

Investments in Observations

(to WMO, World Bank, with engagement of CLRTAP, AMAP, other experts and national bodies)

- **Expansion and Improvement of Observation Infrastructure**
 - Should be made in a globally coordinated fashion based on equality through the World Bank and other development agencies with guidance from WMO.
 - Should be shared in a way similar to other major research infrastructure investments (e.g., major physics experimental facilities).
 - Should be multipollutant; include an appropriate mix of supersites and distributed sites, active and passive sampling, urban/rural/remote sites, new sensor technology; and be coordinated with new satellite observation capabilities as appropriate.
- **Investments need to be accompanied by Engagement**
 - Design of infrastructure should be appropriate for local needs and circumstances.
 - Value of monitoring information needs to be demonstrated to local people and decision makers

Development of Emission Inventories & Scenarios

(to UNEP, emission scientists (GEIA, CLRTAP), scenario developers (IPCC, CLRTAP, AMAP, CCAC))

- Improve Consistency and Alignment of Emissions Inventories for Multiple Pollutants for Modeling and Assessment
 - Increase Transparency of Drivers/Methods
 - A Role for the “Clearinghouse”?
- Evaluate Emissions through Inverse Modeling
 - Particularly taking advantage of developed observation capabilities
 - Methods Intercomparison needed e.g. as through the IGAC/GEIA AMIGO
- Coordinate the Development of Future Emissions Scenarios
 - Make use of integration of Air Pollutants, GHGs, Hg, POPs
 - Identify packages of measures of interest to different policy forums or stakeholder groups for wider community to analyze, e.g. coordinate with climate scenarios and make use of SSP’s for reach relevant SDG’s

Necessary Model Development & Application

(to European Commission with support of CLRTAP, AMAP, other Conventions)

- **Coordinate Models at Different Scales/Processes/Complexity**
 - Global to Regional to Local scale linkages, downscaling techniques
 - Seamless prediction from AQ to Climate
 - Evaluate Fitness for Purpose
- **Continue Move Towards Earth System Modeling**
 - Multi-Pollutant, Multi-Compartment
 - Decrease uncertainty in AQ - Climate projections
- **Further Develop Attribution Methods and Tools**
 - Source/Process/Policy Attribution
 - A priori Evaluation of Costs and Benefits of Measures
 - A posteriori Evaluation of Outcomes and Effectiveness