INFLUENCE OF IRRIGATION AND DRAINAGE TO AGRICULTURE PRODUCTION IN VOJVODINA PROVINCE

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Abstract: The plain part of Vojvodina province is characterized by a relatively favourite soil, climatic and hydrological situation. However, in the course of the last two centuries extensive measures have been undertaken to protect the land from the action of irretrievable external waters and from recurrent waters, along with the development of the system for irrigation. All these measures have created the conditions enabling the regulation of the soil water-air regime in the basis for agricultural production and the development of the region as a whole. This paper is a review of the characteristics of the soil, the water engineering projects and the review of natural resources of the region and the water engineering projects and the review of natural characteristics of the area and the size of water engineering projects.

CLIMATE, SOIL AND HYDROLOGICAL CHARACTERISTICS

The plain region of Vojvodina is distinguished by relatively favourable climate, soil and hydrological characteristics. However, the course of the last two centuries extensive measures have been undertaken to protect the land from the action of irretrievable external waters and recurrent waters, along with the development of the system for irrigation. All these measures have created the conditions enabling the regulation of the soil water-air regime in the basis for agricultural production and the development of the region as a whole. This paper is a review of the characteristics of the soil, the water engineering projects and the review of natural characteristics of the area and the size of water engineering projects.

DRAINAGE

Draining of canals and raised construction of more than 1/3 of the Vojvodina region goes on for decades. Before these technologies had been used in agricultural practice, the Vojvodina region has a network of about 30,000 km of these canals. About 60% of the drainage systems gravitate to natural water courses and the rest serves to evacuate the surplus excess waters to the Basic Cross Network of the Hydrological System Danube-Tisa-Danube (BCN HS DTD). The digging of about 940 km of the BCN HS DTD officially completed in 1973. The drainage system that more than 100 pumping stations were constructed with the individual capacity of up to 70,000 cu m per hour and a height capacity of about 30% to 40% of the height of the basin. In the first phase of the drainage network was completed a design from the initial raised construction of canals and 40% of the potential water level and those have been built on the drainage systems. Among them, more numerous are canals and bridges, about 20,000 in number. Thus, the fact that Vojvodina is covered with the canal network and the necessary constructions on the drainage systems, floods caused by internal waters have occasionally occurred. In 1945, a flood endangered about 500,000 ha and in 1989 about 900,000 ha, mostly of agricultural land. From the aspect of irrigation, the year 1971 can be considered the most significant because in that year a large conical of water was followed by a dry summer with extremely large amount of rains in July.

FLOOD PROTECTION

Protection of land against adverse influence of external waters had in the beginning a high character. The infrastructure was under the influence and this constituted in the beginning a big problem. The floods were dangerous and often devastating, especially after heavy snows or floods, or even in years with little rains. The most extensive works on modernization, i.e. reconstruction of protection embankments, were undertaken after the high waters of the Danube in 1985 and of the Tisa in 1997.

Peak discharges of the embankment course was set for the 1% water. Apart from the reconstruction of the embankments, some new ones have been built, accompanied by modernization of water control objects (retention bunds, retention dams, roads, buildings, etc.). The importance of the modernization project effort for improving the flood protection status and their present state, despite of the existence of numerous problems, can be considered satisfactory.

IRRIGATION

At the present, about 45,000 ha are irrigated. These areas have available sources of water, primarily surface watercourses and accumulations, thus the growing of irrigation crops. The field irrigation systems are of various types, such as the irrigation in the form of micro-sprinkler irrigation, irrigation in the form of surface irrigation and the irrigation in the form of spray irrigation. The majority of water irrigation is used for irrigation in the form of surface irrigation and most of these areas are located in the northern part of Vojvodina. Since the irrigation water is a very expensive type of water, the water quality is significantly worse compared with that in other parts of the country.

CONCLUSION

The paper presents a creative way of living with water in Vojvodina. Such a way exploits the potential of water system to the best more than has been in the past. Moreover, a management system affects the prospect of solving major problems of the nation such as water quality. The social use and the functioning of these water systems in an ecosystem will thus be improved, with all the accompanying social and economic benefits.

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