Green Economy Learning Assessment (GELA): Situation Analysis and Institutional Assessment in Madhya Pradesh

Submitted to

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List of Abbreviations

AIGGPA	:	Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis
AMRUT	:	Atal Mission on Rejuvenation and Urban Transformation
AQMS	:	Air Quality Monitoring System
CDO	:	City Data Officer
CEO	:	Chief Executive Officer
CF	:	Competency Framework
CSCAF	:	Climate Smart Cities Assessment Framework
CWAPs	:	City Water Action Plans
CWBPs	:	City Water Balance Plans
DEPCC	:	Directorate of Environment Protection and Climate Change
DISCOM	:	Distribution Licensee
DoHFW	:	Department of Health and Family Welfare
DoUDH	:	Department of Urban Development and Housing
ECA	:	Energy Conservation Act
EPCO	:	Environmental Planning & Coordination Organization
GEI	:	Green Economy Initiative
GELA	:	Green Energy Learning Assessment
GHG	:	Greenhouse Gas
GIS	:	Geographic Information System
HVAC	:	Heating, ventilation, and air conditioning
ICCC		Integrated Command and Control Centre
IDCG		Insight Development Consulting Group
IDI	:	In-depth interviews
IGE	:	Inclusive Green Economy
IIFM	:	Indian Institute of Forest Management
IIT	:	Indian Institute of Technology
IT	:	Information Technology
LED	:	Light Emitting Diode
M&E	:	Monitoring & Evaluation
MIS	:	Management information system
MOEFCC	:	Ministry of Environment, Forest and Climate Change
MoHUA	:	Ministry of Housing and Urban Affairs
MoU	:	Memorandum of Understanding
MP	:	Madhya Pradesh
NAPCC	:	National Action Plan on Climate Change
NDC	:	Nationally Determined Contributions
NGO	:	Non-Governmental Organization
NMSH	:	National Mission for Sustainable Habitat
NMT	:	Non-Motorized Transport
NRW	:	Non-Revenue Water
NSDC	:	National Skill Development Council

NUTP	:	National Urban Transport Policy
O&M	:	Operation and Maintenance
PAGE	:	Partnership for Action on Green Economy
PMAY	:	Pradhan Mantri Awas Yojana
PMU		Project Management Unit
R&D	:	Research and Development
RCVPNAA	:	Ronald Carlton Vivian Piyadade Noronha Academy of Administration
RWH	:	Rainwater Harvesting
SCADA	:	Supervisory Control and Data Acquisition
SCM	:	Smart City Mission
SDGs	:	Sustainable Development Goals
SPV	:	Special Purpose Vehicle
TERI	:	The Energy and Resources Institute
ToR	:	Terms of Reference
ToT	:	Training of Trainers
TQM	:	Total Quality Management
UAD	:	Urban Administration and Development
UDPFI	:	Urban Development Plans Formulation and Implementation
ULB	:	Urban Local Body
UN	:	United Nation
UNDP	:	United Nations Development Programme
UNEP	:	United Nations Environment Programme
UNITAR	:	United Nations Institute for Training and Research
UT	:	Union Territory
WTE	:	Waste-to-energy

EXECUTIVE SUMMARY

In 2008, the United Nations Environment Programme (UNEP) launched the Green Economy Initiative (GEI) with a focus on redefining development from the lens of sustainability and poverty eradication. Over the last decade, for several countries working towards a Green Economy has become a strategic priority.

> Green Economy is defined as low carbon, resource-efficient and socially inclusive. It creates a new focus on the economy, investment, capital & infrastructure, employment & skills, and positive social & environmental outcomes.

Therefore in 2015, to meet the context-specific challenges of each nation, the original green economy concept was updated by the United Nations Environment Programme (UNEP) into what is now known as 'Inclusive Green Economy (IGE)'. It is a philosophy and methodology that helps serve the larger aim of progress via the attainment of Sustainable Development Goals (SDGs).

> IGE aims to drive policy reform, regulatory changes, and equitable distribution systems in the service of creating an ecologically sustainable and carbon-efficient economy.

To aid countries in incorporating IGE concepts into their development strategy and pursuit of SDG targets, the Partnership for Action on Green Economy (PAGE) was launched in 2013. It is a coalition of five United Nations (UN) agencies formed to support countries in building economies to improve human well-being and social equity while safeguarding the environment. The PAGE has initiated the Green Energy Learning Assessment (GELA) initiative to strengthen the institutions and govt departments' sectoral capacities to mainstream IGE principles in processes and policies at the sub-national level.

As stated in its commitment to the Sustainable Development Goals (SDGs) 2030, India is dedicated to facilitating inclusive and equitable development. Since development policies/interventions are designed, implemented, and monitored at the state level, state governments are essential drivers of the SDGs.

In this context, the UNDP India has commissioned a GELA focusing on ***SDG 11: Sustainable Cities and Communities*** and ***SDG 13: Climate Actions***. Using the framework that the United Nations Institute for Training and Research (UNITAR) has developed and deployed globally to assess the capacity gaps and training needs with a focus on mainstreaming and advancing IGE at national and state levels. The GELA is being conducted in two Indian states- Madhya Pradesh and Uttarakhand with the Environmental Planning & Coordination Organization (EPCO) and Directorate of Environment Protection and Climate Change (DEPCC) respectively as the nodal agencies.

The UNDP has contracted Insight Development Consulting Group (IDCG) to conduct GELA in these states and this document is the Situation Analysis and Institutional Assessment Report for Madhya Pradesh.

The assessment is based on a review of the literature and discussions with stakeholders at the state level and in a sample of cities *viz.,* Sagar, Satna, and Ujjain. The green economy learning is targeted at different stakeholders categorized in three levels, viz., Agenda setting, Organizational and Operational. These

stakeholders were evaluated using the PAGE guidance note[1] for transformational, technical, management, and participatory competencies.

Situation Analysis

As a first step for conducting the GELA, programme priorities that could advance IGE were identified. These included the following:

- National Mission on Sustainable Habitat (NMSH) under the National Action Plan for Climate Change (NAPCC).
- National infrastructure support programmes like Smart Cities Mission (SCM) and Atal Mission on Rejuvenation and Urban Transformation (AMRUT)-2.0.
- A national assessment initiative - Climate Smart Cities.

Based on the literature review and to inform the GELA, stakeholder interactions were conducted around 5 themes that are the focus of the Climate Smart Cities initiative- *Energy and Green Buildings; Urban Planning, Green Cover & Biodiversity; Mobility and Air Quality; Water Management and Waste Management* to identify existing competencies and gaps.

From these interactions, the following were validated:

- There are no city-level elected officials as the terms have ended and elections have not yet been scheduled.
- No capacity building or orientation programs were organized on IGE for elected representatives in the previous term.
- Cities are implementing several interventions in priority areas of energy & green buildings; urban planning, green cover and biodiversity, mobility and air quality, and water and waste management as per the detailed project reports prepared under the Smart City Mission.
- City Urban Local Bodies (ULBs) have limited technical and managerial staff; they have 8 departments. While they have well-structured departments and sanctioned staff for water supply & sewage, health, sanitation, and solid waste management, there are no urban planners and no managers/coordinators for renewable energy, green buildings, urban biodiversity, mobility, pollution control, disaster management and community communications amongst others. The organization structures do not have dedicated cells/units for the same.
- Many urban services are provided by other public departments or enterprises like;
    - Town and urban planning activities are engaged by the district office of the Directorate of Town & Country Planning in a bureaucratic and non-participatory manner.
    - Electricity and gas are supplied by the regional distribution utility though the ULB is responsible for street lighting.

[1] https://www.un-page.org/files/public/guidance_note_learning_for_an_inclusive_green_economy_8_12_2016_lr_.pdf

- Cities rely on consulting firms to provide the technical and managerial workforce for the implementation of Smart City interventions. Many interventions require infrastructure construction and would require operations and management (O&M) after they are commissioned.
- The ULB staff, as well as consultants, have not been provided any specialist training on the green economy, environment, or climate change aspects.
- Only Ujjain has a Master Plan; the ULBs lack plans like Climate Action Plan, Water Resources Management Plan, Mobility Plan, and Waste Management Plan amongst others. Smart City interventions, traffic management, safety & surveillance functions are being monitored through an Integrated Command and Control Centre (ICCC) operating from the ULB.
- Despite a lack of awareness or integration of IGE principles, most Smart City interventions are aimed at revitalizing heritage and urban quality of life to make their economies more dynamic, competitive, and sustainable.
- There are no platforms/mechanisms for obtaining citizen needs and participatory identification of solutions. Thus, many localized concerns of the citizens remain unidentified and unaddressed.
- There also seems to be a lack of a mechanism for cities to share their experiences, knowledge, and concerns regularly.

The urban sector in Madhya Pradesh is characterized by the top-down implementation of schemes, multiplicity of service-providing organizations, lack of city plans including Master Plans, and lack of managers for emerging areas that impact climate change. There is also a lack of awareness and understanding of IGE principles despite the focus on sustainability in many interventions.

The key competency required in the short-term in the urban sector is awareness and knowledge of IGE principles to enable their implementation through pilots before up-scaling and wide-scaling which would result in a variety of outputs.

Stakeholder Level & Roles	Specific Stakeholders	Potential Outputs
Agenda-setting Conceptualization for inclusive green economy policies and defining common goals & objectives.	Elected Representatives at state and ULB level, Secretaries and Directors in UAD, Municipal Commissioners or equivalent, Chief Executive Officer (CEO) of Smart City Special Purpose Vehicle (SPV)	Enabling and inclusive city Master Plans; sectoral policies and plans, such as mobility plan or a waste management strategy
Organizational Transform vision and goals in clear mandates, procedures, and regulatory frameworks.	Senior officials of relevant branches/ units of Municipal Administration Heads of Departments of Urban Local Bodies	Enabling sectoral policies and plans, such as mobility plan or waste management strategies. Incentivizing regulations and guidelines, such as tax breaks,

Stakeholder Level & Roles	Specific Stakeholders	Potential Outputs
		subsidies, feed-in tariffs, incentives for behavioral change, etc. Tools and guidelines to integrate IGE Impact Reports
Operational Implement, manage, and monitor inclusive green economy measures	Green Economy technical service providers, implementing agencies, and staff of municipal bodies implementing IGE related programmes/missions, including city level-PMUs	Timely implementation and monitoring of policies, plans, programmes, interventions Monitoring and correctives reports

Institutional Assessment

A key component of the GELA is an evaluation of institutions that could provide resource persons, facilities, and infrastructure for conducting orientation and training programmes to build skills, knowledge, and competencies for furthering an Inclusive Green Economy. Based on the criteria and discussions with EPCO- the state nodal organization and the UNDP, the following three institutions have been identified for training activities under the PAGE:

- *Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGPPA)*
- *Indian Institute of Forest Management (IIFM)*
- *Ronald Carlton Vivian Piyadade Noronha Academy of Administration (RCVPNAA)*

The institutions were assessed on the following criteria:

- Alignment with GELA mandate
- Availability of in-house trainers' themes of urban development, green economy, climate change, SDGs
- Availability of training infrastructure
- Experience of training stakeholders of different categories- agenda setting, organizational and operational
- Experience of engaging and advising the sub-national government on issues of reforms and governance

Above agencies do not provide specific programs on the green economy, but they deliver education, training programs, and initiatives that cover green economy-related subjects.

Amongst three institutions, IIFM with its unique mandate on environment and forestry incorporates sustainable consumption and production agenda. It has been delivering programmes on green growth and economy-related learning such as governance, policy & legal issues in sustainability, environmental economics & green accounting, green operations & supply chain management.

The institutional assessment also determined that the AIGGPA which engages in policymaking can integrate initiatives related to the inclusive green economy while drafting/revising the policies.

The RCVPNAA focuses on the training of civil servants and can incorporate the programs related to awareness of green learning and other related issues on the green economy if mandated.

During our interactions, it was observed, that the concept of the green economy is still relatively new, and the experts involved in policy should be exposed to the introductory concepts of the green economy. Furthermore, to offer all these new courses, trainers with new subject knowledge and suitable pedagogical

skills would be required. Therefore for 'training of trainers' opportunities to be made available, so that the recommended courses can be offered on a sustainable basis.

Recommendations

Based on the GELA in Madhya, the PAGE needs to adopt a multi-pronged strategy in the short to medium term of 3-5 years. This should include the following elements.

- Awareness creation
    - Develop orientation and training materials to build awareness at all levels of stakeholders on IGE principles.
    - Train a cadre of master trainers and instructors to provide these trainings.
    - Provide IGE awareness training to different levels in a phased manner through the selected training institutes.
- Competency building
    - Develop training materials to build competencies at agenda-setting and organization levels to enable the adoption of IGE principles in the planning, implementation, and evaluation.
    - Train a cadre of master trainers and instructors to provide these trainings.
    - Provide competency training to agenda-setting and organization levels in a phased manner through the selected training institutes.
- Technical skills trainings
    - Review existing technical training materials developed under AMRUT 2.0 and by Climate Centre for Cities, National Institute of Urban Affairs under Climate Smart Cities initiative from the perspective of IGE principles.
    - Revise such technical training materials appropriate to incorporate and integrate IGE principles appropriately.
    - Train an existing cadre of trainers on revised training materials.
    - Provide IGE principles integrated technical trainings to stakeholders at organizational and operational levels in a phased manner through the selected training institutes.
- Training Effectiveness and Refresher
    - After two years of completion of training for all stakeholders in the state, an independent training effectiveness assessment should be conducted to determine the impact in terms of practices and tools adopted and implemented by the stakeholders to foster IGE. Thereafter a suite of continuing education should be developed and housed within the selected training institute for delivery. PAGE or UNDP should contract a consulting firm for this exercise.
- Training and Knowledge Management
    - An IGE Working Group should be established with the Department of Urban Administration and Development (UAD), Government of Madhya Pradesh with participation from the EPCO and selected training institutes for developing, implementing, and monitoring IGE training programmes in the state.
    - The selected training institutes should establish an IGE cell and nominate a coordinator who should represent the institute in the IGE Working Group.

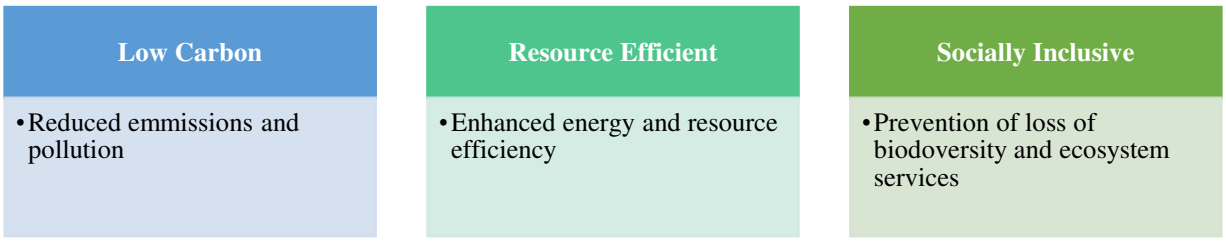
- A portal should be established to house all training materials, details of master trainers and other trainers, and the participants. This portal could be managed jointly by the selected training institutes.
- An annual IGE state-level conference should be organized by the IGE Working Group to enable sharing of experiences, practices, and case studies by training participants. The proceedings of this conference should also be uploaded to the portal.

1. INTRODUCTION

1.1 Context

The United Nation Environment Programme (UNEP) launched the Green Economy Initiative (GEI) in 2008. The initiative is focused on redefining development from the lens of sustainability and poverty eradication. Over the last decade, working towards a Green Economy has become a strategic priority for several countries.

Green Economy is defined as low carbon, resource- efficient and socially inclusive. It creates a new focus on the economy, investment, capital & infrastructure, employment & skills and positive social & environmental outcomes.



In order to meet the context-specific challenges of each nation, the original green economy concept was updated by the United Nations Environment Programme (UNEP) in 2015 into what is now known as 'Inclusive Green Economy (IGE)'. It is a philosophy and methodology that helps serve the larger goal of sustainable development via achieving Sustainable Development Goals (SDGs). IGE aims to drive policy reform, regulatory changes, and equitable distribution systems in the service of creating an ecologically sustainable and carbon efficient economy.

India is committed to enabling inclusive and equitable development as iterated in its commitment to the SDGs 2030. The state governments are key drivers of the SDGs as the designing, executing, and monitoring of development policies and interventions are carried out at the state level. United Nations Development Programme (UNDP) has been assisting governments at national and sub-national levels to initiate policies, programmes and activities in line with the objectives of SDGs, while also monitoring their integration and progress.

To assist countries in incorporating IGE concepts into their development strategy and pursuit of SDG targets, the Partnership for Action on Green Economy (PAGE) was launched in 2013. It is a coalition of five United Nations (UN) agencies formed to support countries in building economies to improve human well-being and social equity, while safeguarding the environment.

India joined PAGE in 2018 to catalyse action and enhance cooperation on existing initiatives on national and sub-national levels. It is supporting initiatives to *mobilize change for an inclusive, green transformation of specific sectors to deliver evidence-based policy and capacity building on circularity, resource efficiency and inclusive green economy principles*.

In 2019[2], a green economy stocktaking study was jointly conducted by PAGE, the Ministry of Environment, Forest and Climate Change (MoEFCC) and The Energy and Resources Institute (TERI). Based on its findings, a plan was developed to prioritize areas for PAGE engagement with regards to multisectoral, sectoral and thematic, and capacity-building activities. Two major key aspects that were identified in the study were:

- Development and rollout of course modules and strengthening of training capacity of national civil service institutions in the domain of SDGs and IGE.
- Assessment of select SDGs for mainstreaming and integrating IGE principles at the national and state levels.

As part of this plan, PAGE has initiated the Green Energy Learning Assessment (GELA) initiative aimed at strengthening the institutions and capacities of government in specific sectoral departments to mainstream IGE principles in processes and policies at the sub-national level.

1.2 Assignment

In India, UNDP and United Nations Institute for Training and Research (UNITAR) are jointly supporting state governments under PAGE to mainstream IGE principles. As part of this support, UNDP has commissioned a GELA focusing on SDG 11: Sustainable Cities and Communities and SDG 13: Climate Actions using the framework that UNITAR has developed and deployed globally to systematically assess the capacity gaps and training needs to mainstream and advance IGE. The key objectives of the assignment are depicted in figure 1 below.

Figure 1: Key objectives of the assignment

The GELA is being conducted in two Indian states- Madhya Pradesh and Uttarakhand with EPCO and Directorate of Environment Protection and Climate Change (DEPCC) respectively as the nodal agencies.

[2] https://www.un-page.org/India%20Country

GELA framework as structured by UNITAR has three specific components- a situation analysis, and institutional assessment, and an action plan.

UNDP has contracted Insight Development Consulting Group (IDCG) to conduct GELA in the two states. This document is the Situation Analysis and Institutional Assessment Report for Madhya Pradesh.

1.3 Assessment Approach and Methodology

The approach for the assessment. involved literature review, primary & secondary data collection and consultations for identifying learning needs based on sectoral/ programme priorities. To conduct it, IDCG adopted UNITAR's three step methodology to conduct GELA depicted in figure 2 below.

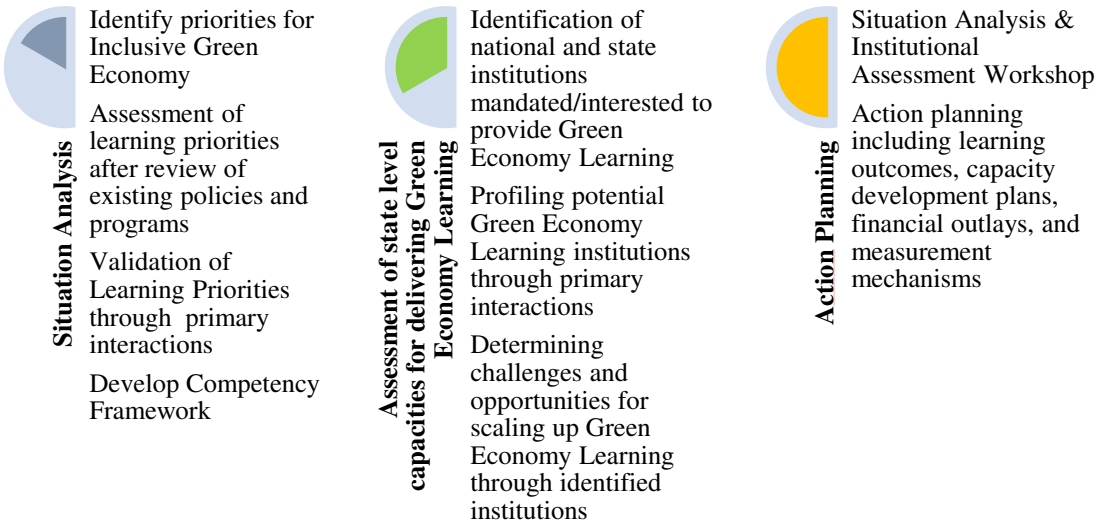


Figure 2: GELA Methodology

Green economy learning is targeted at different stakeholders categorized in three levels, viz.,

- ***Agenda setting level:*** They are elected representatives and decision makers responsible for policy making and its execution. They are at the sub-national level and are leaders in identifying new development priorities. They are expected to have an understanding of complex social, environmental and economic dynamics for designing and implementing any development programme.
- ***Organizational level:*** These comprise elected representatives and bureaucrats responsible for city governance. Their role is to implement public programmes and obtain evidence on the quality of implementation and its impact. In many countries, stakeholders at the organizational level are also responsible for designing and implementing localized programmes and mobilizing resources for them.

- ***Operational level:*** These stakeholders are service staff of ULBs, services providers such as town planners, consultants, contractors and vendors for public services.

Based on the priority programmmes and their validation through interactions with a representative section of stakeholders, GELA seeks to develop a competency framework[3] for green economy policy and action. The types of competencies as Wiek *et. al.* during their study have defined as a set of 'key competencies in sustainability[4] that allow complex constellations of issues across thematic areas to be addressed. These include 'transformational'; 'technical'; 'management'; and 'participatory' competencies. This framework has been adopted under GELA and has been presented in box 1 below.

Transformational Competencies	**Management Competencies**	**Participatory Competencies**	**Technical Competencies**
Analyze and envision complex systems across different domains and scales	Supervisory, organizational, project management, and delegation skills	Promote and sustain cooperation, buy-in/ownership, and collective action	Design a policy/project that enable Smart Cities
Reframe existing policies and guidelines around sustainability	Ensure effective implementation. Results are monitored and evaluated	Create and manage participatory policy processes, collect and integrate the views /needs of diverse stakeholders. Communicate effectively with wider policy and public community.	Technical competencies for the sustainable management of water, waste, energy, biodiversity or mobility in cities; Technical competencies in crosscutting issues such as climate impact, sustainable finance, education etc.

Box 1: GELA Competency Framework

[3] As provided in PAGE guidance note

[4] Arnim Wiek, Lauren Withycombe, Charles Redman (2010): Key Competencies in Sustainability: A Reference Framework for Academic Programme Development

2. SITUATION ANALYSIS

2.1 Urban Green Economy Priorities

Interest in a green transition has evolved and intensified since the term "green economy" was first used in the report Blueprint for a Green Economy (Pearce, Markandya, & Barbier, 1989), especially when global challenges such as climate change, biodiversity loss, energy prices and water scarcity have emerged.

In line with this, in 2008 the United Nations Environment launched its GEI.) Green Economy was the key theme of the June 2012 Rio+20 UN Conference on Sustainable Development. The inclusive Green Urban Economy approach embodies a challenge to local government leaders and city practitioners to apply existing tools and methods in new ways to develop innovative approaches by engaging economic-environmental considerations and stakeholders in a much more active fashion.

As governments around the world begin their economic recovery plans in the aftermath of the COVID-19 epidemic, there is widespread acknowledgment of the need for sustainable revival focused on adapting to and mitigating climate change[5]. For India, climate-proofing the economy and establishing resilient growth sectors are top priorities as it intends to grow to a $5 trillion economy by 2024[6]. India is one of the developing countries that is rapidly urbanizing. With urban population growth expected to reach 40% by 2030, up from 28% in 2001, the number of million-plus cities is expected to expand to 68 by 2030, up from the current 35[7]. Urban planning as currently practiced in India is essentially concerned with planning the use and development of land in cities. It could be said that urban planning practices have not grown at the pace of the demands posed by urbanization and global technological advancements. ULBs face a massive shortage of skilled and trained human resources as well as financial challenges. Furthermore, lack of awareness about the green economy is a huge limiting factor to have engender **green urbanism**[8]. This needs policies/ programmes/initiatives focused on ecologically friendly city planning based on circular economy concepts.

The urban green economy priorities in India are defined by several initiatives that focus on conservation, sustainable development, adaptation & mitigation, etc. The following were identified as part of GELA:

- National Action Plan for Climate Change (NAPCC) with National Mission on Sustainable Habitat (NMSH).
- National infrastructure support programmes like Smart Cities Mission (SCM) and Atal Mission on Rejuvenation and Urban Transformation (AMRUT)-2.0.
- A national urban green assessment initiative - Climate Smart Cities.

[5] Chandra Tanushree, "Lessons from COVID-19 on climate change policy," Observer Research Foundation, April 14, 2020.
[6] PTI, "Govt sticks to $5 trillion economy target; emphasis on infra aimed at achieving goal: DEA Secretary," The Economic Times, May 25, 2021
[7] https://wri-india.org/our-work/project/sustainable-cities#:~:text=Sustainable%20Cities%20is%20the%20sustainable,and%20Health%20and%20Road%20Safety.
[8] Green urbanism is sustainable urban design that creates eco-friendly cities that cut waste and emissions, use sustainable construction materials, and promote electrified mobility

These priorities are discussed below.

2.1.1 National Action Plan for Climate Change (NAPCC)

The Government of India launched NAPCC in 2008 to mitigate and adapt to the adverse impact of climate change. It relates to sustainable development, co-benefits to society at large, focus on adaptation, mitigation and scientific research. It aims at creating awareness among the representatives of the public, different agencies of the government, scientists, industries and the communities on the threat posed by climate change and the steps to counter it.

The NAPCC is guided by key principles depicted in box 2 below.

Protection of poor and vulnerable sections of society through an inclusive and sustainable development strategy, sensitive to climate change.
Achievements of national growth through qualitative changes enhancing ecological sustainability.
Deployment of appropriate technologies for both adaptation and mitigation of greenhouse gases emissions extensively and at an accelerated pace.

Box 2: Key principles of NAPCC

The plan aims at fulfilling India's developmental objectives with focus on reducing the emission intensity of its economy. The plan outlines existing and future policies and programmes directed at climate change mitigation and adaptation through eight national missions depicted in box 3 below.

1. **National Solar Mission:** The mission aims to promote solar energy for power generation and other uses. The objective is to make solar energy competitive with fossil-based energy options. The mission focuses on establishing a solar research center, international collaboration on technology development, strengthening of domestic manufacturing capacity and increased government funding.

2. **National Mission for Enhanced Energy Efficiency:** The mission recommends trading of energy-saving certificates by companies, financing for public-private partnerships to reduce energy consumption through demand-side management programs. It also recommends mandating energy incentives, including reduced taxes on energy-efficient appliances.

3. **National Mission on Sustainable Habitat:** The mission aims to promote energy efficiency as a core component of urban planning. It focuses on extending the existing energy conservation building code, strengthening the enforcement of automotive fuel economy standards, encouraging the purchase of efficient vehicles and incentives for the use of public transportation.

4. **National Water Mission:** The mission focuses on ensuring integrated water resource management to conserve water, minimize wastage and ensure equitable distribution across and within states. It sets a goal of a 20% improvement in water use efficiency. The goal can be achieved through pricing and other measures to deal with water scarcity.

5. **Green India Mission:** The mission focuses on enhancement of ecosystem services including carbon sinks. It focuses on afforestation and forest cover expansion. It aims at afforestation of 6 million hectares of degraded forest lands and expanding forest cover from 23 to 33%.

6. **National Mission for Sustaining the Himalayan Ecosystem:** The mission has been created to protect the Himalayan Ecosystem. It mandates to evolve measures to sustain and safeguard the Himalayan glaciers**,** mountain ecosystems, biodiversity, and wildlife conservation.

7. **National Mission for Sustainable Agriculture:** The mission aims to support climate adaptation in agriculture. It focuses on the development of climate-resilient crops, expansion of weather insurance mechanisms and agricultural practices.

8. **National Mission on Strategic Knowledge for Climate Change:** The mission envisions a new Climate Science Research Fund, improved climate modeling and increased international collaboration for gaining a better understanding of climate science, impacts and challenges. Also, it encourages private sector initiatives to develop adaptation and mitigation technologies through venture capital funds.

Box 3: Missions under NAPCC

Amongst these, the National Mission on Sustainable Habitat (NMSH) which directly contributes to SDG 11: Sustainable Cities and Communities is of prime importance for GELA.

2.1.1.1 National Mission on Sustainable Habitat (NMSH)

The National Mission on Sustainable Habitat (NMSH) is governed by the Ministry of Urban Development and focuses on greenhouse gas (GHG) emission reduction opportunities by increasing energy efficiency in buildings, improving municipal solid waste management and recycling including power production from waste and encouraging people to use public transport. The mission plans to make urban areas more climate friendly and less susceptible to climate change by adopting a multi-pronged approach for combating climate change. Major objectives of NMSH are:

- Improvements in energy efficiency in buildings through extension of the energy conservation building code - which addresses the design of new and large commercial buildings to optimize their energy demand.
- Better urban planning and modal shift to public transport - make long term transport plans to facilitate the growth of medium and small cities in such a way that ensures efficient and convenient public transport.
- Improved management of solid and liquid waste, e.g., recycling of material and urban waste management – with special focus on development of technology for producing power from waste.
- Improved ability of habitats to adapt to climate change by improving resilience of infrastructure, community-based disaster management, and measures for improving advance warning systems for extreme weather events.
- Conservation through appropriate changes in legal and regulatory framework.

The NMSH mission especially promotes emissions reduction through energy efficiency by incorporating it as an integral component of urban planning and urban renewal through three initiatives depicted in box 4 below.

Better Urban Planning and Modal Shift to Public Transport: The initiative encourages alternative transport systems and establishes fuel efficiency standards and reduces fuel consumed per passenger travel by the provision of pedestrian pathways.

Extension of the Energy Conservation Building Code: The initiative addresses the design of new and large commercial buildings to optimize the energy demand. Also, incentives are provided for re-tooling existing building stock under the initiative.

Recycling of Material and Urban Waste Management: The initiative focuses on the creation and adoption of a more holistic approach for solid and liquid waste management, ensuring their full potential for energy generation (conversion of solid waste into energy), recycling, reusing, and composting.

Box 4:Initiatives under NMSH to promote energy efficiency

NMSH document had highlighted needs for capacity building, training and research & development to meet its objectives. However, for a few years now, now funds are being allocated to it and its objectives are being met through:

- Atal Mission on Rejuvenation and Urban Transformation (AMRUT)
- Smart Cities Mission

2.1.2. Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0[9]

AMRUT 2.0 launched in October 2021 is designed to address another critical aspect of IGE in the urban context- water and wastewater management. Specifically targeted to meet SDG 6 Clean Water and Sanitation for All, AMRUT 2.0 targets universal household tap connections in 4,700 cities and towns and universal household sewerage/septage coverage in 500 cities and towns across India.

A critical intervention under AMRUT 2.0 is Behavior Change Communication (BCC) to spread awareness on the conservation of water and enhancing water use efficiency among the citizens.

Under AMRUT 2.0, project cities and towns must prepare City Water Balance Plans (CWBPs) and City Water Action Plans (CWAPs) to enable:

- Universal coverage of water supply.
- Sewerage, septage management and recycle/ reuse of treated used water.
- Rejuvenation of water bodies and creation of green spaces.

It is clear from the above brief that AMRUT 2.0 seeks *inclusive, green transformation of water and wastewater sector* by adopting the principles of *circularity, resource efficiency and inclusive green economy*,

An ambitious programme of capacity building is envisaged under AMRUT 2.0 targeting 100,000 persons with a budget allocation made under the Administrative and Other Expenses (A&OE) sub-budget line. The persons targeted for capacity building belong to all the three categories of stakeholders – agenda setting, organizational and operational-identified under the UNITAR GELA framework. A summary of the proposed capacity building programs is provided in table 1 below.

Table 1: Capacity Building under AMRUT 2.0

S. No.	GELA Stakeholder Category	Targeted Group	Field of capacity building
1.	Agenda setting	Elected Representatives and Municipal Functionaries	▪ AMRUT 2.0 and its Reform agenda ▪ Recycle/ Reuse of treated used water, Rejuvenation of Water bodies, Rainwater harvesting ▪ Project and financial management ▪ E-governance and soft skills
2.	Organizational	Town planners	▪ Land monetization ▪ Form- based planning, local area plans and town planning scheme

[9] AMRUT-Operational-Guidelines.pdf (mohua.gov.in)

S. No.	GELA Stakeholder Category	Targeted Group	Field of capacity building
			▪ GIS -based master plans
3.	Operational	Contractors, Managers and Consultants	▪ Project and financial management ▪ Aspects of water & sewerage infrastructure and recycling of treated used water
4.	Operational	Plant operators, Plumbers and Workmen	▪ Operation and Maintenance of water supply & sewerage networks and treatment plants ▪ Aspects of plumbing and plugging the leakages ▪ Rainwater harvesting (RWH) structures, non-revenue water (NRW) reduction
5.	Operational	Citizens including Women and Members of SHGs	▪ Water quality testing ▪ Management of water demand ▪ Feedback on functional outcomes

There are also provisions for international and intranational exposure visits for enriching knowledge and learning.

2.1.3. Smart Cities Mission (SCM)

The Smart Cities Mission (SCM) was launched in the year 2015 with an objective to promote cities that provide core infrastructure, clean and sustainable environment and give a decent quality of life to their citizens through the application of 'smart solutions'. The mission is implemented by the national Ministry of Urban Development in collaboration with state governments.

The purpose and objective of the SCM are presented in box 5 below.

Purpose: To drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to Smart outcomes.

Objective: To promote sustainable and inclusive cities that provide core infrastructure to give a decent quality of life, a clean and sustainable environment through application of smart solutions such as data-driven traffic management, intelligent lighting systems, etc. It is closely aligned with SDG 11 - making cities safe, resilient and sustainable.

Box 5: Purpose and Objective of SCM

The concept of mission is based on the six fundamental principles[10] depicted in figure 3 below.

Figure 3: Smart Cities Fundamental Principles

The core infrastructure elements included in a Smart City are as follows:

- Adequate water supply
- Assured electricity supply
- Sanitation including solid waste management
- Efficient urban mobility and public transport
- Affordable housing, especially for the poor
- Robust IT connectivity and digitalization
- Good governance, especially e-governance and citizen participation
- Sustainable environment
- Safety and security of citizens, particularly women, children and the elderly
- Health and education

A Smart City is defined by three key outcomes shown in box 6 below.

Livability	**Sustainability**	**Economic-Ability**
It includes aspects of social well-being that enable a citizen to live a decent life in the city. Aspects can be elaborated as access to clean water supply, safe streets and public spaces, public transport, facilities for health and education, places for recreation and places of cultural & historical significance.	It is a state of dynamic equilibrium between natural and built ecosystems. The equilibrium has been severely threatened with rising temperatures, extreme weather events, deteriorating air quality, more frequent floods & droughts and declining urban biodiversity.	It includes aspects which impact the city's ability to be a good place to do business and provide access to a diversity of jobs. The city's skilling efforts and investments should be in sync with its local/ regional context and demand.

Box 6: Key Outcomes to be a Smart City

The SCM fundamental principles and outcomes align with IGE principles, and it can be said that the mission *mobilizes change for an inclusive, green transformation of specific sectors to deliver evidence-based policy and capacity building on circularity, resource efficiency and inclusive green economy principles*.

[10] smartcities.gov.in

The design of SCM has a significant component to build ULBs functionaries, Special Purpose Vehicle officials, state cadre officials and other delegates. It also has a provision for skill building training under:

- **National Skill Development Council (NSDC)[11]:** It is a unique public-private partnership (PPP) body constituted under Ministry of Skill Development and Entrepreneurship (MSDE) which aims to bridge the demand and supply ends of skills and employment. NSDC is contributing to the SCM through two areas of opportunities depicted in box 7 below.

Capacity Building of the service provider to improve delivery of services: The capacity of the SCM employees is built through a programme called 'Recognition of Prior Learning (RPL)' where they are certified for a skill set and provided additional upskilling where required.

Creating opportunities for economic generation: NSDC facilitates training across 40 sectors with 1700 Qualification Packs (QPs) and 4314 National Operating Standards (NOS) across various trades ranging from agriculture, automation, construction, green jobs, healthcare, etc. The training is provided through its training partners.

Box 7: Capacity Building under NSDC aligned with SCM

- **Tata Trusts[12]:** The mission and Tata Trusts organized a six-week training for City Data Officer (CDO) of the 100 Smart Cities to reimagine how data and information can solve local issues. Most of the CDOs were either the Urban Local Body's (ULB) head, such as municipal commissioner or the Smart City Special Purpose Vehicle (SPV) CEO.

2.1.4. Climate Smart Cities (CSC) 2.0

The Climate Smart Cities (CSC) initiative anchors climate-friendly solutions in the planning and implementation of the Smart Cities Programme and contribute to the achievement of national climate targets and urban SDGs. To enable cities to assess their progress on the path to b Climate Smart, Ministry of Housing and Urban Affairs (MoHUA), Government of India has initiated the Climate Smart Cities Assessment Framework 2.0. The objective of the framework is to provide a basis to develop a roadmap for the smart cities towards combating climate change while planning and implementing the actions along with investments. Specifically, CSCAF 2.0 helps the smart cities:

- To understand their current status regarding climate actions and make efforts to improve their efforts in specific sectors.
- To track their contribution to Sustainable Development Goals (SDGs) and Nationally Determined Contributions (NDC).

[11] Skilling in Flagship Programs-NSDC_0.pdf (niua.org)
[12] Smart Cities Mission train officers in data-driven governance | India News, The Indian Express

- To provide guidance to mainstream climate actions. It could be said that CSCAF *mobilizes change for an inclusive, green transformation of specific sectors to deliver evidence-based policy and capacity building on circularity, resource efficiency and inclusive green economy principles.*

To facilitate smart cities in understanding these challenges and where they may improve, the CSCAF 2.0 has been framed with 28 diverse indicators[13] across five categories[14] presented in figure 4 below.

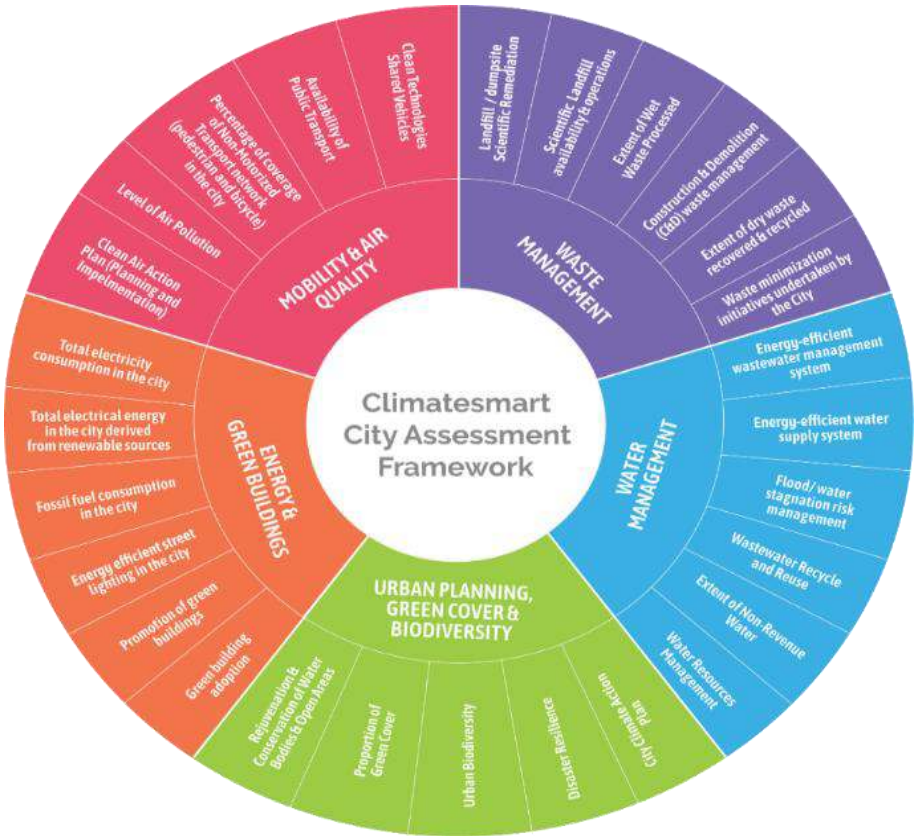
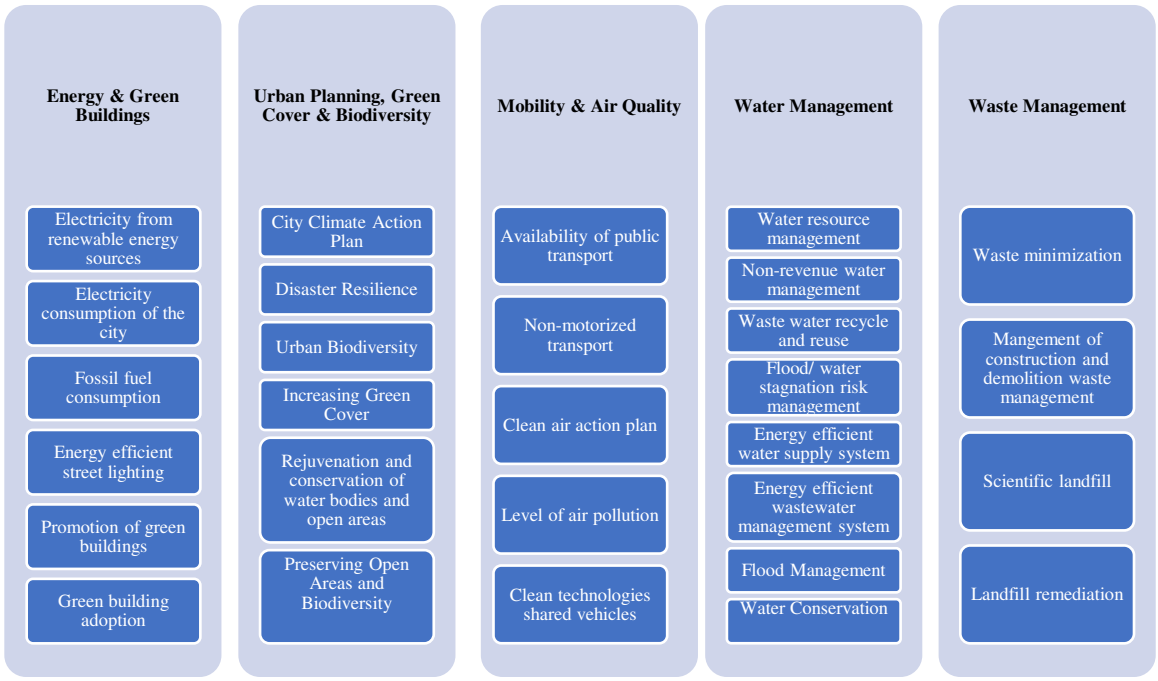


Figure 4: The Climate Smart City Assessment Framework 2.0

Capacity building under the initiative is coordinated by the **Climate Centre for Cities (C-Cube)** the functions under the National Institute of Urban Affairs (NIUA) which has been mandated by MoHUA for implementation of CSCAF 2.0. C-Cube aims to create synergy across all climate actions which are being undertaken in Indian cities by various stakeholders to strengthen the capacities of cities to understand, implement and monitor actions needed for addressing climate change impacts locally.

As part of its mandate, C-Cube is helping build conceptual, technical, administrative and innovation capacities across key areas of ULBs. In the context of CSCAF 2.0 technical trainings provided by it are presented below.

[13] www.niua.org
[14] https://www.niua.org/csc/assessment-overview.html



2.1.5. Programme and Learning Priorities - Key Conclusions

From the discussion above, the following can be concluded:

- Priority programmes for the urban sector are planned top-down with states and cities implementing national public programmes.
- All priority public programmes are targeted toward achieving *circularity, resource efficiency and an inclusive green economy.*
- All priority programmes include a component of capacity building which is directed at building technical competencies at organizational and operational levels. Almost no capacity building is directed at building transformational, management or participatory competency at any level. Except for a rare programme under AMRUT 2.0, no programmes are targeted at agenda setting stakeholders. There remains a need to build capacity on the following:
    - **Transformational competencies:** Conceptual aspects of IGE, Circular Economy, Evidence- based Inclusive Green Policy Design; Inclusive Green Economic Strategy through Critical Thinking and Concept Mapping; Planning, Management, Monitoring, Evaluation and Learning, etc.
    - **Management competencies**: Sustainable Mobility, Sustainable Public Procurement, etc.
    - **Participatory competencies:** Stakeholder Engagement, Communication, Team Management, etc.
    - **Technical competencies:** Resource Economics, Budgeting, Sustainability, Data Management Modelling, etc.

- A specialist body, C-Cube under NIUA has been established to develop and build capacity on climate and hence green economy aspects. A review of its training materials is outside the ambit of this assignment and hence the extent of adoption of IGE principles is not clear.

2.2 Validation of Learning Priorities

A key task under the situational analysis step of GELA is to validate the learning priorities identified above. Towards this end, validation interactions were conducted at state and city levels. A sample of three smart cities- Sagar, Satna and Ujjain. The states were purposively selected in discussion with UNDP, EPCO and the Department of Urban Development, Government of Madhya Pradesh for city-level interactions.

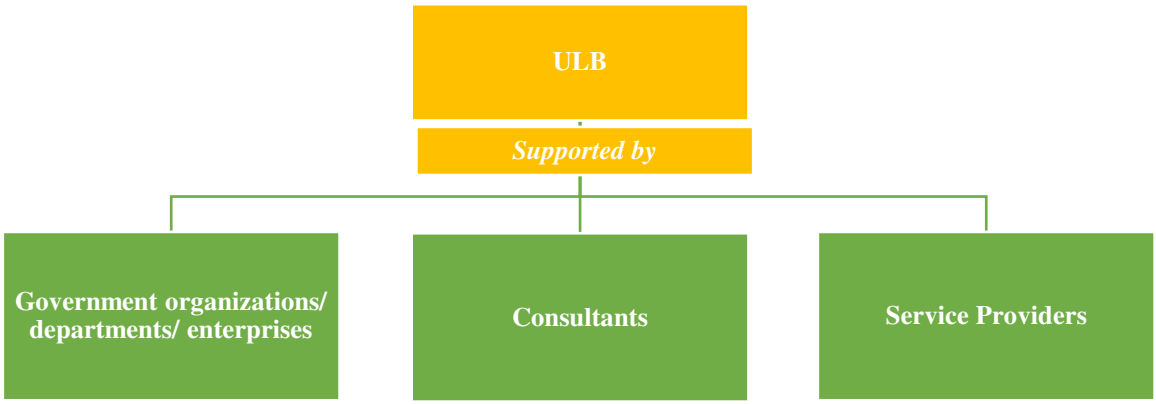


Figure 5: Organogram of respondents

A total of 43 interactions were conducted in the three sample cities. The key characteristics of the respondents in these interactions are as under:

- 10% respondents were women, rest were men.
- 14% respondents were from agenda setting level and were based in Bhopal.
- Respondents from sample cities were from organizational (5%) and operational (19%) levels. Furthermore, 55% respondents were performing roles at both organizational and operational levels.
- Respondents were more or less equally split between five priority sub-sectors and agenda setters.
- 17% of the respondents were from ULBs and 52 % supporting government organizations/departments/enterprises, 26 % consultants and 5% service providers.

From these interactions the following were validated:

- There are no city-level elected officials as the terms have ended and new elections have not yet been scheduled.
- No capacity building or orientation programs were held organized on IGE for elected representatives in the previous term.

- Cities are implementing several interventions on priority areas of energy & green buildings; urban planning, green cover and biodiversity, mobility and air quality and water and waste management as per the detailed project reports prepared under the Smart City Mission. However, implementation of each intervention is rather mixed due to a number of reasons as provided in the table 2.
- City ULBs have limited technical and managerial staff; they have 8 departments. While they have well-structured departments and adequately sanctioned staff for water supply & sewage, health, sanitation and solid waste management, there are no urban planners and no managers/coordinators for renewable energy, green buildings, urban biodiversity, mobility, pollution control, disaster management and community communications amongst others. The organization structures do not have dedicated cells/units for the same.
- Many urban services are provided by other public departments or enterprises like;
    - Town and urban planning activities are taken up by the district office of the Directorate of Town & Country Planning in a bureaucratic and non-participatory manner.
    - Electricity and gas are supplied by the regional distribution utility though the ULB is responsible for street lighting.
- Cities rely on consulting firms to provide technical and managerial manpower for implementation of Smart City interventions. Many interventions require infrastructure construction and would require operations and management (O&M) after they are commissioned.
- ULB staff as well as consultants have not been provided any specialist training on green economy, environment or climate change aspects.
- Only Ujjain has a master plan; the ULBs lack plans like Climate Action Plan, Water Resources Management Plan, Mobility Plan, and Waste Management Plan amongst others. Smart City interventions, traffic management, safety & surveillance functions are being monitored through an Integrated Command and Control Centre (ICCC) operating from the ULB.
- Despite a lack of awareness or integration of IGE principles, most Smart City interventions are aimed at revitalizing heritage and urban quality of life to make their economies more dynamic, competitive, and sustainable.
- There are no platforms/mechanisms for obtaining citizen needs and participatory identification of solutions. Thus, many localized concerns of the citizens remain unidentified and unaddressed.
- There also seems to be a lack of a mechanism for cities to share their experiences, knowledge and concerns on a regular basis.

Some learnings are provided in table 2 below.

Table 2: City-wise Situation Analysis

Intervention Levels	Aspect	Observations		
		Ujjain	Sagar	Satna
Agenda-setting Conceptualization for inclusive green economy policies and defining common goals and objectives.	Awareness about IGE	No awareness		
	Availability of IGE integrated regulations/ guidelines	Not available		
Organizational Transform vision and goals in clear mandates, procedures, and regulatory frameworks.	Availability of Master plan developed in participatory mode	City master plan is available but has not been prepared in a participatory mode	Not available	
	Availability management structure to implement IGE integrated plans	Not available		
	Availability of Climate Action Plan	Not available		
	Availability of Clean Air Action Plans	Not available but Air Quality Monitoring System installed and operational.		
	Availability of water resource management plan	Not available		
	Availability of waste management plan	Not available		
	Availability of cleaner renewable energy sources	Available	Not available	
	Available capacity to integrate IGE principles in existing plans	Lack of awareness about IGE and its principles has been observed in all the sampled cities, however, it was felt that given the nature of public programmes being implemented, IGE principles can be integrated into existing plans with available capacity		
	Training of personnel for plan preparation	No training provided		
	Capacity building undertaken/supported by the department itself	No capacity building		
Operational Implement, manage and monitor inclusive green economy measures	Availability of Urban planner and Climate coordinator	Urban planner available with the district office of Directorate of Town & Country Planning and	Not Available	

Intervention Levels	Aspect	Observations		
		Ujjain	Sagar	Satna
		with Smart City consultants		
	Availability of staff to implement green building norms	Not available		
	Availability of staff to protect, conserve and manage urban biodiversity	Horticulture department working on urban biodiversity	Horticulture department exists but there is no focus on urban biodiversity	
	Availability of staff to monitor air pollution	Available		
	Availability of procurement guidelines integrating IGE principles	Not available		
	Availability of robust monitoring and evaluation process	Lack of robust monitoring and evaluation system was observed. However, initiatives (waste management, traffic management, etc.) are being monitored through ICCC		
	Coordination mechanism between implementing agency and key line departments	Coordination mechanisms between implementing agency and key line departments were observed. Also, private agencies were hired to monitor the projects for financial disbursement to implementing agencies		

2.3 Competency Framework

As mentioned earlier, GELA methodology requires a competency framework to be developed to identify the learning needs for different levels of urban stakeholders. Competence and competency can be defined as provided in the table below.

Competence: Having the ability or skill that is needed for something.	**Competency:** Those underlying characteristics of an individual, which are related to effective or superior performance in a situation[15].

As concluded earlier, the urban sector in Madhya Pradesh is characterized by the top-down implementation of schemes, multiplicity of service providing organizations, lack of city plans including master plans, and lack of managers for emerging areas that impact climate change. There is also a lack of awareness and understanding of IGE principles despite the focus on sustainability on many interventions.

Figure 6: IGE Principles

Thus, the key competency required in the short-term in the urban sector is basic awareness and knowledge of IGE principles to enable their implementation through pilots before up-scaling and wide-scaling. Table 3 below provides the framework highlighting competencies that need to be built up within the urban sector in Madhya Pradesh for fostering IGE.

[15] https://scholarworks.gvsu.edu/iaccp_papers/238

Table 3: Competency Framework of Madhya Pradesh

	Transformational Competencies	Management Competencies	Participatory Competencies	Technical Competencies
Agenda Setting Level ***(State level)***	Ability to **integrate IGE principles** in the existing or new policies/ programmes/ development plans for sustainable cities	Ability to **effectively organize resources to** prepare and implement policies/ programmes/ development plans on IGE principles and to **meet deadlines** for submission to technical and budgetary approvals.	Ability to **involve other departments/organizations/ institutions and citizens to prepare and implement** policies/ programmes/ development plans on IGE principles	Ability to **understand evidence generated from multiple sources to design** and **assess the impact of initiatives** in short and long term
Organizational Level ***(City Governance level)***	Ability to **conceptualize new policies, programmes, regulations, guidelines and toolkits for** integrating IGE principles	Ability to establish **management structures** that result in effective implementation of policies/ programmes/ development plans.	Ability to **engage other departments, NGOs, and training institutes** while **conceptualizing** or **implementing** new policies, programmes, regulations and guidelines integrating IGE	Ability to **design, implement, monitor and evaluate programmes and plans** for sustainable cities integrating IGE principles
Operational Level ***(other stakeholders at the implementation level)***	Ability to **provide IGE inputs while implementing** plans and interventions for the sustainable city	Ability to **implement and monitor plans and interventions**, identify implementation gaps, and effect correctives.	Ability **to effectively consult with relevant stakeholders** while implementing plans and interventions for the sustainable city	Ability **to use IGE compliant technical skills to implement and monitor** interventions in a quantitative manner over time

Specifically, the building of the above competencies amongst various stakeholders would result in a variety of outputs.

Table 4: Types of Outputs through Competence Building

Stakeholder Level & Roles	Specific Stakeholders	Potential Outputs
Agenda-setting Conceptualization for inclusive green economy policies and defining common goals and objectives	Elected Representatives at state and ULB level, Secretaries and Directors in UAD, Municipal Commissioners or equivalent, Chief Executive Officer (CEO) of Smart City Special Purpose Vehicle (SPV)	Enabling and inclusive city master plans; sectoral policies and plans, such as mobility plan or a waste management strategy
Organizational Transform vision and goals in clear mandates, procedures, and regulatory frameworks	Senior Officials of UAD, Heads of Departments of Urban Local Bodies	Enabling sectoral policies and plans, such as mobility plan or a waste management strategies

Stakeholder Level & Roles	Specific Stakeholders	Potential Outputs
		Incentivizing regulations and guidelines, such as tax breaks, subsidies, feed-in tariffs, incentives for behavioral change, etc. Tools and guidelines to integrate IGE Impact Reports
Operational Implement, manage and monitor inclusive green economy measures	Green Economy technical service providers[16], implementing agencies, Staff of urban services[17] & municipal bodies implementing IGE related programmes/ missions, including city level-PMUs	Timely implementation and monitoring of policies, plans, programmes, interventions Monitoring and correctives reports

[16] Avantika Gas Limited, Ramky MSW Private Limited, WAPCOS Limited etc.

[17] Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited, Town & Country Planning, City Environment & Biodiversity Officers, Madhya Pradesh Pollution Control Board, Water Resources Department, Regional Transport Office, Forest department etc.

3. INSTITUTIONAL ASSESSMENT

Green economy learning is critical to achieving the objectives of PAGE. Towards this end, it engages with institutions at national and sub-national levels to provide a range of soft skill training programmes for building competencies amongst stakeholders at different levels. With the provision of these trainings, it expects that participants will be able to *mobilize change for an inclusive, green transformation of urban sector to deliver evidence-based policy and capacity building on circularity, resource efficiency and inclusive green economy principles.*

At National level, the Lal Bahadur Shastri National Academy of Administration (LBSNAA) conducts a common Foundation Course for entrants to the All-India Services. The academy also conducts in-service and Mid-Career Training Programmes (MCTPs) for members of the IAS and an Induction Training Programme for officers promoted to the IAS from State Civil Services. The academy also organizes workshops and seminars on policy and governance-related issues.

In order to identify, possible partner institutes at state level for green economy learnings in Madhya Pradesh, a long list of following 12 institutions operating in the state was purposively developed in discussion with EPCO and UNDP:

- Environmental Planning and Coordination Organization (EPCO), Bhopal
- Indian Institute of Forest Management (IIFM) Bhopal
- Ronald Carlton Vivian Piyadade Noronha Academy of Administration, Bhopal
- State Institute for Town Planning, Bhopal
- Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGPPA), Bhopal
- State Forest Research Institute, Jabalpur
- School of Planning & Architecture, Bhopal
- All India Institute of Local Self Government (AIILSG), Bhopal
- Disaster Management Institute (DMI) Home Department, Government of Madhya Pradesh
- Indian Institute of Technology, Indore
- Indian Institute of Management, Indore
- Maulana Azad National Institute of Technology, Bhopal

These institutions were thereafter evaluated on seven parameters as presented in table 5 in the following pages. Based on this assessment, the following three institutions have been identified to deliver green economy learning for the urban sector in Madhya Pradesh:

- Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGPPA)
- Indian Institute of Forest Management (IIFM)
- Ronald Carlton Vivian Piyadade Noronha Academy of Administration (RCVPNAA)

An overview of these institutions is provided after table 5.

Table 5: Selection of institutes

Parameters	Institutes (Parameters for Selection (Rating: Yes - 1 score, No - 0 score)											
	EPCO	Indian Institute of Forest Management (IIFM) Bhopal	Ronald Carlton Vivian Piyadade Noronha Academy of Administration	State Institute for Town Planning, Bhopal	Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGPPA)	State Forest Research Institute, Jabalpur	School of Planning & Architecture, Bhopal	All India Institute of Local Self Government (AIILSG) Bhopal	Disaster Management Institute (DMI) Home Department, Government of Madhya Pradesh	Indian Institute of Technology-Indore	Indian Institute of Management, Indore	Maulana Azad National Institute of Technology, Bhopal
Alignment with GELA Mandate	1	1	1	1	1	1	0	0	0	0	0	0
Capacity to Deliver Trainings, In-house Trainers and Required Infrastructures	0	1	1	1	1	1	1	1	1	1	1	1
Past Experience of Training Senior Bureaucrats (agenda setting leaders) on Climate Change/ Urban or Green Issues	1	1	1	0	1	0	0	0	0	0	0	0
Past and Large-Scale Experience of Training Mid-Level Bureaucrats (organizational managers and operational professionals) on Climate Change/ Urban or Green Issues	1	1	1	1	1	1	1	1	0	0	0	0
Existing Engagement in the Urban Sector (Govt. advisory and Policy Reforms, smart cities planning & implementation)	1	1	1	1	1	0	1	1	1	1	1	1

Parameters	Institutes (Parameters for Selection (Rating: Yes - 1 score, No - 0 score)											
	EPCO	Indian Institute of Forest Management (IIFM) Bhopal	Ronald Carlton Vivian Piyadade Noronha Academy of Administration	State Institute for Town Planning, Bhopal	Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGPPA)	State Forest Research Institute, Jabalpur	School of Planning & Architecture, Bhopal	All India Institute of Local Self Government (AIILSG) Bhopal	Disaster Management Institute (DMI) Home Department, Government of Madhya Pradesh	Indian Institute of Technology-Indore	Indian Institute of Management, Indore	Maulana Azad National Institute of Technology, Bhopal
Understanding of State Level Issues and Experience of Closely Working with State Government Counterparts	1	1	1	1	1	1	1	1	1	0	0	0
Past Working Experience on Issues related to Sustainable Development Goals (SDGs)	1	1	1	1	1	1	1	1	1	1	1	1
Total score	**6**	**7**	**7**	**6**	**7**	**5**	**5**	**5**	**4**	**3**	**3**	**3**

3.1 Overview of Selected Institutes

A brief overview of selected institutes is provided below.

1. Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGPPA)

AIGGPA came into existence in May 2014, it was established as an autonomous Institute of Government of MP as a school of Good Governance and Policy Analysis in September 2007. It is ISO 90001:2015 certified.

Vision: To become a world-wide center for Good Governance and management of Change.

Mission: Promote good governance for a better tomorrow by:

- Quality research and analysis of policy and development issues.
- Advising the government for improvements in services-delivery to the citizen.
- Forgiving partnership with the civil society, private sector and academia.

Objectives:

- To promote good governance.
- Analyze government policies to access their impact.
- Identify areas in governance for change and reform for effective program delivery.
- Establish a bank of innovative practices for application and wider dissemination.
- Promote best practices in technology and process innovation in the management of government programs.
- Facilitate partnerships of government with civil society and private sector and academia.

Major initiatives:

- Drafted real estate policy for Madhya Pradesh.
- Conducted a comprehensive capacity building programme for elected panchayat representatives.
- Drafted urban heritage policy for Madhya Pradesh.

Institutional Arrangements

The institutional arrangement is presented in figure 7 below.

Figure 7: Institutional Arrangement in AIGPPA

2. Indian Institute of Forest Management (IIFM)

IIFM is a premier national level institute engaged in education, research, training and consultancy in the area of Forest, Environment and Natural Resources Management and allied sectors. IIFM was established as an autonomous institution under the Ministry of Agriculture in 1982 and was later brought under the Ministry of Environment and Forests, GoI in 1985.

Vision: To provide leadership in professional forestry management aimed at environmental conservation and sustainable development of ecosystems.

Objectives:

- Provide training in management and related subjects for persons from the Indian Forest Service, Forest Departments, Forest Development Corporation and Forest related industries with a view to equip them to practice the art and profession of management of forestry development.

- Inculcate an appreciation in those selected for training, that conservation is of overriding importance in the management of living natural resources and that the primary role of forests is the vital ecological and environmental purpose they serve.
- Select and prepare outstanding and talented young persons for careers leading to management responsibility in forestry and the forest-related system.
- Meet the need of Indian forestry and forest-related industry and commerce in respect of up-to-date information on forestry management through research, consulting and publication.
- Assist, institute and carry out research in matters concerning the use of management and allied techniques and methods conducive to the development of forestry in the country.
- Institute awards, scholarships, fellowships, prizes and medals in accordance with the rules and bye-laws.
- Create patronships, affiliations & other classes of professional or honorary membership or office, as the society may consider necessary.

Institutional Arrangements

The Institute has two streams of personnel: viz. faculty members and academic/ administrative support staff. The Director of the Institute, as its executive head, supervises the activities of both streams. The faculty is a mix of academicians and forestry practitioners. The broad faculty areas in the institute are depicted in figure 8 below.

Figure 8: Faculty areas of IIFM

The structure of IIFM and inter-relationship among various units is shown in Figure 9 below.

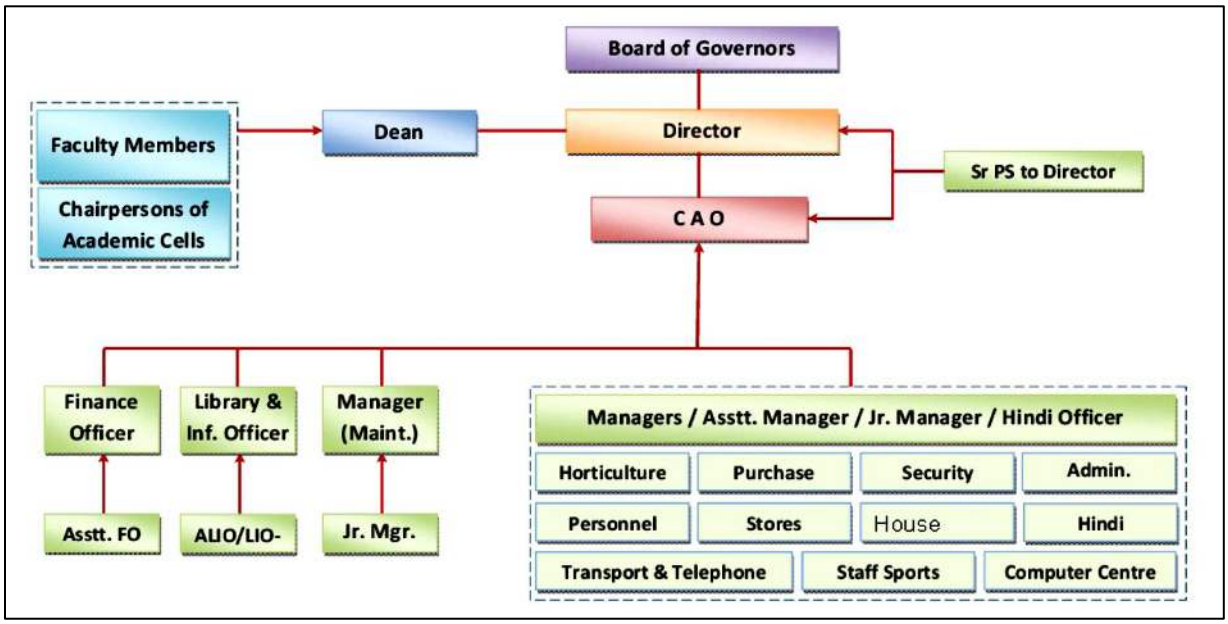


Figure 9: Structure of IIFM

The administrative support system consists of Chief Administrative Officer, Finance Officer, Librarian, Managers and Support Staff looking after academic activities, academic services, technical matters, maintenance, landscaping (including horticulture) and other activities.

The broad faculty areas in the Institute are:

Academic support units consist of cells related to the functioning of Post Graduate Programme in Forestry Management (PFM), M.Phil. Programme in Natural Resource Management (MPhil NRM), Fellow Programme in Management (FPM), Admission (PGDFM, MPhil and FPM).

Training & workshop: Training/ Management Development Programme (MDP) is one of the important activities of the Institute. The Institute has been organizing short-term training courses, seminars and workshops to transfer technical and managerial skills. Focus of these programmes is on evolving, analyzing and synthesizing various management techniques/ tools, ideas and concepts relevant to the forestry and allied sectors.

Research: is another important activity of the institute as it constantly strives to push the frontiers of knowledge. Drawing on the strength of faculty with diverse disciplines, the institute promotes multidisciplinary research. Most of the research projects undertaken by IIFM are applied and address management problems of forestry and allied sectors. Findings of research have been used for publications & developing teaching material and case studies. In order to provide thrust on emerging and important thematic areas in the forestry sector through research, various Centres of Excellence have been established. These include:

- International Centre for Community Forestry

- Centre for Sustainable Forest Management
- Forest Certification etc.

3. Ronald Carlton Vivian Piyadade Noronha Academy of Administration (RCVPNAA)

The academy is the apex and nodal training institute of Madhya Pradesh, India. It organizes training programmes for the senior officers of the government of Madhya Pradesh, Government of India and public sector undertakings. It has been effectively playing an advisory role for the Madhya Pradesh government in human resource development. It is also a coordinating institution for the various training institutions of the state.

Vision: To provide leadership for quality improvement in public service in the state of Madhya Pradesh.

Mission:

- Will transform civil servants by imparting them the appropriate attitude, skills, knowledge, and values for good governance.
- Will assist in formulation of training policies of government departments and capacity building of their training resources.
- Increase access to training through innovative exhibits by incorporating a decentralized and remote approach.
- Establish itself as a source center for policy formulation, analysis, and evaluation.

Objective:

- To assist and advise the government of Madhya Pradesh in evolving training policies for its departments.
- To provide guidance to other training activities so as to develop a federated system of training programmes for direct recruits of the higher services of the state.

Institutional Arrangement

The institute has a governing body that consist following members as shown in figure 10:

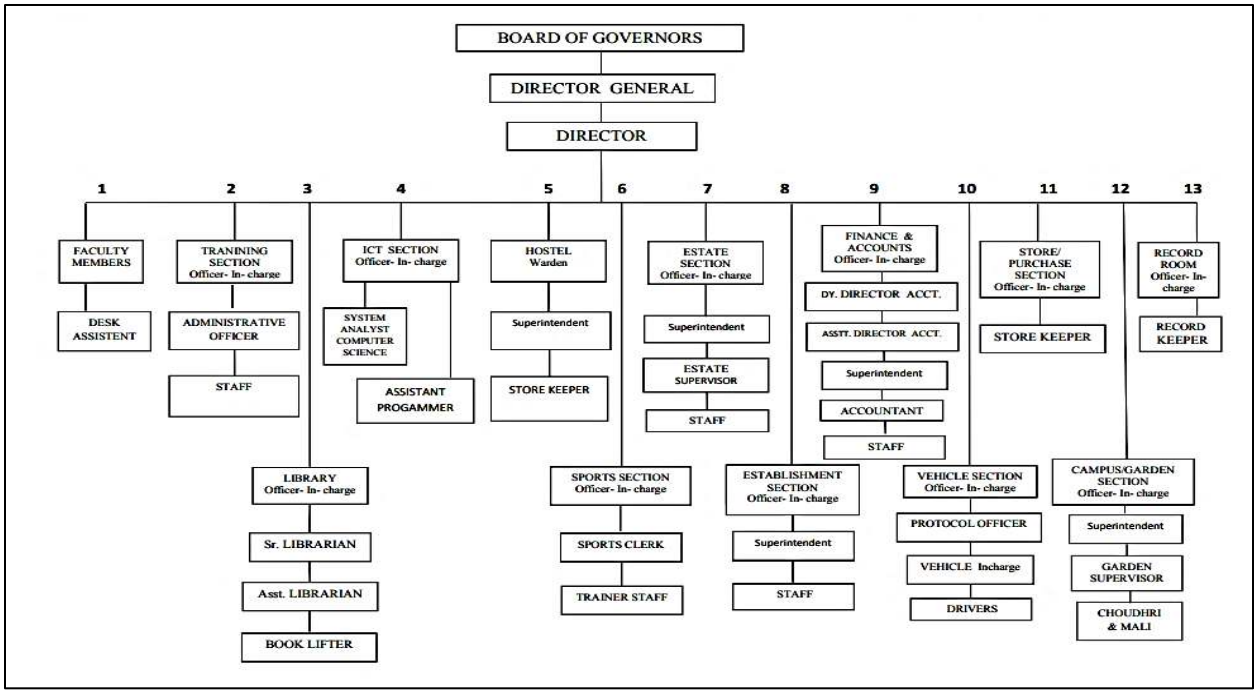


Figure 10: Governing body of RCVPNAA

The academy is rich in its infrastructure and is recognized nationwide. The academy campus has an administration building, guest house for participants, auditorium hall, conference hall, mini conference hall, 15 lecture rooms, one T.V. room, board room, library, three computer labs, garden etc. The academy library contains around 34,000 books & 500 video cassettes and CDs for training participants. The academy is equipped with all modern equipment for training. RCVPNAA organises over 350 training programmes every year in the field of public administration.

3.2 Assessment of Selected Institutes

The selected institutes were further assessed according to UNDP "Supporting Capacity Building: The UNDP approach"[18] and the criteria adopted by *Green Economy Learning Assessment Indonesia.* Under this criterion the institutional capacity needs to be assessed on four key factors- institutional arrangement, leadership capacity, staff capacity and institution accountability. This criterion is described in the box 8 below.

[18] United Nations Development Programme. "Supporting Capacity Building: The UNDP approach".

The **institutional arrangement** covers organizational aspects such as related regulations, procedures, work mechanisms or systems on education and training centres, including enabling institutional conditions, planning, budgeting to deliver green economy learning.

Leadership capacity is a collective capacity of leaders in the institution

Staff capacity is an aggregate of individual capacity that includes management, socio-cultural, and technical capacity for delivering green economy learning

Institution accountability is related to the organizational capacity to implement its key functions such as budgeting, planning, organizing, implementing, and controlling programs or activities to meet the main objective of the institution.

Box 8: Criteria for Assessing Institutional Capacity for delivering Green Economy Learning[19]

Based on above-mentioned key factors, the capacities of selected institutes have been assessed for delivering Green Economy Learning presented in table 6 below.

[19] https://www.gdrc.org/uem/undp-cb.html

Table 6: Summary of Opportunities, Capacity gaps, and support requirement

S.No.	Institute	Key factors	Overview	Opportunities	Gaps	Recommended Action for Strengthening
1	**Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGGPA)**	Institutional arrangement	The institute has six centres including one on urban governance. Its annual budget is allocated by the State government based on its annual plan.	The institute's mandate is to conduct change management programmes which directly link the with transformative change sought for IGE. It has the infrastructure to provide all types of trainings.	The institute has a limited budget for activities in its annual plan. It will need additional budgetary support to provide IGE trainings.	A dedicated budget line may be provided by PAGE or UNITAR for conducting IGE training programs.
		Leadership capacity	The institute has a high-powered governing board headed by the Chief Minister of Madhya Pradesh.	The institute has senior leadership and a dedicated Director Principal Advisor heading its urban governance centre		
		Staff capacity	The institute has 6 chief advisors, 6 senior advisors, and 25 advisors.	The urban governance centre has dedicated staff.	The centre for urban governance needs to empanel a cadre of trainers trained on IGE	The staff of the centre can be trained as master trainers who in turn can train a cadre of trainers for IGE training programme.
		Institutional accountability	The institute has an ISO 9001:2015 certification. As an institute of the state government it follows public accountability norms.	The institute and urban governance centre Has mechanisms for peer and quality reviews.		
2	**Indian Institute of Forest Management**	Institutional arrangement	The institute has 10 faculty areas. Its annual budget is allocated by the MoEFCC based on its annual plan.	Its mandate is to conduct academic programs, training, research and consulting. Its faculty areas include IGE relevant areas like Communication and	The institute has a limited budget for activities in its annual plan. It will need additional budgetary support to	A dedicated budget line may be provided by PAGE or UNITAR for conducting IGE training programs.

S.No.	Institute	Key factors	Overview	Opportunities	Gaps	Recommended Action for Strengthening
			The institute augments its budget through fees for educational programmes and trainings as well as consulting assignments.	Extension Management; Ecosystem and Environment Management; Environment and Developmental Economics; Financial Management; Human Resource Management; Information Technology and Quantitative Techniques; Sociology and Community Development and Strategic Management It has the infrastructure to provide all types of trainings.	provide IGE trainings.	
		Leadership capacity	IIFM is a national institute and is chaired by the Secretary, MoEFCC, Govt of India	The institute has senior leadership and dedicated heads for its faculty areas		
		Staff capacity	The institute has 29 faculty members across faculty areas who can be trained to become IGE trainers.	The institute can recruit additional trainers if required.		
		Institutional Accountability	As an autonomous institute of MOEFCC it follows public accountability norms.			
3	**Ronald Carlton Vivian Piyadade Noronha Academy of Administration**	Institutional arrangement	The academy provides training to state government administrative staff.	It has the infrastructure to provide all types of trainings.	The academy has a limited budget for activities in its annual plan. It will need additional budgetary support to provide IGE trainings.	A dedicated budget line may be provided by PAGE or UNITAR for conducting IGE training programs.

S.No.	Institute	Key factors	Overview	Opportunities	Gaps	Recommended Action for Strengthening
		Leadership capacity	The academy's governing board is headed by a minister of the state government and a senior bureaucrat heads' it.		The academy does not have well-demarcated faculty areas beyond public administration	The academy would need to establish mechanisms for providing training on IGE.
		Staff capacity	The academy has 9 permanent faculty members and additionally uses external resource persons and guest faculty based on demands of the training programs being delivered.	The academy can recruit additional trainers if required.	The academy does not have trainers in areas related to IGE.	The academy needs to empanel a cadre of trainers trained on IGE
		Institutional Accountability	The academy has been certified by ISO 9001:2000. As an institute of the state government, it follows public accountability norms.			

Based on this assessment, the following could be concluded for the selected institutes:

- The institutes have high-powered political or bureaucratic leadership; this is backed by compliance with public accountability norms and procedures.
- The selected institutes conduct mandatory training/regular annual training for the agenda, organizational and operational level stakeholders.
- The institutes have mandates and adequate infrastructure to run IGE training programmes.
- Only IIFM is ready to provide IGE related trainings with availability of faculty areas and well-trained faculty.
- All institutes can recruit additional trainers if required.
- All institutes will require dedicated budget lines to conduct IGE training programmes.

4. CONCLUSIONS & RECOMMENDATIONS

4.1 Conclusions

After a review of urban sector programme priorities the following conclusions can be drawn:

- Priority programmes for the urban sector are planned top-down with states and cities implementing national public programmes.
- All priority public programmes are targeted towards achieving *circularity, resource efficiency and inclusive green economy*.
- All priority programmes include a component of capacity building which is directed at building technical competencies at organizational and operational levels. Almost no capacity building is directed at building transformational, management or participatory competency at any level. Except for a rare programme under AMRUT 2.0, no programmes are targeted at agenda setting stakeholders. There remains a need to build capacity on the following:
    - **Transformational competencies:** Conceptual aspects of IGE, Circular Economy, Evidence-based Inclusive Green Policy Design; Inclusive Green Economic Strategy through Critical Thinking and Concept Mapping; Planning, Management, Monitoring , Evaluation and Learning, etc.
    - **Management competencies**: Sustainable Mobility, Sustainable Public Procurement, etc.
    - **Participatory competencies:** Stakeholder Engagement, Communication, Team Management, etc.
    - **Technical competencies:** Resource Economics, Budgeting, Sustainability, Data Management Modelling, etc.
- A specialist body, C-Cube under NIUA has been established to develop and build capacity on climate and hence green economy aspects. A review of its training materials is outside the ambit of this assignment and hence the extent of adoption of IGE principles is not clear.

The validation interactions further nuanced the above conclusions and added the following to situation analysis:

- There are no city-level elected officials as the terms have ended and elections have not yet been scheduled.
- No capacity building or orientation programs were held organized on IGE for elected representatives in the previous term.
- Cities are implementing several interventions on priority areas of energy & green buildings; urban planning, green cover and biodiversity, mobility and air quality and water and waste management as per the detailed project reports prepared under the Smart City Mission. However, implementation of each intervention is rather mixed due to a number of reasons as provided in the table 2.

- City ULBs have limited technical and managerial staff; they have 8 departments. While they have well-structured departments and adequately sanctioned staff for water supply & sewage, health, sanitation and solid waste management, there are no urban planners and no managers/coordinators for renewable energy, green buildings, urban biodiversity, mobility, pollution control, disaster management and community communications amongst others. The organization structures do not have dedicated cells/units for the same.
- Many urban services are provided by other public departments or enterprises like;
    - Town and urban planning activities are taken up by the district office of the Directorate of Town & Country Planning in a bureaucratic and non-participatory manner.
    - Electricity and gas are supplied by the regional distribution utility though the ULB is responsible for street lighting.
- Cities rely on consulting firms to provide technical and managerial manpower for implementation of Smart City interventions. Many interventions require infrastructure construction and would require operations and management (O&M) after they are commissioned.
- ULB staff as well as consultants have not been provided any specialist training on green economy, environment or climate change aspects.
- Only Ujjain has a master plan; the ULBs lack plans like Climate Action Plan, Water Resources Management Plan, Mobility Plan, and Waste Management Plan amongst others. Smart City interventions, traffic management, safety & surveillance functions are being monitored through an Integrated Command and Control Centre (ICCC) operating from the ULB.
- Despite a lack of awareness or integration of IGE principles, most Smart City interventions are aimed at revitalizing heritage and urban quality of life to make their economies more dynamic, competitive, and sustainable.
- There are no platforms/mechanisms for obtaining citizen needs and participatory identification of solutions. Thus, many localized concerns of the citizens remain unidentified and unaddressed.
- There also seems to be a lack of a mechanism for cities to share their experiences, knowledge and concerns on a regular basis.

During our interactions, it was observed, that the concept of the green economy is still relatively new and thus, there is an urgent need for creating awareness on Green Economy Principles at all levels prior to building competencies.

Three institutions in the state have been selected for providing IGE training programmes and following could be concluded after assessing them on four key factors:

- The institutes have high-powered political or bureaucratic leadership; this is backed by compliance with public accountability norms and procedures.
- The institutes have mandates and adequate infrastructure to run IGE training programmes.
- Only IIFM is ready to provide IGE related trainings with availability of faculty areas and well-trained faculty.
- All institutes can recruit additional trainers if required.
- All institutes will require dedicated budget lines to conduct IGE training programmes.

4.2 Recommendations for Action Planning

Based on the Situation Analysis and Institutional Assessment, IDCG suggests creating awareness on Green Economy Principles at all levels prior to building competencies. It is recommended that Madhya Pradesh adopts the following multi-pronged strategy in the short to medium term of 3-5 years for integrating IGE principles in its urban development activities to contribute to SDGs 11 and 13.

- Awareness Creation
    - Develop orientation and training materials to build awareness at all levels of stakeholders on IGE principles.
    - Train a cadre of master trainers and trainers to provide these trainings.
    - Provide IGE awareness training to different levels in a phased manner through the selected training institutes.
- Competency building
    - Develop training materials to build competencies at agenda setting and organization levels to enable the adoption of IGE principles in planning, implementation and evaluation.
    - Train a cadre of master trainers and trainers to provide these trainings.
    - Provide competency training to agenda setting and organization levels in a phased manner through the selected training institutes.
- Technical skills trainings
    - Review existing technical training materials developed under AMRUT 2.0 and by Climate Centre for Cities, National Institute of Urban Affairs under Climate Smart Cities initiative from the perspective of IGE principles.
    - Revise such technical training materials appropriate to incorporate and integrate IGE principles appropriately.
    - Train existing cade of trainers on revised training materials.
    - Provide IGE principles integrated technical trainings to stakeholders at organizational and operational levels in a phased manner through the selected training institutes.
- Training Effectiveness and Refresher
    - After two years of completion of training to all stakeholders in the state, an independent training effectiveness assessment should be conducted to determine the impact in terms of practices and tools adopted and implemented by the stakeholders to foster IGE. Thereafter a suite of continuing education should be developed and housed within the selected training institute for delivery. PAGE or UNDP should contract a consulting firm for this exercise.
- Training and Knowledge Management
    - An IGE Working Group should be established with the Department of Urban Administration and Development (UAD), Government of Madhya Pradesh with participation from EPCO and selected training institutes for developing, implementing and monitoring IGE training programmes in the state.

- The selected training institutes should establish an IGE cell and nominate a coordinator who should represent the institute in the IGE Working Group.
- A portal should be established to house all training materials, details of master trainers and other trainers and the participants. This portal could be managed jointly by the selected training institutes.
- An annual IGE state-level conference should be organized by IGE Working Group to enable sharing of experiences, practices and case studies by training participants. The proceedings of this conference should also be uploaded in the portal.

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ANNEXURES

Annexure-1: List of Respondents

List of Respondents				
S.No.	**City**	**Name**	**Designation**	**Respondent level**
1.	Bhopal	Mr. Gaurav Benal	Additional Commissioner, Urban. Administration & Development, Madhya Pradesh	Agenda Level
2.		Mr.Devendra Singh Chauhan	Additional Commissioner, Smart City	Agenda Level
3.		Mr.Anubhav Shrivastava	Urban Development Expert (Team Leader), State Level Project Management Unit, Smart Cities Mission	Agenda Level
4.		Mr. Ajit Dubey	Manager, Smart City Cell, Urban Administration and Development	Agenda Level
5.		Mr. Amit Gajbhai	Joint Director, Town & Country Planning	Agenda Level
6.		Mr. Lokendra Thakkar	Coordinator, State Knowledge Management Centre on Climate Change, EPCO	Agenda level
7.	Ujjain	Mr. Anshul Gupta	Municipal Commissioner &Executive Director & Chief Executive Officer, Ujjain Smart City Limited	Organizational Level
8.		Mr. Keshav Sahay Saxena	Architect & Project-in-Charge, Ujjain Smart City Limited	Organizational and Operational Level
9.		Mr. C.K. Sadhav	Joint Director, Town & Country Planning	Organizational and Operational Level
10.		Mr. Palash Sharma	Executive Engineer, Electricity Department	Organizational and Operational Level
11.		Mr.Vijay	District Transport Officer, Regional Transport Office	Organizational and Operational Level
12.		Mr. Deepak kale	Scientist-G, Madhya Pradesh Pollution Control Board	Organizational and Operational Level
13.		Ms. Anushweta Jain	Sub-Engineer, Horticulture Department/ Environment and Biodiversity	Organizational and Operational Level
14.		Mr. Sumit Kumar Singh	Deputy Manager-Marketing, Avantika Gas Limited	Operational Level
15.		Mr. Virendra Sharma	GA-Head, Avantika Gas Limited	Operational level
16.		Mr. Mohit Gupta	Consultant, Swachh Bharat Mission	Operational Level
17.		Mr. Aditya	Engineer, WAPCOS Limited	Operational level
18.		Mr. Abhishek Tiwari	Scientist, Madhya Pradesh Pollution Control Board	Operational level
19.		Mr. Y.K. Nigam	Sub Divisional Engineer, Public Health Engineering Department, Municipal Commission	Operational level
20.		Mr. Jitendra	Engineer, Municipal Commission	Operational level

List of Respondents				
S.No.	**City**	**Name**	**Designation**	**Respondent level**
21.		Mr. Surendra Sharma	Senior Manager, TATA PROJECTS	Operational Level
22.	Sagar	Mr. Rahul Singh Rajpoot	Chief Executive Officer, Sagar Smart City Limited	Organizational Level
23.		Mr. Abhishek Singh Rajput	Executive Engineer (Electrical), Sagar Smart City Limited	Organizational and Operational Level
24.		Mr. Praveen Chandra Chourasia	Assistant Planner, Sagar Smart City Limited	Organizational and Operational Level
25.		Mr. R.K. Pandey	Joint Director Town & Country Planning	Organizational and Operational Level
26.		Mr. S.K. Sinha	Executive Engineer, Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited	Organizational and Operational Level
27.		Mr. Sanjay Tiwari	Assistant Engineer, Municipal Corporation	Organizational and Operational Level
28.		Mr. R.K. Jain	Chief Chemist, Madhya Pradesh Pollution Control Board,	Organizational and Operational Level
29.		Mr. Shelendra Jain	Member of Legislative Assembly, Sagar	Organizational Level
30.		Mr. Amit Dubey	Project Manager, Ramky MSW Private Limited	Organizational and Operational Level
31.		Mr. Raghav Sharma	Sub Engineer & Urban Planner, Sagar Smart City Limited	Organizational and Operational Level
32.		Ms. Khushboo Pateriya	Assistant Engineer, Electricity Department	Organizational and Operational Level
33.	Satna	Ms. Tanvi Hooda	Collector and Chief Executive Officer, Satna Smart City Limited	Organizational Level
34.		Mr. Bhupinder Dev Parmar	Deputy Collector and Chief Finance Officer, Satna Smart City Limited	Organizational Level
35.		Mr. Nagender Singh	Executive Engineer, Green Building, Satna Smart City Limited	Organizational and Operational Level
36.		Mr. Arun Tiwari	Executive Engineer, Waste Management, Satna Smart City Limited	Organizational and Operational Level
37.		Mr. Dipender	Information Technology Consultant, Satna Smart City Limited	Organizational and Operational Level
38.		Mr. Dharmender Singh Parihar	Sub Engineer, Waste Management, Municipal Corporation	Organizational and Operational Level
39.		Ms. Shipra	Sub Engineer, Electricity Department	Organizational and Operational Level
40.		Mr. Nitesh	Chief Operations Officer, Regional Transport Office	Organizational and Operational Level
41.		Mr. R.P. Singh	Assistant Engineer, Water Supply, Municipal Corporation	Organizational and Operational Level
42.		Mr. A.K. Soni	Scientist, Madhya Pradesh Pollution Control Board	Organizational and Operational Level

Annexure-2: IDI Guide- Agenda Setting Stakeholders

IDI Guide- Agenda Setting Stakeholders

Green Economy Learning Assessment (GELA) and develop an Action Plan to integrate Inclusive Green Economy (IGE) principles with Sustainable Development Goals (SDGs) in Madhya Pradesh

[Target Respondents: EPCO, Urban Administration & Development Department, Office of Municipal Administration and Office of Town Planning]

#	**Respondent Identification and Location Particulars**	
1.	Name of the respondent:	
2.	Designation:	
3.	Contact details:	
4.	Name of Organization:	
5.	Type of Organization: Government/ Private	
6.	State:	
7.	Date of interview:	

Discussion Points/ Questions

Transformational Competencies:

1. Are you aware about green economies and related issues?
2. Do you have sufficient capacity to design and/or implement green economy framework?
3. Have you been involved in the development of a master plan for sustainable cities? If yes, how far green issues/ environmental issues/ climate change has been discussed while preparing a master plan and the same has been incorporated in the master plan?
4. What approach has been adopted to integrate green economy initiatives (*such as clean technologies, renewable energies, water services, green transportation etc.)* with the existing policies/programmes or development plans?
5. Have you been involved in the design or implementation of a green economy policy? If yes, how far these areas/ sectors have been covered in the design and implementation plans?
    a. Energy & Green Buildings
    b. Urban Planning, Green Cover, Biodiversity
    c. Mobility & Air Quality
    d. Water Management
    e. Waste Management
6. How far do you feel that green economy initiatives are successful on ground? And how far the policy and ground level implementation are contradictory?

7. What are your suggestions considering the current situation to improving IGE status for the state?

Management Competencies:

1. How many officials are appointed (full time and contractual basis) for integrating green economy initiatives? Do they have active GE/ Climate change cell?
2. Have any consultations been conducted on newly developed plans for green economy initiatives?
3. Is there any IEC material to communicate, create awareness and empower the stakeholder on the importance of IGE, IGE plan and its implementations?
4. Is there any IGE progress measuring mechanism adopted by your department to understand the growth? Is there a monitoring and evaluation team to track the progress of IGE initiative?
5. Availability of sufficient fund to plan/implement green economy initiatives?

Participatory Competencies:

1. Are any other departments involved in the planning of sector specific policies/programmes or development plans? If yes, to what extent?
2. Are local MPs/MLAs, Mayors and Commissioners of the concerned ULBs involved in the planning of policies/programmes/development plans? If yes, to what extent?
3. Level of participation of technical bodies, NGOs/CBOs, line departments specific to GE/environment/ climate change and TSAs in planning, designing and implementation?
4. Do you have any mechanisms/tools to record the views of stakeholders or get their feedback?

Technical Competencies:

1. What capacities exist to commission and implement policies/programmes integrating IGE?
2. According to you what are the key gaps in terms of integrating green economy concerns at the state and local levels? What are the possible solutions to fill such gaps?

Annexure-3: IDI Guide- Organizational Level Stakeholders

IDI Guide- Organizational Level Stakeholders

Green Economy Learning Assessment (GELA) and develop an Action Plan to integrate Inclusive Green Economy (IGE) principles with Sustainable Development Goals (SDGs) in Madhya Pradesh

[Target Respondents: Mayor, Municipal Commissioner, CEO of Smart City SPV, City Discom Manager, City Water & Waste Managers, City Planning Officer, and City Environment & Biodiversity Officer]

#	**Respondent Identification and Location Particulars**	
1.	Name of the respondent:	
2.	Designation:	
3.	Contact details:	
4.	Name of Organization:	
5.	Type of Organization: Government/ Private	
6.	City:	
7.	Date of interview:	

Discussion Points/ Questions

Transformational Competencies:

1. Are you aware about green economies and related issues?
2. Are you aware about green economy principles for procurement, construction, operation and maintenance?
3. Have you been involved in the development of a master plan for sustainable cities? If yes, how far green issues/ environmental issues/ climate change has been discussed while preparing a master plan and the same has been incorporated in the master plan?
4. Have you been involved in the design or implementation of a green economy policy? If yes, how far these areas/ sectors have been covered in the design and implementation plans?
    a. Energy & Green Buildings
    b. Urban Planning, Green Cover, Biodiversity
    c. Mobility & Air Quality
    d. Water Management
    e. Waste Management
5. Availability of the following plan/ implementation policies:
    a. Cleaner renewable energy sources in city
    b. Mobility plan and its integration in Master plan
    c. National Urban Transport Policy (NUTP 2006)

d. NMT (Non-Motorized Transport) Network plan of city

e. Clean air action plan

f. Water management plan

g. Flood management plan

6. How far do you feel that green economy initiatives are successful on ground? And how far the policy and ground level implementation are contradictory?

7. What are your suggestions considering the current situation to improving IGE status for the state?

Management Competencies:

1. How many staff are appointed (full time and contractual basis) for integrating green economy initiatives?

2. Is there any IEC material to communicate, create awareness and empower the stakeholder on the importance of IGE, IGE plan and its implementations?

3. Availability of technical resources:

   a. Manuals

   b. Guidelines

   c. MIS

   d. Checklist & Tools

4. Availability of institutional mechanisms such as cells or unit available for developing and approving:

   - Green building & energy efficiency initiatives. *(from Energy & Green Building sector)*
   - Climate resilient master plans, urban greening initiatives and disaster prevention and management. (*from Urban Planning, Green Cover, Biodiversity sector)*
   - City Level Biodiversity Management Committee (*from Urban Planning, Green Cover, Biodiversity)*
   - Mobility & air quality initiatives (*from Mobility & Air Quality sector)*
   - Regional development authority for Urban transport (*from Mobility & Air Quality sector)*
   - Managing water supply and urban flooding available? (*from Water Management sector*)
   - Waste and stormwater management plans (*from Waste Management sector*)

Participatory Competencies:

1. Are any training institute/ NGOs/ other local community group consulted during conceptualizing/ preparing projects/ plan for the area? How far their views/suggestions on IGE have been considered/incorporated in the plan?

2. Number of consultations conducted with training institute/ NGOs/ other local community during preparing project/ plan for the area?

3. Level of participation of technical bodies, NGOs/CBOs, line departments specific to GE/environment/ climate change and TSAs in planning, designing and implementation?

4. Do you have mechanisms/tools to record the views of stakeholders or get their feedback?

Technical Competencies:

1. Does your organization have technical professionals to create and implement guidelines and frameworks for:
    - green buildings and energy efficient lighting (*from Energy & Green Building sector)*
    - master planning, urban greening and disaster prevention and management (*from Urban Planning, Green Cover, Biodiversity sector)*
    - mobility & air quality management (*from Mobility & Air Quality sector)*
    - water and flood management (*from Water Management sector*)
    - waste and stormwater management (*from Waste Management sector*)
2. Does your organization have skills to develop communication materials to create awareness amongst residents and business operators on
    - green building and energy efficient interventions? (*from Energy & Green Building sector)*
    - planning, greening and disaster prevention and management interventions? (*from Urban Planning, Green Cover, Biodiversity sector)*
    - mobility & air quality interventions? (*from Mobility & Air Quality sector)*
    - water and flood management interventions? (*from Water Management sector*)
    - waste and stormwater management interventions (*from Waste Management sector*)
3. Does your organization have technical capacity to elicit volunteers for
    - energy efficient and green buildings? *(from Energy & Green Building sector)*
    - urban greening and disaster prevention & management? (*from Urban Planning, Green Cover, Biodiversity sector)*
    - mobility and air quality? (*from Mobility & Air Quality sector)*
    - water and flood management? (*from Water Management sector*)
    - waste and stormwater management? (*from Waste Management sector*)
4. How many technical professionals are available to assess the impact of initiatives?
5. Is there any IGE progress measuring mechanism appointed by the state govt. to understand the growth? Is there a monitoring and evaluation team to track the progress of IGE initiative?
6. According to you what are the key gaps in terms of integrating green economy concerns at the state and local levels?
7. What are the possible solutions to fill such gaps?

Annexure-4: IDI Guide- Operational Level Stakeholders

IDI Guide- Operational Level Stakeholders

Green Economy Learning Assessment (GELA) and develop an Action Plan to integrate Inclusive Green Economy (IGE) principles with Sustainable Development Goals (SDGs) in Madhya Pradesh

[Target Respondents: City Discom Manager, City Water & Waste Managers, City Planning Officer, City Environment & Biodiversity Officer, Green Economy Service Providers, and City Business Chamber]

#	**Respondent Identification and Location Particulars**	
1.	Name of the respondent:	
2.	Designation:	
3.	Contact details:	
4.	Name of Organization:	
5.	Type of Organization: Government/ Private	
6.	City:	
7.	Date of interview:	

Discussion Points/ Questions

Transformational Competencies:

1. Are you aware about green economies and related issues?
2. What approach has been adopted to integrate green economy initiatives (*such as clean technologies, renewable energies, water services, green transportation, waste management etc.)* with the existing policies/programmes or development plans?
3. Are you aware about green economy principles for procurement, construction, operation and maintenance?
4. Have you been involved in the design or implementation of a green economy policy? If yes, how far these areas/ sectors have been covered in the design and implementation plans?
   - Energy & Green Buildings
   - Urban Planning, Green Cover, Biodiversity
   - Mobility & Air Quality
   - Water Management
   - Waste Management
5. **Sector specific information**

   from Energy & Green Building sector
   - Are you aware of green building norms?
   - Does your city have Energy Efficient Street Lighting system?

   from Urban Planning, Green Cover, Biodiversity sector
   - Is there any Climate Action Plan available for the city?
   - Are the People's Biodiversity Registers available for the city?
   - Has city mainstreamed disaster risk reduction (DRR) in departmental plans within the urban local body?

   from Mobility & Air Quality sector
   - Is there a mobility plan, and if so, is it integrated into the master plan?

- Is there any NMT (Non-Motorized Transport) Network plan of city?
- Is there a clean air action plan in place?

from Water Management sector

- Is there a water and flood management plan in place?
- Has city reviewed and revised the water resource management plan to include climate change factors?

from Waste Management sector

- Is there a waste management plan in place?
- Has city reviewed and revised the waste management plan to include climate change factors?

6. How far do you feel that green economy initiatives are successful on ground? And how far the policy and ground level implementation are contradictory?
7. What are your suggestions considering the current situation to improving IGE status for the state?

Management Competencies:

1. How many staff (full time and contractual basis) are engaged to approve designs and enforce green norms?
2. Does your organization have sufficient budget to implement green economy initiatives?
3. Is there any IEC material has been used to communicate, create awareness and empower you/your team on the importance of IGE, IGE plan and its implementations?
4. Availability of technical resources:
    a. Manuals
    b. Guidelines
    c. MIS
    d. Checklist & Tools
5. **Sector specific information**

from Energy & Green Building sector

- How many staff are appointed (full time and contractual basis) to monitor the consumption of fossil fuel and electricity?

from Urban Planning, Green Cover, Biodiversity sector

- Does your organization have urban planners, climate change & biodiversity, and disaster management professionals, if so, please state the number?

from Mobility & Air Quality sector

- How many staff are appointed (full time and contractual basis) to monitor the emission from vehicles?
- How many staff are available (full time and contractual basis) to collect and maintain data related to mobility and air quality?

from Water Management sector

- How many staff are available (full time and contractual basis) to collect and maintain data related to water supply (treated/ non-treated)?

from Waste Management sector

- Are you and your staff aware about storing bio-degradable and non-biodegradable waste separately?
- How many staff are available (full time and contractual basis) to collect and maintain data related to waste collection and processing?
- How many staff are available (full time and contractual basis) to collect segregated waste?

Participatory Competencies:

5. Are there any training institute/ NGOs/ technical bodies, NGOs/CBOs, and TSAs providing training or capacity building to your team in planning, designing and implementation departments specific to GE/environment/ climate change? If yes, please specify
6. How far their support/ training program helped in improving GE/environment/ climate change related issues on implementation?
7. Is there any IGE progress measuring mechanism appointed by the state govt. to understand the growth? Is there a monitoring and evaluation team to track the progress of IGE initiative?
8. Do you have mechanisms/tools to record the views of stakeholders or get their feedback?

Technical Competencies:

1. Does your organization have staff to approve designs and enforce green norms
2. Sector specific information:

from Energy & Green Building sector

- Does your organization have Does your organization have technical professionals to collect information of electricity consumption?

from Urban Planning, Green Cover, Biodiversity sector

- Does your organization have technical capacity to regular monitoring (bi-annual) of climate relevant actions indicated in the action plan?
- Does your organization have technical capacity to estimate green cover of the city?
- Does your organization have technical capacity to conduct city level climate assessment?
- What are the different mitigation and adaptation strategies adopted at city level to combat climate change impact?
- Does your organization have the capacity to link forecasting system to Integrated Command and Control Centre (ICCC)for regular monitoring and managing emergency situations?

from Mobility & Air Quality sector

- To keep track of air quality, do you have a management information system (MIS)?
- Does your organization have the capacity to link city's air quality monitoring mechanism to Integrated Command and Control Centre (ICCC)?

from Water Management sector

- Do you have city urban flood alert and early warning systems in place?
- If so, does your organization have technical professions to manage it?

from Waste Management sector

- What are the different measures adopted by your organization to segregate the bio-medical waste and industrial hazardous waste from Municipal solid waste?
- What are the different technologies available to process waste in city?
- Does your staff have technical capacities to segregate the waste collected?
- Is the infrastructure available for waste management sufficient?

3. According to you what are the key gaps in terms of integrating green economy concerns at the state and local levels?
4. What are the possible solutions to fill such gaps? (on HR, technical support, training & capacity building, budget, and institutional development)

Annexure-5: IDI Guide- Training Institutes

IDI Guide- Training Institutes

Green Economy Learning Assessment (GELA) and develop an Action Plan to integrate Inclusive Green Economy (IGE) principles with Sustainable Development Goals (SDGs)

#	**Respondent Identification and Location Particulars**	
1	Name of the respondent:	
2	Designation:	
3	Contact details:	
4	Name of Institution:	
5	Type of Institute: Government/ Private	
6	Full Name of the Institute with Address:	
7	Date of interview:	

#	**Key Discussion Questions**	
1.	What is the mandate of your institution?	
2.	What is the focus area of the education /training programme of your institute in the following components/ sectors? And how they are aligned with IGE principles? • Energy & Green Buildings • Urban Planning, Green Cover, Biodiversity • Mobility & Air Quality • Water Management • Waste Management	
3.	Are there any courses/activities/curricula relevant to green economy learning? If so, what are they?	
4.	What is the infrastructure available to execute training to Agenda Setting level, Organizational level, and Operational level officials/staffs?	
5.	Past Experience of conducting training on Climate Change/ Urban or Green Issues? (Agenda Setting level, Organizational level, and Operational level officials/staffs)	
6.	What type of competencies/ skills does your institute address? • Transformational • Management • Participatory • Technical	
7.	Who are the target participants of training conducted by your institutions? • Agenda Setting level, • Organizational level, • Operational level	
8.	Number of existing trainers (full time, contractual basis and external) in your institute? Number and Type of Training	
9.	Does your institution have a dedicated trainer in the field of environment/ climate change/ green issues?	
10.	Does your institute have capacity to engage external trainers?	

11.	Does your institution currently collaborated with any national or international agency to support you with training related aspects?	
12.	What are difference challenges faced by your institution while organizing and delivering a training program to Govt. officials? And how these challenges can be addressed?	
13.	What are additional resources/support would be required by your institution to undertake, organize & deliver IGE training courses? • At agenda level • At organizational level • At operational level	

Annexure-6: List of Learning Institutes

List of Institutes with Mandates

Institute	Mandate	Capacity
Environmental Planning & Coordination Organization (EPCO), Bhopal	▪ Assist and advise the Government of MP in formulation and implementation of environmental and climate change policy for the state ▪ State Knowledge Management Centre on Climate Change established in EPCO caters the climate change issues for the state ▪ Create public awareness about environmental and climate change aspects ▪ Assist and advise Government of MP and other agencies in the management of human environment ▪ Offer consultancy services regarding all matters pertaining to environment ▪ Liaise with other national and international agencies working in the field of environment	▪ A total of 15 technical and financial staff have been appointed on a full-time basis ▪ Provide training on environmental conservation, climate change, pollution mitigation, water and sanitation, biodiversity, watershed management etc.
Indian Institute of Technology, Indore	▪ Train scientists and engineers, with the aim of developing a skilled workforce to support the economic and social development of India	▪ 19 professionals have been engaged on a full-time basis in IIT, Indore ▪ Available courses on Architecture & Planning, Engineering, management studies, water management etc. ▪ The institute has collaboration with National and International organizations.
Indian Institute of Management, Indore	▪ Create and disseminate knowledge through applied and interdisciplinary research and practices in emerging areas of management	▪ The institute has the latest teaching aids, rich learning resources and a strong IT sector
Atal Bihari Vajpayee Institute of Good Governance and Policy Analysis (AIGPPA)	▪ Analyze government policies to assess their impact ▪ Identify areas in governance for change and reform for effective program delivery ▪ Establish a bank of innovative practices for application and wider dissemination ▪ Facilitate partnerships of government with civil society and the private sector and academia. ▪ Provides professional advice, and conducts change management programmes for government departments and agencies	▪ The institute is having six centers (Economic Sector, Knowledge Management & E-Governance, Natural Resource Management & Decentralized Governance, Social Sector Development, State Health Resource Centre and Urban Governance) which provide research, technical assistance, studies pertaining to implementation level reforms and knowledge-based support to state departments and ULBs. ▪ The institute conduct capacity building programs for the state

Institute	Mandate	Capacity
		departments and ULBs through events, workshops and lecture series
All India Institute of Local Self Government (AIILSG) Bhopal	▪ Training of local body officials to enhance abilities for efficient delivery of civic services ▪ Conduct skill development programmes in partnership with government departments/ agencies and the corporate sector ▪ Provide e-governance inputs to local bodies to improve their effectiveness ▪ Capacity-building of ULBs for implementing national schemes like AMRUT, PMAY, Smart Cities Mission and Swachh Bharat Mission	▪ It is a knowledge hub in the field of Education, Training Research, Advocacy Events, Consultancy, Seminars and Training Workshops ▪ The institute provides nineteen academic courses under three heads: Diploma, Degree and Post Graduate Diploma ▪ The institute is having five cells (Disaster Management, GIS, Solid Waste Management, Energy Conservation Building Code and Key Resource Centre of the Ministry of Drinking Water Supply and Sanitation). These cells conduct capacity development programmes ULBs and other government agencies
State Forest Research Institute, Jabalpur	▪ Research in the field of tropical forestry, environment and biodiversity conservation ▪ Development and dissemination of knowledge in the field of tropical forestry, environment and biodiversity conservation ▪ Provide consultancy in the field of tropical forestry, environment and biodiversity conservation	▪ 37 technical professionals have been engaged ▪ Available capacity to conduct training/ workshops on tropical forestry, environment and biodiversity conservation
Ronald Carlton Vivian Piyadade Noronha Academy of Administration	▪ Organize training programmes for the senior officers of the government of Madhya Pradesh, Government of India, and Public Sector Undertakings ▪ Provide advice to the Madhya Pradesh government on Human Resource Development ▪ Coordinating with various training institutions of the state	▪ Institute has the capacity to impart training to people across all sectors right from NGOs to the highest level of the government departments
Maulana Azad National Institute of Technology, Bhopal	▪ Offer courses in field of science, technology, engineering, architecture and management	▪ Available courses on Architecture & Planning, Engineering, management studies etc. ▪ Available technical capacity and collaboration with International Institutes
Indian Institute of Forest Management (IIFM) Bhopal	▪ Integrating development, environment and conservation and livelihood management into the government, corporate and industrial sectors ▪ Provide training in management and related subjects for persons	▪ 35 professionals have been engaged on full-time basis ▪ Available training courses in field of forestry, environment, natural resource management and allied sectors

Institute	Mandate	Capacity
	from the Indian Forest Service, Forest Departments, Forest Development Corporation and Forest related industries ▪ Carry out research in matters concerning the use of management and allied techniques and methods conducive to the development of forestry in the country ▪ Provide consultancy services in the areas of Forestry, Environment and Natural Resource Management	
School of Planning & Architecture, Bhopal	▪ Offer courses for undergraduate, postgraduate, doctoral and post-doctoral levels in Planning and Architecture ▪ Research and consultancy work in the field of Planning and Architecture ▪ Mentor other architecture and spatial planning institutions in the central region ▪ Providing research feedback to the Government for the physical development of human settlements	▪ More than 100 technical professionals have been engaged on a full-time basis. ▪ Available capacity to conduct training on urban development, planning, conservation, landscape, transport planning etc.
Disaster Management Institute (DMI) Home Department, Government of Madhya Pradesh	▪ Strengthening Capacity towards Disaster Resilient Community ▪ To evolve techniques to enhance competence in prevention, preparedness, mitigation and management ▪ Conduct training and awareness programmes in disaster management and related subjects for the officials and executives of Government Departments, Public and Private Sector undertakings and others ▪ Development of policies, regulations and programmes of disaster management ▪ Safety and environmental audit ▪ Weather and Climate-Related Disaster Management ▪ "Safer Cities training to Urban Development & ▪ Housing Department and Town & Country Planning ▪ (T&CP)"	▪ 3 technical professionals have been engaged on full-time basis ▪ Available capacity to conduct training on disaster management

Institute	Mandate	Capacity
State Institute for Town Planning, Bhopal	▪ Provide guidance on Technical, Administrative and Accounting Management aspects and provide training to Officers and subordinates ▪ Conduct evaluation /inspection/ supervision of UIDSSMT Schemes as well as preparation of new Schemes	▪ 142 panel of consultants empaneled with the institute ▪ Available capacity to conduct training and workshops