

# **Preparation of Environmental Status Reports Training Workshop**

Conducted by  
Environmental Management Centre  
<http://www.emcentre.com>

Supported by  
Maharashtra Pollution Control Board

**September 8 and 9, 2009**

# Background of the ESR

## Environmental status Report

- As per 74<sup>th</sup> Amendment to Constitution, all the Class A Cities have to publish Annual Environmental status Report (ESR)
- ESRs Indicate the status of **environment management** in the city and identify the areas where **mitigation measures** are required to be considered.
- Cities in Maharashtra have been publishing ESRs for last 12 years
- ESRs are published by Urban Local Body (ULB)
- Submitted to Ministry of Urban Development (MoUD)
- Mumbai Metropolitan Region Development Authority (MMRDA) Guidelines are followed for ESR preparation

# Background of the workshop

## Evaluation of ESRs

- Maharashtra Pollution Control Board (MPCB) carried out evaluation of the ESRs published by cities in Maharashtra
- Total 44 ESRs from 12 cities in Maharashtra were analyzed.
- A framework of indicators based on D-P-S-I-R format was developed to assess environmental performance of the cities.
- This indicator framework was applied on pilot basis to ESRs of Pune and Mumbai for last five years.
- The ESRs of the rest of the cities were assessed for the data availability and analytical gaps.

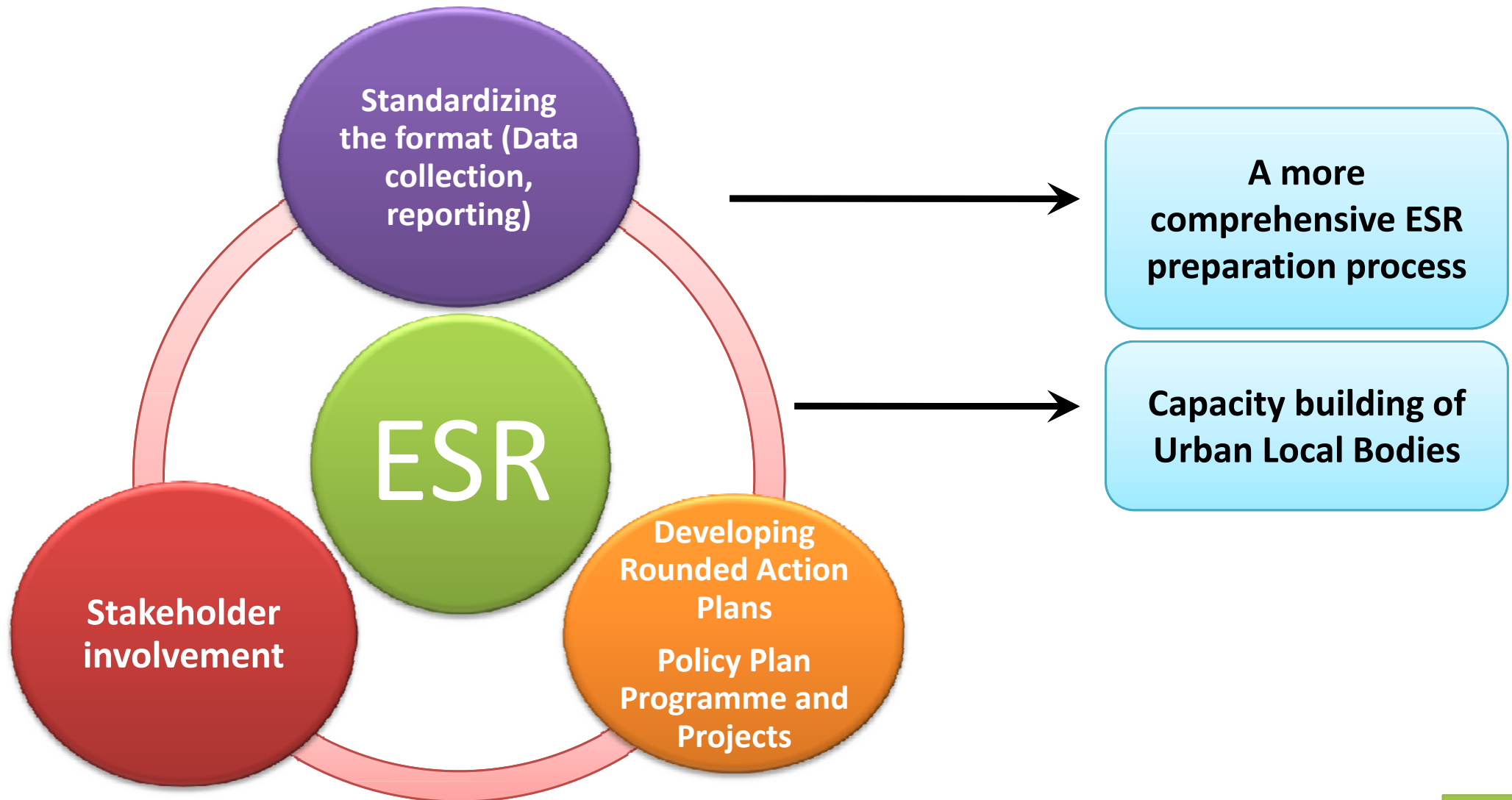
# Background of the workshop

## Evaluation of ESRs

Some of the **observations** included –

- Lack of standard format
- Incomplete data
- Weak analytical framework
- Poor spatial representation of data
- Generic recommendations
- Lack of focus on policy making
- No involvement of stakeholders
- **No linkage with an Action Plan**

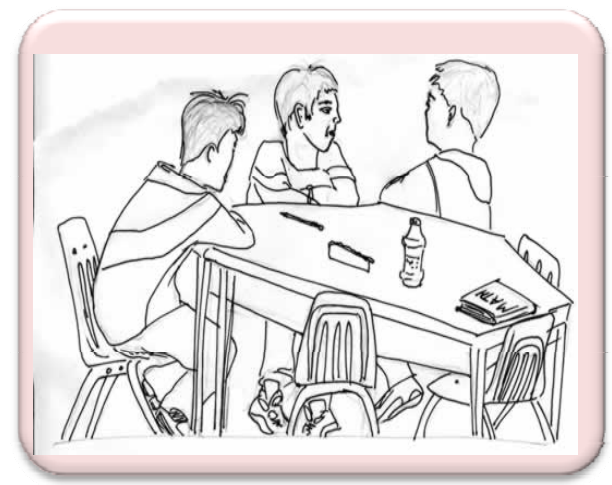
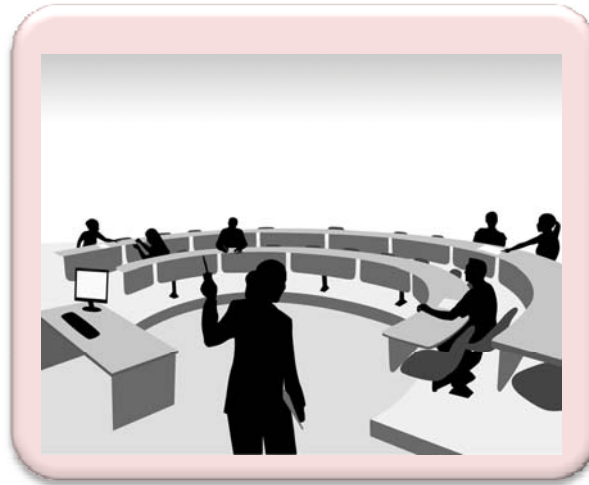
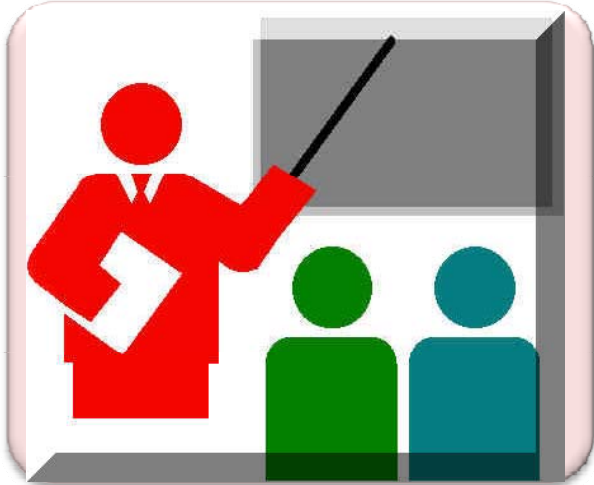
# Purpose of workshop



# Objectives of workshop

- To communicate the findings of ESR evaluation exercise
- To understand the present process followed for ESR preparation and problems in the data availability.
- To familiarize participants with DPSIR format of ESR and the Indicator Framework
- To train the participants for preparation of ESR in DPSIR format
- To train participants for using the Indicator Framework
- To train the participants for integrating Strategic Planning Process in the preparation and use of ESRs.
- To provide guidance on how to outsource consultants
- To learn about some of the best practices

# Training methodology



**Short lectures  
(40-60 Minutes)**

**Interactive  
group  
discussion**

**Group work  
sessions**

# Agenda for September 8

## **Inaugural Session**

Welcome by *Dr. Ajay Deshpande, Zonal Officer, PAMS Division.*

Opening remarks by *Mr. Mahesh Pathak, IAS, Member Secretary, MPCB*

About Workshop Programme by *Dr. Prasad Modak, Executive President, EMC*

## **Round of introduction**

## **Background to ESR**

Need for Environmental Reporting, evolution of State of Environment Report (SoE) & ESR and purpose of publishing ESR

*Pratima Raykar, EMC*

## **Interactive session with participants to understand their experiences with ESR preparation**

Understand the present process that is followed for ESR preparation and problems faced during ESR preparation

*Dr Prasad Modak, EMC*

## **ESR preparation process**

Introduction to situation analysis

Forming Vision statement, Mission statement, Goals and Objectives

*Dr Prasad Modak, EMC*

**Lunch**





# Agenda for September 8

## **Work exercise for forming Vision statement, Mission statement, Goals and Objectives**

Participants will be divided into teams. Each team will be given a case work. The team will be doing following tasks

Form Vision Statement, Mission Statement, Goals and Objectives based on the data given in case work.

***Coordinated by EMC team***

## **Data Collection and Analysis, indicator framework and setting targets**

Ways of standardizing data collection will be discussed with

- Data required
  - Primary
  - Secondary
- Data processing

Various tools for Gap Analysis to arrive at targets will be discussed focusing on benchmarks and indicators

Indicator Framework will be presented. Use of Microsoft Excel™ Model will be shown.

***Lucille Andrade and Pratima Raykar, EMC***

## **Group Work Exercise Arriving at Action Plan**

Participants will be divided into teams. Each team will continue with the earlier case work. The team will do gap assessment, set targets and prepare sample Action Plan which will align the Vision Statement of the city with the priority issues and concerns that city is facing.

***Coordinated by EMC team***



# Agenda for September 9

<b>Model contents of ESR</b>	Recommended ESR format will be discussed. - <b><i>Dr Prasad Modak / Rahul Datar, EMC</i></b>
<b>Outsourcing the ESR preparation</b>	Outsourcing the ESR preparation and Terms of Reference for outsourcing – <b><i>Pratima Raykar</i></b>
<b>Best practices followed</b>	Overview of best practices followed in Environmental Reporting. Use of tools like EkoVoices, GIS Reporting on Green House Gas Emission. Demo on EkoVoices <b><i>Lucille Andrade</i></b>
<b>Close</b>	Workshop evaluation and closing remarks <b><i>MPCB/EMC</i></b>

# **Background to ESR Session I**

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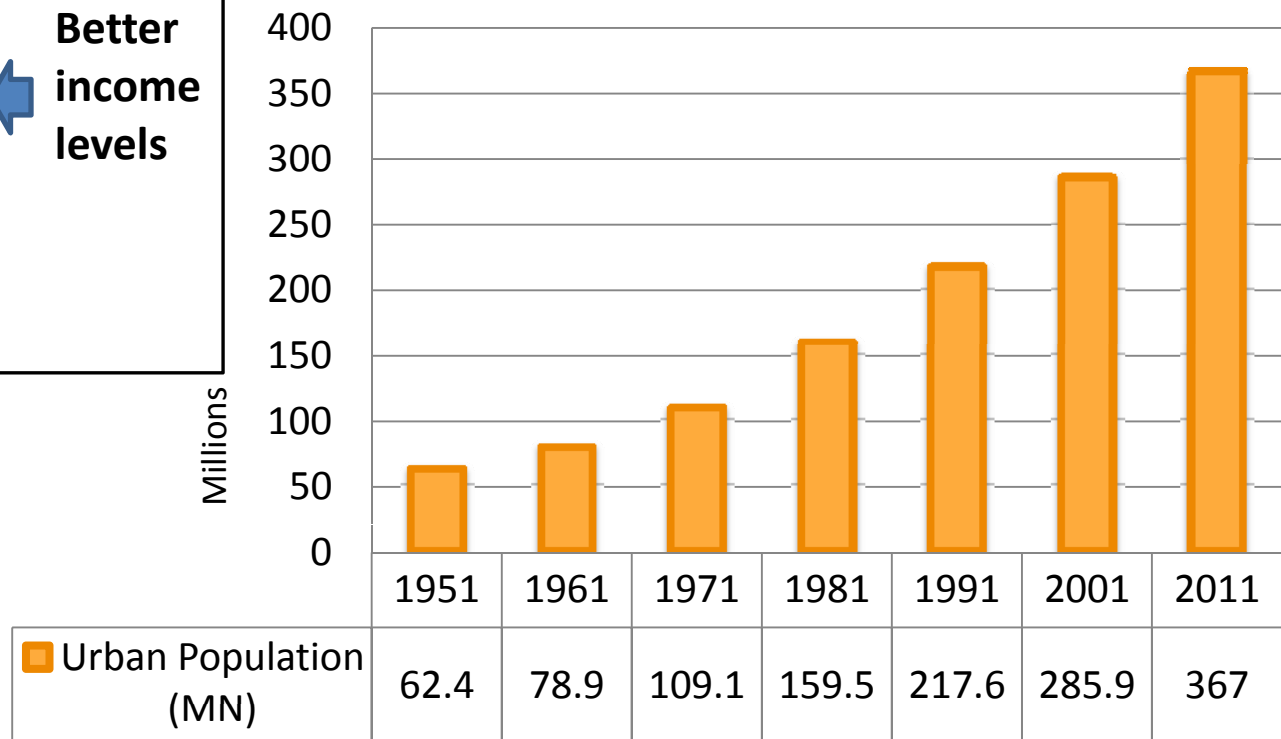
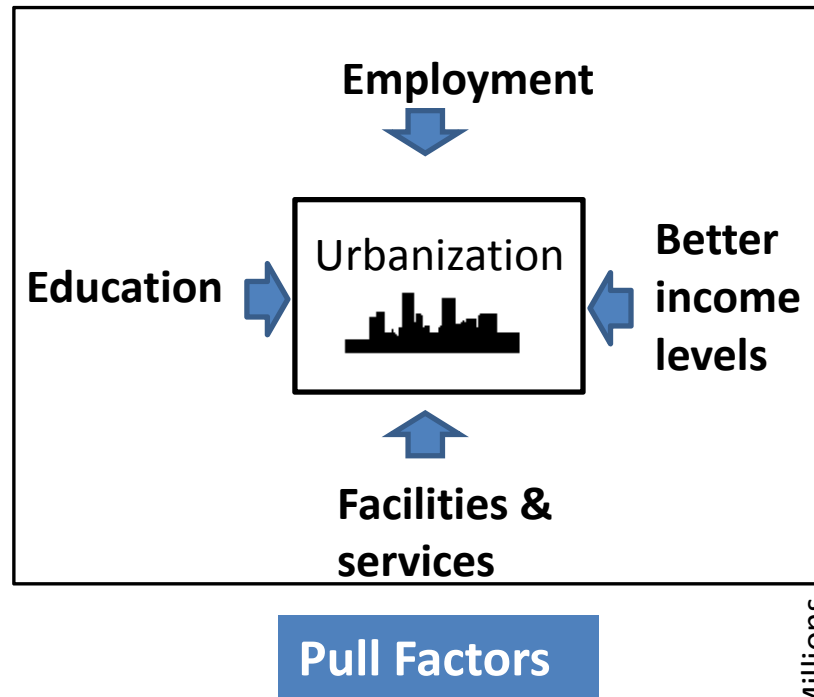
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# Increasing Urbanization

- More than half of world's population is living in cities and towns.
- Nearly **twenty eight per cent** of India's population (285 million) lives in urban areas as per 2001 census.
- The percentage decadal growth of population in rural and urban areas during the decade is 17.9 and 31.2 percent respectively.
- Contribution of urban sector to GDP is currently expected to be in the range of 50-60 percent.
- Increased urbanization seen today is a result of this overall growth

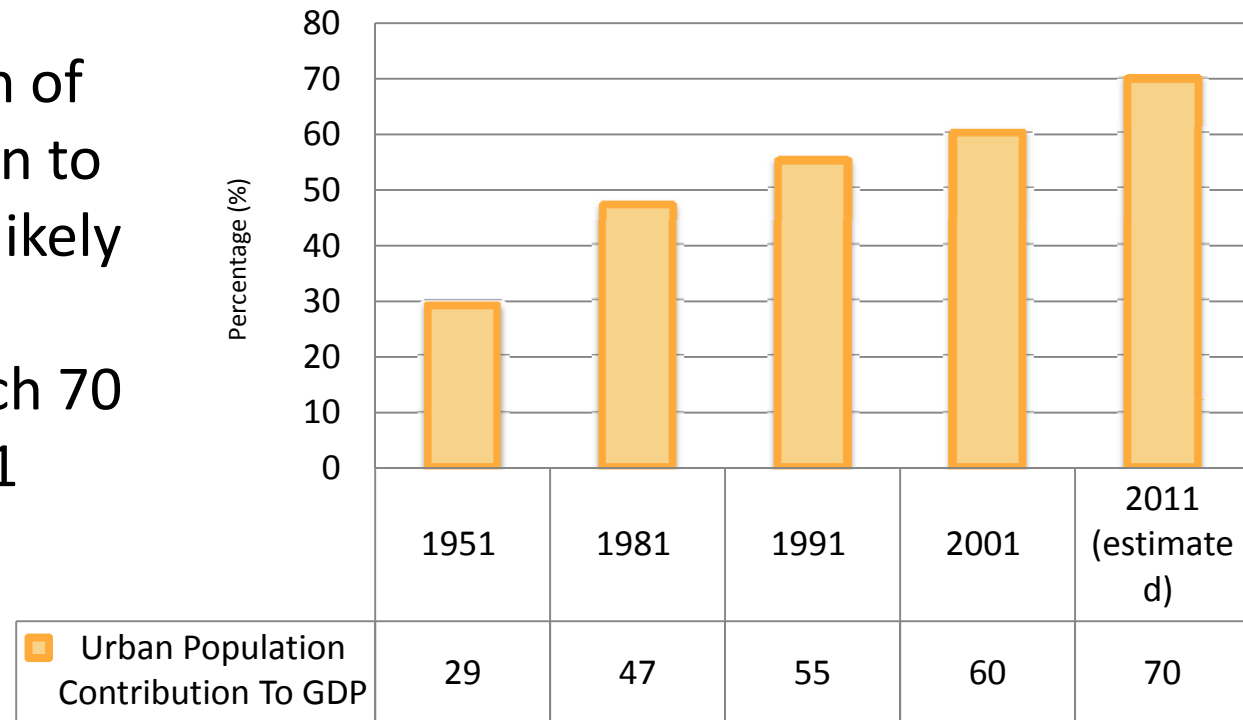
# Increase in the urban population



# Contribution of Urban population to GDP

The contribution of urban population to national GDP is likely to register 16% growth and touch 70 per cent by 2011

Urban Population Contribution To GDP



With ample of infrastructure and adequate input access to industrial renaissance urban per capita income is expected to rise by minimum of Rs.10,000 per annum and touch Rs. 36,000 per annum by 2011.

# State of Maharashtra

- Maharashtra occupies a position of prominence in India.
- Maharashtra has been in the forefront of economic development
- The economic powerhouse of the country.
- With its proactive policies, the State continues to occupy the dominant position amongst the industrially advanced States in India.
- Economy of Maharashtra has been growing at the rate of 8%.

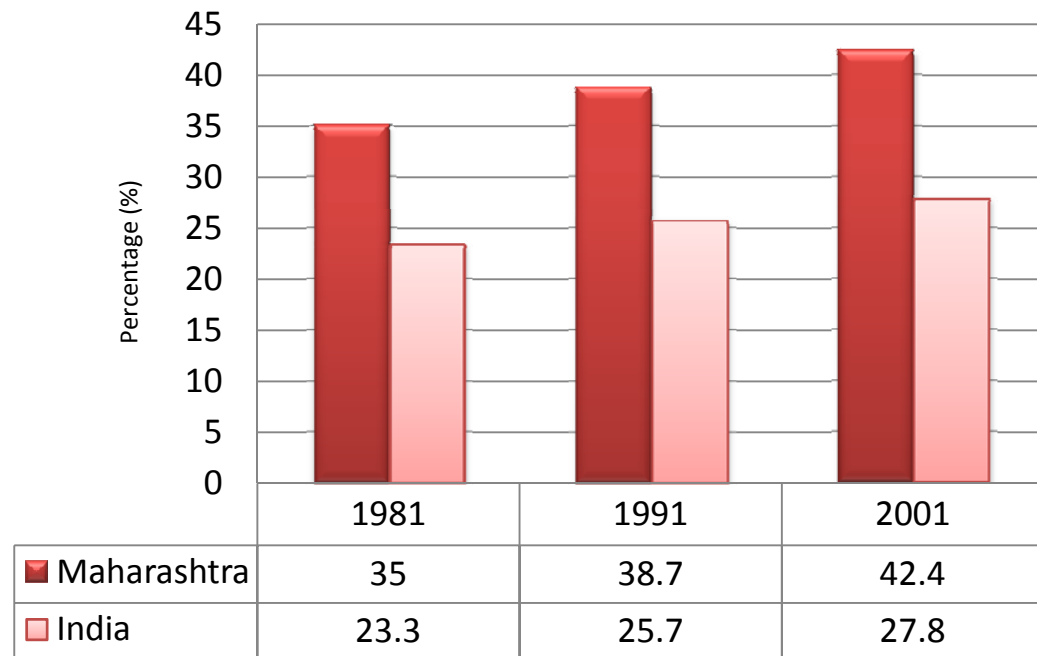


# Urbanization in Maharashtra

Maharashtra is the **highest urbanized state** in India\*.

The population of Maharashtra is quite evenly divided as urban and rural population, with **42% of the population in urban region**, which is quite high to the All India level of just 28% of the population living in urban areas.

Urbanization Rates



\* Tamil Nadu has 43% of the population in urban region but actual population is less than Maharashtra.



# Urban Environment issues



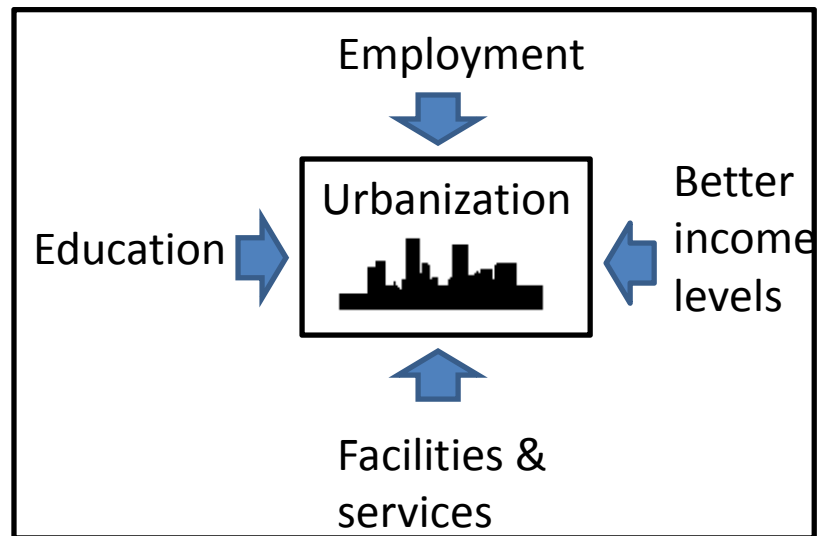
Deteriorating air quality

Polluted water resources



Loss of forest cover

Pressure on the natural resources and urban services.



Problem of solid waste

Inequitable distribution of urban services



High consumption patterns

Regional disparity

Problem of urban poor



# Environmental Issues in Maharashtra

## **Water supply and sanitation**

- Almost 75 percent sewage treatment plants in Maharashtra run without valid consents.
- About 99 percent of sewage generated by municipal councils and over 50 percent sewage discharged by municipal corporations goes untreated into either of three major river basins—Godavari, Tapi and Krishna.
- Wide disparities exist between supply in urban and rural areas. Mumbai has a maximum average water supply of 200 litres per capita per day (lpcd) but even within the city, the slum areas barely receive 90 lpcd and the well-off areas get 300-350 lpcd

*Source: State of Environment Report of Maharashtra 2007*

# Environmental Issues in Maharashtra

## Pollution

- Increase in vehicles is the reason of growing pollution in the State, the report states.
- The monitoring report has found that two-wheelers constitute major share (69.32 percent) of vehicles in the State followed by four wheelers at 13.37 percent.
- MPCB monitoring results for 2005-06 show that levels of Respirable Suspended Particulate Matter and Suspended Particulate Matter exceed in more than half the locations monitored.
- Private vehicles take up more and more road space at the cost of public transport.

# Environmental Issues in Maharashtra

## **Solid waste**

- Maharashtra generates over 16,000 tonnes per day of Municipal Solid Waste (MSW),
- According to the projections made by National Environmental Engineering Research Institute, MSW in the State is estimated to increase to 8.05 million tonnes by 2011 and 11.77 million tonnes by 2021.
- Electronic waste generation is already at 20,270.6 tonnes per annum.
- Maharashtra produces almost 60 per cent (31.5 tonnes per day) of the total biomedical waste produced in the country.
- Hazardous waste generation is pegged at 1.4 million tonnes annually (50 per cent of the total hazardous waste generated in the country)

# Sustainable development initiatives in India

# 74<sup>th</sup> Amendment to Constitution

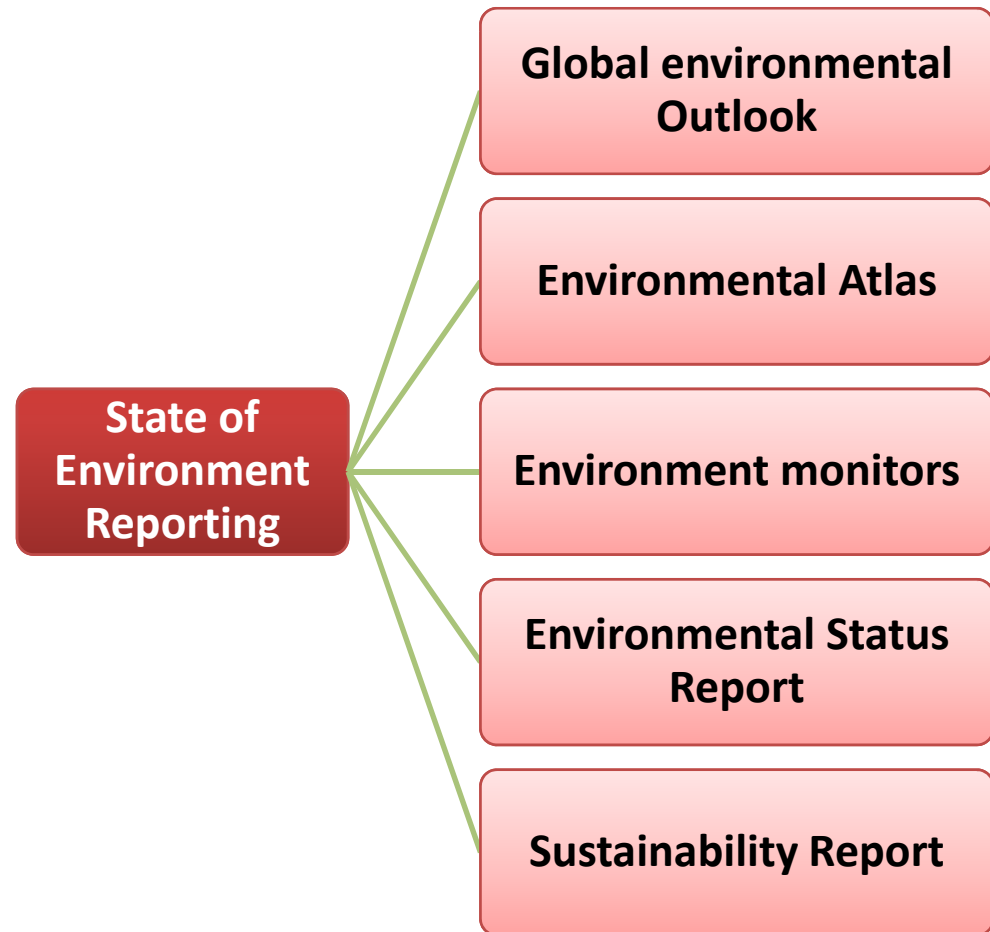
- The **74th Amendment to** the constitution has enlarged the roles and responsibilities of municipalities, specifically citing protection of the environment and promotion of ecological aspects
- **Preparation of Annual ESR** is mandated in the state-level legislation (the BPMC Act) following the 74<sup>th</sup> Constitutional Amendment Act and the 12<sup>th</sup> Schedule

# Background of Environmental Reporting

- ESR is a form of **Environmental Reporting**
- Environmental Reporting finds its roots in the Local Agenda 21 mandate that was passed in the Earth Summit of 1990 in Rio.
- Under this mandate, ULBs required to undertake the preparation and publication of an annual **State of Environment Report** (SoE) or equivalent.

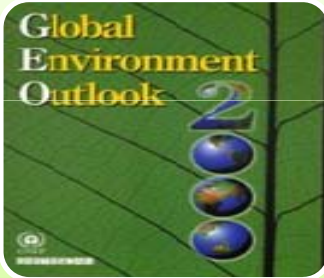
# SoE Reporting Across the Globe

- Different regions across the world use varying terminologies to characterize their respective SoEs.
- Each type of SoE may have its own distinct characteristics.





# SoE Reporting in India



Global Environmental Outlook Project : launched by UNEP in 1995

- Periodic reviews of the state of world's environment
- Environmental Atlas: Representation of environmental data and information usually in the form of maps



UNEP India SoE 2001

- At national level State of Environment Report of India was prepared to be a part of Global State of the Environment Report in 2002 (GEO-3) for the 2002 Earth Summit i.e., Rio + 10
- The SoE framework is the PSIR framework coupled with Environmental Issues framework giving structure to the report.



State SoEs

- In India 29 States and 5 Union Territories have attempted SoEs.
- Ministry of Environment and Forest (MoEF) has recommended DPSIR framework for National and State level SoEs. However this framework is not followed in the city level ESRs.

# SoE Reporting in India



## Regional ESRs

- Published by Maharashtra Pollution Control Board
- MPCB has 11 regional offices all over Maharashtra. These offices prepare ESRs every year. These ESRs are prepared as a base document for preparation of State level SoE report.



## City level ESRs

- Ministry of **Urban Development and Planning** (MUDP) is the nodal agency that mandates the creation of ESRs
- Publication of ESRs is mandatory for all the municipal corporations in Maharashtra. However only approximately 60% of the municipalities comply with it



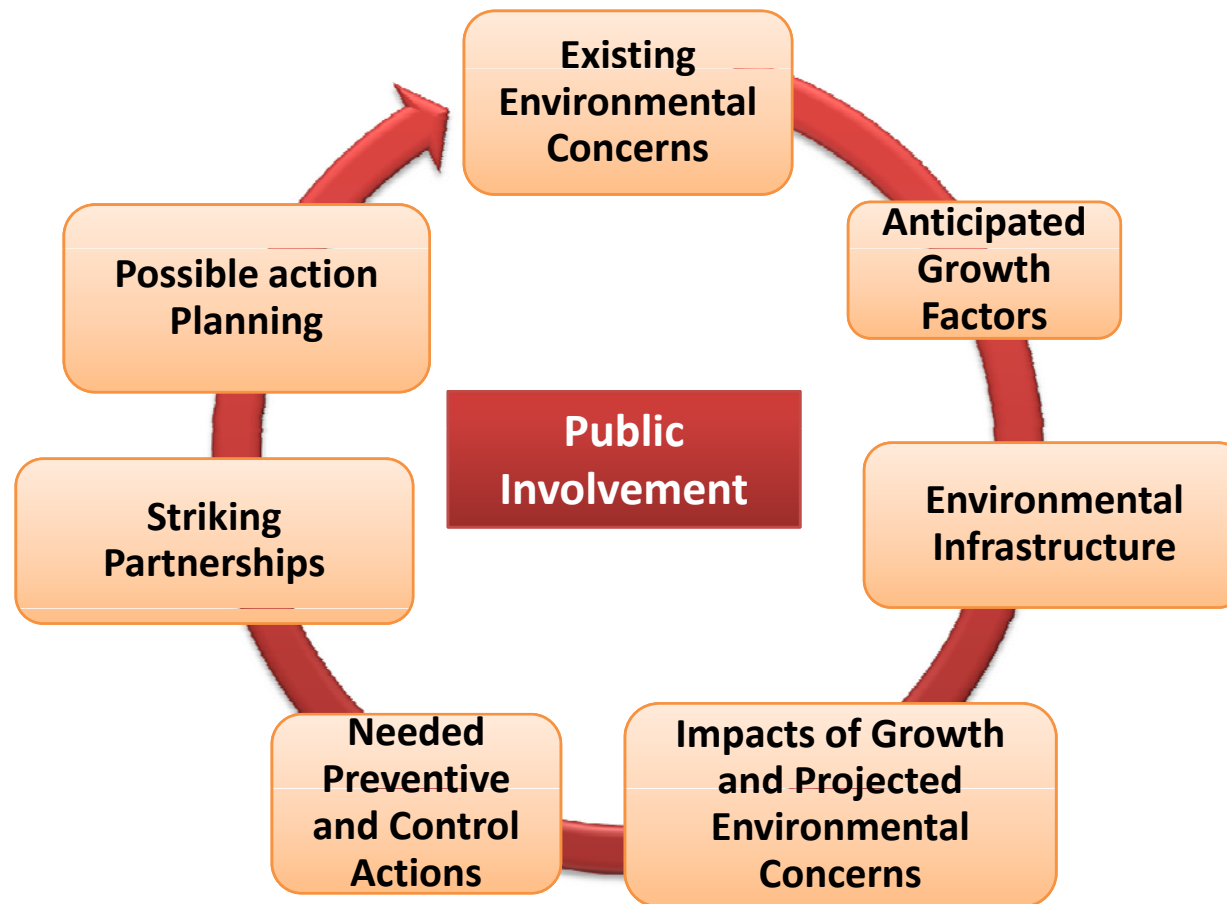
## Community level Environmental Reporting

- In India such an initiative has been tried in Bangalore
- The Bangalore Citizen Report Card (CRC) was pioneered by the Public Affairs Centre (PAC).
- An assessment of the satisfaction levels of citizens with regard to public services in Bangalore and ranks public service agencies

# SoE Reporting Frameworks

- Environmental Media Framework *Air, Water, Land & Biota*•
- Environmental Issues Framework *Air Pollution, Water contamination, Land degradation, Biodiversity loss*•
- Sector Framework *Agriculture, Tourism, Transportation, Industry*•
- Environmental Process Framework *Pressure State Response (PSR) or Driving Force-Pressure-State-Impact –Response (DPSIR)*•

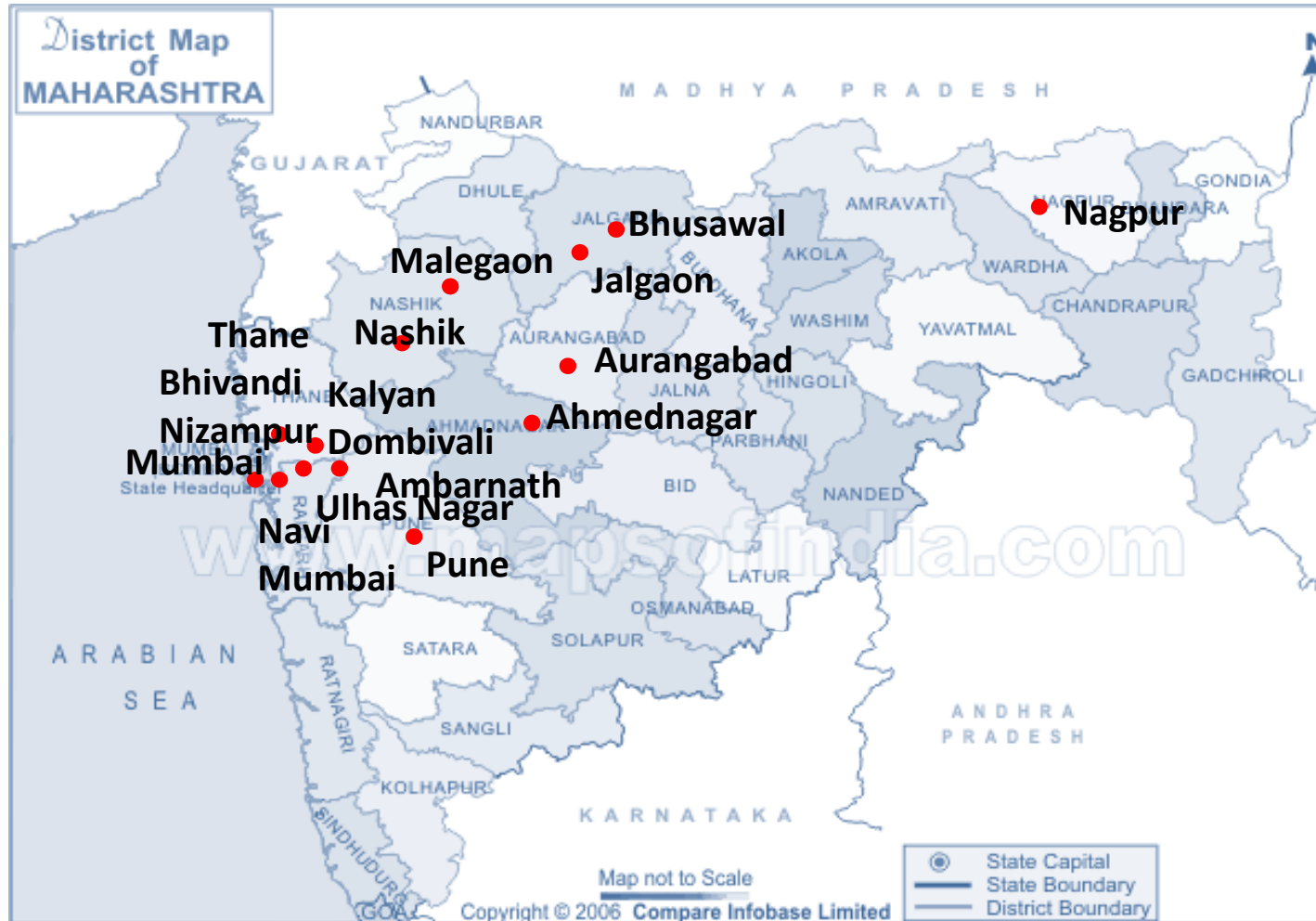
# Process Guidance Framework for ESRs



# Purpose of ESRs

- **highlight the condition of the biophysical environment.**
- **Analyze of trends** or changes in the environment,
- Identify the **causes of these changes**,
- Assess and **interpret** the **implications and impacts of these trends**
- Check adequacy of existing environmental infrastructure
- Set process for public involvement
- Develop action plans based on partnerships
- Set targets, allocate responsibilities and institute monitoring and tracking mechanisms

# ESRs of cities in Maharashtra



Cities in Maharashtra have been publishing ESRs for last 12 years.

# Sectors covered in ESRs

## Demography

1. Population Growth
2. Population Density
3. Literacy
4. Birth Rate
5. Death rate
6. Mortality Rate

## Slum

1. Number of declared and undeclared slums
2. Slum demographics
3. Water supply & sanitation

## Housing

1. Number of Households
2. Household size
3. Floor area per person
4. Average Household Income

## Gardens

1. Present Gardens in the city
2. Proposed gardens
3. Forest

# Sectors covered in ESRs

## Water supply

1. Water supply sources
2. Average water supply
3. Water supply network

## Solid Waste Management

1. Solid waste generation
2. Waste collection network
3. Waste disposal

## Sewerage & Sanitation

1. Waste water generation
2. Sewerage collection network
3. Existing Sewage treatment plants in the city
4. Proposed Sewage treatment plants in the city

## Traffic & Transportation

1. Number of Two Wheelers
2. Increase in number of vehicles
3. Vehicular Pollution



# Sample Table of Contents

## **Brihan-Mumbai ESR 1998-99**

1. Description of area
2. Land Use.
3. Water Supply
4. Sewage Collection and Disposal System
5. Storm Water Drain.
6. Solid Waste Disposal.
7. Power Supply and consumption
8. Roads, Traffic and Transport.
9. Housing and Slums
10. Air Quality status
  - 10.1 Air pollution index
  - 10.2 Trend analysis
  - 10.3 Noise levels.
11. Land and Soils
12. Industries, Wastes and Hazards.
13. Health.
14. Environmental Impacts on Vulnerable Groups in the Cities

# Observations arising from Review

## **Missing Data**

- Most of the ESRs do not report complete information on key themes and on a consistent basis. Sometimes, the sources of information are not available

## **Less generation and use of Primary Data**

- Most of the data used to prepare ESRs is largely secondary. There is a need for the ULBs to commence collection of data on primary basis at least on the core indicators

# Observations

## *Compartmentalized Reporting*

- **Relation** of one environmental aspect with another **across themes** is **not analyzed**.
- E.g. Growth of migrated population triggers growth in slum population which in turn puts pressure on urban services and gives rise to health issues.

# Observations

## *Poor spatial representation of issues*

- There is **very little use of maps** to present the issues. Most of the information is presented in the form of tables and graphs. All the **maps used are of poor quality**.
- Spatial representation is a better way to communicate to a lay man since it is easier to grasp.

# Observations

## Generic recommendations

- ESRs seem to focus more on reporting of the status and not “generating” action plans. The recommendations made are often “generic”

E.g. Recommendations for Air Pollution:

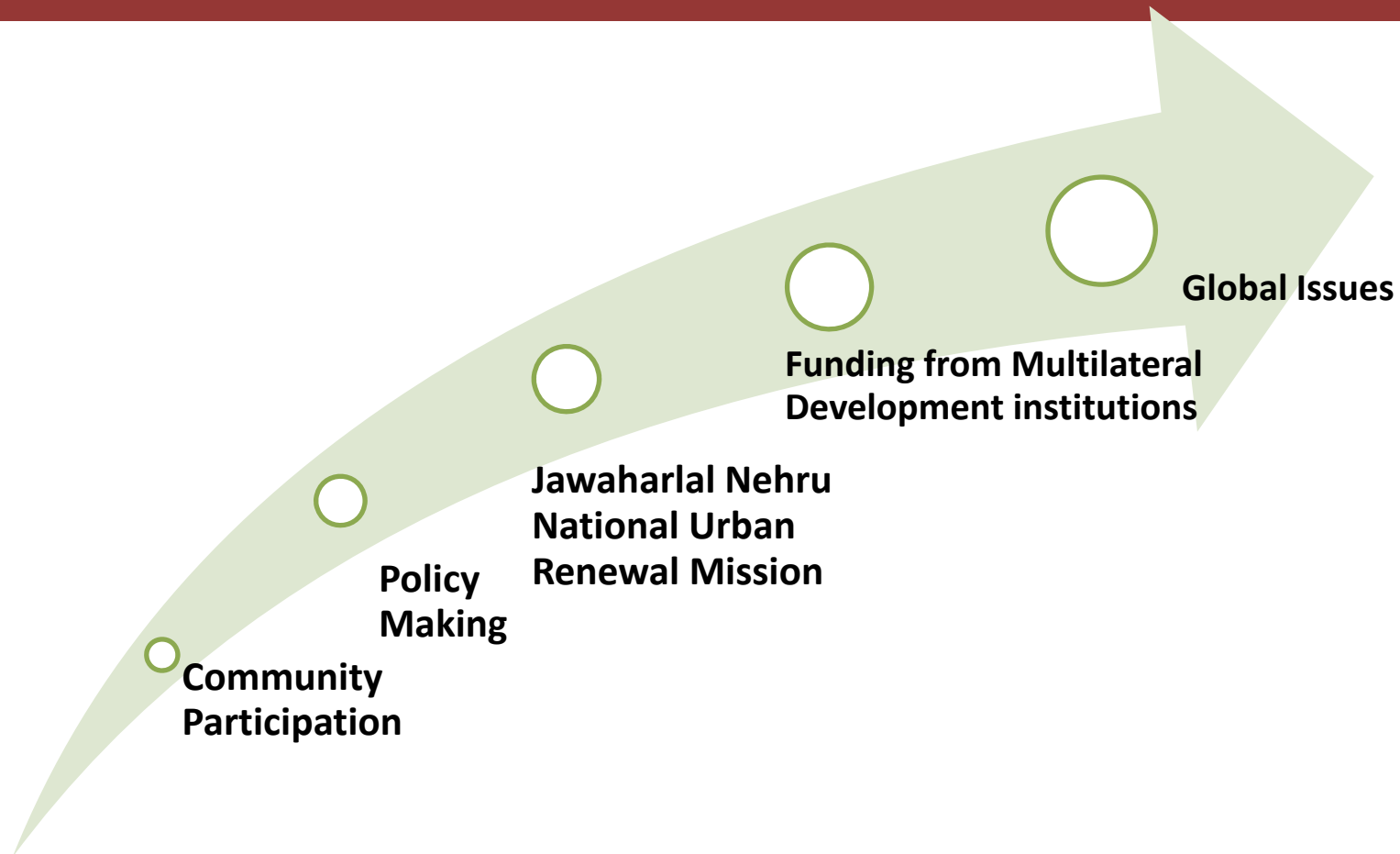
- One way system must employ in some congested roads (*ESR 2004-05, Jalgaon Municipal Corporation*)
- Development of green belt along river, nallah and watershed area (*ESR 2007-08, Bhusawal Municipal Corporation*)
- Keeping control on the number of private vehicles and maintain a record of the same (*ESR 2005, Nashik Municipal Corporation*)

# Observations

## **No recommendations for the implementation**

- Details like precise locations, technical features, funding requirements, implementation arrangements and sharing of responsibilities are not annexed.

# Opportunities for ESRs



# Opportunities for ESRs

## **Triggering action at community level**

- Communities can be the best judge of the environment in which they are living.
- Their contribution in action planning and implementing the plan is valuable
- ESR is a city level document
- If reach of ESR is increased it can trigger action at community level



# Opportunities for ESRs

## **Jawaharlal Nehru National Urban Renewal Mission**

- They can play an important role in progress reporting in National level urban infrastructure projects like Jawaharlal Nehru National Urban Renewal Mission (JNNURM).
- JNNURM Progress Reporting is at 3 levels.
  - State level
  - City Level
  - Project Level
- ESRs can be a key input for JNNURM Progress reporting at city level.

# Opportunities for ESRs

## **Funding from Multilateral Development Banks (MDBs)**

- ULBs may be allowed to directly raise funds from MDBs such as the World Bank (WB), Asian Development Bank (ADB) and other international financial institutions, based on their credit ratings
- At present, funds for ULBs are routed through the Centre.
- Government has already launched an initiative to rate their infrastructure projects. Credit rating agencies like Fitch, ICRA and CRISIL have been asked by the government to rate the projects of these bodies according to their financial and infrastructural viability

# Opportunities for ESRs

## Reflecting on Global issues

- While addressing the global issues like climate change, effort started with a top-down approach often gets diluted till it reaches the bottom of the system
- ESR can trigger a bottom up approach for addressing the global issues

# **ESR Preparation Process and Strategic Action Planning Session II**

Conducted by  
Environmental Management Centre  
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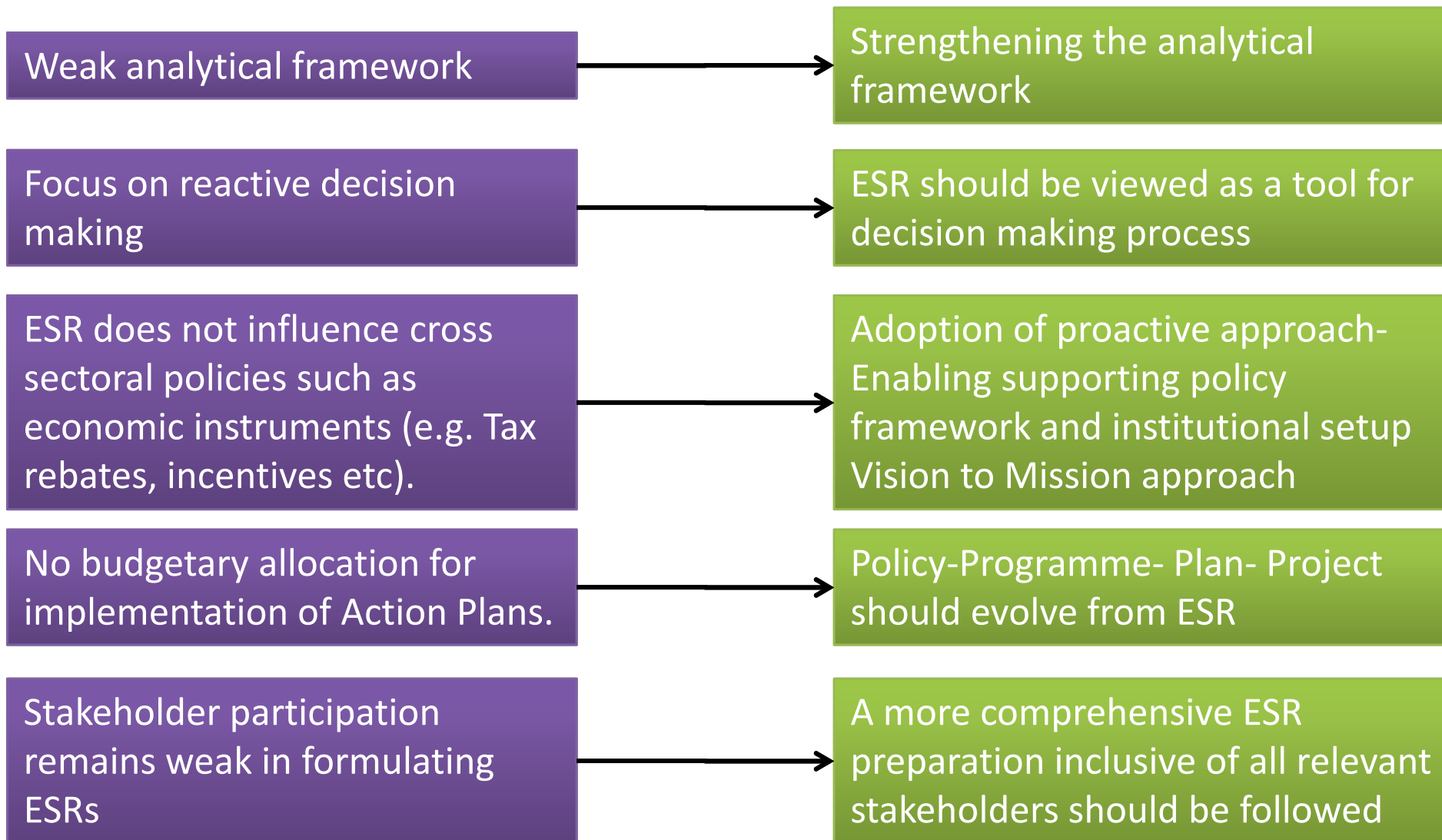
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# Agenda for Session-III

- How to strengthen ESR Preparation Process
- What is Situation Analysis?
- How to form Vision statement, Mission statement, Goals and Objectives?

# Strengthening ESR Preparation Process

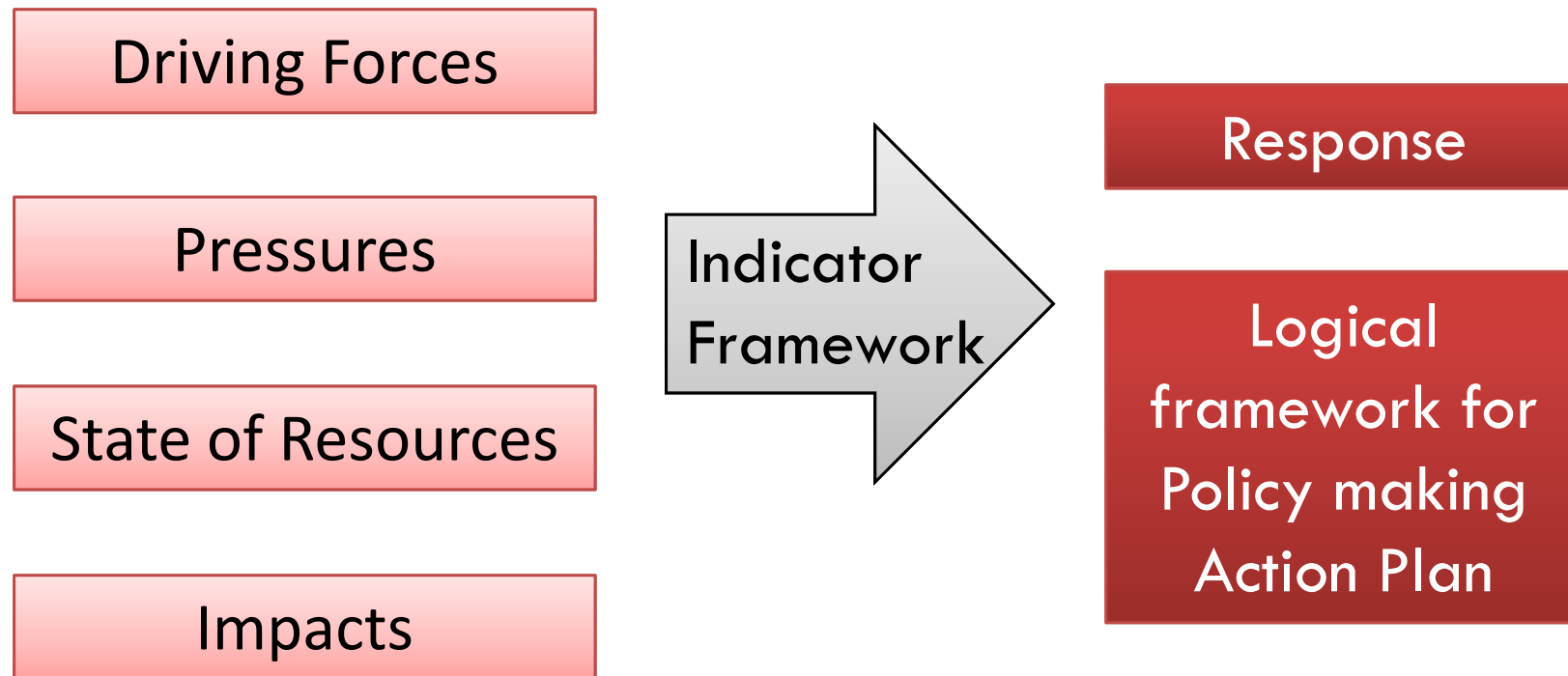


# Strengthening the analytical framework

The analytical framework of the ESR should

- Assist in drawing meaningful inferences and
- Guide responses towards environment protection in the City.
- Should be able to transcend from the understanding of the Impacts of the Driving Forces and Pressures on the State of the Environment
- Provide a logical decision making structure for Responses to planners and policy makers.

# Strengthening the analytical framework



The stepwise approach in the DPSIR framework allows this to a certain extent, but additional analytical interventions are found necessary to translate the **'D-P-S-I'** into the **'R'**.

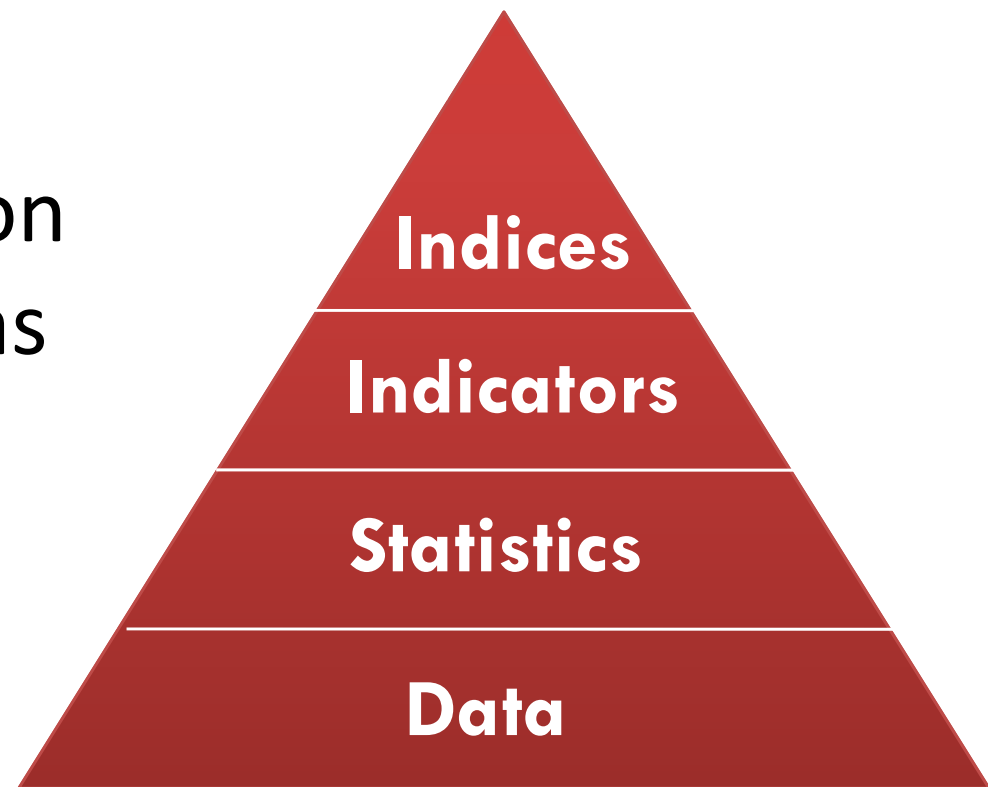


# Analytical Framework of indices

- Indices can provide crucial guidance for decision- making in a variety of ways
- They can **translate physical and social science knowledge into manageable units of information** that can facilitate the decision- making process.
- They can help to **measure and calibrate** progress towards sustainable development goals.
- They can provide an **early warning**, sounding the alarm in time to prevent economic, social and environmental damage.
- They are also important **tools to communicate ideas**, thoughts and values.

# Analytical Framework of indices

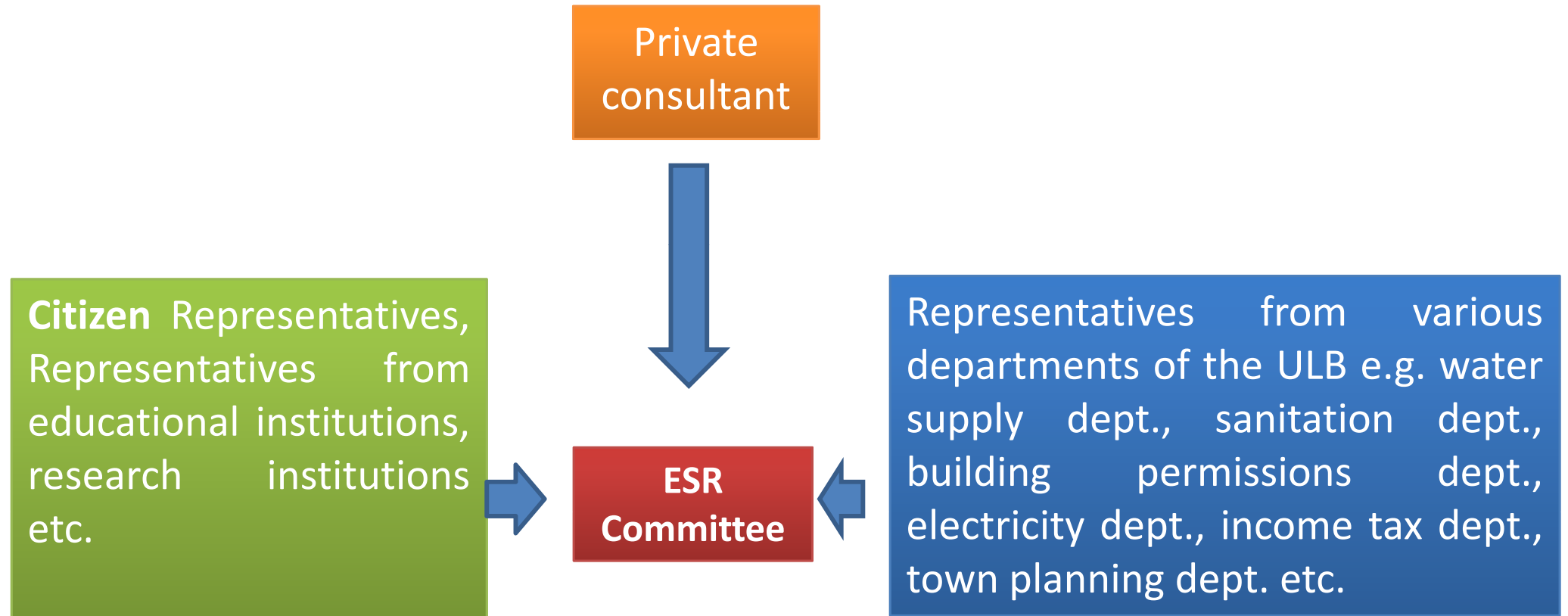
Collection of data  
and its interpretation  
is often expressed as  
a progression in a  
pyramid



# Stakeholders' Participation

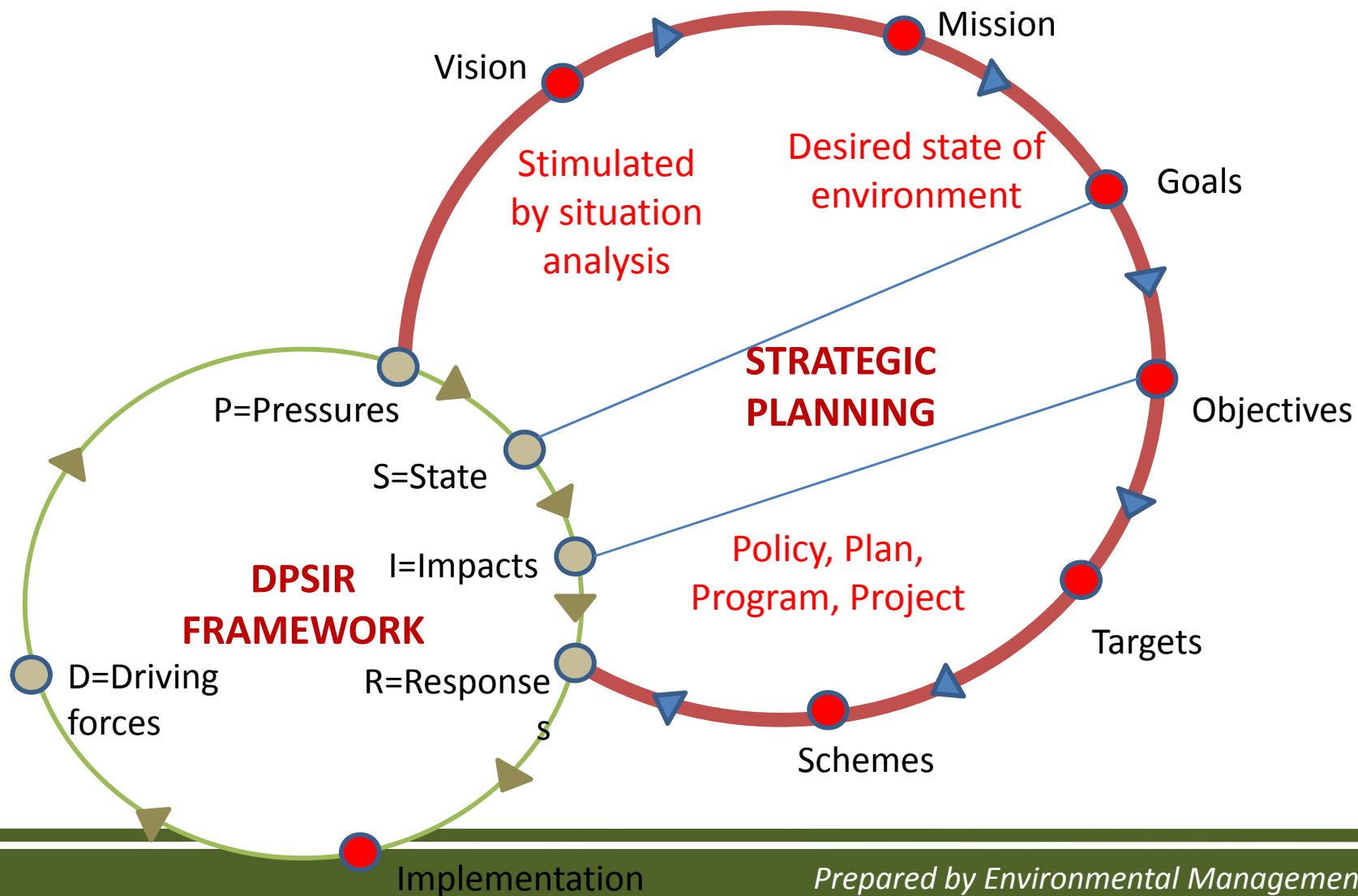
- The stakeholders' consultation process of consultation aims **to bring the opinions of a range of stakeholders to a common platform** that can be converted into tangible developments in the city
- The **primary objective** of the stakeholder consultation is to **identify the city needs through consultations with a range of stakeholders**

# ESR Committee



# Linking ESR to Strategic Planning

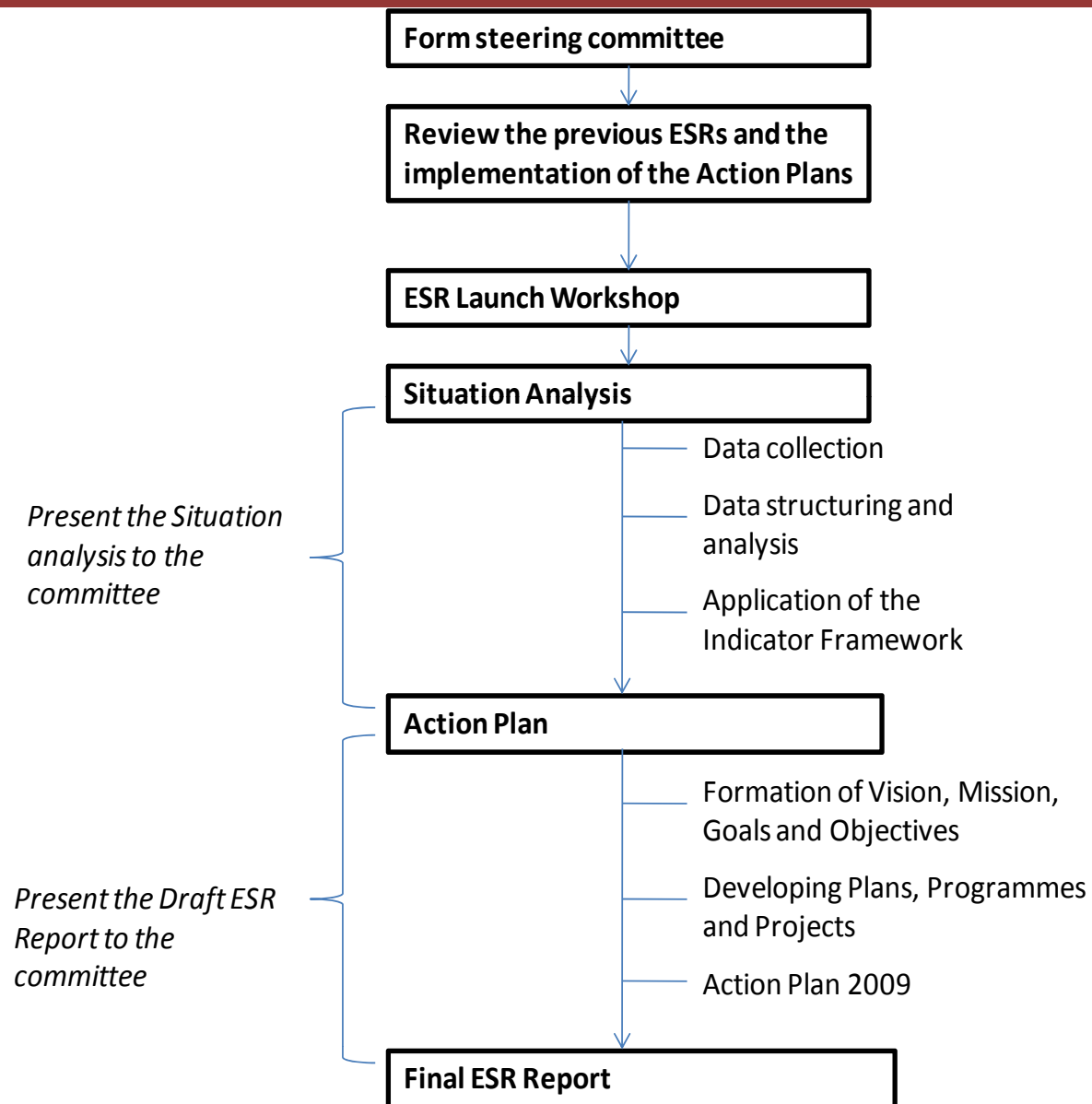
ESRs should be viewed as a tool for decision making process



# Strategic Planning



# Process



# Situation Analysis

- Situation Analysis is conducting a brief scan or review of the organization and its environment
- In the context of the ULBs, the situation analysis can be classified into two categories, namely:
  - External situation analysis
  - Internal situation analysis



# External Situation Analysis

- External situation analysis can be done by reflecting on the environment 'surrounding' the organization
- In context of ULBs, the external environment would consist of the **situation of natural environment in the concerned City**
- This will include media such as air, water, land, extent of industrialization, migration etc
- ESR of the City would most appropriately describe the external situation of respective ULBs

# External Situation Analysis



# Internal Situation Analysis

- A careful examination of **organization's** various strengths, weaknesses, opportunities and threats is performed in this category of analysis
- This is also known as the “**Strengths, Weaknesses, Opportunities, Threats**” or the **SWOT** analysis

# Forming Vision

## What is Vision?

- *A vision is a guiding image of success formed in terms of a contribution to society*
- *The future destination*
- An image in words of what success would look like, built on reasonable assumptions about the future

# Forming Vision

## Vision Statement

- Conceptual description of the desired future state of the city
- Compelling picture or image that helps citizen understand the future direction and achievement of the city
  - **An external vision** focuses on how the world will be improved, changed, or different if the organization achieves its purpose.
  - **An internal vision** describes what the organization will look like when it's operating effectively to support the external vision.

**A comprehensive vision statement would convey both an external and internal vision for the organization**

# Vision Statement of NMMC

## Vision Statement of NMMC

- ***“City on waterfront”***
- ***“Slum free City”***
- ***“Healthy city”***
- ***“Safe and efficient transportation system”***

*Vision for NMMC area is to create a slum free healthy city with vast water front development and efficient transportation system*

# Vision Statement of Mumbai

- **Vision Statement for Mumbai**

*(Developed by Mumbai Transformation Support Unit (MTSU))*

*Transforming Mumbai into a World Class city with a Vibrant Economy and Globally Comparable Quality of Life for its Citizens*

- The Mumbai Transformation Support Unit (MTSU) is an initiative of the World Bank, Cities Alliance, USAID, All India Institute of Local Self-Government and Government of Maharashtra. It was set up in 2005 to facilitate the process of Mumbai's transformation by advising on, co-ordinating and monitoring projects undertaken these agencies to improve quality of life in Mumbai.

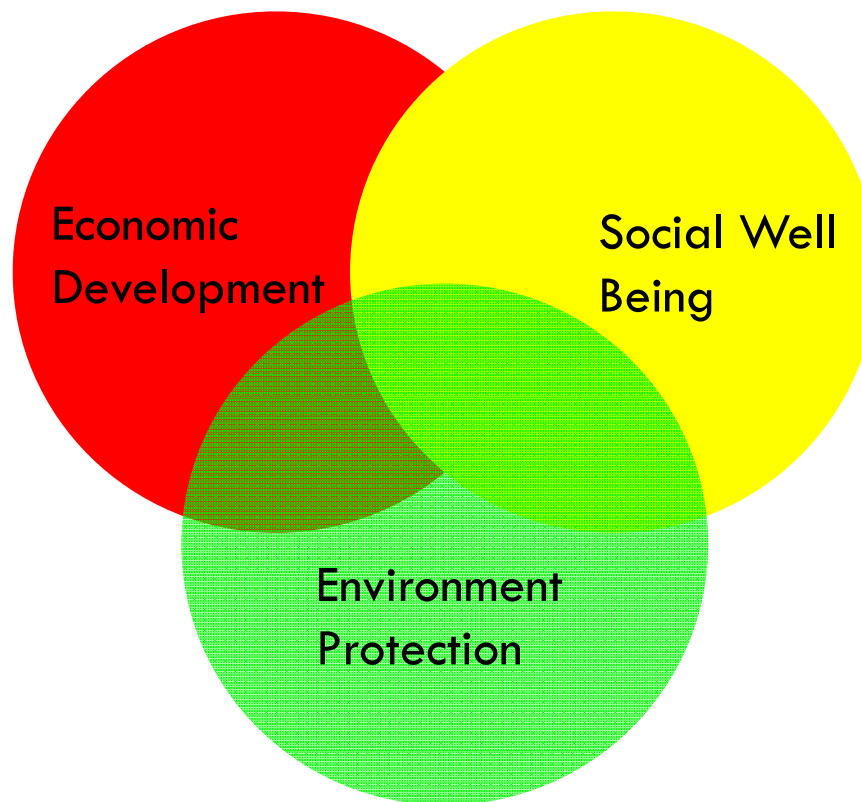
# Vision – Panaji in Goa

- Panaji is to be developed as
  - a city that is environmentally and economically sustainable,
  - a city that is a mixture of heritage and modernity,
  - a city that cares for its citizen,
  - a city that cares for its tourist,
  - a city that maintains its culture,
  - a city that provides high quality infrastructure services and facilities,
  - a well managed clean, green and safe city that provides better present and bright future to its people.



# Vision Statement for the city

- For a city, visioning towards “triple bottom line” i.e. environmental protection, economic development; social well being or improvement in the livelihoods of people is relevant



# Vision Statement for the city

- Vision statement should be
  - realistic and credible
  - well articulated
  - easily understood
  - appropriate
  - ambitious and responsive to change.
- Vision statement should orient the organizations energies
- Serve as a guide to action
- It should be consistent with the values
- A vision should challenge and inspire the group to achieve its mission

# Developing the vision statement

- **Process to form the statement is as important as the vision statement itself**
- When the process is done right, it can be a powerful force to galvanize employees into achieving goals not dreamed possible

# Mission Statement

- A mission statement answers the questions:
  - *Why does our organization exist?*
  - *What business are we in?*
  - *What values will guide us?.*
- The mission statement is a precise description of what an organization does
- The mission statement reflects the overall purpose of the organization
- When wording the mission statement, organization's products, services, markets, values, and concern for public image must be considered

# Mission\* Statement of MPCB

‘Improvement in Boards functional efficiency, transparency in operation and adequate response to growing needs of environmental protection and sustainable development in the State of Maharashtra’

# Mission\*-Nano City

*To develop a sustainable city with world class infrastructure and to create an ecosystem for innovation leading to economy, ecology and social cohesion.*

- Nanocity is a public/private partnership between Sabeer Bhatia Group and the Haryana State Government
- Spans 11,138 acres of flatland located just beyond the foothills of the Himalayas. It is less than 25 km east of Chandigarh and just over 200 km north of Delhi It.



# JNNURM Mission Statement

*‘The aim is to encourage reforms and fast track planned development of identified cities. Focus is to be on efficiency in urban infrastructure and service delivery mechanisms, community participation, and accountability of ULBs/ Parastatal agencies towards citizens’*

# Critical Aspects of Vision & Mission Statement

## **The vision/mission statement should be**

- Appropriate to organizations mandated objectives and functions
- Short enough and use terms that can be easily understood
- Clear and on target in today's operating environment
- Should not duplicate the mission of any other organization
- Considering the answers to these questions, if required, the vision/mission statement should be changed



# Goals

- Goals translate the vision and mission into specific and discrete aims that need to be achieved to fulfill them
- Goals are broad statements of what the organization hopes to achieve in the next 5-10 years
- Goals need to be:
  - Consistent with vision/mission statements
  - Focused on near future
  - Focused on outcomes
  - Qualitative in nature

# Goals

- Goals will set only the directions but not specify further details or attempt metrics or quantification
- This is done at the stage of forming objectives and targets

# Objectives

- An objective is a short-term, practical target related to a goal
- Objectives are specific, measurable, attainable, realistic, and time-bound
- Objectives are statements of what will be done to achieve a goal generally within a 2 to 3 year time frame
- Targets are sometimes treated like sub-objectives and include *“what will be accomplished”* and *“by when”* and focus on results over 1 to 2 years
- Goals set directions and objectives (along with targets) define what is exactly to be achieved in the chosen direction

# Example - Objectives

- Kerala State Environmental Status Report

“

- *to provide information on the status of the environment and on the causes of environmental degradation;*
- *to serve the Government in formulating environmental protection strategies;*
- *to serve as resource material for promotion of environmental awareness; and*
- *to identify areas requiring closer attention; and*
- *to outline protection measures that need be implemented*

”

# Example-Mission, Goals, Objectives

## **Mission:**

- The mission of the University of Washington School of Public Health (SPH) is to promote population health, prevent illness, disability, and injury, and ensure efficient, effective, and equitable health care systems through education, research, and service

# Example-Mission, Goals, Objectives contd.

## **Goals:**

- Educate innovative, effective, and culturally competent public health researchers, faculty, and practitioners
- Advance knowledge in the public health sciences through research and discovery
- Contribute to sound public health policies and increase the recognition of the importance of public health through dissemination and community collaboration

# Example-Mission, Goals, Objectives contd.

- Educate innovative, effective, and culturally competent public health researchers, faculty, and practitioners
  - Recruit and retain outstanding faculty in the range of disciplines and specialities consistent with SPH's mission
  - Recruit graduate and undergraduate students of the highest academic capabilities who are committed to public health
  - Provide a multicultural setting for public health learning
  - Provide excellent educational programs and opportunities
  - Apply innovative pedagogical methods to enhance teaching and learning
  - Promote lifelong learning

# **Indicator Framework for Gap Assessment Session III**

Conducted by

Environmental Management Centre

<http://www.emcentre.com>

Supported by

**Maharashtra Pollution Control Board**

**September 8 and 9, 2009**



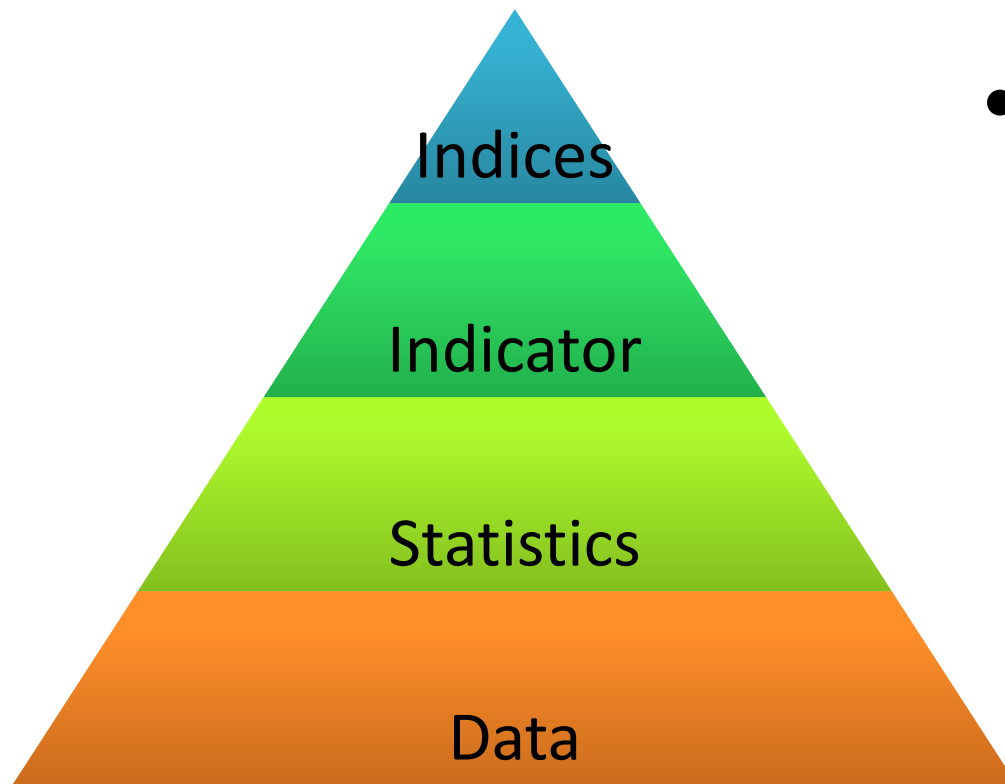
# Agenda for Session-III

- Analytical frameworks for ESR
- Analytical framework of Indices
- Indicator framework for Gap Assessment
  - Data requirements
  - Data structuring
  - Benchmarks
  - Gap analysis
  - Setting targets

# Analytical framework of Indices

- Indices are analytical frameworks which can provide crucial guidance for decision- making in a variety of ways
- They can **translate physical and social science knowledge into manageable units of information** that can facilitate the decision- making process
- They can help to **measure and calibrate** progress towards sustainable development goals
- They can provide an **early warning**, sounding the alarm in time to prevent economic, social and environmental damage
- They are also important **tools to communicate ideas**, thoughts and values

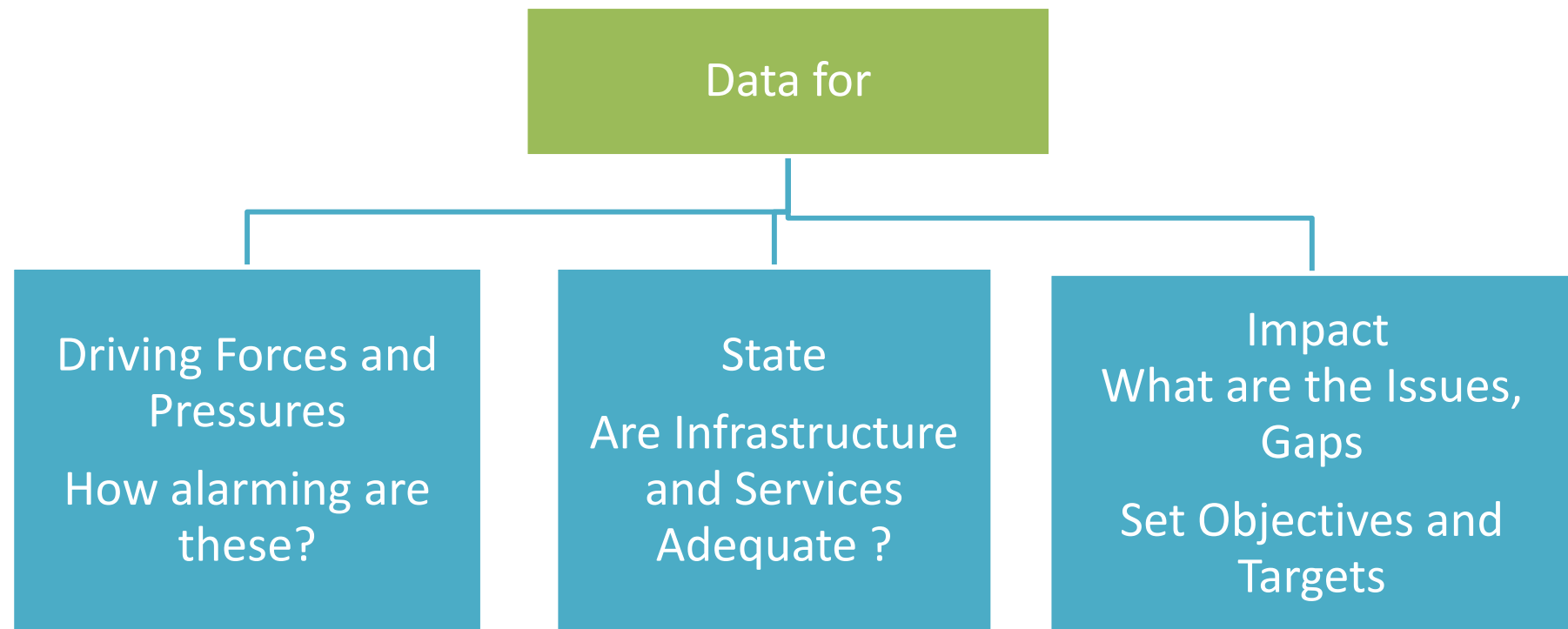
# What are Indices?



- Collection of data and its interpretation is often expressed as a progression in a pyramid

*The word indicator is often misused and is applied to a range of situations using numbers that all attempt to describe and measure performance of an activity*

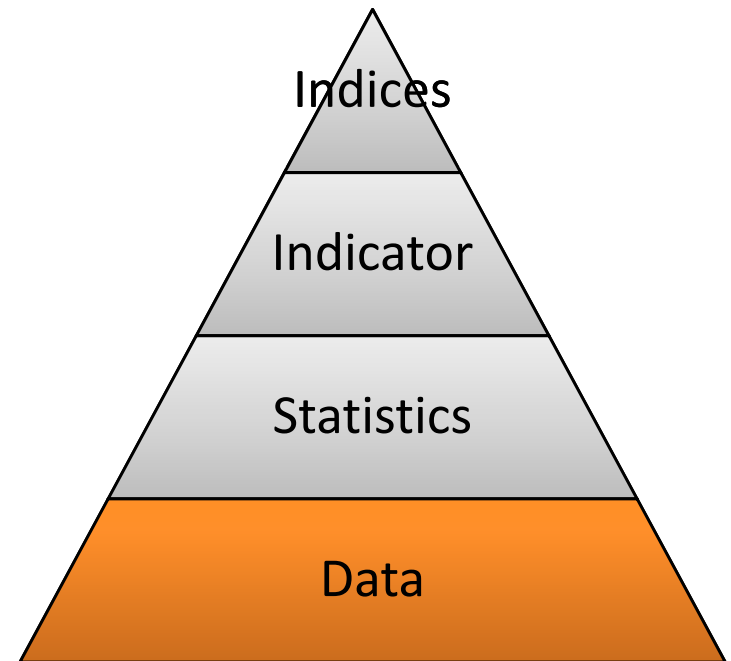
# Analytical Framework



# Indices explained...

## Data

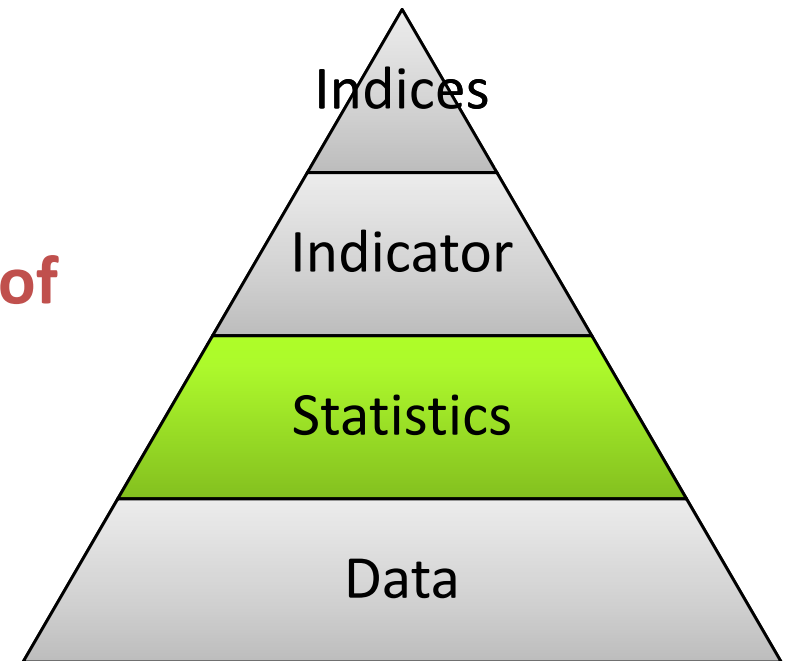
- **Forms the foundation,**
- **Collection of numbers for a specific purpose**  
*E.g. the number of paved roads in the city*
- **Information but without a context or further analysis**
- **Does not provide much insight.**
- **To be useful, it needs interpretation**
- The addition of further data such as the *cost of a lane kilometer of paved road* and combining the two data sets, provides additional information especially if it is compared year-over-year.



# Indices explained...

## Statistics

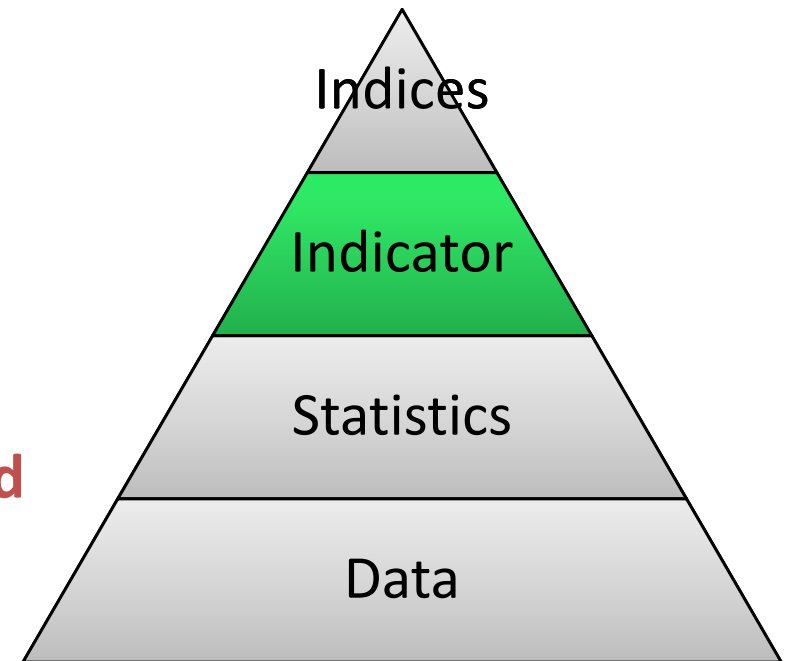
- The layer above “data”
- **Collection, analysis, and presentation of data to be used for making informed decisions in all areas of business and government**
- **Often need interpretation**
- The interpretation is provided to explain the numbers, especially when year-over-year comparisons are used and different answers could be given to questions about why numbers went up or down



# Indices explained...

## Indicators

- Level above 'statistics'
- Models that simplify complex subjects to numbers which can be easily grasped and understood by policymakers and the public
- **Simple numbers, comparable over time and space, that have a clear link with policy implications**

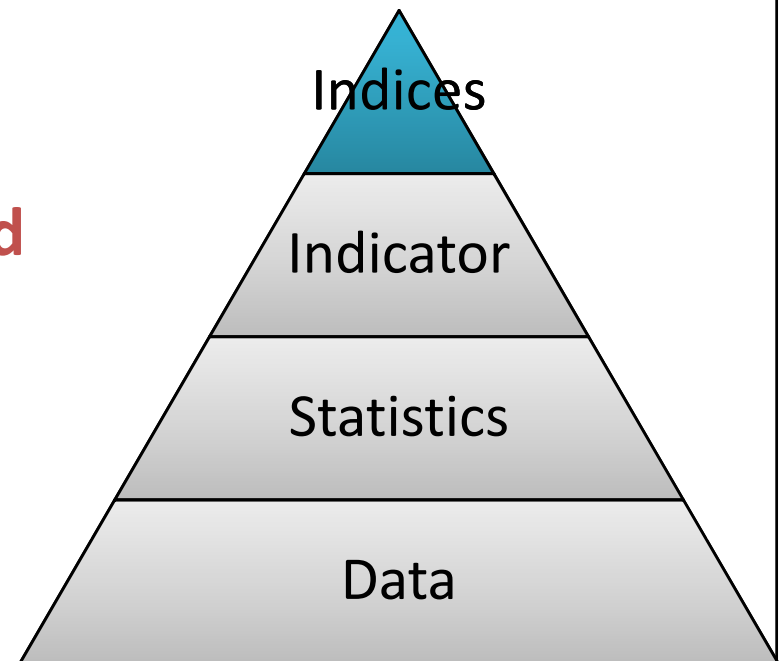


- In contrast to statistics, indicators should **send a plain and correct message without the need for further explanation or interpretation**
- For more complex issues, they **can be also be used as an executive summary to inform non-experts who want to get a quick impression of basic trends**

# Indices explained...

## Indicators/Indices

- **Terms often used interchangeably** because they are **both used to measure a condition that requires little additional analysis to understand**
- Most commonly, the term “**index**” is **used for indicators related to a baseline**
- Indicators that can accurately show the outcome of the performance of city services and programs are particularly important





# Purpose of Indicators

- They are an important **quantitative tool for measuring performance** of any type of city.
- They should be designed **to explain** something important about the services or products that are being delivered
- They are **instruments that help us understand, manage and improve** what our cities do.
- Effective indicators **can help measure how well services are delivered and the level of citizen satisfaction** with that delivery

# Functions of Indicators

## Description

- Describes conditions or problems Increase general understanding

## Simplification

- Simplify complexity; provide a representative picture with significance extending to larger phenomena of interest.

## Measurement

- Measures characteristics of quality of life; measure performance of activities or services

## Trend Identification

- Establish baseline data; identify trends or patterns; show direction, improvement, disintegration, plateau

## Clarification

- Clarify analytical issues or long-term goals; Highlight areas of concern or improvement

## Communication

- Translate data into terms understandable by a wide range of viewers

## Catalyst for Action

- Stimulate public, stakeholders and political awareness, as well as interest and will to work towards change.

# Global Indicator Programmes

Programs measuring progress  
toward global goals and  
declarations  
Millennium Development Goals  
Habitat Agenda  
Local Agenda 21

Global Urban Indicator Database  
Millennium Projects  
Urban Indicator Programme

Rankings

City Environment Reports on  
Internet (CEROI)

Programs monitoring specific issues

Conducted by private firms , No  
suggestions for improvement  
Ways to compare cities based on  
that specific issue

Capacity building programs

Organizations working with cities for  
developing a co

# Regional & National Indicator Programmes

Regional Indicator Programmes

Regional Programmes addressing cities within specific region, frequently continent

National Indicator Programme

National indicator programmes for cities in one country

# Indicator Programmes in India- USERS

## **Urban Services Environmental Rating System (USERS)**

- TERI was engaged by the MoEF and the United Nations Development Programme (UNDP) to develop a framework
- The aim of this project is to measure the performance of a municipal body with respect to its service delivery in urban areas through a set of performance indicators that are benchmarked against set targets

# Indicator Programmes in India- USERS

## Objectives

- To **address issues in urban governance**, specifically in core infrastructure and municipal finance, for achieving better understanding and control over it
- Provide policy makers, municipal bodies, and other implementation agencies with an **analytical tool for more informed planning and decision-making** in the urban areas
- Empower urban communities with information to encourage the emerging trend towards **transparency and accountability by the municipalities**
- Develop and distribute a **performance measurement system for the environmental aspects associated with the operations of urban agencies** providing the services of water supply and waste (solid waste and waste water) management

# Indicator Programmes in India- USERS

- The overall comparative performance assessment is based on the combination of parameters linked to **service delivery and financial performance**
- The service delivery consisted of parameters such as **service level, coverage, and service efficiency**. The study covered the following functions of a local body
  - **Water supply**
  - **Sewerage and sanitation**
  - **Road and storm water drainage**
  - **Street lights**
  - **Solid waste management**
- A total of 41 indicators (**15 financial, 17 service level and coverage, and 9 indicators for service efficiency**) had been used for the comparative performance assessment

# Proposed Environmental Score for Cities

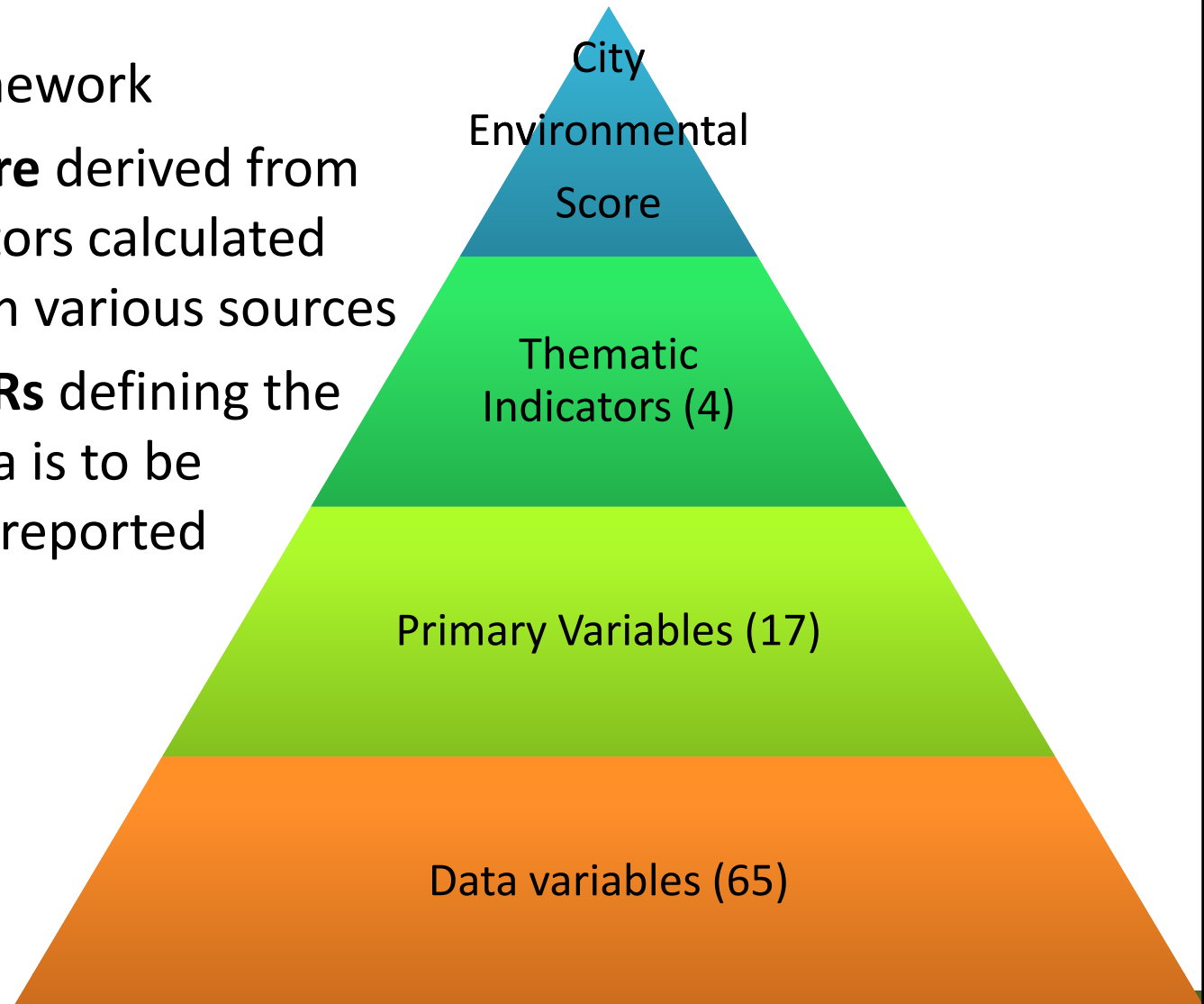
**Environmental Management Centre**

<http://www.emcentre.com>



# Proposed Indicators Framework

- Based on **D-P-S-I-R** framework
- **City Environmental Score** derived from various thematic indicators calculated from data accessed from various sources
- **Guide for the future ESRs** defining the format in which the data is to be collected, analyzed and reported



# Proposed Indicators Framework

## Thematic Indicators

Growth of Cities	State of Resources	Urban Services	Initiatives for Improving City Environment
------------------	--------------------	----------------	--

## Primary Indicators for Diagnostic and Action Planning

Demographic Growth	Land	Water Supply	Environmental Education
Economic Growth	Air & Noise	Sewerage & Sanitation	Waste Management
Industrial Growth	Water	Solid Waste Management	Slum Improvement
Spatial Growth	Energy	Transport	Traffic
	Humans		

Each Primary indicator comprises of a few data variables

# Proposed Indicators Framework

- Each Primary indicator comprises of a few data variables
- The first three Thematic Indicators enable identification of interventions at the **Project** level
- The fourth Thematic Indicator '**Initiatives for Improving City Environment**' captures initiatives where benchmarks are unavailable
- It enables identification of interventions at the **Programmatic** level.

# Methodology

## Defining weights for data variables

Identifying benchmarks for each data variable

Normalizing the data values  
classifying them into ranges and  
assigning scores

Entering data for each variable

Calculating the weighted score

Data variables of all the primary indicators under same theme were assigned weight based on their contribution to the city environment

The weights sum up to 100

# Methodology

Defining weights for data variables

Identifying benchmarks for each data variable

Normalizing the data values classifying them into ranges and assigning scores

Entering data for each variable

Calculating the weighted score

A **Benchmark** is typically based on best practices or an agreed upon standard by which other situations may be measured or judged

Benchmarks were identified using various sources:

**Demography-** Census figures for state and country

**Natural resources-** Standards defined by various agencies like MPCB, CPCB, UDPFI, CPHEEO etc.

**Urban services-** Various studies conducted. E.g. studies by agencies like ADB, MEDA etc.

**Data variables not having any defined benchmark-** E.g. Percentage of slum area to city area or annual fuel consumption of the city- benchmarks defined using State averages viz relative benchmarking

# Methodology

Defining weights for data variables

Identifying benchmarks for each data variable

**Normalizing the data values classifying them into ranges and assigning scores**

Entering data for each variable

Calculating the weighted score

*Pro environment Variable*  
**Lower score**

*Anti environment Variable*  
**Higher score**

Benchmark  
Or  
Average  
score

Lesser value

Greater value

*Pro environment Variable*  
**Higher score**

*Anti environment Variable*  
**Lower score**

For Example:

Score	Units	10	8	6	4	2
Data Variable						
Unaccounted for water	%	<10	10-15	15-20	20-25	>25
Staff/1000 connections	Persons	>30	25-30	20-25	10-20	<10

# Methodology

Defining weights for data variables

Identifying benchmarks for each data variable

Normalizing the data values classifying them into ranges and assigning scores

**Entering data for each variable**

Calculating the weighted score

Data collected from various sources has to be converted into a manner which can be entered into the matrix

For Example:

Percentage of households connected by service connection

Consider a ward population of 75,000 of average family size 5 with number of household service connections for water supply 12000

Percentage of households connected by service connection=  $[12000/(75000/5)] \times 100 = 80\%$

# Methodology

Defining weights for data variables

Identifying benchmarks for each data variable

Normalizing the data values classifying them into ranges and assigning scores

Entering data for each variable

**Calculating the weighted score**

Weighted Score = Score x Weight

For Example:

Percentage of households connected by service connection is found to be 80%

The score as per the classification is 10

The weight assigned is 6.2

Therefore the weighted score= 62

A Total of all the data variables gives the Environmental Score for a city for that particular Year

*Refer Excel Model for application of Environmental Score through Indicator Framework*



# Standardizing data collection

- In order to compare the scores of the two or more cities and of two or more years, it is necessary that the data available is of the same degree; only then the scores will be compatible to compare with each other
- Instead of calculating the Score with available data, better approach would be collecting the data in the format required for calculating the Score. This will in turn standardize the data format.

# Data Sources- Growth of Cities

## Demographic Growth

- Census

## Economic Growth

- Census
- Statistical Handbooks
- Income Tax Department
- ULB Annual Budget

## Industrial Growth

- MSEB
- MPCB Regional Offices

## Spatial Growth

- Census

# Data Sources- State of Resources

Land

- Town Planning Department

Air & Noise

- MPCB Regional Offices

Water

- MPCB Regional Offices

Energy

- Maharashtra Energy Development Agency

Humans

- Census



# Data Sources- State of Urban Services

Water Supply

- Water Supply Department

Sewerage  
Sanitation

- Sewerage Department

Solid Waste  
Management

- Solid Waste Management  
Department

Transport

- Regional Transport  
Authority



# Data Sources- Initiatives for improving city environment

Environmental Education

- Maharashtra State Board of Secondary Education

Slum Improvement

- Slum Rehabilitation Authority

Solid Waste Management

- Solid Waste Management Department

Traffic

- Regional Transport Authority

# **Table of Contents of Model ESR Session IV**

Conducted by

Environmental Management Centre

<http://www.emcentre.com>

Supported by

**Maharashtra Pollution Control Board**

**September 8 and 9, 2009**

# Key Messages of ESR Report

- ESR Report should
  - Capture essence of the comprehensive ESR preparation process
  - Incorporate inputs from various stakeholders
  - Guide data collection and not be guided by it
  - Lead to blue print of vision to action
- ESRs should not be just compilation of information
- An action plan should emerge out of the ESR

# Sections of Model ESR report

- Executive (*Non-Technical*) Summary
- Abbreviations
- Acknowledgements
- Preamble
- City Introduction
- Process and Methodology Followed
- Vision/Mission Statements and Goals
- Situation analysis
- Gap Assessment
- Key Environmental Issues
- Objectives & Targets
- Proposed Action plan
- Budgets and Allocations
- Implementation Arrangements
- Monitoring & Evaluation
- Next Steps
- Annexes
- Glossary



# Executive (*Non-Technical*) Summary

- Concise
- Easy to understand
- In English and
- **In Marathi**

# Preamble

- **Background of ESR as a Concept and Requirement**

*What is ESR? Why do cities need to publish ESR? Role of ESR in improving the city environment*

- **About previous ESRs that have been prepared**

*Details, Overview of key Issues, Trends and concerns, Actions taken, Barriers faced if any*

# City Introduction

- Location in the State(map)
- City Map showing administrative boundaries
- Basic City profile and statistics (core indicators)
- Population, Land use (built, open and green space, slum and non-slum areas), Infrastructure (Housing, Water, Energy, Transport, Wastewater, Waste, Health, Education), Resource consumption, Waste/emission generation
- City Governance, Key Responsible institutions, Major initiatives

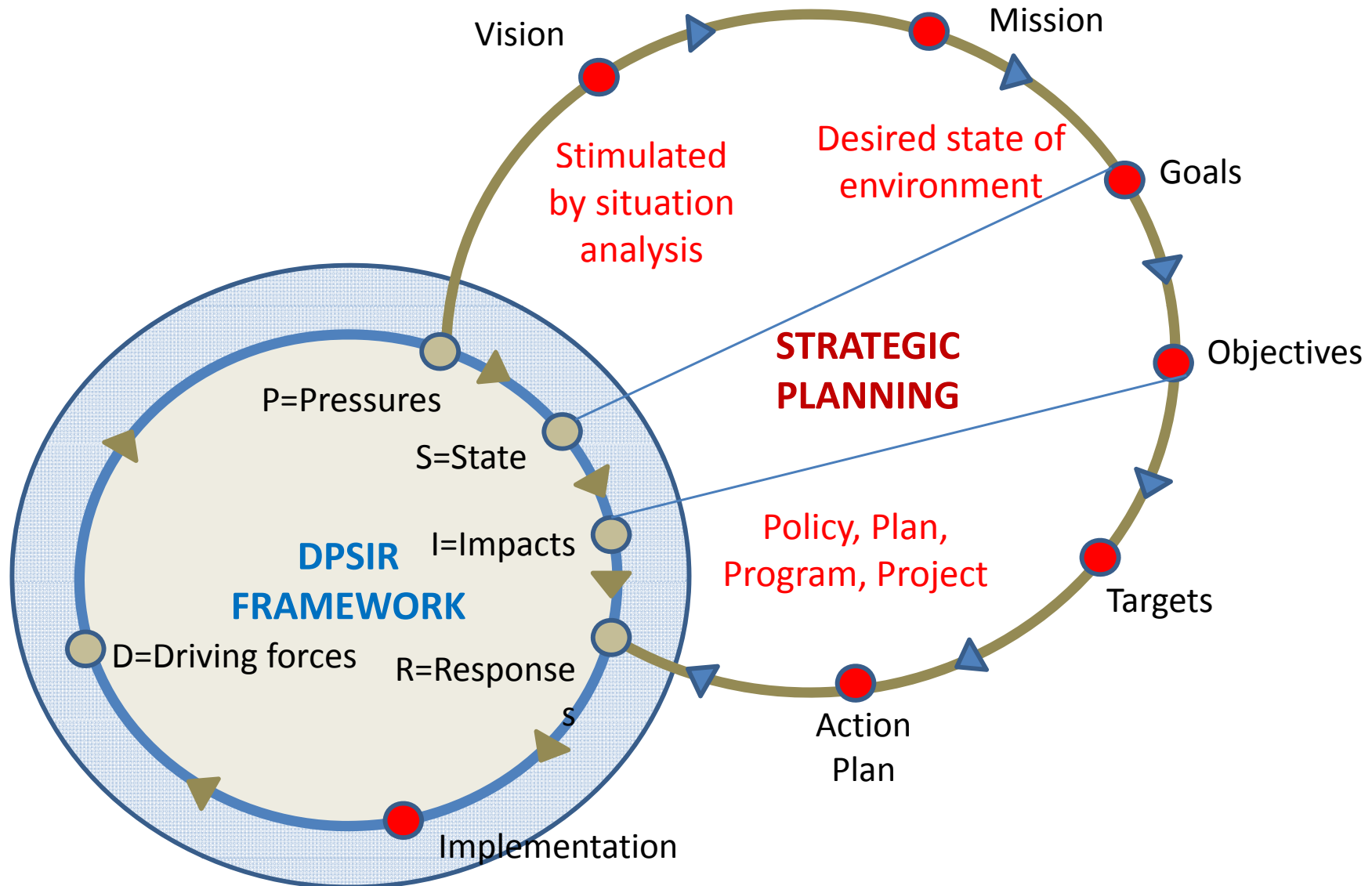
# Process and Methodology Followed

- **ESR Preparation Process** - *Details of the process that was followed for ESR preparation, shown in a flow chart*
- **ESR Committee** - *Composition of the committee. Members, Contribution of the committee in the ESR preparation*
- **Consultations carried out** - *Details of various meetings held, minutes and photographs of the meetings annexed*
- **Outsourcing** - *if carried out for data generation, consultations or for other technical inputs*

# Vision, Mission Statements and Goals

- **Vision Statement**
- **Mission Statement**
- **Goals**
- *Details in case there are changes in the Vision/Mission statements and Goals earlier set and if yes, then reasons why with technical inputs*

# Situation Analysis



# Drivers and Pressures

- **Population Growth** – *natural growth, in-migration, show plots and forecasts, statistics (sex, age, employment, income, population below poverty line)*
- **Commercial/Industrial Growth** – *trends in commercial office space, changes in indicators such as industrial workers, licenses issued to commercial/industrial units, revenue collected on octroi etc.*
- **Other factors** – *change in policies related to land use, connectivity to peripheral areas/neighbouring towns*

# State of Resources

- **Water**– *sources (surface as well as ground), demand and supply (existing and forecasted situation), quality at source and at delivery*
- **Energy**– *sources, demand and supply (existing and forecasted situation), extent of use of renewable energy, fuels used*
- **Land** – *Land use, quality/status, land available for future*
- **Ecology** - *Flora (Parks, Road side trees, surrounding forests and vegetation), Terrestrial and Avian Fauna*



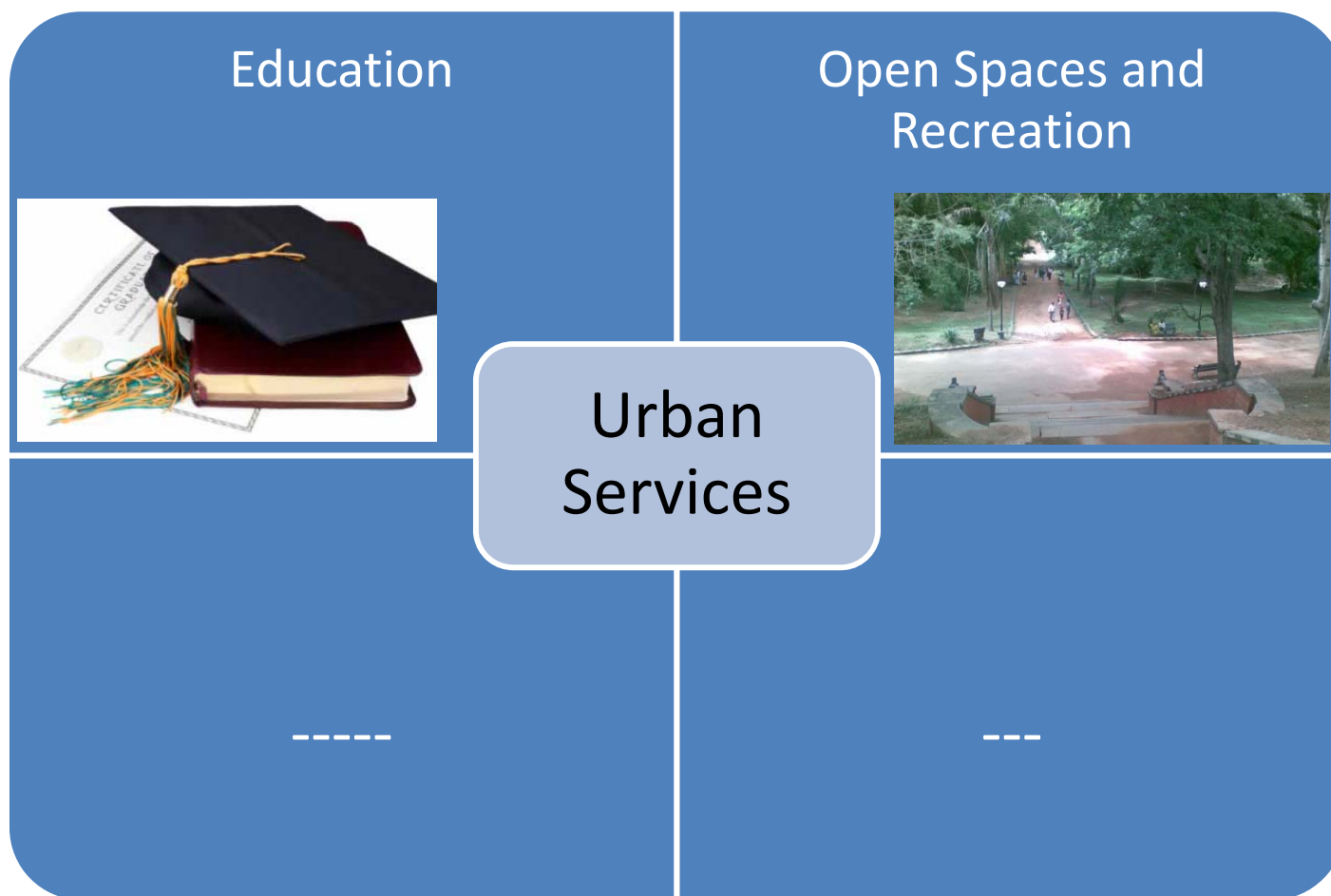
# State of Urban Infrastructure and Services



# State of Urban Infrastructure and Services



# State of Urban Infrastructure and Services



# State of Urban Infrastructure and Services

- **Water Supply** *Abstraction, Treatment and Delivery System (Maps), Major projects recently executed, initiatives like rainwater harvesting, promotion of water conserving fixtures, overall assessment of service levels (per capita, pressures, duration, quality) and efficiency (energy consumed, losses etc), Ongoing/proposed projects*
- **Sewerage & Sanitation** *House connections, Collection system (Maps), addressing of discharges from industrial/commercial areas, Sanitation in slums and public places, Treatment plants and disposal points, initiatives like sewage recycling, overall assessment of service levels (pipe connection, septic tanks etc) and efficiency (collection), Ongoing/proposed projects*
- **Storm water management** *Area served, overall assessment of service levels and efficiency, Ongoing/proposed projects*

# State of Urban Infrastructure and Services

- **Solid waste management** *Sources (MSW and Plastic Waste, Construction & Demolition, Biomedical, E-Waste, Industrial Hazardous Waste) and extent of generation, extent of segregation, frequency of collection, Bins, Vehicles, Transfer stations, Landfill details (present and future capacity), Decentralized waste management initiatives, overall assessment of service levels and efficiency, Ongoing/proposed projects*
- **Housing** *demand, present status with classification, slums, area and population living in slums, future demand of housing, projects ongoing or proposed to meet the housing demand*
- **Transport** – *public transport facilities, population served by the public transport systems, other transport systems running in the city, overall assessment of the services (road lengths, adequacy of road widths, traffic management), private vehicles, transport infrastructure management (road surfaces, flyovers, railway infrastructure), accidents, ongoing and proposed projects*

# State of Urban Infrastructure and Services

- **Power** – *source of power supply, distribution network coverage, number of households with power supply, details of load shedding, gaps in power supply, potential for renewable energy, overall assessment of infrastructure*
- **Hospitals** – *health and care facilities provided by / supported by government, need as per standards, information on past epidemics and statistics, overall assessment of facilities, ongoing and proposed projects*
- **Education** - *health and care facilities provided by / supported by government, need as per standards, overall assessment of education facilities*
- **Open spaces and Recreation** – *total area and distribution of open spaces managed by ULB (location maps), recreational facilities, need as per standards, overall assessment of facilities, ongoing and proposed projects*

# Gap Assessment

- Gap assessment is the attempt to answer “Where are we?” and “Where do we want to be?”.
- Simplest method for gap analysis is calculating the difference between need by standards / demand and supply / availability.
- Gap assessment can be
  - Quantitative
  - Qualitative
- Analytical frameworks for Gap assessment help to –
  - Identify issues
  - Prioritize issues as per severity
  - Draw an action plan

# Use of Excel Model

- An Excel model has been developed that assists in conducting Gap assessment
- The model uses benchmarks where available and checklists as appropriate to help assess “quality” of urban infrastructure and services
- Weighted scores are computed to understand the extent of gaps so that suitable action plan can be developed



# Key Environmental Issues

Gap assessment leads to identification of key environmental issues

Illustrations :

## **Deteriorating Air Quality**

- *Poor compliance with air quality standards*
- *Issue : Increasing amount of vehicles in the city, use of adulterated fuel, high composition of non-road worthy vehicles*
- *Barriers: Less use of public transport, poor enforcement*
- **Critically polluted nallahs and river stretches**
  - *Poor water quality*
  - *Issue : Increasing amount of untreated sewage in the local nallahs and rivers*
  - *Barriers: Lack of adequate sewage collection and treatment facilities*

# Key Environmental Issues

## **Soil contamination due to solid waste**

- *Polluted groundwater*
- *Issue : large amount of solid waste dumped*
- *Barriers: Lack of efficient solid waste management infrastructure*

- **Inadequate drinking water supply**

- *Low per capita water supply*
- *Issue: Loss of water in transmission and distribution*
- *Barriers: Lack of adequate infrastructure for water supply and minimize the leakages and unaccounted use of water*

# Strategic Goals (illustrative)

A goal is an outcome statement that defines what an organization is trying to accomplish both programmatically and organizationally. Goals are broad statements of what the organization hopes to achieve in the next 5-10 years.

## Example of goals

- *To protect, conserve and enhance natural resources*
- *To prevent and control pollution of all kinds in all media*
- *To protect conserve and enhance health of communities and ecosystems*
- *To enable and strengthen the organization in order to achieve the above-mentioned goals*

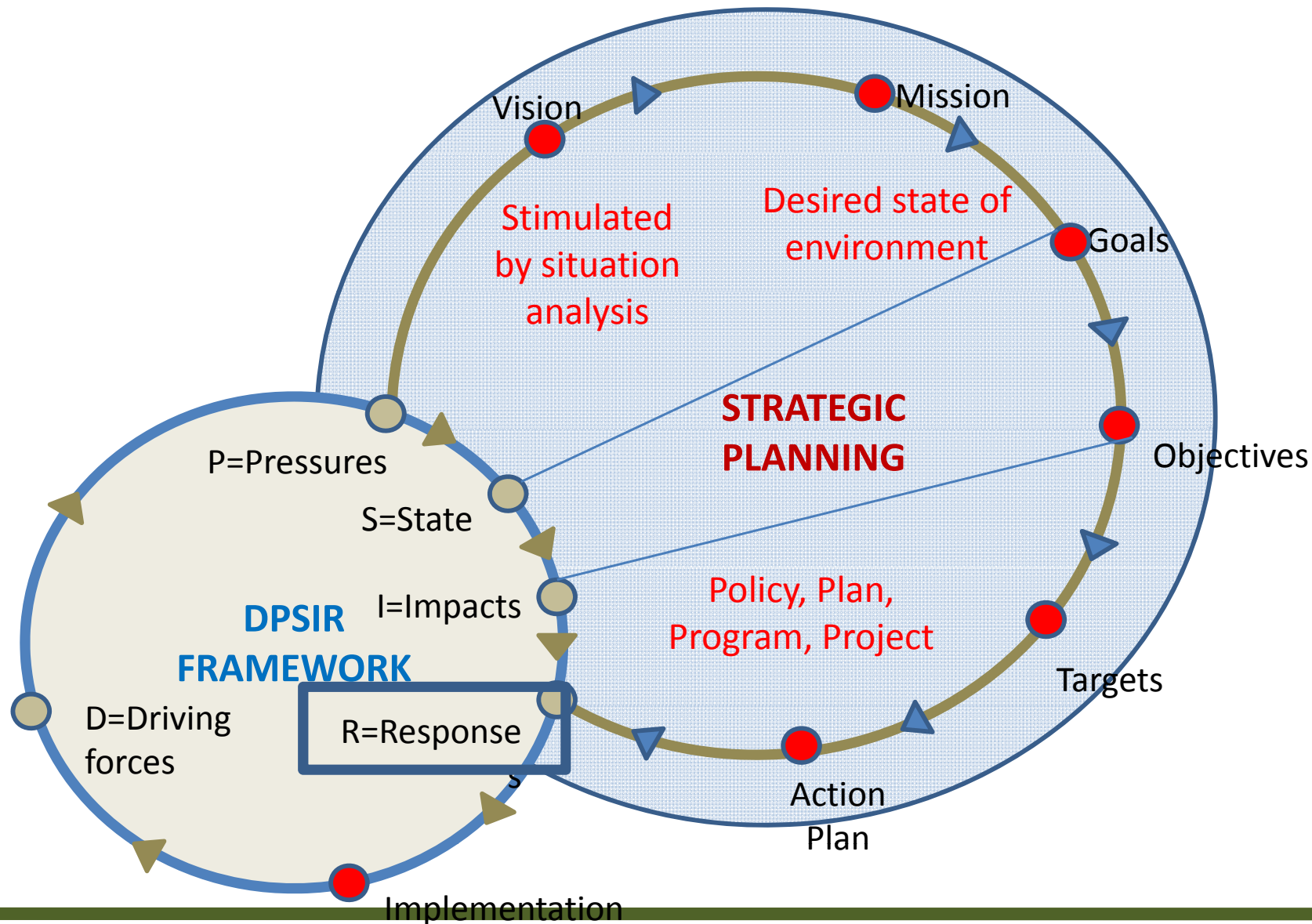
# Objectives and Targets (For Goal 1 illustrative)

Objectives are specific, concrete, measurable statements of what will be done to achieve a goal generally within a defined time frame.

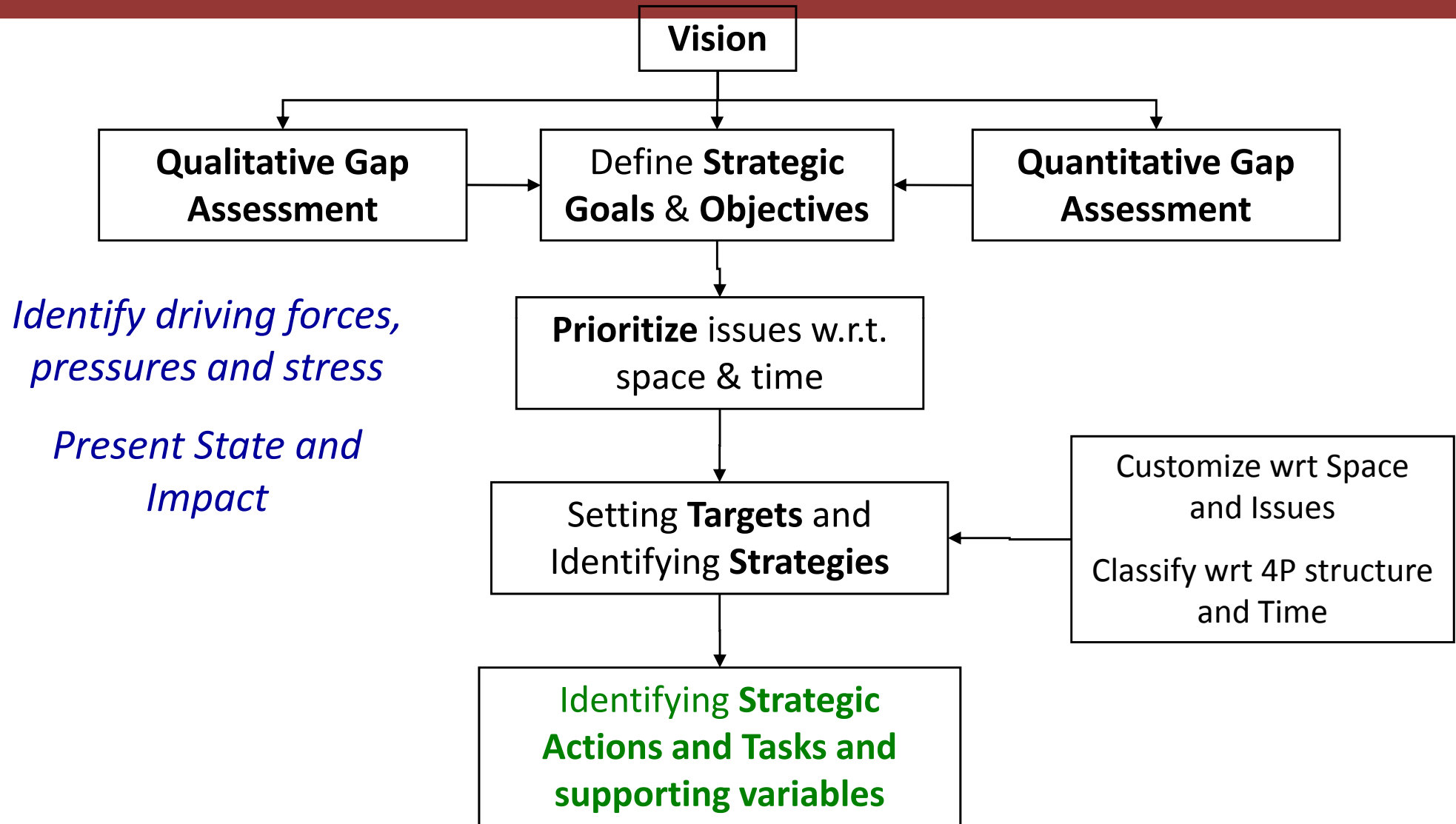
- *To achieve cleaner ambient air quality in all areas*
- *To achieve relevant water quality in all water bodies by designated use*
- *To protect, conserve and enhance land resources*
- *To avoid / reduce polluted discharges to the water environment.*
- *To avoid / reduce harmful emissions to the air environment*
- *To avoid / reduce uncontrolled waste disposal to land*

In many ways, Goals set directions and objectives (along with targets) define what is exactly to be achieved in the chosen direction

# Proposed Action Plan



# Approach for Action Planning



***Providing Data, Tools and Training for Refining and Maintenance***

# 4 P Structure

- Tasks are always classified in 4 Ps
  - **Projects** or Specific Actions
  - **Programmes** that operate over a long term, sometimes simultaneously at number of locations
  - **Plans** specific to a location or region
  - **Policies** that work as an enabling framework for the other three to be carried out.
- A 4P consideration ensures creation of an enabling framework around action plan to ensure long term outcomes and sustainability.

# Enabling Framework

Typically enabling framework looks at

- **Budgets and Allocations** : (how can the internal financial resources be better allocated, optimized (i.e. through public-private partnerships) and strengthened (using new instruments); how can the external financial resources be mobilized )
- **Implementation Arrangements**: Strengthening of the organization itself – its operational framework; directional powers, monitoring mechanisms etc
- **Stakeholder participation**: How can awareness be built to obtain active participation and commitment of all stakeholders towards the vision and action plan.
- **Monitoring and Evaluation** – how the implementation process and its effectiveness can be monitored and how it will further strengthen the action plan



# Budgets and Allocations

- Once the tasks at 4P level are defined, ESR shall estimate the cost implications for implementation.
- Budgets of each department, and fund allocations as per the priority shall be part of ESR.
- Financials models in the form of Public Private Partnership can be proposed at this level.

# Implementation Arrangements

- Primary Responsible Department
- Supporting agencies / departments
- Out-sourcing required or not?
- If yes, Terms of References for outsourcing

# Monitoring & Evaluation

- Plan for monitoring the implementation of action plan
- Methodology to evaluate the effectiveness of implementation of actions
- Effectiveness indicators will need to be identified, then assessed and reported
- Action plan will undergo adaptation/strengthening on this basis

# Illustration

**Goal** - To protect, conserve and enhance natural resources

**Objective** - To avoid / reduce uncontrolled waste disposal to land

**Tasks –**

- To identify the locations of illegal dumping
- Take legal actions against potential contributors
- Commission vigilance squads to prevent illegal dumping
- Provide information to the media to dissuade others to take the same recourse

**Implementing Agency** – Solid Waste Management Dept of ULB

**Budgetary Items** – Study to identify illegal dumping locations,  
Budget provision for vigilance staff

# Next Steps

‘Next Steps’ in the ESR may suggest

- Areas where further study / research or data collection is required
- Training and capacity building needs
- Partnerships
- Policy interventions

# Key Tips

- Use Maps and Visuals (Photos, graphs) to the extent possible
- Use formats like wide left/right margins on alternating pages with key statements appearing on the margins
- Provide references/sources to all data used
- Use footnotes for explanations

# Recapping on Why ESR?

ESR should be

- Based on scientific information, correct environmental monitoring data and sound analysis
- Compiled in a manner that is easily understandable, easy to refer to and draw meaningful inferences
- Grounded in reality and feasible, giving due considerations to constraints and concerns of implementing agencies
- Able to give technical facts in most simple and easily understandable language and visual representation
- Pave the way for effective environmental action planning and subsequent actions towards improving the state of the environment.

Adapted from *A Checklist for the State of the Environment Reporting*, EEA, 1999



# **Best Practices in Environmental Reporting Session V**

Conducted by

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**September 8 and 9, 2009**



# Modes of ESR Communication

- Hard copies (Full report, brochures only, Scorecards)
- CD ROMs
- Video clips / Flash based
- Through Exhibitions and Street Plays
- Through Interactive Kiosks at Strategic Locations
- Web pages for downloading
- Web pages with GoogleMaps and Forums

# New forms of Content

- Reporting a Score Card of Key Indicators
- Reporting of Green House Gas (GHG) emissions (moving towards a Low Carbon City)
- Featuring of case studies, personalities of the year
- Providing catalytic information such as list of experts, facilitating institutions and school projects

# Score Card - Illustration

- **Pollution Variables**
  - Total MSW generated (T/day),
  - Total BMW generated (T/M), and
  - Total HW generated (T/M)
- **Environment Variables**
  - Total number of locations for environmental monitoring,
  - Total number of environmental samples and
  - Total number of locations for monitoring at source
- **Enforcement Variable**
  - Notices and directions (total)
- **Infrastructure Variable (External)**
  - External infrastructure – CETPS,
  - External infrastructure – MSWM sites,
  - External infrastructure – BMWM sites and
  - External infrastructure – STPs
- **Infrastructure Variable (Internal)**
  - Internal infrastructure – technical staff and
  - Internal infrastructure – non-technical staff

# Score Card - Illustration



# New forms of Analysis

- Reporting a Score Card of Key Indicators
- Reporting of Green House Gas (GHG) emissions (moving towards a Low Carbon City)
- Featuring of case studies, personalities of the year
- Providing catalytic information such as list of experts, facilitating institutions and school projects

A Web-based Tool for ESRs preparation and communication

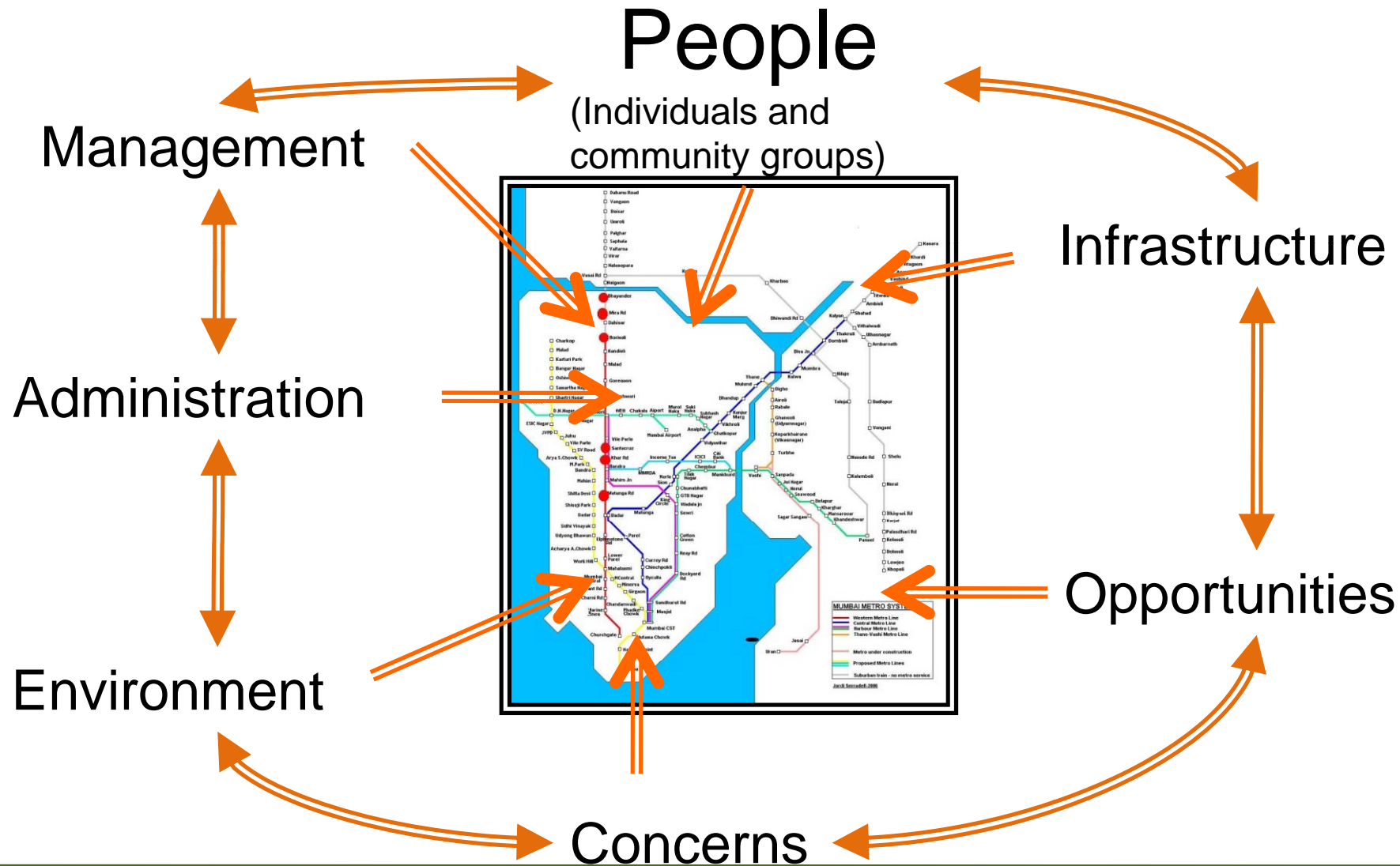
**EKOVOICES**

# Why Ekovoices?

- Important to get community involvement in identification of issues and initiative
- Web is used increasingly and 24x7 basis
- Local Community Action Groups can be the nerve centers
- City gets “connected”
- Spatial features allow better focus and interaction
- Experts and non-experts work together
- Action plan gets generated as well as commented
- City ESR gets a sense of ownership
- ESRs become dynamic as website

# Why Ekovoices

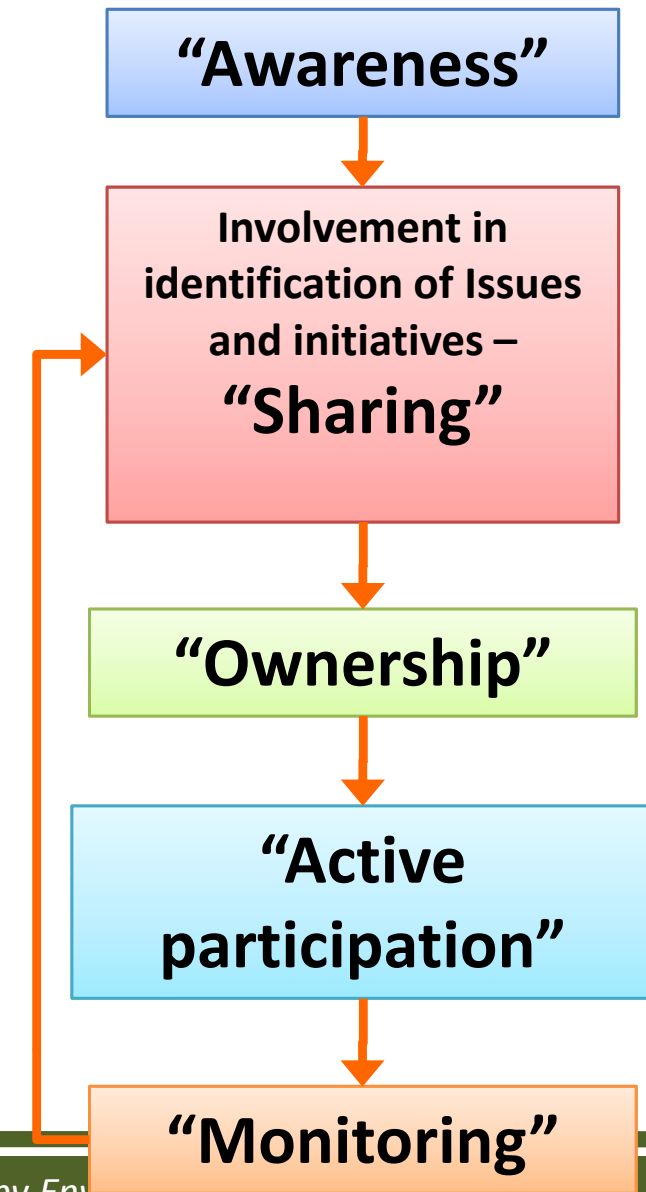
Ekovoices is the attempt to spatially **connect all**  
**“components” of a “City”**





# For better city management

- Awareness towards environment and its socio-economic linkages
- It is important to get community involvement in identification of issues and initiatives
- Develop sense of Ownership towards City, its infrastructure, and overall environment
- Active participation of all (communities, experts, administration) in generating, commenting and strengthening the Action Plan for a City
- “Watch” implementation with pro-activeness
- [www.mumbaifestival.ekovoices.net](http://www.mumbaifestival.ekovoices.net)



# MAPPING CURRENT ENVIRONMENTAL STATUS REPORTING PROCESS

# PROCESS MAPPING

## A C T I V I T Y

- ◎ In which year did the preparation of ESRs begin?
- ◎ Typically what period of the year does the ESR preparation begin?
- ◎ What are the activities involved in the process of making the ESR? Prepare an activity chart and map the time taken for each activity.
- ◎ How many persons are involved in the various activities of ESR preparation? Identify the responsible designations / departments for each of the activities.

# PROCESS MAPPING

## A C T I V I T Y

- ◎ What is the budget allocation for the preparation of ESR?
- ◎ What are the constraints faced during preparation of ESR in terms of data, resources, funds, timing, work load etc?
- ◎ What are the actions taken based on recommendations proposed in the ESR? Who is responsible for preparing an Action Plan?

# FORMULATION OF VISION & MISSION STATEMENT, GOALS AND OBJECTIVES

CASE WORK



# VISION STATEMENT

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# MISSION STATEMENT

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# GOALS





# OBJECTIVES

## Goal-1:



## Goal -2:



## Case Work III – Arriving at Action Plan

### Geographic Profile

The city is cut across by a river Mori. This river has a tendency of getting flooded in the monsoon season. There are two lakes Tular and Rajsi at the upstream of the river. Lake Tular is formed by damming river Mori. The river also acts as the drainage mode for lake Rajsi for its over flow water. Tular Dam overflow water is also released into this river.

### Demographic profile

A coastal city Miragaon along the Arabian Sea. Population is 18,06,968. The population density is 9025 persons/sq.km. with a growth rate of 15.25% and the average family size is 5.5 persons. The city is divided into 15 wards named from 'A' to 'O'. The city also has a considerable percentage of slum population due to the paucity of affordable housing. The distribution of population in these wards and the slum population are given in the table below

Ward	Total Population (persons)	Slum Population (persons)
A	78,412	15,254
B	98,253	24,875
C	1,09,980	30,542
D	75,980	21,434
E	1,24,985	25,843
F	1,88,560	65,243
G	98,592	24,984
H	89,990	41,210
I	1,67,781	55,759
J	1,55,895	35,658
K	95,856	11,253
L	1,10,153	54,149
M	1,34,781	25,364
N	1,28,986	23,347
O	1,48,764	42,387

### Economy

The main driver of the city is engineering industries and their related services. The industrial area is located along the banks of river Mori and their effluents are released into this river. The large enterprises have their own CETP and the effluent is treated before it enters the river. A large number of small scale industries are also present which do not have any treatment system.

People from neighbouring towns come to this city for jobs. Modes of transport used are state transport buses, shuttle trains. The modes of transport within the city are city buses, private vehicles two-wheeler and four wheelers.

The industrial area maintains a green belt 200m wide around it as a buffer to the residential area of the city.

## Urban services

### 1. Water Supply

The water from lake Tular is the main source of water supply to the city. There are two water treatment plants of a total capacity of 201 MLD installed near the lake which is fully functional and treated water is supplied to the city through piped connections. The staff available for every 1000 connections is 24 persons. The number of household service connections wardwise is given in the table below. These do not include water connections to slums. The number of tap connections per ward near slums is given below. The water supplied to the city is 125 lpcd.

Ward	Water supply (no. of households)	No. of Tap connections to slums
A	13,857	14
B	17,021	10
C	18,753	35
D	12,256	28
E	22,520	32
F	32,156	82
G	17,505	18
H	15,981	36
I	29,996	71
J	28,142	42
K	16,978	15
L	19,987	68
M	22,897	29
N	21,523	32
O	25,410	55

### 2. Sanitation

The city has a network of underground sewerage system. There are three sewage treatment plants 1, 2 and 3. Wards A to F are connected to STP 1, wards G to K are connected to STP 2 and the rest are connected to STP 3. The capacity of STPs 1,2 and 3 are 50MLD, 35MLD and 39MLD respectively. The number of households serviced by the underground sewerage system is given in the table below. The table also includes the number of pay and use toilets in each ward

Ward	Drainage service (no. of households)	No. of pay and use toilets
A	10,425	305
B	15,328	500
C	12,873	450
D	10,986	321
E	20,416	480
F	24,867	700
G	13,243	495
H	15,142	520
I	28,956	612
J	24,987	480
K	14,154	200

L	15,897	585
M	20,897	495
N	20,321	450
O	21,465	500

### 3. Solid Waste

The solid waste generated by the city is 312 grams per person per day, the landfill site for used by the city for solid waste disposal is located 50 km away and has a life of 10 years more. About 70% of the waste is collected. On an average there are two transfer stations in each ward except wards A and F which have 1 and 4 transfer stations respectively. The mode of collecting solid waste is door to door and a municipal dumper collecting it from common collection points. The wet waste of the city collected from markets is collected separately and about 50% of it is treated for converting it to manure.

There are 4 government hospitals and 30 private hospitals and nursing homes. The biomedical waste generated from government and private hospitals in the city is 5 TPD of which 4.1 TPD is treated. Two of the government hospitals have incinerators and one private hospital has a incinerator. Most of the private hospitals have a tie up with the hospitals with biomedical treatment facility. The other two government hospitals have an autoclaving system in place for treatment of waste.

