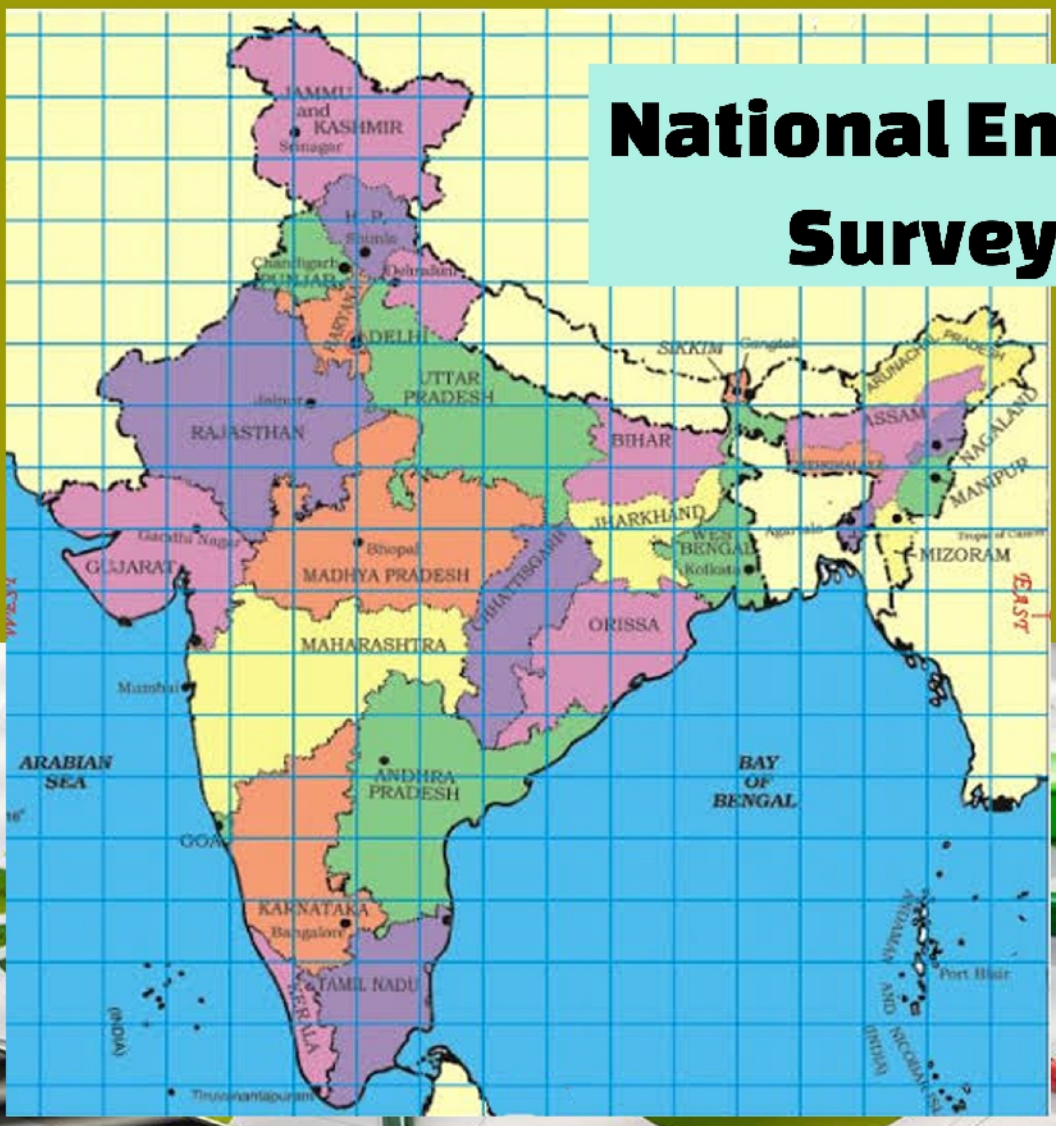
ENVIS-IITM NEWSLETTER

Indian Institute of Tropical Meteorology, Pune

Atmospheric Pollution & Climate Change

(The project of Ministry of Environment, Forest & Climate Change, Govt. of India)



National Environment Survey (NES)

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Editorial

Environmental monitoring is critical for the protection of human health and the environment. As the human population continues to increase, industrial development and energy use continues to expand, and despite advances in pollution control, the continued increase in pollution remains inevitable. Thus the need for environmental monitoring is still an important necessity. Therefore, we need to collect data from which we can derive knowledge. Information (data) derived knowledge usually leads to an enhanced understanding of the problem/situation. NES (National Environmental Survey) will be an effective tool to collect and provide environmental information of different parameters and made available on single platform. All the environmental data/information/maps will be generated on district level to facilitate policy decisions at all levels of government. With the help of this information varying users can use this information for their analysis.

-Dr. Gufran Beig

National Environment Survey – a Grid based Decision Support System for Sustainable Management of Natural Resources (NES-GRIDSS)

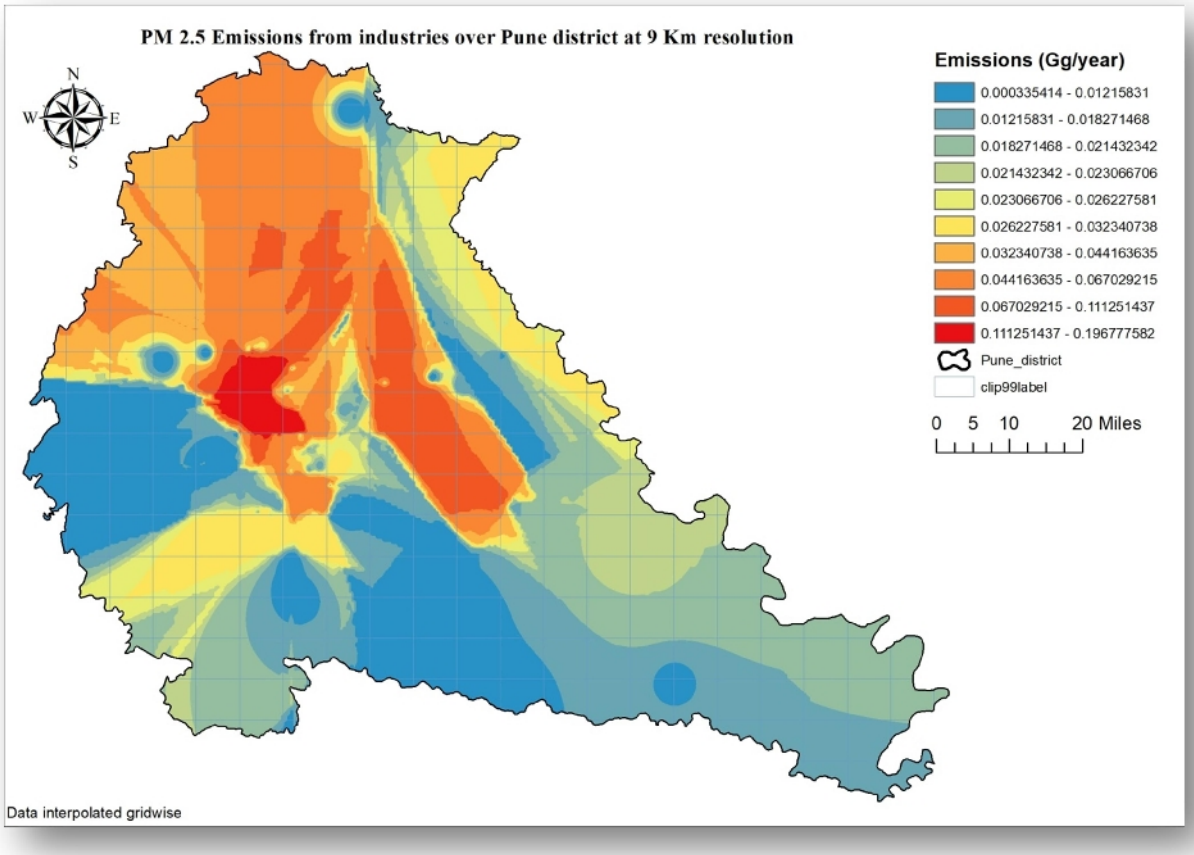
In order to obtain disaggregated environmental data, to ascertain the status of environment at district/state/national levels and to facilitate decision-making at all levels of government, Ministry, for the first time, has embarked on conducting the National Environment Survey at regular intervals.

To institutionalize the procedure of conducting a national environment survey, ENVIS Hubs/Resource Partners (RPs) will collect/generate data/information/maps from the district level. To avoid duplication of efforts, the aim is to converge resources and access the data/information/maps available with different government agencies.

District wise environmental data will be collected from primary and secondary sources. The secondary data schedule of the National Environmental Geo database (NEG) has been updated after taking inputs from stakeholder divisions within the Ministry, as well as from ENVIS Hubs and RPs to include 110 sub modules covering 617 parameters. ENVIS Hubs/RPs will periodically update data obtained from state departments/bodies and maintain the NEG.

While data gaps identified in the secondary data will be filled in through primary survey, which will be carried out in the selected representative grids. All data/information/maps collected through primary survey will also flow into the NEG.

All the data/information/maps will be generated from the district level to facilitate policy decisions at all levels of government. It is expected that primary survey in all 723 districts in the country will be completed in 3 years, after which the 2nd phase of NES-GRIDDS will start. The final NES product may look like following map -



Grid Based Monitoring: Industrial zone

2. Methodology for the NES –Air Pollution

The National Environmental Survey will be conducted at the district level on a quin quennial basis. It will be launched in 2018-19 in 54 districts selected by ENVIS Hubs & RPs. Districts will be divided into grids of 9 km x 9 km, or any suitable grid depending on the requirement. Based on physiological/land use conditions, a sample of grids would be taken and data collected by questionnaires and other methods.

An Advisory Committee, comprising both in-house and external experts, will identify the environmental parameters to be surveyed.

NATIONAL ENVIRONMENTAL SURVEY

Gridded Air Quality Index (PM 2.5) for India (25X25 Km²)

Integrated Observational & Modeling Framework

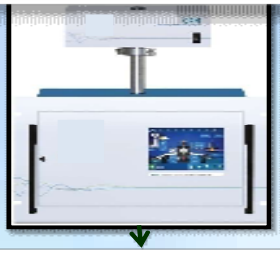
Satellite Retrieved Data

Air Quality Model (SAFAR)

Portable low cost Air Quality Sensor

VALIDATION

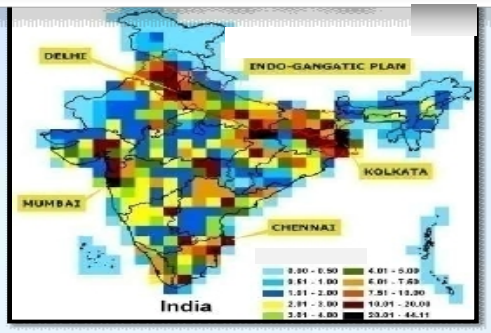
Reference CPCB/ US-EPA approved online Monitors



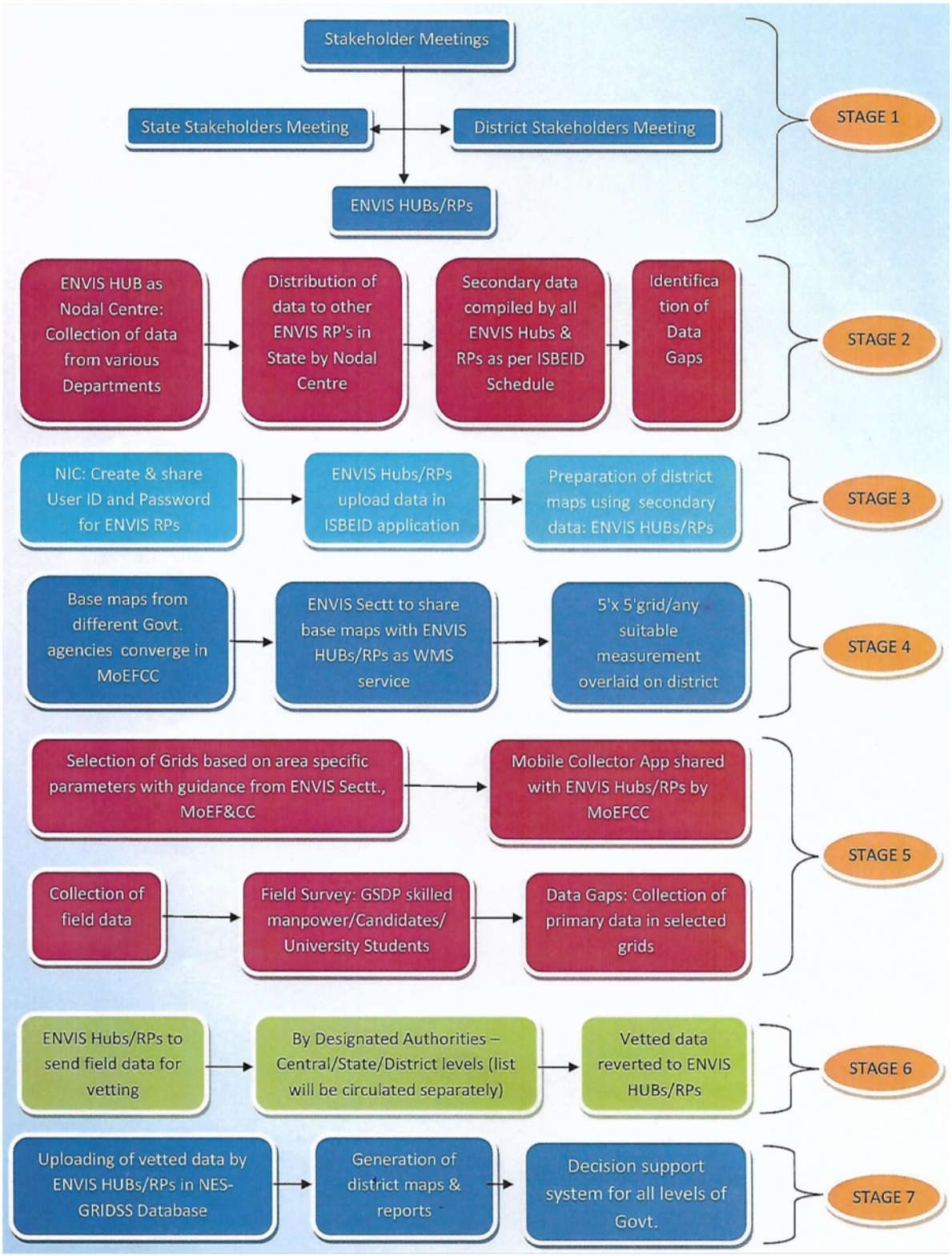
GIS Based Methodology

Final Product

Gridded AQI for India



3. Stages of NES-GRIDSS: A Schematic Representation



4. NES Significance

- The NES will rank all districts on their environmental performance and document their best green practices based on various environmental parameters.
- It will be done through grid-based approach, using grids measuring 9×9 km to collect comprehensive data on various environmental parameters. These parameters will include air, water, soil quality; solid, hazardous and e-waste; emission inventory; forest & wildlife; flora & fauna; wetlands, lakes, rivers and other water bodies. It will also assess carbon sequestration potential of all the districts across the country.
- At present, the country has secondary data on most of these parameters. The NES will, however, for the first time provide primary data on all the green heads in the same way that the National Sample Survey (NSS) periodically collects various socio-economic data.
- Unless policy-makers have exact data on all environmental parameters, they cannot take appropriate decisions. The country's first ever environment survey will fill the gaps in existing data, the green data from this survey will provide important tool in hands of policy-makers for decision making at all levels – district, state and national.
- The survey will fully map and create emission inventory, provide valuation of ecosystem services and collate research in the field of environment.

Grid-based Decision Support System (GRIDSS) – for Sustainable Management of Natural Resources

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