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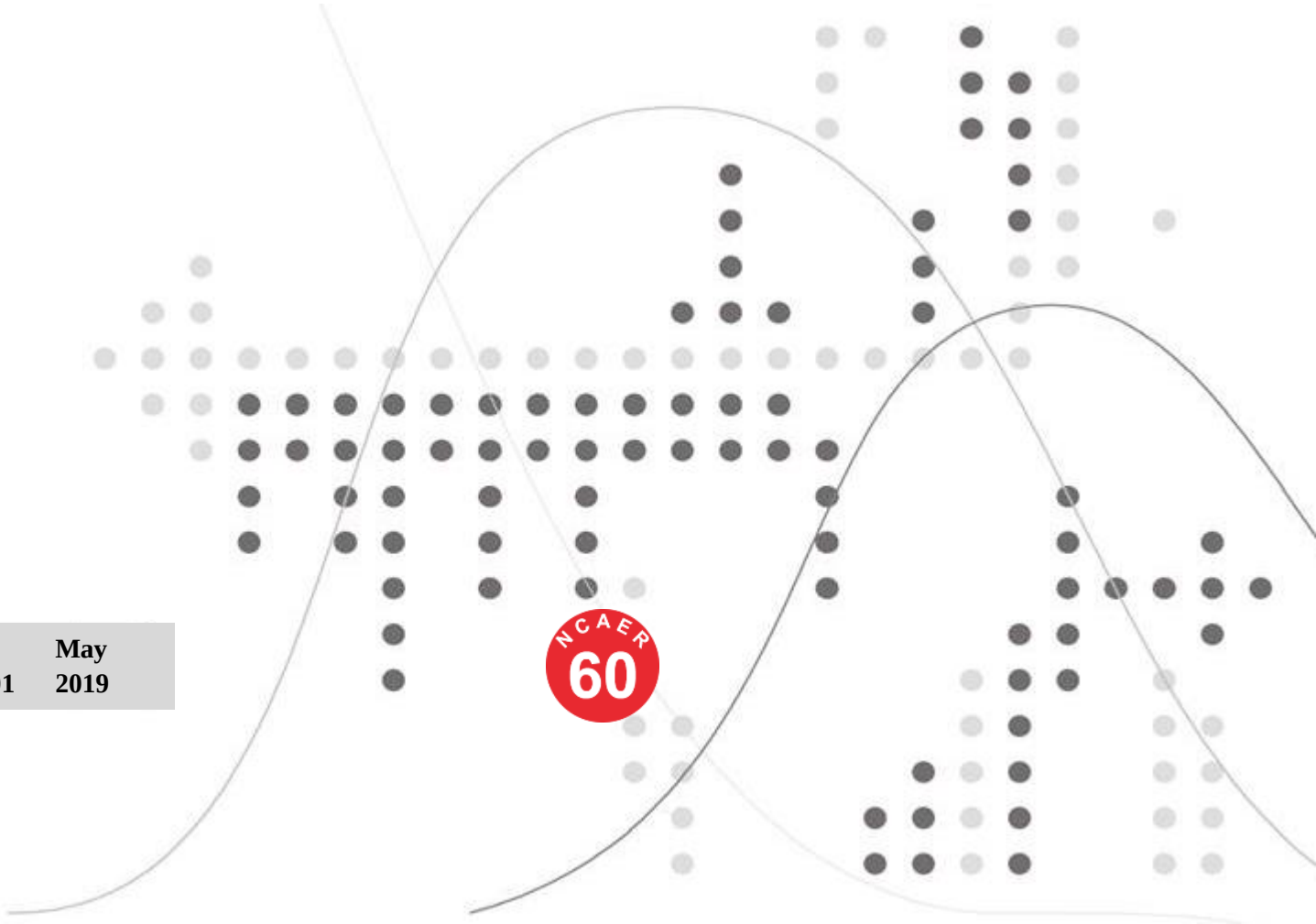
15th Finance Commission: Measureable, Performance-based Incentives for States in India

A Study for the 15th Finance Commission of India



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A Study for the 15th Finance Commission of India

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NATIONAL COUNCIL OF APPLIED ECONOMIC RESEARCH
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Contents

List of Figures

List of Boxes

Foreword

NCAER is privileged to have supported practically every Finance Commission from the early days of the Indian Republic in some way or the other with NCAER's economic research and analysis.

We were therefore delighted when the Chairman of the 15th Finance Commission, Shri N. K. Singh, wrote to NCAER in April 2018 requesting us to tackle what were possibly two of the more complex issues in the Terms of Reference provided to the Finance Commission. We readily accepted the assignment and have worked closely with the 15th Finance Commission members and staff for the work that is now described in this NCAER Report.

The Chairman requested NCAER, first, to tackle paragraph 7 of the Commission's Terms of Reference that dealt with "measureable performance-based incentives for States." We were requested to develop a methodological framework that the Commission could use to decide how it would structure these performance incentives to States. Second, he requested that we complement this broad-based study with a deeper drill-down into one of the subparts of paragraph 7, namely designing incentives to reward performance by States in implementing flagship schemes of the Government of India, and in promoting disaster resilient infrastructure, SDGS, and the quality of expenditure.

The NCAER team has responded to the Commission's request using two simple questions: what to measure; and how to reward. As often is the case in policy research, the answers to simple questions turn out to be a lot more complex, and it was no different here. The team reviewed performance measurement issues in past finance commission formulations, in India's centrally sponsored schemes, and in international development experience.

To arrive at a useable framework, NCAER's work stresses measurable outcomes, not outputs, inputs, or processes, which is what much of government administrative data relate to. The work also shows that both simplicity and credibility of the data are a must. The Report discusses what data credibility must mean: objectivity, reliability, universality, consistency, relevance, and frequency.

Using these criteria, the NCAER Report then narrows down five simple indicators that the Finance Commission could use for measurable, performance-based incentive awards to States. The Report also suggests the phasing of how these can be used over the April 2020 to March 2025 award period to balance the availability of data with States' capacity to design and implement policies that could yield better results in these five years. The Report also recommends to the Commission the size and manner of rewards it can consider to incentivise States to perform better.

The Report goes a long way in providing a practical approach to the Commission to recommend performance-based rewards to States. In doing so, I hope NCAER's work when embodied in the Commission's awards will help in persuading States to prioritize outcomes in infrastructure and human development.

The Report also points to several difficulties in doing such work. Government administrative data by and large are simply not about measuring outcomes, and often not even outputs. The research shows how poorly served policymakers are with

consistent, credible evidence to base sound decisions on that will affect millions. I hope that the 15th Finance Commission will use this work not only to incentivise States but also to suggest ways in which the State and Union governments must do better in measuring outcomes. Research institutions like NCAER can readily help interested State governments. Once the 15th Finance Commission awards are implemented, we can also help States develop strategies and action plans to respond to the performance incentives.

I would like to thank Shri Deepak Sanan, Senior Adviser at NCAER, for leading this important work and bringing his many years of experience in the IAS and his deep interest in decentralisation and devolution to bear on it. He was ably joined by Professor Devendra B Gupta, Senior Adviser at NCAER, and Dr Prerna Prabhakar, Associate Fellow. I also want to thank Chairman N K Singh for asking NCAER to do this work, and to the other members and staff of the Commission for guiding the NCAER team during the several interactions the NCAER team had with them.

Shekhar Shah
Director-General

May 26, 2019

Acknowledgements

These two studies were commissioned by the Fifteenth Finance Commission on July 19, 2018, keeping in view the special nature of Para 7 in the Terms of Reference given to the Commission. The NCAER team interacted with the Commission on three occasions in order to present its approach, secure comments and seek guidance on further action in the matter. The first meeting with the Commission was held on 5th July, 2018 in which the team explained its basic approach to the task given to it. The Commission agreed with the broad approach of seeing the two studies as complementary with each other. It was agreed that the methodological framework would be finalized first and the simulation exercise on this basis would follow thereafter.

The draft methodological framework or performance measurement and the extensive work done in this context, was presented to the Finance Commission on 19th December, 2018. The limited number of credible data bases and corresponding indicators for performance measurement was brought out in the interim report. The Commission suggested that the possibility of including power sector losses and total fertility rate as possible indicators for performance measurement may be examined.

A presentation on the draft final report was made to the Commission on 7th March, 2019. Based on the comments received at the time, this report has been finalized. Team members wish to record their appreciation for the deep interest taken by the Commission in their work and the thoughtful insights and comments proferred. Dr. Shekhar Shah, Director General, NCAER was instrumental in framing the initial ideas on the approach adopted in these studies. Various faculty members from within NCAER offered extremely helpful comments in finalizing the draft report. Sadhna Singh has provided excellent and timely secretarial assistance. Konica Sehgal worked enthusiastically in supporting the study.

Deepak Sanan, D. B. Gupta,
Prerna Prabhakar, Charu Jain, Roopali Verma

Abbreviations

Abhy: Atal Bhujal Yojana

ADEPTS: Advanced Educational Performance through Teacher Support
AHS: Annual Health Survey
AMRUT: Atal Mission for Rejuvenation and Urban Transformation
APDP: Accelerated Power Development Programme
AT&C: Aggregate Technical and Commercial
BEO: Block Educational Office
BMI: Body Mass Index
CCU: Cardiac Care Units
CGWB: Central Ground Water Board
CMOs: Chief Medical Officers
CSSs: Centrally Sponsored Schemes

CWRMI: Composite Water Resources Management
DALY: Disease Adjusted Life Years
DEO: District Educational Office

DISCOM: Distribution Companies
DLI: Development Linked Indicator
EESL: Energy Efficiency Services Limited
EPS: Employees' Pension Scheme
FC: Finance Commission
FSI: data base give
GDP: Gross Doemstic product
GIA: Grants-in-Aid
GNI: gross national income
GPMS: Gram Panchayat Management System (GPMS),
GRMS: Grievance Redressal Management System
GSDP: Gross State Domestic Product
HED: Higher Education Department
HRMIS: Human Resource Management Information System
IDG: Institutional Development Grant

IFMIS: Integrated Financial Management System
IGF: Inspection Générale des Finances
ILO: International Labour Organization

IMR: Infant Mortality Rate

ISO: International Organization for Standardization
IVA: Independent Verification Agency

MDWS: Ministry of Drinking Water and Sanitation
MMR: Matertnal Moratlity Rate

ADB: Asian Development Bank

AHPI: Association of Healthcare Providers India

AIBP: Accelerated Irrigation Benefits Program
APA: Annual Performance Assessments

ASI: Annual survey of Industries

ATMs: Automated Teller Machines
BMCs: Basic Mandatory Conditions
BMS: Bridge Management System
CEA: Central Electricity Authority
CHC: Community Health Center
CPCB: Central Pollution Control Board
CSSWS: Community Safe and Secure Water Systems (CSSWS
CWSN: Children with Special Needs

DBT: Direct Benefit Transfers
DIET: District Institute of Education and Training
DLHS: District level Health Survey
DLI: Disbursement Linked Indicator
EMCs: Expanded Mandatory Conditions
ESI: Employees' State Insurance
FDI: Foreign Direct Investment
FSI: Forest Survey of India
GER: Gross Enrolment Ratio
GIS: Geographic Information System
GoHP: Government of Himachal Pradesh
GPs: Gram Panchayats

GRPV: Grid Connected Rooftop Solar PV

GST: Goods and Service Tax
HMIS: Health Management Information System
ICDS: Integrated Child Development Services

IDSP: Integrated Disease Surveillance Programme
IGAT: Inspection Générale de l'Administration Territorial
IHDS: Indian Human Development Survey
IMIS: Integrated Management Information System
INDH: National Initiative for Human Development
ISRO: Indian Space Research Organization

JnNURM: Jawaharlal Nehru Urban Renewal Mission
MJP: Maharashtra Jeevan Pradhikaran of Government of Maharashtra
MNRE: Ministry of New and Renewable Energy

MNREGA: Mahatma Gandhi National Rural Employment Gurantee Act
MoLE: Ministry of Labour and Employment

MoWR: Ministry of Water Resources

MSDE: Ministry of Skill Development and Entrepreneurship
NABH: National Accreditation Board for Hospitals & Healthcare Providers
NCRB: National Crime Records Bureau
NDC: Nationally Determined Contribution
NER: Net Enrolment Ratio
NFHS: National Family Health Survey
NHM: Mission Director
NOC: No Objection Certificate
NPC: National Planning Commission
NPS: National Pension System
NREGA: National Rural Employment Guarantee Act
NSSO: National Sample Survey Office

ODA: Official Developemtn Assistance

PBGS: Performance-Based Grant Systems
PforR: Program for Result
PLHIV: People living with HIV
PMKSY: Pradhan Mantri Krishi Sinchai Yojana
PRDD: Panchayat and Rural Development Department
R&D: Research & Development

RD&GR: River Development & Ganga Rejuvenation
SANKALP: Skills Acquisition and Knowledge Awareness for Livelihood Promotion
SC/ST: Scheduled Caste/Schedules Tribes

SCP: Sustainable Consumption and Production
SL: School Leadership

SLWM: Solid and Liquid Waste Management
SRB: Sex Ratio at Birth
SRS: Sample Registration Survey
TB: tuberculosis

TFR: Total Fertility Rate
TSC: Total Sanitation Campaign

UIDs: Unique Identification
UJS: Uttarakhand Jal Sansthan
UNCDF: United Nation's Capital Development Fund
UPA: government
WBMS: Web Based Monitoring System
WSSD Water Supply and Sanitation Department

MoAFW: Ministry of Agriculture & Farmers' Welfare
MoSPI: Ministry of Statistics and Programme Implementation of the Government of India
MPBINs: measurable, performance-based incentives
NAAC: National Assessment and Accreditation Council
NARSS: National Annual Rural Sanitation Survey
NCSL: National Conference of State Legislatures
NEET: National Eligibility and Entrance Test
Net Enrolment Ratio
NGP: Nirmal Gram Puraskar
NO_2: Nitrogen Dioxide
Non Plan Revenue Deficit Grant (NPRD
NPRD: Non Plan Revenue Deficit Grant
NQAS: National Quality Assurance standards
NRHM: National Rural Health Mission

NUEPA: National Institute of Educational Planning and Administration
OECD: Organization for Economic Cooperation and Development
PFC: Power Finance Corporation
PINDICS: Performance Indicators
PM: Concentration of PM
PMU: Program Management Unit
PWD: Public Works Department

R-APDRP: Re-structured Accelerated Power Development and Reforms Program
SBM: Swachh Bharat Mission

SCERT: State Council of Educational Research and Training (SCERT)
SDGs: Sustainable Development Goals
SLDP: School Leadership & Development Programs
SO_2: Sulfur dioxide
SRN: Strategic Road Networks
SSA: Sarva Shiksha Abhiyan
TEMIS: Teacher Management Information System
TOF: Tree outside forest
UDISE: Unified-District Information System for Education
UJN: Uttarakhand Peyjal Nigam:
ULB: Urban Local Bodies
UNPBGS: UN's Performance Based Grants Systems
VAT: Value Added Tax
WDI: World Development Indicators
WUAs: Water Users Associations

Executive Summary

1. Para 7 of the terms of refernce of the 15th Finance Commission introduces a number of challenges for the Finance Commission, if it is to consider making recommendations of measurable performance linked incentives in the areas listed. The first relates **What to Measure?** The sheer number of areas encapsulated in this para and issues related to the measurement of performance in these areas / dimensions, is daunting. This is the most detailed and ambitious listing of possible dimensions of State functions ever suggested to a Finance Commission for use as the basis for awards to States given that they include both flagship schemes of the Government of India and the Sustainable Development Goals adopted by the world community. The Commission's challenge is to ensure that performance on these areas / dimensions is measured credibly. Credibility is dependent on an exercise that carries conviction because it uses as a base indicators and data bases that are considered trustworthy and reliable in comparing performance across states. In other words, it is as free of errors as possible and does not give rise to inappropriate use of discretion or gaming by the States. How should performance be measured in these various areas / dimensions to ensure such credibility? What indicators should be used in each case that would capture the core objective being pursued in relation to the concerned area / dimension? What kind of data bases exist in relation to these indicators? What qualities should the concerned data base/s possess if the entire exercise is to pass the test of being credible? What conceptual and practical principles should characterize the data bases related to the selected indicators so that they properly represent measurable performance in the subject areas? In effect, the large number of areas that Para 7 can be expanded to cover, needs to be appropriately reviewed, to see what is feasible for performance measurement.
2. Secondly, **How to Reward?** The Commission will need to address issues related to the incentives that it may seek to recommend for commendable performance. Should some or all of the areas / dimensions be part of a formula for horizontal revenue sharing amongst the states? If so, what weights should be assigned to the various selected areas? Or should some or all be used individually for measurable performance-related grants? What kind of grant corpus would be appropriate in such a case? Should some indicators be part of a formula and some result in specific grants-in-aid? Should the incentives be related to previously recorded performance alone or should there also be an incentive for projected or real-time achievements during the five years starting April 1, 2020? Should the incentive itself be untied or tied in terms of the use to which it can be put?
3. In seeking answers to address these challenges, this study reviewed experience with past Finance Commission formulations, centrally sponsored schemes and international development programmes. The conclusion was that **simple indicators with reliable data bases work best** for credible

performance measurement. The principles that emerged from this review are the following:

i) Choose **outcome related indicators** and not output /input / process indicators. The ultimate aim of rewarding performance is to incentivize progress towards the outcome sought through the efforts of the concerned level of government. It is important that the indicators selected are a proximate way of assessing progress towards achieving the desired outcome. Complex, input based indicators may not necessarily reward performance on outcomes. Indicators that are only in the nature of action that is expected to produce desired results may not necessarily lead to these results because the diagnosis may be inaccurate or only partial. It is appropriate that there is clarity about the outcome being sought to be achieved by the efforts that are sought to be rewarded and the indicators that best represent this outcome are outlined.

ii) Ensure **credible Data Bases** are used. It is imperative that the information on the indicators that measure performance is derived from credible data sources. Data bases that would enable assessing performance in relation to these indicators must be identified and evaluated to see the extent to which they are credible. Credibility may be gauged by the extent to which the data bases (or their sources) possess the attributes of being:
   (a) **Objective** (data source is impartial and not generated by implementing agencies / departments of the state governments or by agencies under the control of or susceptible to influence of those likely to benefit from the data reported). A crucial element that emerged from our review relates to the need for the data base being accepted as objective- a lack of objectively generated data can result in gaming by the recipient, especially when the donor incentives also favour disbursing rewards.
   (b) **Reliable** (the agency generating / collecting the data has achieved a reputation for trustworthiness). Third parties collecting data may or may not have such a reputation.
   (c) **Universal** (the data base has the breadth to both cover all the units being reported and to limit the margin of error in making comparisons).
   (d) **Consistent** (the data base exists over a reasonable time period with similar parameters in order to moderate the possibility of one time events in particular time periods).

iii) In addition to being credible, the **data base must have utility** in measuring performance in a desired time frame. Thus the census is a data base that ticks all the relevant check boxes but with a decadal interval in successive census operations, the data base cannot really be used to measure performance with annual or two yearly intervals.

4. Using these principles, the various areas / dimensions given in Para 7 were listed to consider the indicators that could be outlined to reflect the outcomes aimed at by these areas / dimensions and to see if these indicators have data bases on performance of states **(Table A3.1)**. A similar exercise was conducted for flagship programmes of government **(Table A3.2)**. In the case of Sustainable Development Goals, the international community and MOSPI have made a detailed list of indicators that can be used. This list was reviewed to cull out the outcome based indicators and see if they possessed any data bases on performance of states **(Table A3.3)**. The indicators listed by NITI

Ayog in formulating various indices and monitoring progress on SDGs were similarly reviewed to prepare a short list of outcome based indicators and the existence of data bases in relation to them **(Table A3.4)**. The data bases listed in relation to the outcome based indicators that emerged from these various exercises were then subjected to the criteria for credibility and utility outlined in the preceding paragraph **(Table A3.5)**. Finally, the outcome indicators that relate to the data bases that largely met the criteria to be considered credible and also passed the utility test were listed for final selection **(Table A3.6)**.

5. With regard to the challenge of the size and manner of making available the incentives for performance to concerned states, the review of national and international experience has brought out the following:

   (i) The incentives must be sufficient in size to be noticed and worth striving for.

   (ii) The incentives should be left untied with regard to usage to enhance their attractiveness.

   (iii) They should not form part of tax sharing so that they are not subsumed in overall devolution since many states are likely to be revenue deficit even post tax devolution. The incentives ought to be a top up post devolution so it would be appropriate if they are allocated as grants-in-aid.

   (iv) It is difficult to find a formula to decide on inter se weightage between areas selected for grant of incentives on the basis of performance management. It may be appropriate to make an equal division between the selected indicators.

   (v) The review of experience favours incentives based on data related to performance in past years rather than prospective performance. Already available information limits both the prospect of gaming and the difficulties inherent in ensuring data availability in the future. Prospective performance could be considered where highly credible data bases with easily understood results are available.

   (vi) Incentives ought to reward a combination of both achievement in absolute terms as well as a percentage change in recent years, in order to balance long term efforts of achieving states and possible short term efforts of laggard states. Incentive amounts to a state should be able to factor in the impact of a state's efforts at the national level and must not be completely disproportionate to size.

6. The recommendation on incentive size is that for the incentives to be meaningful, the amount should be in the range of 1% of the shareable tax pool every year. It may be made available as an untied grant in aid.

7. The following five indicators be considered to reward performance.

   (i) Power Sold in relation to promoting growth and reducing losses

   (ii) Road Length in relation accelerating links to the market economy

   (iii) Infant Mortality ratio (IMR) in relation to better health outcomes

(iv) Sex ratio at Birth (SRB) in relation to securing a more gender balanced population

(v) Forest Cover in relation to securing a better physical environment

8. It is recommended that all indicators should not be rewarded every year and instead the indicators should be phased over the forecast period for making available the incentive amounts. This will ensure that amount received in each case can be substantial. The recommended phasing is as follows:

   (i) In year 1, only the power sold indicator be rewarded since the data base associated with this has a number of question marks which can be exploited to game the reward if a relatively later period is used for which data is still to be collected.

   (ii) In year 2, only road length may be rewarded as selecting an early year has the same advantage as in the case of the power sector- there is less possibility of any manipulation of data on performance that has already been generated by the time the Commission recommendations become known, although this performance can be checked through satellite imagery generated at the relevant time.

   (iii) In year 3, performance on change in Infant Mortality Rate (IMR) be rewarded as census 2021 data on IMR would be available by then. This will enable a universal methodology for computation of IMR across large and small states which can be a basis for the reward or at least a test check on the data made available by the Sample Registration System (SRS).

   (iv) In year 4, only the performance with regard to Sex Ratio at Birth (SRB) be rewarded as SRB data is not collected in the SRS for small states and census data is required to be used for this purpose. It is certain that by the fourth year of the forecast period, the results of the 2021 census will be available and the data can be used for the measurement of performance and related reward disbursement.

   (v) In year 5, forest cover may be rewarded since the FSI data used for this becomes available every two years and this will enable the 2021 round of survey data to be available.

9. For each of these five indicators incentive proportions have been worked out based on currently available data and in addition to these five indicators, an exercise has also been attempted in relation to the Total Fertility Rate (TFR) as requested by the Commission.

In the case of power sector losses, there is no credible information of aggregate technical and commercial losses for all the states. A proxy that has the added advantage of reflecting power sector contribution to economic growth and well-being is total power sold in a state as a proportion of total power sold in the country, taken from the CEA handbook on Electricity. Taking this as an absolute measure of achievement in the latest year for which data is available, each state's contribution to change in this indicator over the reference period, is then given ¼ value and added / subtracted to the absolute proportion to work out the admissible incentive share. This is reflected in **Table A6.1** along with a comparison with state's share in total population.

In the case of roads, two alternatives have been proposed in order to capture road performance. In the first suggested alternative, the proportionate road length (other than national highways) to total road length in the country has been taken as the admissible incentive percentage to a state. The results are exhibited in **Table A6.2a.** In the second alternative, weighted average of road length per 100 sq km) and road length per lakh population was considered as the performance indicator (**Table A6.2b**). Comparison of the incentive shares (derived from the two alternatives) with the state's share in 2011 total population is presented in the respective tables.

The working out of the incentive for achievement on the IMR is based on SRS data, and absolute and relative performance have been combined using weighted average (one fourth weightage to relative performance, and weight of one to absolute performance) to arrive at the final incentive shares, which are further compared with state's share in total 2011 population. The results are exhibited in **Table A6.3.**

For performance with regard to Sex Ratio at Birth (SRB), the data is taken from the census reports of 2001 and 2011 **(Table A6.4)**. The SRB performance index is obtained by adding ¼ of the percentage decline between 2001 and 2011 to the SRB index of 2011, which was then multiplied by 2011 population of each state. These final incentive shares are then compared with state's share in the total population for 2011.

Two alternative formulations have been presented in the case of achievement on forest cover. The first takes the forest cover as such as proportion of total forest cover in the country and treats this as the proportion admissible for the incentive. The second uses a composite of forest area as proportion of state's area / population to moderate the extreme position that could result from pure proportions of forested area in total area. In both cases, in the first place, weights have been assigned to factor in density of tree cover starting with least dense being taken to have value of one, the middle range of 2 and the most dense of 4. The results of the exercise with currently available data for both absolute value and change in recent years has been shown in **Table A6.5a and A6.5b**.

This study has not recommended using TFR to reward performance for a number of reasons. Data availability is only one of the issues. More important, rewarding a drop in TFR can result in policy that encourages coercion to achieve its goals. This can lead to adverse consequences as shown by China's one child policy. Consequently, while a working has been shown with regard to TFR as desired by the Commission, no recommendation has been made. For TFR, the working is based on Census data since SRS data is available only for 20 large states. In order not to incentivize sharper drops from the replacement TFR of 2.1 (which can reflect or lead to possible adverse policy and social consequences), it has been proposed that for all states with a TFR equal to or below 2.1, a uniform value of 100 be taken for calculating the incentive proportion by multiplying this to the state population for 2011. For states with a higher TFR, a proportionate reduction from 100 has been taken as a multiplier for working out the state share of incentive. Use of state population as a multiplier ensures adequate weight to a state's size and therefore, contribution to the overall national picture. The comparative picture of the incentive proportion as worked out by this formulation against the state share in the total population has been brought out in **Table A6.6.**

Using the calculated state wise incentive shares for the five selected indicators and with an assumption of incentive amount of Rs 20,000 crore for each of the

indicators, the incentive amount for all the states are calculated and are reported in the respective incentive share simulation tables. Further, in a comparative framework, the topmost gaining states, characterized by positive net performance incentives (with respect to population) in all five indicators have been exhibited.

Chapter 1: Introduction

1.1 Background of the Two Studies

The objective of the first study commissioned by the Fifteenth Finance Commission is to suggest a methodological framework for the Commission to consider the task entrusted to it under para 7 of its Terms of Reference. The second study is to make recommendations to the Commission in relation to clause (iii) of Para 7. In the course of initial and interim presentations to the Commission, the two studies have been structured to complement each other, with one following the other. The first study provides a methodological framework to measure performance in various areas and recommend incentives for efforts that result in better performance. The second is a detailed simulation of the results that would obtain state wise in ranking performance and providing incentives in the relevant areas. Both the studies are being presented together in one volume after consultation with the Finance Commission since they are closely related.

Para 7 of the Terms of Reference given to the Fifteenth Finance Commission states as follows:

i. Efforts made by the States in expansion and deepening of the tax net under GST;

ii. Efforts and progress made in moving towards a replacement rate of population growth;

iii. Achievements in implementation of flagship schemes of Government of India, disaster resilient infrastructure, sustainable development goals, and quality of expenditure;

iv. Progress made in increasing capital expenditure, eliminating losses of the power sector, and improving the quality of such expenditure in generating future income streams;

v. Progress made in increasing tax/non-tax revenues, promoting savings by adoption of DBT and Public Finance Management System, promoting a digital economy and removing layers between the government and beneficiaries;

vi. Progress made in promoting the ease of doing business by effecting related policy and regulatory changes and promoting labour intensive growth;

vii. Provision of grants-in-aid to local bodies for basic services, including quality human resources, and implementation of performance grant system in improving delivery of services;

viii. Control, or lack of it, in incurring expenditure on populist measures; and

ix. Progress made in sanitation, solid waste management and bringing in behavioural change to end open defecation."

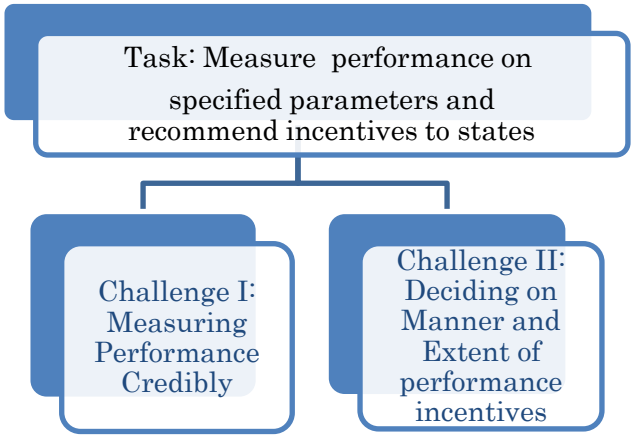
The detailed listing in Para 7 comes in the backdrop of considerable discussion around cooperative federalism and ranking state efforts in various functions for which they are considered responsible. The central government has often, in the past, recognized states and districts for better performance in implementing national programmes especially in the areas of health, rural and urban development and

innovations in public policy and programmes. Private initiatives have also mushroomed in this space by instituting awards to be conferred on states for commendable performance in different sectors and activities. There have even been some financial incentives linked to performance under central schemes in a few sectors and in the recommendations of some of the past Finance Commissions. What is new of late is the creation by the central government of various indices to rank state performance in a comparative framework in diverse areas ranging from Ease of Doing Business to Composite Water Resource Management and recently the Sustainable Development Goals (SDGs).

1.2 Major Challenges posed by Para 7

Para 7 introduces a number of challenges for the Finance Commission, in making recommendations of measurable performance linked incentives in the areas listed (Figure 1).

Figure 1.1: Challenges posed by para 7 of 15th Finance Commission ToRs



The sheer number of areas covered in this para poses a challenge for measurement of performance. This is the most detailed and ambitious listing of possible dimensions of State functions ever suggested to a Finance Commission for use as the basis for awards to States. Depending on how they are counted, the actual areas which the Commission may consider for measurable, performance-based incentives (MPBINs) could extend well beyond the 20 or 21 areas listed, given that they include both flagship schemes of the Government of India and sustainable development goals adopted by the world community. In measuring performance in these areas / dimensions, the Commission's challenge will be to ensure that is done in a credible manner. Credibility is a function of an exercise that carries conviction. For this, it must base itself on indicators and data bases that are considered trustworthy and reliable in comparing performance across states. In other words, the performance measurement should be as free of errors as possible and the data bases should not be susceptible to inappropriate use of discretion or gaming by the States. How should performance be measured in these various areas / dimensions to ensure such credibility? What indicators should be used in each case that would capture the core objective being pursued in relation to the concerned area / dimension? What kind of data bases exist in relation to these indicators? What qualities should the concerned data base/s possess if the entire exercise is to pass the test of being

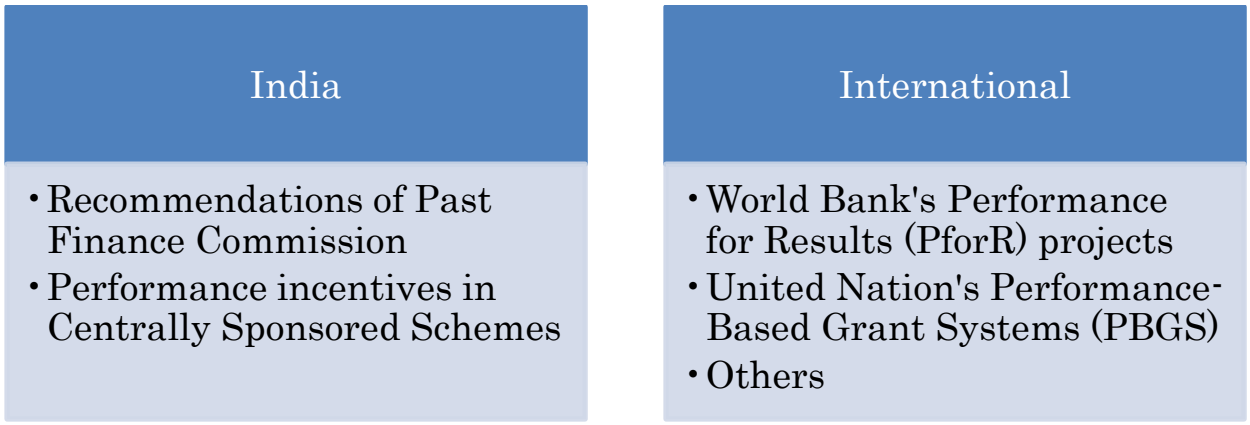
credible? What conceptual and practical principles should characterize the data bases related to the selected indicators so that they properly represent measurable performance in the subject areas? In evaluating these data bases, it would also be necessary to keep in view practical considerations of uniformity in data availability in both the base year from which to measure past performance and the subsequent period in which performance is to be compared.

Secondly, the Commission will need to address issues related to the manner and size of incentives that it may seek to recommend for commendable performance. Should some or all of the areas / dimensions be part of a formula for horizontal revenue sharing amongst the states? If so, what weights should be assigned to the various selected areas? Or should some or all be used individually for measurable performance-related grants? What kind of grant corpus would be appropriate in such a case? Should some indicators be part of a formula and some result in specific grants-in-aid? Should the incentives be in the nature of a reward for previously recorded performance or should it only be an incentive for real-time achievements during the five years starting April 1, 2020? Should the incentive itself be untied or tied in terms of the use to which it can be put?

1.3 Our Approach

Against the backdrop of the questions raised above, this study reviews the experience in India and internationally in relation to rewarding performance in inter-governmental financial transfers as well as development projects. From this experience, it derives principles that could guide the Finance Commission in its task. The past experiences reviewed in this regard are listed in Figure 2.

Figure 1.2: Review of Literature



1.4 Organization of the Report

This report is organized into six chapters.

Following the introductory *Chapter 1*, *Chapter 2* derives the principles that can result in the selection of appropriate indicators in relation to the various dimensions in which performance is sought to be measured and credible data bases to measure performance on these indicators.

Chapter 3 is a detailed review of the extent to which all the dimensions covered in Para 7 of the ToRs, meet the principles enunciated in Chapter 2.

Chapter 4 reviews literature to address the second set of challenges mentioned in the introductory chapter: the extent and form in which to reward the dimensions that are amenable to the principles of credible performance measurement.

Chapter 5 summarizes the recommendations emerging from the study relating to the methodological framework.

Chapter 6 reports on the work done for the second study. It provides five priority indicators that can be used for performance incentives for states.

Chapter 2: Principles for Credible Performance Measurement

As mentioned in the introductory chapter, this study uses a review of the experience in India and internationally in relation to rewarding performance in inter-governmental financial transfers as well as development projects in making its recommendations. This review enables deriving principles that can guide the Finance Commission in undertaking the task specified in Para 7. This Chapter is concerned with the first challenge noted in the Introduction. It seeks to derive principles that can result in the selection of appropriate indicators in relation to the various dimensions in which performance is sought to be measured and define credible data bases to measure performance on these indicators. The experience reviewed for this purpose relates to recommendations of past Finance Commission and performance incentives in relevant Centrally Sponsored Schemes in India as well as the experience with the World Bank's Performance for results (PforR) instrument and the UN's Performance Based Grants Systems (UNPBGS).

2.1. Review of the India Experience

2.1.1. Performance based Transfers under previous Finance Commissions

In relation to the tasks of Finance Commissions, a major focus of debate since the first Commission has related to two issues about vertical revenue sharing between the centre and the states. The issue of expanding the pool of taxes that ought to be shareable with the states was settled with the eightieth amendment to the Constitution whereby all central taxes became shareable with the states. The issue of the extent to which the centre should retain its revenues is likely to be perennial and surface with each Commission's recommendations given the imbalance between the centre and the states in terms of revenue raising powers and expenditure responsibilities.

With regard to horizontal transfers inter se states, the relative weightage to equity and efficiency has always seen some discussion but the debate around this question appears to have acquired a greater edge in recent years. Equity has been the major factor that has dominated Finance Commission formulations in relation to distribution of the amount to be transferred, amongst the states. **Table A2.1** shows the proportionate weight attached to need and performance by previous Finance Commissions in their formulations relating to tax sharing. It is interesting to note that the limited weightage to performance was further limited to only Income Tax (which was compulsorily shareable with states) by many of the Finance Commissions.

The limited weight to efficiency in tax devolution has in traditional thinking related basically to three areas: a state's contribution to the central tax(es) collected, a state's own tax effort and fiscal prudence exhibited by a state. The Fourteenth Finance Commission has, for the first time, broadened this element to include achievement in the extent of forest cover in the area of the state. The indicators used to measure performance on these dimensions have been exhibited in TableA2.2. In all these cases the data bases used to measure performance on the selected indicators have been independent of a state's ability to influence the results in any way. The data bases all relate to an actual status and not an estimate of any kind. However, it

is interesting to note that since the Ninth Commission, contribution as a measure of performance in enhancing revenue collection has been discontinued, possibly recognizing that there is a methodological flaw in assuming that tax generated by economic activity (especially income) is necessarily paid in the same state as the one in which production facilities are located. All the data bases are such that the data is available for all states. Finally, special care has been taken in most cases to ensure that one time factors can be evened out by taking an average of three year figures. This concern with ensuring credible data bases has meant that in all cases, the performance based revenue sharing has related to an assessment of past performance pre dating the forecast period of the concerned Commission.

Insofar as Grants in Aid to states are concerned, Finance Commissions have, in tune with a conventional reading of the constitutional provisions under Article 275 and the terms of reference usually given to them, generally eschewed any performance related recommendations. Table A2.3 shows the nature of grants in aid recommended by the Finance Commissions from the time of the First Commission. Finance Commissions have basically recommended grants in aid in five categories: Revenue Deficit Grants, Grants in lieu of revenues foregone, Grants to cover needs including natural calamities, areas of administration inadequately covered by plan funds and special requirements of various kinds, Grants to augment the resources available to local bodies and finally performance related Grants. Past Commissions have in general specified a conditional or performance element in the grants recommended for local bodies. However, the Thirteenth Finance Commission is the only Commission to have recommended performance related Grants of various kinds based on a reference to 'encouraging outcomes' in the ToR given to that Commission. The conditions attached to local body grants have largely been in the nature of reforms that states have been expected to carry out in order to empower these bodies and enhance efficient discharge of functions. Table A2.4 lists the conditions attached to local body grants recommended by Commissions from the 10th to the 14th). In practice, often the conditions have not been insisted on by the centre in making releases of the grants or the conditions have not been adhered to by the states or a paper adherence has been exhibited without meaningful results. Overall, these grants have seen extremely limited success in meeting the targets set for them. The absence of clear, monitorable outcome indicators or where these were specified then the absence of appropriate data bases to measure performance credibly has been an important factor in this lack of success.

The performance grants recommended by the Thirteenth Finance Commission were all for prospective performance, which would occur in the forecast period. Table A2.5 lists the conditions attached to the performance related grants recommended by the Thirteenth Finance Commission. The conditions attached to the different performance grants recommended by the Thirteenth Finance Commission varied from issue of orders to facilitate certain desired actions to quantitative performance that could be measured on appropriate data bases. A comparison of the actual release of grants against the prescribed allocation presented a mixed picture (Table A2.6). In the cases that related to performance quantifiable on simple, credible data bases such as limiting infant mortality rate and encouraging use of renewable energy, the entire recommended amount was released. In areas like water sector management, forestry management and issuance of UIDs, the releases were less than the allocation since states were often unable to fulfil the performance conditions for grant disbursement. The performance conditions in all these cases were not a demonstration of better outcomes but of actions that were considered

desirable in order to achieve the sector outcomes. Thus for example in forestry management the states were to secure approval to working plans to exploit forests more scientifically and increase their non-plan allocations for the forest sector. In the water sector, states were expected to put in place a regulatory regime to guide optimal water use. In short, the experience with performance measured on outcome indicators with credible data bases was much better than that with process indicators that were expected to help with better outcomes.

2.1.2. Centrally Sponsored Schemes

Amongst all federal countries, India transfers the largest proportion of funds devolved vertically to constituent units as conditional or specific purpose transfers. In fact, a large number of schemes in India are framed for this purpose. These conditional or specific purpose transfers are categorized as central sector or centrally sponsored schemes. The central sector schemes were traditionally limited to subjects that were functionally assigned to the centre as part of the union list given in the Constitution. The centrally sponsored schemes were traditionally those that related to subjects in the state or concurrent lists in the Constitution. The latter often required a state contribution in expenditure as compared to the central sector schemes that are fully centrally funded. In recent years, the understanding in government appears to have shifted. The logic of categorizing schemes by the constitutional provision of expenditure assignment and specifying an appropriate approval process for schemes on this basis, does not seem to hold any longer. Instead sharing patterns are being used to define schemes. All schemes that are fully funded by the central government and where states are not expected to contribute to the expenditure (even if they implement them), are now being referred to as Central Sector Schemes. All schemes that are posed by the centre and where states are expected to match central expenditure commitment in some proportion, are being called Centrally Sponsored Schemes.

The concept of formulating schemes at the central level for implementation by the states began with the planning process in the 1950s. However, an expanded vision for centrally sponsored schemes covering subjects in the state and concurrent list really made an appearance in the 1970s. Traditionally all central / centrally sponsored schemes implemented by the states have focused on filling gaps in desired level of facilities, institutions and infrastructure in various sectors. In the late 1990s, the idea of incentivizing states to reform systems in order to foster conditions that would hasten development in various sectors began gaining ground. As a result, some centrally sponsored schemes acquired features that linked disbursement of central funds to meeting certain conditions or demonstrating achievement along desired lines. Amongst the hundreds of centrally sponsored schemes that have been floated, named and renamed over almost five decades, there have only been a few schemes with such performance linked conditions. Table A2.7 lists the most high profile cases of performance linkage in centrally sponsored schemes.

The Accelerated Irrigation Benefits Program (AIBP) now part of the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) in the water sector, the short lived Urban Renewal Incentive Fund (URIF), followed by the Jawaharlal Nehru Urban Renewal Mission (JnNURM) and succeeded by the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in the urban sector, the Smart City programme, the APDP / Re-structured Accelerated Power Development and Reforms Program(R-APDRP)

in the power sector and the Nirmal Gram Puraskar (NGP) in the sanitation sector are the examples of condition or performance linked disbursement discussed here. The design of the desired performance in these schemes broadly fell into three categories. The schemes in the water and urban sector focused on seeking progress in reform linked actions that were expected to hasten improved outcomes. In other words, they were in the nature of process linked conditions. The power sector example sought to reward both processes and outcomes and finally the sanitation scheme was meant to reward only performance on an indicator of a desired outcome. Figure 2.1 below gives details of the indicators used by these programmes.

Box 2.1: Indicators used by CSSs in rewarding performance

CSS Programme	Process Indicators	Process cum Outcome Indicators	Outcome Indicators
AIBP (Accelerated Irrigation Benefits Program)	Participatory Irrigation Management		
	Active working of Water User Association		
AMRUT (Atal Mission for Rejuvenation and Urban Transformation)	online bio-metric attendance system		
	online payment of wages and salaries		
R-ADRP (Re-structured Accelerated Power Development and Reforms Program)	Constitution of State Electricity Regulatory Commission		
	Setting a time frame for the introduction of measures for better accountability at all levels in project area		
	Submitting the AT& C loss figure of the previous year of the identified project area		
NGP (Nirmal Gram Puraskar)		Coverage of Individual Household Latrine (IHHL)	One time visual / paper-based assessment of open defecation free status and sanitized environment
		Coverage of School Sanitation	

In terms of results, all these schemes have fallen short of the targets set. There has been no visible improvement in the area of water resources management (in terms of efficiency of use or sustainability of exploitation) despite the performance linkages introduced by the AIBP. The urban programmes have conferred a higher profile to urban issues and focused attention on all that is amiss with the sector. At best these programmes have delivered a few high visibility projects. Reform linked conditions have often seen compliance only on paper and service delivery outcomes

in most Indian cities are still woefully poor. The performance indicators chosen in these programmes were largely process or input related.

What has been lacking in both the urban and water resources sector has been a credible way to monitor progress along desired outcomes. The NITI Aayog has come out with a composite water resources management index (CWRMI) and an index on ease of living in urban India. The complexity of these indices; the excessive weightage to inputs and processes; and the lack of objective, reliable sources of data, reduce the value of these exercises. The initial power sector scheme to reward performance had focused on reducing T&D losses in the sector. However, in the absence of reliable data based on metered electricity supply in a state, the measurement of reduction was difficult. States which supplied free, unmetered power to agriculture could report improvement on the T&D front by simply showing increased consumption in the agriculture sector! Some states' ability to do this successfully was in part responsible for the winding up of APDP and the introduction of the R-APDRP with a much lower reward element. In sanitation, the problem was of a different nature. The Nirmal Gram Puruskar was a reward for achieving an open defecation free status and a sanitized environment by rural local bodies. The performance was verified by externally appointed agencies on a given day. In some more cases, the external agency was found to have not done its job with the expected integrity. In many more cases, the local bodies would spruce up for the verification day and lapse into unsanitary practices immediately thereafter. The large number of survey agencies carrying out the tasks also meant that the results were not necessarily consistent across geographical areas. Sample surveys revealed that the award became a case of rewarding window dressing and not sustainable results.

The experience with these schemes highlighted the need for indicators that would be able to measure progress towards the outcomes sought and not merely the inputs / processes that are expected to lead to better outcomes. Even measuring progress in terms of a desired output indicator on a one time basis, where the outcome sought is a sustained achievement, is insufficient. The second issue highlighted is that, for data bases to reflect credible achievement, data must be objective (the data must be generated by a system that is not in the control of the entity being assessed), reliable (trustworthy) and consistent (across parameters of time and entities).

2.2. International Experience

2.2.1. World Bank's PforR

The World Bank introduced the Program for Result (PforR) as a new financing instrument in 2012. Traditional Bank loans involved project financing, in other words the financing of inputs aimed at securing specific development objectives. PforR loans link transfer of funds to the achievement of goals and targets that measure progress in relation to specified objectives while leaving it to the concerned entities own institutions and processes to pursue these objectives. Thus, on specified indicators, a target level for every year in the project period may be set and the loan amount disbursed as a pre-determined ratio for each indicator. An Independent Verification Agency (IVA) is usually established for effective monitoring of the progress on the specified indicators. Since its creation, PforR has been widely used across the globe, and as of January 2018, there were 77 active PforR operations with financing amounting to $19.9 billion.

Details are available for two PforR operations that are reported to have been successfully concluded (details in Tables A2.8 and A2.9). Morocco's National Initiative for Human Development (INDH) Phase II was launched in January 31, 2012 and completed in December 31, 2015 .Nepal's Results-Based Bridges Improvement & Maintenance Project was launched in July 15, 2012 and completed in July 15, 2017. The Moroccan project focused on indicators that were closely aligned to the desired outcomes and the data was generated through coordinated efforts of a number of agnecies: INDH (National Initiative for Human Development), CN INDH (Coordination Nationale of INDH); and audit reports of IGAT(Inspection Générale de l'Administration Territoriale) and IGF(Inspection Générale des Finances). The achievement was verified by an external firm appointed by World Bank as the IVA. Due to under achievement of one DLI (Disbursement Linked Indicator) target, the total disbursement was about 90% of actual allocation. With the achievement of prescribed targets later, the disbursement is expected to have reached 98% of total loan amount. Nepal's project was characterized by achievement over and above the set targets and the complete loan amount was disbursed by the end of the closing date. The data for the project was generated by a BMS (Bridge Management System) monitoring software and reports by capacity building consultant and other independent consultants hired by the country's NPC (National Planning Commission).

Both programmes demonstrated a predominantly process / output related focus. The monitoring was largely in the hands of institutions belonging to the beneficiary governments. It is difficult to state that the projects resulted in a sustained impact on desired outcomes.

In India, there are currently twelve ongoing PforR projects (Tables A2.10 and A2.11) and the data on performance for each of the existing projects is generated by the concerned ministry or gathered in-house by the state government. IVAs for almost all the projects are government assigned. The "Odisha Higher Education Program" as an exception with the World Bank as the IVA. The projects are meant to either deliver an independent set of measures or act as an aid to an existing umbrella government scheme. Out of the 12, two projects - "Atal Bhujal Yojana (Abhy)-National Groundwater Management Improvement" and "India Energy Efficiency Scale-up Program" are still at a pending approval phase. For most of the programs, the disbursement linked indicator (DLI) is activity or process based, without any element of final outcome for the project. Three projects do have a number of outcome related DLIs, namely; Atal Bhujal Yojana (ABHY)-National Groundwater Management Improvement, Swachh Bharat Mission Support Program and Third Maharashtra Rural Water Supply and Sanitation Project.

A review of the ongoing programs by the World Bank reflected unsatisfactory progress on account of underutilisation of resources as well as delayed achievement of targets in projects like Enhancing Teacher Effectiveness in Bihar, Skills Strengthening for Industrial Value Enhancement Operation, Skill India Mission Operation and Maharashtra Rural Water Supply and Sanitation Program. The underachievement against targets can be made out by the gap in the allocated amount and the disbursed amount, as disbursement of funds in conditional on the attainment of the targeted level of improvement.

An assessment of PforR projects brought out some interesting features of the program design. PforR projects often focus on inputs as disbursement linked indicators. They can, therefore, end up missing the wood for the trees in impact.

Even as the DLI related check boxes are ticked by the recipient government to secure funds, the core outcomes being sought may not be achieved at all. For instance, although Bihar's Enhancing Teacher Effectiveness program procured the funds for construction of learning centers, it was not utilized as vacancies were not filled and the desired improvement in learning outcomes did not occur. The lending agency needs to give out loans and does not necessarily wish to make it very hard on the recipient to receive the money! Independent verification of achievement has value. However, the third party is not necessarily immune from influence to show results when it is hired by the prospective beneficiary. The problem associated with the verification agencies appointed for the Nirmal Gram Puruskar by the government can dog even the PforR related agencies. In the case of the Swach Bharat Abhiyan PforR, the third party survey has brought out an exemplary picture of achievement while smaller local level surveys and anecdotal evidence has cast some doubts on the veracity of these findings. In effect, a stringent process of monitoring and verification in PforR projects through the medium of independent verification agencies can result in effective assessment of the projects. However, the choice of the verification agency, and the interest of the lender and the recipient (in this regard) become critical in delivering unbiased assessment of the performance.

2.2.2. United Nations Capital Development's Funds (UNCDF) Performance Based Grants System (PBGS)

UNCDF has been actively formulating innovative inter-governmental transfer schemes that include performance based grants. In collaboration with the World Bank and the Asian Development Bank (ADB), UNCDF has documented its experience in 15 Asian and African countries with regard to PBGS practices. Some of the observations from the analysis with regard to performance measurement are as follows:

1. In a majority of the observed cases generic indicators like planning, financial management, fiscal effort have been used and not input or output based indicators of performance.
2. The report flags concerns with respect to availability of quality data for indicators that are expected to capture facets of fiscal need and capacity.
3. Although most of the countries have adopted robust and rigorous performance assessment methods, there are a few cases where governments have tended to assess performance through self-generated data thereby giving rise to some apprehension about the credibility of the results.

UNCDF in its impact assessment report lists significant lessons for effective implementation of performance based programs. Some of the recommendations include ensuring that all guidelines and procedures (for assessments, for grants, etc.) are clear, coherent, user-friendly and widely disseminated; establishing a robust, neutral, transparent, predictable, fair and highly professional/credible performance assessment process that is aligned with the relevant government's planning and budgeting cycle and subject to external quality assurance; ensuring effective coordinating bodies to endorse assessment outcomes and oversee implementation of the system. In effect the stress is on securing objective, reliable and consistent data for performance measurement.

2.3. Principles derived from review of experiences with regard to performance measurement

2.3.1. Selecting Indicators and Data Bases

Simple indicators with reliable data bases are best. For instance, a fiscal performance indicator that measures own tax revenue collection effort by a state over a period of time (to iron out or moderate any one time elements) works well. Its use to compare performance across states has been both uncontroversial and effective. The indicator itself reflects the results of a state's own efforts at enhancing its revenues through means in its control and the data base used (actuals as reflected in Finance Accounts) is credible.

iv) **Choose an outcome related indicator and not an input / process indicator.** The ultimate aim of rewarding performance is to incentivize progress towards the outcome sought through the efforts of the concerned level of government. It is important that the indicators selected are a proximate way of assessing progress towards achieving the desired outcome. Complex, input based indicators may not necessarily reward performance on outcomes. Indicators that are only in the nature of action that is expected to produce desired results may not necessarily lead to these results because the diagnosis may be inaccurate or only partial (e.g. lowering of stamp duty under JNNURM was meant to ensure a greater degree of registration of property transactions which would lead to a better record, lesser litigation and improved land markets. There was no effort to see whether this outcome was actually achieved and anecdotal evidence and the position brought in the World Bank's Ease of Doing Business surveys does not really support a positive conclusion). It is appropriate that there is clarity about the outcome being sought to be achieved by the efforts that are sought to be rewarded and the indicator/s that best represent this outcome ought to be outlined. In the above cited case of attempting to improve the functioning of land markets, it may be appropriate to find ways to gauge the velocity of property transactions, improvement in property records and reduction in litigation as better proxies for sustainable achievement of the desired outcome rather than an one time reduction in stamp duty.

v) **Ensure credibility of the Data Base.** It is imperative that the information on the indicators that measure performance is derived from credible data sources. Data bases that would enable assessing performance in relation to these indicators must be identified and evaluated to see the extent to which they are credible. Credibility may be gauged by the extent to which the data bases (or their sources) possess the attributes of being:

(e) Objective (data source is impartial and not generated by implementing agencies / departments of the state governments or by agencies under the control of or susceptible to influence of those likely to benefit from the data reported). A crucial element that emerged from our review relates to the need for the data base being accepted as objective- a lack of objectively generated data can result in gaming by the recipient, especially when the donor incentives also favour disbursing rewards.

(f) Reliable (the agency generating / collecting the data has achieved a reputation for trustworthiness). Third parties collecting data may or may not have such a reputation.

(g) Universal (the data base has the breadth to both cover all the units being reported and to limit the margin of error in making comparisons).

(h) Consistent (the data base exists over a reasonable time period with similar parameters in order to moderate the possibility of one time events in particular time periods).

(i)

2.3.2. Selecting a Reference Period: Past or Prospective?

Both the experience of schemes and programmes implemented within India and international projects would appear to weigh in favour of using a record of a past period to reward performance rather than instituting a reward for prospective performance in a forecast / project period. Attempting to reward prospective performance is, on the one hand, prone to result in underutilization of allocated funds (because there is a delay in securing results in the given time frame or less than the targeted performance is achieved). This was evident in the case of a number of Finance Commission grants like water sector management, forest cover and issuance of UIDs and PforR programs. Also, there can be pressure to disburse which leads to ignoring or underplaying the performance requirement in order to disburse funds. Again the experience of Finance Commission grants shows this can easily occur- the failure of urban and rural local bodies to meet the benchmark level of performance for grants recommended by 14th FC led to representation from states for flexibility in the matter and some variation of the conditions at the central level.

On the other hand, rewards on the basis of past performance with the right indicator and credible data bases, cannot be the subject of any discretion in assessing achievement or deciding on disbursement. This is clearly the case with all the past Finance Commission recommendations that have used past fiscal performance or extent of forest cover as a reward in their formulations.

Chapter 3: What to Measure?

This chapter discusses the application of the methodological framework, to measure performance on the various dimensions given under Para 7 of Term of Reference in a credible manner. The following steps were undertaken to apply the principles arrived at in Chapter 2. reach the final stage: In the first place, the various areas / dimensions given in Para 7 were listed to consider possible indicators that would reflect the outcomes aimed at by these areas / dimensions and to see if these indicators have data bases that show the performance of the states on these indicators. A similar exercise was then conducted with regard to programmes that can be called flagship programmes of government. In the case of Sustainable Development Goals, the international community has made out a detailed list of indictors that can be used to monitor progress on each SDG. The Ministry of Statistics and Programme Implementation of the Government of India (MOSPI) has compiled its own detailed list of indicators for this purpose. These lists were reviewed to cull out outcome based indicators and see if they possess any data bases on performance of states. Next, the indicators listed by NITI Aayog in formulating various indices and monitoring progress on SDGs were similarly reviewed to prepare a short list of outcome based indicators with corresponding data bases. Thereafter, all the data bases listed in relation to the outcome based indicators emerging from the four preceding exercise undertaken to cover the entire gamut of area / dimensions on which performance could be measured were subjected to the criteria for testing credibility and utility. Finally, based on this, a short list of outcome indicators was prepared that both represent important facets of economic and social development possess data bases that largely meet the criteria outlined for credibility and utility. Each of these steps have been described in separate sections of this chapter.

3.1. Identifying possible Outcome Indicators and Databases for Various Dimensions

All possible areas / dimensions of performance covered by the nine clauses under para 7 of the Term of Reference for the Fifteenth Finance Commission are enumerated in Table A3.1except Flagship Schemes and SDG goals of Clause 3 which are being discussed in subsequent sections.

1.1 The number of areas / dimensions that could be segregated on this basis are 17. The first attempt was to arrive at possible indicators of 'outcome' in relation to these area / dimensions. In other words, indicators that could represent the impact that efforts made in the concerned area / dimension are able to achieve in relation to the specified objectives. Indicators representing inputs, processes or even outputs have not been included since howsoever essential these may be considered to securing impact, measuring them can still end up missing the wood for the trees.

1.2. It has been possible to identify 24 possible outcome indicators. Out of these possible indicators, 14 were found to have relevant database/s. Some of the indicators such as Total fertility Rate (TFR) have multiple sources of data.

3.2. Identifying possible Outcome Indicators and relevant Databases for Flagship Programmes

The first requirement in carrying out this exercise was identifying flagship programmes. The term flagship scheme came into use with the arrival of the UPA government. Its reference was first found in the report on the Eleventh Plan. Flagship programmes that are discussed in the eleventh five year plan report include National Rural Employment Guarantee Act (NREGA), National Rural Health Mission (NRHM), Integrated Child Development Services (ICDS), Sarva Shiksha Abhiyan (SSA), Mid-day meal, Total Sanitation Campaign (TSC), National Social Assistance Programme, and Backward Region Grant Fund. Implementation of flagship programmes by states was a subject of specific monitoring during the tenure of the UPA government. With the formation of the NDA government in 2014 and the abolition of the Planning Commission, the monitoring of the schemes categorised earlier as flagship programmes was given up. Various central sector and centrally sponsored schemes (CSSs) were given new names, merged and amalgamated. A report of the sub-group of chief ministers on rationalization of centrally sponsored scheme recommended a categorisation of CSSs into Core and Optional Schemes. Core schemes would be schemes which a focus on the National Development Agenda. Within these schemes, those related to social protection and social inclusion would form the 'core of core' and be the first charge on available funds for the National Development Agenda. Optional schemes would be those where states would be free to choose the ones they wished to implement. In the same report in the section of key issues to be decided, NITI Aayog sought to define flagship schemes. The definition given by NITI Aayog is 'Flagship schemes are large schemes with central outlays of more than Rs.1000 crore'. It is also mentioned that flagship schemes may not necessarily be 'core' schemes. If we take this NITI Aayog definition and the union budget 2018-19 allocations as a guideline, then 24 schemes qualify to be termed as flagship schemes.

These flagship programmes have been grouped into 18 sectors for the purpose of this exercise as shown in Table A3.2. As many as 42 outcome indicators were identified in relation to the outcomes aimed at by these programmes. However, possible data bases were available for only 34 indicators.

3.3 Identifying Outcome indicators and relevant Databases for Sustainable Development Goals (SDGs)

This section looks at the indicators as listed by the United Nations as well as those listed by the Ministry of Statistics and Programme Implementation (MoSPI) to monitor progress on the globally identified SDGs. The seventeen SDG goals have under them as many as 161 targets. Indicators to monitor progress on each of these targets have been specified. In all, 404 indicators (suggested internationally and by MOSPI) were considered to identify those that measure impact related to outcomes. This culling out of input, process and output related indicators, shortlisted 101 outcome based indicators and out of these only 57 had data bases for measuring performance in India. The details can be seen in Table A3.3.

3.4. Identifying possible indicators and databases for Indices developed by NITI Aayog

NITI Aayog had developed 6 indices to measure state performance in various social sectors. The purpose is to encourage competition amongst states' to achieve better outcomes. These indices are:

i) Health Index
ii) Composite Water Management Index
iii) School Education Quality Index
iv) SDG India Index
v) Ease of Living Index
vi) DIPP Ease of doing business Index

These indices are divided into 62 domain areas which in turn have 325 indicators to measure performance. These indicators were analysed on the same lines as the SDG related indicators. This analysis brought out that of the total, 102 indicators are outcome based and of these 97 indicators have some database/s associated with them. The details are available in Table A3.4

3.5. Assessment of Databases for credibility and Utility

The total number of outcome indicators possessing relevant data bases in tables 1-4 is 202. While many of these indicators are common, the number of data bases that relate to them are even more limited. Assuming that all the data bases on Central Ministry websites which are not independently verifiable in real time, can be clubbed as one common category, a total of 20 data bases were required to be assessed on the criteria identified in Chapter 2. Credibility and utility may be gauged by the extent to which the data bases (or their sources) possess the attributes listed below.

i. **Objective** (data source is impartial and not generated by implementing agencies / departments of the state governments or by agencies under the control of or susceptible to influence of those likely to benefit from the data reported). A crucial element that emerged from our review relates to the need for the data base being accepted as objective- a lack of objectively generated data can result in gaming by the recipient, especially when the donor incentives also favor disbursing rewards.
ii. **Reliable** (the agency generating / collecting the data has achieved a reputation for trustworthiness). Third parties collecting data may or may not have such a reputation.
iii. **Universal** (the data base has the breadth to both cover all the units being reported and to limit the margin of error in making comparisons).
iv. **Consistent** (the data base exists over a reasonable time period with similar parameters in order to moderate the possibility of one-time events in particular time periods).
v. The **data base must have utility** in measuring performance in a desired time frame. Thus the census is a data base that ticks all the relevant check boxes but with a decadal interval in successive census operations, the data base cannot really be used to measure performance with annual or two yearly intervals.

Table A3.5 details the assessment of all these data bases. It would be seen that only two data bases tick all the check boxes. The first is the Forest Survey of India data on tree cover, calculated every two years on the basis of satellite imagery. The

second is the data on road length, given on the website of the Ministry of Surface Transport annually. While this data is compiled from state government sources as in the case of other Ministries, it has one difference from those data bases. Road data is easily verifiable in real time through satellite imagery. After these two, the data base that comes closest to checking all the boxes, is the Sample Registration System (SRS) in the case of infant mortality ratios. It only lacks somewhat on the universality criteria in that the computation of ratios for small states does not follow the same methodology as that adopted in the case of large states in view of small sample size. For other indicators, the SRS suffers to an even greater extent since it does not compute these ratios for small states. While the census, is the most comprehensive, objective, reliable, universal and consistent data base for many indicators, it lacks utility for measuring performance in a Finance Commission context because of its 10 yearly duration. Similarly, the NSSO data sets have a five yearly duration and additionally the sample sizes for the small states may have limitations for the purpose of comparison. The Finance Accounts data for the states also meets all the credibility criteria and is annual in nature but unfortunately lacks utility for the purposes for which it could be used: performance on GST / own tax / non tax revenue collection. The reasons for this have been given in Table 1 of Annexure XXX. To repeat- 'till GST stabilizes, it will be difficult to make useful comparisons of states' efforts in tax revenue collection. On the non-tax side, the variation in entities responsible for service delivery across states means that the Finance Accounts do not necessarily reflect comparable data.' Other data bases enumerated here suffer from varying degrees of limitations on the different criteria for credibility and utility.

3.6. Data Bases and Indicators that may be used to Measure Performance

The entire exercise undertaken in this chapter has brought out that while there are many outcome indicators that may be outlined to measure performance on the various areas / dimensions listed in Para 7, the credibility and utility of data bases that are associated with these indicators are very few. In fact we have been able to discover only two data bases which met all the criteria and one that fell just short! Our challenge was to find sufficient indicators to measure performance across a cross section of dimensions that would include the environment as well as social and economic development. While the FSI data base gives us indicators to measure changes in vegetation related conditions, the road data gives a measure related to infrastructure development. The SRS data base enables using indicators that can cover changes in health parameters and status of women. This is still inadequate to really reflect changes in human resource development. Unfortunately, no data base enables this measurement in a credible or useable manner. On the economy side, a critical sector that has a direct correlation with growth is the power sector. Unfortunately here again the available data bases do not really meet the outlined criteria. However, we have decided to use the data base of the Central Electricity Authority (CEA) since the data base has a long history of compilation and covers all states and utilities. This is not the case with the Power Finance Corporation (PFC) data base.

These four data bases are listed in Table A3.6, alongwith the various outcome indicators emerging from the first four tables discussed in this chapter on which information may be available in these data bases. From these data bases, a final short list of the indicators has been drawn which it is recommended may be used for measuring recent performance of states. From the SRS data base, the two indicators

recommended (from out of the 8 shown in column of Table 6) are infant mortality ratio and sex ratio at birth. In the case of the road data base, the recommended indicator is a computation of all weather road length in a state. In case of the Forest Survey of India (FSI), the proportion of forest area in a state is the recommended indicator. The power sector related material presented the greatest difficulty in choosing the appropriate indicator. While clause (iv) of Para 7 talks of reduction of losses in the power sector, this is an area on which data reliability s exceedingly low. There is absolutely no correspondence in the data on the CEA and PFC websites for various states and utilities. In any case, reduction of losses does not necessarily measure increased electricity off take which is the critical factor associated with higher economic growth and achievement of social goals. Loss reduction is possible by starving sparsely populated, low revenue generating rural areas of power while concentrating on dense high tariff zones. Consequently, the recommended indicator with more consistent data that is being recommended is energy sold in a state.

Chapter 4: How to Reward?

The introductory chapter mentioned two sets of challenges posed first challenge posed by Para 7 of the Terms of Reference given to the Fifteenth Finance Commission. The first related to measuring the performance that is to be rewarded has been addressed in the preceding two chapters. The second challenge related to the appropriate extent and manner of the incentives for performance that ought to be granted to the states. The key questions that arise in this context were enumerated in the introductory chapter. Apart from the issue of the extent of the performance based transfer, the questions were "Should some or all of the areas / dimensions be part of a formula for horizontal revenue sharing amongst the states? If so, what weights should be assigned to the various selected areas? Or should some or all be used individually for measurable performance-related grants? What kind of grant corpus would be appropriate in such a case? Should some indicators be part of a formula and some result in specific grants-in-aid? Should the incentives be in the nature of a reward for previously recorded performance or should it only be an incentive for real-time achievements during the five years starting April 1, 2020? Should the incentive itself be untied or tied in terms of the use to which it can be put?" In order to answer these questions, this chapter focuses on reviewing the Indian and international experience that has been discussed in Chapter 2. The question of the size of performance based transfers is addressed last after looking into the various issues related to the manner of making the transfers.

4.1. Tax Sharing or Grants in Aid?

The balance of experience clearly weighs in favour of Grants-in-Aid. In India, performance based transfer has in the past been made part of tax devolution almost entirely in relation to fiscal effort / prudence. The one exception was the use of forest cover data by the Fifteenth Finance Commission. The Commission wise details have been exhibited in Table A4.1. The areas where performance transfer is being considered under Para 7, are largely sector specific and unrelated to fiscal effort / prudence. The fact that a large number of states tend to be revenue deficit even after horizontal revenue sharing post tax devolution, means that this incentive would be rendered meaningless for achieving states if they are to be recipients of gap filling revenue deficit grants-in-aid post tax devolution. International experience exhibited in Tables A2.8 to A2.11 also bear out the position that revenue sharing is the chosen route when fiscal performance is sought to be rewarded and sector specific incentives are usually extended through conditional grants-in-aid.

4.2. Differentiate Amongst Selected Indicators?

It is difficult to find a formula to decide on inter se weightage between areas selected for grant of incentives on the basis of performance assessment. Only the Thirteenth Finance Commission recommended conditional or performance based incentives for specific sectors. Its recommendations were clearly adhoc but with equal weightage to the various sectors. It may be appropriate to make an equal division across sectors.

4.3. Untied or Conditional Incentive?

Performance related rewards in relation to achievement in specific sectors have often been hemmed by conditions of expenditure only in that particular sector. This was the case with the sanitation sector rewards for achieving open defecation free status. However, such conditions devalue the autonomy and sense of responsibility of the recipient, apart from the difficulty of monitoring such conditions. It would be appropriate that incentives are left untied to enhance their attractiveness.

4.4. Past or Prospective Performance?

There is a perspective which holds that incentives can only pertain to prospective performance while past performance can be rewarded. However, there may be a case for viewing incentives as encompassing rewards for past performance if past experience is to be a guide in ensuring utility. Both the experience of schemes and programmes implemented within India and in international projects would appear to favour using a record of a past period to reward performance rather than instituting a reward for prospective performance in a forecast / project period. Attempting to reward prospective performance is prone to result in underutilization of allocated funds (because there is a delay in securing results in the given time frame or less than the targeted performance is achieved). This was evident in the case of a number of Thirteenth Finance Commission grants like water sector management, forest cover and issuance of UIDs and PforR programs (Tables A2.5 and A2.8 to A2.11). Also, there can be pressure to disburse which leads to ignoring or underplaying the performance requirement in order to disburse funds. Again the experience of Finance Commission grants shows this can easily occur- the failure of urban and rural local bodies to meet the benchmark level of performance for grants recommended by various Commissions has led to representation from states for flexibility in the matter and some variation of the conditions at the central level.

On the other hand, rewards on the basis of past performance with the right indicator and credible data bases, cannot be the subject of any discretion in assessing achievement or deciding on disbursement. This is clearly the case with all the past Finance Commission recommendations that have used past fiscal performance or extent of forest cover as a reward in their formulations. The risk here is that the reward for past performance may offer little incentive for states to continue to strive for achievement in the selected sector since there is no guarantee that such a scheme may continue to find favour in the time of the next Finance Commission. There is no way in which such a risk can be eliminated. However, if there is a belief that competitive rewards are likely to be a feature of the Indian inter governmental transfer system in the foreseeable future than this risk can be mitigated. Selection of sectors which are considered important bellwether areas of development with credible data bases can enhance the chances of selection by future Finance Commissions.

4.5. Absolute or Relative Performance?

This issue assumes considerable importance in the Indian context given the vast difference in levels between vanguard and laggard states on various development parameters. If the absolute levels of achievement at the end of the

reference period is considered, then laggard states may be left out and have little incentive to even make an effort in future. On the other hand, sole reliance on percentage change at the end of the reference period (over a recent year chosen as a base year) can mean that states already at a high level of achievement can go virtually unrewarded. It may be appropriate that incentives reward a combination of both achievement in absolute terms as well as a percentage change in recent years, in order to bring some balance between the long term efforts of achieving states and possible short term efforts of laggard states.

4.6. Differentiate by Size of State?

Tis may be important as the skew shown by the incentive distribution for achievements in relation to infant mortality ratio recommended by the Thirteenth Finance Commission brought out. A small state like Manipur received over 20% of the total incentive amount allocated to all states. If the incentive is to be meaningful for all states then the allocation formula should be able to factor in the impact of a state's efforts at the national level and should not be completely disproportionate to size.

4.7. Overall size of Incentives Corpus?

Past experience of performance based allocations in India have been discussed in some detail in Chapter 2. Table A4.1 brings out the proportion that perfomance based criteria have had in total devolution. The average has been reasonably high at over 10%. However, this has almost wholly related to criteria of fiscal effort or prudence used in revenue sharing. In preceding paragraphs, the recommendation has been to use grants-in-aid for sector specific performance grants. The Indian Finance Commission experience in this context is limited to the Thirteenth Commission which recommended about 1% of the total devolution as performance based grants in aid. This small amount, divided across sectors, did not function as much of an incentive for performance in the forecast period. In some cases the amount remained undisbursed showing the lack of interest in the states to strive for the money at stake. While other design issues were also possibly important in the poor off take and lack of any significant achievement being shown by states, the small amount involved was certainly a factor. The experience with the performance grants for local bodies recommended by various Commissions, has been equally disappointing.

There is little in the literature to suggest what can be a meaningful corpus size for performance grants. The United Nation's Capital Development Fund (UNCDF) assessment study of 15 African and Asian countries of Performance Based Grants discussed in Chapter 2 reported that with regard to the absolute figures for the size of the grants the level of funding for non-sectoral capital development grants is usually USD 1–4 per capita per year. The study made some observations with regard to the size of incentives for performance. It states that the size of performance grants is usually determined after a detailed review of the local government's absorptive capacities, availability of funds and minimum size of grants that is needed to finance significant investments and to offer sufficient incentives. The percentage of performance-linked grants in total development grants varies between 20 to 100 percent. It also noticed that it is imperative that performance grants have a minimum size that serves as a sufficient incentives for performance improvement. However, in

practice, supply side determinants like availability of funds proves to be a deciding factor, rather than demand side factors like expenditure needs of local governments relative to their revenue potential. In other words, there is no real guidance on the subject!

Overall, an important lesson that can be distilled from this analysis is that if the incentive is too small and too hemmed by conditions then it may not be worthwhile for the state to make the effort to secure the performance grant. The grant size performance must be significant, to make a difference.

Chapter 5: Recommendations for Performance Incentives

These studies had set to assist the Fifteenth Finance Commission in answering two questions in relation to Para 7: 1) what to measure and 2) how to reward. Chapter 2 laid out a methodological framework with respect to the question - what to measure? It analysed national and international experience in relation to performance based schemes in inter-governmental financial transfers and concluded with a set of principles to answer this question. These principles included the suggestion that the measurement should be of the impact as shown on outcome based indicators. The data bases related to these indicators should meet certain criteria to establish their credibility and utility. The criteria for credibility were outlined as objectivity, reliability, universality and consistency with data being generated annually or at most every two years for utility. Chapter 3 applied the framework, arrived at in Chapter 2, to all the areas / dimensions listed in Para 7 including the large number of flagship schemes, sustainable development goals and extensive list of targets and indicators related to these goals. In addition, various indices constructed by the NITI Aayog were also analysed. After reviewing all the data bases related to the outcome indicators identified in the exercise, a final shortlist of indicators on which state performance could be measured was drawn up. This mix of social, infrastructure, health and environment related indicators is the following:

1. Sex Ratio at Birth (SRB)
2. Electricity Sold
3. Infant Mortality Rate (IMR)
4. Forest Cover
5. All Weather Roads

Chapter 4 addressed the second question- how to reward? It also relied on the review of national and international experience undertaken in Chapter 2, to provide answers to the issues arising in relation to this task. In brief, the conclusions were that granst-in-aid be used to reward past performance on the identified indicators; that the performance to be rewarded should include both absolute achievement and percentage improvement over a recent base year; that the reward admissible to a stat should bear some relationship to its size; that equal weightage should be given to all indicators; that the reward amount should not be tied in any way and finally that the reward amount should be sufficiently large to serve as an incentive for future performance.

In order to operationalise these recommendations, this report suggests that in the forecast period, annually an amount equivalent to 1% of the shareable taxes be set apart as the incentive corpus. So as to ensure equality across all the five selected indicators and yet retain a significant size, it is suggested that one indicator be used to reward performance in each of the five years of the forecast period. The year wise phasing suggested is as follows and the rationale for the same is explained thereafter (summarized in Table A5.1).

First year

The logic for selecting the power sector as an area where incentives should be offered for better performance has been mentioned in Chapter 3. The importance of the sector for economic activity and its close relationship with growth bears reiteration. Clause (iv) of Para 7 also specifically sought attention to performance in reduction of power sector losses. World Development Indicators (WDI) show that India's electric power transmission and distribution losses (as a percentage of output) stand at 19.3 per cent for the year 2014, as compared to the world average of 8.2 per cent, exhibiting an alarming situation for India that needs serious attention. However, the data for transmission and distribution losses in the country is quite unreliable. This is attested to by the wide variation between the data given for the same state and utility on two data bases compiled by the CEA and the PFC from state sources. The analysis of these data bases, in Chapter 3, put a question mark on the availability of objective, reliable and consistent data from the CEA website. The PFC data besides being available only at utility level for 22 states, is also far more susceptible to gaming since achievement reported to PFC is linked to incentives under central programmes relating to loss reduction. Consequently, it is proposed that the more innocuous sounding 'power sold' data as a proxy for loss reduction and better performance in terms of efficient power distribution and transmission. The reasoning for the adoption of this variable is derived from an inherent implication in relation to losses– higher energy sold by a utility is an indicator of more revenues to buy power and hence implies more attention to limiting aggregate technical and commercial (AT&C) losses.

The choice of year 1 for the power sector is related to the credibility related question marks on the data bases. Since most of the data for the immediately preceding years will already have been made available to the CEA before the Finance Commission recommendations are known, it is assumed that in year 1 the data compiled by the CEA will not have been vitiated by any attempt at gaming by the states!

Second Year

It is universally recognized that an extensive transportation network is critical to the expansion of the reach of markets. While the information on road length in the states is compiled by the central Ministry on the basis of data supplied by the states, unlike social sector data, in the case of roads, the data is easily verifiable in real time through satellite imagery. For these two reasons, road length has been chosen as another infrastructure sector, for rewarding performance by states. The total all weather road length in a state (less national highways which are a central responsibility) is a good indicator for road connectivity offered to the people of a state.

The choice of this indicator being selected for year two of the forecast period is partially dictated by default. It is likely that more up to date data on performance will be available after the census on the social indicators and the latest data on forest cover is made available once in two years. The other reason is that road information is based on data supplied by beneficiary states and while the data is verifiable, it is still appropriate that possibilities of gaming are kept as low as possible. Selecting an early year has the same advantage as in the case of the power sector in that there is

less possibility of any manipulation of dat on performance that has already been generated by the time the Commission recommendations become known.

Third Year

In year 3, it is proposed that performance on change in infant mortality ratio (IMR) be rewarded. Infant Mortality rate (IMR) is a fundamental indicator of impact on health outcomes. It captures the impact of efforts related to both preventive and curative health. The Sample Registration System (SRS) represents a good data base for this purpose although it does have problems with respect to a different methodology being used for small states.

The reason for selecting IMR for year 3 of the forecast period is the likely availability of census 2021 data on IMR by then. This will enable a universal methodology for computation of IMR across large and small states which can be a basis for the reward or at least a test check on the data made available by the SRS.

Fourth year

The choice of Sex Ratio at Birth (SRB), as an indicator of social change in society is dictated in large part by the need to find an indicator that can reflect change in the gender inequity so prevalent across India. Improved gender balance in the population is not only an indication of the reduced importance of male preference but also reflects a more extensive positive change in behavior on gender issues and the creation of an inclusive society. Unfortunately, SRB data is not collected in the SRS for small states and census data is required to be used for this purpose. It is for this reason that it is recommended that the reward in relation to this indicator should be distributed in year 4 of the forecast period. It is certain that by that time the results of the 2021 census will be available and the data can be used for the measurement of performance and related reward disbursement.

Fifth year

India's environmental quality is dismal. India is at the bottom of the ranking table, with 177th rank, on the Environmental Performance Index 2018, dropping 36 points from 141 in 2016, according to a biennial report by Yale and Columbia Universities at the World Economic Forum. Of the various indicators to gauge environmental health in terms of air, land and water quality, the only data base that met all the criteria of credibility and utility is the data on forest cover prepared every two years by the Forest Survey of India (FSI). The reward disbursement on this indicator is being suggested in year 5 of the forecast period since it will enable use of the latest available survey.

Chapter 6: Applying the Framework - Priority Indicators for Performance Incentives

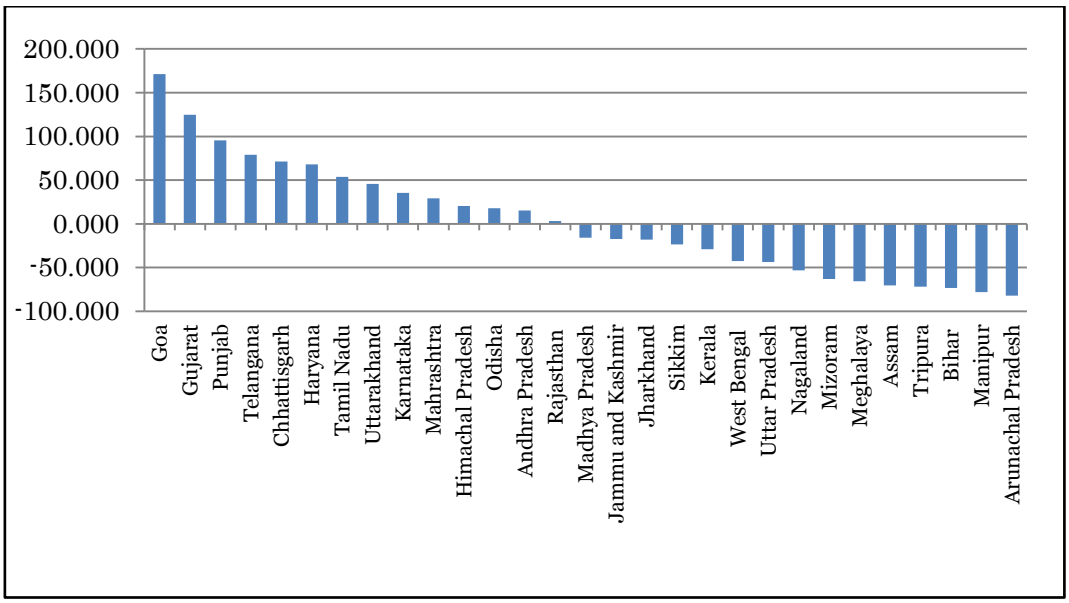
The earlier analysis of this report laid out a methodological framework for addressing the two key challenges posed by para 7 of the ToRs given to the Fifteenth Finance Commission: What to Measure? and How to Reward? It concluded with a shortlist of indicators recommended for giving incentives to states on the basis of their performance and the principles that should govern the extent and manner of allocating these incentives.

This chapter takes up each of these indicators and carries out a simulation of the measurement of performance and the proportionate allocation of incentives to each state based on the latest available data on each of these five indicators. In addition an exercise has also been attempted in relation to the Total Fertility Rate (TFR) as requested by the Commission.

6.1. Power

The simulation exercise has been undertaken using data from the CEA handbook on Electricity. The latest available information is for 2017. In Table A6.1, Column 1 gives the proportion that energy sold in a state bears to the total energy sold in the country, taking the latter to be 100. Column 2 gives the proportion that the change in electricity sold in a state bears to the change in energy sold in the country between 2013 and 2017. This figure measured recent effort in each state at making a difference in energy sold. One fourth of this relative achievement exhibited in column 2 has been added to the value for the proportionate contribution to energy sold in 2017 and the combined incentive proportion (of column 1 and 2) is exhibited in column 3. This incentive share is then compared with state's share in total population in 2011 (column 4) to assess the net incentive gain for a state. This state wise variation is presented in Figure 6.1, and it can be observed that the percentage gain/loss of power sector performance incentive compared to the state's population share ranges between 171 per cent for Goa to -82.1 per cent for Arunachal Pradesh. Finally, assuming a total incentive amount of Rs. 20,000 crore for the power sector performance and using the incentive shares of states column 3), state wise incentive amounts are computed (column 5)

Figure 6.1: Incentive for power sector performance vis a vis population share

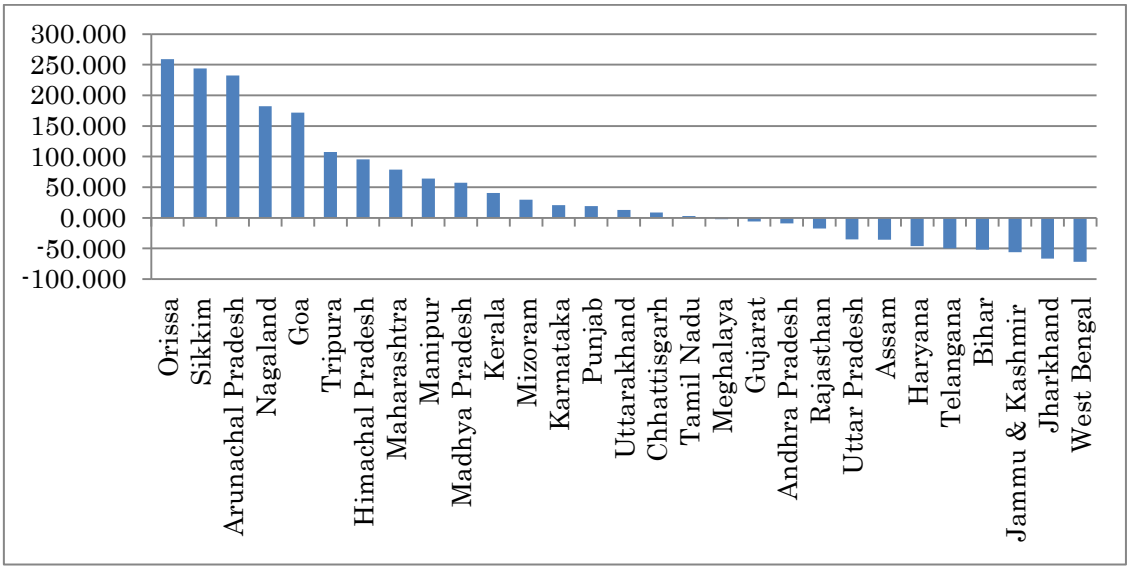


6.2. Roads

In the incentive disbursement framework, discussed in chapter 5, the performance reward for road length has been recommended in the second year. Two alternatives have been presented for calculating the incentive amount for performance in this category. These are exhibited in tables A6.2a and A6.2b.

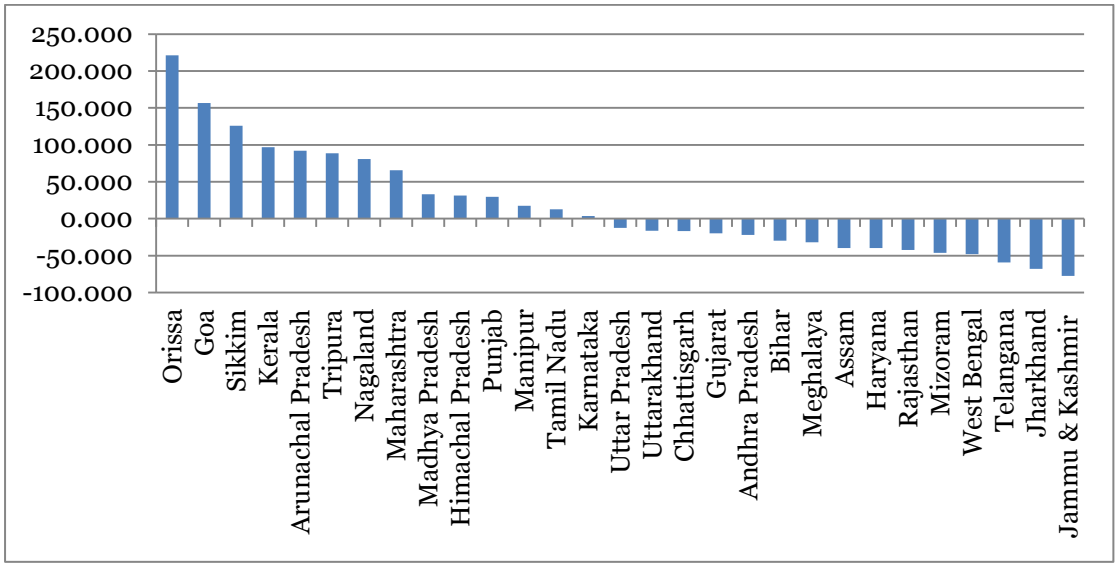
In table A6.2a, the performance determinant considered for this category is the proportion of road length in each state (other than national highways) to total road length in the country (Column 1). Further, to assess the relative effort in recent years, the change between the periods 2012 to 2015 with regard to road length has been computed and each state's share in the total change has been calculated (Column 2). The combined incentive (absolute and relative) is calculated by taking the absolute performance in 2015 and adding one fourth of the proportion contributed by each state in the years between 2012 and 2015 (column 3). This state wise incentive is then compared with each state's share in total population (Column 4). Figure 6.2a shows the state wise distribution of this comparison – the relative incentive gap with respect to population share stretches from a positive 259 per cent for Odisha to a negative -71.6 per cent for West Bengal. Finally, based on the incentive shares that have been derived, state wise incentive amount is calculated by considering Rs 20,0000 crore as the total amount allocated to roads as an incentive for performance. (Column 5)

Figure 6.2a: Incentive for road performance vis a vis population share (Part 1)



In table A6.2b, road length per 100 sq km (column 1) for each state, in relation to country average (with a value of 100) was computed, which was further multiplied with the 2011 state population to arrive at the share of incentive which would be admissible to a state on this account. Since this computation would have tended to penalize larger area relative to population size, a similar exercise for road length per lakh population was undertaken (column 2). Thereafter, the two proportions of road length per 100 square km and road length per 1 lakh population were given equal weights to arrive at a composite index of performance (column 3). To this composite incentive share, ¼ of the dynamic performance (change between 2012 and 2015) has been added to arrive at the total state incentive share (column 4). A comparison of this state wise total incentive share with the state's share in total population in 2011 is presented in column 5 to assess the net position for each state, which is further substantiated in Figure 6.2b, wherein the Orissa proves to be the largest net gainer (221 per cent relative gain) and Jammu and Kashmir exhibits the worst case scenario, with 77.5 per cent of relative loss. Taking the same amount as total incentive as in table 2a, the incentive amount to which each state would be entitled is shown in column 6.

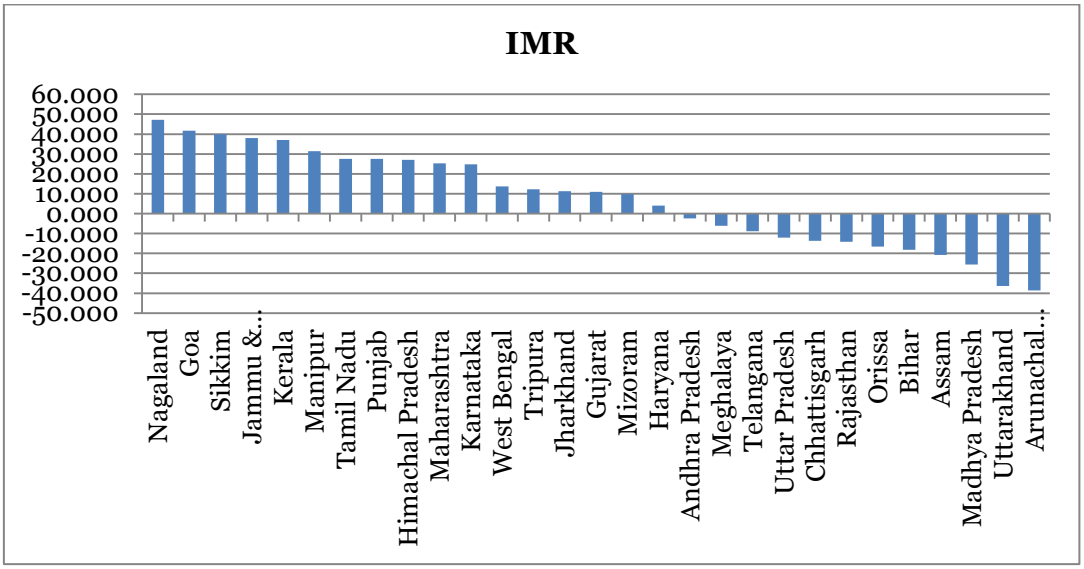
Figure 6.2b: Incentive for road performance vis a vis population share (part 2)



6.3 IMR

In the case of IMR, the process of calculating the incentive that could be admissible to states, the process has been detailed in Table A6.3. The IMR values for states in 2016 (the latest available as per SRS) are shown in column 1. The country average IMR for that year as per SRS, i.e. 34 was taken as 100 and the distance from this mean was calculated for each state and then this IMR index was multiplied with the respective 2011 population of a state. The results are shown in column 2. Each state's incentive share was calculated as its proportion in the total in column 2 and is exhibited in column 3. To compute the relative performance in terms of reduction in IMR in recent years, the difference between the reported national average of IMR in 2011 and 2016, ie 10 was taken as 100 and the distance from this mean was calculated for each state to create an index of change in IMR in this period. From this IMR change index, each state's incentive share in IMR change was computed in the same way as was done earlier for the absolute value of IMR of 2016. This is exhibited in column 6. The recommended state incentive share has been arrived at by combining the proportions calculated on the basis of both these indices. One fourth of each state's share in change in IMR in recent years has been added to the absolute index based proportion of 2016. The result so obtained is shown in column 7. This is then compared with each state's share in total population in 2011 (column 8). Figure 6.3 illustrates that this state wise comparison between this combined incentive share and the incentive gain/loss with respect to population share in case of IMR ranges between 47.2 per cent for Nagaland to -38.6 per cent for Arunachal Pradesh. Finally, in the last column (9), state wise incentive amount has been calculated, using the composite incentive shares given in column 7, assuming that Rs 20,000 crore is being allocated for incentive in relation to IMR performance.

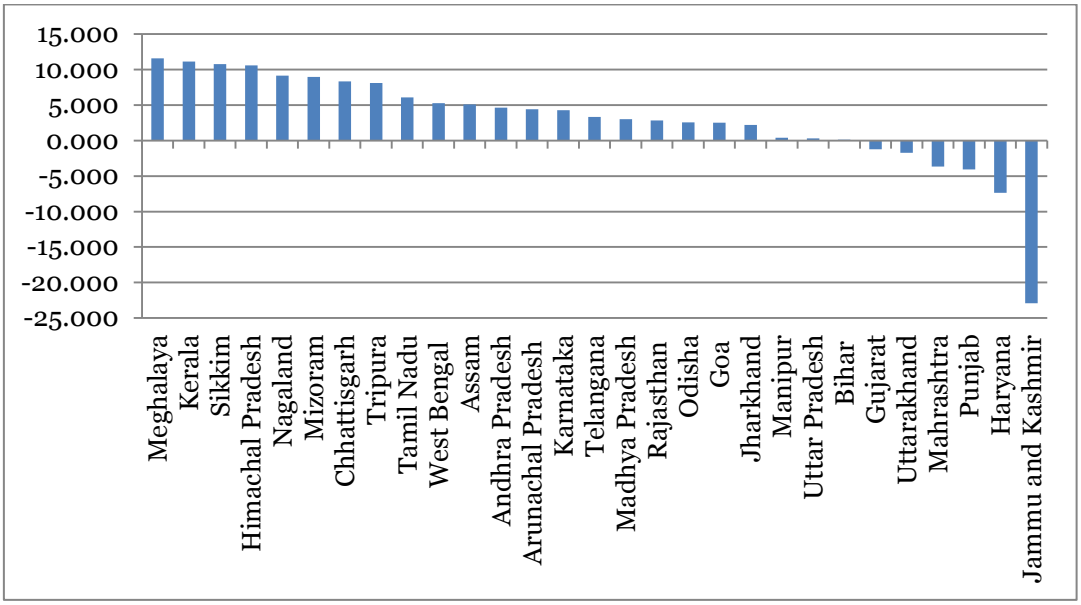
Figure 6.3: Incentive for IMR performance vis a vis population share



6.4. SRB

With regard to performance in terms of Sex Ratio at Birth (SRB), the data for this simulation exercise has been taken from the census reports of 2001 and 2011 (Table A6.4). The SRB for each state has been obtained by computing the ratio of male and female children at birth and multiplying this with 100. These state wise SRB figures are then compared with the ideal SRB ratio of 105. The proportionate distance from this figure for every state has been given values above or below 100. This method provides us two SRB indices, for 2011 and 2001 (column 1 and 2). Following from this, percentage reduction in SRB between 2001 and 2011 was calculated (column 3), and the final index was obtained by adding ¼ of the percentage decline in the preceding decade to the SRB index of 2011, which was then multiplied by 2011 population of each state (Column 4). Using the final index, state wise incentive share has been computed (column 5). This is compared with each state's share in 2011 population (column 6). Figure 6.4 presents this comparative analysis, which shows that the difference between a state's share of incentive and its share in the country's population varies from a positive figure of 11.5 per cent for Meghalaya to a negative 22.9 per cent for Jammu and Kashmir. Finally, assuming the total incentive amount of Rs 20,000 crore for SRB performance and using the state wise incentive shares given in column 5, the final incentive amount for SRB performance is presented in column 7.

Figure 6.4: Incentive for SRB performance vis a vis population share



6.5. Forests

In looking at the performance of states on increasing forest cover, FSI data published every two years has been used. In order to give higher value to greater density of tree cover, higher canopy density has been assigned a greater weight. The weights assigned in this regard have been explained in Box 6.1 below.

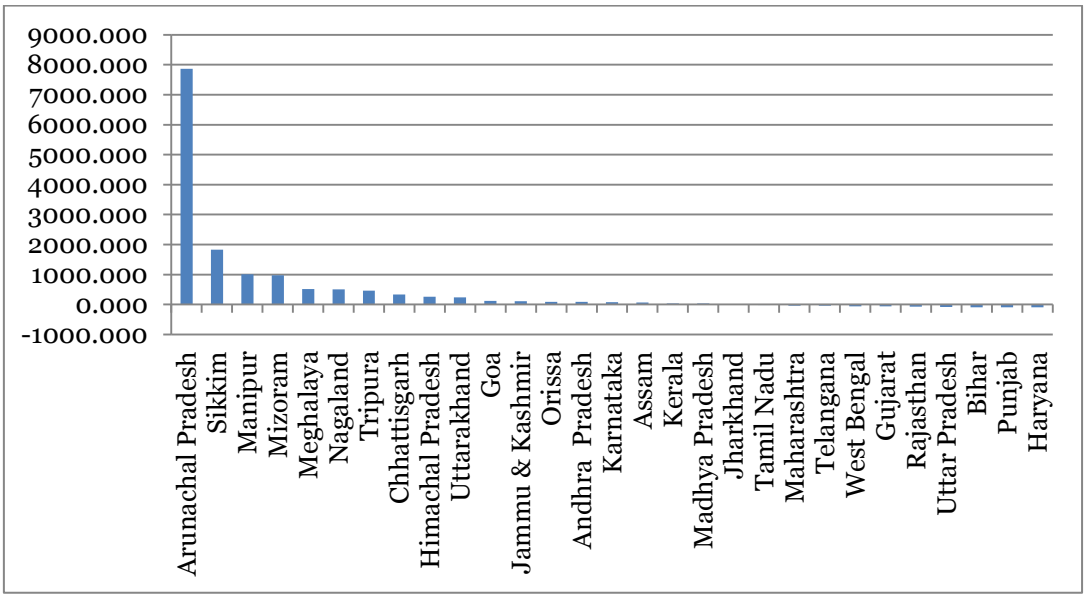
Box 6.1: Forest categories

Class	Canopy Density	Weights
Very Dense Forest	70% and above	4
Moderate Dense Forest	Between 40% to 70%	2
Open Forest	Between 10% to 40%	1
Scrub	Degraded forest land with density less than 10%	1
Non-Forest	land not included in any of the above class	0

Two alternatives have been discussed for working out incentives for states in relation to their performance in enhancing forest areas. They are described in two tables – Tables A6.5a and A6.5b). In table A6.5a, the computation of state share in the incentive amount is based on the weighted forest area in each state as a proportion of total weighted forest area (column 1). Thereafter, change in the weighted forest cover between the periods 2011 to 2017 for all the states has been computed and each state's share in total change (between the two years) is given in

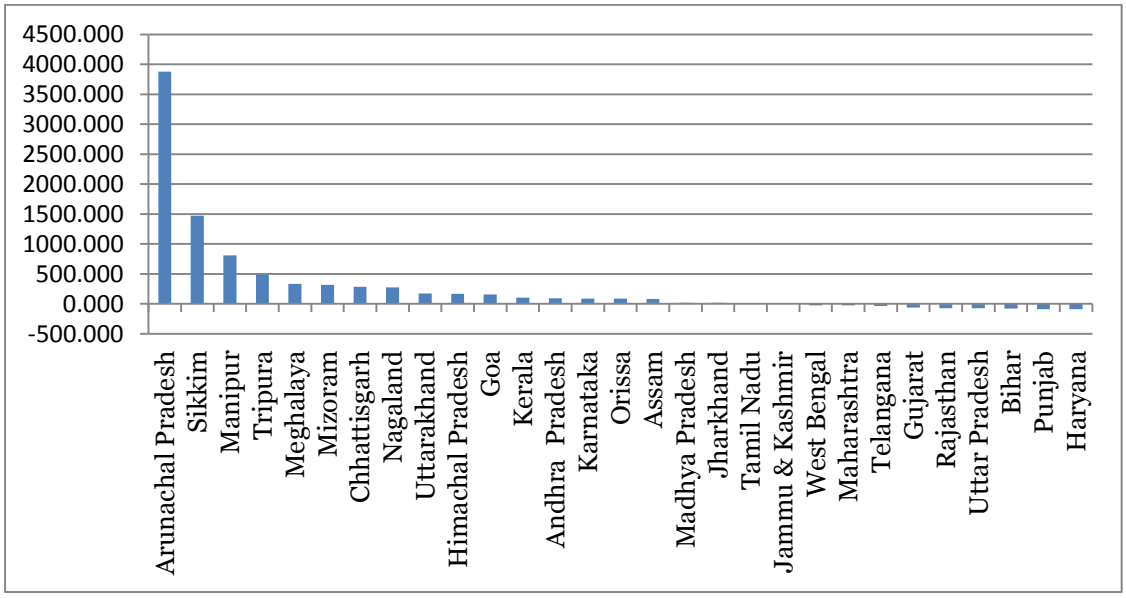
column 2. The recommended incentive share for each state is calculated by adding ¼ of the proportionate contribution to change in forest area in the period between 2011 and 2017 to the absolute figure for 2017 (column 3). This incentive proportion is compared with state's share in total population (column 4). A graphic representation of the position that emerges is presented in figure 6.5a. The incentive gain/loss for forest cover ranges from 7860.5 per cent for Arunachal Pradesh to -93.8 per cent for Haryana. Finally, taking the total incentive allocated for performance in relation to forest cover is taken as Rs 20,000 crore and state wise incentive amounts based on the incentive proportion in column 3 are shown in in column 5 of table 5a.

Figure 6.5a: Incentive for forest cover performance vis a vis population share (part 1)



In Table A6.5b, the proportion of state's weighted forest cover per 100 square km in total weighted forest per 100 square km in the country (with a value of 100) has been computed. This has been multiplied with each state's 2011 population to work out the state's incentive proportion on this criteria (column 1). Since this computation would have tended to penalize larger area relative to population size, a similar exercise for forest per lakh population was undertaken to bring out states incentive share in this regard (column 2). A composite performance index is calculated by giving equal weights to forest per sq. km and per lakh population (column 3). Further, 1/4th of state share in total weighted forest cover change between 2011 and 2017 (as reported in column 2 of table A6.5a) is added to the composite incentive to reach at total state's incentive share for improved forest cover (column 4). This is then compared to state's share in total population in 2011 to gauge the net incentive gain (column 5) and this state wise net gain/loss percentage is depicted in figure 6.5b, with Arunachal Pradesh, showing the maximum net incentive gain by 3879.8 percent, and Haryana takes the lowest position on the scale, with net loss of 90.5 per cent. Further, state wise incentives amounts are computed and reported in column 6, on the same lines as in table A6.5a

Figure 6.5b: Incentive for forest cover performance vis a vis population share (part 2)



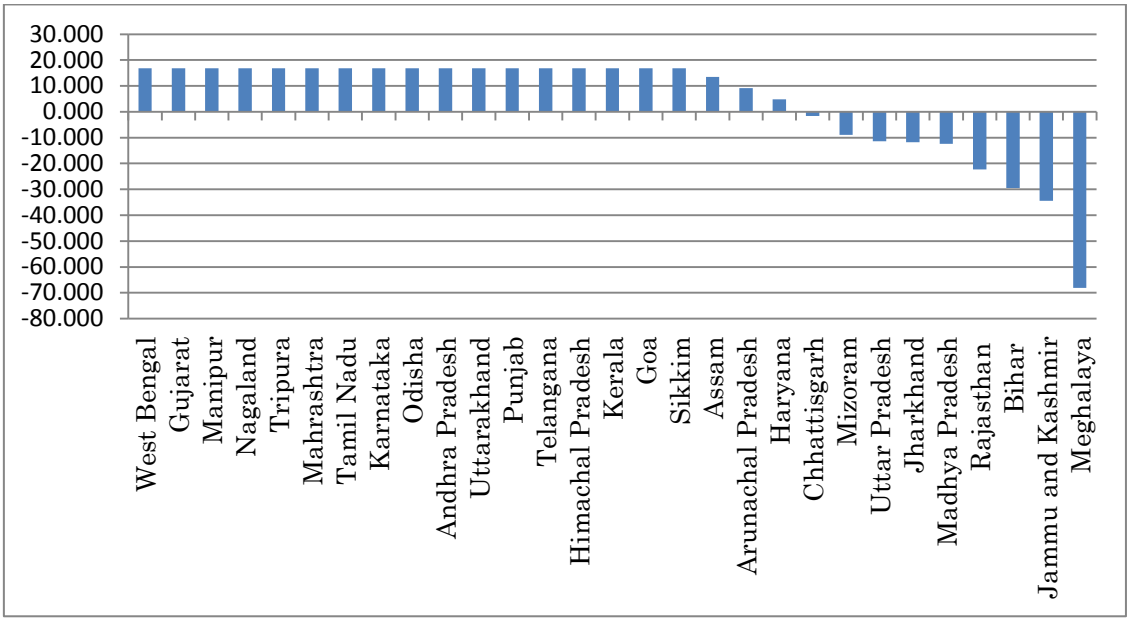
6.6. Total Fertility Rate

For TFR, the working is based on Census data since SRS data is available only for 20 large states. In order not to incentivize sharper drops from the replacement TFR of 2.1 (which can reflect or lead to possible adverse policy and social consequences), it has been proposed that for all states with a TFR equal to or below 2.1, a uniform value of 100 be taken for calculating the incentive proportion by multiplying this to the state population for 2011. For states with a higher TFR, a proportionate reduction from 100 has been taken as a multiplier for working out the state share of incentive. Use of state population as a multiplier ensures adequate weight to a state's size and therefore, contribution to the overall national picture. The comparative picture of the incentive proportion as worked out by this formulation against the state share in the total population has been brought out in Table A6.6.[1]

The relative incentive gain for TFR performance with respect to state's population share ranges from 16.8 per cent in case of west Bengal to -68 per cent for Meghalaya, implying a lesser performance incentive as compared to state's share in total population of Indian states (Figure 6.6).

1 The values for relevant parameters for Andhra Pradesh and Telangana -Number of Women and Currently Married Women by Present Age, Number of Births Last Year by Sex and Birth Order- have been divided using 2011 census. The formula devised by SRS was used to calculate district wise TFR. An average of the districts in each of the two states was calculated to give the State TFR.

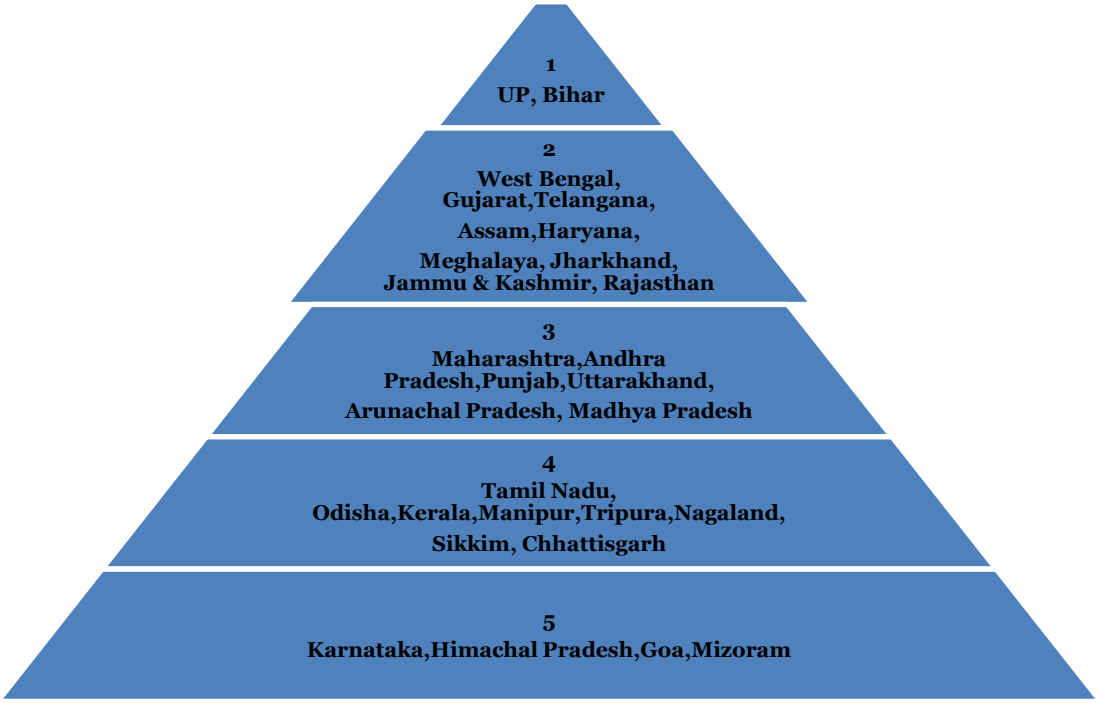
Figure 6.6: Incentive for TFR performance vis a vis population share



6.7. Summary of State Performance on all Indicators

Figure 6.7 brings out the performance of all the states on all the five selected indicators in terms of the proportion of incentive recived vis a vis their proportionate share in population. Four states – Karnataka, Himachal Pradesh, Goa, Mizoram – receive a higher proportionate incentive than their population share for their performance on all five proposed indicators. Tamil Nadu, Odisha, Kerala, Manipur, Tripura, Nagaland, Sikkim, Chhattisgarh gain in 4 out of the five indicators, and so on.

Figure 6.7: State Performance on All Indicators



Annexures

Table A2.1: Principles of Revenue Sharing

Finance Commission	Need Based	Performance Based
FIRST (1952-57)		
Income Tax: 55 %	80	20
Union Excise: 40 %	100	
SECOND (1957-62)		
Income Tax: 60 %	90	10
Union Excise: 25 %	90	
THIRD (1962-66)		
Income Tax: 66.66 %	80	20
Union Excise: 20 %		
FOURTH (1966-69)		
Income Tax: 75 %	80	20
Union Excise: 20 %	100	
FIFTH (1969-74)		
Income Tax: 75 %	90	10
Union Excise: 20 %	100	
SIXTH (1974-79)		
Income Tax: 80 %	90	10
Union Excise: 20 %	100	
SEVENTH (1979-84)		
Income Tax: 85 %	90	10
Union Excise: 40 %	100	
EIGHTH (1984-89)		
Income Tax: 85 %	90	10
Union Excise: 45 %	100	
NINTH (1989-90)		
Income Tax: 90%	100	
Union Excise: 40 %	100	
NINTH (1990-95)		
Income Tax: 90%	90	10
Union Excise: 45 %	100	
TENTH (1995-2000)		
Income Tax: 77.5 %	90	10
Union Excise: 47.5 %	90	10
ELEVENTH (2000-05)		
AllUnionTaxes: 29.5%	87.5	12.5
TWELFTH (2005-10)		
AllUnionTaxes:30.5%	85	15
THIRTEEN (2010-2015)		
AllUnionTaxes:32%	82.5	17.5
FOURTEEN (2015-2020)		
AllUnionTaxes:42%	92.5	7.5

Table A2.2: Performance driven indicators for revenue sharing

Indicators	Definition/Criteria	Reference time period for rewarding performance
Contribution (FC I to IX)	States' share in divisible pool is determined by its tax contribution in the divisible pool	Average of past three years
Tax Effort (FC X, XI,XII)	Ratio of Per capita own tax revenue of a State to its per capita income and weighted it by the inverse of per capita income.	***FC X & XI:*** Average of past three years ***FC XII:*** Improvement over two time periods of past(average of three years each)
Fiscal Discipline (FC XI,XII,XIII)	Improvement in the ratio of own revenue Receipts of a state to its total revenue Expenditure, related to a similar ratio for all States. Providing an incentive for better fiscal management.	Over time improvement between two time periods of past
Forest Cover (FC XIV)	Large forest cover provides huge ecological benefits, but there is also an opportunity cost in terms of area not available for other economic activities and this also serves as an important indicator of fiscal disability.	Past one year, 2013

Table A2.3: Purpose of Grants-in-Aid under various Finance Commissions

Commission	Revenue Deficit grant	In lieu of revenues foregone	Need based	Performance based
First	Revenue Gap	Export duty on jute and jute products	Primary education	-
Second	Revenue Gap	Export duty on jute and jute products; tax on railway passenger fares	-	-
Third	Revenue Gap	-	Improvement of communications	-
Fourth	Revenue Gap	Tax on railway passenger fares	-	-
Fifth	Revenue Gap	-	-	-
Sixth	Revenue Gap	-	Relief on account of natural calamities	-
Seventh	Revenue Gap	Tax on railway passenger fares; wealth on agricultural property	Relief on account of natural calamities	-
Eighth	Revenue Gap	Tax on railway passenger fares; wealth on agricultural property	To cover net additional interest liability	-
Ninth (1)	Revenue Gap	Tax on railway passenger fares	Up-gradation and special problems	-
Ninth (2)	Revenue Gap		minimum revenue plan expenditure	-
Tenth	Revenue Gap	Tax on railway passenger fares	**Local bodies; up-gradation and special problems**	-
Eleventh	Revenue Gap	-	Local bodies; up-gradation and special problems	-
Twelfth	-	-	Local bodies ; maintenance of forests, education, calamity relief; heritage conservation; maintenance of public buildings; state specific needs; roads and bridges	-

Commission	Revenue Deficit grant	In lieu of revenues foregone	Need based	Performance based
Thirteenth	Revenue gap	-	**Education; Relief from Natural Calamity; Local Bodies; Maintenance of roads & bridges; state specific needs**	Performance Incentive; Reduction in Infant Mortality Rates; Improvement in Supply of Justice ; Incentive for Issuing UIDs; District Innovation Fund ; Improvement of Statistical Systems at State and District Level ; Employee and Pension Data base; Implementation of model GST; Protection of Forests; Renewable Energy; Water Sector Management
Fourteenth	Revenue gap	-	Relief from Natural Calamity; Local Bodies	-

Source: *Finance Commission Reports, GOI*

Table A2.4: Status of Local Body Grants Performance

Finance Commission	Allocation Inter se States: Formula based	Allocation Inter se States: Formula based: Performance based	Total grants allocated
Tenth 1995-2000	-	Release based on raising matching funds for projects to be funded out of GIA	-
Eleventh (2000-05)	Based on 1)Population: 2)Distance from highest per capita income 3)Geographical area	Based on 1)Index of decentralization and 2)Revenue effort 10 per cent	**Rural:** Rs. 8,000 crore **Urban:** 2,000 crore
Twelfth (2005-10)	Based on 1)Population: 2)Distance from highest per capita income 3) Geographical area 4) Index of deprivation: 10 per cent	Based on Revenue effort (a) with respect to own revenue of states (b) with respect to GSDP	**Rural:** Rs. 20,000 crore **Urban:** Rs. 5,000 crore
Thirteenth (2010-2015)	Based on 1) Population: 2) Distance from highest per capita income 3) Geographical Area 4) Sectorial income; 5) SC/STs proportion in the population	Based on 1)Index of devolution 2) FC local body grants utilisation index 5%	**Rural:** Rs. 63,051 crore **Urban:** Rs. 23,111 crore **Schedule V and Schedule VI areas:** Rs. 1,357 crore
Fourteenth (2015-2020)	Basic grants will be distributed according to the formula devised by SFC (State finance commission). In absence of the above the devolution would be based on population and area. <u>Basic grants</u> 1) Gram panchayats: the grants are intended to be used for delivery of basic services including water supply, sanitation, maintenance of community assets etc. 2) urban local bodies: will be divided into tier-wise shares and distributed across each tier, namely the municipal corporations, municipalities (the tier II urban local bodies) and the Nagar Panchayats (the tier III local bodies)	<u>Conditions for performance transfers</u> (i) making available reliable data on local bodies' receipt and expenditure through audited accounts; and (ii) improvement in own revenues. In addition, the urban local bodies will have to measure and publish service level benchmarks for basic services	-

Source: *Finance Commission Reports, GOI*

Table A2.5: Performance based Grants-in-Aid recommended by 13th Finance Commission

Parameters	Conditions for performance reward	Definition/Methodology
1. Performance Incentive	Fiscal performance	Incentive for fiscal performance by three special category states, that no longer needed Non Plan Revenue Deficit Grant (NPRD) – Assam, Sikkim and Uttarakhand
2. Improving Outcomes: Reduction in Infant Mortality Rates	Improvement in Infant Mortality Rate (IMR)	The annual improvement in IMR, as determined from the SRS bulletin/ statistical report for the succeeding years was measured from the base line. States were rewarded in three instalments during the time period of 13th FC, both for improvement in the parameter as well as the level at which the improvement is made.
3. Improving Outcomes : Incentive for Issuing UIDs	UID registration	Incentive of Rs. 100 per person (effectively Rs. 400-500 per family) for incentivising citizens below the poverty line to register for the UID
4. Environment		(a) Protection of Forests (b) Renewable Energy (c) Water Sector Management
(4a) Protection of Forests	Preparation of working plans for all forest divisions in the state. and Approved working plans And forest cover	The forest grant is based on data at a point in time. The formula used is essentially a reward for the present stock.
(4b) Renewable Energy	Installed capacity addition	The grant is so structured as to reward states for renewable generating capacity that comes on stream into the grid during the first four years of our projection horizon
(4c) Water Sector Management	1. The grant provision is conditional on setting up of an independent Water Regulatory Authority by 2011-12. 2. Achieving projected recovery rates during the time duration of 13th FC.	The purpose of incentivising states is to establish an independent regulatory mechanism for the water sector and improved maintenance of irrigation networks.

Source: *Recommendations of 13th Finance Commission Report, GOI*

Table A2.6: Shortfall in the Release of Grants-in-aid Recommended by the 13th Finance Commission

S. No.	Category	Total Release Shortfall (as a % of allocation)
	1	2
1	Performance Incentive	0 %
2	Infant Mortality Rate	0 % (Largest gainer – Manipur, with 21 % of total allocation)
3	Renewable Energy	0 %
4	Forests	11.4 % (Ranges from 0% to 75% for different states)
5	Water Sector Management	71.7 % (Ranges from 0% to 100% for different states)
6	UIDs	83 % (Ranges from 0% to 100% for different states)

Source: *Recommendations of 13th Finance Commission Report, GOI*

Table A2.7: Sector Specific Schemes

SCHEMES	Objective	Type	Database	
			Objective	Reliable
Accelerated Irrigation Benefits Programme	To aid few of existing irrigation program where states were facing revenue shortage	R-I	N	N
Urban Rejuvenation Mission: JNNURM, AMRUT and Smart Cities Mission	To establish infrastructure that could ensure adequate robust sewage networks and water supply for urban transformation by implementing urban revival projects.	R-I	N	N
Power sector: APDP, R-APDRP	To reduce AT&C losses.	R-I	N	N
Nirmal Gram Puraskar	To reduce open defecation	Reward	N	N

Table A2.8: Details of World Bank's Completed PforR Projects

Country Name	Project Name	Database	Verification	Impact
1	2	3	4	5
1.Morocco	National Initiative for Human Development (INDH) Phase II	Data provided by government bodies	The World Bank plans to hire a competitively selected firm to conduct independent verification for six of the nine DLI; the other three will be done by the independent audit agency, IGAT-IGF	Achievements were above targets except one DLI which was partially achieved by the closing date of the program
2.Nepal	Results-Based Bridges Improvement & Maintenance Project	Data provided by government.	Independent consultants hired by NPC(National Planning Commission) of Nepal will validate BMS results	Satisfactory completion with achievement above target

Source: *World Bank*

Table A2.9: List of Indicators in World Bank's Completed PforR Projects

Program	Development Linked Indicator (DLI)
1. Morocco: National Initiative for Human Development (INDH) Phase II	1) % girls who reside in the educational dormitories graduating to the next grade 2) % population provided with access to improved water supply in targeted rural communes by the Program 3) % income-generating activities implemented by cooperatives, associations or companies which are viable two years after having benefited from financing under the Program 4) % infrastructure projects under the Program judged by the auditors as conforming to technical specifications, after final commissioning 5) % women and youth (18–35 years old) in the following local governance bodies: CLDH and CPDH 6) % projects under the rural and urban subprograms of the Program contracted by local government 7) % provinces and prefectorates in the Program Area which have put in place a plan of action to address audit recommendations 8) % priority audit recommendations included in action plans which are implemented 9) a. preparation of Environmental and Social Guide related to the Program b. % key actors (DAS & local facilitation teams) trained in the use of such guide
2. Nepal: Results-Based Bridges Improvement & Maintenance Project	1) Completion of major maintenance of bridges on SRN (cumulative meters) 2) Completion of minor maintenance of bridges on SRN (cumulative meters) 3) New bridges built or improved on SRN (cumulative meters) 4) Strengthened performance management in bridge sector (percent works complete on schedule) 5) Improved Bridge Asset 6) Increased effectiveness of the institutions responsible for bridge sector management

Source: *World Bank*

Table A2.10: List of World Bank's PforR Projects in India

Program	Objective	Data Source	Verification Agency	Status: Allocated Loan Amount (Million USD) / Disbursed
1	2	3	4	5
1. Atal Bhujal Yojana (ABHY)- National Groundwater Management Improvement	Improvement of groundwater water management	Participating States and MoWR (Ministry of Water Resources, River Development & Ganga Rejuvenation), RD&GR(River Development and Ganga Rejuvenation).Gram Panchayat/State government records and MIS	Government Assigned	450/0
2. India Energy Efficiency Scale-up Program Year of launch : 2018; Year of completion:2022	Improvement of energy saving by EESL	EESL (Energy Efficiency Services Limited) Dashboard; EESL reporting system and sales receipts	Government Assigned	220/0
2. Enhancing Teacher Effectiveness in Bihar Program Year of launch :2015;Year of completion:2020	To prepare high quality teachers	TEMIS (Teacher Management Information System) annual report ; UDISE (Unified-District Information System For Education) annual report ;SCERT(State Council for Educational Research and Training) and Directorate of Research and Training	Government Agency	250/81.37
4. Grid-Connected Rooftop Solar Program Year of launch :2016;Year of completion:2021	To boost the use of rooftop solar panels	SBI / Consultancy Contractor	Government Assigned	500/154.74
5. Himachal Pradesh Public Financial Management Capacity Building Program Launch Year: 2017; Year of completion:2022	Capacity building of Public Expenditure Management and Tax Administration of the State	Data to be provided by GoHP (Government of Himachal Pradesh)	Government Assigned	36/7.29

Program	Objective	Data Source	Verification Agency	Status: Allocated Loan Amount (Million USD) / Disbursed
1	2	3	4	5
6. Odisha Higher Education Program Year of launch :2017;Year of completion:2022	To improve the management and governance in select few state universities	PMU-HED(Higher Education Department); NAAC (National Assessment and Accreditation Council) data; data reported from Affiliating universities and IDG(Institutional Development Grant) recipient institutions	World Bank	119/12.51
7. Skills Strengthening for Industrial Value Enhancement Operation Year of launch :2017;Year of completion:2022	To improve the quality of training provided by Indian Skill Tech Institutes.	Annual progress report prepared by MSDE (Ministry of Skill Development and Entrepreneurship).	Government Assigned	125/30
8. Skill India Mission Operation Year of launch :2017;Year of completion:2023	To aid Skills Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) scheme under Skill India Mission	MISs of central and state level Skill Development programs	Government Assigned	250/0.63
9. Swachh Bharat Mission (SBM) Support Program Year of launch :2015;Year of completion:2021	To aid the Grameen aspect of the SBM	National Annual Rural Sanitation Survey; SBM G;MDWS(Ministry of Drinking Water and Sanitation) Annual progress report IMIS(Integrated Management Information System); NARSS(National Annual Rural Sanitation Survey)	Government Assigned	1500/151.25
10. Third Maharashtra Rural Water Supply and Sanitation Project (Jalswarajya-	To improve the services of its sanitation project.	Report from MJP (Maharashtra Jeevan Pradhikaran of Government of Maharashtra) , PMU(Program Management Unit), WSSD (Water Supply and Sanitation Department of	Government Assigned	165/31.32

Program	Objective	Data Source	Verification Agency	Status: Allocated Loan Amount (Million USD) / Disbursed
1	2	3	4	5
II) Year of launch :2014; Year of completion:2022		Government of Maharashtra) and Zilla Parishad; Supported by field surveys for each DLIs.		
11. Uttarakhand Water Supply Program Year of launch :2018;Year of completion:2023	To aid the water supply in the peri-urban regions of the State	MIS Reports from UJN (Uttarakhand Peyjal Nigam) and UJS (Uttarakhand Jal Sansthan); physical survey on sample basis	Government Assigned	120/0.3
12. West Bengal Institutional Strengthening of Gram Panchayats Program II Year of launch :2017;Year of completion:2022	To boost the decentralization process in the State.	Annual Performance Assessments for 3342 GPs. Assessment report, which is based on field visits to all GPs reviewing the compliance with the BMCs (Basic Mandatory Conditions). Annual PBG announcements to GPs. Allocations to GPs for previous FY.	Government Assigned	210/115.41

Source: *World Bank*

Table A2.11: List of Indicators for World Bank's PforR Projects for India

Program	Indicator Type	Development Linked Indicator (DLI)
1	2	3
1.Atal Bhujal Yojana (ABHY)-National Groundwater Management Improvement	Output Process Process Outcome Process	1: Arrest in the rate of decline of groundwater levels 2: Community led Water Security Plans prepared 3: Public financing allocated to approved Water Security Plans 4: Area with reduction in water consumption 5: Improved groundwater monitoring and disclosure of groundwater d ata
2. India Energy Efficiency Scale-up Program	process	1: Number of LED bulbs and tube lights sold by EESL under the UJALA program 2: Number of EE ceiling fans sold by EESL under the UJALA program. 3: Number of LED street lights installed by EESL under the SLNP program 4: implementation of EE AC sustainability actions (RF) 5: Business model for collaboration with private sector ESCOs in the implementation of EESL's Building EE Program 6: Establishment of sustainable development unit, and report on updated EHSS Manual covering all EESL's programs under implementation
3. Enhancing Teacher Effectiveness in Bihar Program	Input	1: Infrastructure Ensuring requisite infrastructure of TE Institutions 2: Institutional Capacity Ensuring Capacity Enhancement of TE institutions for effective TE delivery 3: Quality Improvement Training of unqualified teachers and professional development of all teachers through ICT solutions. 4: Accountability and Monitoring System Ensuring Teachers' management and performance is effectively monitored and evaluated 5: Teacher Accountability Teachers accountability at school level 6: Strengthened Corporate Governance Program Fiduciary Systems and Performance
4. Grid-Connected Rooftop Solar Program	Input	1: Establishing a Rooftop Solar PV Program at the State Bank of India. 2: Technical assistance to key stakeholders for the implementation of MNRE's GRPV program 3: Aggregate amounts of loans signed by SBI for the financing of solar (PV) rooftop power generation schemes 4: Piloting new business models 5: Megawatts of solar (PV) rooftop power generation installed and commissioned under SBI financing 6: Sustainability of GRPV program
5. Himachal Pradesh Public Financial Management Capacity Building Program	Process	1: Electronic interface of IFMIS implemented in all departments 2: Internal controls of the FD strengthened 3: Increased transparency and citizen engagement 4: Increased value of transactions processed through the e-Procurement system 5: CMS in IPH Department implemented 6: Backlog of pending VAT/ CST assessments reduced 7: Institutional performance of the ETD improved 8: e Governance application for excise function implemented
6. Odisha Higher Education Program	Process	1: Improved quality of selected institutions. (Percentage of selected colleges that have improved their NAAC grade from the previous cycle of accreditation) 2: Improved student performance. Increased on-time graduation rate of students in undergraduate degree programs in selected institutions (disaggregated by women, ST, SC, and total students) 3: Annual performance milestones met by the HED and selected institutions 4: Revised regulations on the creation/composition of GBs and their functioning issued by the HED

Program	Indicator Type	Development Linked Indicator (DLI)
1	2	3
		and percentage of affiliated government-aided colleges that implement the regulations 5: Improved fiduciary management in selected institutions
7. Skills Strengthening for Industrial Value Enhancement Operation	Process	1:Increase in the number of graduates from ITIs that have signed PB Grant Agreements 2: Improvement in industrial training and employment outcomes for trainees and graduates of ITIs that have signed PB Grant Agreements 3: Reduction in ITIs' trainer vacancies and improvements in training of trainers 4: Number of Participating States that have conducted tracer studies 5: Number of ICs that have introduced at least 2 different apprenticeship programs within their participating (member) industries 6: Increase in female enrolment rate in ITIs with PB Grant Agreements and ICs receiving IAI Grants
8. Skill India Mission Operation	Process	1: Trainees who have successfully completed NSQF aligned market relevant short term SD programs and were certified 2: Percentage of graduates who are wage employed or self-employed within 6 months of completion of short-term skills development programs 3: NSQF aligned QPs translated into model curriculum, trainers guide, and teaching learning resource packs 4: Number of trainers and assessors trained/ retrained with the new CPD modules. 5: A system is in place to undertake monitoring and evaluation of SD programs at the national and state level. 6: Improved performance of states on institutional strengthening, market relevance of SD programs and access to and completion of training by marginalized populations 7: Increase in percentage of women, SC and ST and PWD participating in SD programs 8: Joint public and private sector funding successfully channelized and utilized into priority SD initiatives.
9. Swachh Bharat Mission (SBM) Support Program	Outcome	1: reduction in the prevalence of open defecation 2:sustaining ODF status in villages 3: increase in the rural population with improved SLWM; and 4: operationalization of Performance Incentive Grant Scheme by MDWS
10. Third Maharashtra Rural Water Supply and Sanitation Project (Jalswarajya-II)	Outcome	1: Strengthened M&E System for the sector 2: Strengthened Capacity of key Sector Institutions Percentage of sanctioned staff approach maintained, trained and equipped every year in key sector institutions as per Annual Capacity Development Plan 3: Number of house connections to a Commissioned Water Supply System 4: Number of house system connections to a Sustainable Water Supply System and receiving a Regular Water Service 5: Number of Community Safe and Secure Water Systems (CSSWS)
11. Uttarakhand Water Supply Program	Process	1: Number of water connections providing improved water supply services in peri-urban areas 2: Sustainability of water supply service delivery in peri-urban areas 3: Improved policy for water supply program in peri urban areas 4: Strengthened M&E system for water supply program in peri-urban

Program	Indicator Type	Development Linked Indicator (DLI)
1	2	3
		areas 5: Number of approved master-plans for water supply in peri-urban areas.
12. West Bengal Institutional Strengthening of Gram Panchayats Program II	Process	1: No. of phase II Gram Panchayats (GPs2) that have qualified Basic Mandatory Conditions (BMCs) in Annual Performance Assessment 2: Number of phase II Gram Panchayats that have qualified Expanded Mandatory Conditions (EMCs) and got access to performance rewards in Annual Performance Assessment 3: Percentage of activities implemented as per PRDD's annual learning and training plan DLI 4: Average number of annual mentoring input days per Gram Panchayat with performance assessment DLI 5: Core institutional systems implemented by PRDD across all GPs a. Gram Panchayat Management System (GPMS), Web Based Monitoring System (WBMS) & GIS b. Grievance Redressal Management System (GRMS) DLI 6: Annual Performance Assessments (APA) conducted by PRDD DLI 7: Targeted number of vacant core Gram Panchayat positions filled Ø Executive Assistant Ø GP Secretary Ø Nirman Sahayak

Source: *World Bank*

Table A3.1: List of Desired Outcomes & Possible Indicators (Other than Flagship Programs)

S. No.	Dimension/ Area	Desired outcome	Possible indicator/s	Database/s
1.	**Tax net under GST**	Increase in tax rates/ items covered/ taxpayers registered- all leading to increased GST collection	increased GST collections in each state	Finance Accounts of the Centre /State Governments
			Increase in Registered taxpayers	none
2.	**Progress in reaching replacement rate of population growth**	Stable population size at the earliest (however, incentivizing states financially to achieve this faster may not be appropriate because it can lead to policy with adverse results)	Total fertility rate	Census SRS AHS (Annual Health Survey) NFHS (National Family Health Survey)
3.	**(i) Disaster resilient infrastructure**	Increased Proportion of Disaster resilient infrastructure	Stock of disaster resilient infrastructure	none
			Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	none
	(ii) Improving effectiveness and efficiency of expenditure	Increased effectiveness and efficiency of expenditure	No general indicator related to measuring performance on outcome indicators for all areas of expenditure	No specific data base
4.	**(i) Increasing capital expenditure**	Increase in stock of purposeful capital assets	Stock of purposeful capital assets	none
	(ii) Power	Reduction in losses of utilities leading to better financial health enabling sustainable supply of increased power to facilitate growth and improved living standards	Amount of electricity sold	Central Electricity Authority
			Metered and billed electricity consumption for which payment is received	none
			T & D Losses, AT&C Losses	Central Electricity Authority, Power Finance Corporation
	(iii) Quality of expenditure (generating future income streams)	Increase in stock of purposeful capital assets	Stock of purposeful capital assets	None
1	**2**	**3**	**4**	**5**

1.	**Tax net under GST**	Increase in tax rates/ items covered/ taxpayers registered- all leading to increased GST collection	increased GST collections in each state	Finance Accounts of the Centre /State Governments
			Increase in Registered taxpayers	none
2.	**Progress in reaching replacement rate of population growth**	Stable population size at the earliest (however, incentivizing states financially to achieve this faster may not be appropriate because it can lead to policy with adverse results)	Total fertility rate	Census SRS AHS (Annual Health Survey) NFHS (National Family Health Survey)
3.	**(i) Disaster resilient infrastructure**	Increased Proportion of Disaster resilient infrastructure	Stock of disaster resilient infrastructure	none
			Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	none
	(ii) Improving effectiveness and efficiency of expenditure	Increased effectiveness and efficiency of expenditure	No general indicator related to measuring performance on outcome indicators for all areas of expenditure	No specific data base
4.	**(i) Increasing capital expenditure**	Increase in stock of purposeful capital assets	Stock of purposeful capital assets	none
	(ii) Power	Reduction in losses of utilities leading to better financial health enabling sustainable supply of increased power to facilitate growth and improved living standards	Amount of electricity sold	Central Electricity Authority
			Metered and billed electricity consumption for which payment is received	none
			T & D Losses, AT&C Losses	Central Electricity Authority, Power Finance Corporation
	(iii) Quality of expenditure (generating future income streams)	Increase in stock of purposeful capital assets	Stock of purposeful capital assets	None

5.	**(i) Tax/Non-Tax revenue**	Achieving revenue balance through optimal tax / non tax revenues	Own Tax / Non tax revenues as a proportion of GSDP (However, till GST stabilizes, it will be difficult to make useful comparisons of states' efforts in tax revenue collection. On the non-tax side, the variation in entities responsible for service delivery across states means that the Finance Accounts do not necessarily reflect comparable data)	State Finance Accounts
	(ii) Promoting savings by adopting DBT and PFMS	Better targeting and reduced leakages in transmitting subsidies to beneficiaries	Savings in expenditure on various subsidies given by state governments in related to accurate assessment of beneficiary number	None
	(iii) Promoting digital economy	Enhanced role of formal economy leading to more productive and efficient deployment of resources	Assessment of extent of formal / informal share in economy. Increase in number / value of digital transactions in the economy	E-Taal website
6.	**(i) Promoting ease of doing business**	Increase in sustained economic activity	Increase in GSDP. Increase in private sector investment. Increase in number of business establishments and extent of employment	NSSO, ASI
	(ii) Promoting labour intensive growth	Higher employment relative to capital deployed	Ratio of employment to capital deployed	NSSO Annual survey of Industries(ASI)
7.	**Provision of grant in aid to local bodies for basic services**	Accountable delivery of improved basic services	Assessment of the extent and reach of basic service delivery	No consolidated data base

	Implementation of performance grant system in improving delivery of services			
8.	**Incurring expenditure on populist measures**	Reducing fiscal profligacy	Revenue deficit / surplus in state government budgets Since this part of the overall assessment under taken by the Finance Commission, it does not make sense to reward this separately	Finance Accounts of state governments
9.	**(i) Sanitation** **(ii) SWM**	Elimination of water borne diseases	Extent of morbidity / mortality caused by water borne diseases	IDSP
		Safe disposal of all waste	Assessment of safe disposal of waste against total waste generated	None
		Access to and use of toilets	households with toilets	NFHS, Ministry of Drinking water and Sanitation DLHS AHS NSSO census 2011 data IHDS
			type of latrine facility available	2011 census data IHDS
	(iii) Behavioral change to end open defecation	Universal adoption of practice of safely disposing human waste	Assessment of prevalence of water borne disease	IDSP

Source: *Based on Literature Review from central/state government websites, and various other data sources like ASI, NSSO, Census, IDSP, IHDS, DLHS, AHS, NFHS, CEA etc. by NCAER.*

Table A3.2: List of Desired Outcomes & Possible Indicators for Flagship Programs

S.No	Area	Outcome	Indicators	Databases
1	2	3	4	5
1.	Employment generation (MNREGA, National Livelihood Mission, Jobs and Skill Development)	Optimal numbers of those in need seeking and securing employment	Proportion of estimated numbers in need in rural areas securing registration compared with number securing employment for requisite period	NREGA website, MoRD
			Reduction in estimated poverty	NSSO
			Increase in proportion employed specially in skilled categories	NSSO
2.	Agriculture (Green Revolution)	Increased productivity and production	Estimates of change in productivity and production of targeted crops	Ministry of Agriculture & Farmer's Welfare, MoAFW
3.	Milk Production (White Revolution)	Increased milk production	Estimates of change in the production of milk	MoAFW
4.	Irrigation (Pradhan Mantri Krishi Sinchai Yojna)	Optimal area brought under irrigation	Estimates of change in net sown area irrigated by different sources	MoAFW
5.	Roads (Pradhan Mantri Gram Sadak Yojna)	All rural habitations connected by all-weather roads	Road length / density of roads to serve area/ population requirements	Ministry of Road Transportation and Highways
			Number of habitations connected by all-weather roads as a proportion of all habitations	PMGSY website
6.	Housing (PMAY)	Provision of adequate housing to all	proportion of houseless people	Census 2011
			Number per 1000 households staying for 10 years or more in slums/ squatter settlements/other areas	NSSO
7.	Rural Drinking Water (National Rural Drinking Water Mission)	Availability of safe drinking water as per norms to all	Proportion of rural people with adequate access to improved sources of drinking water	Ministry of Drinking Water and Sanitation
				AHS
				DLHS
				IHDS
				Census 2011
			Change in rural habitations affected by water quality problems	Ministry of Drinking Water and Sanitation
8.	Swachh Bharat Mission	Safe disposal of human/solid waste	Amount of waste safely disposed as a proportion of waste generated	No source
			Households with Toilets that dispose waste safely	Census
				NSSO
				NFHS
				Swachh Bharat Mission
				IHDS
9.	National Health Mission	Reduction in mortality	Death Rate, MMR, IMR	SRS
				AHS
				NFHS
				NFHS
				SRS
				AHS
		Reduction in	Prevalence of Acute and Chronic	AHS

		morbidity[2]	illnesses	DLHS
				IHDS
			Prevalence of Injuries	AHS
				DLHS
			Proportion of persons ailing during the last 15 days.	NSSO
10.	Education	Learning levels as appropriate for requisite age groups	estimates of the status of children's basic learning (reading and arithmetic level)	ASER
			Achievement Score of students in English/Mathematics/Science/Social Science	NAS
11.	Nutrition (Class 1-8) (National Mid-Day Meal scheme)	Improving nutritional levels among children	Estimate of BMI	No data by age cohort to permit comparisons
			Estimates of Stunting	
			Estimates of Wasted/severely wasted	
12.	Child welfare, development and protection (Umbrella ICDS)	Improvement in the nutritional and health status of children in pre-school age group	Proportion of children who are under weight	NFHS
				AHS
				DLHS
			Proportion of children who are stunted	NFHS
				AHS
				DLHS
			Proportion of children who are wasted	NFHS
				AHS
				DLHS
			IMR	AHS
				NFHS
				SRS
			Under five mortality Rate	AHS
				NFHS
				SRS
13.	Mission for Protection and Empowerment for Women	eliminating all forms of violence against all women Empowered,	Estimates of Crime against women	NCRB
		confident women become more equal partners in societies	Improved Child Sex ratio	Census
				NFHS
				AHS(0-4)
			MMR	SRS
				NFHS (not captured in NFHS 4)
				AHS
			Estimates of BMI by gender	NFHS
				AHS
				IHDS
			Literacy by gender	Census
				AHS
				DLHS
				NFHS
			Mean age at marriage	SRS
				NFHS
				Census

[2] National Health Policy 2017 aims to establish a regular tracking of Disease Adjusted Life Years (DALY) Index as a measure of burden of disease by 2022. Currently, the estimates of DALY are produced as part of the Global Disease Burden Study.

				AHS
				DLHS
				IHDS
			Sex Ratio at Birth	Census
				SRS
				NFHS
				DLHS
				AHS
				HMIS
14.	Environment, Forestry and Wildlife	An improved physical environment with optimal green cover, biodiversity and quality of air land and water	Estimates of change in green cover, Extent of bio diversity, air, land and water quality.	FSI on green cover No data base on extent of bio diversity CPCB on water / air quality
15.	Urban Development (Urban Rejuvenation Mission: AMRUT and Smart Cities Mission)	Improved access to basic services in urban areas.	Estimates of levels of basic services in urban areas	No database
16.	Rural Development (Shyama Prasad Mukherjee Rurban Mission)	Availability of Improved Infrastructure in rural areas	Estimates of basic amenities in rurban areas	No data base
17.	Insurance (Rashtriya Swasthya Bima Yojna) / Ayushman Bharat	Reduction in poverty caused by health related financial requirements	Estimates of poverty /indebtedness caused by loans obtained to deal with health related needs	No data base
18.	Poverty/ inequality (National Social Assistance Program, Umbrella Scheme for Development of Schedule Castes, Umbrella Programme for Development of Scheduled Tribes, Umbrella Programme for Development of Minorities, Umbrella Programme for Development of Other Vulnerable Groups)	Reduction in disparity among social groups and more equal distribution of economic resources	Estimates of consumption expenditure	NSSO

Source: *Based on Literature Review from respective Ministries, NSSO, AHS, DLHS, IHDS, SRS, HMIS, Census, NFHS and other authentic data sources by NCAER.*

Table A3.3: List of Possible Indicators for Sustainable Development Goals (SDGs) developed by MOSPI

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
Goal 1. End poverty in all its forms everywhere				
1.	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	Proportion of population living below the national poverty line	Outcome Related	NSSO
		Percentage of resource allocated by the government directly to poverty reduction programme	Output/Input Related	
2.	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	Proportion of population living below the national poverty line	Outcome related	NSSO
		Percentage of resource allocated by the government directly to poverty reduction programme	Output/Input Related	
3.	1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	Proportion of population covered by social protection floors/systems	Output/Input Related	
		Percentage change in ST students under post matric scholarship	Output/Input Related	
4.	1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	No of accounts opened under PMJDY by Rural/Urban	Output/Input Related	
		Balance in account (in Lacs) in a/c's opened under PMJDY	Output/Input Related	
		No of a/c's with zero balance under PMJDY	Output/Input Related	
		Number of beneficiaries from housing loans	Output/Input Related	
		Number of beneficiaries for Bank loan for purchasing motor vehicles and other durable goods	Output/Input Related	
		Number of enterprises getting loan from banks	Output/Input Related	
		No of Life insurance companies, insurance density and new policies issued	Output/Input Related	
		No of Non-Life insurance companies, insurance density and new policies issued	Output/Input Related	
		Proportion of population living in households with access to basic services	Outcome Related	none
		Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, & (b) who perceive their rights to land as secure, by sex & type of tenure	Output/Input Related	
5.	1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	Outcome Related	None
		Direct disaster economic loss in relation to global gross domestic product (GDP)a	Output/Input Related	

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
	environmental shocks and disasters	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030	Output/Input Related	
		Proportion of State governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	Output/Input Related	
6.	1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions	Proportion of domestically generated resources allocated by the government directly to poverty reduction programmes	Output/Input Related	
		Proportion of total government spending on essential services (education, health and social protection)	Output/Input Related	
		Sum of total grants and non-debt creating inflows directly allocated to poverty reduction programmes as a proportion of GDP	Output/Input Related	
7.	Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups	Output/Input Related	
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture				
8.	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	Prevalence of undernourishment(Global indicator)	Outcome Related	NFHS DLHS AHS
		Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)(Global indicator)	Output/Input Related	
9.	2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in	Prevalence of stunting age <5	Outcome Related	NFHS DLHS AHS
		Prevalence of wasting age<5	Outcome Related	NFHS DLHS

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
	children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons			AHS
10.	2.3 By 2030, double the agricultural productivity and incomes of small scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and nonfarm employment	Percent share of expenditure in R&D in agriculture to Total GDP	Output/Input Related	
		Percent change in use of modern equipment's (tractor, thrasher etc)	Output/input Related	
		Percent increase of area under High Yield Variety	Output/input Related	
		Total cropped Area under Irrigation	Output/Input Related	
		Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	Output/Input Related	
		Average income of small-scale food producers, by sex and indigenous status	Output/Input Related	
11.	2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	Percent share of expenditure in R&D in agriculture to Total GDP	Output/input Related	
		Percent change in use of modern equipment (tractor, thrasher etc.)	Output/input Related	
		Percent increase of area under High Yield Variety	Output/input Related	
		Total cropped Area under Irrigation	Output/Input Related	
		Total cropped Area under Rain Fed	Output/Input Related	
		Percent change in Forest Area coverage	Output/Input Related	
		Percent change in Waterfed area	Output/Input	
		Percent change in Rainfed area	Output/Input Related	
		Percent change in Area under mangroves	Output/Input Related	
		Proportion of agricultural area under productive and sustainable agriculture	Output/Input Related	
12.	2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional	Proportion of local breeds classified as being at risk, not-at-risk or at unknown level of risk of extinction	Output/Input Related	
		Number of plant and animal genetic resources for food and agriculture secured in either medium- or long term conservation facilities	Output/Input Related	

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
	knowledge, as internationally agreed			
13.	2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries	Total official flows (official development assistance plus other official flows) to the agriculture sector	Output/input Related	
		The agriculture orientation index for government expenditures	Output/input Related	
14.	Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round	Agricultural export subsidies	Output/input Related	
15.	Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility	Indicator of food price anomalies	Output/input Related	
Goal 3. Ensure healthy lives and promote well-being for all at all ages				
16.	3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	Maternal mortality ratio	Outcome Related	SRS AHS NFHS
		Proportion of births attended by skilled health personnel	Output/input Related	
17.	3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	Under-five mortality rate	Outcome Related	SRS NFHS AHS
		Neonatal mortality rate	Outcome Related	SRS NFHS AHS
18.	3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	Number of new HIV infections per 1,000 uninfected population	Outcome Related	NFHS
		Tuberculosis incidence per 100,000 population	Outcome Related	NFHS, Tuberculosis Report MHFW
		Malaria incidence per 1,000 population	Outcome Related	NFHS
		Viral Hepatitis (including A, B,	Outcome	None

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
		C, D, E) incidence per 100,000 population	Related	
		Number of people requiring intervention against Neglected tropical Diseases (Dengue, Chikungunya, Kala-azar, Leprosy, Lymplatic Filariasis, Soil Transmitted Helminths, V Lieshmaniasis)	None	None
19.	3.4 By 2030, reduce by one third premature mortality from noncommunicable diseases through prevention and treatment and promote mental health and well-being	Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	Outcome Related	None
		Suicide mortality rate	Outcome Related	NCRB
20.	3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders	Output/input Related	
		Harmful use of alcohol, defined according to the national context as alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol	Output/Input Related	
21.	3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	Death rate due to road traffic injuries	Outcome Related	Ministry of Road Transportation and Highway
22.	3.7 By 2030, ensure universal access to sexual and reproductive healthcare services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods	Output/Input Related	
		Annual number of births to women aged 15-19 years per 1,000 women in that age group	Output Related	Census
		Proportion of delivery attended by skilled health personnel	Output/input Related	
		Proportion of Institutional Deliveries	Output/Input Related	
23.	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods	Output/Input Related	
		Percentage of women aged 15-49 years with a live birth in a given time period who received antenatal care, four times or more	Output/Input Related	
		Percentage of children aged 12-23 months who received the three doses of pentavalent vaccine before their first birthday	Output/Input Related	

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
		Percentage of children under 5 years of age with suspected pneumonia (cough and difficult breathing Not due to a problem in the chest and a blocked nose) in two weeks preceeding the survey who sought care from appropriate health facility or provider	Output/Input Related	
		Percentage of TB cases successfully treated (cured plus treatment completed) among TB cases notified to the national health authorities during a specified period	Output/Input Related	
		Percentage of people living with HIV currently receiving ART among the detected number of adults and children living with HIV	Output/Input Related	
		Percentage population in malaria-endemic areas who slept under an ITN the previous night or/and Percentage of population at risk protected by IRS during a specified time period		
		Percentage population using safely managed drinking water services and Percentage population using safely managed sanitation services	Output/Input Related	
		Proportion of population aged 18 years and older who are currently taking antihypertensive medication among number of adults 18 years and older who are taking medication for hypertension with systolic blood pressure ≥ 140 mmHg, or with distolic blood pressure ≥ 90mmHg	Output/Input Related	
		Proportion of population aged 18 years and older who are currently taking medication for diabetes (insulin or glycaemic control pills) among number of adults 18 years and older who are taking medication for diabetes or with fasting plasma glucose ≥ 7.0 mmol/	Output/Input Related	
		Proportion of women aged 30-49 years who report they were ever screened for cervical cancer and the proportion of women aged 30-49 years who report they were screened for cervical cancer during the last 5 years	Output/Input Related	
		Age standarized prevalence of	Outcome	NFHS

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
		current tobacco use among persons aged 15+ years	Related	DLHS
		Number of outpatient department visit per person per year and hospital(inpatient) admission per 100 population per year	Output/input Related	
		Total physicians, nurses and midwives per 10000 population	Output/input Related	
		Percentage of health facilities with essential medicines and lifesaving commodities	Output/input Related	
		Percentage of attributes of 13 core capacities [1. National legislation, policy and financing 2. Coordination and national Focal Point Communications 3. Surveillance 4. response 5. Preparedness 6. Risk Communication 7. Human Resources 8. Laboratory 9. Point of entry 10. Zoonotic events 11. Food safety 12. Chemical events 13. Radio nuclear emergencies] that have been attained at a specific point in time	Output/input Related	
		Poverty head count due to out-of-pocket payments on health		
		Out - of - Pocket expenditure on health	Outcome Related	NSSO
24.	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Mortality rate attributed to household and ambient air pollution	Outcome Related	None
		Mortality due to unsafe water, sanitation and hygiene	Outcome Related	None
		Mortality rate attributed to unintentional poisoning	Outcome Related	None
25.	3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	Age standardized prevalence of current tobacco use among persons aged 15+ years	Outcome Related	NFHS DLHS
26.	3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the	Out - of - Pocket expenditure on health	Outcome Related	NSSO
		Total net official development assistance to medical research and basic health sectors	Output/input Related	
		Proportion of the target population covered by all vaccines included in their national programme	Output/input Related	
		Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis	Output/input Related	

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
	Agreement on Trade related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all			
27.	3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	Total physicians, nurses and midwives per 10000 population	Output/Input Related	
		Health worker density and distribution	Output/Input Related	
28.	3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	Percentage of attributes of 13 core capacities [1. National legislation, policy and financing 2. Coordination and national Focal Point Communications 3. Surveillance 4. response 5. Preparedness 6. Risk Communication 7. Human Resources 8. Laboratory 9. Point of entry 10. Zoonotic events 11. Food safety 12. Chemical events 13. Radio nuclear emergencies] that have been attained at a specific point in time	Output/input Related	
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all				
29.	4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	Net Enrolment Ratio (NER) at Primary/ Upper-Primary/ Secondary/ Senior Secondary levels	Output/Input Related	
		Proportion of students starting from Grade 1 who reaches last grade of Primary/ Upper-Primary/ Secondary/ Senior Secondary levels	Output/Input Related	
		Total public expenditure on education as a percentage of GDP	Output/input Related	
		Literacy rate of 7+ year-olds	Outcome Related	Census DLHS
		Youth literacy rate of persons (15-24 years)	Outcome Related	Census NFHS AHS
		Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex		
30.	4.2 By 2030, ensure that all girls and boys have access to	Prevalence of stunting in children under [5] years of age	Outcome Related	NFHS DLHS

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
	quality early childhood development, care and pre-primary education so that they are ready for primary education			AHS
		Prevalence of underweight children under [5] years of age	Outcome Related	NFHS
				DLHS
				AHS
		Proportion of students starting from Grade 1 who reaches last grade of Primary/ Upper-Primary/ Secondary/ Senior Secondary levels	Output/Input Related	
		Proportion of children 12-23 months receiving full immunization	Output/Input Related	
		Proportion of 12-23 months old children immunised against measles	Output/Input Related	
		Under-five mortality rate	Outcome Related	SRS
				NFHS
				AHS
		Infant mortality rate	Outcome Related	SRS
				NFHS
				AHS
		Child (0-6) Sex Ratio	Outcome Related	Census
				NFHS
				AHS(0-4)
		Participation rate in organized learning (one year before the official primary entry age), by sex	Output/Input	
31.	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months Proportion of male-female enrolled in higher education, technical and vocational education and the pass percentage gender-wise	Output/Input Related	
		Gross Enrolment Ratio (GER) at higher education level, male-female and SC/ST wise	Output/Input Related	
		Share of female students in different disciplines at higher education level	Output/Input Related	
		Total public expenditure on education as a percentage of GDP	Output/input Related	

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
32.	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	Proportion of Computer Literate Adults (Available through NSSO Survey)	Outcome Related	NSSO
		Proportion of students passing out of NSDC sponsored skill development programme	Output/Input Related	
		Proportion of students passing out of long term vocational training programme	Output/Input Related	
		No. of entrepreneurial ventures set up under Start-up India, Stand-up India or through MSME.	Output/Input Related	
		Percentage Change in technical colleges, Business colleges over last year	Output/input Related	
		Percentage Change in no. of vocational institutes over last year	Output/input Related	
		Percentage Change in enrolment in vocational institutions	Output/Input Related	
		Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill	Output/Input Related	
33.	4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills	Output/Input Related	
		Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated		
34.	4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy	Literacy rate of 7+ year-olds	Outcome Related	Census DLHS
		Literacy rate of Adults in the age group of 15 and above	Outcome Related	Census NFHS AHS
		Literacy rate of youth in the age group of 15-24	Outcome Related	Census NFHS
		Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex		
35.	By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including,	Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are	Òutput/Input Related	

S.No	Target	Indicator	Nature	Database
1	2	3	4	5
	among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	mainstreamed at all levels in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment		
36.	4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	Proportion of schools with access to: (a) electricity; (b) Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure & materials for disabled students; (e) basic drinking water; (f) single-sex basic sanitation facilities; (g) basic hand washing facilities (as per the WASH indicator def.)	Output/Input Related	
		Total public expenditure on education as a percentage of GDP	Output/input Related	
37.	4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training, technical, engineering and scientific programmes and information & communication technology, in developed countries & other developing countries	Volume of official development assistance for scholarships.	Output/input Related	
38.	4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States	Total public expenditure on education as a percentage of GDP	Output/input Related	
		Proportion of teachers in (a) pre-primary; (b) primary; (c) lower secondary; and (d) upper secondary education who have received at least the minimum organized teacher training (e.g. pedagogical training) pre-service or in-service required for teaching at the relevant level in a given country	Output/input Related	

S.No,	Target	Indicator	Nature	Database
Goal 5. Achieve gender equality and empower all women and girls				

39.	5.1 End all forms of discrimination against all women and girls everywhere	Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex	Output/input Related	
40.	5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	Proportion of crime against women to total crime reported in the country during the calendar year	Outcome Related	NCRB
		Proportion of sexual crimes against women to total crime against women during the calendar year	Outcome Related	NCRB
		Proportion of cruelty/ physical violencce on women by husband or his relative to total crime against women during the calendar year	Outcome Related	NCRB
		Proportion on rape of women by persons known to them, inter-alia, live-in partner or separated husband or ex-husband to total rape of women during the calendar year	Outcome Related	NCRB
		Proportion of sexual crime against girls children to total crime against children during the calendar year	Outcome Related	NCRB
		Proportion of Trafficking of girl children to total children trafficked during the calendar year	Outcome Related	NCRB
		Percentage of currently partnered girls and women aged 15-49 years who have experience physical and / or sexual violence by their current intimate partner in the last 12 months	Outcome Related	NFHS
		Child Sex Ratio	Outcome Related	Census
				NFHS
				AHS
41.	5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	Proportion of women subjected to dowry related offences to total crime against women	Outcome Related	NCRB
		Proportion of cases reported under the Prohibition of Child Marriage Act (early marriage of children below 18 years of age) total crime against children.	Output/Input Related	
		Proportion of women aged 20-24 years who were married or in a union before age 18	Outcome Related	none

		Proportion of girls and women aged 15–49 years who have undergone female genital mutilation/cutting, by ag		
42.	5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	Proportion of time spent on unpaid domestic and care work by sex, age and location	Outcome Related	none
43.	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	Proportion of seats held by women in national parliament, State legislation and Local Self Government	Output/Input Related	
		Number of women in Board of listed companies	Output/Input Related	
44.	5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences	Contraceptive Prevalence Rate	Output/Input Related	
		Unmet need for family planning for currently married women aged 15-49 years	Output/Input Related	
		Proportion of population aged 15-24 years with comprehensive correct knowledge of HIV / AIDS	Output/Input Related	
		Number of countries with laws and regulations that guarantee full and equal access to women & men aged 15 years and older to sexual and reproductive health care, information and education	Output/Input Related	
45.	5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws	Operational land holdings - gender wise	Output/Input Related	
		Proportion of female agricultural laborers	Output/Input Related	
		Wages of casual laborers (gender wise)	Output/input Related	
		Agricultural wages (gender wise)	Output/input Related	
		Number of accounts opened under PMJDY	Output/Input Related	
		Amount of Over Draft (OD) availed from PMJDY accounts by women	Output/Input Related	
		Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex` and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure	Output/Input Related	

		Proportion of countries where the legal framework (including customary law) guarantees women's equal rights to land ownership and/or control	Output/Input Related	
	5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	Number of mobile phone users, by sex	Ouput/Input Related	
46.	5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	Number of Gender Budget Cells in Central and State Ministries	Output/Input Related	
		Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment	Output/Input Related	
47.	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	Proportion of population using safely managed drinking water services[3]	Outcome Related	none
		Proportion of population using an improved drinking water by source	Outcome Related	Census
				NFHS (not by source)
				MDWS
				AHS (not by source)
				DLHS(not by source)
				IHDS (not by source)
48.	6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water	Outcome Related	IHDS
		Percentage of population using basic sanitation services	Outcome Related	-
49.	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	Proportion of wastewater safely treated	Output/Input Related	
		Proportion of bodies of water with good ambient water quality	Output/Input Related	
50.	6.4 By 2030, substantially increase water-use efficiency	Percentage Water withdrawal (%) against water availability	Outcome Related	CGWB(Central Ground

[3] Improved source located on premises, available when needed, and free from microbiological and priority chemical contamination

	across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity			Water Board)
		Per capital storage(m3/person)	Outcome Related	none
		Per capita availability of water (m3/person)	Outcome Related	None
		Change in water-use efficiency over time	Output/Input related	
		Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	Outcome Related	None
51.	6.5 By 2030, implement integrated water resources management at all levels, including through trans-boundary cooperation as appropriate	Percentage of River basins brought under Integrated Water Resource Management	Output/Input Related	
		Proportion of trans-boundary basin area with an operational arrangement for water cooperation	Output/Input Related	
52.	6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	Area under over exploited blocks	Output/Input Related	
		percentage sewage load treated in River ganga	Output/Input Related	
		Change in the extent of water-related ecosystems over time	Output/Input Related	
53.	6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan	Output/input Related	
		Number of officials trained in advanced training courses on water and sanitation activities*	Output/input Related	
		Number of MoU/Co-operation agreements for capacity building and technology transfer	Output/input Related	
54.	6.b Support and strengthen the participation of local communities in improving water and sanitation management	Percentage of developed Irrigated Command Area brought under WUAs	Output/Input Related	
		Percentage of developed Irrigated Command Area managed by WUAs	Output/Input Related	
7. Ensure access to affordable, reliable, sustainable and modern energy for all				
55.	By 2030, ensure universal access to affordable, reliable and modern energy services	Proportion of population with access to electricity	Outcome Related	Census IHDS NFHS DLHS
		Percentage of household using clean cooking fuel	Outcome Related	Census IHDS NFHS DLHS
56.	By 2030, increase substantially the share of renewable energy in the global energy mix	Renewable energy share in the total final energy consumption	Output/Input Related	
57.	By 2030, double the global rate of improvement in energy	Energy intensity measured in terms of primary energy and	Output/Input Related	

	efficiency	GDP		
58.	By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	Output/Input Related	
59.	By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support	Investments in energy efficiency as a proportion of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services	Output/Input Related	
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all				
60.	Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries	Annual growth rate of real GDP per capita	Output/Input Related	
61.	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	Annual growth rate of real GDP per employed person	Output/Input Related	
		Number of patent issued	Outcome Related	None
		Software export	Output/Input Related	
		Annual growth in manufacturing sector	Output/Input Related	
		Annual growth in agriculture sector	Output/Input Related	
62.	Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small and medium-sized enterprises, including through access to financial services	Proportion of informal employment in non- agriculture employment	Outcome Related	
		Coverage under ESI, EPS, NPS for decent job creation	Output/Input Related	
		No. of MSME units registered under the online Udyog Aadhar registration for entrepreneurship	Output/Input Related	
		No. of job created under Digital India, Swatch Bharat, Housing for all,	Outcome Related	

		Smart Cities etc.		
		Number of ventures set up under Start up India (indicator for entrepreneurship)	Output/Input Related	
		Number of patent issued (indicator for creativity and innovation)	Outcome Related	None
		Number/growth of micro, small and medium size enterprises	Output/Input Related	
		Total loans sanctioned to micro, small and medium enterprises	Output/Input Related	
		Number of graduates produced per year (indicator for decent job creation)	Output/Input Related	
63.	Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10- Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead	Total emission (quantity) by developed countries	Outcome Related	-
		Per capita plastic consumption	Outcome Related	none
		Per capita fossil fuel consumption	Outcome Related	none
		Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	-	
		Total technology transfers to least developed, developing countries	Output/input Related	
64.	By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Unemployment rate	Outcome Related	NSSO Ministry of Labour and Employment
		Workforce participation Ratio (WPR) of women, youth, persons with disabilities	Outcome Related	NSSO Ministry of Labour and Employment
		Wages earned by male-female in regular / casual employment	Output/Input Related	
		Existence of legal protection system for equal pay for equal work	Output/input Related	
		Average income of workers (indicator for decent work)*	Output/Input Related	

		Employment/social protection for persons with disabilities	Output/Input Related	
		Labour productivity growth (percentage)	Output/Input Related	
		Annual increase in minimum real wages	Output/input Related	
		Share of unemployed persons in population aged 15-24 (percentage)	Outcome Related	NSSO
		A measurement of decent work/quality of life of workers (as per Ministry's vision - to be proposed by the Ministry)	-	
65.	By 2020, substantially reduce the proportion of youth not in employment, education or training	Unemployment Rate (15-24 years)	Outcome Related	NSSO
		Proportion of youth (15-24 years) not in education, employment or training (NEET)	Output/Input Related	
66.	Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	Total crimes relating to human trafficking	Output/Input Related	
		Whether the country has a law against child labour	Output/input Related	
		Minimum age for recruitment to the armed forces	Output/input Related	
		Initiatives of the government towards elimination of child labour (indicator to be proposed by the MoLE)	Output/input Related	
67.	Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	Number/proportion of workers covered under ESI Act	Output/Input Related	
		Number/proportion of workers covered under health insurance	Output/Input Related	
		Accommodation in working women's hostel	Output/Input Related	
		Number of migrants workers	Output/Input Related	
		Employment generated under MNREGA	Outcome Related	MNREGA
		Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status	Output/Input Related	
		Level of national compliance with labour rights (freedom of association and collective bargaining) based on International	Output/Input Related	

		Labour Organization (ILO) textual sources and national legislation, by sex and migrant status		
68.	By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	Number of tourist visited/percentage increase in number of tourist (domestic and foreign)	Output/input Related	
		Number/proportion of 'green hotel' rooms	Output/input Related	
		Growth of employment in tourism industry	Output/input Related	
		Solid waste generated vs solid waste treated in major tourist locations	Output/input Related	
		Environmental tax per tourist	Output/input Related	
		Share of tourism in overall destination GDP	Output/input Related	
		Number of jobs in tourism industries	Output/Input Related	
		Tourism direct GDP as a proportion of total GDP and in growth rate	Output/input Related	
		Proportion of jobs in sustainable tourism industries out of total tourism jobs	Output/input Related	
69.	Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all	Number of accounts opened under PMJDY	Output/Input Related	
		Number of commercial bank branches per 1,00,000 population	Output/Input Related	
		Automated Teller Machines (ATMs) per 1,00,000 population	Output/Input Related	
		Proportion of adults with an account at a bank or other financial institutions or with a mobile money service provider	Outcome Related	None
70.	Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries	Import tariff from developing/least developed countries (applicable for developed countries)	Output/input Related	
		Ratio of official exchange rate to the PPP exchange rate	Output/input Related	
		Aid for Trade commitments and disbursements	Output/input Related	
71.	By 2020, develop and operationalize a global strategy for youth employment and implement	Number of jobs created under employment guarantee programmes	Outcome Related	
		Total assistance	Output/input	

	the Global Jobs Pact of the International Labour Organization	provided to developing countries by donor countries and multilateral agencies as per the global jobs pact	Related	
		Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy	Output/input Related	
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation				
72.	Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	Percent share of expenditure in R&D to Total GDP	Output/Input Related	
		Researchers (in full time equivalent) per million inhabitants	Output/Input Related	
		Percentage share of private sector spending on R&D	Output/input Related	
73.	Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	Proportion of medium and high-tech industry value added in total value added.	Output/Input Related	
		Percent share of expenditure in R&D to total GDP	Output/input Related	
74.	Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020	Proportion of population covered by a mobile network, by technology	Output/Input Related	
		No. of Broadband Subscribers (In Million)	Output/Input Related*	
		No. of Radio Stations (Public &Pvt.)	Output/Input Related*	
		No. of TV Households	Output/Input Related*	
		No. of Registered Newspapers	Output/Input Related*	
Goal10: Reduce inequality within and among countries				
75.	By 2030, progressively achieve and sustain income growth of the bottom 40 % of the population at a rate higher than national average	Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population	Output/Input Related	

76.	By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities	Outcome Related	NSSO
77.	Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard	Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law	Output/Input Related	
78.	Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	Labour share of GDP, comprising wages and social protection transfers	Output/Input Related	
79.	Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations	Financial Soundness Indicators	Output/Input Related	
80.	Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions	Proportion of members and voting rights of developing countries in international organizations	Output/Input Related	
81.	Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	Recruitment cost borne by employee as a proportion of yearly income earned in country of destination	Output/Input Related	
		Number of countries that have implemented well managed migration policies	Output/Input Related	
82.	Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements	Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff	Output/Input Related	
83.	Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least	Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance,	Output/Input Related	

	developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes	foreign direct investment and other flows)		
84.	By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent	Remittance costs as a proportion of the amount remitted	Output/Input Related	
11. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation				
85.	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	Proportion of urban population living in slums, informal settlements or inadequate housing	Outcome Related	NSSO Census
		Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	Outcome Related	none
		Proportion of population using an improved drinking water source	Outcome Related	Census NFHS IHDS AHS DLHS
86.	By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	Ratio of land consumption rate to population growth rate	Output/Input Related	
		Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	Output/Input Related	
87.	Strengthen efforts to protect and safeguard the world's cultural and natural heritage	Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit	Output/Input Related	

		sector and sponsorship)		
88.	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	Outcome Indicator	none
		Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters	Output/Input Related	
89.	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities	none	
		Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	CPCB	
90.	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	Output/Input Related	
		Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months	NCRB	
91.	Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city	Output/Input Related	
92.	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	Output/Input Related	
		Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk	Output/Input Related	

	management at all levels	reduction strategies		
93.	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource efficient buildings utilizing local materials	Output/Input Related	
12. Ensure sustainable consumption and production patterns				
94.	Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	Formulation of national SCP framework and integration of SCP with national/state planning process	Output/Input Related	
95.	By 2030, achieve the sustainable management and efficient use of natural resources	Percentage variation in per capita use of natural resources	Output/Input Related	
96.	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	Increase in per capita food availability	Output/Input Related	
		Food Loss Index	Output/Input Related	
97.	By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	Developing national secondary resource policy framework	Output/Input Related	
		Development of national policy for environmentally sound management of hazardous chemical and waste	Output/Input Related	
		Implementation of National Action Plan for fulfill obligations of various MEAs ratified.	Output/Input Related	
		Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment	Output/Input Related	
98.	By 2030, substantially reduce waste generation through prevention,	National recycling rate, tons of material recycled	Output/Input Related	

	reduction, recycling and reuse			
99.	Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	Number of companies publishing sustainability reports	Output/Input Related	
100.	Promote public procurement practices that are sustainable, in accordance with national policies and priorities	Develop green public procurement policy	Output/Input Related	
101.	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	Develop sustainable practices manual/handbook in regional languages	Output/Input Related	
		Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	Output/Input Related	
		Develop icon on sustainable development	Output/Input Related	
		Government to celebrate year on Sustainable development	Output/Input Related	
		Wider dissemination through e-government platform, mass media campaigns, education curricula etc.	Output/Input Related	
102.	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	Quantum of financial support received and environment friendly technologies Transferred by developed countries.	Output/Input Related	
103.	Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	Number of sustainable tourism strategies or policies and action plans Implemented with agreed monitoring and evaluation tools.	Output/Input Related	

104.	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels	Output/Input Related	
13. Take urgent action to combat climate change and its impacts				
105.	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	Number of states with strategies for enhancing adaptive capacity and dealing with climate extreme weather events.	Output/Input Related	
		Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	Outcome Indicator	none
106.	Integrate climate change measures into national policies, strategies and planning	Pre-2020 action Achievements of pre-2020 goals as per countries' priorities	Output/Input Related	
		Achievement of Nationally Determined Contribution (NDC) goals in post -2020 period.	Output/Input Related	
107.	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	Number of States that have integrated climate mitigation and adaption in education curricula and outreach programs	Output/Input Related	
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development				
10	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris	Health index of area of coastal water (percentage)	Output/Input Related	

	and nutrient pollution			
10	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	Percentage change in area under mangroves	Outcome Related	FSI
		Proportion of national exclusive economic zones managed using ecosystem-based approaches	Output/Input Related	
11	Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	Coral health index of Exclusive Environment Zone	Output/Input Related	
		Average marine acidity (pH) measured at agreed suite of representative sampling stations	Output/Input Related	
111	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	Proportion of fish stocks within biologically sustainable levels	Output/Input Related	
112	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	Coverage of protected areas in relation to marine areas	Output/Input Related	
113	By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least	Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	Output/Input Related	

	developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation			
114	By 2030, increase the economic benefits to small island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries	Output/Input Related	
115	Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	Allocation of budget resources for research as per the EEZ or coastline	Output/Input Related	
116	Provide access for small-scale artisanal fishers to marine resources and markets	Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries	Output/Input Related	
S.No	**Target**	**Indicator**	**Nature**	**Database**
1	**2**	**3**	**4**	**5**
117.	Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the	Percentage compliance of international laws	Output/Input Related	

	conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"			
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss				
118.	By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry lands, in line with obligations under international agreements	forest area as a proportion of total land area	Outcome Related	FSI
		Percentage of Tree outside forest (TOF) in total forest cover	Outcome Related	
		Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type	Output/Input Related	
119.	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	Percent change in Forest Area coverage	Outcome Related	FSI
		Total area covered under different afforestation schemes	Output/Indicator Related	
		Total tree cover achieved outside forest area	Outcome Related	none
		Number of Nagar vans and School Nurseries created.	Output/Input Related	
		Progress towards sustainable forest management	Output/Input Related	
120	By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	Percentage of restoration of degraded area	Output/Input Related	
		Increasing Tree / forest cover in degraded area.	Outcome Related	None
		Percentage of net sown area increased.	Outcome Related	Ministry of agriculture
		Proportion of land that is degraded over total land area	Outcome Related	ISRO (Indian Space Research Organization)
121.	By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	Increase in forest / vegetative cover in mountain areas	Outcome Related	FSI
		Restoration of water bodies / stream in mountain areas	Output/Input Related	
		Conservation of local wildlife species	Output/Input Related	
		Improvement of local livelihoods	Output/Input Related	
		Increase in per capita income of mountain dwellers	Output/Input Related	
		Coverage by protected areas of important sites for mountain biodiversity	Output/Input Related	
		Mountain Green Cover Index	-	
122.	Take urgent and significant action to	Red List Index	-	

	reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species			
123.	Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits	Output/Input Related	
124.	Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	Proportion of traded wildlife that was poached or illicitly trafficked	Outcome Related	none
125.	By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species	Output/Input Related	
126.	By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020	Output/Input Related	
127.	Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems	Output/Input Related	
128.	Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems	Output/Input Related	
129.	Enhance global support	Proportion of traded wildlife that was	Outcome Related	none

	for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities	poached or illicitly trafficked		
Goal 16: Promote peaceful & inclusive societies for sustainable development, provide access to justice for all & build effective, accountable & inclusive institutions at all levels				
130.	Significantly reduce all forms of violence and related death rates everywhere	Number of victims of intentional homicide per 100,000 population, by sex and age	Outcome Related	NCRB
		Conflict-related deaths per 100,000 population, by sex, age and cause	Outcome Related	NCRB
		Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months	Outcome Related	NCRB
		Proportion of population that feel safe walking alone around the area they live	Outcome Related	none
131.	End abuse, exploitation, trafficking and all forms of violence against and torture of children	Proportion of children aged 1–17 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month	Outcome Related	
		Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation	Outcome Related	NCRB
		Proportion of young women and men aged 18–29 years who experienced sexual violence by age 18	Outcome Related	None
132.	Promote the rule of law at the national and international levels and ensure equal access to justice for all	Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms	Outcome Related	None
		Unsentenced detainees as a proportion of overall prison population	Outcome Related	None
133.	By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime	Total value of inward and outward illicit financial flows (in current United States dollars)	Output/Input Related	
		Proportion of seized, found or surrendered arms whose illicit origin or context has been traced or established by a competent authority in line with international instruments	Output/Input Related	
134.	Substantially reduce corruption and bribery in all their forms	Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months	Outcome indicator	None
		Proportion of businesses that had at least one contact with a public	Outcome indicator	None

		official and that paid a bribe to a public official, or were asked for a bribe by those public officials during the previous 12 months		
135.	Develop effective, accountable and transparent institutions at all levels	Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)	Output/Input Related	
		2 Proportion of population satisfied with their last experience of public services	Output/Input Related	
136.	Ensure responsive, inclusive, participatory and representative decision-making at all levels	Proportions of positions (by sex, age, persons with disabilities and population groups) in public institutions (national and local legislatures, public service, and judiciary) compared to national distributions	Output/Input Related	
		Proportion of population who believe decision making is inclusive and responsive, by sex, age, disability and population group	Output/Input Related	
137.	Broaden and strengthen the participation of developing countries in the institutions of global governance	Proportion of members and voting rights of developing countries in international organizations	Output/Input Related	
138.	By 2030, provide legal identity for all, including birth registration	Proportion of children under 5 years of age whose births have been registered with a civil authority, by age	Output/Input Related	
139.	Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements	Number of verified cases of killing, kidnapping, enforced disappearance, arbitrary detention and torture of journalists, associated media personnel, trade unionists and human rights advocates in the previous 12 months	Outcome Related	None
		Number of countries that adopt and implement constitutional, statutory and/or policy guarantees for public access to information	Output/Input Related	
140.	Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime	Existence of independent national human rights institutions in compliance with the Paris Principles	Output/Input Related	
141.	Promote and enforce non-discriminatory laws and policies for sustainable development	Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under	Outcome Related	None

		international human rights law		
Goal 17:Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development				
142.	Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection	Total government revenue as a proportion of GDP, by source	Output/Input Related	
		Proportion of domestic budget funded by domestic taxes	Output/Input Related	
143.	Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries	Net official development assistance, total and to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)	Output/Input Related	
144.	Mobilize additional financial resources for developing countries from multiple sources	Foreign direct investment (FDI), official development assistance and South-South cooperation as a proportion of total domestic budget	Output/Input Related	
		Volume of remittances (in United States dollars) as a proportion of total GDP	Output/Input Related	
145.	Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress	Debt service as a proportion of exports of goods and services	Output/Input Related	
146.	Adopt and implement investment promotion regimes for least developed countries	Number of countries that adopt and implement investment promotion regimes for least developed countries	Output/Input Related	
Technology				
147.	Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through	Number of science and/or technology cooperation agreements and programmes between countries, by type of cooperation	Output/Input Related	
		Fixed Internet broadband subscriptions per 100 inhabitants, by speed	Outcome Related	none

	improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism			
148.	Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed	Total amount of approved funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies	Output/Input Related	
149.	Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology	Proportion of individuals using the Internet	Outcome Related	none
Capacity building				
150.	Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North South, South-South and triangular cooperation	Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries	Output/Input Related	
	Trade			
151.	Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda	Worldwide weighted tariff-average	Output/Input Related	
152.	Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020	Developing countries' and least developed countries' share of global exports	Output/Input Related	
153.	Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed	Average tariffs faced by developing countries, least developed countries and small island developing States	Output/Input Related	

	countries are transparent and simple, and contribute to facilitating market access			
Systematic issues				
154.	Enhance global macroeconomic stability, including through policy coordination and policy coherence	Macroeconomic Dashboard	Output/Input Related	
155.	Enhance policy coherence for sustainable development	Number of countries with mechanisms in place to enhance policy coherence of sustainable development	Output/Input Related	
156.	Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development	Extent of use of country-owned results frameworks and planning tools by providers of development cooperation	Output/Input Related	
157.	Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries	Number of countries reporting progress in multi-stake holder development effectiveness monitoring frameworks that support the achievement of the Sustainable Development Goals	Output/Input Related	
158.	Encourage and promote effective public, public private and civil society partnerships, building on the experience and resourcing strategies of partnerships	Amount of United States dollars committed to (a) public-private partnerships and (b) civil society partnerships	Output/Input Related	
159.	By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts	Proportion of sustainable development indicators produced at the national level with full disaggregation when relevant to the target, in accordance with the Fundamental Principles of Official Statistics	Output/Input Related	
		Number of countries that have national statistical legislation that complies with the Fundamental Principles of Official Statistics	Output/Input Related	
		Number of countries with a national statistical plan that is fully funded and under	Output/Input Related	

		implementation, by source of funding		
160.	By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries	Dollar value of all resources made available to strengthen statistical capacity in developing countries	Output/Input Related	
		Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration	Output/Input Related	

Source: *NCAER's project team review based on International SDGs as given by United Nations and national SDGs as developed by Ministry of Statistics and Programme Implementation (MoSPI).*

Table A3.4: List of Possible Indices developed by NITI Aayog

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
1	Health Index	Domain1- Health Outcomes	Neonatal Mortality Rate	Outcome Related	SRS
					NFHS
					AHS
			Under five Mortality rate	Outcome Related	SRS
					NFHS
					AHS
			Total Fertility Rate	Outcome Related	Census
					NFHS
					AHS
					SRS
			Proportion of low birth weight among new born	Outcome Related	
			Sex Ratio at Birth	Outcome Related	Census
					SRS
					NFHS
					DLHS
					AHS
					HMIS
			Full Immunization Coverage	Output/Input Related	
			Proportion of institutional deliveries	Output/Input Related	
			Total case of notification rate of TB	Outcome Related	NFHS
			Treatment success rate of new microbiologically confirmed tuberculosis (TB) cases	Outcome Related	Tuberculosis Report MHFW
			Proportion of people living with HIV (PLHIV) on antiretroviral therapy (ART)	Outcome Related	
			Out of pocket expenditure per delivery in public health facility (in INR)	Outcome Related	NSSO
		Domain 2- Governance and Information	Data Integrity Measure:	Output/Input Related	
			a. Institutional deliveries		
			b. ANC registered within first trimester		
			Average occupancy of an officer (in months), combined for following three posts at State level for last three years	Output/Input Related	
			1. Principal Secretary		
			2. Mission Director (NHM)		
			3. Director- Health Services		
			Average occupancy of a full-time officer (in months) in last three years for all Districts- District Chief Medical Officers (CMOs) or equivalent post (Heading District Health Services)	Output/Input Related	
		Domain 3-Key Inputs / Processes	Proportion of vacant health care provider positions (Regular + Contractual) in public health	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			facilities		
			Proportion of total staff (regular + contractual) for whom an e-pay slip can be generated in the IT enabled Human Resource Management Information System (HRMIS)	Output/Input Related	
			Proportion of specified type of facilities functioning as First Referral Units	Output/Input Related	
			Proportion of functional 24x7 PHCs	Output/Input Related	
			Proportion of Districts with Functional Cardiac Care Units (CCU	Output/Input Related	
			Proportion of ANC registered within first trimester against total registrations	Output/Input Related	
			Level of registration of births	Output/Input Related	
			Completeness of IDSP reporting of P and L form (%)	Output/Input Related	
			Proportion of CHCs with grading above 3 points	Output/Input Related	
			Proportion of public health facilities with accreditation certificates by a standard quality assurance programme (NQAS /NABH/ISO/AHPI	Output/Input Related	
			Average number of days for transfer of Central NHM fund from State Treasury to implementation agency (Department/Society) based on all tranches of the last financial year	Output/Input Related	
2	Composite Water Management Index	A. Source Augmentation(Restoration of water bodies)	Area irrigated by water bodies restored during the financial year 2015-16 as compared to the area of total number of water bodies identified for restoration.	Outcome Related	In house of states
			Area irrigated by water bodies restored during the financial year 2016-17 as compared to the area of total number of water bodies identified for restoration.	Outcome Related	In house of states
		B. Source augmentation (groundwater)	Percentage of overexploited and critical assessment units those have experienced rise in water table [recorded by the observation wells tapping the shallow aquifer monitored by the State (piezometer installed for the purpose) and CGWB] to total number of assessment units in pre-monsoon 2016 in comparison to pre-monsoon 2015	Outcome Related	In house of centre / states

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Percentage of overexploited and critical assessment units those have experienced rise in water table [recorded by the observation wells tapping the shallow aquifer monitored by the State (piezometer installed for the purpose) and CGWB] to total number of assessment units in pre-monsoon 2017 in comparison to pre-monsoon 2016	Outcome Related	In house of center /states
			Percentage of areas of major groundwater re-charging identified and mapped for the State as on 31.3.2016	Output/Input Related	
			Percentage of areas of major groundwater re-charging identified and mapped for the State as on 31.3.2017	Output/Input Related	
			Percentage of mapped area covered with infrastructure for re-charging groundwater to the total mapped area as on 31.03.2016.	Output/Input Related	
			Percentage of mapped area covered with infrastructure for re-charging groundwater to the total mapped area as on 31.03.2017	Output/Input Related	
			Has the State notified any Act or a regulatory framework for regulation of Groundwater use/ management	Output/Input Related	
		C. Major and Medium Irrigation - Supply Side Management	% of Irrigation Potential Utilized (IPU) to Irrigation Potential Created (IPC) as on 31.03.2016	Output/Input Related	
			% of Irrigation Potential Utilized (IPU) to Irrigation Potential Created (IPC) as on 31.03.2017	Output/Input Related	
			Total number of major and medium irrigation projects in the State	Output/Input Related	
			Number of projects assessed and identified for the IPC-IPU gap in the State?	Output/Input Related	
			Expenditure incurred on works (excluding establishment expenditure) for maintenance of irrigation assets per hectare of command area during the Financial Year 2016-17?	Output/Input Related	
			The length of the canal and distribution network lined as on 31.03.2016 vis-à-vis the total length of canal and distribution network found suitable (selected) for lining for improving conveyance efficiency.	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			The length of the canal and distribution network lined as on 31.03.2017 vis-à-vis the total length of canal and distribution network needed (selected) for lining for improving conveyance efficiency	Output/Input Related	
		D. Watershed Development - Supply Side Management	Area under rain-fed agriculture as a percentage of the net cultivated area as on 31.3.2016 or previous year	Outcome Related	In house of states
			Number of water harvesting structures constructed or rejuvenated as compared to the target (sanctioned projects under IWMP, RKVY, MGNREGS and other schemes) during the Financial Year 2016-17.	Output/Input Related	
			Assets created under IWMP	Output/Input Related	
			Percentage of assets created under IWMP geo-tagged as on 31.03.2016	Output/Input Related	
			Percentage of assets created under IWMP geo-tagged as on 31.3.2017.	Output/Input Related	
		E. Demand Side Management – Participatory Irrigation Practices	Has the State notified any law/ legal framework to facilitate Participatory Irrigation Management (PIM) through Water User Associations (WUAs)?	Output/Input Related	
			Irrigated Command Area in the State as on 31.03.2016	Output/input Related	
			Percentage of irrigated command areas having WUAs involved in the O&M of irrigation facilities (minor distributaries and CAD&WM) as on 31.3.2016	Output/Input Related	
			Irrigated Command Area in the State as on 31.03.2017	Output/Input Related	
			Percentage of irrigated command areas having WUAs involved in the O&M of irrigation facilities (minor distributaries and CAD&WM) as on 31.3.2017	Output/Input Related	
			Total irrigation service fee collected during the financial year 2015-16	Output/Input Related	
			Percentage of Irrigation Service Fee (ISF) retained by WUAs as compared to the fee collected by WUAs during the Financial Year 2015-16.	Output/Input Related	
			Total irrigation service fee collected during the financial year 2016-17	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Percentage of Irrigation Service Fee (ISF) retained by WUAs as compared to fee collected by WUAs during the Financial Year 2016-17.	Output/Input Related	
		F. Demand Side Management – Sustainable on-farm Water Use Practices	Area cultivated by adopting standard cropping pattern as per agro-climatic zoning, to total area under cultivation as on 31.03.2016	Outcome Related	In house of states
			Area cultivated by adopting standard cropping pattern as per agro-climatic zoning, to total area under cultivation as on 31.03.2017	Outcome Related	In house of states
			Has the State segregated agriculture power feeder?	-	
			Area in the state covered with segregated agriculture power feeder as compared to the total area under cultivation with power supply during 2015-16.	Output/Input Related	
			State area covered with segregated agriculture power feeder as compared to total area under cultivation with power supply during 2016-17.	Output/Input Related	
			Is electricity to tube wells/ water pumps charged in the State?	-	
			If yes, then whether it is charged as per fixed charges?	Output/Input Related	
			If yes, then whether it is charged on the basis of metering?	Output/Input Related	
			Total Irrigated Area in the State as on 31.03.2016	Outcome Related	MoAFW
			Area covered with micro-irrigation systems as compared to total irrigated area as on 31.03.2016.	Output/Input Related	
			Total Irrigated Area in the State as on 31.03.2017	Outcome Related	MoAFW
			Area covered with micro-irrigation systems as compared to total irrigated area as on 31.03.2017	Output/Input Related	
		Rural Drinking Water	Proportion of total rural habitations fully covered with drinking water supply as on 31.03.2016.	Outcome Related	MDWS
			Proportion of total rural habitations fully covered with drinking water supply as on 31.03.2017.	Outcome Related	MDWS
			% reduction in rural habitations affected by Water Quality problems during the Financial Year 2015-16	Outcome Related	MDWS

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			% reduction in rural habitations affected by Water Quality problems during the Financial Year 2016-17	Outcome Related	MDWS
		Urban Water Supply and Sanitation	% of urban population being provided drinking water supply as on 31.03.2016	Outcome Related	In house of states
			% of urban population being provided drinking water supply as on 31.03.2017	Outcome Related	In house of states
			Total estimated generation of waste water in the urban areas as on 31.03.2016	Output/Input Related	
			Capacity installed in the state to treat the urban waste-water as a proportion of the total estimated waste water generated in the urban areas of the state as on 31.03.2016	Output/Input Related	
			% waste-water treated during 2015-16	Outcome Related	In house of the states
			% waste-water treated during 2016-17	Outcome Related	In house of the states
		Policy and Governance	Whether the State has enacted any legislation for protection of water bodies and water-supply channels and prevention of encroachment into/on them?	Output/Input Related	
			Whether the State has any framework for rain water harvesting in public and private buildings?	Output/Input Related	
			Percentage of households being provided water supply and charged for water in the urban areas as on 31.3.2016?	Outcome Related	In house of the states
			Percentage of households being provided water supply and charged for water in the urban areas as on 31.3.2017?	Outcome Related	In house of the states
			Does the State have a separate integrated Data Centre for water resources?	Output/Input Related	
			Whether the data is being updated on the integrated data centre on a regular basis?	Output/Input Related	
3.	School Education Quality Index	Learning Outcomes and Quality	Language score in Class 3 NAS (if available)	Outcome Related	NAS
			Mathematics score in Class 3 NAS (if available)	Outcome Related	NAS
			Language score in class 5 NAS (if available)	Outcome Related	NAS

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Mathematics score in Class 5 NAS (if available)	Outcome Related	NAS
			Language score in Class 8 NAS (if available)	Outcome Related	NAS
			Mathematics score in Class 8 NAS (if available)		
			Language score in Class 10 NAS (if available)	Outcome Related	NAS
			Mathematics score in Class 10 NAS (if available)	Outcome Related	NAS
			Science score in Class 10 NAS (if available)	Outcome Related	NAS
			Social Science score in Class 10 NAS (if available)	Outcome Related	NAS
			% of secondary schools covered by vocational education stream	Output/Input Related	
			% of children in Class 1 and 2 covered under supplementary early grade literacy and mathematics program to develop foundational literacy and numeracy skills (Padhe Bharat Badhe Bharat)	Output/Input Related	
		Access Outcomes	Net Enrolment Ratio (NER) at elementary level	Output/Input Related	
			Net Enrolment Ratio (NER) at secondary level	Output/Input Related	
			Retention rate at primary level	Output/Input Related	
			Transition rate from primary to upper-primary level	Output/Input Related	
			Retention rate at upper-primary level	Output/Input Related	
			Transition rate from upper-primary to secondary level	Output/Input Related	
			Retention rate at secondary level	Output/Input Related	
		Equity Outcomes	Difference in student performance in Language between Scheduled Castes (SC) and General category in elementary school NAS: 1. Class 3 NAS 2. Class 5 NAS 3. Class 8 NAS	Outcome Related	NAS
			Difference in student performance in Mathematics between Scheduled Castes (SC) and General category in elementary school NAS: 1. Class 3 NAS 2. Class 5 NAS 3. Class 8 NAS	Outcome Related	NAS

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Difference in student performance in Language between Scheduled Tribes (ST) and General category in elementary school NAS: 1. Class 3 NAS 2. Class 5 NAS 3. Class 8 NAS	Outcome Related	NAS
			Difference in student performance in Mathematics between Scheduled Tribes (ST) and General category in elementary school NAS: 1. Class 3 NAS 2. Class 5 NAS 3. Class 8 NAS	Outcome Related	NAS
			Difference in student performance in Language between Urban and Rural areas in elementary school NAS: 1. Class 3 NAS 2. Class 5 NAS 3. Class 8 NAS	Outcome Related	NAS
			Difference in student performance in Mathematics between Urban and Rural areas in elementary school NAS: 1. Class 3 NAS 2. Class 5 NAS 3. Class 8 NAS	Outcome Related	NAS
			Difference between SC's and General category's % of class 1 enrollees who reach class 10 (cohort survival rate)	Output/Input Related	
			Difference between ST's and General category's % of class 1 enrollees who reach class 10 (cohort survival rate)	Output/Input Related	
			Difference between boys' and girls' % of class 1 enrollees who reach class 10 (cohort survival rate)	Output/Input Related	
			Difference between minorities' and others' % of class 1 enrollees who reach class 10(cohort survival rate)	Output/Input Related	
			Gross Enrollment Ratio(GER) of CWSN(age group 6-16)	Output/Input Related	
		Governance Process	% of govt. schools meeting head-teacher and principal norms	Output/Input Related	
			% of govt. schools meeting teacher norms (no deficit, no surplus, and posted subject-wise)	Output/Input Related	
			% of academic positions filled in state/district academic institutions (SCERT/DIET) at the beginning of the given academic year	Output/Input Related	
			% of administrative positions filled at district and block level (BEO/DEO) at the beginning of the given academic year	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			% of govt. schools visited at least 3 times by cluster or block level supervisor (during the given year)	Output/Input Related	
			% of govt. and govt.-aided teachers evaluated (during the given year) [PINDICS, ADEPTS, etc.]	Output/Input Related	
			a) Number of days taken by State govt. to release total Central share of funds to societies (during the given financial year)	Output/Input Related	
			b) Number of days taken by State govt. to release total State share due to State societies (during the given Note: On release of Central share of funds, the Central share is supposed to be transferred to State implementation societies within 15 days, and the State share is supposed to be released to State implementation societies within 30 days.		
			"% of govt. head-teachers/principals who have completed School Leadership (SL) training in the given financial year	Output/Input Related	
			- Measured against sanctioned number by Central government		
			- At a minimum, the training should include all aspects of SLDP laid out by NCSL, NUEPA"		
			% of govt. teachers provided with sanctioned number of days of training in the given financial year	Output/Input Related	
			% of govt. schools that have completed self-evaluation and made school improvement plans in the given financial year	Output/Input Related	
			% of children enrolled in all schools who are assigned a unique ID	Output/Input Related	
			Number of new teachers recruited through a transparent online recruitment system as a % of total number of new teachers recruited (in the given year). Note: The transparent online recruitment system should include a) annual assessment of the teacher demand, b) have transparent, online counseling for teachers, and c) have objective, merit-based criterion for selection.	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Number of teachers promoted/ transferred through a transparent online system as a % of total number of teachers promoted/transferred (in the given year). Note: Promotion should be regular and annual, and the transparent online system should a) include teacher preferences, b) have a transparent and online process, c) based on objective promotion/ transfer policy.	Output/Input Related	
			Number of head-teachers/principals recruited through a merit-based selection system as a % of total number of head-teachers/principals recruited (in the given year)	Output/Input Related	
			% of private schools which are listed on a publicly accessible portal Note: The public portal should a) facilitate RTE Section 12(1)(c) admissions (including centralized lottery), b) teacher details (qualification, work experience), c) school fees, and d) external assessment data (board examination)	Output/Input Related	
4	SDG India Index	No Poverty	Percentage of population living below National Poverty line	Outcome Related	NSSO
			Percentage of households with any usual member covered by any health scheme or health insurance	Output/Input Related	
			Persons provided employment as a % of persons who demanded employment under MGNREGA	Outcome Related	MGNREGA Ministry of Rural Develop
			Proportion of the population (out of total eligible population) receiving social protection benefits under Maternity Benefit	Output/Input Related	
			Number of homeless households per 10,000 households	Outcome Related	Socio Economic Caste Census
			Ratio of rural households covered under public distribution system to rural households where monthly income of highest earning member is less than Rs.5,000	Output/Input Related	
		No Hunger	Percentage of children under age 5 years who are stunted	Outcome Related	NFHS AHS

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
					DLHS
			Percentage of pregnant women aged 15-49 years who are anemic	Outcome Related	NFHS
					DLHS
					AHS
			Rice, wheat and coarse cereals produced annually per unit area	Output/Input Related	
		Good Health and Well Being	Maternal Mortality Ratio	Outcome Related	SRS
					NFHS
					AHS
			Under-five mortality rate per 1,000 live births	Outcome Related	AHS
					NFHS
					SRS
			Percentage of children aged 12-23 months fully immunized (BCG, Measles and three doses of Pentavalent vaccine)	Output/Input Related	
			Annual notification of Tuberculosis cases per 1 lakh population	Outcome Related	India TB Report, MoHFW
			Number of governmental physicians, nurses and midwives per 1,00,000 population	Output/Input Related	
		Quality Education	Adjusted Net Enrolment Ratio at Elementary (Class 1-8) and Secondary (Class 9-10) school	Output/Input Related	
			Percentage correct responses on Learning Outcomes in Language, Mathematics and EVS for Class 5 students	Outcome Related	NAS
			Percentage correct responses on Learning Outcomes in Language, Mathematics, Science and Social Science for Class 8 students	Outcome Related	NAS
			Percentage of children in the age group of 6-13 who are out of school	Output/Input Related	
			Average Annual Drop-out rate at secondary level	Output/Input Related	
			Percentage of school teachers professionally qualified	Output/Input Related	
			Percentage of elementary and secondary schools with Pupil Teacher Ratio less than/equal to 30	Output/Input Related	
		Gender Quality	Sex Ratio at Birth(per 1000 males)	Outcome Related	Census
					SRS
					NFHS
					DLHS
					AHS
					HMIS
			Average female to male ratio of average wages/salaries	Output/Input Related	
			received per day by regular wage/salaried employees of age		

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			15-59 for rural and urban		
			Percentage of ever married women between 15-49 who have experienced spousal violence	Outcome Related	NFHS
			Percentage of seats won by women in general elections to state legislative assembly	Output/Input Related	
			Ratio of Female force participation rate to Male force participation rate	Output/Input Related	
			Percentage of women in age group of 15-49 using modern methods of family planning	Output/input Related	
		Clean Water and Sanitation	Percentage of population having safe and adequate drinking water in rural areas	Outcome Related	MDWS
			Percentage of rural households with individual household toilets	Outcome Related	MDWS
					Census
			Installed sewage treatment capacity as a proportion of sewage generated in urban areas	Output/input Related	
			Percentage annual ground water withdrawal against net annual availability	Outcome Related	Central Ground Water Board
			Percentage of rural households with individual toilets	Outcome Related	Census
					MDWS
		Affordable and Clean energy	Percentage of households electrified	Outcome Related	Census
					IHDS
					NFHS
					DLHS
					Ministry of Power
			Percentage of households using Clean Cooking Fuel	Outcome Related	Census
					IHDS
					NFHS
					DLHS
			Renewable share of installed generating capacity	Output/Input Related	
		Decent Work and Economic Growth	Annual Growth Rate of GDP per capita	Outcome Related	CSO
			Average unemployment rate per 1000 persons for males and females	Outcome Related	NSSO
					Ministry of Labour and Employment
			Percentage of households with a Bank account	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Number of ATMs per lakh population	Output/Input Related	
		Industry ,Innovation and Infrastructure	Number of Internet Subscribers per 100 population	Output/Input Related	
			Percentage of Gram Panchayats covered under Bharat Net	Output/Input Related	
			Number of mobile connections per 100 persons in rural and urban areas	Output/Input Related	
			percentage of targeted habitations connected by all-weather roads under Pradhan Mantri Gram Sadak Yojana	Outcome Related	PMGSY website
		Reduced Inequality	Palma ratio of Household Expenditure in Urban India	-	NSSO
			Palma ratio of Household Expenditure in Rural India	-	NSSO
			Percentage of Tribal Sub Plan fund utilized	Output/Input Related	
			Ratio of Transgender Labour force participation rate to male labour force participation rate	Output/Input related	
			Percentage of scheduled caste sub Plan Utilized	Output/Input Related	
		Sustainable cities and communities	Percentage of urban households living in slums	Outcome Related	Census
			Percentage of waste processed	Outcome Related	Ministry of Housing and Urban Affairs
			Houses completed under Pradhan Mantri Awas Yojana as a percentage of net demand assessment of houses	Output/Input Related	
			Percentage of wards with 100% door to door waste collection	Output/Input Related	
		Sustainable Consumption and Production	-		
		Climate Action	-		
		Life below Water	-		
		Life on Land	Percentage of total land area covered under forest	Outcome related	FSI
			Decadal change in extent of water bodies within forests from 2005 to 2015	Outcome related	FSI
			Change in forest area from 2015 to 2017	Outcome related	FSI

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Percentage change in estimated population of wild elephants over 5 year period	Outcome related	Ministry of Environment, Forest and Climate Change
		Peace, Justice and Strong Institutions	Reported murders per 1 lakh population	Outcome related	NCRB
			Estimated number of courts per 10 lakh persons	Output/Input Related	
			Estimated reported corruption crimes per 1 crore population	Outcome related	NCRB
			Percentage of births registered	Outcome Related	
			Reported cognizable crimes against children per 1 lakh population	Outcome related	NCRB
			Percentage of population covered under Aadhaar	Output/Input Related	
5	Ease of living Index	Governance	Percentage of citizen services available online	Output/Input Related	
			Percentage of services integrated through a Command and Control Centre	Output/Input Related	
			Percentage of citizens using online services	Output/Input Related	
			Average delay in grievance redressal	Output/Input Related	
			Tax collected as percentage of tax billed	Output/Input Related	
			Extent of cost recovery (O&M) in water supply services	Output/Input Related	
			Capital spending as percentage of total expenditure	Output/Input Related	
			Percentage of population covered under Ward Committees/Area Sabhas	Output/Input Related	
		Identity and Culture	Restoration and reuse of historic buildings	Output/Input Related	
			Percentage of ecologically important areas covered through projects for restoration	Output/Input Related	
			Hotel occupancy	Output/Input Related	
			Percentage of budget allocated towards cultural/sports activities	Output/Input Related	
			Number of cultural/sports events hosted by the city	Output/Input Related	
		Education	Percentage of school-aged population enrolled in schools	Output/Input Related	
			Percentage of female school-aged population enrolled in schools	Output/Input Related	
			Primary education student-teacher ratio	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Percentage of schools with access to digital education	Output/Input Related	
			Percentage of students completing primary education	Output/Input Related	
			Percentage of students completing secondary education	Output/Input Related	
		Health	Number of in-patient hospital beds per 10,000 population	Output/Input Related	
			Healthcare professionals per 10,000 population	Output/Input Related	
			Average response time in case of health emergencies	Output/Input Related	
			Period prevalence of vector borne diseases	Outcome Related	NFHS / IDSP
			Period prevalence of water borne diseases	Outcome Related	NFHS / IDSP
		Safety and Security	Number of CCTV cameras installed in the city per unit of road length	Output/Input Related	
			Number of recorded crimes per lakh population	Outcome Related	NCRB
			Extent of crimes recorded against women, children and elderly per year	Outcome Related	NCRB
			Transport-related fatality per lakh population	Outcome Related	Ministry of Surface Transport
		Economy and Employment	Increase in VAT collection	Output/Input Related	
			Increase in collection of Professional Tax	Output/Input Related	
			Increase in issuance of construction permits	Output/Input Related	
			Percentage of vendors registered and provided formal spaces	Output/Input Related	
		Housing and Inclusiveness	Percentage of slum/EWS households covered through formal/affordable housing	Output/Input Related	
			Percentage of slum households covered through basic services	Outcome Related	Census ,
		Public open spaces	Per capita availability of green spaces	Outcome Related	
			Per capita availability of public and recreational places	Outcome Related	
		Mixed land use and compactness	Share of mixed land use area in overall city land use	Outcome Related	
			Net density	Outcome Related	Same as that of Share of mix land
		Power Supply	Percentage of city population with authorized electrical services	Output/Input Related	
			Percentage of electrical connections covered through smart meters	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Average number of electrical interruptions per customer per year	Outcome Related	(CEA gives the data on Peak demand and peak availability and the deficit or surplus)
			Average length of electrical interruptions per customer per year	Outcome Related	DISCOMs
			Percentage of total energy derived from renewable sources	Outcome Related	CEA(not for states)
			Energy consumption per unit - water supply and sewerage	Output/Input Related	
			Energy consumption per unit - street lighting	Outcome Related	CEA
			Percentage of new & redeveloped buildings following green building norms	Outcome related	In house of the states
			Total energy consumption per capita	Outcome Related	CEA
		Transportation and Mobility	Availability of Passenger Information System	Output/Input Related	
			Extent of signal synchronisation	Output/Input Related	
			Availability of paid parking spaces	Output/Input related	
			Percentage coverage of footpaths – wider than 1.2 m	Output/Input Related	
			Percentage of traffic intersections with pedestrian crossing facilities	Output/Input Related	
			Extent to which universal accessibility is incorporated in public rights-of-way	Output/Input Related	
		Assured water supply	Household level coverage of direct water supply connections	Outcome Related	ULB/water utility or PHEDs
			Per capita supply of water	Outcome Related	ULB/water utility or PHEDs
			Quality of water supplied	Outcome Related	ULB/water utility or PHEDs
			Level of Non-Revenue Water (NRW)	Output/Input Related	
			Percentage of water connections covered through meters	Output/Input Related	
			Percentage of plots with rainwater harvesting facility	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
		Waste water Management	Coverage of toilets	Outcome Related	NFHS
					Ministry of Drinking water and Sanitation
					DLHS
					AHS
					NSSO
					Census
					IHDS
			Coverage of sewerage network and/or seepage	Output/Input Related	
			Collection efficiency of sewerage network	Output/Input Related	
			Extent of reuse and recycling of waste water	Outcome Related	ULB/ Water and Sewerage Utility
			Coverage of storm water drains	Outcome Related	ULB or estimated on the basis of maps available with the ULB.
		Solid Waste Management	Household level coverage of municipal solid waste collection	Output/Input Related	
			Efficiency of collection of municipal solid waste	Output/Input Related	
			Extent of municipal solid waste recovered through reuse	Outcome Related	None
		Reduced pollution	Concentration of SO_2 - air pollution	Outcome related	CPCB
			Concentration of NO_2 - air pollution	Outcome Related	CPCB
			Concentration of PM - air pollution	Outcome Related	CPCB
			Level of noise pollution	Outcome Related	CPCB
			Quality of water in public surface water bodies	Outcome Related	CPCB
6	DIPP Ease of Doing Business Index	Labour Regulation-Enablers	Labour Regulation-Enablers	Output/Input Related	
			Registration and grant and renewal of license under The Factories Act, 1948	Output/Input Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Approval of plan and permission to construct/extend/or take into use any building as a factory under the Factories Act, 1948	Output/Input Related	
			Registration and Renewal of Boilers under The Boilers Act, 1923	Output/Input Related	
			Approval for Boiler manufacturer and renewal thereof	Output/Input Related	
			Approval for Boiler erector and renewal thereof	Output/Input Related	
			License and renewal of license for contractors under provision of The Contracts Labour (Regulation and Abolition) Act, 1970	Output/Input Related	
			Registration and renewal under The Shops and Establishment Act	Output/Input Related	
			Registration of principal employer's establishment under provision of The Contracts Labour (Regulation and Abolition) Act, 1970	Output/Input Related	
			Registration under The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	Output/Input Related	
			Registration of establishment under the Inter State Migrant Workmen (RE&CS)Act,1979	Output/Input Related	
		Contract enforcement	Commercial Dispute Resolution Enablers	Output/Input Related	
			Paper-less Courts	Output/Input Related	
		Registering property	Property Registration - Enablers	Output/Input Related	
			Property Registration-Online systems	Output/Input Related	
		Inspection enablers	Inspection reform enablers	Output/Input Related	
			Inspection by Building Proposal Office/ relevant agency as part of obtaining construction permit	Output/Input Related	
			Inspection by Appropriate Authority for felling trees (prior to commencement of construction activities)	Output/Input Related	
			Inspection by Building Proposal Office/relevant agency as part of obtaining occupancy/completion certificate	Output/Input Related	
			Compliance Inspection under The Equal Remuneration Act, 1976	Output/Input Related	
			Compliance Inspection under The Factories Act, 1948	Output/Input Related	
			Compliance Inspection under The	Output/Inpu	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Factories Act, 1948	t Related	
			Compliance Inspection under The Minimum Wages Act, 1948	Output/Inpu t Related	
			Compliance Inspection under The Shops and Establishments Act (as applicable)	Output/Inpu t Related	
			Compliance Inspection under The Payment of Bonus Act, 1965	Output/Inpu t Related	
			Compliance Inspection under The Payment of Wages Act, 1936	Output/Inpu t Related	
			Compliance Inspection under The Payment of Gratuity Act, 1972	Output/Inpu t Related	
			Compliance Inspection under The Water (Prevention and Control of Pollution) Act, 1974	Output/Inpu t Related	
			Compliance Inspection under The Air (Prevention and Control of Pollution) Act, 1981	Output/Inpu t Related	
			Inspection under Legal Metrology Act 2009 and Rules	Output/Inpu t Related	
			Compliance Inspection under The Contract Labour (Regulation and Abolition) Act, 1970	Output/Inpu t Related	
		Single Window System	Single Window	Output/Inpu t Related	
			Online Single Window System	Output/Inpu t Related	
		Land Availability and Allotment	Availability of land	Output/Inpu t Related	
			Land Allotment	Output/Inpu t Related	
		Construction Permit Enablers	Construction Permit Enablers	Output/Inpu t Related	
			Building Plan Approval	Output/Inpu t Related	
			NOC for tree felling from Tree Authority/ Appropriate Authority (prior to commencement of construction activities)	Output/Inpu t Related	
			Tree Transit permission	Output/Inpu t Related	
			NOC for Fire Department (prior to commencement of construction activities)	Output/Inpu t Related	
		Environmental Registration Enablers	Environmental Registration Enablers	Output/Inpu t Related	
			Consent to Establish under the Water (Prevention and Control of Pollution) Act, 1974	Output/Inpu t Related	
			Consent to Establish under the Air (Prevention and Control of Pollution) Act, 1981	Output/Inpu t Related	
			Authorization under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	Output/Inpu t Related	

S. NO	Index	Domain	Indictor	Nature	Data bases
1	2	3	4	5	6
			Consent to Operate under the Water (Prevention and Control of Pollution) Act, 1974	Output/Input Related	
			Consent to Operate under the Air (Prevention and Control of Pollution) Act, 1981	Output/Input Related	
		Obtaining utility permits	Obtaining Electricity Connection	Output/Input Related	
			Certification of Electrical Installation by Chief Electrical Inspector	Output/Input Related	
			Obtaining water connection	Output/Input Related	
			Tax enablers	Output/Input Related	
			Registration for Profession Tax	Output/Input Related	
		Access to Information and Transparency Enablers	Access to Information and Transparency Enablers	Output/Input Related	
		Sector specific	Retail Drug License (Pharmacy) and renewal thereof	Output/Input Related	
		a. Healthcare	Wholesale drug license	Output/Input Related	
		b. Hospitality Industry	Granting and renewal of Drug Manufacturing License	Output/Input Related	
			Registration and renewal under the Legal Metrology Act, 2009	Output/Input Related	
		c. Miscellaneous	Registration of Partnership firms	Output/Input Related	
			Registration of Societies	Output/Input Related	
			Trade License	Output/Input Related	
		Paying Taxes	Levies imposed by State and Local Bodies including those at Panchayat level [other than subsumed under Goods and Services tax (GST)]	Output/Input Related	
			Property tax	Output/Input Related	
			Utility charge	Output/Input Related	
			Water charges	Output/Input Related	

Source: NCAER's review based on six indices for measuring state performance as given by NITI Aayog.

Table A3.5: Credibility Criterion and Database Assessment

S No.	Databases	Objectivity	Reliability	Universality	Consistency	Utility
1	2	3	4	5	6	7
1.	Census	✓	✓	✓	✓	×[4]
2.	Sample Registration System	✓	✓	?[5]	✓	✓
3.	National Family Health Survey (NFHS)	✓	✓	?[6]	?[7]	×
4.	Annual Health Survey (AHS)	✓	✓	×	✓	×
5.	District level Health Survey(DLHS)	?	?	✓	?u	×[8]
6.	ASER	✓	✓	?	✓	×[9]
7.	U-DISE	×	×	✓	?	×
8.	NAS	×	×	✓	×	×
9.	NSSO surveys	✓	✓	?[10]	✓	×
10.	Central Government Ministry websites /surveys dependent on unverifiable state supplied data[11]	×	?	✓	×	×
11.	Forest Survey of India	✓	✓	✓	✓	✓
12.	National Crime Records Bureau (NCRB)	✓	?[12]	✓	×[13]	×
13.	Ministry of road transportation and highways (state government data which is independently verifiable)	✓	✓	✓	✓	✓
14.	Central Pollution	?[14]	?	×	?	×

[4] Decadal survey interval limits utility for purposes of comparison.
[5]The methodology is consistent, however, the estimates are not totally universal for all states due to moving averages published for most of the smaller states.
[6] NFHS 2 covered 26 states, NFHS 3 included 29 while NFHS 4 covered 29 states and all 7 UTs. Sample sizes have varied with successive surveys and may not be consistent for comparison.
[7] The figures of NFHS-4 and that of earlier rounds may not be strictly comparable due to differences in sample size. Survey intervals are also too long for utility.
[8] Five yearly survey interval limits utility.
[9] ASER data base is difficult to use for computing an index that can generate a single point comparator across states. It is difficult to assign appropriate weights to age group data so as to bring into a comparable framework across states. It includes only rural schools so tends to lessen universality by not giving appropriate weightage to more urbanized states.
[10]The sample sizes for small states are very thin to derive proper estimates. Most surveys have five year intervals which limits utility.
[11] Includes agriculture, animal husbandry, water & sanitation, rural development (MNREGA), etc.
[12] Pressures to reduce the crime figures are, in most cases, met by avoiding registration of FIRs.
[13] Only includes data of recorded crime. Actual incidence of crime and practices related to its reporting and recording can vary widely across states, therefore data not suitable for comparison between states.
[14] Data usually dependent on state sources, with collection practices that may not be uniform or may be sporadic and in many cases (like air pollution) partial in nature. Utility limited.

S No.	Databases	Objectivity	Reliability	Universality	Consistency	Utility
1	2	3	4	5	6	7
	Control Board(CPCB)					
15.	Finance accounts of state governments	✓	✓	✓	✓	×[15]
16.	Central Electricity Authority (CEA)	?[16]	?	✓	?	✓
17.	E-Taal website	✓	✓	?	?	×[17]
18.	Annual Survey of Industries (ASI)	✓	✓	×[18]	✓	×[18]
19.	Indian Human Development Survey(IHDS)	✓	✓	?	✓	×
20.	Power Finance Corporation (PFC)	✓	✓	×	×[19]	×

Source: Based on NCAER's Review

[15] Finance account data is relevant for looking at efforts at increasing tax and non-tax revenues. However, the disruption caused by the introduction of GST limits the utility for tax revenue comparisons and on the non-tax side, where user charges are a major item, the varying practices of states with regard to the agencies used for delivery of major services, limits the possibility of comparison through the finance accounts.

[16]Data is collected from state utilities and cannot therefore be considered to be completely objective or reliable in nature. It may also be subject to collection practices that are not necessarily uniform. However, the fact that CEA has been collecting this for data for a long time does confer certain legitimacy to it. There is no reason till now to exaggerate or understate performance. In future metered, billed consumption, for which payment is received, needs to be collected.

[17] E-Taal has limited value for comparison purposes. It is not measuring the bulk of digital transactions that are occurring outside government related interaction. It still does not differentiate between the nature of transactions measured and assign all equal weight. It is only able to pull in data from linked state government platforms.

[18] Limited utility for assessing investment or employment since it does not cover much of the informal sector which comprises the bulk of the economy in India.

[18] The dataset does not include the informal sector, which has more shares in employment.

[19] PFC does not provide data for all the states.

Table A3.6: List of Final Indicators for State Performance

Source: *Based on NCAER's Review of Various Indicators and Respective Data sources*

S. No	Sample Registration Survey (SRS)	Ministry of Transportation	Forest Survey of India (FSI)	Central Electricity Authority (CEA)
	1	2	3	4
1	Total fertility rate	Transport-related fatality per lakh population	Percentage of total land area covered under forest	Amount of electricity sold
2	Neonatal Mortality Rate	All weather Road length	Decadal change in extent of water bodies within forests from 2005 to 2015	Energy consumption per unit - street lighting
3	Under five Mortality rate		Change in forest area from 2015 to 2017	Total energy consumption per capita
4	Sex Ratio at Birth		Percentage change in area under mangroves	T & D Losses
5	Maternal Mortality Ratio		Percentage of Tree outside forest (TOF) in total forest cover	
6	Infant mortality rate		Percent change in Forest Area coverage	
7	Death Rate		Increase in forest / vegetative cover in mountain areas	
8	Mean age at marriage		Estimates of change in green cover	

Table A4.1: Share of Performance Based Allocation in Total Devolution

	Revenue Sharing	
Finance Commission	**Share of tax devolution performance transfers in total transfers (%)**	**Performance Indicators**
1	**2**	**3**
First (1952-57)	17.6	States' contribution to divisible taxes
Second (1957-62)	8.1	States' contribution to divisible taxes
Third (1962-66)	16.3	States' contribution to divisible taxes
Fourth (1966-69)	15.2	States' contribution to divisible taxes
Fifth (1969-74)	8.7	States' contribution to divisible taxes
Sixth (1974-79)	7.4	States' contribution to divisible taxes
Seventh (1979-84)	9.2	States' contribution to divisible taxes
Eighth (1984-89)	9.0	States' contribution to divisible taxes
Ninth (1989-90)	0	States' contribution to divisible taxes
Ninth (1990-95)	8.3	States' contribution to divisible taxes
Tenth (1995-2000)	9.1	Tax effort
Eleventh (2000-05)	10.8	Tax Effort, Fiscal Discipline
Twelfth (2005-10)	12.2	Tax Effort, Fiscal Discipline
Thirteen (2010-2015)	14.8	Fiscal Discipline
Fourteen (2015-2020)	5.0	Forest Cover
Average	10.7	

Note: **Only the 13th FC recommended performance related grants and these amounted to about 1% of total devolution*
Source: *Finance Commission Reports, GOI.*

Table A5.1: Framework for Year Wise Performance Rewards

Year	**Sector / Indicator**
1	**2**
First Year (2020)	Power
Second Year (2021)	Roads
Third Year (2022)	IMR
Fourth Year(2023)	SRB
Fifth Year (2024)	Forests

Source: *NCAER's Recommendations for the present 15th Finance Commission Report*

Table A6.1: Simulation Exercise for Incentive Calculation: Power Sector

S. No.	State	Proportion of energy sold in 2017 %	State Share In Change (2013-2017)	State Incentive	State Population Proportion (2011)	Incentive Value (Rs Crore)
1	Andhra Pradesh	5.065	3.208	4.693	4.079	938.690
2	Assam	0.726	0.906	0.762	2.577	152.442
3	Bihar	1.720	4.539	2.284	8.597	456.798
4	Chhattisgarh	3.509	4.018	3.611	2.110	722.207
5	Gujarat	11.026	11.937	11.208	4.991	2241.617
6	Haryana	3.477	3.656	3.513	2.094	702.647
7	Jammu And Kashmir	0.773	1.180	0.854	1.036	170.899
8	Jharkhand	2.492	1.182	2.230	2.724	446.013
9	Karnataka	7.026	6.007	6.822	5.046	1364.445
10	Kerala	2.058	1.565	1.959	2.759	391.859
11	Madhya Pradesh	4.890	5.665	5.045	5.998	1008.918
12	Maharashtra	12.512	9.926	11.995	9.281	2399.047
13	Odisha	4.279	3.302	4.084	3.466	816.768
14	Punjab	4.560	4.151	4.478	2.291	895.590
15	Rajasthan	6.005	5.195	5.843	5.661	1168.572
16	Tamil Nadu	8.969	9.928	9.161	5.958	1832.207
17	Telangana	4.655	7.368	5.197	2.907	1039.454
18	Uttar Pradesh	8.923	10.888	9.316	16.502	1863.275
19	Uttarakhand	1.210	1.226	1.214	0.833	242.732
20	West Bengal	4.547	3.462	4.330	7.538	865.956
21	Himachal Pradesh	0.789	0.259	0.683	0.567	136.666
22	Arunachal Pradesh	0.036	-0.043	0.020	0.114	4.076
23	Goa	0.352	0.224	0.326	0.120	65.298
24	Manipur	0.050	0.057	0.052	0.236	10.302
25	Meghalaya	0.122	-0.065	0.084	0.245	16.888
26	Mizoram	0.035	0.029	0.033	0.091	6.686
27	Nagaland	0.062	0.132	0.076	0.163	15.230
28	Tripura	0.088	0.075	0.085	0.303	17.007
29	Sikkim	0.043	0.022	0.039	0.050	7.713
30	Total	100.000	100.000	100.000	98.338	20000

Source: *NCAER Calculations based on data from CEA Handbook on Electricity*

Table A6.2a: Simulation Exercise for Incentive Calculation: Roads (Part 1)

S. No.	State	Road Length Proportion % (2015)	State Share In Change (2012-15)	State Incentive	States Share In Total Population (2011)	Incentive Amount
1	Andhra Pradesh	3.888	2.963	3.703	4.079	740.534
2	Arunachal Pradesh	0.415	0.232	0.379	0.114	75.722
3	Assam	1.850	0.873	1.655	2.577	330.905
4	Bihar	3.424	6.890	4.117	8.597	823.440
5	Chhattisgarh	2.293	2.305	2.296	2.110	459.164
6	Goa	0.321	0.348	0.326	0.120	65.223
7	Gujarat	5.230	2.547	4.694	4.991	938.713
8	Haryana	1.309	0.414	1.130	2.094	225.959
9	Himachal Pradesh	1.241	0.572	1.107	0.567	221.481
10	Jammu & Kashmir	0.633	-0.257	0.455	1.036	91.056
11	Jharkhand	0.813	1.288	0.908	2.724	181.558
12	Karnataka	6.953	2.591	6.081	5.046	1216.189
13	Kerala	4.409	1.782	3.884	2.759	776.764
14	Madhya Pradesh	7.534	17.097	9.447	5.998	1889.378
15	Maharashtra	15.349	21.675	16.614	9.281	3322.860
16	Manipur	0.384	0.401	0.387	0.236	77.441
17	Meghalaya	0.258	0.170	0.240	0.245	48.011
18	Mizoram	0.195	-0.192	0.118	0.091	23.536
19	Nagaland	0.556	0.076	0.460	0.163	91.976
20	Orissa	8.014	30.169	12.445	3.466	2489.092
21	Punjab	3.028	1.534	2.729	2.291	545.870
22	Rajasthan	6.178	-1.402	4.662	5.661	932.428
23	Sikkim	0.182	0.131	0.172	0.050	34.425
24	Tamil Nadu	6.780	3.569	6.138	5.958	1227.595
25	Telangana	2.060	-0.985	1.451	2.907	290.190
26	Tripura	0.610	0.702	0.629	0.303	125.768
27	Uttar Pradesh	11.512	7.424	10.695	16.502	2138.905
28	Uttarakhand	1.022	0.604	0.939	0.833	187.708
29	West Bengal	3.557	-3.525	2.141	7.538	428.107
30	Total	100.000	100.000	100.000	98.338	20000.000

Source: *NCAER Calculations based on data from Ministry of Road Transportation and Highways*

Table A6.2b: Simulation Exercise for Incentive Calculation: Roads (Part 2)

S. No.	State:	Road length Per 100 Sq Km	Road length Per Lakh Population	Composite	State Incentive	States Share In Total Population (2011)	Incentive Amount
1	Andhra Pradesh	2.572	3.888	3.230	3.177	4.079	635.307
2	Arunachal Pradesh	0.015	0.415	0.215	0.219	0.114	43.707
3	Assam	1.607	1.850	1.728	1.557	2.577	311.464
4	Bihar	8.265	3.424	5.844	6.054	8.597	1210.702
5	Chhattisgarh	0.946	2.293	1.620	1.757	2.110	351.385
6	Goa	0.276	0.321	0.298	0.308	0.120	61.638
7	Gujarat	3.517	5.230	4.374	4.008	4.991	801.656
8	Haryana	1.639	1.309	1.474	1.262	2.094	252.342
9	Himachal Pradesh	0.334	1.241	0.788	0.745	0.567	148.918
10	Jammu & Kashmir	0.078	0.633	0.356	0.233	1.036	46.628
11	Jharkhand	0.734	0.813	0.773	0.876	2.724	175.286
12	Karnataka	4.836	6.953	5.895	5.234	5.046	1046.816
13	Kerala	8.278	4.409	6.343	5.431	2.759	1086.235
14	Madhya Pradesh	3.876	7.534	5.705	7.983	5.998	1596.700
15	Maharashtra	12.239	15.349	13.794	15.370	9.281	3074.019
16	Manipur	0.107	0.384	0.245	0.277	0.236	55.319
17	Meghalaya	0.074	0.258	0.166	0.167	0.245	33.352
18	Mizoram	0.022	0.195	0.109	0.049	0.091	9.710
19	Nagaland	0.145	0.556	0.350	0.295	0.163	59.100
20	Orissa	4.717	8.014	6.366	11.127	3.466	2225.305
21	Punjab	3.642	3.028	3.335	2.975	2.291	594.991
22	Rajasthan	2.702	6.178	4.440	3.272	5.661	654.324
23	Sikkim	0.034	0.182	0.108	0.113	0.050	22.573
24	Tamil Nadu	8.212	6.780	7.496	6.711	5.958	1342.133
25	Telangana	1.412	2.060	1.736	1.192	2.907	238.380
26	Tripura	0.467	0.610	0.539	0.571	0.303	114.290
27	Uttar Pradesh	20.846	11.512	16.179	14.428	16.502	2885.594
28	Uttarakhand	0.421	1.022	0.722	0.698	0.833	139.606
29	West Bengal	7.987	3.557	5.772	3.913	7.538	782.518
30	Total	100	100	100.000	100.000	98.338	20000.0

Source: *NCAER Calculations based on data from Ministry of Road Transportation and Highways*

Table A6.3: Simulation Exercise for Incentive Calculation: IMR

States	IMR* (2016)	IMR Index* (IMR)	State Incentive *	IMR Change (2011-2016)	Index (IMR Change)	State Incentive (Change)	Combined State Incentive *^	State Share In Total Population 2011	Incentive Value
Bigger States									
1. Andhra Pradesh	34	100.0	4.0	9.0	90.0	4.0	4.0	4.1	795.5
2. Assam	44	70.6	1.8	11.0	110.0	3.1	2.0	2.6	407.4
3. Bihar	38	88.2	7.4	6.0	60.0	5.7	7.0	8.6	1406.2
4. Chhattisgarh	39	85.3	1.7	9.0	90.0	2.1	1.8	2.1	363.2
5. Gujarat	30	111.8	5.4	11.0	110.0	6.0	5.5	5.0	1108.7
6. Haryana	33	102.9	2.1	11.0	110.0	2.5	2.2	2.1	436.3
7. Jharkhand	29	114.7	3.0	10.0	100.0	3.0	3.0	2.7	605.6
8. Karnataka	24	129.4	6.3	11.0	110.0	6.1	6.3	5.0	1259.2
9. Kerala	10	170.6	4.6	2.0	20.0	0.6	3.8	2.8	756.0
10. Madhya Pradesh	47	61.8	3.6	12.0	120.0	7.9	4.5	6.0	892.3
11. Maharashtra	19	144.1	13.0	6.0	60.0	6.1	11.6	9.3	2324.4
12. Orissa	44	70.6	2.4	13.0	130.0	5.0	2.9	3.5	578.5
13. Punjab	21	138.2	3.1	9.0	90.0	2.3	2.9	2.3	583.1
14. Rajasthan	41	79.4	4.4	11.0	110.0	6.8	4.9	5.7	972.7
15. Tamil Nadu	17	150.0	8.7	5.0	50.0	3.3	7.6	6.0	1520.6
16. Telangana	31	108.8	3.1	3.0	30.0	1.0	2.7	2.9	530.1
17. Uttar Pradesh	43	73.5	11.8	14.0	140.0	25.4	14.5	16.5	2901.9
18. West Bengal	25	126.5	9.3	7.0	70.0	5.8	8.6	7.5	1714.2
Smaller States									
1. Arunachal Pradesh	36.0	94.1	0.1	-4.0	-40.0	-0.1	0.1	0.1	14.7
2. Goa	8.0	176.5	0.2	3.0	30.0	0.0	0.2	0.1	34.6
3. Himachal Pradesh	25.0	126.5	0.7	13.0	130.0	0.8	0.7	0.6	143.9
4. Manipur	11.0	167.7	0.4	0.0	0.0	0.0	0.3	0.2	61.5
5. Meghalaya	39.0	85.3	0.2	13.0	130.0	0.4	0.2	0.2	46.5
6. Mizoram	27.0	120.6	0.1	7.0	70.0	0.1	0.1	0.1	19.8
7. Nagaland	12.0	164.7	0.3	9.0	90.0	0.2	0.2	0.2	48.3
8. Sikkim	16.0	152.9	0.1	10.0	100.0	0.1	0.1	0.1	14.2
9. Tripura	24.0	129.4	0.4	5.0	50.0	0.2	0.3	0.3	67.7
Special Category States									
1. Jammu & Kashmir	24.0	129.4	1.3	17.0	170.0	1.9	1.4	1.0	285.8
2. Uttarakhand	38.0	88.2	0.7	-2.0	-20.0	-0.2	0.5	0.8	107.0
Total			100.0			100.0	100.0	98.3	20000

Note: * (Absolute value); *^ (Absolute value + change)
Source: NCAER Calculations based on data from SRS

Table A6. 4: Simulation Exercise for Incentive Calculation: SRB

Bigger States	SRB 2011	SRB 2001	Decline %	Index	State incentive	state share in total population	Incentive Value (Rs. Crores)
Andhra Pradesh	108	105	-3	96.724	4.268	4.079	853.518
Assam	108	106	-2	97.127	2.708	2.577	541.550
Bihar	112	109	-3	92.538	8.606	8.597	1721.208
Chhattisgarh	105	108	2	100.114	2.285	2.110	456.950
Gujarat	115	120	4	91.317	4.931	4.991	986.141
Haryana	121	127	5	85.646	1.940	2.094	387.948
Jammu and Kashmir	129	105	-23	71.272	0.799	1.036	159.707
Jharkhand	111	110	0	94.446	2.783	2.724	556.680
Karnataka	108	107	-2	96.383	5.261	5.046	1052.144
Kerala	102	103	1	102.721	3.066	2.759	613.129
Madhya Pradesh	110	111	1	95.226	6.179	5.998	1235.716
Maharashtra	116	114	-2	89.065	8.941	9.281	1788.291
Odisha	110	108	-2	94.782	3.554	3.466	710.847
Punjab	119	127	7	88.666	2.198	2.291	439.521
Rajasthan	111	116	4	95.038	5.820	5.661	1164.027
Tamil Nadu	107	107	0	98.037	6.319	5.958	1263.787
Telangana	109	106	-3	95.489	3.002	2.907	600.467
Uttar Pradesh	112	111	-1	92.710	16.550	16.502	3309.914
Uttarakhand	115	117	2	90.824	0.818	0.833	163.682
West Bengal	107	103	-4	97.290	7.933	7.538	1586.681
Smaller States							**0.000**
Arunachal Pradesh	107	100	-7	96.491	0.119	0.114	23.856
Goa	110	109	-1	94.737	0.123	0.120	24.689
Manipur	111	102	-8	92.785	0.237	0.236	47.345
Meghalaya	102	104	2	103.111	0.273	0.245	54.661
Mizoram	104	101	-3	100.700	0.099	0.091	19.742
Nagaland	104	102	-2	100.872	0.178	0.163	35.659
Sikkim	103	107	3	102.361	0.056	0.050	11.167
Tripura	105	103	-2	99.922	0.328	0.303	65.593
Himachal Pradesh	106	118	11	102.221	0.627	0.567	125.378
TOTAL					**100.000**	**98.338**	**20000.000**

Source: *NCAER Calculations based on data from Census of India*

Table A6.5a: Simulation Exercise for Incentive Calculation: Forests (Part 1)

States	Weighted Forest Proportion (%)	State Share In Change (2011-2017)	State Incentive	State Share In Total Population (2011)	Incentive Amount
Andhra Pradesh	4.327	21.137	7.689	4.079	1537.797
Arunachal Pradesh	12.038	-2.779	9.075	0.114	1814.945
Assam	3.522	6.946	4.207	2.577	841.320
Bihar	0.885	1.742	1.056	8.597	211.221
Chhattisgarh	8.222	13.231	9.224	2.110	1844.796
Goa	0.332	-0.029	0.260	0.120	51.914
Gujarat	1.748	1.735	1.746	4.991	349.149
Haryana	0.171	-0.038	0.129	2.094	25.858
Himachal Pradesh	2.361	0.803	2.049	0.567	409.849
Jammu & Kashmir	3.350	-2.528	2.175	1.036	434.913
Jharkhand	3.131	0.744	2.654	2.724	530.748
Karnataka	5.705	23.275	9.219	5.046	1843.816
Kerala	2.608	7.675	3.622	2.759	724.351
Madhya Pradesh	10.358	-2.199	7.847	5.998	1569.353
Maharashtra	7.636	-0.260	6.057	9.281	1211.400
Manipur	2.079	4.735	2.610	0.236	522.048
Meghalaya	2.132	-0.918	1.522	0.245	304.415
Mizoram	1.835	-2.444	0.979	0.091	195.858
Nagaland	1.608	-1.499	0.987	0.163	197.339
Orissa	7.352	3.645	6.611	3.466	1322.173
Punjab	0.203	0.342	0.231	2.291	46.101
Rajasthan	1.932	1.293	1.804	5.661	360.773
Sikkim	0.636	2.276	0.964	0.050	192.787
Tamil Nadu	3.674	10.444	5.028	5.958	1005.604
Telangana	2.792	-2.549	1.724	2.907	344.754
Tripura	1.123	3.967	1.692	0.303	338.361
Uttar Pradesh	2.039	5.512	2.733	16.502	546.651
Uttarakhand	3.940	-1.574	2.837	0.833	567.376
West Bengal	2.261	7.315	3.272	7.538	654.333
Total	**100.000**	**100.000**	**100.000**	**98.338**	**20000.000**

Source: *NCAER Calculations based on data from Forest Survey of India*

Table A6.5b: Simulation Exercise for Incentive calculation: Forests (part 2)

States	(Forest Per 100 Sq Km)	(Forest Per Lakh Population)	Composite	State Incentive	State Share In Total Population (2011)	Incentive Amount
Andhra Pradesh	4.567	4.327	4.447	7.785	4.079	1556.982
Arunachal Pradesh	0.693	12.038	6.365	4.537	0.114	907.311
Assam	4.880	3.522	4.201	4.750	2.577	949.949
Bihar	3.406	0.885	2.146	2.065	8.597	412.953
Chhattisgarh	5.411	8.222	6.816	8.099	2.110	1619.888
Goa	0.455	0.332	0.394	0.309	0.120	61.792
Gujarat	1.875	1.748	1.812	1.797	4.991	359.305
Haryana	0.342	0.171	0.256	0.198	2.094	39.500
Himachal Pradesh	1.014	2.361	1.687	1.510	0.567	302.084
Jammu & Kashmir	0.658	3.350	2.004	1.098	1.036	219.578
Jharkhand	4.513	3.131	3.822	3.206	2.724	641.270
Karnataka	6.329	5.705	6.017	9.469	5.046	1893.759
Kerala	7.811	2.608	5.210	5.703	2.759	1140.559
Madhya Pradesh	8.499	10.358	9.429	7.103	5.998	1420.659
Maharashtra	9.712	7.636	8.674	6.887	9.281	1377.478
Manipur	0.926	2.079	1.503	2.149	0.236	429.811
Meghalaya	0.982	2.132	1.557	1.062	0.245	212.427
Mizoram	0.333	1.835	1.084	0.378	0.091	75.664
Nagaland	0.668	1.608	1.138	0.611	0.163	122.164
Orissa	6.903	7.352	7.128	6.431	3.466	1286.200
Punjab	0.389	0.203	0.296	0.305	2.291	60.999
Rajasthan	1.347	1.932	1.639	1.570	5.661	314.040
Sikkim	0.191	0.636	0.413	0.786	0.050	157.160
Tamil Nadu	7.098	3.674	5.386	6.398	5.958	1279.526
Telangana	3.053	2.792	2.923	1.828	2.907	365.666
Tripura	1.370	1.123	1.247	1.791	0.303	358.143
Uttar Pradesh	5.888	2.039	3.963	4.273	16.502	854.612
Uttarakhand	2.588	3.940	3.264	2.296	0.833	459.210
West Bengal	8.098	2.261	5.180	5.607	7.538	1121.309
Total	100.000	100.000	100.000	100.000	98.338	20000.000

Source: *NCAER Calculations based on data from Forest Survey of India*

Table A6.6: State Incentive Shares for TFR Performance

Bigger States	2011(Census)	Index	State Incentive	Population Share (2011)
Andhra Pradesh	1.4	100.000	4.765	4.079
Assam	2.2	97.143	2.925	2.577
Bihar	2.9	60.333	6.060	8.597
Chhattisgarh	2.4	84.190	2.075	2.110
Gujarat	2.0	100.000	5.831	4.991
Haryana	2.3	89.667	2.193	2.094
Jammu And Kashmir	3.0	56.095	0.679	1.036
Jharkhand	2.6	75.571	2.405	2.724
Karnataka	1.8	100.000	5.894	5.046
Kerala	2.0	100.000	3.223	2.759
Madhya Pradesh	2.6	75.000	5.255	5.998
Maharashtra	1.9	100.000	10.842	9.281
Odisha	2.0	100.000	4.050	3.466
Punjab	1.9	100.000	2.677	2.291
Rajasthan	2.8	66.524	4.400	5.661
Tamil Nadu	1.6	100.000	6.961	5.958
Telangana	1.5	100.000	3.395	2.907
Uttar Pradesh	2.6	75.857	14.624	16.502
Uttarakhand	2.1	100.000	0.973	0.833
West Bengal	1.7	100.000	8.806	7.538
Smaller States				
Arunachal Pradesh	2.2	93.429	0.125	0.114
Goa	1.6	100.000	0.141	0.120
Manipur	1.9	100.000	0.276	0.236
Meghalaya	3.6	27.333	0.078	0.245
Mizoram	2.6	77.910	0.082	0.091
Nagaland	2.1	100.000	0.191	0.163
Tripura	1.7	100.000	0.354	0.303
Sikkim	1.4	100.000	0.059	0.050
Himachal Pradesh	1.7	100.000	0.662	0.567
Total		2579.052	100.000	98.338

Source: *NCAER Calculations based on data from 2011 Census report*

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