

Biodiversity conservation:

*Tor putitora or Golden mahasheer fish: A case for indigenous community-centric buffer zone management program follow-up and scale-up*



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Financial support



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## 1. Introduction

**The Rufford Foundation** is a UK based registered charity which funds nature conservation projects across the developing world. To date, the Foundation has awarded grants to over 4681 projects in 160 countries.

The Foundation encourages the sharing of knowledge and best practice throughout the conservation world.

**(Gave financial support to implement the program)**



Shramyog is a non-profit people's organization registered in New Delhi under the Societies Registration Act of India (1860). In the year 2011, Shramyog was set up with a vision to establish an oppression-free society, where environment sensitive and scientific conscience people will live in healthy ecosystems with dignity and harmony.

Shramyog believes that organized and aware people can contribute to ensuring sustainable and equitable development. The name Shramyog is derived from "Shram" means "hard work" and "Yog" means "organized union". **(Gave technical support to implement the program)**

**Shankar Datt** completed his B.Sc. and M.Sc. program at DSB Campus, Kumaun University, Nainital in Life Sciences with a specialization in Botany. He has more than 12 years of working experience in biodiversity conservation and community development. He also completed his advanced degree; Master's in Environmental science from Wageningen University Netherlands in 2013 with the Ford Foundation Fellowship. **(Facilitated the program)**



**Jim Corbett National Park** is the oldest national park in India and was established in 1936 as Hailey National Park to protect the endangered Bengal tiger. It is located in Nainital district of Uttarakhand and was named after Jim Corbett who played a key role in its establishment. The park has sub-Himalayan belt geographical and ecological characteristics. It contains 488 different species of plants and a diverse variety of fauna. The increase in tourist activities, among other problems, continues to present a serious challenge to the park's ecological balance. Corbett National Park comprises 520.8 km<sup>2</sup> (201.1 sq mi) area of hills, riverine belts, marshy depressions, grass lands and a large lake. The elevation ranges from 1,300 to 4,000 ft (400 to 1,220 m).

**(Project area: buffer zone of the national park)**

# Executive summary

In 2015-16 we developed five Participatory Comprehensive Village Biodiversity Conservation plans and trained 20 local youths to implement the proposed plans. It was a great learning experience and a good start. During the programme, we observed many conservation issues including deforestation, mining, poaching etc. In addition, we also identified four species namely *Barberis Aristata*, *Tor Putitora*, *Elephas Maximus* and *Alectoris Chukar* which were under threat and need serious conservation action. However, the situation of *Tor Putitora* (golden fish) was really poor, uncontrolled and illegal fishing activities (i.e. blasting and electric current) were used in the river. Therefore we decided to keep specific focus to conserve the fish and raise awareness and resources to conserve the rest three identified threatened species.

The programme's focus was to conserve golden mahasheer fish by doing awareness building, skill development, micro biodiversity conservation planning, on site conservation activities and develop alternative livelihood options for fishermen. The programme was start with review workshop and followed by information dissemination walk and volunteer's capacity building. In addition, 10 deep water zones were identified and 7 were socially protected. Fishermen wanted some alternative source of income, therefore as a pilot programme two fish ponds were made with the help of the government fishery department. To get student's active participation in the programme relevant annual events including world biodiversity day, international environment day etc. were celebrated with school children.

Although all activities were important, seed ranching was identified as one of the most successful activities of the programme. The activities not only save more than 8000 golden fish's fingerlings but-also sensitize local people to save the fish.

Furthermore, a drive to select the best idea for fish conservation, Baseline survey, and participatory impact assessment was done-as research components of the programme. We got significant outcomes from the Programme, for example a level of awareness on golden mahasheer fish has increased, skilled volunteers based increased, the number of illegal fishing events decrease, the number of fishes increased per square meter, a new research initiative has taken by local university to conserve the fish, government department come forward to do the similar programme in the other part of the river etc.

Now we are in a process to share our learning and scale up the programme. In the year 2019-20, we will scale up the Programme in another 30 kilometres length of the Ramganga River.

We are thankful to Rufford foundation UK, Shramyog India, fishery department Uttarakhand Government, Kumaoun University Nainital, Allahabad University for their regular support. We are very thankful to our volunteers and local community for their active participation.

# Activities Undertook

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## 1. First small grant programme's review workshop

Program review workshop was organized at village Thala on 26 January 2017 as an entry point activities, About 100 community members participated in the workshop. In the program, our volunteers share their experiences and I briefed our new program on golden mahasheer fish's conservation. At the end of the workshop a question-answer session was carried out to clear people's queries. Participatory program review of previous program and brainstorming on current program were important activities of the workshop.



### People's opinion about workshop

*"It was good to know the work has done in the first phase of the project by project team and villagers. Now we have clear idea of the programme. I can ensure you that most of the people are well aware of golden mahasheer fish's condition in the river. The project activities play a key role to aware people".*

**Mahendra Kumar (villagers)**  
**Village: Thala**

*"We really appreciate the efforts the project team has made for our Natural resources. It would have great if the team initiated sustainable livelihood activities for locals".*

**Mantha Devi (Villagers)**  
**Village : Gingira**

## 2. Information dissemination walk

Seven days message dissemination walk was done. The objectives of the walk were, to built a suitable environment for work and mobilize local youth to participate in the programme. In the activities, we visited 15 proposed villages and distributed a paper in the vernacular language. The paper was about golden mahasheer's current situation and conservation need. We also did street plays to sensitize local people on the conservation issue. We got a good support from local community to complete the walk. In addition, we mobilized local youths to do volunteers in the program.



### People's opinion about walk

*"I didn't know that the golden mahasheer fish is such an important species for our river ecosystem and us. Now I want to know more about the fish species. I will do my best contribution in the programme to conserve the fish".*

**Subhash Chandra**  
**Village: Bandran**

*"Awareness is fine, but it would be very difficult to stop people to go to the river for illegal fishing. Government should come forward to alter the policy. Government machinery seems incapable to protect our resource from illegal activities".*

**Manwar Singh (local leader)**  
**Village: Marchula**

### 3. 10-day volunteers training programme

A weeklong residential training camp was done (3 days class room and 4 days field training). Local NGOs, fishery department of Uttarakhand government and Kumaun University Nainital helped us to organise the training programme. Sixteen volunteers from 10 villages participated in the training. Species' current status and behaviour, conservation methodology, habitat identification, seed ranching technique etc were discussed in the training



Training contains

- About Rufford foundation and the project
- Golden mahasheer fish: Biological description and importance
- Golden mahasheer fish : Life cycle
- Current situation of the fish
- Conservation need
- Fish habitat and its protection
- Social fencing
- Seed ranching
- Breeding ground

Trainer

Mr. Ravindra Kumar (Fishery department Uttarakhand government)

Mr. Keshw Ram (Local resource person)

Dr Ajay Kumar (President, Shramyog)

Mr. Shankar Datt (Rufford grantee)

#### 4. Essay and drawing competition

Essay and drawing competitions organised in the schools to sensitize students on local biodiversity, specifically on Golden mahasheer fish. More than 500 students from 11 schools participated in the activities. We got technical and financial support from school's teachers to make the programme more dynamic. In addition, the School administration invited us to organise such events in the school on regular bases.



#### People's opinion about competition

"It was a very good activity to sensitize student on local biodiversity. The programme activity has potential to make long term impact. My best wishes to all team members and great success of the programme".

**Mr. Danis Khan**  
**Principal, Government Inter College,**  
**Thala, Salt Almora Uttarakhand**

*"I participated in the competition. To prepare the essay I read a lot and discuss with my teachers and classmates. Although my essay could not select for top 10 ranking but I am confident enough to tell people about golden mahasheer fish and its conservation need".*

**Pankaj Rawat**  
**Student Class 12<sup>th</sup>**  
**Government inter college**  
**Dewayal salt Almora**

## 5. Exposure visits of fishermen to fishery department

Three days exposure visit to the coldwater fisheries research center, Bhimtal and Pantnagar was organised (3rd to 6th August 2017). Programme team members, volunteers, and 11 local people went for the visit. The objective of the visit was to orient people with a new technology of fishery and breeding. In addition, people see more cash income option in the centre including poultry, off session vegetable cultivation, mushroom cultivation etc



### People's opinion about competition

*"It was a great experience; it was the first time for me to visit any scientific research centre. I realized that our government and scientist are making a great effort to conserve fresh water fishes and their habitat; we must help them for the cause".*

**Surendra Singh**  
**Village: Gingira**

*"I want to thanks, Mr. Shankar Datt to give me a chance to visit the institute. I was afraid to start fishery, I thought, it was a very difficult job and demand huge resource and technical expertise. After the exposure visit, I am confident to start my fishery farm".*

**Harish Chandra**  
**Village: Nagtale**

*"It was a learning visit. People were so excited to know about fish culture and its cost benefit analysis. Experts briefed us the whole technique of fish culture. After that we visited fish ponds to get practical experience of the technique. The visit motivated people to conserve the fish and find an alternative way to consume the fishes".*

**Prakash Kandpal (Shramyog)**  
**Programe manager**

## 6. International biodiversity day celebration

We celebrated international biodiversity and Environment day. We combined the events, started a biodiversity conservation awareness campaign with students on 22<sup>nd</sup> May and conclude the campaign with a poster presentation, plays, and cultural activities on 5 June 2017. Student and teachers from 11 government schools participated in the campaign. The theme of the campaign was “**Our village, Our Biodiversity**”.



“It was a good programme; I would like to say that it was a campaign to sensitize people on biodiversity conservation and environment. We used to celebrate environment day and biodiversity day every year for last 7 years however the one or two day celebration wasn’t given significant out comes. Week long campaign gave strength to the programme. We will celebrate the biodiversity days in a similar manner in the next year too. In addition we will motivate other organization to participate in the programme”.

**Dr Ajay Kumar**  
**President Shramyog**

“I was part of “Our village, Our Biodiversity” Mr Shankar Datt gave us information on our village biodiversity. I want to build my career in biodiversity conservation field”.

**Tanuj (Student)**  
**Government inter college**  
**Thala**

## 7. Baseline survey

Participatory base line survey was done in a 20 KM area of the Ramganga River. Social and ecology parameters were studied and recorded. Focus group discussion, participatory learning and action and participatory ecosystem study were the tools to do the survey.

**Objective:** To get an idea of golden mahasheer's socio-ecological situation; and identified important deep water zones (mahasheer's habitat)



### Summary of baseline survey

**Survey area:** 25 km length of Ramganga River (proposed project area)

**Sample size for social survey:** 260 local people including women, student, fishermen, youth

#### Methodology:

1. Group discussions and personal interviews were done to collect the social data.
2. 40 locations were study to calculate fish population. We took approximate 1 square meter plot to study the number of fish movement in 10 minute at particular plot; expert from fishery department government of Uttarakhand facilitated the study.
3. Observation was made to see the habitat lose and water quality.

**Table: Survey findings at a glance**

Sl.No	Awareness	Percentage	Source
1	Students knew about golden mahasheer	13%	Survey
2	Women knew about golden mahasheer	8%	Survey
3	Local youth knew about golden mahasheer	10%	Survey
4	Local people were aware of reducing population of the fish	28%	Survey
5	Fishermen were aware of reducing population of the fish	38%	Survey

6	People want to participate in the fish conservation activities	52%	Survey
7	Organizations working for the fish conservation in the area	None	Survey
8	Individual working for the fish conservation in the area	None	Survey
9	Number of people involved in illegal fishing (for cash income) activities (In the project area)	21	Local news paper
10	Numbers of traditional fish traps are made in a year (In the project area)	7 to 9	Survey
<b>Sl.No.</b>	<b>Ecological</b>	<b>Statistic</b>	<b>Source</b>
1	Average number of male mahasheer cross the observation plot (1sq meter) in 10 minutes (40 samples from core habitat )	2	survey
2	Average Number of female mahasheer found in 1sq meter in 10 minutes (40 samples from core habitat)	5	Survey
3	Habitat lose	Huge*	observation
4	Water quality	Good**	observation

**\*Road constriction is going on, and there is no any mechanism to dump the soil. Therefore maximum soil is going into the river and destructing the deep water zone of the river. The deep water zone is one of the important habitats of golden mahasheer.**

**\*\* As per our observation there was no bad order and visible pollutants in the river's water. Water was transparent and clean.**



## 8. Identification of 10 deep water zones in 20 kilometers stretch of the river

Deep water zones are important habitat of golden mahasheer fish. Usually a large population of male and female golden mahasheer is found in these zones. Ecologically we may see big and old mahasheer fish in these zones. As per the experts the fish protect themselves in the deep zone during natural and anthropogenic harms. It is most effective way to protect the fish by protecting the zones in the Himalayan River. We identified 10 zones and protect 7 deep water zones through social fencing.



We have been protecting our natural resources for centuries. Social fencing is not a new concept for us; we used to do it to protect our forest, common grass land and water resource. This time we did it for fish protection. It was a good experience. Initially I thought it is not going to happen because local youth don't consider local natural resource seriously however local youth showed sincere effort to protect the fish.

**Bhupal Datt (Local volunteer)**  
**Village: Nagtale**

Thank you very much to revive our traditional system to protect the natural resource. These activities not only ensure people's active participation but also aware people about wild life conservation.

**Dinesh Chandra (Villagers)**  
**Village: Bandran**

## 9. Demarcation and social fencing

To demarcate the fish habitats we prepare participatory maps of identified deep zones and drew in the walls. Rules and regulations were decided with local people in the meeting to socially fence the areas. Students and local youth were trained to implement the activities effectively.



### Outcome of social fencing

Social fencing protected a large area of the river from illegal and uncontrolled fishing. October and November is the breeding season of 'Golden Mahasheer fish', therefore a large population of fishes does the upward migration in the river to complete the breeding cycle. It is easy to catch the fish in this season therefore maximum illegal fishing takes place in the Ramganga River from October to January every year. Local people make a specific bamboo's trap to catch the fishes; the trap is locally known 'Goda'. As per our estimate, 4 to 5 quintals fishes catch per year by the one trap. About 9 traps were made in 20 kilometres range (our project area) on the river. From last two years not a single trap was made in our project range. We could save a large population of the fishes. It would not have done without local volunteer's supports and social mobilization. It was an outcome of three years of hard work and dedication of our local team!

## 10. Monitoring and theme-based learning activities to sustain social fencing

In the beginning of the programme, we formed a committee. The committee consisted of Government officers- Mr. Ravindra Kumar, fishery inspector, fishery department Uttarakhand government; NGO representative Dr. Ajay Kumar, President Shramyog; a local leader Mr Kesaw Ram ; Office-bearers from CBOs, Mrs. Sumitra Devi . The members were selected on the basis of their personal motivation and relevant skill-set. At the beginning of the programme, I as a project leader gave a detailed log frame for various activities and their timelines. Once in 2 months, I shared the process document to committee's members. The monitoring committee reviewed the process document and gave their suggestions. In addition, we have made a vision document for the programme with clear indicators to monitoring of our work. The process went very well. The all committee members actively participate in the program.



*“It was a good practice. I appreciate Shankar’s initiative to form a committee to monitor the program. The practice helps to maintain transparency in the program implementation and financial section. I am happy with overall program process. I wish him all the best for future program”!*

**Dr Ajay Kumar**  
**President Shramyog**  
**(ajay.manav@gmail.com)**

## 11. Construction of two fish ponds

Two beneficiaries were identified for fish culture in the artificial ponds. A representative from fishery department government of Uttarakhand provided technical and financial support for the activities.

Although we had a good financial support and technical expertise to build the ponds but we could not get proposed outcomes. Beneficiary didn't continue fish culture after financial support stop. They said that without financial subsidy the venture is not profitable. We are in a process to identify other potential cash income generation activities for fisher men.



Picture: beneficiary: Mr Kripal Singh and Fishery officer Mr Ravi Kumar

## 12. Seed ranching [2000 fingerlings of golden fish]



On the banks of the river, small ponds are developed in rainy season



The small ponds are dried up in the winter and



In the small dried pond the fingerlings (small fishes) are trapped and die



The process of transfer the fishes from these ponds to the main river is called Seed ranching



About 8000 fingerlings were transferred from small ponds to the river. Fishery Department Uttarakhand government gave technical and financial support to do the activities.

### 13. Programme assessment and Lesions learned

Activities undertaken	outcomes
First small grant programme review workshop	People reviewed the programme and gave their constructive feedback
Information dissemination walk	Environment built for programme implementation; volunteers selected for programme support
10-day volunteers training programme	Capacity building of local youth
Essay and drawing competition	Students sensitized about mahasheer fish and local biodiversity
Exposure visits of fishermen to fishery department	People learns new skills and motivated for fishery.
International biodiversity day celebration	Students actively participated for nature conservation
The best idea of conservation of the golden fish and the "Best performance awards" to community based institution	Brainstorming and consciousness building exercise
Baseline survey and identification of 10 deep water zones in 20 kilometres stretch of the river.	Basic research for primary information collection.
Demarcation and social fencing	Direct action to protect the fish, 7 important fish habitat socially fenced
Monitoring and theme-based learning activities to sustain social fencing	An effort to get people's active participation in monitoring process
Seed ranching [8000 fingerlings of golden fish]	Direct action to save mahasheer's fingerlings, the fish population increased
Participatory Impact assessment of deep water zone conservation and seed ranching of golden fish population	Not a single incident happened of uncontrolled fishing in the project area.
Convergence and the programme scale-up	Networking and support

#### Lesions learned

- Biodiversity conservation is a process which requires serious efforts and continuous follow-up. Regular efforts and monitoring system can bring significant change in people behavior and species situation.
- Local people's involvement is important to get significant results of the programme. To ensure local people's participation we must give them enough time and information to understand the programme.

- Community mobilization is an important part of people's centric program, the community-based organizations helps a lot to ensure people's active participation.
- Direct financial assistance to people changes people's motivation. We should try to motivate people to volunteers in the programme, it gives a sense of ownership to the local community which is important to sustain the programme after programme age.
- Evidence-based research work may increase the quality of the program. Additionally, appropriate documentation and research-based data help to scale up the program.
- Regular cash income is directly associated with locally available resources. We get a direct reaction from the community if we try to work on those resources; fish conservation is one of them. Therefore we must keep in mind the local livelihood dimensions before doing any intervention.

#### **14. Convergence and programme scale-up plan**

There are total 90 potential villages in the valley where the mahasheer conservation programme need to be implemented. We have already been working in the 20 villages with the financial help of Rufford foundation and fishery department of Uttarakhand government. In the coming next 2 year (2019-20) we have planned to scale-up our programme in 25 more villages to get significant impact in mahasheer fish conservation. In order to get technical and financial support our potential partners are

- ✚ Rufford foundation UK (Eligible for booster grant)
- ✚ Fishery department Uttarakhand government (Proposal submitted)
- ✚ Biodiversity board Uttarakhand government (Got primary approval)
- ✚ Idea wild (received instruments)
- ✚ Kumaoun University Nainital, Uttarakhand (long term collaboration for volunteers and technical support)



## 15. Paper present, Presentations, fellowship and award received

- ✚ Uttarakhand science congress (Paper present )
- ✚ Kinship India workshop 2018 (Paper present )
- ✚ IPROMO 2018 Summer School: Bio-economy in mountain area-an opportunity for local development (Fellowship)
- ✚ International fellowship program (IFP) alumni award 2018 (award received for my community based conservation work)

