Biodiversity Expenditure Review (BER) at Central Government Level, India

Final Report

Submitted by

भारतीय वन्यजीव संस्थान
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For Informations please contact:

Dr. V. B. Mathur, D.Phil. (Oxon.)
Director,
Wildlife Institute of India,
Chandrabani, Dehradun (Uttarakhand). INDIA
Tel.: +91-(0)135-2640910(Off.); +91-(0)135-2646101(Off.)
+91-9412051610 (Home) Mob.: +91-9412054648
Fax: +91-(0)135-2640117
Email: vbm@wii.gov.in; dwii@wii.gov.in

Project Team:

Dr. V.B. Mathur (Director, WII) - Project Leader,
Dr. Malvika Onial (Scientist-E, WII) - Senior Expert
Dr. C. Ramesh (Scientist-C, WII) - Senior Expert
Dr. Nasim Ahmad Ansari- Project Associate
Ms. Sharmistha Singh- Project Associates
Ms. Nupur Hembrom- Project Fellow
Ms. Diksha Barthwal- Project Fellow

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LIST OF ACRONYMS

ACA	Additional Central Assistance
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BCRLIP	Biodiversity Conservation & Rural Livelihood Improvement Project
BER	Biodiversity Expenditure Review
BDTC	Biogas Development and Training Centres
C-DAP	Comprehensive District Agriculture Plan
CHC	Community Health Centres
CSS	Centrally Sponsored Scheme
DA&C	Department of Art & Culture
DAH	Department of Animal Husbandry
DAR&E	Department of Agriculture Research and Education
DDD	Department of Dairy Development
DDW&S	Department of Drinking Water & Sanitation
DE&F	Department of Environment &Forest
DFGs	Demand for Grants
DI&FC	Department of Irrigation & Flood Control
DI&PR	Department of Information & Public Relations
DMH&FW	Department of Medical Health and Family Welfare
DNCE	Department of Non-Conventional Energy
DoA	Department of Agriculture
DoF	Department of Fisheries
DoH	Department of Horticulture
DoI	Department of Industries
DoS	Department of Space
DoT	Department of Tourism
DRD	Department of Rural Development
DS&YW	Department of Sports & Youth Development
DSW(SC)	Department of Social Welfare (SC)
DSW(ST)	Department of Social Welfare (ST)
DUD	Department of Urban Development
ETF	Ecological Task Forces
FDA	Forest Development Agencies
FNA	Finance Needs Assessment
FVP	Forest Van Panchayats
GAP	Ganga Action Parivar
GIB	Great Indian Bustard
ICT	Information and communications technology
ILSP	Integrated Livelihood Support Project
IWMP	Integrated Watershed Management Programme
JFMCs	Joint Forest Management Committees
JICA	Japan International Cooperation Agency
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
MIS	Management Information System
MoA	Ministry of Agriculture
MoAy	Ministry of AYUSH
MoCF	Ministry of Chemical & Fertilizers

MoCI	Ministry of Commerce and Industry
MoCIT	Ministry of Communication , Information and Technology
MoCo	Ministry of Coal
MoCu	Ministry of Culture
MoDWS	Ministry of Drinking Water & Sanitation
MOEFCC	Ministry of Environment, Forest & Climate Change
MoEFCC	Ministry of Environment Forest and Climate Change
MoES	Ministry of Earth Sciences
MoHA	Ministry of Home Affairs
MoHUA	Ministry of Housing & Urban Affairs
MoHRD	Ministry of Human Resource Development
MoNRE	Ministry of New & Renewable Energy
MoP	Ministry of Power
MoPL	Ministry of Planning
MoPR	Ministry of Panchayati Raj
MoRD	Ministry of Rural Development
MoSPI	Ministry of Statistics and Programme Implementation
MoST	Ministry of Science & Technology
MoT	Ministry of Tourism
MoTA	Ministry of Tribal Affairs
MoWRRDGR	Ministry of Water Resources, River Development & Ganga Rejuvenation
MoYAS	Ministry of Youth Affairs and Sports
NAEB	National Afforestation and Eco-Development Board
NBA	National Biodiversity Authority
NGRBA	National Ganga River Basin Authority
NMCG	National Mission on Clean Ganga
NMOOP	National Mission on Oil seeds and Oil Palm
NMPB	National Medicinal Plants Board
NRCD	National River Conservation Directorate
NRCP	National River Conservation Plan
NSS	National Service Scheme
NTFP	Non-Timber Forest Products
PDO	Project Development Objective
PHC	Primary Health Centres
PHT	Post Harvest Technology
R&D	Research & Development
RE	Revised Estimate
RGPSA	Rajiv Gandhi Panchayat Sashaktikaran Abhiyan
SSA	Sarva Shiksha Abhiyan
SAAP	State Annual Action Plan
TBO	Tree Born Oils
TDET	Technology Development, Extension and Training
THDC	Tehri Hydro Development Company
UFRMP	Uttarakhand Forest Resource Management Project
UIG	Urban Infrastructure & Governance
WII	Wildlife Institute of India

CHAPTER ONE

INTRODUCTION AND REFINEMENT IN BIODIVERSITY EXPENDITURE REVIEW (BER) PROCESS

1.1 Background

How much money is being spent on conserving India's biodiversity? Is it enough? Do we need more funding? Or do we need better utilization of the funds already committed for biodiversity conservation in the country? Such questions can be answered only if we have a precise estimate of the amounts being currently spent on conserving biodiversity in India. Thus, to understand biodiversity finance and to bridge the gap between what is being spent for biodiversity conservation and what is needed, UNDP initiated the BIOFIN Project in 2012 globally and India became part of the BIOFIN Process in 2015. The BIOFIN provides a methodological framework and tools for measuring expenditure on biodiversity and assessing the funding gap, which could assist countries in their efforts for resource mobilization to achieve the Global and Targets. BIOFIN in India is led by the Ministry of Environment, Forest and Climate Change (MoEFCC) and the initiative is hosted by the National Biodiversity Authority (NBA), working with key State Biodiversity Boards and with technical assistance from Wildlife Institute of India (WII), National Institute of Public Finance and Planning (NIPFP) and other Institutions.

BIOFIN aims to develop a methodology for quantifying the biodiversity finance gap at national level, for improving cost-effectiveness through mainstreaming of biodiversity into national development and sectoral planning, and for developing comprehensive national resource mobilizing strategies. BIOFIN thus hopes to provide a framework for undertaking 'bottom-up' analyses of the biodiversity finance gap and resource mobilization strategies, through a transformative process led by national stakeholders.

India became a party to the CBD in February 1994 and within five years the Government of India (GoI) developed a national policy and macro-level action strategy on biodiversity in 1999 for defining the policies and strategies for the conservation and sustainable use of biological diversity in the country. Subsequently the Ministry of Environment and Forests (now Ministry of Environment, Forest, and Climate Change– MoEFCC) implemented an externally aided project, the NBSAP from 2000 to 2004. In 2006, India adopted the National Environment Policy (NEP 2006) seeking to extend the coverage and to fill in gaps that existed in the earlier policies. A National Biodiversity Action Plan (NBAP) was thus prepared, using the final technical report of the NBSAP project (2002–2004), by updating the 1999 document to achieve consonance between NEP 2006 and the NBAP. India's NBAP, formulated through an inter-ministerial consultative process, was formally approved by GoI in 2008.

During CoP-10, the CBD urged parties to develop National Biodiversity Targets (NBTs) using the Strategic Plan for Biodiversity 2011–2020 as a flexible framework in agreement

with national priorities and capacities and develop a revised NBAP. A review of the revised draft of NBTs and updating of the NBAP was then undertaken by a technical review committee constituted by MoEFCC, after which an addendum to the NBAP 2008 was developed in 2014. The process of updating the NBAP also included an assessment of funding support for biodiversity conservation in India.

1.2 The BER study aims to answer the following questions

A Biodiversity Expenditure Review entails review of all types of expenditures contributing to sustainable biodiversity management including private sector spending in addition to public spending, spending by international organizations, national civil society organisations etc. The aim of the Biodiversity Expenditure Review is to review and assess detailed data on public, private, and civil society budgets, allocations and expenditures to inform and promote improved biodiversity policies, financing, and outcomes.

Spending Basics: Who spends money, how much do they spend, and what do they spend it on –

Biodiversity Categories: What are the patterns for budgeting/allocating/spending money within biodiversity categories, NBSAP targets and other key strategies?

Policy Alignment: Is spending aligned with stated government policies and priorities? Which thematic areas are the better financed and why? How does financing compare to these sectors contribution to GDP? How does spending on biodiversity compare to spending on other sectors/objectives? Are there allocations that do not fit with stated government priorities?

Delivery Patterns: Is all the money that is budgeted being allocated? Has all the money that has been allocated been disbursed and spent? If not, why? Are there barriers for spending allocated budgets? What opportunities exist for integrating biodiversity more effectively into the budgeting processes?

Financing Sources and Solutions: Are there opportunities for improved efficiency of biodiversity financing?

Future Spending: What biodiversity expenditure trends and data can be identified to predict future spending? How do these projections compare to future expected biodiversity financing needs?

Business Case: How can we use the information in the BER to make a better business case for enhanced continuation for biodiversity conservation?

The outputs of the BER should be in the form of a comprehensive report supported by recommendations/ policy briefs that will answer the above questions, helping decision makers understand the general trends in biodiversity expenditures and their future consequences.

1.3 Chronological order of refinement in BER Process and Results

India had done the assessment of the availability of funds for biodiversity conservation for the first time in the year 2011-12 and refined in 2013-14 during the reporting in India's Fifth National Report (NR5) to the Convention on Biological Diversity (CBD) and preparation of NBAP in 2014. This exercise estimated resource flows to the biodiversity sector in India in three categories i) direct core funding, ii) non-core funding and iii) peripheral funding. The majority of schemes/ programmes/ projects of Ministry of Environment, Forest and Climate Change were classified under the direct core funding (100%) and a few under non-core funding (e.g. pollution, hazardous substance management- 30%) and the expenditures from other ministries were classified into peripheral category and percentages were calculated on the basis of relevance to biodiversity (1 to 90%). Thus by combing the results, MOEFCC was the direct Ministry (Core & Core Scheme) and there were other 77 schemes identified from 23 Ministries of Government of India as Peripheral Ministries having indirect relevance to biodiversity. Based on which the overall funding for biodiversity conservation was estimated at Rs 92,044.50 million (Rs 9204.45 crores or USD 1482.68 million) for 2013–2014 (Onial 2018).

The process of identification of biodiversity relevant scheme and to apply a further level to diligence to assign the correct attribution varies from person to person and involves lot of subjectivity. Thus the BER process is always a work-in-progress, to arrive at a final figure of expenditure for biodiversity conservation. The expenditure figure changes in order to change in process of attribution. The chronological order of refinement process and subsequent results of Biodiversity Expenditure Review is documented in Table 1.1.

Table 1.1: Chronological order of refinement in BER Process and Results

Assessment Period	Process/ Methods	Outcome
India's National Biodiversity Action Plan 2008	No Financial Calculation for achieving Biodiversity Strategies and Action Plan	Nil
India's National Biodiversity Action Plan 2014 (Addendum 2014 to NBAP 2008) Also reported in India's Fifth National Report 2014	All the schemes classified into 3 categories i) Direct core funding, ii) Direct non-core funding and iii) Indirect peripheral funding. The majority of schemes of MOEFCC were classified under the direct core funding (100%) and a few under direct non-core funding (e.g. pollution, hazardous substance management- 30%) and the expenditures from other ministries were classified into indirect peripheral categories and percentages were calculated on the	The assessment estimated an overall funding for biodiversity conservation was Rs 92,044.50 million (Rs 9204.45 crores or USD 1482.68 million) for 2013–2014

	basis of relevance to biodiversity (1 to 90%). Thus by combing the results, MOEFCC was the direct Ministry (Core & Core Scheme) and there were other 77 schemes identified from 23 Ministries of Govt. of India as Peripheral Ministries having indirect relevance to biodiversity.	
Preliminary report on appraisal of biodiversity relevant programmes and schemes at National level, July 2016	Attributed 118 schemes of 26 ministries in 4 categories Direct, Indirect High, Indirect Medium and Indirect Low	20,000-26,000 Cr INR attributed expenditure from 118 schemes of 26 Ministries of Govt. of India during 2012-13 to 2014-15
Draft Final Report Biodiversity Expenditure Review (BER) of Central Government, 30 December 2016	Attributed 118 schemes of 26 ministries in 4 categories Direct, Indirect High, Indirect Medium and Indirect Low	20,000-26,000 Cr INR attributed expenditure from 118 schemes of 26 Ministries of Govt. of India during 2012-13 to 2014-15
Final Report on BIOFIN Project to UNDP, March 2017	Attributed 118 schemes of 26 ministries in 4 categories Direct, Indirect High, Indirect Medium and Indirect Low	20,000-26,000 Cr INR attributed expenditure from 118 schemes of 26 Ministries of Govt. of India during 2012-13 to 2014-15
Final BER Report, 12 December 2017	Attribution followed modified RIO Markers in 6 categories, viz, Direct, Indirect Very High, Indirect High, Indirect Medium, Indirect Low and Indirect Marginal After the reconciliation of process and outcomes of BER and FNA with NBA, few more schemes have been added in BER and the attribution methodology has also been realigned with RIO Markers. Finally, a total of 125 schemes belonging to 26 Ministries and 31 Departments of the Government of India have been considered as biodiversity relevant	The overall expenditure figures have been collected from the DFG and attributable expenditure has been calculated as per modified Rio Marker. The expenditure figures are showing an increasing trend from 2012-13 to 2014-15 but attributable figure is showing a decreasing trend from 2012-13 to 2013-14, and then an increasing trend from 2013-14 to 2014-15. The total expenditure is recorded maximum in the year 2014-15 i.e., 95,339.35

		crores and minimum 90,996.40 crores in the year 2012-13. However, the attributed expenditure is recorded maximum 18,870.17 crores in 2012-13 followed by 18,730.67 crores in 2014-15 and minimum 18,559.72 crores in 2013-14.

The first assessment made during the preparation of India's Fifth National Report in 2013-14 formed the basis of this exercise, which included 77 schemes from 23 Ministries of the Government of India. However, one to one consultations and detailed assessment of all Ministries of Government of India were made again during 2015-17 and revised list now includes 118 Schemes from 26 Ministries of the Government of India.

A National Stakeholder Consultation and Validation Workshop was conducted in the MoEFCC under the Chairmanship of Dr. Amita Prasad, Additional Secretary on 19 April 20017 to validate these figures. After the validation workshop the responses received from various Ministries to validate the figures submitted to them. Finally, a total of 113 Schemes from 24 Ministries and 27 Departments have been identified as biodiversity relevant at Central Government level.

On 3rd August 2017, a meeting was convened by Dr. Amita Prasad, Additional Secretary to present the final BER methodology and results at MoEFCC New Delhi. During the meeting, it was proposed that the methodology of attribution in BER and Finance Needs Assessment (FNA) need to be reconciled with National Biodiversity Authority.

After the reconciliation of process and outcomes of BER and FNA with NBA, few more schemes have been added in BER and the attribution methodology has also been realigned with RIO Markers. After the reconciliation, a total of 125 schemes belonging to 26 Ministries and 31 Departments of the Government of India have been considered as biodiversity relevant.

1.4 Methodology of current refinement in BER Process

The further level of refinement made in subsequent meetings at National Biodiversity Authority in November 2017, January 2018, April 2018, September 2018 with Dr. V. Rajagopalan, Former Secretary, Ministry of Environment, Forest and Climate change, Govt. of India. These discussions provided a more methodological approach in assigning correct attribution in a biodiversity relevant scheme taking into account, focus areas, monitorable targets and scheme components/ permissible activities in addition to scheme/ program objectives. Whereas, in some schemes, where the actual component-wise data available in public domain, the attribution has been calculated based on that. The revised attribution methodologies proposed in these meetings are followed for final calculation of attribution and analysis of results.

➢ Current BER Process

The process of BER has already been discussed in earlier reports, but further refinements made at some steps. The stepwise revised methodology has been discussed in the following heads.

➢ Defining and identification of biodiversity expenditure and relevant Ministries and their schemes of Government of India

The assessment of funding support for biodiversity conservation at public level can be done by two approaches, a) Tracking of the expenditure figures of the direct schemes of the Principal Institution working on biodiversity conservation i.e. Ministry of Environment, Forest and Climate Change (MOEFCC), Govt. of India. b) Tracking of fund flow of the indirect schemes of other Institutions (Ministries) of the Govt. of India working for biodiversity conservation.

Documents like Annual Reports, Websites, Outcome budgets, Detailed Demand for Grant, Noted on Demand for Grant, Result Framework Documents have been looked and consultations have been made to identify the biodiversity relevant Ministries and schemes. The Ministries under the Government of India operates following types of scheme and programmes:

1) Centrally Sponsored Scheme
2) Central Sector Scheme
3) Normal Central Assistance
4) Additional Central Assistance
5) Special Central Assistance
6) Externally Aided Project
7) Grants from Union Finance Commission
8) Releases under CAMPA
9) Grants to National Biodiversity Authority

➢ Tagging and Tracking of Schemes over the 5-years plan period from 2012-13 to 2016-17

After selecting a scheme as biodiversity relevant, the expenditure figures have been collected over the years. As collection of expenditure figures over the years of a scheme, is very difficult and are likely chances of double counting and errors. So to deal with these issues, "Tagging and Tracking" method was applied for collection of expenditure figures of selected schemes over the years. Each scheme is codified through a special code which remains same over the years. The nomenclature for coding of schemes is issued by the Auditor General of India with the approval of the Governor General as directions under Section 168 of the Government of India Act, 1935 (Diglot Edition 2001). The Government Budget document called Detailed Demand for Grant (DDG) includes all the schemes with specific codes. Each Ministry has its own DDG separately for each financial year. Each DDG includes 3 kind figures for a scheme, a. Budget Estimate (BE) for the current year, b.

Revised Estimate (RE) for the previous year and c. Actuals for the previous to previous year called Expenditure Figure.

After coding or tagging a biodiversity relevant scheme, it has been tracked over the three financial years from 2012-13 to 2014-15 to see the existence of scheme and the trend of expenditure over the years. The fund flow in a scheme operates under various heads in the DDG, like Central Plan, State Plan, Tribal Sub-plan, Special Component Plan etc. have been taken carefully for collection of expenditure figures.

For example, the code **2406.02.110.01.09** for a scheme **'Integrated Development of Wildlife Habitats'** under Ministry of Environment, Forest and Climate Change, Government of India can be calculated as:

Heads	**Definition of Heads**	**Digits**	**Example**
Major Head	Function	4 digit code	**2406**- Forestry and Wild Life
Sub-Major Head	Sub-function	2 digit code	**02**- Environmental Forestry and Wild Life
Minor Head	Programme	3 digit code	**110**- Wild Life Preservation
Sub-Head	Scheme	2 digit code	**01**- Central Plan / Centrally Sponsored Schemes
Detailed Head	**Sub-Scheme**	**2 digit code**	**09-Integrated Development of Wildlife Habitat**
Object Head	Primary Unit of Appropriation	2 digit code	All activities eg. salary, wages, travel, construction etc.

- In this table, the scheme has been considered at ***Detailed Head*** level. Whereas in some cases the scheme has been given at ***Sub-Head*** level, for example the code **3455.00.101.01** is the scheme code of **Space Meteorology under Ministry of Earth Sciences.**

Heads	**Definition of Heads**	**Digits**	**Example**
Major Head	Function	4 digit code	**3455**- Meteorology
Sub-Major Head	Sub-function	2 digit code	**00**- No Sub-Major Head
Minor Head	Programme	3 digit code	**101**- Satellite Services
Sub-Head	**Scheme**	**2 digit code**	**01- Space Meteorology**
Detailed Head and Object Head	Sub-Scheme (Primary Unit of Appropriation)	2 digit code	01.00.01 Salaries 01.00.03 Overtime Allowance 01.00.06 Medical Treatment 01.00.11 Domestic Travel Expenses 01.00.13 Office Expenses 01.00.21 Supplies & Materials 01.00.28 Professional Services

➢ Determining proportion of expenditure attributable to biodiversity conservation

The methodology for determining the expenditure attributable to biodiversity conservation is guided by existing methodologies e.g. Rio markers and consultations with national, sub-national levels in India.

The entire amount which is expended by various Ministries under a scheme has not been actually spent for biodiversity conservation, therefore the concept of 'attributable share' for biodiversity conservation need to be worked out for each scheme separately. The system of attributing expenditures to specific biodiversity categories or national themes should be accurate, precise, repeatable and defensible. The aim is to establish a process that can be repeated periodically to give results that are replicable and consistent. The methodology for determining the expenditure attributable to biodiversity conservation is guided by existing methodologies e.g. Rio markers and consultations with national, sub-national levels in India. Therefore, in the first approach, all the schemes have been classified into two following categories:

'Direct' Schemes: Scheme of the Principal Institution working on biodiversity conservation i.e. Ministry of Environment, Forest and Climate Change (MOEFCC), Govt. of India.

'Indirect' Schemes: Schemes of other Institutions (Ministries) of the Govt. of India working for biodiversity conservation, for example Ministry of Agriculture, Ministry of Water Resources.

To reflect the varied levels of contribution, the 'Indirect' Expenditures have been further classified into, Indirect Very High, Indirect High, Indirect Medium, Indirect Low and Indirect Marginal based on specific objectives and mandates also matched with CBD objectives given in table 1.1. These indirect attribution categories assigned taking into account, focus areas, monitorable targets and scheme components/ permissible activities in addition to scheme/ program objectives. Whereas, in some schemes, where the actual component-wise data available in public domain, the attribution has been calculated based on that.

One of the key issues in determining the expenditure attributable to biodiversity is to minimize the error or improve the accuracy of the estimate. Therefore the calculation of attribution of indirect schemes also includes the weightages of components of a scheme. Further, only important components can be assigned weightages on the basis of important activities carried out related to biodiversity conservation.

For example the calculation of attribution in a scheme **'National Project on Management of Soil Health and Fertility (NPMSHF)'** under Ministry of Agriculture is as follows:

The above scheme **'NPMSHF'** has 3 components, viz., **a.** Strengthening of Soil Testing Laboratories (STLs), **b.** Promoting Use of Integrated Nutrient Management (INM), **c.** Strengthening of Fertilizer Quality Control Laboratories*.

Among the three components, only one component, i.e. INM (*activities: promoting organic manuring, soil amendments and distribution of micro-nutrients*) is important for

biodiversity conservation, which comes under 'Indirect Very High' attribution category (82.5%) in attribution table, hence the attribution of NPMSHF can be calculated as:

Attribution of NPMSHF = (1/3) x 82.5% = 27.5%

Hence the final attribution of the scheme **'National Project on Management of Soil Health and Fertility'** is the 27.5%.

Source: Guidelines for Implementation of National Project on Management of Soil Health and Fertility, Department of Agriculture & Cooperation Ministry of Agriculture Government of India, 2008 http://agricoop.nic.in/sites/default/files/inm111108.pdf

Table 1.1: Modified RIO Markers attribution adapted in Indian context

Names rename	**Direct**	**Indirect Very High**	**Indirect High**	**Indirect Medium**	**Indirect Low**	**Indirect Marginal**
Range	**100-90%**	**90-75%**	**75-50%**	**50-25%**	**25-5%**	**5-0%**
Target	**95%**	**82.5%**	**62.5**	**37.5**	**15%**	**2.5%**
Definitions	**Principal Intent** of Organisation / Activity is to accomplish one of three CBD objectives	Main intent to accomplish at least one of the CBD objectives **coupled to a greater degree with other related** / supportive intents	Main intent to accomplish at least one of the CBD objectives **coupled to a lesser degree with other related** / supportive intents	One at least one of the CBD Objectives or NBTs coupled with other - non biodiversity related intents / actions in **balanced proportion**	Intent **primarily for non-biodiversity** related activities but have a stated intent for positive BD impacts	**Small BD impacts expected from much larger non-BD programs** with at least safeguards in place.
Examples	Core MOEFCC schemes e.g. Tiger conservation, afforestation, protection of PA and sanctuaries	Promotion of organic farming, river conservation	Groundwater management and regulation	Integrated watershed management, Climate change adaptation, general awareness and training, activities	Public welfare initiative such as development of WRIS of MoWR, RD & GR.	Renewable energy, Climate change mitigation
RIO Markers	**RIO Marker 2**	**RIO Marker 1**				**RIO Marker 0**

- **Mapping of schemes into various National, International Categories and BIOFIN categories**

The schemes once identified, their attribution calculated are now subjected to map with various National and International categories. All schemes have been mapped with global Aichi Biodiversity Targets, National Biodiversity Targets, Sustainable Development Goals and with six BIOFIN categories viz., Protection, Restoration, Sectoral Mainstreaming, Enhancing Implementation, ABS and Others.

- **Identify trends and predict/ project future expenditures**

This includes an analysis of major future trends likely to be observed in biodiversity expenditures for each priority organization, taking into consideration key assumptions (such as predicted inflation, GDP growth, etc.) that could affect future expenditures.

ATTRIBUTIONS CALCULATION OF BIODIVERSITY RELEVANT SCHEMES AND PROGRAMMES

1. Ministry of Agriculture and Farmers Welfare

1.1 Department of Agriculture Cooperation and Farmers Welfare

1. Seeds

There are two sub-schemes under Seed:

Sub-scheme 1. Development and Strengthening of Infrastructure Facilities for Production and Distribution of Quality Seeds. There are 9 components, out of which, 3 components viz., seed village program, establishment & maintenance of Seed Bank, and application bio-tech in agriculture are biodiversity relevant;

Sub-scheme 2. Sub-Mission on Seeds and Planting Material– SMSP. There are 19 mission interventions, out of which 5 Mission Interventions *viz*., strengthening of seed quality control, seed village, certified seeds through seed villages, application of bio-technology, funding support to PPV&FRA are biodiversity relevant.

Together, out of 28 components/ Mission interventions under the two sub-schemes, 8 components/ interventions are biodiversity relevant. The Rio Marker assigned attribution for 'Seed' is under 'Indirect Very High' category, hence, component-wise, considering relevance of these 8 components/ interventions, the overall attribution is (8/28) x 0.825 = 0.2357 (23.57 %).

2. National Project on promotion of Organic farming

There are 9 components of NPPOF, all components works for promotion of organic farming in the country, hence this scheme is highly relevant for the biodiversity and placed under Indirect Very High (82.5%)

Source:
https://ncof.dacnet.nic.in/objectiveandimplementation/ObjectivesandImplementationcomponents.pdf

3. National Project on management of soil health and fertility (NPMSHF)

There are 3 components of scheme, out of which only one component, *viz*, Promoting Use of Integrated Nutrient Management INM (Activities: promoting organic manuring, soil amendments and distribution of micro-nutrients) is relevant which comes under indirect very high category, hence attribution is: (1/3) x 82.5% = 27.5%

4. Strengthening and modernization of pest management approach in India

The objective of the scheme is to minimize use of hazardous chemicals, to manage insect/pest attack and improve crop productivity. The components of the scheme are integrated pest management, locust organization, implementation of Insecticides Act.

Integrated pest management is one of the three project components and placed under indirect very high relevance category along with organic farming, hence attribution can be calculated as: (1/3) X 82.5% = 27.5%

5. Monitoring of Pesticides residues at national level

The scheme has following 4 objectives:

- To identify crops and regions having preponderance of pesticide residues in order to focus extension efforts for Integrated Pest Management (IPM) and Good Agriculture Practices (GAP)
- To strengthen infrastructure at Quarantine stations to prevent entry of food and food commodities which have pesticide residues above maximum residue limit (MRL)
- Testing / Certification of pesticide residue in export / import consignments
- To test pesticide residues and other contaminants in food commodities and environmental samples like soil and water.

Based on the above objectives of scheme, it works towards the monitoring of pesticides and reduce its impact on the environment. Due to its relevance to biodiversity and the contribution of the objectives towards biodiversity, the attribution is 15% (Indirect low).

Source: http://www.indiaenvironmentportal.org.in/files/file/Annl_rpt_2015.pdf

6. National Food Security Mission

The 3 objectives of the scheme includes, increasing production of cereals and pulses; restoring soil fertility & productivity and enhancing farm profits.

There are 8 Interventions *viz.,* Accelerated crop production program, need based inputs, commercial crop based cropping systems, research support and other initiatives, proposed under the four components (Rice, Wheat, Pulses and Coarse Cereals) of the scheme.

The two monitorable targets *viz.,* organic farming and soil reclamation are the criteria for selection of districts for awards for outstanding performance. Since organic farming related activities fall under Indirect very high and soil reclamation falls under indirect medium, based on monitorable targets in these areas, the attribution can be calculated as: 0.825 x 0.1 + 0.375 x 0.05 = 0.10125 (10.13%)

Source: https://www.nfsm.gov.in/Guidelines/XIIPlan/NFSMXII.pdf

7. National Mission on Sustainable Agriculture

Objective: Make agriculture sustainable and climate resilient; conserve natural resources through soil and moisture conservation; optimize water resources utilization; soil health management.

Component: On-farm development including water harvesting, tube wells, reclamation of problem soils, efficient water use through sprinklers, etc, water storage at tail end of canals, soil and moisture conservation, promote organic farming.

The biodiversity relevant activities listed above fall under two of the four major components – rain fed area farming and on farm development which also has several other activities including crop-wise assistance, fisheries and livestock based farming, etc. Organic farming promotion is one of the several activities under the major component, soil health management.

The major outcome of the scheme is Climate change adaptation, hence indirect medium, 37.5%

8. Central Institute of Horticulture

Following are the focus areas of the scheme:

- Training of State Government Officials and Farmers/Beneficiaries of North East Region.
- Promotion for establishment of Nurseries in NER.
- Accreditation and certification of horticulture nurseries in NER.
- Certificate courses in horticulture.
- Skill development courses in horticulture.
- Transfer of technology through method & result demonstration & publication of folders, manuals, leaflets etc.
- Promotion of Organic Farming.
- Marketing and agri-business promotion through exhibitions, seminars, workshops, exposure trips, buyers & sellers meet.
- Coordination with State Horticulture Departments of NER and other National Organizations, NGOs, Farmers' Group and Self Help Groups.

The overall focus of this scheme is related to organic farming and other activities related to biodiversity; hence the attribution is 62.5% (Indirect high)

Source:
https://www.cihner.gov.in/index.php?option=com_content&view=article&id=49&Itemid=151

9. Rashtriya Krishi Vikas Yojana

The scheme is the flagship scheme of Agriculture Ministry for holistic development of agriculture and allied sectors. The Components/ Permissible limits are: Production growth including distribution of inputs; IPM; infrastructure including labs and storages; RKVY special schemes; Flexi-fund; permissible activities include water and soil conservation, minor/micro irrigation, setting up labs/production units to produce bio-control agents and bio-fertilizers

About 11.5% (10/87) of the permissible activities are in the nature of IWSM, NRM which come under indirect medium (37.5%); about 5.7% (5/87) of activities are organic farming related and fall under indirect very high (82.5%); hence overall attribution = 0.375 x 0.115 + 0.825 x 0.057 = 0.0901 (9.01%).

10. Pradhan Mantri Krishi Sinchain Yojana

The major objective of PMKSY is to achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation, improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop), enhance recharge of aquifers and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal waste water for peri-urban agriculture and attract greater private investment in precision irrigation system.

PMKSY has been conceived amalgamating ongoing schemes viz. Accelerated Irrigation Benefit Programme (AIBP) of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR,RD&GR), Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR) and the **On Farm Water Management (OFWM) of Department of Agriculture and Cooperation (DAC).**

There are following 10 components under On Farm Water Management (OFWM) of Department of Agriculture and Cooperation (DAC), Ministry of Agriculture:

1. Programme management, preparation of State/District Irrigation Plan, approval of annual action plan, Monitoring etc.
2. Promoting efficient water conveyance and precision water application devices like drips, sprinklers, pivots, rain-guns in the farm (Jal Sinchan);
3. Topping up of input cost particularly under civil construction beyond permissible limit (40%), under MGNREGS for activities like lining inlet, outlet, silt traps, distribution system etc.
4. Construction of micro irrigation structures to supplement source creation activities including tube wells and dug wells (in areas where ground water is available and not under semi critical /critical /over exploited category of development) which are not supported under PMKSY (WR), PMKSY (Watershed) and MGNREGS.
5. Secondary storage structures at tail end of canal system to store water when available in abundance (rainy season) or from perennial sources like streams for use during dry periods through effective on-farm water management;
6. Water lifting devices like diesel/ electric/ solar pumpsets including water carriage pipes.
7. Extension activities for promotion of scientific moisture conservation and agronomic measures including cropping alignment to maximise use of available water including rainfall and minimise irrigation requirement (Jal sarankchan);
8. Capacity building, training for encouraging potential use water source through technological, agronomic and management practices including community irrigation.

9. Awareness campaign on water saving technologies, practices, programmes etc., organisation of workshops, conferences, publication of booklets, pamphlets, success stories, documentary, advertisements etc.
10. Improved/innovative distribution system like pipe and box outlet system with controlled outlet and other activities of enhancing water use efficiency.

Considering the importance of water use efficiency in Agriculture, the attribution would be indirect low- 15%.

11. National Rainfed Area Authority

The broad contours of the Authority's work are:

a) Identify best practices for rainfed agriculture available across different research organizations & academic institutions and collation for development of rainfed and vulnerable districts across the country on a sustainable basis.
b) Develop area specific farming systems for critically vulnerable 150 districts on priority to make agriculture sustainable and profitable;
c) Pilot best practices in these districts to demonstrate their efficacy and lay a roadmap for scaling up across all vulnerable districts;
d) Develop various modules for master trainers, farming system, water budgeting and accounting for these areas.
e) Assist States and UTs in revisiting the District Irrigating Plans (DIPs), if required, from the perspective of addressing specific concerns of highly vulnerable districts.;
f) Assist States & UTs in preparation of Annual Action Plan for implementing "Pradhan Mantri Krishi Sinchayee Yojna" (PMKSY), so as to bring focus on prioritized operational area and cluster based irrigation chain development.
g) Set an appropriate research agenda including a critical appraisal of ongoing programmes.
h) Suggest short & long term plans for sustainable development of rainfed area by promoting water use efficiency and harvest the advantages of 'per drop more crop'
i) Monitor and supervise programme implementation in identified 150 critically vulnerable drought prone districts in particular and all other districts at large
j) Identify and recommend various agro-forestry models suitable for vulnerable districts across the country

Area of Focus:

- Focus on convergence, coordination, value addition, capacity building and monitoring & evaluation
- Meeting challenges of emerging policies, technologies, marketing, social and economic changes
- IT enabled project planning and management
- Enabling institutions for effective governance and service delivery
- Pilot projects for upgrading rainfed system in selected high priority areas

The scheme works towards reducing the vulnerability of the rainfed area from degradation and helps in climate change adaptation and increase its efficiency through agricultural

programme and practices, fall indirect medium- 37.5%, hence attribution can be calculated as:

(6/10) x 37.5% + (2/5) x 37.5% = 22.5+15 = 37.5%

Source: http://nraa.gov.in/cindex.php

1.2 Department of Animal Husbandry, Dairying and Fisheries

12. Cattle Development

Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities particularly for marginal and women farmers. Most of the milk is produced by animals reared by small, marginal farmers and landless labours.

The Rashtriya Gokul Mission is being implemented with the objectives of:

a) Development and conservation of indigenous breeds
b) Breed improvement programme for indigenous cattle breeds to improve their genetic makeup and increase the stock;
c) Enhancement of milk production and productivity;
d) Upgradation of nondescript cattle using elite indigenous breeds like Gir, Sahiwal, Rathi, Deoni, Tharparkar, Red Sindhi and
e) Distribution of disease free high genetic merit bulls for natural service.

This will reduce pressure on agriculture as cattle development schemes will help in generating income for the people. It also works towards conservation of indigenous breeds hence maintaining the variety; hence its attribution is Indirect Low (15%).

Source: http://dahd.nic.in/about-us/divisions/cattle-and-dairy-development

http://dahd.nic.in/sites/default/filess/RGM%20Scheme%20Detail_0.pdf

13. Poultry Development

Objectives of the Scheme (Central Poultry Development Organization, Department of Animal Husbandry, Dairying and Fisheries):

- To make available low input technology poultry stocks to states.
- To take up development of duck, Turkey, Japanese quail and Guinea fowl under diversification programme.
- To strengthen feed quality monitoring wing.
- Training.
- Adoption of villages.
- Random poultry performance testing.

This will also reduce burden on agriculture for income and will provide alternative provisions for income through such activities. This might lead to effective use of chemical fertilizers which was earlier used in excess for increased productivity and can also lead to

promotion of sustainable agricultural practices. So the attribution will be Indirect Marginal (2.5%).

14. Sheep and Wool Development

Objectives:

- Health Care for Sheep
- Breed Improvement and Strengthen of Sheep Breeding farms for Ram rearing
- Support for Multipurpose Extension Center
- Support for Survey and Study, Registration of Flocks, Project formation, Overhead expenditure to the implementing agencies, Product Development, Marketing Assistance etc

This scheme will provide alternative provision for income generation; hence the attribution will be Indirect Marginal (2.5%)

Source: http://woolboard.nic.in/download/I.A.pdf

15. Fishery Survey of India

FSI has emerged as the nodal fishery institute in India with the primary responsibility of survey and assessment of fishery resources in the Indian Exclusive Economic Zone (EZ) and adjoining areas for promoting sustainable exploitation and management of the marine fishery resources.

The Mandate of FSI was modified in the year 1998 for meeting emerging needs of Indian Marine Fishery for optimizing fish production as well as promoting fisheries regulation, ensuring resources conservation and environmental protection. The mandate of FSI is listed below:-

1. Survey and assessment of fish stocks and charting of fishing grounds in the Indian Exclusive Economic Zone (EEZ) and adjoining high seas.
2. Monitoring of fishery resources for fisheries regulation, management and conservation.
3. Assessment of suitability of deep-sea fishing gear with special reference to the concepts of maximum sustainable yield, preservation of environment and ecology of marine ecosystem.
4. Marine fisheries forecasting including application of remote sensing in fisheries management.
5. Maintaining data on deep sea fishery resources and dissemination of information to different user groups.
6. Human resources development through training of fishing operatives and meeting faculty requirements of sister institutes and organization.

The scheme is working towards the conservation of fishes with focus on preserving the environment and ecology and fall under Indirect High (62.5%), hence attribution will be: = (2/6) x 62.5% = 20.8%

Source: http://fsi.gov.in/LATEST-WB-SITE/fsi-mand-frm.htm

16. National Fisheries Development Board

The following are the objectives of the scheme:

- To bring activities relating to fisheries and aquaculture for focused attention and professional management.
- To coordinate activities pertaining to fisheries undertaken by different Ministries/Departments in the Central Government and also coordinate with the State/Union Territory Governments.
- To improve production, processing, storage, transport and marketing of the products of capture and culture fisheries.
- To achieve sustainable management and conservation of natural aquatic resources including the fish stocks.
- To apply modern tools of research and development including biotechnology for optimizing production and productivity from fisheries.
- To provide modern infrastructure mechanisms for fisheries and ensure their effective management and optimum utilization.
- To generate substantial employment.
- To train and empower women in the fisheries sector.
- To enhance contribute of fish towards food and nutritional security.

There are four components: Development of Marine Fisheries (two relevant activities- Promoting Non- Conventional Energy sources for Environment friendly fishing practices, Management of marine fisheries), Development of Infrastructure and Post- Harvest operation, Strengthening of Post- Harvest Infrastructure, Innovative Activities (one relevant activity- Innovative activities). Both the relevant component has activities contributing towards conservation, fall under Indirect medium (37.5%), hence overall attribution would be: (2/9) x 37.5% + 1 x 37.5% = 45.83%

Source:
http://nfdb.gov.in/PDF/GUIDELINES/Revised%20Guidelines_CSS%20on%20Blue%20Revolution_Integrated%20Development%20&%20Management%20of%20Fisheries_January%202018.pdf

1.3 Department of Agriculture Research and Education (DARE)

17. Other Programmes of Crop Husbandry

The following are the objectives of the scheme:
The Scheme refers to research and training in the field of crop husbandry including crop science, horticulture, agriculture extension & education and agriculture engineering. Under these programme, the grants given to research organization such as ICAR, Agriculture University Andhra Pradesh & Rajasthan, Horticulture University Telangana & Haryana, IARI typed deemed University Assam & Jharkhand.

Thrust Areas includes harnessing conventional and modern scientific knowledge, tools, and cutting edge of science for development of improved crop varieties/hybrids suited to diverse agro-ecologies and situations, and efficient, economic, eco-friendly and sustainable crop production and protection technologies; promoting excellence in basic, strategic and anticipatory crop science research; Conservation and sustainable use of genetic resources of plants, insects and other invertebrates, and agriculturally important microorganisms.

Crop Husbandry research also includes National Fund for Basic Strategic and Frontier Application Research in Agriculture, National Agricultural Innovation Project (NAIP), Economic Statistics and Management related to agriculture. Under NAIP, repositories of all agro-biodiversity have been maintained.

The NAIP will function through four components:

- The ICAR as the Catalyzing Agent for the Management of Change in the Indian NARS
- Research on Production to Consumption Systems (PCS)
- Research on Sustainable Rural Livelihood Security (SRLS) and
- Basic and strategic research in the Frontier Areas of Agricultural Sciences (BSR)

There are three components under the scheme:

- Assistance to farmers under High Yielding Programme
- Assistance to farmers for promotion of Horticulture Crop and High Value Agriculture
- Training and Extension Programme (IT & Demonstration).

The components impact indirectly to the biodiversity fall under Indirect Medium (37.5%) and only two components are seen relevant, hence the attribution is: (1/3) x 37.5% = 12.5%

Source: http://agri.and.nic.in/planschemes.htm

18. Other Natural Resource Management Institutes including Agro-Forestry Research

The following are the objectives of the scheme:

- Natural Resource Management Division of ICAR is conducting basic and strategic researches to develop technologies for conservation, management and sustainable utilization of the natural resources ensuring food, nutritional and environmental security in the country through 16 research institutes, 10 All India Coordinated Research Projects, 3 network projects and 2 Consortia Research Platforms namely on Water and Conservation Agriculture with a wide network of the Cooperating Centers and State Agricultural Universities.

- The NRM research programmes have been prioritized within the perspective of different themes, viz; Soil Inventory and Characterization, integrated Soil-Water-Nutrient Management, Watershed Management, Resource Conservation Technologies, Crop diversification, integrated weed management, integrated farming System including Agroforestry, dryland farming, arid, coastal and hill agriculture, abiotic stress management, climate resilient agriculture, conservation agriculture, waste water

utilization, solid waste management and applications of nanotechnology to enhance nutrient and water use efficiency.

- The Division is conducting research in farmers' participatory mode addressing issues at ground level and developing location specific, cost effective, eco-friendly, socially acceptable scientific farming practices keeping in view the farmers' resource availability, traditional indigenous technology knowhow and grass root farm innovations.

On the basis of above objectives, the overall attribution would be Indirect High (62.5%).

Source: http://www.icar.org.in/hi/natural-resource-management.htm

19. Climate Resilient Agriculture Initiative

The following are the objectives of the scheme:

- To enhance the resilience of Indian agriculture covering crops, livestock and fisheries to climatic variability and climate change through development and application of improved production and risk management technologies.
- To demonstrate site specific technology packages on farmers' fields for adapting to current climate risks.
- To enhance the capacity of scientists and other stakeholders in climate resilient agricultural research and its application.

As the schemes work for adaptation to climate change impacts, the attribution would be Indirect marginal 37.5%.

20. Animal Husbandry

The following are the objectives of the scheme:
The scheme refers to research in the field of animal husbandry such as livestock production, preservation, protection and improvement of stocks. Animal husbandry is the management and care of domesticated animals by humans, in which genetic qualities and behavior, considered to be advantageous to humans, are further developed. It also refers the practice of selective breeding and raising livestock to promote desirable traits in animals for utility, sport, pleasure or research.

Due to the significant contribution of agriculture to the emissions of non-CO2 greenhouse gases, such as methane and nitrous oxide, the relationship between humans and livestock is being analyzed for its potential to help mitigate climate change. Strategies for the mitigation include optimizing the use of gas produced from manure for energy production (biogas).

Animal Science Division of ICAR coordinates and monitors research activities in its 19 Research Institutes and their Regional Centers/Stations. The mission of this scheme is to facilitate need based research in ongoing and emerging areas of livestock and poultry sector to denote productivity increase, reduce gap between potential and actual yield, and to prepare the country for the challenges of globalization. The thrust areas of research

includes, Improvement of reproductive efficiency, Mitigation of green-house gas emissions from livestock, Adaptation strategies for climate change, Residual analysis of environmental and industrial pollutants (mycotoxin and drug residues).

On the basis of its relevance and contribution, the attribution is Indirect Medium (37.5%)

Source: http://www.icar.org.in/en/animal-science.htm

21. Fisheries

Objectives:
The scheme refers to research and training in the field of fisheries. DAR&E provides the necessary government linkages for the ICAR, the premier research organisation for co-ordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country.

The mission of the scheme is the Sustainable growth of Indian fisheries and aquaculture by interfacing research, education and extension resulting in a proper fit between the human needs and the habitat, with an important role in global fisheries.

Thrust Areas

- Capture Fisheries (Marine & Inland):
- Species-wise biological database of commercially exploited marine fish stock and estimate of existing fish yield.
- Meeting the challenges of responsible fisheries.
- Computer based models for fishery management in open waters.
- Developing marine and estuarine biodiversity database, formulating conservation and management action plan on GIS platform
- Using remote sensing technology, mapping potential inland fishery resources in the country incorporating information on production, dominant catch trends, species composition and ecological status.
- Impact of river linking on fish stocks, aquatic biodiversity and estimating environmental flows in river systems to sustain ecosystem properties and production.
- Generating long term data base on ecosystem ecology, responses of fish behaviour including physiology to climate extreme changes in inland and marine environments.
- Develop climate change action plan ensuring to minimize negative impacts and exploit new opportunities.
- Environmental impact assessment and bioremediation of stressed aquatic ecosystems
- Assessment and action plan for hill fishery resource management.
- Pilot-scale testing of appropriate management models for improving fisheries in reservoirs, lakes and floodplain wetlands.
- Addressing the issues related to safety at sea for fishers both in terms of policy and support
- Aquaculture: (Freshwater, Brackish water, Mari culture & Coldwater)
- Fish Genetics & Biotechnology
- Harvest & Post- harvest

- Fishery Engineering
- Fishery Education
- Human Resource Development in emerging areas of fishery, aquaculture, harvest-post harvest, processing, aquaculture engineering, aquatic environment and agri-business management.
- Documenting entire information on fisheries and aquaculture in the country for providing inputs to policy and governance.

On the basis of its relevance and contribution, the attribution is Indirect Medium (37.5%)

Source: http://www.icar.org.in/en/fisheries.html

2. Department of Atomic Energy

DAE has been engaged in the development of nuclear power technology, applications of radiation technologies in the fields of agriculture, medicine, industry and basic research.

22. Bhabha Atomic Research Centre (BARC)

There are 11 R&D activities under BARC, out of which 3 activities are biodiversity relevant. The attribution of BARC has already been classified under RIO Marker category 'Indirect Marginal' i.e. 2.5% (0.025). Hence attribution can be calculated as: (3/11) x 0.025= 0.27x0.025= 0.0068 or 0.68%

3. Ministry of AYUSH

23. National Medicinal Plant Board

There are 6 components of the NMPB which are relevant to Biodiversity, *viz.,* Conservation, Research and Development, IEC and Training, Herbal Garden, Marketing and Trade, International Cooperation. Hence the attribution is Indirect Very High (82.5%)

24. National Mission on medicinal plants*

Objectives: Supporting cultivation of medicinal plants on private land.
Components: Backward linkages through establishment of nurseries; forward linkages through post-harvest management, marketing infrastructure, certification. Hence overall attribution would be Indirect Very High (82.5%)

*This scheme is presently being implemented as a component of National AYUSH Mission

25. National Mission on AYUSH

Objectives: To provide cost effective AYUSH healthcare services, strengthen institutional capacity and support cultivation of medicinal plants
Components: AYUSH services; AYUSH educational institutions; quality control of ASU&H drugs; medicinal plants plus flexible components

Hence overall attribution- Indirect Very High (82.5%)

26. TKDL and AYUSH Intellectual Property Rights

Traditional Knowledge Digital Library (TKDL) is a collaborative project between Council of Scientific and Industrial Research (CSIR), Ministry of Science and Technology and Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Ministry of Health and Family Welfare. TKDL involves documentation of the knowledge available in public domain on traditional knowledge from the existing literature related to Ayurveda, Unani and Siddha in digitized format, in five international languages which are English, French, German, Spanish and Japanese.

Hence, the overall attribution is Indirect very high (82.5%).

Source: http://www.ayush.gov.in/traditional-knowledge-digital-library

4. Ministry of Chemicals and Fertilizers

4.1 Department of Chemicals and Petrochemicals

27. Other New Schemes of Petrochemicals

There are two components, out of which one component i.e. scheme of setting up of dedicated plastic parks leads to recycling of the plastic products developing an ecosystem for plastic industry is indirectly relevant, its relevance of reusing and recycling of plastics can benefit the environment, fall under indirect low, hence the attribution is: (1/2) x 15% = 7.5%

Source: https://dea.gov.in/sites/default/files/OutcomeBudgetE2017_2018.pdf

5. Ministry of Coal

28. Conservation Safety and Infrastructure Development in Coal Mines

There are three components are under this scheme:

- Environmental Measures and Subsistence Control: Provision is for carrying out environmental protection measures including land reclamation and subsidence control in the coalfield areas as per the approved Master Plan for Jharia and Raniganj.
- Conservation and Safety in Coal Mines: It includes provision for the various stowing and conservation measures to stabilize the mines after extraction of coal. Expenditure is met from the cess (excise duty) on coal dispatched at the rate of 10 per tonne on non-cooking and cooking coal under the Coal Mines (Conservation and Development) Act, 1974.
- Development of Transport Infrastructure in coal field areas.

This scheme works for the reclamation of land after the mining has been practiced to decrease its harmful impact on the surrounding environment fall under 'Indirect Marginal' and attribution can be calculated as: (2/3) x 2.5%= 1.67%

Source: https://coal.nic.in/sites/upload_files/coal/files/coalupload/AnnualReport1718.pdf

29. Research & Development Programme

The R&D projects are covered under 4 thematic areas viz. improvement in production, productivity & safety in coal mines, coal beneficiation, coal utilization and protection of environment & ecology.

Following projects were carried out under the scheme:

Sustainable livelihood activities on reclaimed opencast coal mines: a technology enabled integrated approach in Indian coal sector- The prime aim of the project is to develop permanent green cover on overburden dumps / backfilled mined land areas for eco-friendly mine reclamation, utilization of reclaimed land to develop entrepreneurship and vocational skills among local community for empowerment in and around the project affected areas and to promote local economic growth by driving income generation activities.

This scheme focuses on the protection of environment and ecology to offset the impact of mining fall under Indirect low (15 %). The research on environmental measures constitutes one of the four thematic areas, hence the overall attribution: = (1/4) x 15% = 3.75%

6. Ministry of Commerce and Industry

30. Marine Product Export Development Authority (MPEDA)

Objective: To develop seafood industry in India with special reference to exports.

Components: Functions of MPEDA include implementing schemes to extend financial assistance for infrastructure development; Preservation and processing; market promotion, training and R&D.

Of the 28 schemes operated by MPEDA as of 2017, only 4 schemes are biodiversity relevant, installation of Turtle Excluder Device (TEDs) in fishing trawlers, financial assistance for setting up Effluent Treatment Plants (ETP) in shrimp farms, similar assistance for ETP in shrimp hatcheries and financial assistance for ornamental fish breeding units; hence overall attribution would be 15% under indirect low category.

31. Agriculture Product Export Development Authority (APEDA)

There are 7 APEDA Products, out of which only one for Organic Products and there are 3 components of APEDA Scheme, out of which 2 are relevant for promotion of Export of Organic Products. Then final attribution can be calculated by multiplying 82.5%- Indirect very high of Organic Farming attribution: (1/7) x (2/3) x 0.825 = 0.1428 x 0.667 x 0.825 = 0.0785 or 7.85%

32. Plantations

The scheme focuses on the plantation of Tea, Coffee, Spices, Rubber and also addresses the twin risks of weather and prices arising from yield loss due to adverse weather parameters, pest attacks, failure of crops etc. and from income loss caused by fall in international/ domestic prices through crop insurance, thereby stabilizing income of

growers to ensure their sustainability through its scheme of Revenue Insurance Scheme for Plantation Crops (RISPC), hence overall attribution will be Indirect Low (15%).

7. Ministry of Communication and Information Technology

33. National Knowledge Network

Objective: To establish a strong and robust network to provide secure and reliable connectivity.

Components: Establishing high speed backbone connectivity; Enabling collaborative research, etc; Facilitating different sectoral networks, links to global networks and distance learning.

Although intended to improve access to knowledge and usher in a Knowledge Society, by way of enabling distance learning and collaborative research, there could be biodiversity related benefits in terms of access to data, education and research, hence minimal relevance and attribution would be under indirect marginal (2.5%).

8. Ministry of Culture

34. National Council of Science Museum, Kolkata

There are following 8 objectives/components of the NCSM Kolkata:

1. To portray the growth of science and technology and their applications in industry and human welfare, with a view to develop scientific attitude and temper and to create, inculcate and sustain a general awareness amongst the people
2. To collect, restore and preserve important historical objects, which represent landmarks in the development of science, technology and industry
3. To design, develop and fabricate science museum exhibits, demonstration equipment and scientific teaching aids for science education and popularization of science
4. To popularize science and technology in cities, urban and rural areas for the benefit of students and for the common man by organizing exhibitions, seminars, popular lectures, science camps and various other programs
5. To supplement science education given in schools and colleges and to organize various out-of-school educational activities to foster a spirit of scientific enquiry and creativity among the students
6. To organize training programs for science teachers/students/young entrepreneurs/technicians/ handicapped/housewives and others on specific subjects of science, technology and industry
7. To render assistance to universities, technical institutions, museums, schools and colleges or other bodies in planning and organizing science museums and also in training of personnel for museum profession
8. To establish Centres for development of science exhibits and demonstration aids

The scheme works towards creating awareness about science including environment, fall under Indirect Low (15%). Out of 8 components, 3 components might lead to increased awareness in the field of environment so the overall attribution: (3/8) x 15% = 5.62%

Source: http://ncsm.gov.in/objectives-2/

35. Science Cities

There are following 8 objectives/components of the 'Science Cities'

1. To portray the growth of science and technology and their applications in industry and human welfare, with a view to develop scientific attitude and temper and to create, inculcate and sustain a general awareness amongst the people.
2. To popularize science and technology in cities, urban and rural areas for the benefit of students and for the common man by organizing exhibitions, seminars, popular lectures, science camps and various other programs.
3. To promote and enhance public understanding of the culture of science and technology.
4. To supplement science education given in schools and colleges and to organize various out-of-school educational activities to foster a spirit of scientific enquiry and creativity among the students.
5. To design, develop and fabricate science museum exhibits, demonstration equipment and scientific teaching aids for science education and popularization of science.
6. To organize training programmes for science teachers /students /young entrepreneurs/technicians/physically challenged/housewives and others on specific subjects of science, technology and industry.

The scheme works towards creating awareness about science including environment, fall under Indirect Low (15%). Out of 8 components, 4 components might lead to increased awareness in the field of environment so the overall attribution: (4/6) x 15% = 9.99% or 10%

9. Ministry of Development of North Eastern Region

36. Organic Farming in NE states

The following are the objectives of the scheme:
The National Project on Organic Framing & Value Chain Development is a new initiative specifically for the North East. The Programme is under implementation by the Ministry of Agriculture & Farmer's Welfare with coordinating support from Ministry of DoNER. The declaration of Sikkim as the first Organic State of India has opened up new vistas for start-up initiatives in organic farming in Northeast, hence the overall attribution is Indirect Very High (82.5%)

37. Schemes for North Eastern Council

The scheme ensures integrated socioeconomic development of the eight States of North Eastern Region including Sikkim. The objectives, inter-alia, include balanced development

of the North Eastern Region. The provision also includes expenditure of the Secretariat of North Eastern Council, Shillong.

There are 11 sectors under NEC- Agriculture and Allied; Evaluation and Monitoring; Human Resource Development and Employment; Industries, Information, Public Relations and Culture; Irrigation, Flood Control and Watershed Management; Medical and Health; Power and Renewable Resources of Energy; Science and Technology; Tourism; Transport and Communication; out of which 4 are relevant sectors. These sectors contribute towards the biodiversity conservation indirectly, fall under Indirect low, hence the attribution can be calculated as: (4/11) x 15% = 5.45%

10. Ministry of Drinking Water and Sanitation

38. National Rural Drinking Water Programme

Objective: Supply of drinking water to all rural households, piped water to Open Defecation Free (ODF) villages.

Components: Supply of water including piped water to ODF villages; measures for sustainability of water supply

Sustainability component involving water harvesting and groundwater recharge – 10% of project budget – indirect very high (82.5%); rest of the components are relevant only as complementary (50% of expenditure) to SBM which has been assigned an attribution of 20.6% as seen above; hence, attribution = 0.1 X 0.825 + 0.9 X 0.5 x 0.206 = 0.1752 (17.52%)

39. Nirmal Bharat Abhiyan/ Swachh Bharat Mission (SBM)

The scheme has two wings, SBM Rural and SBM Urban, of which the objectives are:

SBM Urban: Eliminate ODF and manual scavenging, scientific management of Solid Waste Management
Components SBM Urban: Individual Household level, community level toilets, public toilets, SWM

SBM Rural: Extend 100% sanitation coverage, eliminate ODF, scientific SLWM
Components SBM Rural: Household and community toilets, SLWM

The scheme helps in reducing non-point sources polluting rivers/ water bodies, which is a secondary benefit treating 25% relevance and conservation of surface water bodies being indirect very high category, the attribution would be 0.25 x 0.825 = 0.206 (20.6%),

11. Ministry of Earth Sciences

40. Oceanographic Survey and Marine Living Resources

The Oceanographic Research Vessel (ORV)-Sagar Kanya and Fisheries Oceanographic Research Vessel (FORV)-Sagar Sampada have been primary platforms for conducting multi-disciplinary Oceanographic Research and Surveys for the exploration of both living and non-living resources under the Exclusive Economic Zone (EEZ) including Central Indian

Ocean Basin and Southern Ocean. The Marine Living Resources (MLR) Programme was initiated towards assessment of the fishery resources and explaining the physical and biological interactions. The assessment surveys and monitoring activities under these programmes are essential to harvest exploitable resources from the Indian EEZ. The Centre for Marine Living Resources and Ecology (CMLRE) has estimated systematically fish potential in India EEZ of 4.32 MTA, using Satellite and in-situ data.

The scheme has already been classified under 'indirect high' (62.5%) attribution. There are 10 components under this scheme, out of which 8 components *viz.*, 1) Assessment of deep-sea and distant water fisheries, 2) Monitoring of the environment and productivity patterns in the Indian EEZ, 3) Monitoring and surveillance of harmful algal bloom (HAB), 4) Studies on the benthos of the slope area (200 –1000m), 5) Hatchery production of black pearl, 6) Preparation of antifouling compounds, 7) Assessment of myctophid resources in the Arabian sea and 8) Southern ocean marine living resources (MLR) are relevant to biodiversity, therefore attribution would be: (8/10) x 62.5% = 50%

Source:

1. https://www.indiabudget.gov.in/ub2018-19/eb/sbe25.pdf,
2. http://www.moes.gov.in/writereaddata/files/archive/perform_budget/Performance_%20budget_09-10-FINAL.pdf

41. Ocean Science Services

Following are the Programmes under Ocean Science Services:

1) Coastal Research
2) Early Warning System for Tsunami and Storm Surges
3) Integrated Ocean Information Services
4) Monitoring and Modeling of Marine Ecosystems (MMME)
5) Marine Living Resources Programe (MLRP)
6) Ocean Research and Modeling

Out of 6, programmes, only 3 are relevant to biodiversity *viz.,* Coastal Research, Monitoring and Modeling of Marine Ecosystems (MMME) and Marine Living Resources Program (MLRP). The scheme was given an attribution of 82.5% and based on the relevance of programmes under it the overall attribution of the scheme is: (3/6) x 82.5% = 41.25%

Source: http://www.moes.gov.in/content/ocean-science-services

42. Ocean Survey and Mineral Resources

Programmes under Ocean Survey and Mineral Resources:

1) Delineation of the outer limits of the Indian continental shelf
2) Environmental Impact Assessment (EIA)
3) Extractive Metallurgy

4) Geo scientific studies of the Indian Exclusive Economic Zone
5) Polymetallic Nodules Programme (PMN)
6) Gas Hydrates (monitoring and management of environmental perturbation during harvesting of gas hydrate)
7) Studies on Cobalt Crust
8) Studies on Hydrothermal Sulphides

Out of 8, only two programmes are relevant to biodiversity i.e., Environment Impact Assessment and Gas Hydrate and the scheme already mapped in indirect medium, hence attribution would be: (2/8) x 37.5% = 9.37%

43. Polar Science and Cryosphere

There are following 6 Programmes under Polar Science and Cryosphere:

1) Construction of Polar Research Vessel
2) Construction of the third research base in Antarctica
3) Indian Scientific Endeavors in the Arctic
4) Polar Expeditions - Antarctica
5) Replacement of Maitri station
6) Southern Ocean

Out of 6 programmes, only two programmes are biodiversity relevant, the details of these programmes are given below:

A. Indian Scientific Endeavors in the Arctic

1) Continuation of the scientific programs in the Arctic in the fields of atmospheric sciences, climate change, geoscience and glaciology, and polar biology.
2) Ensuring a prominent and sustained presence of India in the Arctic through initiation of scientific research in some of the frontier realms of polar science.

B. Polar Expeditions - Antarctica

1) Continuation of the scientific programs in the Antarctica in the fields of atmospheric sciences, climate change, geoscience and glaciology, human physiology and medicine, polar biology and environmental science.
2) Initiating novel programmes in the frontier realms of polar science, viz. Assessment of microbial diversity in Arctic and Antarctic: Past and Present; Environmental monitoring and health of the Indian Antarctic Stations in pursuit of Antarctica-Treaty-System and its governance; Long-term monitoring and modeling of precipitation over Antarctica; and Satellite-based monitoring Antarctic sea ice and land ice topography, with special focus on glaciers.

3) Ensuring a prominent and sustained presence of India in the Antarctica through initiation of scientific research in some of the frontier realms of polar science including paleo-climate reconstruction from the Antarctic coastal water.
4) Continue to play a lead role amongst the nations with a sustained presence in Antarctica.

Considering the overall relevance of the scheme, the attribution assigned as indirect medium- 37.5%.

44. Ocean Technology- marine biotechnology

The scheme has following 10 programmes:

1) Coastal circulation, sediment transport, and Shoreline changes
2) Development of Deep Sea Mining Machine
3) Manned and Unmanned Underwater Vehicles
4) Marine Bio-technology
5) Marine sensors, Electronics & Ocean Acoustics
6) Ocean Energy and Fresh Water
7) Offshore structures & Numerical Offshore tank
8) Seafront Facility
9) Technical Criteria Atlas
10) Technologies for Development of Island community

Only two programmes are indirectly relevant to biodiversity, objectives of which are given below:

A. Marine Bio-technology:

1) Development of technology for collection, isolation and characterization of deep sea barotolerant and basophilic bacteria and their mass culture.
2) Identification of novel biomolecules and genes through metagenomics approach
3) Collection and isolation of lutein accumulating microalgal strains from marine environment.
4) Mass culture of the prospective candidate species for the production of lutein.
5) Development of newer materials and nanoparticles with antifouling property.
6) Testing ballast water, validation and certification of ballast water treatment systems
7) Anti-biofouling measures through plasma pulse field generation for inactivation of biofilm forming bacteria.
8) Development of a complete package of breeding, larval rearing, seed production and demonstration of fin fish culture at open sea cages
9) Development of technology for collection, isolation and characterization of barotolerant and barophilic bacteria and their mass culture. Identification of novel biomolecules and genes through metagenomics approach.

10) Isolation, purification and characterization of bioplastics and nutraceuticals (EPA, DHA, etc.) from marine microalgae, macro algae and blue green algae
11) Establishment of a land based testing facility for the ballast water management systems.
12) Training of manpower in basic scuba diving skills at various levels for biological and engineering applications.

B. Technologies for Development of Island community:

1) To develop an island community with the following activities.
2) Desalination plants for water supply to the island community
3) Renewable energy units
4) Development of sea cages of various sizes and shapes to suit islands.
5) Formulation of quality feed to support the offshore fin fish farming.
6) Increase of demersal fisheries through emplacement of artificial reefs.
7) Production of bio crude and bio fuel marine microalgae and macro algae.
8) To increasing species diversity or in conserving a unique habitat intact for future generations.

Only one objective of the first programme and 3 objectives of second programme are relevant to biodiversity. Hence, the overall attribution for the scheme has been calculated as: (1/12) x 2.5% + (3/8) x 37.5% = 0.20 + 14.06 = 14.26%

45. Research, Education, Training & Outreach

There are following 8 programmes running under this scheme:

1) Centre for Advanced Training in Earth System Sciences and Climate (CAT ESSC)
2) Earth Science and Technology Cells (ESTC)
3) Establishment of India Africa Centre for Medium Range Weather Prediction
4) National Oceanarium
5) Outreach & Awareness
6) Research and Capacity Building
7) Training Centre for Operational Oceanography
8) Training in Operational Meteorology

Out of 8 programmes, only 3 are relevant to biodiversity; outlined above, fall under Indirect Medium (37.5%). Hence the overall attribution for the scheme can be calculated as: (3/8) x 37.5% = 14.06%

Source: http://www.moes.gov.in/programmes/coastal-research

12. Ministry of Environment, Forest and Climate Change

Ministry of Environment, Forest and Climate Change (MoEFCC) is the core ministry, having prime responsibility of biodiversity conservation through its various programmes and schemes by in-situ and ex-situ conservation. Considering the core Ministry, all the schemes have been taken under 'Direct' category of attribution (90-100% range and average midpoint target is 95%). The identification of unit scheme has been taken at major head and minor head level, thus a total of following 19 schemes have been reported:

46. Secretariat (MOEFCC)
47. Education & Training
48. Research
49. Ecology and Environment
50. Survey and Utilisation of Forest Resources
51. Forest Conservation Development & Regeneration
52. Communications and buildings
53. Wildlife Preservation
54. Zoological Parks
55. International Cooperation
56. National Afforestation and Ecodevelopment Programme
57. Grants to North Eastern Areas under various programme
58. Botanical Survey of India
59. Zoological Survey of India
60. Ecological Research and Ecological Restoration
61. Prevention and Control of Pollution
62. Other Programme of Forestry & Wildlife
63. Grants to State Governments under various Programmes
64. Grants to Union Territory Governments under various Programmes

13. Ministry of Home Affairs

Since, Ministry of Home Affairs sanctions the grants to all 7 Union Territories (UTs) of Government of India. UTs also have similar federal structure like other State Govt. in setting of various Departments to implement Schemes of Central Government. There are two UTs *viz.*, Delhi and Pudduchery have their own legislature, where as other 5 UTs have no own legislature.

Following two schemes *viz.,* JNNUrM and RKVY (Scheme No. 72 & 73) have been identified under Volume – I of Detailed Demand for Grant of Ministry of Home Affairs under Transfer to UTs with legislature.

Whereas from Scheme No. 74 to 78 have been identified in volume– II of Detailed Demand for Grant of the Ministry of Home Affairs, under 'Transfer to UTs without legislature'. There are 5 key Departments of 5 UTs have been taken as biodiversity relevant and the expenditure figures have been taken for all major heads of these

Departments. Further attribution has been applied based on the major aims and objectives of these Departments.

65. Transfers to Union Territories (UTs) with Legislature under Jawaharlal Nehru National Urban Renewal Mission

The scheme JNNUrM is an umbrella scheme with the sewerage and sanitation is the major aim under Urban Infrastructure & Governance (UIG). Here the attribution can be calculated based on the actual allocation data available in the components relevant to biodiversity in the table below:

Table: Sector wise allocations under JNNURM (Urban Infrastructure & Governance-UIG) (Data as on 04.09.2018 and Rs. in Lakhs)

S. No.	Sector	No of Projects	Approved Cost	Total Additional Central Assistance (ACA) Commitments	Total ACA Released	Total State Share Commitment
1.	Drainage / Storm Water Drains	78	910348.37	372984.09	268319.01	167731.47
2.	Roads / Flyovers / RoB	106	845371.13	349085.72	230637.54	127897.45
3.	Water Supply	190	2319972.33	1137000.32	779249.30	395004.33
4.	Urban Renewal	10	46445.28	19249.12	9765.35	7075.92
5.	Sewerage	131	1750025.98	816243.19	487278.48	284235.61
6.	Other Urban Transport	17	79064.82	37158.51	26976.28	11585.87
7.	Mass Rapid Transport System	24	620333.04	285839.16	185706.65	119987.29
8.	Solid Waste Management	46	211021.81	112365.96	71991.56	35667.11
9.	Parking lots and spaces on PPP basis	5	86042.43	33728.19	10336.01	12934.24
10.	Development of Heritage Areas	7	22542.60	14412.02	7507.83	2656.71
11.	Preservation of water bodies	4	11670.54	6861.22	5667.27	2077.63
	Total	**618**	**69,02,838.33**	**31,84,927.48**	**20,83,435.28**	**11,66,853.63**

Cumulative Additional Central Assistance (ACA) released for 2 biodiversity relevant components i.e. Sewerage (S. No. 5) is Rs. 4873 Crore and for Preservation of water bodies (Sr. No. 11) is Rs. 56 Crore and these 2 components are already mapped under indirect very high biodiversity relevance (0.825), hence final attribution can be calculated as:

Rs. 4873 Crore +Rs. 56 Crore/ Rs. 20834 Crore = 23.66% (0.2366)

0.825 x 0.2366 = 0.1952 (19.52%)

66. Transfers to Union Territories (UTs) with Legislature under Rashtriya Krishi Vikas Yojana

The scheme is the flagship scheme of Agriculture Ministry for holistic development of agriculture and allied sectors. The Components/ Permissible limits are: Production growth including distribution of inputs; IPM; infrastructure including labs and storages; RKVY special schemes; Flexi-fund; permissible activities include water and soil conservation, minor/micro irrigation, setting up labs/production units to produce bio-control agents and bio-fertilizers

About 11.5% (10/87) of the permissible activities are in the nature of IWSM, NRM which come under indirect medium (37.5%); about 5.7% (5/87) of activities are organic farming related and fall under indirect very high (82.5%); hence overall attribution = 0.375 x 0.115 + 0.825 x 0.057 = 0.0901 (9.01%).

67. Transfers to Union Territories without Legislature under Department of Agriculture (All 5 UTs)

Department of Agriculture has following objectives:

- Supply of adequate irrigation water from the deep-bore tube-wells.
- Arranging of farmers study tours/camps.
- Supply of ornamental fruit plants, seeds and seeds and seedling of flowers and vegetables on reasonable cost.
- Extensive Inter Crop Management
- Human Resource Development in Agriculture
- Integrated Pests & Disease Management
- Agricultural Engineering Services
- Research & Development
- Land Development & Water Conservation Management

The attribution for the Agriculture Department taken as average of all schemes under Ministry of Agriculture i.e. 29.60%

68. Transfers to Union Territories without Legislature under Department of Rural Development (All 5 UTs)

Department of Rural Development plays a pivotal role in the overall development strategy. The vision and mission is sustainable and inclusive growth of rural India through a multipronged strategy for eradication of poverty by increasing livelihoods opportunities, providing social safety net and developing infrastructure for growth. This is expected to improve quality of life in rural India and to correct the developmental imbalances, aiming in the process, to reach out to most disadvantaged sections of the society.

Department of Rural Development has following objectives, based on which the overall attribution taken as Indirect Marginal (2.5%).

- Improvement of livelihood opportunities and better facilities for rural communities in the field of agriculture, industry, communication, education, health and allied sectors.
- Major Flagship schemes are, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) for providing wage employment, National Rural Livelihoods Mission (NRLM) for self-employment and skill development, Indira Awaas Yojana (IAY) for providing housing to BPL households, Pradhan Mantri Gram Sadak Yojana (PMGSY) for construction of quality roads, National Social Assistance Programme (NSAP) for social pension, Integrated Watershed Management Programme (IWMP) for improving the productivity of the land.

69. Transfers to Union Territories without Legislature under Department of Higher Education (All 5 UTs)

Department of Higher Education has following objectives, based on which the overall attribution taken as Indirect Marginal (2.5%).

- Emphasizes to promote reforms in the State Higher Education System by creating an institutional structure for planning and monitoring at the State level.
- Provide equal development to all higher institutions and rectify weaknesses in the higher education system and have a sharper focus on equity-based development and improvement in teaching-learning quality and research.
- Aim to prepare skilled human resource with rich moral and social values so that the youth can give their best in national building.

70. Transfers to Union Territories without Legislature under Department of Environment & Forest (All 5 UTs)

Department of Environment & Forest is the core Department for biodiversity conservation and has following objectives, based on which the attribution taken as Direct (95%).

- Formulation and implementation of policies and programmes for conservation, protection, and management of the forests and wildlife in the territory.
- Meeting local requirement of forest produce through sustainable utilization of forest resources.
- Implementing provisions of the Indian Forest Act, 1927, the Wildlife (Protection) Act, 1972, the Forest Conservation Act, 1980 and the Environment Protection Act, 1986 including the Coastal Regulation Zone Notification, 1991.
- Promoting research in forestry and wildlife.
- Human resource development through capacity building.
- Awareness generation by educating people and promoting eco-tourism and people's participation.

71. Transfers to Union Territories without Legislature under Department of Water Resources (All 5 UTs)

Department of Water Resources is one of the key Ministry implementing schemes related to biodiversity conservation and has following objectives, based on which the overall attribution taken as Indirect High (62.5%)

- To develop and disseminate technologies, and monitor and implement national policies for the scientific and sustainable development and management of India's ground water resources, including their exploration, assessment, conservation, augmentation, protection from pollution and distribution, based on principles of economic and ecological efficiency and equity.
- To carry out scientific surveys, exploration, monitoring of development, management and regulation of country's vast ground water resources for irrigation, drinking, domestic and industrial needs.

14. Ministry of Housing and Urban Affairs

Government of India has merged the Ministry of Urban Development and Ministry of Housing And Urban Poverty Alleviation into one ministry and now it is known as Ministry of Housing and Urban Affairs (MoHUA)

Now, following are the 3 schemes including both the ministries are under operation:

72. Jawaharlal Nehru National Urban Renewal Mission

The scheme JNNUrM is an umbrella scheme with the sewerage and sanitation is the major aim under Urban Infrastructure & Governance (UIG). Here the attribution can be calculated based on the actual allocation data available in the components relevant to biodiversity in the table below:

Table: Sector wise allocations under JNNURM (Urban Infrastructure & Governance-UIG) (Data as on 04.09.2018 and Rs. in Lakhs)

S. No.	Sector	No of Projects	Approved Cost	Total Additional Central Assistance (ACA) Commitments	Total ACA Released	Total State Share Commitment
12.	Drainage / Storm Water Drains	78	910348.37	372984.09	268319.01	167731.47
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16.	Sewerage	131	1750025.98	816243.19	487278.48	284235.61
17.	Other Urban Transport	17	79064.82	37158.51	26976.28	11585.87
18.	Mass Rapid Transport System	24	620333.04	285839.16	185706.65	119987.29
19.	Solid Waste Management	46	211021.81	112365.96	71991.56	35667.11

20.	Parking lots and spaces on PPP basis	5	86042.43	33728.19	10336.01	12934.24
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	Total	**618**	**69,02,838.33**	**31,84,927.48**	**20,83,435.28**	**11,66,853.63**

Cumulative Additional Central Assistance (ACA) released for 2 biodiversity relevant components i.e. Sewerage (S. No. 5) is Rs. 4873 Crore and for Preservation of water bodies (Sr. No. 11) is Rs. 56 Crore and these 2 components are already mapped under indirect very high biodiversity relevance (0.825), hence final attribution can be calculated as:

Rs. 4873 Crore +Rs. 56 Crore/ Rs. 20834 Crore = 23.66% (0.2366)

0.825 x 0.2366 = 0.1952 (19.52%)

73. Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

The Government of India has launched the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in 2015-16 with the aim of providing basic civic amenities like water supply, sewerage, urban transport, parks as to improve the quality of life for all especially the poor and the disadvantaged.

Here the attribution can be calculated based on the actual allocation data available in the components relevant to biodiversity in the table below:

Table: Approved State Annual Action Plans (SAAPs) Sector-wise breakup (Rs in Crore)

Approved Cost				**Sector-wise breakup**				
Year	**Central Share**	**State Share**	**Total**	**Water Amount (No.)**	**Sewerage Amount (No.)**	**Drainage Amount (No.)**	**Urban Transport Amount (No.)**	**Parks Amount (No.)**
SAAP-I	9,894	10,779	20,672	13,307 (398)	6,279 (292)	372 (64)	266 (79)	448 (636)
SAAP-II	11,848	13,334	25,182	12,615 (445)	10,576 (259)	923 (123)	512 (127)	557 (644)
SAAP-III	14,248	17,538	31,786	13,089 (365)	15,601 (285)	1,674 (172)	658 (142)	763 (641)
	35,990	**41,650**	**77,640**	**39,011 (1,208)**	**32,456 (836)**	**2,969 (359)**	**1,436 (348)**	**1,768 (1,921)**

In the table above, two components i.e. 'Sewerage' and 'Parks' are considered relevant to biodiversity; Sewerage fall under indirect very high 82.5 % and parks under indirect medium 37.5%. Hence, attribution of AMRUT can be calculated as:

Approved cost of 'Sewerage works' as percentage of total approved cost of projects under AMRUT = Rs. 32456 Crore / Rs. 77640 Crore = 0.418.

Approved cost of 'Parks' as percentage of the total approved cost of projects under AMRUT = Rs. 1768 Crore/ Rs. 77640 Core = 0.023

0.418 x 0.825 + 0.023 x 0.375 = 0.3449 + 0.008625 = 0.3535 (35.35 %)

74. Swachh Bharat Mission

The scheme has two wings, SBM Rural and SBM Urban, of which the objectives are:

SBM Urban: Eliminate ODF and manual scavenging, scientific management of Solid Waste Management
Components SBM Urban: Individual Household level, community level toilets, public toilets, SWM

SBM Rural: Extend 100% sanitation coverage, eliminate ODF, scientific SLWM
Components SBM Rural: Household and community toilets, SLWM

The scheme helps in reducing non-point sources polluting rivers/ water bodies, which is a secondary benefit treating 25% relevance and conservation of surface water bodies being indirect very high category, the attribution would be 0.25 x 0.825 = 0.206 (20.6%),

15. Ministry of Human Resource Development

15.1 Department of Higher Education

75. University Grants Commission

Components: Expand access to higher education; promote inclusive higher education through equal access to all groups

It is seen from the annual report of UGC, 2016-17, support to biodiversity relevant activities is very limited – support to Centres working on biodiversity/ related topics in 3 universities; joint research proposals/ collaboration of Indian and US, New Zealand and Norway universities, promoting research on environment, bio-technology; major research projects of teachers in environment and bio-technology; university with potential for excellence in bio-technology; for 2016-17, the total approved 12th Plan approved allocation is Rs.19,800 Crs.; the biodiversity relevance could at the most be indirect marginal, 2.5%.

16. Ministry of New and Renewable Energy

76. Grid Interactive Renewable Power

Objective: Supply of renewable energy to grid based on favourable tariff policy regimes established by State Electricity Regulatory Commissions (SERCs)

Components: Generation of competitively priced, grid-interactive power from the Wind, Bio-power, Small Hydro and Solar

The focus of the scheme is Climate change mitigation, hence Indirect Marginal- 2.5%

77. Off Grid/ Distributed and Decentralized Renewable

Objectives: To meet energy requirements of isolated communities and areas not likely to be electrified in near future

Components: To provide R&D support to such systems to improve reliability and cost-effectiveness; demonstration, field testing and strengthening manufacturing base;

The focus of the scheme is Climate change mitigation, hence Indirect Marginal- 2.5%

78. Renewable Energy for Rural Application

The Ministry has been supporting programmes for the deployment of renewable energy systems and devices such as biogas plants, photovoltaic systems, biomass gasifiers, solar cookers and solar thermal systems etc for rural and semi-rural applications.

The focus of the scheme is Climate change mitigation, hence Indirect Marginal- 2.5%

Source: https://mnre.gov.in/file-manager/annual-report/2017-2018/EN/pdf/chapter-6.pdf

79. Research, Design and Development in Renewable Energy

This scheme works towards Climate Change mitigation, so indirect marginal 2.5%

80. Renewable Energy for Urban, Industrial and Commercial

This scheme works towards Climate Change mitigation, so indirect marginal 2.5%

17. Ministry of Planning (NITI Aayog)

81. National Rainfed Area Authority

The broad contours of the Authority's work are:

k) Identify best practices for rainfed agriculture available across different research organizations & academic institutions and collation for development of rainfed and vulnerable districts across the country on a sustainable basis.
l) Develop area specific farming systems for critically vulnerable 150 districts on priority to make agriculture sustainable and profitable;
m) Pilot best practices in these districts to demonstrate their efficacy and lay a roadmap for scaling up across all vulnerable districts;
n) Develop various modules for master trainers, farming system, water budgeting and accounting for these areas.
o) Assist States and UTs in revisiting the District Irrigating Plans (DIPs), if required, from the perspective of addressing specific concerns of highly vulnerable districts.;
p) Assist States & UTs in preparation of Annual Action Plan for implementing "Pradhan Mantri Krishi Sinchayee Yojna" (PMKSY), so as to bring focus on prioritized operational area and cluster based irrigation chain development.
q) Set an appropriate research agenda including a critical appraisal of ongoing programmes.

r) Suggest short & long term plans for sustainable development of rainfed area by promoting water use efficiency and harvest the advantages of 'per drop more crop'
s) Monitor and supervise programme implementation in identified 150 critically vulnerable drought prone districts in particular and all other districts at large
t) Identify and recommend various agro-forestry models suitable for vulnerable districts across the country

Area of Focus:

- Focus on convergence, coordination, value addition, capacity building and monitoring & evaluation
- Meeting challenges of emerging policies, technologies, marketing, social and economic changes
- IT enabled project planning and management
- Enabling institutions for effective governance and service delivery
- Pilot projects for upgrading rainfed system in selected high priority areas

The scheme works towards reducing the vulnerability of the rainfed area from degradation and helps in climate change adaptation and increase its efficiency through agricultural programme and practices, fall indirect medium- 37.5%, hence attribution can be calculated as: (6/10) x 37.5% + (2/5) x 37.5% = 22.5+15 = 37.5%

Source: http://nraa.gov.in/cindex.php

18. Ministry of Power

82. Energy Conservation

The following 2 programmes have been implemented under this scheme:

(a) Energy Conservation awareness, Paining Competition and national EC Award
(b) National Mission on Enhanced Energy Efficiency, Bachat Lamp Yojana and Super Efficient Equipment Programme

The Energy Conservation Act (EC Act) was enacted in 2001 with the goal of reducing energy intensity of Indian economy. The Act provides regulatory mandate for: standards & labeling of equipment and appliances; energy conservation building codes for commercial buildings; and energy consumption norms for energy intensive industries. In addition, the Act enjoins the Central Govt. and the Bureau to take steps to facilitate and promote energy efficiency in all sectors of the economy. The Act also directs states to designate agencies for the implementation of the Act and promotion of energy efficiency in the state.

The above programmes and functions ultimately help in climate change mitigation; hence attribution would be indirect marginal 2.5%.

83. Beauro of Energy Efficiency

Bureau of Energy Efficiency (BEE) was set up as the statutory body on 1st March 2002 at the central level to facilitate the implementation of the Energy Conservation Act with the prime objective is to stimulate reduction of energy intensity of Indian economy. Under the Energy Conservation Programme the funds are provided for carrying out awareness creation on Energy Conservation through print, electronic and other media for general public.

Ministry of Power, through Bureau of Energy Efficiency (BEE), has initiated a number of energy efficiency initiatives in the areas of household lighting, commercial buildings, standards and labelling of appliances, demand side management in agriculture/municipalities, SME's and large industries including the initiation of the process for development of energy consumption norms for industrial sub sectors, capacity building of SDA's etc.

The above programmes and functions ultimately help in climate change mitigation; hence attribution would be indirect marginal 2.5%.

19. Ministry of Rural Development

19.1 Department of Land Resources (DLR)

84. Pradhan Mantri Krishi Sinchai Yojana-Watershed Component erstwhile Integrated Water Management Programme (IWMP)

The major objective of PMKSY is to achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation, improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop), enhance recharge of aquifers and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal waste water for peri-urban agriculture and attract greater private investment in precision irrigation system.

PMKSY has been conceived amalgamating ongoing schemes viz. Accelerated Irrigation Benefit Programme (AIBP) of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR,RD&GR), **Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR)** and the On Farm Water Management (OFWM) of Department of Agriculture and Cooperation (DAC).

There are following 3 components under PMKSY- Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR)

1. Water harvesting structures such as check dams, nala bund, farm ponds, tanks etc.
2. Capacity building, entry point activities, ridge area treatment, drainage line treatment, soil and moisture conservation, nursery raising, afforestation, horticulture, pasture

development, livelihood activities for the asset-less persons and production system & micro enterprises for small and marginal farmers etc.

3. Effective rainfall management like field bunding, contour bunding/trenching, staggered trenching, land levelling, mulching etc.

As all three components are related to Integrated Watershed Management Programme (IWMP), attribution will be 'indirect medium' 37.5%.

Source: https://pmksy.gov.in/AboutPMKSY.aspx

85. Integrated Water Management Programme (IWMP)

The Integrated Watershed Management Programme (IWMP) is one of the Flagship programme of Ministry of Rural Development is under implementation by the Department of Land Resources since 2009-10 after integrating three area development programmes namely Desert Development Programme (DDP), Drought Prone Areas Programme (DPAP) and Integrated Wastelands Development Programme (IWDP), for development of rainfed/ degraded land in the country.

The main aims of IWMP are harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water; prevention of soil run-off; rain water harvesting and recharging of the ground water table; increasing the productivity of crops; introduction of multi-cropping and diverse agro-based activities; promoting sustainable livelihoods and increasing the household incomes. The major activities taken up under IWMP inter-alia include ridge area treatment, drainage line treatment, soil and moisture conservation, rain water harvesting, nursery raising, afforestation, horticulture, pasture development, livelihoods for asset less persons.

Considering the important aims of the scheme for biodiversity conservation, the attribution kept as 'indirect medium' 37.5%.

Source: http://pib.nic.in/newsite/mbErel.aspx?relid=102727

19.2 Department of Rural Development (DRD)

86. Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)

The mandate of the Act is to provide at least 100 days of guaranteed wage employment in a financial year to every rural household whose adult members volunteer to do unskilled manual work and based on following 7 goals:

1) Social protection for the most vulnerable people living in rural India by providing employment opportunities
2) Livelihood security for the poor through creation of durable assets, improved water security, soil conservation and higher land productivity
3) Drought-proofing and flood management in rural India
4) Empowerment of the socially disadvantaged, especially women, Scheduled Castes (SCs) and Schedules Tribes (STs), through the processes of a rights-based legislation

5) Strengthening decentralised, participatory planning through convergence of various anti-poverty and livelihoods initiatives
6) Deepening democracy at the grass-roots by strengthening Panchayati Raj Institutions
7) Effecting greater transparency and accountability in governance

The scheme includes following major types of works:

1) Soil and water conservation related works (including non-water related works)
2) Groundwater recharge works
3) Irrigation related works
4) Drainage and other related works
5) Plantation related works
6) Land related works for livelihood support
7) Rural Housing and Related Works
8) Infrastructure for promotion of livestock
9) Works for improving productivity of land

Considering that, the above works come under the broad category of Integrated Watershed Development; the relevance to biodiversity would come under the category of indirect medium with a range of 25-50% with 37.5% attribution level. Hence, this attribution percentage of 37.5% is to be applied on expenditure on NRM works which as seen from MIS at a glance is seen to be as follows:

Year	Total Expenditure	% of NRM Expenditure (public + individual)
2013-14	38,552.62	48.00
2014-15	36,025.04	55.43
2015-16	44,002.59	59.71
2016-17	57,983.62	60.11
2017-18	56,504.14	57.48

The average expenditure on NRM over the years is 56.146%. Considering NRM as indirect medium in terms of biodiversity relevance, the attribution for the scheme as a whole can be calculated as 0.375 x 0.56146 = 0.2105 = 21.05%.

Source:
1.http://nrega.nic.in/Circular_Archive/archive/Operational_guidelines_4thEdition_eng_2013.pdf
2.http://nrega.nic.in/netnrega/home.aspx

20. Ministry of Science and Technology

20.1. Department of Science and Technology

87. S&T for Socio Economic Programme

The scheme has following 4 components:

National Council for Science & Technology Communication (NCSTC)
Science for Equity Empowerment and Development (SEED)
National Science & Technology Entrepreneurship Development Board
State Science & Technology Programme

The first component, NCSTC focuses on outreach activities, incentive programmes, and field based Sci-Com projects, research in S&T communication, international co-operation, motivating students and teachers, environment awareness and programmes with a special component exclusively for women. The forth component State Science & Technology Programme are meant to setup State Councils of S&T, which embark upon novel initiatives resulting in number of success stories, For example, Cleaner and Fuel Efficient Technologies (Punjab), Solar Passive Housing Technology (Himachal Pradesh) and Inventory of Medicinal Plants - Andaman & Nicobar Islands

The scheme has an overall attribution indirect low (15%) and the 2 components outlined above are relevant to biodiversity, hence final attribution can be calculated as:

(2/4) x 0.15 = 0.075 (7.5%)

Source: http://www.dst.gov.in/scientific-programmes/st-and-socio-economic-development

88. Autonomous Institutes and Professional Bodies

There are 23 independent autonomous institutions and professional bodies situated at different locations of the country having different mandates. There are many Research and Development activities are operating under these organizations which enhance awareness on biodiversity conservation. Vigyan Prasad published many important books on fishes, butterflies, odonates of India etc have been used for biodiversity conservation.

- Agharkar Research Institute, Pune
- Aryabhatta Research Institute of Observational-Sciences, Nanital
- Birbal Sahni Institute of Palaeobotany, Lucknow
- Bose Institute, Kolkata
- Centre for Nano and Soft Matter Sciences, Bangalore
- Indian Association for the Cultivation of Science, Kolkata
- Institute of Nano Science and Technology, Mohali
- Indian Institute of Astrophysics, Bangalore
- Indian Institute of Geomagnetism, Mumbai
- International Advanced Research Centre for Powder Metallurgy and New Materials, Hyderabad
- Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore
- National Innovation Foundation
- Raman Research Institute, Bangalore
- S.N. Bose National Centre for Basic Sciences, Kolkata
- Sree Chitra Tirunal Institute for Medical Sciences and Technology
- Technology Information, Forecasting and Assessment Council (TIFAC)
- The Institute of Advanced Study in Science & Technology, Guwahati

- Wadia Institute of Himalayan Geology, Dehradun
- Vigyan Prasar, New Delhi

The scheme has been given an overall attribution of Indirect Marginal (2.5%) based on the type of research work and other activities which are being done by different institutes and the relevance of those activities to biodiversity conservation.

89. Science and Engineering Research Board (SERB)

SERB was created as a statutory body by the Parliament under the SERB act of 2008 to provide an impetus to research through expeditious decisions, enhanced responsiveness and flexible funding as per practice followed by global research funding agencies. Support to extra mural R & D projects for science and engineering research to about 700 scientists. 300 early career research awards, 500 national postdoctoral fellowships, 300 fellowships of various levels to enhance quality and quantity of scientific research.

The board fund large number of projects every year in the five basic disciplines, Chemical Sciences, Earth and Atmospheric Sciences, Engineering Sciences, Life Sciences and Physical & Mathematical Sciences.

Under Earth and Atmospheric Sciences, Sea-level Rise, Coastal Erosion, Monsoon surges, Monsoonal climate change, Agriculture, Plantation, Crop yields, Hydro-Electrical Power Generation are studied.

Life science research includes researches in various sub areas of animal sciences such as wildlife studies, bird biology, insect biology, reproduction biology, neurobiology, livestock studies, parasitology, molecular biology, cell biology, immunology, virology, bacteriology.

Considering the pattern of funding in biodiversity related projects, the attribution can be assigned under Indirect Marginal (2.5%).

Source: http://www.serb.gov.in/pdfs/about_serb/Vision_Mission_Goal.pdf

90. Alliance and R&D mission

The scheme component includes the schemes like Innovation in Science Pursuit for Inspired Research (INSPIRE), Scholarship for Higher Education (SHE) and Climate Change Programme.

The scheme mandates includes Climate Change Program, hence attribution kept under indirect marginal-2.5%**.**

Source; Grant No. 86/ Notes on Demand for Grants/ Department of Science and Technology 2015-16

20.2 Department of Science and Industrial Research (DSIR)

91. CSIR –Research schemes, scholarships and fellowships

The scheme is focused at development of S&T Human Resources in the country through fellowships at various levels. Further, it is envisaged to introduce novel fellowship programmes to promote research and innovation. Under this scheme, fellowships have been given to conduct research on various aspects of Science including biodiversity studies.

Considering the importance of research in various field including biodiversity studies, the attribution assigned as indirect marginal- 2.5%.

92. CSIR-National Laboratories

Under this scheme, around 50 National Laboratories/ Autonomous Institutions has been setup and financed for running S&T programmes. Among these, 11 labs are for research in biological sciences stream and the key institutions working on biodiversity aspects are Centre for Cellular Molecular Biology (CSIR-CCMB), Hyderabad, Central Institute of Medicinal Aromatic Plants (CSIR-CIMAP), Lucknow, Institute of Himalayan Bioresource Technology (CSIR-IHBT), Palampur, National Botanical Research Institute (CSIR-NBRI), Lucknow, National Environmental Engineering Research Institute (CSIR-NEERI), Nagpur, Traditional Knowledge Digital Library (CSIR-TKDL), New Delhi.

Based on the activities relevant to biodiversity of these institutions, the overall attribution kept in indirect marginal- 2.5%.

20.3 Department of Biotechnology

93. Programmes for Promotion of Excellence and Innovation

The overall aim of the CEIB programme is to establish Centres of Excellence provide long-term support to outstanding scientists and provide institutional / departmental Programme Support. The specific goal is to enhance the innovative ability of the institutions and investigators with well-developed research programme in specific areas of biotechnology.

The following three categories of grants are provided under this programme:

Category I: Centres of Excellence (COE) in Biotechnology with a specific thematic focus, that can involve single or multiple institutions

- The above will provide support, in part or full, research and development activities from very basic or fundamental to translational or applied in areas of health, agriculture, energy, environment, industrial biotech research etc.

Category II: Outstanding Scientist Research Programme in Biotechnology

- Meant for providing long-term R&D support to an individual outstanding investigator of high scientific caliber with publications and / or patents record at the highest level.

- The support is recognition of investigators for their recent performance and planned future work.

Category III: Institutional Programme Support (to both single institutional programme as well as multi-institutional programme) to the identified institution(s)/department(s) with multiple investigators in various disciplines

- To create and strengthen research capabilities at university or institutional level for categorical research by a number of investigators from different disciplines for a joint research effort; or investigators from the same discipline who focus on a common research problem. Support is proportional to size and quality of Ph.D. and Post-Doctoral programmes.
- To enable re-design of objectives and research programme to be inter-disciplinary and address specific weaknesses.

Based on the minimal relevance to biodiversity of the scheme, the overall attribution kept in indirect marginal- 2.5%.

Source: http://www.dbtindia.nic.in/centres-for-excellence/

94. Provision for Projects/Schemes for the benefit of Northeastern Areas and Sikkim

In 2009-10, the Department of Biotechnology (DBT) set up the North Eastern Region-Biotechnology Programme Management Cell (NER-BPMC) through Biotech Consortium India Limited (BCIL) for coordination and monitoring of biotechnology programmes in the North Eastern States of India as part of its commitment towards the promotion of biotechnology activities in the North Eastern Region. The NER-BPMC works in close cooperation with various government agencies/ ministries/ departments at the central and state levels, along with universities and research institutions for development and implementation of various programmes.

1) Agriculture: Biotechnology Led Organic Farming, Secondary Agriculture
2) Environmental Biotechnology: Biodiversity Conservation & Utilisation
3) Medical Biotechnology: Strengthening Molecular Diagnostics of infectious diseases and noninfectious disorders; R&D programmes for understanding molecular aspects of pathogenesis
4) Capacity building: Short term training courses in research methodology, modern methods of molecular biology and advanced techniques in diagnostics
5) Advanced Diagnostic Centres at Dibrugarh (Assam) for genetic disorders and at Shillong (Meghalaya) & Aizawl (Mizoram) for Cancer and hemoglobinopathies
6) R&D Twinning programme: Linking NER labs with the leading labs outside NER for R&D projects
7) Infrastructure Development and Centres of excellence at NRC Mithun, Jharnapani, Nagaland, and at NRC-Yak at Darrang, Arunachal Pradesh
8) IPR and Knowledge networks

9) Human resource development through National and International Associate-ship and
10) Entrepreneurship development

The scheme has already categoried under indirect low (15%) and Out of 10 programmes, only 3 are relevant, hence attribution can be calculated as: (3/10) x 15% =4.5%

Source: http://www.dbtindia.nic.in/special-programmes-north-east-region/#

95. Biotechnology for Societal Development

The main objectives of the programme is to promote the use of biotechnological processes and tools for the benefit of the disadvantaged section of the society comprising women, rural population, SC/ST and weaker section. The programme aims to create platform for self-employment generation among the target population and diffusion of proven and field-tested technologies through demonstration, training and extension activities. The broad focused areas are:

1) Agriculture and Allied Sector
2) Health, Nutrition & Sanitation
3) Value Chain and Post Harvest
4) Agripreneurship Development
5) Biodiversity conservation
6) Rehabilitation and Restoration
7) Measures for Natural Calamity

The scheme has already been categorized under indirect low (15%) and out of 7 broad areas of focus, only 4 are relevant outlined above, hence attribution can be calculated as: (4/7) x 15% = 8.57%

Source: http://www.dbtindia.nic.in/schemes-2/societal-development/

96. Research and Development

Under DBT, following subjects are included under R&D:

1) Basic research in modern biology
2) Agriculture biotechnology
3) Basic plant biology, agriculture and frontier areas
4) Translational research on medicinal and aromatic plants
5) Silk biotechnology
6) Animal biotechnology
7) Aquaculture and marine biotechnology
8) National bioresource development programme
9) Environmental biotechnology
10) Human development and disease biology
11) Human genetics and genome analysis
12) Non-communicable diseases

13) Infectious disease biology
14) Vaccine research and development
15) Glue grant scheme
16) Stem cell research & regenerative medicine
17) Genome engineering technologies
18) Bioengineering
19) Biodesign programme
20) Nanobiotechnology

The scheme has already been categorized under indirect low (15%) and out of 20 broad areas research, only 8 are relevant outlined above, hence attribution can be calculated as: (8/20) x 15% = 6%

Source: Annual Report, Department of Biotechnology, 2017-18

21. Department of Space

97. Resourcesat-2A provide Continuity of Data -Natural resource Management
98. North -Eastern Space Applications Centre -NE-SAC, NRM-NE
99. Earth Observation Application Mission
100. National Natural Resources Management-(NNRMS)
101. Indian Institute of Remote Sensing (IIRS)
102. Space Application Centre (SAC)
103. National Remote Sensing Centre (NRSC)
104. Disaster Management Support (DMS)

Attribution of Scheme No. 97-104: DOS-ISRO vision is to harness space technology for national development while perusing space science research and planetary exploration. The application of ISRO DOS includes Earth Observation, Satellite Communication, Disaster Management, Climate and Environment and Navigation. All the schemes are helping in capacity building and Climate Change mitigation, hence placed in indirect marginal (2.5%).

22. Ministry of Tourism

105. Product/Infrastructure Development for Destinations and Circuits/Rural Tourism

The scheme has following 2 components:

1. Major Destinations and Integrated Circuits development
2. Rural Tourism infrastructure development

1. Major Destinations and Integrated Circuits development

The following works taken up under the Scheme:

- Improvement of the surroundings of the destination. This would include activities like landscaping, development of parks, fencing, compound wall etc.
- Illumination of the Tourist destination and the area around and SEL Shows etc.

- Providing for improvement in solid waste management and sewerage management, Public Conveniences, etc.
- Improvement of road connectivity leading to the tourist sites, especially from the National Highways/State highways and other entry points.
- Construction of Wayside Public Conveniences
- Construction of Budget Accommodation, Restaurant & Wayside Amenities including one time assistance for its air -conditioning and furnishings. This component will be supported only in selected places of Jammu & Kashmir and all North Eastern States, and Eco-tourism projects where private sector investment is not forthcoming or not possible.
- Procurement of equipments directly related to tourism, like Water Sports, Adventure Sports, Eco-friendly modes of transport for moving within the Tourism Zone and equipments for cleaning of the tourist destination will be eligible for 25% grant.
- Construction of public buildings which are required to be demolished because of implementation of the Master Plan.
- Refurbishment of the Monuments.
- Signages and display boards showing Tourist Area Maps and documentation on places of interest at the locations.
- Tourist Arrival Centres, Reception Centres, Interpretation Centres
- Improvement of municipal services directly related to Tourism
- Other work/activities directly related to tourist

2. Rural Tourism Infrastructure Development

The thrust will be to promote village tourism as the primary tourism product to spread tourism and its socio-economic benefits to rural and new geographic regions. Activities like improving the environment, hygiene, infrastructure etc. would be eligible for assistance. The following are the Permissible activities:

- Improvement of the surroundings of the village. This would include activities like landscaping, development of parks, fencing, compound wall etc.
- Improvements to roads within the Panchayat limits. This shall not include any major road which connects the village.
- Illumination in the village.
- Providing for improvement in solid waste management and sewerage management.
- Construction of Wayside Amenities.
- Procurement of equipments directly related to tourism, like Water Sports, Adventure Sports, Eco-friendly modes of transport for moving within the tourism zone.
- Refurbishment of the Monuments.
- Signages.
- Reception Centres.
- Other work/activities directly related to tourism
- Tourist Accommodation

Seeing the above permissible activities, the scheme has minimal relevance to biodiversity except sewerage and sanitation works, development of parks and ecofriendly measures for tourism; hence an overall attribution assigned under indirect marginal 2.5%.

Source: http://tourism.gov.in/sites/default/files/Scheme%20Guidelines_4.pdf

23. Ministry of Tribal Affairs

106. Market Development of Tribal Products/Produce (TRIFED)

The Tribal Cooperative Marketing Development Federation of India (TRIFED) came into existence in 1987. It is a national-level apex organization functioning under the administrative control of Ministry of Tribal Affairs, Govt. of India. TRIFED has its registered and Head Office located in New Delhi and has a network of 13 Regional Offices located at various places in the country. The ultimate objective of TRIFED is socio-economic development of tribal people in the country by way of marketing development of the tribal products on which the lives of tribals depends heavily as they spend most of their time and derive major portion of their income.

TRFED operates following 2 major activities:

Minor Forest Produces (MFP) Development: Under this MFP Development, MSP for MFP and R&D of MFPs. The Minor Forest Produces provide both subsistence and cash income for people who live in or near forests. They form a major portion of their food, fruits, medicines and other consumption items and also provide cash income through sale.

Retail Marketing Development: Under this, Retail Marketing Development and Handicraft / Handloom development Training has been made for tribals. TRIFED runs 40 retail outlets called TRIBES INDIA which offers a range of tribal products, includes Metal Craft, Textiles, Jewellery, Tribal Paintings, Cane & Bamboo, Pottery, Gifts and Novelties, Organic and Natural products. Through this initiative TRIFED provides a platform through which tribals products can be marketed in retail directly to the consumers and in the process ensures that tribal gets a fair price.

Both the activities are for tribals communities, help in reducing forest dependency and promotes sustainable use. Therefore the overall attribution is indirect low- 15%.

Source: http://trifed.in/trifed/(S(553uh3agimvt1ufijltgx1z1))/activities.aspx

107. Minimum Support Price Scheme for Minor Forest Produce (MSP for MFP)

The scheme is expected to protect the forest dwellers from exploitation by offering them the opportunity to sell their MFPs in the protected environment with assured return. It is a holistic scheme for development of MFP trade including its value chain and necessary infrastructure at local level. The MSP scheme seeks to establish a framework to ensure fair returns for the produce collected by tribals, assurance of buying at a particular price,

primary processing, storage, transportation etc. while ensuring sustainability of the resource base.

The scheme has been started with following objectives:

- To provide fair price to the MFP gatherers for the produce collected by them and enhance their income level
- To ensure sustainable harvesting of MFPs.
- The Scheme will have a huge social dividend for MFP gatherers, majority of whom are tribals.

The above activities help in reducing forest dependency and promote sustainable use; therefore the overall attribution is indirect low- 15%.

Source: http://trifed.in/trifed/(S(553uh3agimvt1ufijltgx1z1))/activities.aspx

108. Van Bandhu Kalyan Yojana (VKY)

VKY is a strategic process, it aims at creating enabling environment for need based and outcome oriented holistic development of the tribal people. This process envisages to ensure that all the intended benefits of goods and services under various programmes/ schemes of Central as well as State Governments actually reach the target groups by convergence of resources through appropriate institutional mechanism. It covers all tribal people and all areas with tribal population across the country with the following objectives:

- Improving the quality of life in tribal areas
- Improving the quality of education
- Qualitative and sustainable employment for tribal families
- Bridging infrastructure gaps with focus on quality
- Protection of tribal culture and heritage

There are following 13 components of VBKY:

1) Qualitative & Sustainable Employment.
2) Quality Education & Higher Education.
3) Accelerated Economic Development of tribal areas.
4) Health for all.
5) Housing for all.
6) Safe Drinking Water for all at doorsteps.
7) Irrigation facilities suited to the terrain.
8) All Weather Roads with connectivity to the nearby town/cities.
9) Universal Availability of Electricity.
10) Urban Development.
11) Robust institutional mechanism. (ITDAs/ITDPs)

12) Promotion and conservation of Tribal Cultural Heritage
13) Promotion of Sports in Tribal Areas.

The scheme meant for overall development of tribal communities and helps in reducing forest dependency and promotes sustainability; hence overall attribution is indirect marginal 2.5%.

Source: http://vky.tribal.nic.in/

24. Ministry of Water Resources, River Development and Ganga Rejuvenation

109. Groundwater Management and Regulation (GWM&R)

The scheme GWM&R has following objectives:

- Ensure the realisation of the fundamental right to life through the provision of water for life;
- Meet food security, livelihoods, basic human needs, livestock and aquatic life needs;
- Promote sustainable groundwater use in the public interest, based on the Long –term protection of available resources;
- Ensure that the protection, conservation, regulation and management of groundwater is integrated with the protection, conservation , regulation and management of surface water to ensure conjunctive use;
- Ensure the implementation of the principle of subsidiarity
- Protect ecosystems and their biological diversity;

Considering the importance of the scheme with respect to biodiversity, the overall attribution assigned as indirect high-62.5%

Source: http://mowr.gov.in/sites/default/files/Model_Bill_Groundwater_May_2016_0.pdf

110. R&D Programme in Water Sector

The scheme mandates awareness generation on water conservation, R&D activities in water sector through following research organizations:

- Central Water Commission (Environmental evaluation studies)
- Central Soil and Material Research Station
- Central Water and Power Research Station
- National Institute of Hydrology
- Indian National Committees on Surface water & Ground Water

Above institutes contribute in generating awareness on water sector and R&D activities on water conservation; hence an overall attribution assigned as indirect medium 37.5%.

111. River Management-Border Areas

It has following 5 major components:

- Hydrological observations and flood forecasting on common border rivers with neighboring countries.
- Investigation of WR projects in Neighboring Countries
- Pre-construction activities for WR projects on common border rivers-Pancheshwar development Authority(PDA)
- Grant in Aid to States/UTs for flood management/anti –sea erosion works:-
  - Maintenance of flood protection works of Kosi & Gandak projects(in Nepal), Flood Protection/anti-erosion works in the border areas with Bangladesh and Pakistan by States.
  - Flood Management/anti-erosion works/anti- sea erosion works in UTs.
- Activities of Ganga Flood Control Commission (GFCC).

The scheme was placed under Indirect Low category of attribution and hence the attribution can be calculated based on the number of relevant components; (2/5) x 15% = 6%

Source: http://mowr.gov.in/schemes-projects-programmes/schemes/river-management-activities-and-works-related-border-areas

112. Development of Water resources Information System

Central Water Commission (CWC) has launched web based Water Resources Information System (India-WRIS) in association with National Remote Sensing Centre (NRSC).

India-WRIS WebGIS aims as a 'Single Window' solution for comprehensive, authoritative and consistent data & information of India's water resources along with allied natural resources in a standardized national GIS framework (WGS-84 datum and LCC projection) tools to search, access, visualize, understand and analyze the data for assessment, monitoring, planning, development and finally Integrated Water Resources Management (IWRM).

The information system contains several GIS layers on water resources projects, thematic layers like major water bodies, land use/land cover, wastelands, land degradation etc., environmental layers as well as infrastructure and other administrative layers.

The scheme meant for just information sharing in the public domain, which little helps in planning process in biodiversity sector, hence attribution kept under indirect marginal 2.5%.

Source: http://mowr.gov.in/schemes-projects-programmes/schemes/development-water-resources-information-system-other-rmis

113. National River Conservation Plan (NRCP)

The objective of National River Conservation Plan being to improve the water quality of the major rivers which are the major fresh water source in the country through the implementation of pollution abatement Schemes. It covered pollution abatement works in 46 towns along the polluted stretches of 18 rivers spread over 10 States.

NRCP includes following major activities:

1. Interception and Diversion works to capture the raw sewage flowing into the river through open drains and divert them for treatment
2. Sewage Treatment Plants for treating the diverted sewage
3. Low Cost Sanitation works to prevent open defecation on riverbanks
4. Electric Crematoria and Improved Wood Crematoria to conserve the use of wood and help in ensuring proper cremation of bodies brought to the burning ghats
5. River Front Development works such as improvement of bathing ghats
6. Public awareness and public participation
7. HRD, capacity building, training and research in the area of River Conservation
8. Other miscellaneous works depend upon location specific conditions including the interface with human population

The scheme is highly relevant to biodiversity, hence attributed in indirect very high attribution 82.5%.

Source:https://www.jagranjosh.com/general-knowledge/national-river-conservation-plan-1441621095-1

114 Namami Gange- Ghat Works for Beautification of River Front

Same as Namami Gange

115. Namami Gange- National Ganga Plan (National Mission for Clean Ganga- NMCG)

The Namami Gange is a flagship scheme includes above 2 sub-schemes. The Namami Gange- NMCG accomplishes the mandate of National Ganga River Basin Authority (NGRBA) and has following objectives:

- To ensure effective abatement of pollution and rejuvenation of the river Ganga by adopting a river basin approach to promote inter-sectoral co-ordination for comprehensive planning and management and
- To maintain minimum ecological flows in the river Ganga with the aim of ensuring water quality and environmentally sustainable development.

The scheme mainly contributes in sewage treatment infrastructure, river surface cleaning, river front development, biodiversity, afforestation, etc. Since the primary objective being

river conservation/ rejuvenation, the whole program comes under indirect very high with 82.5% attribution.

Source: https://nmcg.nic.in/aims_obj.aspx

116. Pradhan Mantri Krishi Sinchai Yojana (Har Khet Ko Pani)

The major objective of PMKSY is to achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation, improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies (More crop per drop), enhance recharge of aquifers and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal waste water for peri-urban agriculture and attract greater private investment in precision irrigation system.

PMKSY has been conceived amalgamating ongoing schemes viz. **Accelerated Irrigation Benefit Programme (AIBP) of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR,RD&GR)**, Integrated Watershed Management Programme (IWMP) of Department of Land Resources (DoLR) and the On Farm Water Management (OFWM) of Department of Agriculture and Cooperation (DAC).

Following are the two components under PMKSY of MoWR, RD&GR:

- ✓ Acceleration Irrigation Benefits Program (AIBP) by MoWR,RD &GR
- ✓ PMKSY (Har Khet ko Pani) by MoWR,RD &GR

- ➢ The major activities of the first component (AIBP of MoWR,RD &GR) are to focus on faster completion of ongoing Major and Medium Irrigation including National Projects.
- ➢ Following are the 6 activities under second component- PMKSY (Har Khet ko Pani) by MoWR,RD &GR

1. Creation of new water sources through Minor Irrigation (both surface and ground water)
2. Repair, restoration and renovation of water bodies; strengthening carrying capacity of traditional water sources, construction rain water harvesting structures (Jal Sanchay);
3. Command area development, strengthening and creation of distribution network from source to the farm
4. Improvement in water management and distribution system for water bodies to take advantage of the available source which is not tapped to its fullest capacity (deriving benefits from low hanging fruits). At least 10% of the command area to be covered under micro/precision irrigation.
5. Diversion of water from source of different location where it is plenty to nearby water scarce areas, lift irrigation from water bodies/rivers at lower elevation to supplement requirements beyond IWMP and MGNREGS irrespective of irrigation command.

6. Creation and rejuvenation of traditional water storage systems like Jal Mandir (Gujarat); Khatri, Kuhl (H.P.); Zabo (Nagaland); Eri, Ooranis (T.N.); Dongs (Assam); Katas, Bandhas (Odisha and M.P.) etc. at feasible locations.

Considering the above 3 activities as relevant to biodiversity, decided to keep attribution Indirect Medium-37.5%.

Source: https://pmksy.gov.in/AboutPMKSY.aspx

RESULTS AND OUTCOMES: BIODIVERSITY EXPENDITURE REVIEW

With the detailed assessment of the budgets and documents of 5-year planning period (2012-13 to 2016-17) and the extensive consultations at Central Government level, a total of 116 public schemes from 24 Ministries and 29 Departments are identified as biodiversity relevant in Government of India (Annexure - I and Table 3.1).

Table 3.1: List of biodiversity relevant Ministries/ Departments and schemes, Govt. of India

S. No.	Ministry/ Department	No. of Schemes
1.	Agriculture & Farmers Welfare *Department of Agriculture Cooperation & Farmers Welfare* *Department of Agriculture Research and Education* *Department of Animal Husbandry, Fisheries & Dairy Development*	21
2.	Atomic Energy *(Department)*	1
3.	AYUSH	4
4.	Chemical and Fertilizers *Department of Chemicals and Petrochemicals*	1
5.	Coal	2
6.	Commerce and Industry	3
7.	Communication and Information Technology	1
8.	Culture	2
9.	Development of North Eastern Region	2
10.	Drinking Water and Sanitation	2
11.	Earth Sciences	6
12.	Environment, Forest and Climate Change*	19
13.	Home Affairs#	7
14.	Housing and Urban Affairs	3
15.	Human Resource Development *Department of Higher Education*	1
16.	New and Renewable Energy	5
17.	Planning	1
18.	Power	2
19.	Rural Development *Department of Land Resources* *Department of Rural Development*	3
20.	Science and Technology *Department of Science and Technology* *Department of Biotechnology* *Department of Scientific and Industrial Research*	10
21.	Space *(Department)*	8
22.	Tourism	1
23.	Tribal Affairs	3
24.	Water Resources, River Development and Ganga Rejuvenation	8
	Total	**116**

**Minor head level; #Department level*

The overall total and attributable expenditure of 116 schemes shows an increasing trend over the planning period from 2012-13 to 2016-17 (Figure 3.1). The descending order of attributable expenditures among the 24 Ministries, number of schemes and average expenditure is given in Table 3.2.

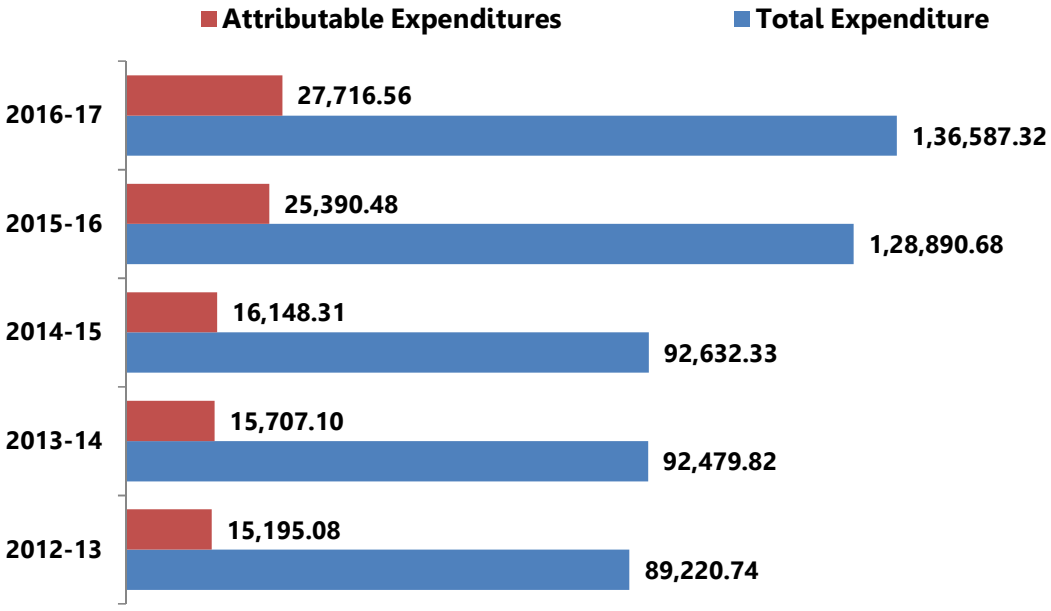

Figure 3.1: Total and attributable expenditures over the 5-years (2012-13 to 2016-17)

Table 3.2: Descending order of attributable expenditures among the Ministries

S. No.	Ministry/Department	No. of Schemes	Descending order of Attributable Expenditures (Rs. in crores)					
			2012-13	2013-14	2014-15	2015-16	2016-17	Average
1	Rural Development	2	7,454.93	7,795.68	8,592.00	15,512.87	16,826.05	**11,236.31**
2	Drinking Water and Sanitation	10	2,366.10	2,160.31	1,704.95	2,640.85	3,207.43	**2,415.93**
3	Environment, Forest and Climate Change	6	1,898.44	2,050.33	1,898.57	1,741.65	2,053.79	**1,928.56**
4	Agriculture & Farmers Welfare	3	2,110.45	2,130.38	1,861.80	1,570.05	1,674.51	**1,869.44**
5	Housing and Urban Affairs	5	2.64	2.72	359.43	1,113.49	2,095.80	**714.81**
6	Home Affairs	3	441.15	526.48	362.57	458.78	495.08	**456.81**
7	Water Resources, River Development and Ganga Rejuvenation	2	21.84	65.56	376.35	1,198.92	251.70	**382.87**
8	AYUSH	19	131.23	136.31	185.72	320.30	389.01	**232.51**
9	Human Resource Development	2	241.94	252.28	222.66	235.08	111.80	**212.75**
10	Science and Technology	1	123.05	134.58	140.66	221.23	253.86	**174.68**
11	Commerce and Industry	8	89.88	90.76	75.81	102.62	102.39	**92.29**
12	Earth Sciences	3	117.71	113.31	114.35	53.14	48.24	**89.35**
13	Tribal Affairs	2	74.80	111.01	113.79	27.88	7.68	**67.03**

14	New and Renewable Energy	8	24.64	34.71	53.33	102.48	93.52	**61.74**
15	Development of North Eastern Region	3	37.03	36.78	29.92	41.65	53.14	**39.70**
16	Space	1	13.37	14.74	18.70	24.32	28.22	**19.87**
17	Atomic Energy	2	18.28	18.22	18.41	11.80	12.97	**15.94**
18	Communication and Information Technology	4	3.05	8.81	7.50	5.35	6.25	**6.19**
19	Culture	1	6.71	6.65	7.89	2.82	0.00	**4.81**
20	Tourism	1	10.72	10.50	0.00	-0.26	0.25	**4.24**
21	Planning	1	4.00	2.11	1.27	NE	NE	**2.46**
22	Chemical and Fertilizers	21	0.65	2.35	0.91	0.68	2.54	**1.43**
23	Power	1	2.03	2.07	1.04	0.00	1.96	**1.42**
24	Coal	7	0.43	0.44	0.67	4.77	0.38	**1.34**
		116	15,195.08	15,707.10	16,148.31	25,390.48	27,716.56	20,032.49

The segregation of schemes was done on the basis of BIOFIN categories to have an idea about the amount of money being spent on the various categories. The category 'Sectoral Mainstreaming' is seen to contribute maximum towards the biodiversity conservation, followed by the category 'Natural Resource Use' (Figure 3.2). It can be seen that though the expenditure is more in the category Enhancing Implementation than Natural Resource Use, but the attributable cost is lower in case of the former i.e. Enhancing Implementation. This is due to the nature of the schemes and their categorization into various Rio categories, which has helped to know the attribution figures of each scheme. The lowest attribution can be noted in the category, Access and Benefit sharing followed by Restoration. An increasing trend in the attributable expenditure figures can be seen in the case of the categories- Access and Benefit Sharing, Enhancing Implementation, Protection and Restoration, while Sectoral Mainstreaming and Natural Resource Use shows fluctuation in their figures over the years (Figure 3.2).

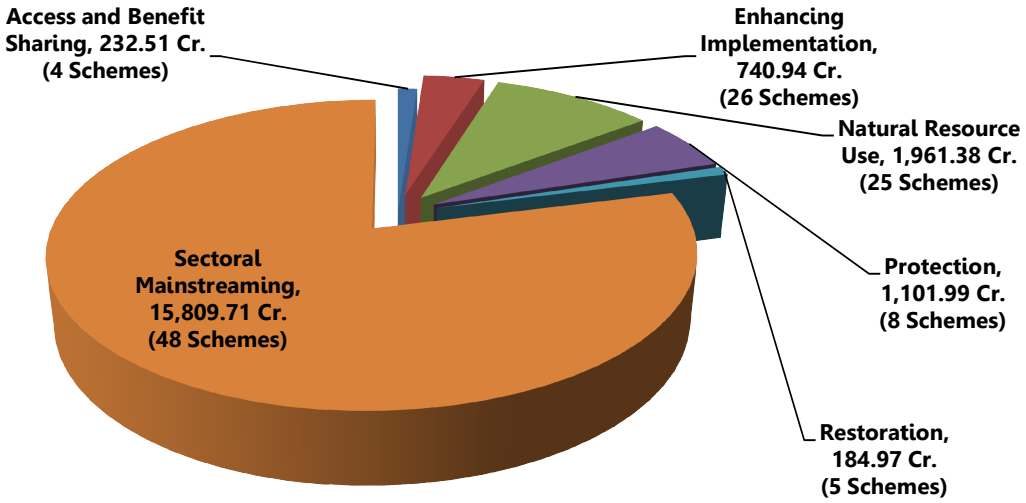

Figure 3.2: Average attributable expenditure and no. of schemes in various BIOFIN categories

While the Ministry of Environment, Forest and Climate Change (MOEFCC) is the principal ministry for biodiversity conservation, there are other Ministries also working for biodiversity conservation. These Ministries have been reviewed for the Schemes relevant to biodiversity conservation and human wellbeing. For better mobilization of resources for biodiversity conservation, a prioritization of ministries is required. Also, a prioritization of Schemes has been required for making finance plan for biodiversity conservation which ultimately can be implemented on ground at the end of the project. The prioritization can be done on the basis of flagship schemes running under various peripheral ministries in the Government of India. This prioritization of Ministries can be done by following two ways:

- On the basis of total expenditure
- On the basis of attributable expenditure

After prioritization of ministries, we see that Ministry of Rural Development is the top in terms of both total and attributable expenditure followed by Ministry of Drinking water and sanitation. Whereas, Ministry of Environment, Forest and Climate Change is the third, among the top 7 Ministries based on attributable expenditure (Table 3.3). The prioritization can be helpful for BIOFIN, if it can be done based on attribution expenditure.

Table 3.3: Prioritizations of top 7 Ministries

S. No.	Ministry/ Department On the basis of total expenditure (Rs. in crores)		Ministry/ Department On the basis of attributable expenditure (Rs. in crores)	
1.	Rural Development	51,410.82	Rural Development	11,236.31
2.	Drinking Water and Sanitation	12,834.88	Drinking Water and Sanitation	2,415.93
3.	Agriculture & Farmers Welfare	11,686.58	Environment, Forest and Climate Change	1,928.56
4.	Human Resource Development	8,510.14	Agriculture & Farmers Welfare	1,869.44
5.	Science and Technology	5,593.96	Housing and Urban Affairs	714.81
6.	New and Renewable Energy	2,469.48	Home Affairs	456.81
7.	Housing and Urban Affairs	2,422.31	Water Resources, River Development and Ganga Rejuvenation	382.87

After prioritization the Ministries, we need to prioritize the big budget schemes. There are certain schemes in Ministry of Rural Development getting much higher allocation in comparison to the MOEFCC. The top big budget schemes with upto 400 Crore expenditures are MNREGA, AMRUT, National Rural Drinking Water Programme, Nirmal Bharat Abhiyan/ Swachh Bharat Abhiyan, Integrated watershed management programme (Now under PMKSY-WC), Prevention and Control of Pollution, Rashtriya Krishi Vikas Yojana and Grants to State Governments under various Programmes (Table 3.4).

Table 3.4: Average biodiversity attributable expenditure of big budget schemes

S. No.	Name of Scheme	Ministry/ Department	Ave. of bio. attributed exp. (5 yrs) (Rs. in crores)
1.	MNREGA	Dept. of Rural Development, Min. of Rural Development	10,291.79
2.	AMRUT	Housing and Urban Affairs	1,305.52
3.	National Rural Drinking Water Programme	Drinking Water and Sanitation	1,297.25
4.	Nirmal Bharat Abhiyan/ Swachh Bharat Abhiyan	Drinking Water and Sanitation	1,118.68
5.	Integrated watershed management programme (Now under PMKSY-WC)	Dept. of Land Resources, Min. of Rural Development	718.64
6.	Prevention and Control of Pollution	Environment, Forest and Climate Change	538.82
7.	Rashtriya Krishi Vikas Yojana	Agriculture & Farmers Welfare	431.40

The 5 years actual expenditure projected for further 5 years and exponential trend has been shown for 10 years expenditure on both total and attributable figure (Figure 3.3).

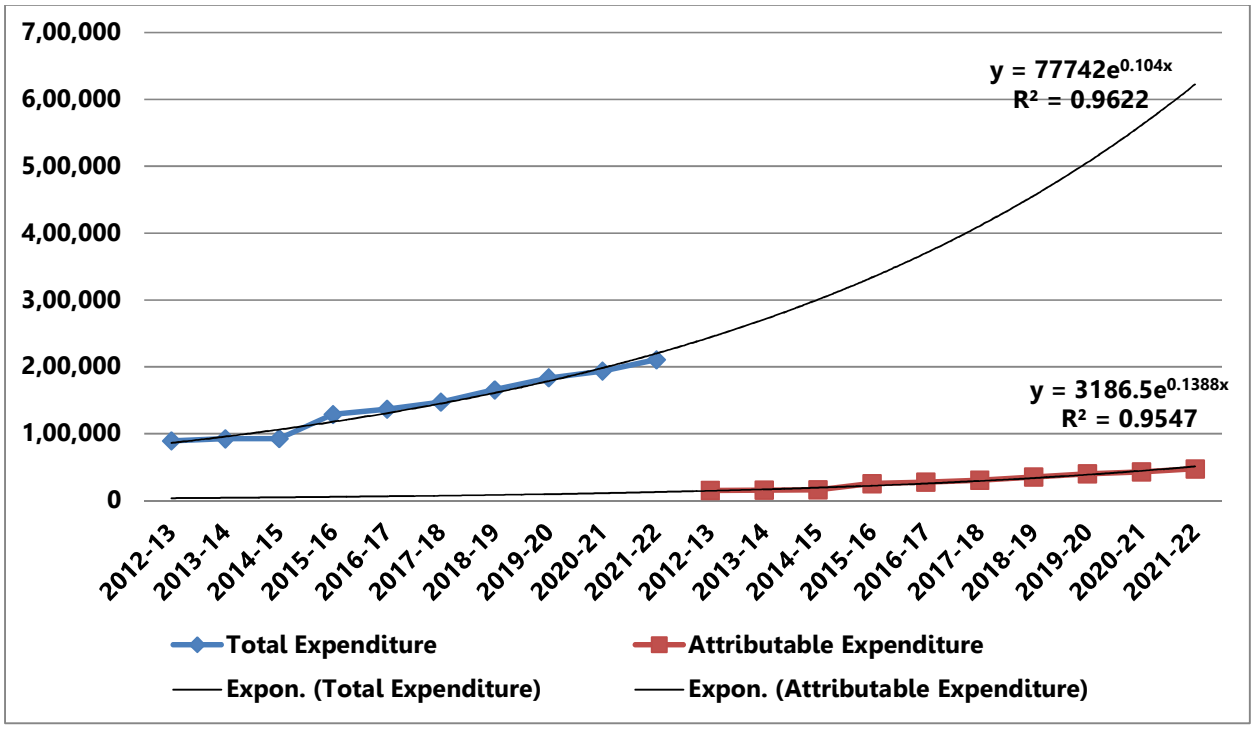

Figure 3.3: 10 years Exponential projections based on 5 years actual expenditure

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ANNEXURE - I

List of 116 identified schemes, BIOFIN category and attribution

No. of Ministry	Ministry/ Department	No. of Dept.	Min/ Dept. Code	No. of Schemes	Name of Scheme	BIOFIN Category	Attribution
1	Agriculture & Farmers Welfare	1	DAC&FW	1	Seeds	Natural Resource Use	23.57
1	Agriculture & Farmers Welfare	1	DAC&FW	2	National Project on Promotion of Organic Farming	Natural Resource Use	82.50
1	Agriculture & Farmers Welfare	1	DAC&FW	3	National Project on Management of Soil health and fertility	Natural Resource Use	27.50
1	Agriculture & Farmers Welfare	1	DAC&FW	4	Strengthening & Moderanisation of Pest Management approach in India	Sectoral Mainstreaming	27.50
1	Agriculture & Farmers Welfare	1	DAC&FW	5	Monitoring of Pesticides residues at National level	Sectoral Mainstreaming	15.00
1	Agriculture & Farmers Welfare	1	DAC&FW	6	National Food Security Mission	Natural Resource Use	10.13
1	Agriculture & Farmers Welfare	1	DAC&FW	7	National Mission for Sustainable Agriculture	Natural Resource Use	37.50
1	Agriculture & Farmers Welfare	1	DAC&FW	8	Central institute of Horticulture	Sectoral Mainstreaming	62.50
1	Agriculture & Farmers Welfare	1	DAC&FW	9	Rashtriya Krishi Vikas Yojana	Sectoral Mainstreaming	9.01
1	Agriculture & Farmers Welfare	1	DAC&FW	10	Pradhan Mantri Krishi Sinchai Yojna	Sectoral Mainstreaming	15.00
1	Agriculture & Farmers Welfare	1	DAC&FW	11	National Rainfed Area Authority	Sectoral Mainstreaming	37.50
1	Agriculture & Farmers Welfare	2	DAHD&F	12	Cattle Development	Restoration	15.00
1	Agriculture & Farmers Welfare	2	DAHD&F	13	Poultry Development	Natural Resource Use	2.50
1	Agriculture & Farmers Welfare	2	DAHD&F	14	Sheep and Wool Development	Natural Resource Use	2.50
1	Agriculture & Farmers Welfare	2	DAHD&F	15	Fishery Survey of India	Natural Resource Use	20.80
1	Agriculture & Farmers Welfare	2	DAHD&F	16	National Fisheries Development Board	Natural Resource Use	45.83
1	Agriculture & Farmers	3	DAR&E	17	Other Programmes of Crop Husbandry	Natural Resource Use	12.50

	Welfare						
1	Agriculture & Farmers Welfare	3	DAR&E	18	Other Natural Resource Management Institutes including Agro-Forestry Research	Sectoral Mainstreaming	62.50
1	Agriculture & Farmers Welfare	3	DAR&E	19	Climate Resiliant Agriculture Initiative	Natural Resource Use	37.50
1	Agriculture & Farmers Welfare	3	DAR&E	20	Animal Husbandry	Natural Resource Use	37.50
1	Agriculture & Farmers Welfare	3	DAR&E	21	Fisheries	Natural Resource Use	37.50
2	Atomic Energy	4	DoAE	22	Bhabha Atomic Reseach Centre (BARC)	Sectoral Mainstreaming	0.68
3	AYUSH	5	MoAy	23	National Medicinal Plants Board	Access and Benefit Sharing	82.50
3	AYUSH	5	MoAy	24	National Mission on Medicinal Plants	Access and Benefit Sharing	82.50
3	AYUSH	5	MoAy	25	National Mission on AYUSH	Access and Benefit Sharing	82.50
3	AYUSH	5	MoAy	26	TKDL&AYUSHintellectualproperty rights (Now under Other Programmes of Ayush)	Access and Benefit Sharing	82.50
4	Chemical and Fertilizers	6	DoC&P	27	Other New Schemes of Petrochemicals	Sectoral Mainstreaming	7.50
5	Coal	7	MoCo	28	Conservation, Safety and and Infrastructure Development in Coal Mines	Restoration	1.67
5	Coal	7	MoCo	29	Research & Development Programme	Restoration	3.75
6	Commerce and Industry	8	MoC&I	30	Marine Product Export Development Authority	Sectoral Mainstreaming	15.00
6	Commerce and Industry	8	MoC&I	31	Agricultural Product Export Development Authority	Sectoral Mainstreaming	7.85
6	Commerce and Industry	8	MoC&I	32	Plantations	Sectoral Mainstreaming	15.00
7	Communication and Information Technology	9	MoC&IT	33	National Knowledge Network	Sectoral Mainstreaming	2.50
8	Culture	10	MoCu	34	National Council of Science Museum, Kolkata	Enhancing Implementation	5.62
8	Culture	10	MoCu	35	Science Cities	Enhancing Implementation	10.00
9	Development of North Eastern Region	11	MoDoNER	36	Organic Farming in NE states	Natural Resource Use	82.50
9	Development of North	11	MoDoNER	37	Schemes for North Eastern Council	Sectoral Mainstreamin	5.45

	Eastern Region					g	
10	Drinking Water and Sanitation	12	MoDWS	38	National Rural Drinking Water Programme	Sectoral Mainstreaming	17.52
10	Drinking Water and Sanitation	12	MoDWS	39	Nirmal Bharat Abhiyan/ Swachh Bharat Abhiyan	Sectoral Mainstreaming	20.60
11	Earth Sciences	13	MoES	40	Oceanographic Survey(ORVand FORV) and Marine Living Resources(MLR	Sectoral Mainstreaming	0.50
11	Earth Sciences	13	MoES	41	Ocean Science and Services (INDOBIS, Marine Microbiology, CMLRE, ICMAM)	Enhancing Implementation	41.25
11	Earth Sciences	13	MoES	42	Ocean Survey and Mineral Resources	Sectoral Mainstreaming	9.37
11	Earth Sciences	13	MoES	43	Polar Sciences and Cryosphere	Enhancing Implementation	37.50
11	Earth Sciences	13	MoES	44	Ocean technology - marine biotechnology	Enhancing Implementation	14.26
11	Earth Sciences	13	MoES	45	Research education and training	Enhancing Implementation	14.06
12	Environment, Forest and Climate Change	14	MoEFCC	46	Secretariat (MOEFCC)	Natural Resource Use	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	47	Education & Training	Enhancing Implementation	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	48	Research	Enhancing Implementation	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	49	Ecology and Environment	Protection	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	50	Survey and Utilisation of Forest Resources	Enhancing Implementation	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	51	Forest Conservation Development & Regeneration	Protection	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	52	Communications and buildlings	Sectoral Mainstreaming	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	53	Wildlife Preservation	Natural Resource Use	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	54	Zoological Parks	Protection	95.00

12	Environment, Forest and Climate Change	14	MoEFCC	55	International Cooperation	Protection	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	56	National Afforestation and Ecodevelopment Programme	Natural Resource Use	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	57	Grants to North Eastern Areas under various programme	Natural Resource Use	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	58	Botanical Survey of India	Natural Resource Use	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	59	Zoological Survey of India	Natural Resource Use	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	60	Ecological Research and Ecological Restoration	Natural Resource Use	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	61	Prevention and Control of Pollution	Protection	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	62	Other Programme of Forestry & Wildlife	Protection	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	63	Grants to State Governments under various Programmes	Protection	95.00
12	Environment, Forest and Climate Change	14	MoEFCC	64	Grants to Union Territory Governments under various Programmes	Protection	95.00
13	Home Affairs	15	MoHA	65	Jawaharlal Nehru National Urban Renewal Mission	Sectoral Mainstreaming	19.52
13	Home Affairs	15	MoHA	66	Rashtriya Krishi Vikas Yojana	Sectoral Mainstreaming	9.01
13	Home Affairs	15	MoHA	67	Dept. of Agriculture (All 5 UTs)	Sectoral Mainstreaming	29.60
13	Home Affairs	15	MoHA	68	Dept. of Rural Development (All 5 UTs)	Sectoral Mainstreaming	2.50
13	Home Affairs	15	MoHA	69	Dept. of Higher Education (All 5 UTs)	Enhancing Implementation	2.50
13	Home Affairs	15	MoHA	70	Dept. of Environment & Forest (All 5 UTs)	Natural Resource Use	95.00
13	Home Affairs	15	MoHA	71	Dept. of Water Resources (All 5 UTs)	Sectoral Mainstreaming	62.50
14	Housing and	16	MoH&U	72	JNNuRM	Sectoral	19.52

	Urban Affairs		A			Mainstreaming	
14	Housing and Urban Affairs	16	MoH&UA	73	AMRUT	Sectoral Mainstreaming	35.35
14	Housing and Urban Affairs	16	MoH&UA	74	Swach Bharat Mission	Sectoral Mainstreaming	20.60
15	Human Resource Development	17	DoHE	75	University Grants Commission	Enhancing Implementation	2.50
16	New and Renewable Energy	18	MoN&RE	76	Grid Interactive Renewable Power	Sectoral Mainstreaming	2.50
16	New and Renewable Energy	18	MoN&RE	77	Off Grid/Distributed and Decentralized Renewable Power	Sectoral Mainstreaming	2.50
16	New and Renewable Energy	18	MoN&RE	78	Renewable Energy For Rural Application	Sectoral Mainstreaming	2.50
16	New and Renewable Energy	18	MoN&RE	79	Research, Design and Development in Renewable Energy	Sectoral Mainstreaming	2.50
16	New and Renewable Energy	18	MoN&RE	80	Renewable Energy for Urban, Industrial and Commercial	Sectoral Mainstreaming	2.50
17	Planning	19	Niti Ayog (MoPl)	81	National Rainfed Area Authority	Sectoral Mainstreaming	37.50
18	Power	20	MoP	82	Energy Conservation	Sectoral Mainstreaming	2.50
18	Power	20	MoP	83	Beauro of Energy Efficiency (BEE)	Sectoral Mainstreaming	2.50
19	Rural Development	21	DLR	84	Pradhan Mantri Krishi Sinchai Yojana-watershed component (Earstwhile IWMP)	Sectoral Mainstreaming	37.50
19	Rural Development	21	DLR	85	Integrated watershed management programme (Now under PMKSY-WC)	Sectoral Mainstreaming	37.50
19	Rural Development	22	DRD	86	MNREGA	Sectoral Mainstreaming	21.05
20	Science and Technology	23	DoST	87	S & T Programmes for Socio-Economic Development	Enhancing Implementation	7.50
20	Science and Technology	23	DoST	88	Autonomus institutes and professional bodies	Enhancing Implementation	2.50
20	Science and Technology	23	DoST	89	SERB	Sectoral Mainstreaming	2.50
20	Science and Technology	23	DoST	90	Alliance and R& D mission	Sectoral Mainstreaming	2.50
20	Science and Technology	24	DSIR	91	CSIR- Research schemes, scholarships anf fellowships	Enhancing Implementation	2.50
20	Science and Technology	24	DSIR	92	CSIR-National Laboratories	Enhancing Implementati	2.50

						on	
20	Science and Technology	25	DBT	93	Programmes for Promotion of Excellence and Innovation	Enhancing Implementation	2.50
20	Science and Technology	25	DBT	94	Provison for Projects/Schemes for the benefit of Northeastern Areas and Sikkim	Sectoral Mainstreaming	4.50
20	Science and Technology	25	DBT	95	Biotechnology for Societal Development	Enhancing Implementation	8.57
20	Science and Technology	25	DBT	96	Research and Development	Sectoral Mainstreaming	6.00
21	Space	26	DOS	97	Resourcesat -2A- provide Continuity of Data -Natural resource Management	Enhancing Implementation	2.50
21	Space	26	DOS	98	North -Eastern Space Applications Centre -NE-SAC, NRM-NE	Enhancing Implementation	2.50
21	Space	26	DOS	99	Earth Observation Application Mission	Enhancing Implementation	2.50
21	Space	26	DOS	100	National Natural Resources Management-(NNRMS)	Sectoral Mainstreaming	2.50
21	Space	26	DOS	101	Indian Institute of Remote Sensing(IIRS)	Enhancing Implementation	2.50
21	Space	26	DOS	102	Space Application Centre (SAC)	Enhancing Implementation	2.50
21	Space	26	DOS	103	National Remote Sensing Centre (NRSC)	Enhancing Implementation	2.50
21	Space	26	DOS	104	Disaster Management Support (DMS)	Sectoral Mainstreaming	2.50
22	Tourism	27	MoT	105	Product/Infrastructure Development for Destinations and Circuits/Rural Tourism	Sectoral Mainstreaming	2.50
23	Tribal Affairs	28	MoTA	106	Market Development of Tribal Products/Produce (TRIFED)	Sectoral Mainstreaming	15.00
23	Tribal Affairs	28	MoTA	107	Minimum Support Price for Minor Forest Produce (MSP for MFP)	Natural Resource Use	15.00
23	Tribal Affairs	28	MoTA	108	Van Bandhu Kalyan Yojna	Natural Resource Use	2.50
24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	109	Ground Water Management and Regulation	Natural Resource Use	62.50
24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	110	R&D Programme in Water Sector	Enhancing Implementation	37.50

24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	111	River Management-Border Areas	Sectoral Mainstreaming	6.00
24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	112	Development of Water resources Information System	Enhancing Implementation	2.50
24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	113	National River Conservation Plan	Restoration	82.50
24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	114	Works for Beautification of River Front	Restoration	82.50
24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	115	National Ganga Plan	Enhancing Implementation	82.50
24	Water Resources, River Development and Ganga Rejuvenation	29	MoWR,RD & GR	116	Pradhan Mantri Krishi Sinchai Yojana (Har Khet Ko Pani)	Sectoral Mainstreaming	37.50