



## **PROJECT**

# **Transboundary water management adaptation in the Amudarya basin to climate change uncertainties**

## **Report**

### **1.3. Data collection and analysis (climate, water and land resources, HEPS regimes, etc.)**

#### **1.3.3. Water and land resources and their use by sector, collector-drainage flow, agricultural production, reservoir and HEPS operation. Entering data into DB**

##### **e) GIS**

Project coordinator

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Responsible for 1.3

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Responsible for 1.3.3 e

Sh.Sh.Zaitov

**Tashkent 2016**

## 1. Research objective and tasks

- To define research area.
- To revise existing GIS layers for upper, middle and lower reaches of the Amudarya River.
- To consolidate GIS layers for Uzbekistan, Tajikistan and Turkmenistan.

## 2. Research methodology

Using ArcGIS 9.3 software, all layers were classified according to the type of maps. The layers such as planning zones, rivers, canals, reservoirs, urban centers and weather stations were intersected. Then they were labeled.

## 3. Data

- GIS layers were used from the database of SIC ICWC

## 4. Achieved results and outcomes

Based on GIS files – the so called shape files (\*.shp file), maps with planning zones and location of weather stations were generated:

### Maps with planning zones (8 maps)

- First type of the maps is called «Planning zones» and includes three reaches of the Amudarya River – upper, middle and lower reaches. The upper reaches of the Amudarya include provinces of Tajikistan – Regions of Republican Subordination, Khatlon, and Gorno-Badakhshan Autonomous Region. Planning zones of the middle lower reaches: Kashkadarya, Surkhandarya, Bukhara, and Navoiy provinces in Uzbekistan; Lebap, Akhal and Mary provinces in Turkmenistan. Planning zones of the lower reaches: Karakalpakstan and Khorezm province in the Republic of Uzbekistan and Dashoguz province in Turkmenistan.

### Maps with location of weather stations (3 maps)

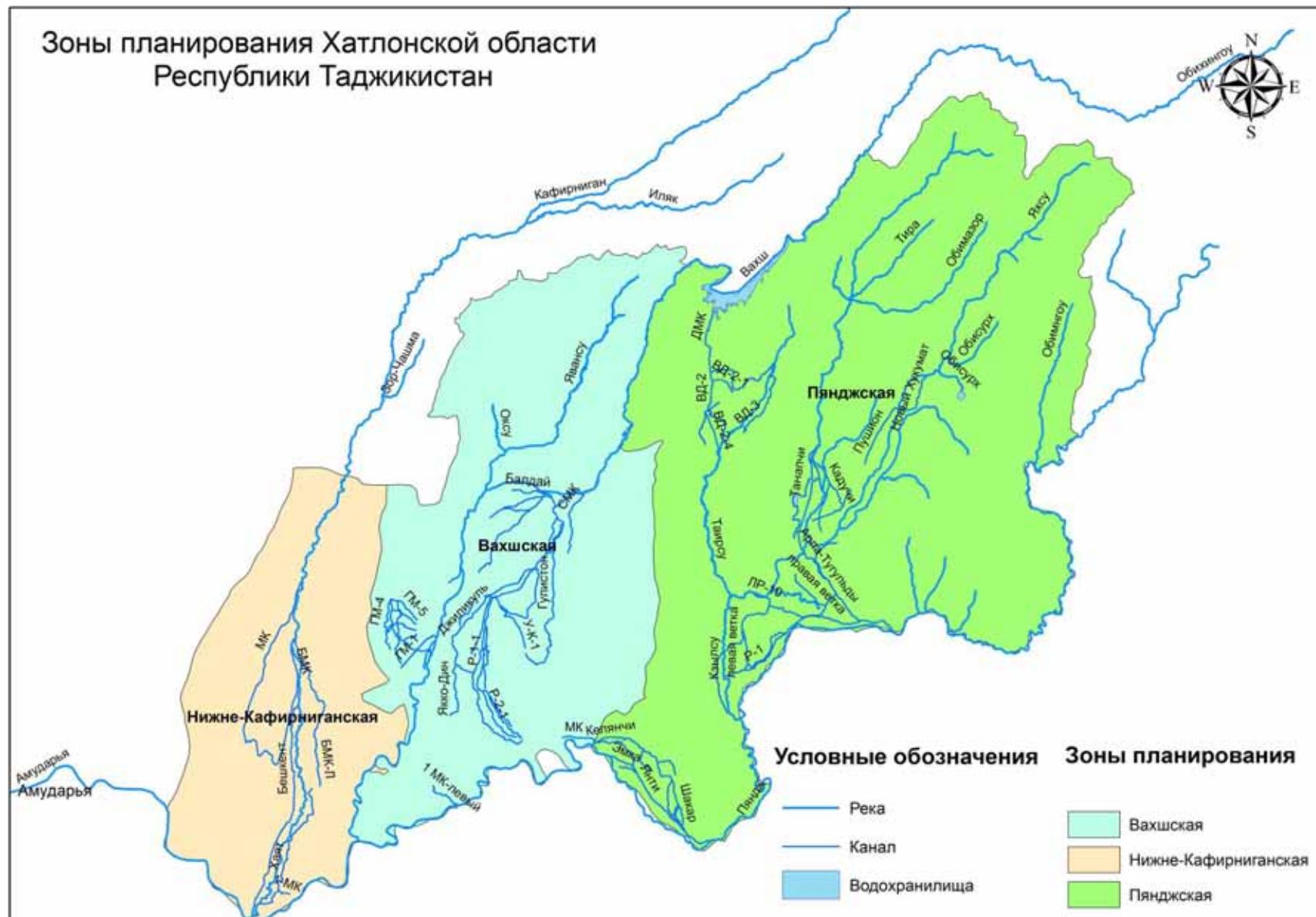
- Second type of the maps is generated in order to visualize the location of weather station within the abovementioned river reaches. The upper reaches include 6 planning zones in Tajikistan and Surkhandarya province in Uzbekistan. The middle reaches include 4 planning zones in Uzbekistan and three provinces in Turkmenistan. The lower reaches include Karakalpakstan and Khorezm province in Uzbekistan and Dashoguz province in Turkmenistan.

Materials in electronic format (JPEG) were submitted to D.A.Sorikin.

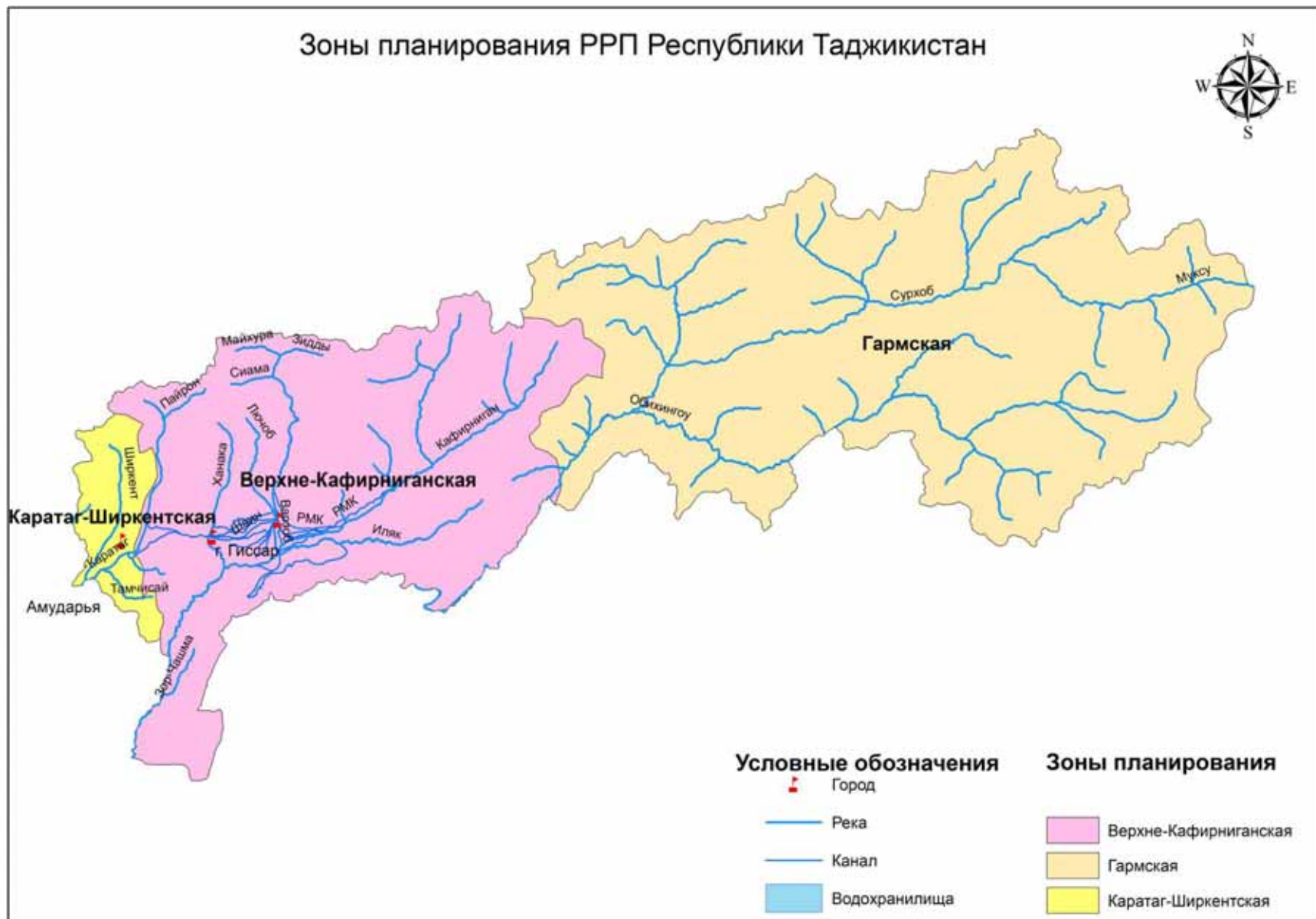
Annexes:

Data list, (maps, schemes, and xls tables)

The maps are attached in JPEG format.



Map 1. Planning zones of Khatlon province in the Republic of Tajikistan



Map 2. Planning zones of the Regions of Republican Subordination in the Republic of Tajikistan



Map 3. Planning zones of Surkhondaryo and Kashkadarya provinces in the Republic of Uzbekistan



Map 4. Navoiy and Bukhara planning zones of Navoiy and Bukhara provinces in the Republic of Uzbekistan



Map 5. Kashkadarya and Karshy planning zones of Kashkadarya province in the Republic of Uzbekistan



Map 6. Planning zones of Surkhondaryo province in the Republic of Uzbekistan



Зоны планирования Туркменистана. Среднее течение Амударьи и зоны влияния Гарагумдарьи (Каракумский канал)



Условные обозначения

- Город
- Канал
- Река
- Водохранилища

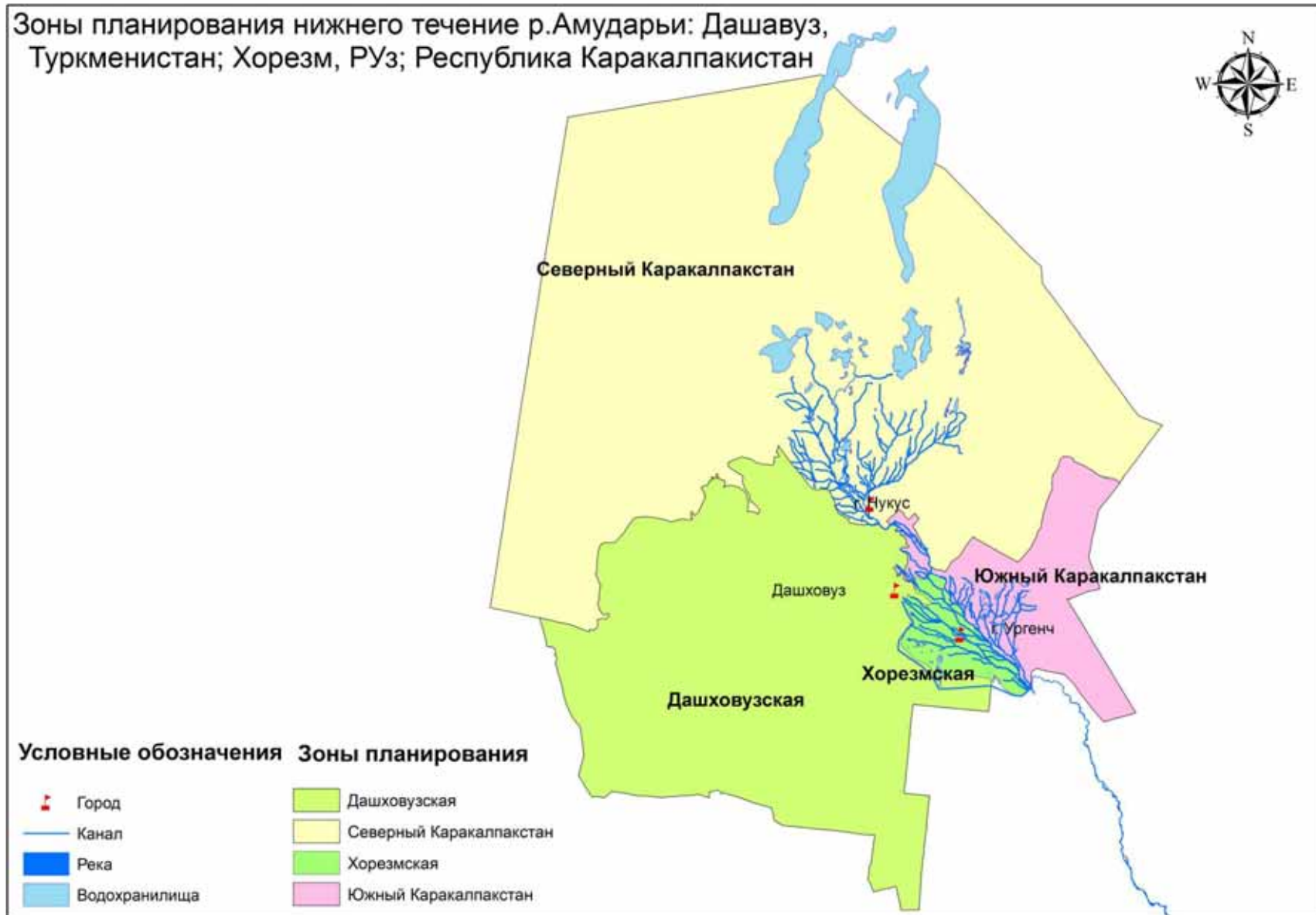
Зоны планирования

- Ахалская
- Лебапская
- Марьйская

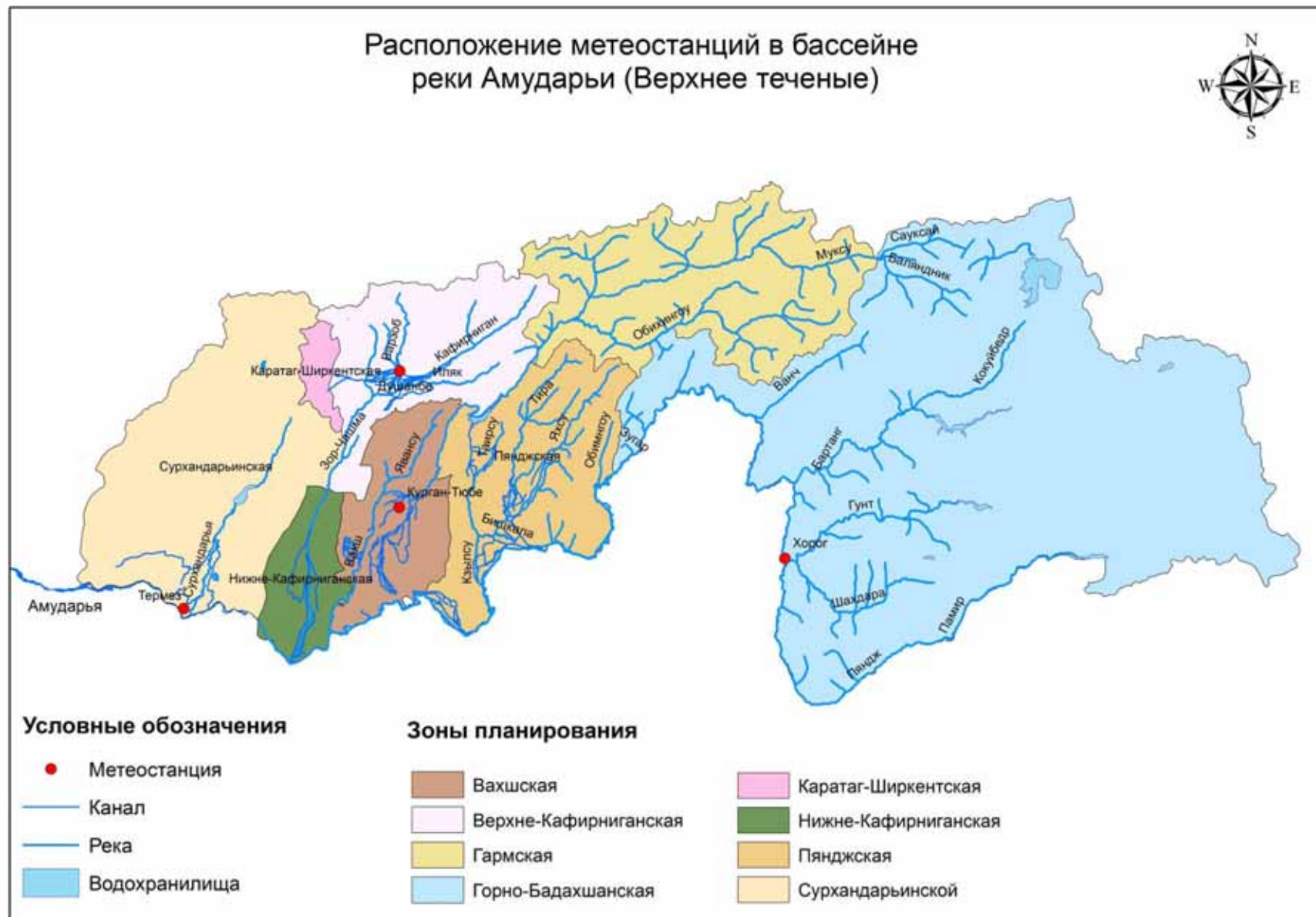
Зоны питания по источникам водных ресурсов:

- Питание из местных источников
- Питание из смешанное источников
- Питание из трансграничные источников

Map 7. Planning zones of Turkmenistan. Middle reaches of the Amudaryya River and control area of Garagumdar'ya (Karakum canal)



Map 8. Planning zones in the lower reaches of the Amudarya River: Dashoguz province (Turkmenistan), Khorezm province (Republic of Uzbekistan) and Karakalpakstan (Republic of Uzbekistan)



Map 9. Location of weather stations in the Amudarya River basin (upper reaches)



Map 10. Location of weather stations in the Amudarya River basin (middle reaches)



Map 11. Location of weather stations in the Amudarya River basin (lower reaches)