**Table A2:**

Heterogeneous data sources

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| **Heterogeneous data sources** | **Source** | **Content** |
| I Water Regulations | Order on Approval of the Sanitary Rules "Sanitary and Epidemiological Requirements for Water Sources, Places of Water Intake for Domestic and Drinking Purposes, Domestic and Drinking Water Supply and Places of Cultural and Domestic Water Use and Safety of Water Bodies" [8] | 1. General Provisions;  2. Sanitary and epidemiological requirements for water sources;  4. Indicators of drinking water quality;  5. Microbiological and parasitological indicators of drinking water quality;  6. Hygienic standards for the content of harmful substances in drinking water;  7. Quantity, frequency of water sampling;  8. List of indicators. |
| II Sensor Data | Daily hydrological bulletin of the Republic of Kazakhstan [5] | 1. Location of hydrological posts;  2. Water level;  3. The state of the water object;  4. Water temperature;  5. Weather conditions;  6. Water consumption;  7. Thickness of ice and height of snow on ice;  8. Ice phenomena at the site of the post;  9. Information about floods and rain floods. |
| Monthly State of the Environment Newsletter [6] | 1. The main sources of air pollution;  2. The state of the quality of atmospheric air;  3.The chemical composition of atmospheric precipitation.  4. The state of the quality of surface waters;  5. Radiation environment. |
| III Water Objects | Information about IBB from Wikipedia [9] | 1. Physico-geographical description;  2. Soils and vegetation;  3. Hydrography;  4. Glaciers;  5. Hydropower resources;  6. Knowledge of river flow;  7. Economic activity. |
| IV Socio-economic Indicators | Bureau of National Statistics of the Republic of Kazakhstan [7] | 1. Population;  2. Birth/mortality of the population;  3. Diseases of the circulatory system associated with iodine deficiency;  4. Malignant neoplasms;  5. Acute infections of the upper respiratory tract;  6. Life expectancy;  7. Types and activities of industrial companies. |