Ganga Strategic Basin Planning Project – Progress Status June 2017

Tasks	Progress / Current Status	Remaining Work Required as per Contract Terms of Reference
1: River Basin Model Development	• Considerable effort has been put to the development of the integrated basin modelling system and good progress has been made • SPHY, WFLOW, RIBASIM-DELWAQ, and IMOD models have been developed for the Ganga Basin and integrated in the Ganga Water Information System (WIS) providing extensive functionality to view input and output data as maps and time series. All models have been initially calibrated and validated. A dashboard has been developed that shows aggregated model results for selected indicators.	• Use remotely sensed data sets including for evapotranspiration to estimate or to constrain irrigation water use. • Develop GIS of all point and non-point sources with all available pollutant data and gap filling to provide a comprehensive spatial picture of areal and point loading. • Simple modelling of the extent and frequency of inundation of floodplain wetlands... using remotely sensed data for flood inundation and for the character and extent of floodplain vegetation coupled with simple models relating inundation extent to river flow level. • Sensitivity/uncertainty analysis of river system modelling.
2: Surface-GW Interaction Analyses	• The modelling set-up for exploring surface-groundwater interactions has been developed. • Data has been collected in GIS format on many aspects of Ground water and its interaction with Surface water.	• All existing data and information on the hydrogeology, groundwater resources and groundwater use in the Ganga Basin to be compiled into a GIS-based information system. This has been commenced but is not complete. • 3-D GW management units to be defined across the basin, and prioritized in a risk framework based on the relative level of water use, likely future demand, connectivity to surface water, and water quality threats. • Analytical framework to be developed that considers all connected GW resources, and focusses most effort and more detailed analysis on high priority GW management units.

3: Environmental Flow Assessments	• This task is to undertake multi-scale environmental flow assessment using a highly consultative process based on sound scientific analyses. At this stage, a process of defining the river zones as the basis for this analysis has been commenced and is almost complete. • Consultation meetings with experts have taken place in April and May. The zoning methodology was discussed and agreed upon, while the discussion on the response curves resulted in a number of recommendation that are presently being implemented. • Additional data, as agreed in the consultation meetings is being collected. • The model run for natural flow conditions is in preparation.	• Undertake a basin-wide analysis of flow regime change from natural (using a range of ecologically relevant flow variables and statistics) to provide a broad-scale perspective on likely critical reaches for environmental flows. • Develop an ecological and socioeconomic baseline sites/ reaches/zones, identifying and mapping the key environmental and socioeconomic values and assets of the basin based on existing data, field work, field surveys and broad consultation. • Use appropriate tools and approaches, to assess implications of alternative flow regimes on hydraulic habitat, river geomorphology, water quality, river ecology, and socioeconomic, cultural and spiritual values. An ecosystem services framework will be one of the tools used. Assessments to be compared to defined river health objectives. • Train government professionals in environmental flow concepts and methods in order to build the capacity for assessing and implementing environmental flows as a part of integrated water resources management. • Develop an adaptive management framework to guide the implementation of environmental flow regimes across the Ganga basin. This will include specific actions and operating rules for water resources infrastructure, a practical and time bound monitoring program for environmental and socioeconomic outcomes, and include the flexibility to adjust environmental flow regimes to achieve the desired environmental objectives.
4: Scenario Modelling	• Much of the project work to-date has been preparatory for this core task. The consultations with states and other stakeholders has helped identify key issues for consideration in the scenario modelling task. The actual work of this task however, is yet to properly commence. This is should be the focus for the modelling work from here on: defining, testing, refining, communicating/consulting, and reporting the scenario modelling. • Population predictions have been prepared on the basis of the GoI methodology that calculates both population growth as well as urbanisation.	• Define and agree with stakeholders on the suite of scenarios to be modelled. The consultations to-date provide a sound basis to propose and quickly finalize the scope of these scenarios. As per the ToR these should cover at least: (i) options for reducing point source pollution, (ii) options for reducing non-point source pollution, and (iii) options for alternative environmental flow regimes (including through increased irrigation water use efficiency). • Share scenario assessments and their implications with partners and stakeholders, including through reports rich with graphics, through computer visualizations shared online and during consultation workshops. • The process of scenario definition and assessment will be iterative through the process of consultation.

5: Consultation and Engagement	• This is cross-cutting task that supports to all the above Tasks. In addition, all the other technical tasks include important aspects of capacity building. In this progress review, all comments on the capacity building across the different technical tasks are pulled together here under the "consultation" task. • A very considerable effort has been put to consultation and engagement. Both through three basin-level and 33 state-level workshops, and through the ongoing engagement with central agencies and the embedded of relevant agency staff in the project team/office. • There has been considerable consultation around capacity building needs and expectations and a lot of effort on capacity building especially on the development of the modelling system. • 3 CHWB, 2 CWC, 2 NIH and 2 NMCG staff are daily trained in on-the-job training on use and maintenance of the system. • A wider group of around 25 staff of the central organizations received multiple trainings on GangaWIS, Ribasim, and WFlow • Two to three engineers from 7 states already were trained in the set-up and basic use of the system	• There remains important stakeholder consultation to be undertaken focused on the outputs of the scenario modelling and the exploration and discussion of the policy and planning implications of this modelling. • There is considerable additional capacity building work already planned and scheduled for the coming months. While the capacity building on "maintenance/support" for the modelling system is important, the capacity build effort needs to now increasing focus on the application of the modelling system to scenario analysis. • There is also more capacity building work for the analytical tasks expected (especially around environmental flows).

6: Information Systems and Documentation	• The information systems components of this task (including online portal, visualizations, dashboard) have progressed well. Some refinements are required but the majority of the effort for this component is complete. • While the required documentation in terms of progress reports and draft technical reports is being delivered, the more formal, high-quality documentation required from the project is in preparation. • Planned delivery of reports is expected to shift with a few months.	Deliverables / Reports	**Draft**	**Final**	**Status**
		Contract signing		Jul-15	Approved
		Inception report		Apr-16	Approved
		Progress report 1 (up till July 2016)	Aug-16	Dec-16	Approved
		Report describing model conceptualization and setup	Jun-16	Dec-16	Approved
		Report with detailed approach for Task 2 and 3	Jun-16	Dec-16	Approved
		Report on initial stakeholder engagement and roadmap	Nov-16	June-17	Final review
		Report describing information system design	Nov-16	June-17	Final review
		Progress report 2 (up till Dec 2016)	May-17	June-17	Final review
		Draft Report on (i) surface groundwater analysis, (ii) Environmental Flow Assessment and (iii) Scenario Modelling	Aug-17	Oct-17	To be prepared
		Progress report 3 (up till June 2017)	Aug-17	Oct-17	To be prepared
		Draft Report on (i) River Basin Modelling (all aspects) and (ii) documentation of information systems	Aug-17	Oct-17	To be prepared
		Draft Project Management Report (incl Stakeholder engagement processes and exec summary of Techn reports)	Oct-17	Dec-17	To be prepared
		Progress report 4 (up till Sept 2017)	Oct 17	Oct-17	To be prepared
		Delivery of all model software developed and associated data files		Dec-17	To be prepared