TURKMEN WAY OF THE DEVELOPMENT OF WATER ECONOMY.
Under conditions of state independence and political stability great opportunities for economical and social progress have been opened in Turkmenistan.
Turkmenistan covers the area of 49,1 thousand km$^2$. Most of this territory, about 80%, represents Karakum desert.

More than 17.7 million ha are suitable for cultivation, including more than 7 million ha of highly productivity land, which is the subject to high priority development.

Presently 2.5 million ha or 1/3 the lands suitable for irrigation are under irrigation in Turkmenistan.

By 2010, this figure is planned to have been increased up to 4 million ha.

Water resources, available in Turkmenistan, amount to 25 km$^3$, from which 97% comes from trans-boundary sources.
Great reforms of irrigation system in Turkmenistan are mainly deal with the construction of the Karakum river. Nowadays the total length of this river is over 1300 km. The area irrigated by Karakum-river is about 1250 thousand ha. Average annual intake from the Karakum river, is 11 – 12 km³ and depends on the water availability. The Karakum river is fitted out with more than 140 multi-purposes hydro-technical structures.
The Karakum river was designed as all-year channel. To ensure this it was the first time in the world practice of construction of great irrigation canals, that discharge control structures were designed to be constructed within the system. Construction of the Karakum river made it possible to provide with water cities, towns and villages, and effectively develop and use the richest oil and gas fields and other natural resources.

Such industries as fuel producing, chemical, petrochemical and power producing started to be developed more intensively.
Water supply through the Karakum Darya and Turkmen Darya has transformed economy and agriculture of the country.

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<tbody>
<tr>
<td><strong>Area under irrigation, thousand ha</strong></td>
<td>1034,3</td>
<td>1638,6</td>
<td>1820,0</td>
<td>2230,0</td>
<td>2480</td>
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<tr>
<td><strong>Intake, billion m³</strong></td>
<td>22,3</td>
<td>25,6</td>
<td>19,7</td>
<td>24,3</td>
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<td><strong>Investment, billion manat</strong></td>
<td>259,06</td>
<td>289,67</td>
<td>352,0</td>
<td>676,5</td>
<td>772,4</td>
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<td><strong>Investment in million USD</strong></td>
<td>49,82</td>
<td>55,7</td>
<td>67,69</td>
<td>130,1</td>
<td>148,54</td>
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<td><strong>Irrigated agriculture production, thousand tones</strong></td>
<td></td>
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<td><strong>Cereal crops</strong></td>
<td>517</td>
<td>1109</td>
<td>1759</td>
<td>3200</td>
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<td><strong>Including wheat</strong></td>
<td>206</td>
<td>879</td>
<td>1705</td>
<td>3111</td>
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Moreover, Government of Turkmenistan practiced regular purchases of high-production earth-moving machinery by the world leading producers, such as “CASE”, “Caterpillar” (USA), “Kamatsu” (Japan) and others to provide the development of water infrastructure in the country. Over the period of 2000-2005 more than 1000 units of modern machinery and equipment for the total sum of USD 140 billion were purchased and sent to the water projects of the country.

In 2005 additional USD 10 million were purposely allotted for buying pump and power units for irrigation systems.
One of the lines, which makes it possible to cover water deficiency is building of detention reservoirs with their subsequent use for the needs of different industries. Building of 1250 million m$^3$ “Dostluk” channel reservoir has been recently completed on the Tedjen river on the border between Iran and Turkmenistan. Volume of the detention reservoir on the Murgab river is being expanded. This year construction of four small reservoirs. Over the next years it is foresee to increase capacity of existing reservoirs up to 10 billion m$^3$.

However, the above actions cannot fully solve the water deficiency problem and guarantee sufficient water supply for all economy branches. In this connection, possible use of low salinity drainage water to cover water deficiency has becoming matter of the day.
The decision on the designing of the state program on the development of the central part of the Karakum desert and construction of the biggest hand-made sea - Turkmen Lake, will give birth to the grand project on reclamation of desert lands and solution of a number of environmental, social and economical problems.

Turkmen Lake is being built on the basis of neutral depression, which is located in the north-west of the country. The Lake is to take 10 km³/y drainage waters transported to it through two systems of supply channels, Northern and Southern, Dashoguz branch and Main Drainage canal of the Golden Age accordingly. Total length of collector system of Turkmen Lake of the Golden Age is more than 2650 km.
By the results of preliminary/rough calculation the total project cost is assessed as 8–10 billion of USD.

Construction of Turkmen Lake of the Golden Age is being fulfilled by Turkmenistan on its own without donors support. Implementation of the project will allow:

- to prevent disposal of contaminated drainage waters into the Amu-Darya, improve the water quality of the river and therefore to regenerate current environment in the lowers stream of the river;
- to collect all drainage water from the irrigated lands from all regions of the country;
- to turn back pastures that were flooded and water-logged;
- to use the diversion channels for the purpose of supplying pastures with water, that results to improvement of water availability and productivity of forage crops.
Within the framework of the Program the following environmental problems have been concerned. They are as follow:
- protection of natural systems;
- desalinization, treatment of drainage water to extraction of anthropogenic components;
- changes in flora and fauna after land reclamation;
- biodiversity impact caused by Turkmen Lake;
- fishery;
- environment measures, water resource, quality protection measures.
The construction of all structures of Turkmen Lake will allow to improve the ecology of Turkmenistan and Aral sea area as well. The water quality of the middle part of Amu-Darya river will also be improved.
Problems, to be solved by Ministry of Water Economy of Turkmenistan, are huge and further enhancement of environment of Turkmenistan and the Aral sea basin is one of them.

The good neighbor home and foreign policy of Turkmenistan, status of positive neutrality create all necessary conditions for fruitful cooperation in the region, including a solution of water and environmental problems. We believe that these problems will be successfully solved for the welfare and prosperity of our nations.
THANK YOU!