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DISCUSSES TASKS FOR 1952
OF HUAI HO CONSERVANCY PROJECT

TO CONSTRUCT RESERVOIRS, DEEPEN CHANNELS -- Hong Kong, Wen-hui Jih-pao.
 11 Dec 52

The following information on the second year program of the Huai Ho Conservancy Project was issued by the Ministry of Water Conservancy. Work has already started on many of the projects and the volume of work to be undertaken in 1952 is greater than that accomplished in 1951. The three principal divisions of the program are as follows:

Upper Reaches of Huai Ho and Tributaries

1. Construction of reservoirs and retension basins. This includes completing the construction of two reservoirs, beginning the construction of three more, and adding two more retension basins in the middle section of the Huai Ho. These reservoirs and basins are to have an aggregate capacity of 1.5 billion cubic meters of water.
2. Widening and deepening of the river channels. This applies to the tributaries as well as to the main stream of the Huai Ho above Wu-ho. By increasing their capacity, the likelihood of inundation of contiguous lands will be greatly lessened.

Construction of a large-scale irrigation system in North Kiangsu. This will call for the moving of some 400 million cubic meters of earth and the building of a large number of structures involving a high degree of technical skill.

Honan Projects

The dam for the Pai-sha Reservoir on the Ying Ho, which is now being built, is to be 46.5 meters high and 1.3 kilometers long. This project requires a conduit 346 meters long, and an overflow canal 100 meters wide. To complete this work, 5,500,000 cubic meters of earthwork, and 270,000 cubic meters of stone

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work, has to be done. The reservoir is to have a storage capacity of 247 million cubic meters, and reduce the flow of the Ying Ho in time of bad flood from 2,230 cubic meters per second to 725 cubic meters per second; and at times of ordinary high water from 1,582 to 130 cubic meters per second. This will practically remove all danger of flood by the Ying Ho, and will provide the means for the irrigation of large areas of tilled land further downstream. The conduit and overflow canals were begun in 1951, and are to be completed in 1952. Over 100,000 laborers are now working day and night.

The Pan-ch'iao Reservoir is being built on the Ju Ho branch of the Sha Ho. This requires the construction of a dam 23.55 meters high and 1.7 kilometers long, an overflow canal 301 meters long and 80 meters wide, and a conduit 336 meters long. Part of the conduit is a tunnel through 70 meters of rock. This work, started in 1951 and to be completed in 1952, should eliminate the danger of flood by the Ju Ho, provided the bed of the Ju Ho is dredged and improved. Careful investigation by boring of the foundation on which the dam is to be built reveals the presence of a layer of mud of varying thickness which presents serious problems. However, the engineers and workers are confident that this difficulty will be successfully overcome.

In the fall of 1952, work is to begin on excavations for the conduits and tunnels of the Po-shan Reservoir on the Ch'in-t'ou Ho, a branch of the Ju Ho, and for the Nan-wan Reservoir on the Shih Ho. Test borings are to begin for the foundations of dams, conduits, and overflow channels for a number of other reservoirs.

Another important engineering task to be carried out in Honan is the dredging of the channels of the Hung Ho, the Ju Ho, the Ying Ho, and the several streams of the Yellow River flood region. Channels used or made by the Yellow River when its dikes at Hua-yuan-k'ou, west of K'ai-feng, were cut as a military measure, in 1938. This breach in the dike was closed with the aid of UNRRA in 1946 - 1947, and the Yellow River restored to its pre-1938 bed. To put these river beds and bordering dikes into good condition calls for an aggregate of 20 million cubic meters of earthwork, and the building at selected points of 40 or more below-surface watergates. When this work is completed in 1952, the danger of floods from the Hung, Ju and Ying rivers should be entirely removed, and as for the seven comparatively more important streams of the Yellow River flood region, the situation reached should be one of "big rains less flood, small rains no flood."

Although in 1951, four floodwater retention basins were built utilizing the low-lying areas at Lao-wang-p'o, Wu-sung Hu, Chiao-t'ing Hu, and T'ung Hu, the installations built at the points of admission and discharge, the conduits, the protective dikes for villages, and the internal drainage systems, require further reconstruction. Revised plans, based on the conditions of flow during the flood season have been made, and this winter they will be put into effect.

Water and soil conservation are of great importance in prolonging the length of life of the reservoirs. Accordingly in 1952, from 200 to 300 retention dams are to be built across the valleys of each of the tributary streams above the Pan-ch'iao, Shih-man-t'an, and Tzu-ho-shan reservoirs, and from 150 to 200 dams across the streams above the Po-shan, Nan-wan, and Lung-shan reservoirs. Tests made in 1951 for the construction of drainage ditches have proved valuable in water control and crop production. In 1952, in each of the three special administrative districts of Huai-yang, Shang-ch'iu, and Chen-liu, the farmers are to be mobilized to make ditches aggregating 300 square kilometers in area. Other districts along the main river are to try the same plans.

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Anhui Projects

The most urgent work to be done in Anhui is to construct water reservoirs and deepen the river channels, retention basins, and a portion of the irrigation canals.

The construction of the Fo-tzu-ling Reservoir, on the upper reaches of the Pi Ho, is one of the chief projects in the 1952 program of Huai Ho Conservancy project. It is to be one of the largest reservoirs with a capacity of 500 million cubic meters, and it should practically abolish all danger of flood from this source. More than ten specialists have made inspections and collectively decided on the best location and shape of the dam to be built. Within a short time work on its construction will begin. Already 180,000 laborers have been mobilized to build more than 60 kilometers of highway on which to transport the materials needed in the construction of the dam.

To deepen and convert Wa-fou Hu and Shou-hsi Hu into retention basins, 500 million cubic meters of earth must be moved. A similar amount of earthwork is involved in the construction of the dikes and two dams. This project will have a retention capacity of one billion cubic meters. In 1953, it will be enlarged to increase its capacity. Besides this, a retention basin is to be constructed using the low-lying land at Hung-meng-wa.

The most important work to condition the tributaries in the middle section of the Huai Ho valley is to deepen the channels of eight streams, especially the An Ho, the T'ang Ho, the Kuei Ho, the Hsi-fei-Ho, and the Chao-wang Ho. This will involve the excavation of 37,210,000 cubic meters of earth. Along with the deepening of these rivers, there must be constructed a number of below surface watergates on the Chia Ho and the Chiao-kang Hu, to permit drainage and to prevent back flooding.

The largest piece of river bed engineering is the regulation of the main channel of the Huai Ho downstream from Wu-ho-hsien. The Huai Ho's main stream flows through the Hung-tse Hu, but in the flood season, its flow, is slowed down to such an extent that it backs up and impedes the drainage of a number of its tributaries. Since the Hung-tse Hu is unregulated, it cannot properly discharge its functions as a retention basin.

To remedy this situation two comparatively important changes must be effected:

First, separate from the Huai Ho the flow of the north side tributary streams which come from the area of the Su-hsien Special Administrative District, and let this water pass directly into the Hung-tse Hu. Second, divert the Huai Ho main stream below Wu-ho away from the Hung-tse Hu by means of an independent channel.

From the terse description in the above paragraph, it might be difficult to follow the details of the proposed changes. However, by combining this information with that supplied by the diagram [redacted] (from the Peiping Jen-min Jih-pao, 22 September 1951), it is possible to gain a clearer idea of the principal features of the diversionary changes mentioned above.

The water of the tributary streams from the Su-hsien area is to be led directly into the western arm of Hung-tse Hu through a short channel to be dug eastward from a point near Shuang-kou. A short distance downstream from Shuang-kou on the old bed a dam is to be built to block any flow in the old channel.

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Concerning the second change, two new channels are to be made for the main stream of the Huai Ho. From a point near Feng-shan (between Wu-ho and Shuang-kou) a channel is to be cut to run southeasterly to join the old bed downstream from the diversion dam near Shuang-kou. Then another channel is to be dug starting at a point near Hsu-1 (118 34, 33 03) and running eastward to the San Ho. Thence the water is to flow into Pao-ning Hu and Kao-yu Hu, and thus southward via the Grand Canal and the Yangtze River into the sea. The diagram also indicates a new channel to make possible a short cut from the San Ho to Kao-yu Hu. A short distance north of Hsu-1, a diversionary dam across the old bed of the Huai Ho is to be built to block the entrance to the main part of Hung-tse Hu and thus force the water into its new channel.

(One other feature which seems necessary in this scheme, although it is not specifically mentioned in the text nor shown on the diagram, is the building of a dam between the Feng-shan cutting and Shuang-kou to prevent the Huai Ho main stream from continuing in its old bed instead of entering its new channel. Otherwise the separation called for in the first diversionary change mentioned above would not be effected.)

North Kiangsu Projects

The development of irrigation projects is the main undertaking for 1952 in North Kiangsu. With the conversion of the Hung-tse Hu into a properly controlled retention basin, all of its water may be used for the service of the people by increasing the fertility of 2,500,000 mou [$\frac{1}{6}$ mou equal one acre] of tilled land.

This is to be accomplished by completing the 170 kilometer main trunk irrigation canal which starts at Kao-liang-chien on the east shore of Hung-tse Hu and runs northeastward to the Yellow Sea. Control locks are to be built at Kao-liang-chien to regulate the flow in the canal. Where this canal crosses the Grand Canal, there are to be built in its eastern embankment, in 1952, a below-surface watergate which will permit the flow of 700 cubic meters per second. Of the 72,600,000 cubic meters of earthwork required in connection with this project, 45 million cubic meters are to be moved in 1952 and the balance in 1953.

Another objective which will be achieved by the 1952 Huai Ho Conservancy project is the improvement of the navigability of the south end of the Yun Ho through the diversion to it of the main flow of the Huai Ho, the deepening of its shallow places, and the annual strengthening of its eastern embankments.

TO BUILD RESERVOIR AT FO-TZU-LING -- Shanghai, Hsin-wen Jih-pao, 9 Jan 52

Fang-fou -- To further hold back the flow of Huai Ho water above Cheng-yang-kuan, the Huai Ho Control Commission has ordered test borings to be made to ascertain the best place for the location of a dam which is to create a reservoir for the floodwaters of the Pi Ho in Ho-shan Hsien, in northern Anhui. The probable site for the dam is somewhere in the mountain gorge near Ta-yi-ch'ung, and it will be known as the Fo-tzu-ling Reservoir.

WU-LI-P'U DOUBLE-GATE LOCK COMPLETED -- Shanghai, Hsin-wen Jih-pao, 11 Jan 52

Cheng-yang-kuan -- On 22 December 1951, construction was completed of a double-gate lock in the dike on the south bank of the Huai Ho at Wu-li-p'u, about 2 miles south of Cheng-yang-kuan. This project has been under construction for 7 months. This lock was necessary to permit the discharge through the dike into the Huai Ho of the runoff from a large low-lying area bounded on the north by the Huai Ho, on the east by Shang-ts'ai-yuan, on the south by Ying-ho-chi, and

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on the west by the Pi Ho, which constantly overflowed onto it. Its area is about 140,000 mou. Heretofore, this area was the first land to be inundated and the last to be rid of floodwater. As soon as the drainage channel to the newly built lock is finished, the drainage of the area can be effected. This will mean that the farmers on this area will be spared the fear of a flood, and that they will be able on the average to raise 14 million more catties of grain.

LABORERS START WORK ON KIANGSU CANALS -- Hong Kong, Wen-hui Jih-pao, 3 Dec 51

Shanghai -- Work has been started on another major feature of the Huai Ho Conservancy project which is now in its second year of execution, namely, the new Main Canal for drainage and irrigation. This is to start at Kao-liang-chien, on the east shore of the Hung-tse Hu and run northeastward for a distance of 170 kilometers to Pien-tan-chiang (harbor, or river mouth) on the coast of the Yellow Sea. [Indications are that Pien-tan-chiang is either at the old mouth of the Yellow River (120 20, 34 18), or at another river mouth, T'ao-tzu-k'ou (120 15, 34 24).]

Plans for this canal were commenced in the fall of 1950 and completed in April 1951, in accordance with the advice of the Soviet conservancy advisor, Bukov, after exhaustive studies were made to determine the best location for the bed of the canal. The canal is to serve at least three purposes, (1) to provide a channel to the sea for some of the flood waters of the Huai Ho, (2) to afford irrigation for the area traversed by the canal, and (3) to supplement inland waterway communication in North Kiangsu.

Important features of this canal project are the construction of:

1. Huge watergates at Kao-liang-chien, where the water enters the canal.
2. Diversionary locks or spillways in the east bank of the Grand Canal [apparently south of Huai An].
3. Below-surface watergates where the new canal crosses the Grand Canal.
4. Below-surface watergates where this (or another) canal crosses the She-yang Ho.
5. Locks on the Main Canal at or near the coast to prevent the inflow of sea water at high tide.

[A small-scale diagram accompanying the text indicates that the portion of the great Huai Ho Conservancy project east of the Grand Canal, besides the Main Canal mentioned above, includes three other canals that are being constructed or improved, namely, the West Trunk Canal (which is the Grand Canal), the South Trunk Canal which runs from a point near Yang-chou eastward past the south side of T'ai-chou, and the East Trunk Canal which runs from a junction with the preceding canal, northward past T'ai-tung, Yen-ch'eng, and west of Fou-ning, to a junction with the Main Canal. At least four other construction works, not specifically mentioned in the text, are indicated on the diagram, but the identifying words are too small to be read.]

These projects will involve the moving of over 70 million cubic meters of earth. When these projects are completed, a flow of as much as 700 cubic meters per second of Huai Ho water will be available for the irrigation of 25 million mou of tilled land in North Kiangsu. In addition to the more than 500,000 peasant laborers at work on these jobs, there are 3,000 skilled workmen, over 10,000 political and social work cadres, and a correspondingly large number of doctors, nurses, and sanitation workers.

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