

# Capacity building for Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES)

## Progress report 2011:

Indo- Norwegian pilot project on capacity building in biodiversity informatics for enhanced decision making, improved nature conservation and sustainable development.

Frank Hanssen, Vinod B. Mathur, Vidya Athreya, Vegar Bakkestuen, Vishwas Chavan, Arild Lindgaard, Fridtjof Mehlum, Alberto González Talaván, Roald Vang and Nils Valland



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## Abstract

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This report describes the activities and achievements in 2011 of the Indo- Norwegian pilot project on capacity building in biodiversity informatics for enhanced decision making, improved conservation and sustainable development in India.

The pilot project is initiated and funded by the Norwegian Ministry for Foreign affairs, the Norwegian Environmental Ministry and the Norwegian Directorate for Nature Management. The pilot project is also highly welcomed and explicitly supported by the Government of India.

Capacity building has been identified as an essential component of IPBES. The Norwegian Government acknowledges the need for capacity building and has developed and initiated several projects addressing capacity building needs in partner countries.

The Norwegian Institute for Nature research (NINA) were during the spring 2011 invited by the Norwegian Directorate for Nature Management to initiate and coordinate a pilot project on capacity building under IPBES. India was early identified as an ideal partner country for the realization of a capacity building pilot project both because of the rich biodiversity in the country and because of the recent development towards establishment of the Indian Biodiversity Information Facility (INBIF). Coordinated by the Wildlife Institute of India (WII), INBIF is the national node for linkage with the Global Biodiversity Information Facility (GBIF). In the context of INBIF, WII has the mandate from the Indian Ministry of Environment and Forests (MoEF) to build capacity for effective biodiversity information management.

The main objective of the pilot project is to build capacity to enable free sharing, access and dissemination of biodiversity and ecosystem data in India to be used in policy and knowledge-based decision-making. This also includes a mapping of relevant biodiversity data originating from India and held in the Norwegian natural museum's collections.

The project is led, coordinated and partially executed by NINA and the Norwegian Biodiversity Information Centre (NBIC). NINA will provide its expertise in managing camera-trap projects and together with NBIC and the Norwegian GBIF- node provide the expertise acquired from building the Norwegian biodiversity infrastructure. The Indian counterpart WII will be responsible for the implementation and progress of the project nationally within India. The GBIF Secretariat in Copenhagen will provide guidance about international data standards, training and capacity building on Biodiversity Informatics.

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## Sammendrag

Hanssen, F., Mathur, V., Athreya, V., Bakkestuen, V., Chavan, V., Lindgaard, A., Mehlum, F., González-Talaván, A., Vang, R. & Valland, N. 2012. Capacity building for Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES). Progress report 2011: Indo- Norwegian pilot project on capacity building in biodiversity informatics for enhanced decision making, improved nature conservation and sustainable development. - NINA Report 801. 24 pp.

Denne rapporten beskriver aktiviteter og oppnådde resultater for 2011 i det indisk- norske pilot-prosjektet «Capacity building in biodiversity informatics for enhanced decision making, improved conservation and sustainable development in India».

Pilotprosjektet er initiert og finansiert av Utenriksdepartementet, Miljøverndepartementet og Direktoratet for naturforvaltning. Pilotprosjektet er ønsket velkommen og intensjonelt støttet av den indiske Regjeringen.

Kapasitetsbygging er identifisert som en essensiell komponent av IPBES. Den norske Regjeringen anerkjenner behovet for kapasitetsbygging og har utviklet og initiert flere prosjekter som adresserer kapasitetsbyggingsbehov i partnernasjoner.

Norsk institutt for Naturforskning (NINA) ble våren 2011 invitert av Direktoratet for naturforvaltning til å initiere og koordinere et pilotprosjekt på kapasitetsbygging under IPBES. India ble tidlig identifisert som en ideell samarbeidsnasjon for realisering av et kapasitetsbyggingsprosjekt både på grunn av landets rike biodiversitet men også på grunn av den oppstartede aktiviteten rundt the Indian Biodiversity Information Facility (INBIF). INBIF er Indias nasjonale GBIF- node og er ledet av the Wildlife Institute of India (WII). WII har det nasjonale mandatet fra the Indian Ministry of Environment and Forest (MoEF) til kapasitetsbygging for effektiv forvaltning av biodiversitetsinformasjon.

Hovedmålet med pilotprosjektet er å bygge kapasitet for økt datadeling og tilgjengeliggjøring av biodiversitets- og økosystemdata for utvikling av en forbedret miljøpolitikk og miljøforvaltning i India. Dette inkluderer også en kartlegging av eventuelle relevante biodiversitetsdata fra India som måtte finnes i norske museumssamlinger.

Pilotprosjektet er ledet, koordinert og delvis utført av NINA i samarbeid med Artsdatabanken. NINA vil bidra med sin erfaring fra viltkameraprojekter, og sammen med Artsdatabanken og Naturhistorisk Museum i Oslo, tilby ekspertise ervervet gjennom etableringen av den norske infrastrukturen for deling av biodiversitetsdata (Artsdatabanken og GBIF Norge). Vår indiske samarbeidspartner WII vil være ansvarlig for implementering og gjennomføring av prosjektet i India. GBIF- sekretariatet i København vil tilby veiledning om internasjonale standarder, trening og kapasitetsbygging innenfor biodiversitetsinformatikk.

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## Foreword

This report will give a brief overview of the goals, activities and achievements in 2011 for the Indo- Norwegian pilot project on capacity building in biodiversity informatics for enhanced decision making, improved conservation and sustainable development in India. It will also give a short summary of planned activities and expected outcomes for 2012.

The pilot project will be scoped towards the national needs of India and the work towards a National Biodiversity Information Infrastructure. GBIF is a key player in this context and we are very happy that they are engaged in the project both at the national node level in the two countries and at the international level through the GBIF- Secretariat.

India and Norway have recently agreed on the establishment of a Centre for Biodiversity Policy and Law – (Cebpol) in Chennai. We highly welcome this initiative and will happily share our results and experiences as we consider them to be highly relevant for several of the identified collaboration themes.

Trondheim 30. January 2012

Frank Hanssen  
Project leader

# 1 Introduction

Capacity building has been identified as an essential component of IPBES (Intergovernmental Platform on Biodiversity and Ecosystem Services). Capacity building needs, options and key elements for addressing these needs are identified in a scoping paper prepared by the UNEP World Conservation Monitoring Center at the request of the Norwegian Government (UNEP World Conservation Monitoring Center, 2011). The scoping paper was used as a background paper for the discussions at the international expert meeting on IPBES and capacity building held in Trondheim in May 2011. The Norwegian Government acknowledges the need for capacity building and has developed and initiated several projects addressing capacity building needs in partner countries.

The Norwegian Institute for Nature research (NINA) were during the spring 2011 invited by the Norwegian Directorate of Nature Management to initiate and coordinate a pilot project on capacity building under IPBES. Possible pilot project interfaces were discussed at a meeting between the Norwegian Institute for Nature research (NINA), the Norwegian Biodiversity Information Center (NBIC), the Norwegian GBIF- node at the University of Oslo and the GBIF- Secretariat in Copenhagen in June 2011. India was early identified as an ideal partner country for the realization of a capacity building pilot project both because of the rich biodiversity in the country and because of the recent development towards the establishment of the Indian Biodiversity Information Facility (INBIF). INBIF is the national coordinating node for linkage with GBIF and is led by the Wildlife Institute of India (WII). In the context of INBIF, WII has the national mandate from the Indian Ministry of Environment and Forests (MoEF) to build capacity for effective biodiversity information management, including collection, collation, analysis and dissemination of biodiversity-related data. A project team was established after a teleconference with the Wildlife Institute of India (WII), and started to develop an application for funding. The pilot project application was finally approved by the Indian and Norwegian Government's in June 2011.

The main objective of the pilot project is to build capacity to enable free sharing, access and dissemination of biodiversity and ecosystem data in India to be used in policy and knowledge-based decision-making. This also includes a mapping of relevant biodiversity data originating from India and held in the Norwegian natural museum's collections. The following outcomes are planned after the successful execution of the pilot project:

- A case study focusing on the use of biodiversity data for decision-making
- A substantial amount of new data and metadata records published through GBIF
- National workshops where Indian scientists and technicians can increase their capacity on digitalization of camera trap photos, data management of sensitive biodiversity information and how to handle intellectual property issues. An important part of the workshops will be how to use ecological niche modeling techniques in helping decision-makers use primary biodiversity data.
- A best-practice guide and other training resources derived from the training workshops that can be reused by other projects and initiatives.
- A final report documenting the project results.

The project is led, coordinated and partially executed by NINA and NBIC. NINA will provide its expertise in managing camera-trap projects and together with NBIC and the Norwegian GBIF-node provide the expertise acquired from building the Norwegian biodiversity infrastructure (in terms of NBIC and GBIF Norway). The Indian counterpart WII will be responsible for the implementation and progress of the project nationally within India. The GBIF Secretariat in Copenhagen will provide guidance about international data standards, training and capacity building on Biodiversity Informatics.

Our common intention of this pilot project is to highlight the usefulness of camera trap data in wildlife conservation and decision making for a sustainable development. We will in the pilot project develop a basic structure of the capacity building component. Once this is achieved the concept can easily be extended into other countries where camera traps are widely used. We also hope to demonstrate that the outcomes and the IPBES- aspect of our pilot project can represent added values for the strengthening of international cooperation in the field of improved biodiversity research and nature management.

GBIF is a very important member organization of the pilot project team both because of their wide experience and long term commitment towards capacity building globally. The pilot project will take advantage of the existing biodiversity data infrastructure and training capacity offered by GBIF. In addition GBIF has several mechanisms through which this project could be extended and complemented: its [Node-to-Node Mentoring Programme](#) and its [Capacity Enhancement Programme for Developing Countries \(CEPDEC\)](#).

## 2 Project activity and achievements in 2011

### 2.1 The New Delhi Kick off meeting

During the fall of 2011 WII and NINA planned a joint Indo- Norwegian workshop to formally kick off the pilot project. The workshop was successfully organized by the Wildlife Institute of India (WII) as a high level segment meeting at the India International Conference Center in New Delhi on the 28.th of October 2011. The following delegates participated at the meeting:

- Mr. Hem K. Pande, MoEF, Government of India
- Ms. Nayanika Singh, MoEF, Government of India
- Mr. S. P. Yadav, National Tiger Conservation Authority, MoEF, Government of India
- Mr. Sudipto Chatterjee, Wildlife Trust of India
- Dr. Vinod B. Mathur, Wildlife Institute of India (WII)
- Dr. Bivash Pandav, Wildlife Institute of India (WII)
- Dr. Gautam Talukdar, Wildlife Institute of India (WII)
- Ms. Vidya Athreya, Wildlife Conservation Society- India Program and Centre for Wildlife Studies
- Mr. Frank Hanssen, Norwegian Institute for Nature Research (NINA)
- Mr. Roald Vang, Norwegian Institute for Nature Research (NINA)
- Mr. Arild Lindgaard, Norwegian Biodiversity Information Centre (NBIC)
- Mrs. Trine Hay- Setsaas, Norwegian Directorate for Nature Management
- Dr. Fridtjof Mehlum, Natural History Museum, University of Oslo (GBIF Norway)
- Mr. Suresh Mathevan, Royal Norwegian Embassy
- Mr. Petter Tollefsen, Royal Norwegian Embassy
- Dr. Vishwas Chavan, Global Biodiversity Information Facility Secretariat, Copenhagen, Denmark

Both the speakers from MoEF and the Norwegian Embassy emphasized the importance of the Indo- Norwegian cooperation and the mutual gains of this pilot project. Mr. Hem K. Pande gave a brief summary of the Indian strategy on biodiversity management and assured that the Government of India highly welcomes and supports the intention of the pilot project. Mr. Petter Tollefsen outlined the Norwegian Government's strategy for cooperation between the two countries and briefly described the initiative's that has taken place within research fields such as climate, environment and clean energy.

Dr. Vishwas Chavan ensured that GBIF also welcomes the pilot project objectives and its outcomes. The GBIF- Secretariat will provide the implementation of the pilot project with guidance on international standards, training and capacity building informatics.

Mrs. Trine Hay- Setsaas from the Norwegian Directorate for Nature Management outlined the IPBES- context of the pilot project. Norway has developed and initiated several projects addressing capacity building needs in partner countries. In addition, Norway also has offered to host an IPBES- Secretariat function on capacity building in Trondheim, Norway.



Figure 1: Picture gallery from the kick-off meeting.

Mr. Frank Hanssen (NINA) and Dr. Vinod B. Mathur (WII) gave a short presentation of the pilot project's background, its objectives and the expected outcomes. The main objective of the pilot project is to enhance the national data sharing capacity of India in close cooperation with GBIF. To achieve this objective the project partners will have to perform necessary actions such as data repatriation, capacity building exercises in data mobilization and sharing, and finally demonstrate how the mobilized data can be operationalized for use in policy making and evidence based decision making. The unique feature of the pilot project is to devise work flow, standards and tools for mobilizing camera trap data from within and outside of the protected areas, with specific focus on developing strategies for conservation of tigers, leopards and other wild animals. WII has during several years' developed great experience in camera trapping methodology. NINA has on a minor scale also established experience on camera trapping methodology from projects both in India, Norway and the Balkans. NBIC, GBIF- Norway and NINA have developed great experience in capacity building on biodiversity infrastructure building from several national and international project's. Also, NINA have collaborative project experience from India on wildlife-human Interactions in close cooperation with several Indian NGO's and the Wildlife Conservation Society- India Program and Centre for Wildlife Studies.

Dr. Bivash Pandav and Dr. Gautam Talukdar (both WII) gave a short description of the state of the art on biodiversity data sharing in India. The national INBIF- initiative aims to increase the value of nationally collected primary data by making them available through a web- portal for search, access and use. The data portal is not yet realized because of inadequate funding. One of the major challenges identified so far is how to motivate the national data stakeholders to contribute with data into INBIF. Issues such as how to credit contributing data owners and how to secure their intellectual property rights to their data must be addressed in a proper manner.

Mr. Arild Lindgaard (NBIC) and Mr. Roald Vang (NINA) gave a short description of the national state of the art on biodiversity data sharing in Norway. NBIC launched in 2006 a national infrastructure for data sharing through <http://artskart.artsdatabanken.no/Default.aspx>. The infrastructure communicates data from the stakeholder's databases with the help of dedicated web-services (by October 2011 there are 12 412 221 data records of 21 265 different species stored in 90 different national databases). Users can easily search, display and download data records from all participating institutions. Mr. Roald Vang gave a brief introduction into the experiences that NINA as a data stakeholder have developed from data sharing through NBIC. NBIC credits the data stakeholders by displaying their logo profile in the top- panel of the data-portal. Information about the data stakeholder is also tagged in each data record. NBIC have used economic incentives and offered guidance about data quality enhancement and standardization to motivate the stakeholders to share their data. NBIC is willing to share the source code with INBIF and WII in the pilot project.

Dr. Vishwas Chavan (GBIF Secretariat) and Dr. Fridtjof Mehlum (GBIF Norway) elaborated on the role of the national nodes in sharing and use of data internationally. Dr. Chavan emphasized that the role of a participating GBIF node is to actively promote, coordinate and facilitate data sharing nationally and complement similar international initiatives. GBIF established in 2004 a "Nodes Work Programme" with the objective to assist GBIF Participants to effectively and efficiently establish, manage, sustain, consolidate and expand their national, regional, or thematic Biodiversity Information Facilities.

There is an increasing demand for updated biodiversity data as a direct response to the exploding population and environmental problems caused by our natural resources based economy. The impediments to data publishing are basically related to lack of incentives and absence of data publishing strategies (Ingwersen and Chavan, 2009; Mortiz et.al, 2011). As a response to the lack of incentives GBIF has launched 3 incentives: (I) A 'Data Paper' which is a scholarly publication of searchable metadata document describing a dataset, or a group of datasets (Chavan and Penev, 2011). GBIF Integrated Publishing Toolkit ver. 2.0.2+ facilitates authoring of data papers that can be submitted to six of the titles published by PenSoft. (II) Da-

ta citation guidelines (to be released during 1st quarter of 2012). (III) A Data Usage Index (DUI) which is a measure of the impact of data publishing by being accessed and used by the stakeholder communities (Ingwersen and Chavan, 2011).

Dr. Vishwas Chavan stated that there is an imbalance in the distribution of data and key gaps caused by opportunistic data publishing activities globally. To meet these challenges GBIF has recommended four strategies for data publishing: (I) Development and use of a biodiversity potential index. The Biodiversity Informatics Potential Index (BIP Index) is a composite of country level indicator variables that can assess the biodiversity informatics potential of countries (Arino and Chavan, 2011). (II) Development of strategies and action plans at Participant and publisher level. GBIF has already developed such as a Best Practice Guide (GBIF, 2010). (III) Broadening of data types and publisher communities. (IV) Strengthening data publishing infrastructure and capacities across the network (Goddard et.al, 2011).

Dr. Fridtjof Mehlum introduced the ongoing activities at GBIF Norway. He informed that GBIF Norway can contribute in data massaging and repatriation of Indian biodiversity data from Norwegian institutions.

Ms. Vidya Athreya from the Wildlife Conservation Society - India Program and Centre for Wildlife Studies presented the results of the collaborative project work that has been performed by the Wildlife Conservation Society, the Maharashtra Forest Department and NINA with camera trap monitoring of wild carnivores outside protected areas in India. Ms. Athreya stated that policy and management of large wild carnivores so far has been largely restricted to protected Areas and in studying natural systems. The project was performed in the Maharashtra area where camera traps were used to find a diverse assemblage of wild large carnivores living among dense settlements in the agricultural landscape. This occurs all over India and with a wide suite of wild carnivores, many of which are threatened and also come into conflict with humans. The use of camera traps has also increased tremendously in the recent years and therefore it might be useful to obtain accurate biodiversity records of large wild carnivores across India using the camera trap data, bioinformatics and Google Earth. This could perhaps also be extended to a citizen science project. Such landscape level information of presence (for e.g. tigers) could also lead to more accurate design of ecological and sociological corridors between protected Areas which these species do use to disperse.

Mr. Frank Hanssen (NINA) elaborated on potential challenges and barriers towards executing the project. Identified challenges are mainly related to organizational, technical and communicative issues. How to outreach the pilot project results? This is a very important issue and a planned dissemination action has to be taken. Finally, one major question is: How to create stakeholder's ownership in such a pilot project? This is perhaps the greatest challenge and a potential barrier which is related to the stakeholder's degree of involvement and their motivation for data sharing. Also important are the identification of relevant user needs and how these needs correspond with the existing data. During the following round table discussion the attendees agreed that it is of great importance to meet the different vertical and horizontal organizational perspective's held by NGO's and Governmental stakeholders in India. Technological issues should not make major obstacles for this pilot project, but we have to show that the relevant standards make data easily accessible and useful.

### **Concluding remarks:**

The Indian and Norwegian Government's highly supports the pilot project. The project core team will prepare the project work packages and make aligned time tables and budget. The pilot project will focus on (a) repatriating data of Indian origin housed in Norwegian Institutions, (b) develop work flow, standards, tools and best practices for mobilizing camera trap data from protected areas, (c) demonstrate the use of camera trap and other primary biodiversity data towards decision-making specifically focusing on conservation of wild fauna.

## 2.2 The Dehradun workshop

The pilot project core team (representatives from WII, NINA, NBIC, GBIF and the Museum for Nature History at the University of Oslo) met in Dehradun 29.th to 30.th October 2011 in order to design the content and plan the progress of the pilot project.



Figure 2: Picture gallery from the workshop.

Scoping was a crucial issue at the workshop and the pilot project is therefore specifically targeted towards the national needs of India, the National Biodiversity Strategy of India and the step through INBIF towards a National Biodiversity Information Infrastructure (NBII). The following tasks, key outcomes and preliminary milestones were identified for five work packages described below.

### WP1- National Strategy and the Mapping of user needs:

Tasks	Key outcome	Milestone
Identify user needs in defined end user categories	Scope the project to meet the requirements of the defined users (WP2)	15.th of Dec 2011
<ul style="list-style-type: none"> <li>Decision maker</li> <li>Researcher</li> <li>Civil society</li> <li>Education and awareness</li> </ul>	The demonstration on data use through use cases (WP3)	Aug 2012
	Capacity building (WP4) and engagement of data publishers (WP2) and data users (WP3)	Apr 2012/2013

**WP2-Data Capture and Standardization in general:**

Tasks	Key outcome	Milestone
Identify a template for mobilizing available data based on Audubon Core	Excel template sheet	15.th Dec 2011
Organize the data and metadata	Tiger, Snow leopard and other associated species Rajaji, Sikkim, Maharashtra	Jan 2012 => Jan 2012 =>
A brief survey on what is available from museum collections and project data	List of data	Nov 2011 – Aug 2012
Mobilize collection and project data	Tiger, Snow leopard and other associated species Rajaji, Sikkim, Maharashtra	Jan 2012 => Jan 2012 =>
Quality enhancement of images and data records (occurrence, taxon, metadata)	Best practices guide Identify relevant tools/guidelines for optimal use of these tools	Aug 2012 March 2012

**WP2- Data Capture and Standardisation for Tiger:**

Tasks	Key outcome	Milestone
Tiger project <ul style="list-style-type: none"> <li>• Data standardisation process</li> <li>• Put data into an infrastructure</li> <li>• Dissemination by a dynamic GRID approach</li> <li>• Retrieval: GRID Cells , Adm. Units, Keywords (time scale, species, habitat, biogeography). WMS/WFS</li> </ul>	Standardized processes for data use  Examples of data use (WP4)  Best practices and lessons learnt	Follow the timeline of WP2

**WP2- Data Capture and Standardization for Snow Leopard:**

Tasks	Key outcome	Milestone
Snow leopard project and other associated species (Sikkim) <ul style="list-style-type: none"> <li>•</li> </ul>	Standardized processes for data use  Examples of data use (WP4)	June 2012 =>  June 2012 =>

<ul style="list-style-type: none"> <li>• Data standardization process</li> <li>• Put data into an infrastructure</li> <li>• Dissemination by a dynamic GRID approach</li> <li>• Retrieval: GRID Cells, Adm. Units, Keywords (time scale, species, habitat, biogeography). WMS/WFS</li> </ul>	Best practices and lessons learnt	Aug 2012/Aug 2013
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**WP3- Case study (tiger):**

Tasks	Key outcome	Milestone
Use and analysis of data from the tiger project <ul style="list-style-type: none"> <li>• Occupancy of tiger and other species</li> <li>• Niche modelling (Distribution maps)</li> <li>• Habitat suitability (photo capture rates)</li> <li>• Population trends and time activity pattern</li> <li>• Distance to settlements</li> </ul>	Standardized processes for data use  Examples of data use (WP4)  Best practices and lessons learnt	June 2012 =>  June 2012 =>  Aug 2012/Aug 2013
Use and analysis of data from the tiger project <ul style="list-style-type: none"> <li>• Succession pattern (coexistence between wildlife and settlements)</li> <li>• Depredation of Livestock locations</li> <li>• Hotspot risk maps</li> </ul>	Standardized processes for data use  Examples of data use (WP4)  Best practices and lessons learnt	June 2012 =>  June 2012 =>  Aug 2012/Aug 2013

**WP3- Case study (Snow leopard):**

Tasks	Key outcome	Milestone
Use and analysis of data from the Snow Leopard project - Photo Capture rates	Standardized processes for data use	June 2012 =>
	Examples of data use (WP4)	June 2012 =>
	Best practices and lessons learnt	Aug 2012/Aug 2013

**WP4- Guidelines for Best Practices:**

Tasks	Key outcome	Milestone
Outline the table of contents practice guidelines	Table of contents and terms of reference for the consultant  Contract for consultant	November 2011
Engage an external expert to perform best practice guidelines from a user point of view	Guide for data capture, standardization and data sharing  Guide for use of data and analysis in decision making	September 2012

**WP5- Training Courses and Workshops:**

Tasks	Key outcome	Milestone
Identify targets groups <ul style="list-style-type: none"> <li>• Researchers using camera trap data</li> <li>• Sensitize users (decision makers/managers) about potential use of camera trap data</li> </ul>	Target groups identified	Aug 2011 =>  April 2012 (WP4)  April 2013 (WP4)
Tools of training (best practice guide)	Best practice guide	Aug 2012
Data collection templates	Same timeline as WP2	Follow the same timeline as WP2
Outreach and promotion	Side event at COP GBIF Governing board IUCN World Congress ASIA Pacific BON	1-19 Oct 2012 17-19 Sept 2012 6-15 Sept 2012 21-26 Jan 2012
	Cup/T-shirt/ Poster/Brochures	Oct. 2011 =>

WEB- portal	Internal (GBIF- community site) and public (Google)	Nov 2011
Data portal	Project web map data portal	Beta Aug 2012 =>
Publications (research, IT and best practice guides)	Conceptual paper Experience sharing Best practice guide	Jan 2012 March 2013 Version 1 Aug 2012 Version 2 Aug 2013
Outreach through media	Facebook, Youtube, pop. Articles/interviews	Oct. 2011 =>

## 2.3 The field excursion in the Rajaji National Park

WII invited the project core team to a one day field excursion in the Rajaji National Park (the 30th of October). The purpose of this field excursion was for WII to demonstrate the use of camera traps in Rajaji and for the Norwegian partners to learn about the ongoing research activities conducted by WII inside the park.



Figure 3: Map of the Rajaji National Park in India (Source Google Maps)

The excursion was led by Dr. Karthikeyan Vasudevan from WII. Dr. Vasudevan gave us a very thoroughly and interesting insight into the ecology and wildlife of the park.



Figure 4: Dr. Karthikeyan Vasudevan (to the left) and the local Park Officers demonstrating the use and implementation of wild camera traps in the WII research activities in the park.

The following description of the park is copied directly from the Rajaji official homepage (<http://www.rajajinationalpark.in/about.html>). The park was created in 1983 by amalgamation of three sanctuaries: The Rajaji sanctuary (established in 1948), the Motichur sanctuary (established in 1964) and the Chilla sanctuary (established in 1977) after the name of the renowned statesman and freedom fighter Sri C. Rajgopalachariya - the first and last Governor General of independent India popularly known as "Rajaji".

The majestic Ganges flows through the National Park for a distance of 24km, besides the innumerable streams and brooks making it rich and diverse. The park covers an area of approximately 820 square kilometers in the three districts Dehradun, Haridwar and Pauri Garhwal of the Uttarakhand State. The Rajaji National Park has got the largest area representing Shiwalik Ecosystem. The Shiwalik trail is 10 million year old and very rich in fossils. Its fossils faunal remains include about 50 species of elephant; one of them is present today. The park is home to the Tiger, Leopard, Himalayan Bear, Cheetal, hog deer, barking deer, Sambar deer, wild boar, antelopes such as the Nilgai, Goral, Jackal, Hyena, Jungle Cat, Leopard Cat, Civets, Himalayan Yellow-Throated Marten, Sloth Bears, Pythons, King Cobra, Common Krait, Indian Cobra and the Monitor Lizard and the Asian Elephant. Rajaji is thickly foliated predominantly by the Sal Forest and a number of other forest types which include the Western Gangetic Moist and Northern dry Deciduous and Khair-Sissoo forests. Low Alluvial Savannah Woodlands cover the drier southern margins of the park, in contrast to the Shiwalik Chir-Pine on the high reaches of the hills.

## 2.4 National Strategy and the Mapping of user needs (WP1)

One of the important component of this pilot project is the mapping of user needs in order to develop a national strategy for biodiversity data capture, validation and dissemination. To this end the project has initiated consultations with a range of stakeholders including civil society organizations. The preliminary outcomes indicates a high level of enthusiasm for this component as the stakeholders are beginning to understand the value of the initiative and the likely benefits that would accrue to both science and society once the biodiversity data in general and the camera trap data in particular would come in public domain, enabling other users to use and also make further value-additions.

## 2.5 The Audubon Core metadata standard template (WP2)

In order to make large numbers of biodiversity-related multimedia data efficiently available for a research infrastructure, there is a great need for a standardized metadata regime. The GBIF- and TDWG (Taxonomic Databases Working Group) joint task group has developed a multimedia resources metadata schema called the Audubon Core. The Audubon Core describes the media resources with consistent metadata. One Audubon Core metadata record is a set of terms and term values describing an underlying multimedia and its attributes. The Audubon Core schema consists of 80 terms of which six are mandatory.

The pilot project will base its data capture on the Audubon Core metadata standard. GBIF has therefore developed an MS Excel- based Audubon Core template in order to facilitate a more efficient biodiversity-related multimedia data capture. Feasibility of this template for collation of data has been tested with the site data collected by the Wildlife Conservation Society in Pune and the WII team in Dehradun, December 2011. The test results will be implemented as a crucial time estimate for the planning of the mobilization and organization of data and metadata.

## 2.6 Repatriation of Indian biodiversity data held in Norway (WP2)

The Norwegian GBIF- node at the Norwegian natural museum (University of Oslo) has in December 2011 engaged a Ph.D. student to perform a brief survey of available Indian biodiversity data from natural museum collections and project data in Norway. The student will visit the University Museum of Bergen, the Tromsø University Museum and the NTNU Museum of Natural History and Archeology. The output of this repatriation exercise is a list of data and the work has to be finalized in August 2012.

## 2.7 Data capture and study areas (WP2)

WII has for many years conducted wildlife camera trapping in several protected areas in India. Collected data and metadata from activities in the Rajaji National park in the Uttarakhand state (mainly tiger) and the Khangchendzonga National Park in the Sikkim state (Snow leopard and associated species) will be organized into the GBIF- infrastructure through the pilot project.

Also Dr. Vidya Athreya from the Wildlife Conservation Society (India Program and Centre for Wildlife Studies) will organize existing camera trap data from Akole (outside protected areas) and Mumbai (both inside and outside of protected areas) in Maharashtra State.

Altogether these contributions will represent a great amount of data.



Figure 5: The study areas (Source Google Maps)

## 2.8 The best practice guide (WP5)

A preliminary table of content was made in December 2011 for the outline of the best practice guideline. We have also engaged an external expert (Dr. Mandy Cadman from South- Africa) to develop the best practice guidelines from a user point of view. Dr. Mandy Cadman is an independent and very experienced consultant making specialist inputs to projects and programs in the environmental, biodiversity planning, conservation, development and capacity building sectors. She has been working together with GBIF and WII in many project`s in the past. Dr. Mandy will start her work for the pilot project in February 2012 and is required to deliver a final Best Practice Guide in September 2012. She will work in close connection with WII, NINA and GBIF.

## 2.9 Pilot project web map data portal (WP5)

To demonstrate the pilot project goals a project web map data portal has to be developed. NBIC has developed a Norwegian Species Map Service and is happy to share the source code with WII. The source code has to be adapted for the Indian purposes. NBIC will also offer training and assistance related to the adaption. A beta version of the web map data portal is to be launched in September 2012.

## 2.10 Internal GBIF Community Site for the pilot project (WP5)

GBIF has organized an internal Community Site for the pilot project. This site will be the channel for internal project document handling, information and discussions.

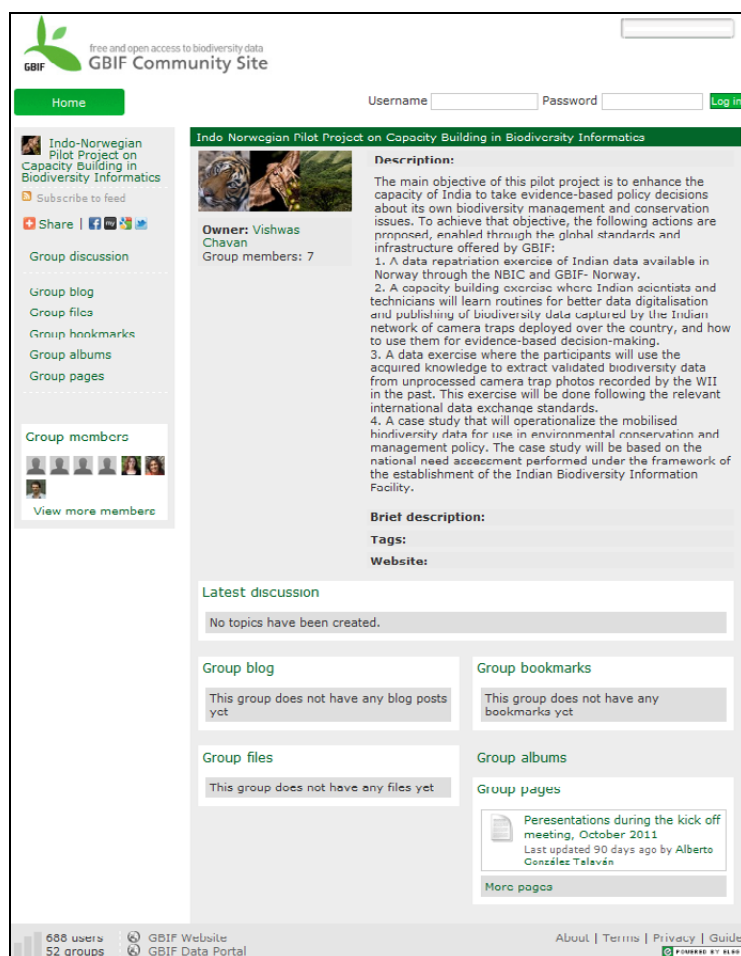


Figure 6: Internal GBIF Community Site

## 2.11 Outreach and promotion (WP5)

The pilot project has been presented at the web- pages of NINA, NBIC and GBIF several times in 2011:

- [NINA's web- pages 13.th of July 2011](#) (Norwegian/English)
- [NINA's web-pages 11.th of October 2011](#) (Norwegian)
- [GBIF's web- pages 28.th of August 2011](#) (English)
- [NBIC's web-pages August 2011](#) (Norwegian)
- [GBIF's web- pages the 7.th of December 2011](#) (English)

We plan to promote the pilot project at the following conferences in 2012:

- The IUCN World Congress in Jeju (Cheju-Do), Republic of Korea, 6-15. September 2012.
- GBIF Governing Board meeting, 17-19 September 2012 at Lillehammer- Norway.
- The Conference of the Parties (COP), 8-19 October 2012 in Hyderabad- India.

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*The Norwegian Institute for Nature Research (NINA) is Norway's leading institution for applied ecological research.*

*NINA is responsible for long-term strategic research and commissioned applied research to facilitate the implementation of international conventions, decision-support systems and management tools, as well as to enhance public awareness and promote conflict resolution.*



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