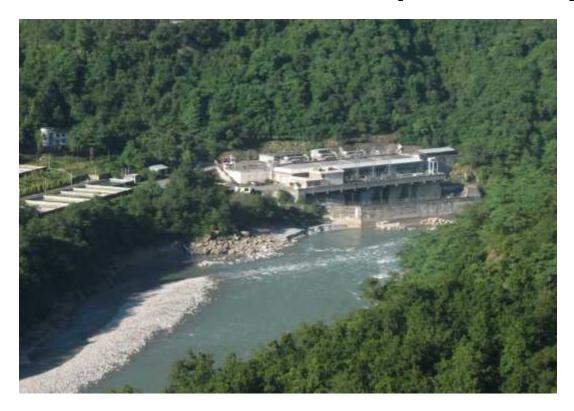
IMPACT OF DAM ON FISH DISTRIBUTION IN KALIGANDAKI RIVER BETWEEN MIRMEE TO BELTARI [DEWATER ZONE]

A Dissertation Submitted for Partial fulfillment of the requirement For the master's Degree of science In Zoology With special paper Fish and Fisheries

By
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To
Central Department of Zoology
Institute of Science and Technology
Tribhuvan University, Kirtipur
Kathmandu, Nepal
April, 2011

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Submitted by: Shyam Bahadur Somai

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Institute of Science and Technology
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Kathmandu, Nepal
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RECOMMENDATION

It is my pleasure to mention here that Mr. Shyam Bahadur Somai completed his dissertation work entitled "STUDY ON THE IMPACT OF DAM ON FISH DISTRIBUTION IN KALIGANDAKI RIVER BETWEEN MIRMEE TO BELTARI [DEWATER ZONE]" under my guidance and supervision. This is the candidate's original work aiming to document relevant information on Impact of Dam on Fish distribution on Kaligandaki River with the relation to fish and fisheries. To the best of my knowledge, this dissertation work has not been submitted for any other degree.

•••••

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LETTER OF APPROVAL

On the recommendation of supervisor Associate Prof. Dr. Usha Lohani, this dissertation
work of Mr. Shyam Bahadur Somai has been accepted as partial fulfillment of master's
Degree of Zoology of IOST, T.U.
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CERTIFICATE OF APPROVAL

This Dissertation submitted by Mr. Shyam Bahadur Somai entitled STUDY ON THE IMPACT OF DAM ON FISH DISTRIBUTION IN KALIGANDAKI RIVER BETWEEN MIRMEE TO BELTARI [DEWATER ZONE]" has been approved as partial fulfillment for the master's Degree in zoology of IOST, T.U.

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have been specifically acknowledged by reference to the	o
I hereby declare that the work presented in this dissert has not been submitted elsewhere for the award of any	

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ABSTRACT

The present study entitled "Impact of dam on fish distribution in Kaligandaki River between Mirmee to Beltari [Dewater zone]" was conducted from September 2009 to August 2010 in five sampling sites of Kaligandaki River namely Aandhimuhan, Aruwa Ghat, Chherlung Ghat, Dailatung Ghat and Beltari as site I, II, III, IV and V respectively with the aim to study the fish distribution and impact of dam on fish fauna along with the socioeconomic condition of fisher communities of dewatered zone. The physic-chemical parameters were also analyzed with the mitigation measures of Kaligandaki-A Hydropower Project. Cast net, Ghorlang, Gill nets, "Duwalo Thunne", hook and line were used for collection of fishes. Altogether 14 species of fishes under 3 orders, 6 families and 9 generawere caught during the study period. Among them, Barilius vagra and Barilius barila (Fageta) were found common in all sites while Labeo boga was found to be confined in sampling site I. Glyptothorax pectinopterus and Labeo bata were confined to sampling site II and III. Pseudoechinus sulcatus and Glyptothorax telchitta were only collected from site IV and V. Regarding the site wise fish composition 6 species under 4 genera were collected from the site I, 4 fish species under 3 genera from site II, 9 species under 6 genera from site III, 13 species under 9 genera from site IV and 9 species under 6 genera were captured from site V. After the construction of dam the water quality parameters are found to be changed. The impoundment resulted in the increase of water temperatures and also the increase in CO₂ which ultimately resulted in the decrease in DO. These all results show the adverse effect in the normal growth of the fishes. Studying the impact of dam on fish resources, it was found that the construction, operation and maintenance of Project have given negative impact on several fish species. The migratory behavior of migratory fish were badly affected to up and downstream of the river. Mitigation measures like trapping and hauling, fish hatchery, cage culture, regular downstream release should be strictly implemented. Regarding the socio-economic condition, the fisher communities of the study area were found very poor and only 31.21% were literate. Their main occupation is fishing and boating but it is becoming in shadow. So some of the populations mostly young are compelled to take other secondary occupations like navigation, agriculture, labor and daily wage.

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ABBREVIATIONS

AGDP - Agriculture Gross Domestic Product

APHA - American Public Health Association

CITES - Convention on International Trade in Endangered Species

DO - Dissolved Oxygen

EIA - Environmental Impact Assessment

ha -Hector

HMG/N -His Majesty's Government of Nepal

HPP -Hydro Power Plant

IUCN -International Union for Conservation of Nature and

Natural Resources

KGA -Kaligandaki-A Project

KGA-HEP -Kaligandaki-A Hydroelectric Project

Km -Kilometer

Km² -Square Kilometer

kW -Kilo Watt

MKI -Morrison Knudsen International

MW -Mega Watt

NEA -Nepal Electricity Authority

UNDP -United Nations Development Programme

USA -United State of America

VDC -Village Development Committee