

**Government of Karnataka
Advanced Centre for Integrated Water Resources Management (ACIWRM)
First Floor, KSFC Bhavan, #1/1, Thimmaiah Road, Bengaluru-560052**

No.SE/AC-IWRM/EOIs/SSAPCC/2/2016-17/ 50

Dated: 14/06/2016

EXPRESSION OF INTEREST

Government of Karnataka, Advanced Centre for Integrated Water Resources Management (Water Resources Department) invites Expression of Interest from reputed consultant firms/Organisations for **“Preparation of status report on present water resource development and management, water governance, institutional arrangements, water related policies, cross-boundary issues and agreements etc., of Karnataka State as a part of State Specific Action Plan on Climate Change for Water Sector”** under the National Water Mission.

The Terms of Reference (ToR) and minimum qualification requirements are as under:

[I] TERMS OF REFERENCE

Objective and Scope of Work

1. Background

Ministry of Water Resources, Government of India has launched National Water Mission as one of the eight National Missions, which form the core of the National Action plan for Climate Change (NAPCC), launched by the Hon'ble Prime Minister. The main objective of the National Water Mission is “conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management”. The Comprehensive Mission Document of “National Water Mission” has identified following five goals;

- I) Comprehensive water data base in public domain and assessment of the impact of climate change on water resource,
- II) Promotion of citizen and state actions for water conservation, augmentation and preservation.
- III) Focused attention to vulnerable areas including over-exploited areas,
- IV) Increasing water use efficiency by 20%, and
- V) Promotion of basin level integrated water resources management.

Various strategies for achieving the goals have been identified which lead to integrated planning for sustainable development and efficient management of water resources with active participation of the stakeholders after identifying and evaluating the development scenario and management practices towards better acceptability on the basis of assessment of the impacts of climate change on water resources based on reliable data and information.

Relatively very large temporal and spatial variation in rainfall and consequently in the river flow and ground water aquifers is an important feature of the water resources in India. Although the impact of climate change on water resources has not been accurately quantified, various studies indicate that the likely impact of climate change on water resources could contribute to further intensification of the extreme events. Further, the features of water resources – both the availability and the quality may also be considerably affected by the changes in the land use in the form of urbanization, industrialization and changes in the forest cover. Realizing that the various processes which influence the hydrologic cycle are of dynamic nature, precise quantification of the impact specifically due to climate change may not be a simple task and it would be necessary to make suitable assumptions at the initial stages. It is apparent that in the context of likely impact of climate change on water resources, the most vulnerable areas in India would include (a) drought prone areas, (b) flood prone areas, (c) the coastal regions, (d) the region with deficient rainfall, (e) areas with over-exploited, critical and semi-critical stage of ground water development, (f) water quality affected areas, and (g) glacier/snow-fed river basins.

The water resources situation, its development, management and availability vary considerably from State to State. Many of the identified strategies/actions to achieve the goals of the NWM are required to be taken by the State Governments/Union Territories. In this context, it is highly desirable to develop State Specific Action Plans for Water Sector aligned with the State Action Plan on Climate Change formulated by the States under NAPCC which give the holistic roadmap to achieve the desired goals. The State Specific Action Plans would essentially consist of:

- (a) Preparation of Status report on present situation of water resources development and management, water governance, Institutional arrangements, water related policies, cross-boundary issues and agreements etc of the State/Union Territory. The document should also define problems/issues related to all the aspects of water resources specific to the State.
- (b) Identifying a set of probable solutions to address the key issues/problem areas giving pros and cons of the solutions.
- (c) Preparation of detailed Action Plan for each of the Strategy/

2. Purpose / objective of the assignment.

The purpose / objective of the assignment is :

“Preparation of Status report on present situation of water resources development and management, water governance, Institutional arrangements, water related policies, cross-boundary issues and agreements etc of Karnataka State. The document should also define problems/issues related to all the aspects of water resources specific to the Karnataka State.”

3. Detailed scope of work / assignment.

The detailed scope of work/ assignment is:

- i) Data in respect of water resources shall be collected/ compiled. The Status Report shall draw relevant latest information of the State Ministries/Departments/Agencies and Central Ministries/Departments/ Agencies. Primary data collection is not expected,

however, if it becomes necessary to achieve the objective then may be collected. The source of information should be mentioned in the Status Report and where possible should be appended with the Report. All the maps being used in the reports may be converted in GIS format and put on Water Resources Information System (WRIS). The geo-spatial data may also be put in WRIS. The various data being collected for preparation of reports may be converted in to useful table/figures for easy understanding and inference.

- ii) Status report shall include assessment of gap in potential created and utilisation of water resources in domestic, irrigation and other sectors including recycle and reuse of water.
- iii) Organising State level workshops for dissemination of draft of the status report in order to obtain feedback about its correctness and completeness. Accordingly, relevant Government Officials, NGOs, other stakeholders should be invited in the workshop. National Water Mission and its goals should also be disseminated during the workshops. Status report shall be finalized incorporating the suggestions/ observation in the workshop.

The Status report shall broadly include following topics:

- (a) **Introduction:** Background, NAPCC, NWM;
- (b) **About the State:** Location, Physiography, Topography, Demography, Environment, Land use, Economy, Agriculture, Industries, Cities, Towns, Villages and other relevant details;
- (c) **Water Resources of the State:** General Climate (based on various meteorological parameters such as precipitation, temperature, humidity etc), river network, details of river basin/sub-basins, water bodies, glaciers etc, details hydro-meteorological and ground water, silt and water quality data observation/collection network of all agencies (Central/State/PSU/Private etc), type, frequency of measurement and duration of data availability, collection, digitization and compilation of all the available data, determination of trend of climate change in surface and ground water availability and demand (for the past period for which the data are available);
Quantitative estimate of domestic sewage/industrial effluent and extent of treatment.
- (d) **Water Resources Planning and Development:** Salient features of existing, ongoing and proposed WR projects, their planned water utilization and benefits (Domestic and Municipal water, Irrigation, Hydropower, Industrial, Navigation, environmental, recreation, Cultural etc). Monthly/ten-daily utilization details, details of sewage treatment plants (present, ongoing and proposed) alongwith their treatment capacities and point of discharge in river/canal/water bodies, recycling facilities in Industrial sector, Percentage water recycled, Reuse of treated domestic and Industrial sewage, treated waste water availability for appropriate reuse, Sedimentation trend in various reservoirs to ascertain the depletion in live storage over years, E-flow requirement (depth, discharge, extent/reach), Ecological assets and aquatic species to be protected by e-flows, number and importance, mapping of aquifers, water utilization in check dams and their effect on existing major/medium water resources projects and also on states allocated water share.

Surface and Ground water utilization (detailed estimates of demand and supply) with user wise percent division, Domestic water situation both urban as well as rural, Industrial water situation, Water quality.

System of Project investigation/preparation of DPR/techno-economic clearance/implementation/funding/operation & Maintenance, Details of Institutions involved in the Planning and Development.

- (d) **Water Resources Management:** Management in Irrigation water use, Command area development, Development & management in water stressed area, domestic water uses again both for urban (detailed with land use) as well as rural, details of reservoir operation, canal operation, flood zone mapping, ground water recharge, allocation for domestic water supply from all water bodies, water quality management, data collection of water utilization, traditional systems of water conservation/preservation/augmentation, waste water management etc. Details of Institutions involved in all the aspects of Management;
- (f) **Irrigation and Agriculture:** Existing cropping system/ crops/trees/farming system etc. and also recommended cropping system/ crops/trees/farming system suitable to specific Agro Climatic conditions and ecological regions of the state based on water balance/budget of that region and crop/plant water and other requirements by various agriculture research institutes/Agencies.
Area under irrigation (surface and ground water), irrigation methods with area covered under each method.
- (g) **Water Governance:** State Water Policy, Water Regulatory Authority, Water related Acts and laws, Participatory Irrigation Management Act, Ground Water management act, Flood Plain Zoning Act, Dam Safety Act, inter-state issues, valid and subsisting Agreements, MOUs, effective award and decisions of tribunals, Non-Governmental agencies etc.
- (h) **Water Resources Issues:** Floods, Flash floods, Drainage congestion, water logging, landslides, Erosion of river banks/ coastal line, Present status of flood and erosion management, change in river flows, Lowering Ground water table, Saline water intrusion, Glacier melt, Glacial Lakes/GLOF, Water quality of river waters/ground water/ water bodies/domestic water supply, Drought, encroachment of water bodies/flood plains, watershed/catchment management, waste water and its treatment etc.;
- (i) **Project related issues:** Gap between irrigation potential created and utilized, Capacities enhancement of existing reservoirs, Institutional setup their specific mandates, Institutional, technical, managerial and implementation capacities, water use efficiency of irrigation projects/ domestic supply schemes/industrial uses, Salinity & Water logging in command areas, status of conjunctive use of water, details of water utilization by different sectors and issues due to competing demands, reservoir sedimentation, (un)reliability of water supply both in time as well in quantum, regular maintenance of water resources structures, Issues in implementation of on-going projects, water rates, paying capacity of water users etc.;

- (j) **Documentation of Studies:** Documentation of State/Region/Project/Issue specific studies carried out by the Academic Institutes, Research Agencies, International/National/State Agencies in respect of water resources.

4. Time Period for completion of work / assignment:

The report shall be submitted within a period of 6 months.

[II] Desirable Qualification Requirements:

Consultant firms/Organisations will need to have following qualifications and submit the necessary documents in support of the same:

- 1) Profile of the institution.
- 2) Minimum 15 years of work experience in development sector.
- 3) Project annual turnover of not less than Rs.100.00 lakhs during last 3 years.
- 4) Prior experience of preparing climate change report.
- 5) Prior experience in governance area in environment sector and policy advocacy.
- 6) Multi-disciplinary team.
- 7) Policy research and analysis experience.
- 8) Proven documentation skills.
- 9) Collaboration with different departments of Karnataka State Government.

Interested consultant firms/ organisations will need to register on the e-procurement platform (Karnataka Government) to apply. The Expression of Interest (proposal) with all relevant documents shall be submitted electronically at www.eproc.karnataka.gov.in.

The closing date for uploading EoI/ proposal is 7th July, 2016.

Any clarification can be sought at aciwrm2012@gmail.com


**Superintending Engineer
AC-IWRM, Bengaluru**

Copy to :

- 1) Principal Secretary, Water Resource Department, Government of Karnataka for kind information.
- 2) Secretary, Water Resource Department, Government of Karnataka for kind information.
- 3) Additional Secretary & Mission Director, National Water Mission, Ministry of Water Resources, River Development and Ganga Rejuvenation, 2nd floor, Block No.III, CGO Complex Lodhi Road, New Delhi-110003 for kind information.
- 4) Director, North-Eastern Research Institute of Water and Land Management (NERIWALAM), Dolabari, Sonitpur, Tezpur, Assam-784027 for kind information.
- 5) The State Tender Bulletin Officer, Govt. of Karnataka, WRD, Vikasa Soudha for kind information and with a request to publish the same in the State Tender Bulletin.
- 6) The Director, Geometrics, WRDO, Bangalore for kind information and with a request to publish the same in the WRDO Website.
- 7) The Managing Director, 3rd Floor, Coffee Board, KNNL, Dr. Ambedkar Road, Bangalore for kind information and with a request to publish the same in KNNL Website.

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For Details & Terms of Reference, please visit e-procurement platform www.eproc.karnataka.gov.in. EOI shall be submitted electronically at www.eproc.karnataka.gov.in. Interested consultant firms/Organisations will need to register on the e-procurement platform to participate.

The details are also available on www.waterresources.kar.nic.in
&www.knnlindia.com

Any clarification can be sought at aciwrm2012@gmail.com

The closing date for submission of proposal is **7th July, 2016**.


**Superintending Engineer
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