

FORM NO. 51-4C
MAR 1952

FOR OFFICIAL USE ONLY

Unclassified - 000
24/3/54 - WJF/FVJ
~~CLASSIFICATION RESTRICTED~~
~~SECURITY INFORMATION~~
CENTRAL INTELLIGENCE AGENCY

INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT
CD NO.

STAT

COUNTRY USSR
SUBJECT Scientific - Geophysics, forest belts
HOW PUBLISHED Bimonthly periodical
WHERE PUBLISHED Moscow
DATE PUBLISHED Mar/Apr 1952
LANGUAGE Russian

DATE OF INFORMATION 1952
DATE DIST. 17 Oct 1952

NO. OF PAGES 4

SUPPLEMENT TO REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES, WITHIN THE MEANING OF TITLE 18, SECTIONS 793 AND 794, OF THE U.S. CODE, AS AMENDED. ITS TRANSMISSION OR REVELATION OF ITS CONTENTS TO OR RECEIPT BY AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. THE REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya, No 2, 1952, pp 3-10.

NEW GEOGRAPHICAL FEATURES CREATED IN THE USSR.
BY THE GREAT CONSTRUCTIONS OF COMMUNISM

Acad A. A. Grigor'yev
Inst of Geog
Acad Sci USSR

While there is a tremendous diversity of natural conditions in the various parts of the USSR, the undertakings for the transformation of nature for the indicated purposes in the various regions of the country are especially distinguished by their great variety. Chief among them are the great constructions in the arid south of the USSR designed to end once and for all the noxious influence of droughts on agriculture and to ensure an all-round increase in agricultural productivity.

The first large-scale measures in the struggle against drought and creation of new features in nature in the south of the country were undertaken by Stalin as early as 1924 in the regions of the Lower Volga.

Up to World War II, many individual irrigation systems were being constructed, not only in the Lower Volga Region but also in the driest regions of Cis-Caucasia, Central Asia, Kazakhstan, Transcaucasian Republics, southern West Siberia, and many other regions.

At the same time, in forest-steppe and steppe zones, a complex of interconnected agricultural and land reclamation measures in the struggle against drought were begun. [Pre-revolutionary undertakings, especially those of V. R. Vil'yams are recounted in detail.]

Prior to World War II, 850,000 hectares were provided with protective forest plants, including 452,000 hectares planted with field protecting forest zones (belts) in the kolkhozes of the steppe regions of southern European USSR (Ukraine, Lower Don, Central and Lower Volga, North Caucasus), during the 10 years

- 1 -

FOR OFFICIAL USE ONLY

CLASSIFICATION		RESTRICTED		DISTRIBUTION															
STATE	<input checked="" type="checkbox"/> NAVY	<input checked="" type="checkbox"/> NSRB																	
ARMY	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/> FBI																	

STAT

from 1931 - 1941 (that is, after the all-union conference on the struggle against drought), especially in the Ukraine, where 259,000 hectares of protective forest belts were planted by the beginning of 1941.

At the same time, a method of constructing large hydroelectric stations was developed and put into practice for the first time in the USSR.

The invasion by Fascist hordes greatly disrupted preparatory undertakings; for example, the protective forest plantings in southern European USSR suffered greatly.

The Stalin plan for the transformation of the nature of dry regions and for great hydroelectric stations on rivers irrigating these regions encompasses the entire southern European USSR, from the Ukraine and Northern Crimea to Cis-Caucasia, Central and Lower Volga, and Caspian Lowlands; in Asiatic part USSR, it includes the basin of the Aral Sea and a large part of Turkmen SSR.

The greatest of the rivers, the Volga, carries to the Caspian Sea an average of 256 cu km of water a year. The Volga on almost its entire course will soon be a seven-step cascade, formed by the dams of six large hydroelectric stations, of which the three upper stations are already in operation and the three lower (close to Gor'kiy, Kuybyshev, and Stalingrad) are under construction.

In accordance with published decrees of the Soviet government, the greatest of the Volga hydroelectric stations (namely, Kuybyshev and Stalingrad) will have the following power: the first plant will generate about 2 million kw and the second will yield about 1.7 million kw, each to give about 10 billion kw-hr/yr, the total, 20 billion kw-hr/yr, representing about one third of the computed possible total generation of electrical energy by all the rivers of the Volga basin.

The Kakhovka hydroelectric station on the lower Dnestr, the Tsimlyan station on the Don, and the stations on the Main Turkmen Canal will generate about .5 million kw, giving about 3 billion kw-hr/yr.

Thus all the hydroelectric plants together will generate 22.5 to 23 billion kw hr of energy, most of it to be transmitted at high voltages to the industrial centers of the USSR, including the Moscow Oblast.

This transformation of the Volga River will make possible the passage of very large river boats. Thus, the Stalin Canal (600 km long) will connect the Lower Volga with the Urals; and the Main Turkmen Canal will be an important transport route connecting the Amu-Dar'ya Lowlands with the Caspian Sea in the region of Krasnovodsk, etc.

The system of planned transformation of the river network belonging to arid regions also includes the completely finished Volga-Don shipping canal, started before World War II and interrupted during the war.

Characterizing the role and significance of the Volga-Don waterway, Z. A. Shashkov, Minister of River Fleets USSR, pointed out that construction of the canal creates a powerful arterial waterway assuring the transit of massive loads more cheaply than by other means of transportation; the Volga-Don navigable canal will be employed also for irrigating territory lying to the south, and will feed Don water to the Yergenin distribution canal, 140 km long, going south over the Yergenin highlands.

The system of canals fed mainly by Don waters will use chiefly the Tsimlyansk reservoir (watershed) of 12.6 billion cu m capacity, held by a dam 40 m high and 10.5 km long.

STAT

The system of canals fed mainly by Dnepr waters will be composed of the following main arterial canals: the South Ukrainian and North Crimean canals, totaling 550 km in length, and the shorter (60 km) arterial canal joining the reservoir (watershed) near the city of Kakhovka in the Dnepr lowlands (14 billion cu m capacity) with the South Ukrainian canal near Askaniya-Nova.

The South Ukrainian Canal begins at the city of Zaporozh'ye on the Dnepr above the Dnepr dam, where 600-650 cum of water per second are received, directed first to the Molochnaya River and then to Askaniya-Nova and later to Sivash, which intersects it.

The irrigational system fed by Amu-Dar'ya waters consist mainly of the tremendous arterial Main Turkmen Canal, receiving initially 350-400 and later 600 cu m of water per second.

On the basis of the Stalingrad hydroelectric station, with its tremendous reservoir (watershed), 1.5 million hectares will be irrigated and 11 million hectares of the Caspian Lowlands will be supplied with water [in limited quantities?] by means of (1) Stalingrad arterial canal, going toward the Ural river, and (2) distributing canals going both from this arterial and from the Volga itself (on the left bank).

The Kuybyshev station will permit one million hectares in the Trans-Volga to be irrigated.

By 1958 more than 28 million hectares will be newly irrigated and supplied with water. The indicated expansion of irrigated and watered areas, as L. P. Meriya pointed out recently, (1) will permit the additional production, per year, of 3 million tons of cotton wool, 500 million puds $\frac{1}{1}$ pud 36 lb of wheat, 30 million puds of rice, and 6 million tons of sugar beets; and (2) will increase the livestock on the irrigated and watered territory to 2 million head of cattle and to 9 million head of sheep.

A total of 5,709,000 hectares of kolkhoz and sovkhos lands will be forested. The total area of planned new afforestation in arid regions (counting also plantings planned in the arid regions of Azerbaydzhan SSR and Georgian SSR) will be about 100 million hectares.

During the creation of forest belts it is not necessary to limit cultivation to the main forest-forming species, which in arid regions must be distinguished by drought resistance and photophily, such as oak and pine, etc. The cultivation of such species must be accompanied by the cultivation, under their sheltering canopy, of shade-enduring species such as linden and also forest undergrowth, since experiments have shown that belts of just such composition best fulfill the field-protecting functions.

The extensive application of field-protective forest plantings is justified because of their great value, carefully verified in practice, for improving microclimatic conditions. The experience of dry years had shown that unirrigated fields framed in by field-protective forest plantings always succeed in yielding a considerably greater harvest than fields deprived of forest belts under perfectly identical methods of agrotechnics: cereals, by 20 to 30 %; truck garden and melons, by 50 to 70 %; grass, by 100 to 200 %.

A number of investigations by the Main Geophysical Observatory in Leningrad and other scientific institutions has shown that, on the basis of variations in the hydrological regime of soil and microclimate, with which the increase in harvest is connected on territories supplied with field-protective forested belts, the decrease in surface runoff is due to the influence of these belts, under conditions encountered in the forest-steppe and steppe zones of European USSR.

STAT

~~SECRET~~

Under conditions met in the Ukraine, the presence of forest zones increases the moisture content of the surface layer down to the one-meter level by 30 %. The greatest increase comes in May and June, when plant growth particularly needs moisture. This is favorably reflected in the improved harvest yield.

In the driest regions, especially in semideserts and deserts of the temperate zone, the field-protective belts are effective only with artificial irrigation.

Microclimatic investigations concerning the role and character of the action of field-protecting forest belts on conditions governing the development of agriculture are only one of the many diverse scientific investigations which are now being conducted for the fulfillment of the Stalin plan.

- E N D -

~~SECRET~~

- 4 -