**1. Basin Planning Database Application (BPDA)**

The BPDA can only store 11 of 30 sets of typical data collected during a basin planning exercise. It covers most of the water supply, demand and use data, but not social, economic and environmental data. At the present stage of the database, data collected from a basin plan preparation cannot all be stored for future integrated basin planning and water resources management. The detailed findings are presented in the following table.

### BPDA

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| --- | --- | --- | --- |
| **No.** | **Recommended data sets for basin planning** | **BPDA is ready to hold the data sets as of Jan 2020 (Yes/No)** | **Remarks** |
| 1 | Daily average water level and water discharge from the Hydro-posts for the last five years | Yes |  |
| 2 | Daily average air temperature, precipitation, evaporation, snow cover from the meteorological stations for the last five years | No | Basic information about glaciers (Form 20).The rest of the data to be added under ZRMIP. |
| 3 | Surface water qualitative monitoring from the water quality sampling posts for the last five years | Yes |  |
| 4 | Groundwater quantity and quality for the last five years | Yes |  |
| 5 | Daily water allocations from the river to the main canals for the last five years | Yes | Import the data from IMIS |
| 6 | Daily water allocations from the main canals to irrigation systems for the last five years | NA |  |
| 7 | Daily water allocations to WUAs for the last five years | Yes | Import the data from IMIS |
| 8 | Yearly amount of drinking water supply(per “vodokanal”) and average supply in networks (l/capita/day) | No | Import the data from WADA after the water use by sector module is built and populated. |
| 9 | Wastewater treatment facilities (annual amount of communal sewage) | No | To be added under ZIRMIP |
| 10 | Daily wastewater discharge sites (m³) | No | To be added under ZIRMIP |
| 11 | Daily water use by water use purpose for the last five years | No | Import the data from WADA(see remarks under Item no. 8) |
| 12 | WUA water requests for the last five years | Yes | Import the data from IMIS |
| 13 | Drinking water demand for the current year (by administrative units or sub-basins) | No | Import the data from WADA(see remarks under Item no. 8) |
| 14 | Irrigation water demand for the current year (by administrative units or sub-basins) | Yes | Import the data from IMIS |
| 15 | Industrial water demand for the current year (by administrative units or sub-basins) | No | Import the data from WADA(see remarks under Item no. 8) |
| 16 | Use of groundwater by water use purpose for the last five years | Yes |  |
| 17 | Ecological flow in the rivers of the river basin for the last five years | Yes |  |
| 18 | Areas of arable land, irrigated land, rain-fed land, pasture land, forest land (in hectares or km2) | No | To be added under ZIRMIP.The land data are available in NGDA |
| 19 | Hydropower generation in the river basin (including hydro-power plants) for the last five years | No | To be added under ZIRMIP |
| 20 | Hydro-technical facilities of the river basin (state, annual operation and safety) | Yes |  |
| 21 | Drainage water network (state, intakes, quality) | Yes |  |
| 22 | Fish stock bred in the river basin | No | To be added under ZIRMIP |
| 23 | Socio-economic development indicators of the Oblasts/Rayons located in the river basin | No | To be added under ZIRMIP |
| 24 | Main industry in the river basin (light industry, heavy industry, fisheries, recreation, etc.) | No | To be added under ZIRMIP |
| 25 | Recent census data on population in the river basin | No | To be added under ZIRMIP |
| 26 | Natural hazards (floods, mudflows, areas, extent) for the last five years | No | Water, coastal and special protection zones are available (Forms 32 and 33)  |
| 27 | Land use patterns in the river basin for the last five years | No | To be added under ZIRMIP |
| 28 | Projections of socio-economic development in the basin until the year 2030 | No | To be added under ZIRMIP |
| 29 | Projections of the impact of climate change on water resources in the river basin until 2030 | No | To be added under ZIRMIP |
| 30 | Projections of changes in demography of the river basin until 2030 | No | To be added under ZIRMIP |
| **B.** | **Static/Reference Data** |  |  |
| 1 | Basin Management Area/Zone | Yes | 5 basin management areas are available in the BPDA.  |
| 2 | River basins | Yes | 8 river basins are available in the BPDA. |
| 3 | Rivers | Yes | Import the river attributes from NGDA (4591 rivers including 45 main rivers in Tajikistan). |
| 4 | Gauging stations | Yes | Import the station attributes from NGDA (64 gauging stations including 49 automatic stations in the Lower Kofarnihon). |
| 5 | Lakes | Yes | Import the lake attributes from NGDA (1,072 lakes in Tajikistan). |
| 6 | Reservoirs | Yes | Import reservoir attributes from NGDA (36 reservoirs in Tajikistan). |
| 7 | Canals/Channels | Yes | Import the canal attributes from NGDA (243 canals in the Kofarnihon). |
| 8 | Pump Stations | Yes | Import the station attributes from NGDA (267 pump stations in the Kofarnihon). |
| 9 | Collectors | Yes | Import the collector attributes from NGDA (205 collectors in the Kofarnihon. |
| 10 | Water management areas | Yes | Import the area attributes from NGDA (two water management areas – Upper and Lower Kofarnihon). |
| 11 | Hydro-technical structures (HTC) | Yes | Import the HTC attributes from NGDA (10 main canal intakes in the Lower Kofarnihon). |
| 12 | Groundwater wells | Yes | Import the groundwater well attributes from NGDA (25 wells in the Lower Kofarnihon). |
| **C** | **Database functions** |  |  |
| 1 | Data input, edit and delete | Yes |  |
| 2 | Data import and export utilities | Yes | Text or worksheet formats |
| 3 | Data collection forms  | Yes | 38 forms per MEWR instructions  |
| 4 | Reports | Yes | 38 reports per MEWR instructions |
| 5 | Maps | Yes | Basin management areas/zones |
| 6 | Figures | Yes | Basin zone indicators (catchment areas, water availability, water uses) and quantitative indicators of water bodies. |
| 7 | User administration | Yes | Organization, roles (administrator, operator, view only, OBRU operator) and users |

Recommendations for improving the BPDA are:

1. Make sure BPDA login is compatible with all major browsers. Presently, only Windows Internet Explorer can be used to access the BPDA.
2. Update the TJ logo and MEWR script on the login page to match the size of the IMIS login page and add an appropriate background photo for the page by February.
3. Replace “Copyright © 2019 Министерство энергетики и водных ресурсов Республики Таджикистан”at the bottom of the database with Copyright © 2020 Министерство энергетики и водных ресурсов Республики Таджикистан by February.
4. The menu “Отчет по реестру” (Registry Forms/Reports) is where stakeholders could enter, view, edit, delete, import and export data, as well as generate graphs using stored data. Replacing the menu name with a more intuitive title (such as Data Management) will help the user navigate the database by February.
5. Populate the BPDA with the data collected under Component B, Kofarnihon Basin plan preparation. The staff members from the two RBO offices will perform the data entry tasks under the supervision of the WIS team after February.
6. Design and add more database tables to accommodate the 18 additional data sets to ensure the BPDA is fully functional for storing and managing most if not all the basin planning data. This database programming task can be carried out by the WIS team after February.
7. Build additional forms/reports as needs arise later.