THE SOVIET UNION RIVER DIVERSION PROJECT.
From Plan to Cancellation 1976-1986

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The Soviet Union has immense resources of fresh surface water. A ninth of the world's total fresh water is found in Soviet lakes and rivers. However, these water resources are unevenly distributed in the USSR. 84% of the nation's annual river discharge flows north and east across sparsely inhabited and economically underdeveloped territory to the Arctic and Pacific oceans. (Fig.1) The remaining 16% crosses the southern and western regions, which contain 75% of the population of the country, 80% of the economic activity and 80% of the cropland, including the most fertile land.

Despite the fact that the southern regions of the USSR have the best soils and the most suitable conditions for agriculture in the country, they have, on average, a negative moisture balance. (Fig 2) Great variations of precipitation with frequent intervals of drought are a serious obstacle to stable grain crop production in the Soviet Union. In order to reduce these problems, the USSR has allocated a great amount of investments for irrigation purposes during the last

1 This paper is a revised version of a B-level essay, presented by the author at the Department of Economic History, Uppsala University, in January 1988.


4 In a speech at the plenum of the central committee of the Communist Party of the Soviet Union on October 23, 1984, the chairman of the council of ministers at that time, N. A. Tikhonov, described the problems that the Soviet Union faced with drought in the period 1976-1980. Tikhonov's speech is printed in Ekonomicheskaya Gazeta, "O dolgovremennoy programme melioratsii, povyshenii effektivnosti ispol'zovaniya meliorirovannykh zemel' v tselyakh ustoychivogo narashchivaniya prodovol'stvennogo fonda strany", 1986:44, pp. 5-8. (In the 1970's, the grain crop results varied between 140 and 287 million tons).
A. Percentage of USSR's territory with river discharge into specified sea and ocean basins. B. Percentage of USSR's average annual river discharge accounted for by rivers flowing into specified sea and ocean basins. Numbers in boxes A and B indicate: 1-Arctic Ocean Basin; 2-Pacific Ocean Basin; 3-Black and Azov sea basins; 4-Baltic Sea Basin; 5-Caspian and Aral sea basins.

Fig. 2: Distribution of effective moisture

Precipitation
Evaporation = Equilibrium (after Ivanov)

twenty years. Of 337 km$^3$ water withdrawn for all uses in the Soviet Union in 1980, 177 km$^3$, or 53% went to irrigation.\textsuperscript{5} Of the croplands being irrigated, more than half or 62%, is located in Central Asia and Kazakhstan.\textsuperscript{6}

In the future, a further expansion of the irrigated area is proposed. According to Soviet plans, in 1990 nearly 23 million hectares will be irrigated and by the end of the century 30-32 million hectares. In 1985, the irrigated area was 19.6 million hectares.\textsuperscript{7}

An additional factor complicating the water management situation in the southern regions of the USSR is the condition of the big water bodies: the Caspian, Azov and Aral seas. Due to increased water consumption for industrial and irrigation purposes, the water inflow to these lakes has been substantially reduced during the last decades. Together with climate variations, this has resulted in increased water salinity and a sinking water level in the lakes. Between 1961 and 1985, the level of the Aral Sea dropped 10 metres and its salinity doubled. These changes have already caused serious ecological and economic harm.\textsuperscript{8}

Considering the unfavourable distribution of water resources, the wish to increase the country’s agriculture output and the increasing problems with water management in the last years, it is not surprising that Soviet water planners and engineers have been reflecting upon the idea of a large-scale transfer of water from the northern to the southern regions of the USSR for a long time. The northern parts of the country are rich in water resources and could in this

\textsuperscript{5} Philip P. Micklin, "The Fate of 'Sibaral': Soviet Water Politics in the Gorbachev Era", Central Asian Survey, Vol.6 No.2 1987, p.68. For a comparison of the quantities of water mentioned: the yearly water consumption of Paris is about 0.3 km$^3$; the annual flow at the mouth of the Mississippi River is 600 km$^3$.

\textsuperscript{6} Giroux, p.8.

\textsuperscript{7} See the speech of Tikhonov mentioned above, and Micklin 1987, pp. 68-69.

\textsuperscript{8} Micklin 1987, pp. 68-69.
way be used to ease the strained water management situation in the south.

Even in Tsarist times the possibility of moving water from the Siberian rivers into Central Asia was recognized. Seventy years later, in the late 1940’s, a Leningrad hydraulic engineer, M. M. Davydov, presented a grandiose water transfer plan. The Davydov plan proposed to take water from the Siberian Ob' and Yenisey rivers southward into the Aral and Caspian Seas. This plan would have required the construction of several dams and a gigantic water reservoir.9

In the late 1950’s, proposals were put forward for a water transfer project from the Pechora and Vychegda rivers of northern European Russia into the Kama-Volga river system and farther southward into the Caspian Sea. However, these plans were shelved in the mid 1960’s.10

A few years later, in the late 1960’s, the interest in large-scale water transfers was renewed in the USSR. A general strategy for the complex use and protection of water resources was worked out and was confirmed by the State Planning Committee, Gosplan, in 1970. Also, in 1968, the Institute of Water Problems of the Academy of Sciences was specially created to work on this issue.11

After this short background, we turn to the progress of the Soviet River Diversion Project during the period 1976-1986, and the considerable debate accompanying it in the USSR in these years.

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10 Micklin 1986, p.293.

11 Ibid., p.294.
The Progress of the Project 1976-1986.

The 25th Party Congress in 1976 called for scientific research and planning on the River Diversion Project. According to this decision, a big design and research program was initiated, to be carried out during the 10th five-year plan 1976-1980. Altogether, more than 120 different research institutes and central agencies took part in the work within the project. Under the primary responsibility of the National Water Management Design and Scientific Research Institute, Soyuzgiprovodkhoz, and the specific guidance of the Institute of Water Problems, technical-economic feasibility studies were completed for the different parts of the River Diversion Project. Subsequently, these studies were submitted to Gosplan for their approval. Soyuzgiprovodkhoz and several of the other agencies involved in the project were subordinated to the Ministry of Reclamation and Water Management, Minvodkhoz.

Research and design work on the project continued during the 11th five-year plan 1981-1985. The 26th Party Congress decided that the first construction work on the European part of the project should be started before 1990 and that the scientific evaluation of the Siberian part should be continued. In early 1984, after one minor change that increased the proposed annual water transfer from 25 to 27.2 km³, the Siberian part of the project was finally approved as well.12

The approved plan of the River Diversion Project consisted of two parts, one in the European part of the USSR and one between western Siberia and Central Asia. The purpose was to divert parts of the river systems in the northern regions of the Soviet Union southward into the Caspian and Aral seas, as follows:

(The river diversion schemes are presented in fig. 3)

A. The European Part.

A total water diversion of 19,1 km³ annually was planned, to be divided into three steps: the first, a diversion of 5,8 km³ water/year from the upper reaches of the Sukhona river and from the Lacha, Vozhe and Kubena lakes, to be transferred via the Rybinsk reservoir into the upper Volga and then farther southward to the Caspian Sea. The second step was the diversion of 3,5 km³ annually from the Lake Onega into the Volga river system. Finally, a third step in which 9,8 km³ per year were to be transferred from the Pechora river via the upper reaches of the Kama river into Volga. The construction works were to be started in 1986 and completed in the 1990's. According to the plans, the redistribution of water was to be further extended in a second phase in the next century. The total costs for the first phase, involving 19,1 km³ water per year, were estimated at approximately 2,4 billion rubles in 1982's prices (around 24 billion SEK or $ 4 billion).13

B. The Siberian Part.

This was to have been both longer and more complicated than the European part. The Siberian part was also to be carried out in two different phases. The first phase, with a total annual water diversion of 27,2 km³, was to draw water from the river Ob' and its tributary Irtysch and send it southward. The transfer route would have stretched from the confluence of the Ob' and Irtysch rivers through the central parts of western Siberia southward to the Syrdar'ya and Amudar'ya rivers, a distance of more than 2500 km. The water would have been taken from the Ob' and lower Irtysch during the lower flow period of September through April and from the middle and upper Irtysch during the remainder of the year. From the

**FIG. 3** Water-diversion projects of the USSR.

**A. European Diversions.**

**Phase I**
1. First stage (Lakes Lacha, Vozhe and Kubena and upper Sukhona River)
2. Second stage (Lake Onega)
3. Third stage (upper Pechora River)

**Phase II**
4. First stage (Lower Sukhona and Malaya Northern Dvina Rivers)
5. Second stage (Onega Gulf Reservoir)

**B. Siberian Diversions.**

**Phase I**
6. Irtysh River and middle and upper Ob River

**Phase II**
7. Middle and upper Ob River and Yenisey River

**C. Main diversion canal from Siberia to Aral Sea region.**

lower Irtysk, water was to be diverted against the river's natural flow direction by a series of dams with pumping facilities. The water would then have been delivered into a small water reservoir near the city of Tobolsk in western Siberia. From there, the water would have been sent southward via a large canal, the Sibaral Canal. This, in turn, would have needed enormous pumping stations to lift the water over the Turgay divide between western Siberia and the Arai Sea Basin. The difference in altitude between the Ob' and the Turgay water divide is 113 m. The rest of the route, after the divide, would have allowed the water to move southward naturally. The Sibaral Canal would have been of grand proportions, with a length of more than 2200 km, a width varying from 108 to 212 metres, and a depth of 12-15 m. The costs of the first phase was estimated at 13-14 billion rubles. An additional 18 billion was deemed necessary for the construction of water distribution and irrigation facilities along the transfer route. This meant a total cost of approximately 32 billion rubles (320 billion SEK / $ 53 billion). The construction work was due to start in the late 1980's and to be completed around the turn of the century. A second stage, increasing the total water redistribution to 60 km³ annually, was also recommended. This would have been accomplished by increasing the capacity of the Sibaral Canal, as well as the pumping rate of the Ob' and Irtysk. According to the plans, it should be possible to carry out this second phase sometime in the first half of the next century.

At a plenary session of the Central Committee of the Communist Party of the USSR in October 1984, the water diversion question was specifically discussed. In connection with a

14 This figure should be compared with the total investments spent on irrigation and land reclamation during the period 1966-1985, 115 billion rubles.

15 Micklin 1985, pp. 18-20, and Micklin 1987, pp. 70-71. A very detailed description of the Siberian section, with emphasis on the geographical and environmental aspects of the project, is given in Micklin 1986, pp. 309-319.
general draft for the country's water management and land reclamation plans up to the year 2000, the River Diversion Project also was mentioned. According to this draft, the European part of the project was to be completed in the period 1986 to 2000. However, the final design work for the Siberian part remained to be finished "in the immediate future". A time schedule for the Siberian construction works was to be decided after the final approvement of the project.16

In November 1985 the proposal of the guidelines for the 12th five-year plan 1986-1990 was published. Concerning the River Diversion Project, it was suggested that the construction works of the European part should start in the plan period of 1986-1990. The Siberian part, on the other hand, was not mentioned at all in the proposal. Later, on March 9 1986, when the revised version of the guidelines for the 12th five-year plan was published in the major Soviet newspapers, there was no word at all about any tangible river diversion project. Now, even the European part of the project had been dropped. Instead of mentioning any specific water redistribution plan, the revised draft only called for "deepening the study of problems associated with the regional distribution of water resources".17

The final decision to stop the River Diversion Project came in August 1986. In a report from the weekly meeting of the Politburo (week 33), it was announced that "it is appropriate to stop the planning of and preparations for the diversion of parts of the flow of the northern and Siberian rivers and to perform additional scientific research on the ecological and economical aspects of the problem".18 In a resolution, approved by the party's Central Committee and the Council of Ministers shortly afterwards, it was officially decided to abandon the project and exclude it from the five-

16 Tikhonov, p.7.
18 Pravda 1986-08-16.
year plan 1986-1990. With this, the River Diversion Project was definitely shelved. On the other hand, the Academy of Sciences of the USSR and other national agencies were instructed to carry on research on problems concerning the regional transfer of water resources.19

The Soviet Debate.

In terms of Soviet conditions, the official debate about the Soviet River Diversion Project was unusually lively and protracted. From the time the Project was seriously initiated in the late 1970's, it involved both scientists and laymen in the country. At the very least, the latter were able to voice their opinions with the help of Russian writers and intellectuals, who in different ways protested against the plans for the project. On several occasions during the 1980's, there were intense discussions in the Soviet press about the River Diversion plans. The issue was the subject of sometimes heated debate among scientists as well, although this was not always reflected in the Soviet press.

As early as 1979, in a publication about the geographical aspects of large-scale water redistribution in western Siberia, several objections were raised against the Siberian part of the project. In this report some geographers at the Siberian Department of the Academy of Sciences expressed their concern about the plans to realize the River Diversion Project. Among other things, they predicted harmful effects on the fishery resources of the Ob' basin.20

At the end of the period of the 10th five-year plan, around 1980, the intense research work about the project was summarized, and several scientific articles were published in this connection. Among the writers were many geographers. One such report is an article by four Moscow geographers in the periodical "Messages from the Academy of Sciences of the Academy of Sciences of the USSR."20

19 Pravda 1986-08-20.

20 Micklin 1987, p.76.
USSR. Geographical Series." The authors motivated the need of the European part of the project, pointing to the deteriorating water balance of the Caspian Sea, which necessitated additional water resources from the outside. A redistribution of water from the northern rivers to the south could help to solve this problem, they wrote. In the case of Central Asia, a large-scale water transfer could not alone be the solution to the water management problems of the region. First of all, a more effective use of the water resources already existing in this area should be considered. Considering the long distance of the Sibaral Canal, the possibility of substantial water losses during transportation had to be taken into account. Concluding their article, the authors stated that additional and more accurate investigations were needed before the Siberian part of the project could be initiated.21

A similar opinion was put forward by the jurists Kolbasov and Kazannik in an article in the periodical "The Soviet State and Justice" in 1981, in which they stressed issues of environmental law. They too considered the River Diversion Project feasible only after very thorough evaluations of all possible effects on the environment. Kolbasov and Kazannik did not emphasize the difference between the European and Siberian parts of the project as had the Moscow geographers, but they observed that the Siberian diversion would involve extensive interference with the environment of the region.22

A more optimistic view was held by A. S. Berezner from Soyuzgiprovdokh, one of the main agencies involved in the project. In an contribution in the "Messages..." in 1982, he forecasted that the Soviet Union in the future would need around 50 million hectares of irrigated land (in 1980, 18

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million hectares were irrigated). To manage this, he stated, the River Diversion Project was definitely necessary.23

Later that year, the leader of the Institute of Water Problems, G. V. Voropayev, together with some Moscow geographers presented a more careful analysis of the project in the same periodical. Pointing out that additional studies of the Siberian transfer problem were necessary, the authors expressed doubt as to whether the Sibaral Canal would be as effective in solving the water problems of Central Asia as was claimed by Berezner and others. Actually, the potentials for irrigation in Central Asia would only be marginally increased by the construction of the canal, they noted. At a conference in Irkutsk in August 1983, Soviet geographer and the head of the Department of Economic Geography at the Institute of Geography in Moscow, O. A. Kibal'chich, raised in a lecture several objections against the Sibaral Canal. The first phase of the Siberian project alone would cost nearly 150 billion rubles (1500 billion SEK / $ 250 billion), including the irrigation construction works.24 Considering this, he stated, alternative approaches to the problem that made more efficient use of the available water resources in Central Asia - for instance the reconstruction and modernization of existing irrigation systems - were recommendable.25

As the articles mentioned above show, at the beginning of the 1980's, the most widespread view among scientists involved in the River Diversion Project was that the European part of the project was ready to be started. However, additional research was needed regarding the Siberian part before any decisions could be made about how it should be


24 This should be compared with the total cost of 32 billion rubles mentioned earlier.

realized. The great efforts and costs connected with the construction of the Sibaral Canal were especially stressed.

Although the number of scientific publications about the project was considerable, articles and reports of this kind hardly reached a larger portion of the Soviet public. However, in March 1982, an article was published in the Literaturnaya Gazeta, one of the most influential Soviet newspapers on public debate in the country. Entitled "Project of the century from different points of view", the article presented both an advocate of and an opponent of the project. The discussion in the article mainly concerned the Siberian diversion plans.

1. Gerardi, chief engineer of the Siberian water redistribution, spoke for the project. He stressed the growing problems with regard to the water management situation in Central Asia as imperative reasons to complete the project. Considerable research and design work had already been done to evaluate the impact of the water redistribution. According to these calculations, Gerardi stated, it would be possible to pay off the costs for the Sibaral Canal in 10 years. This would be realizable in that the canal would provide an increased potential for irrigation and water transport.

The economist V. Perevedentsev was of another opinion. According to him, the calculations done regarding the economy of the project were imperfect and over-optimistic. It would hardly be possible to pay for the Sibaral Canal in 30 years, much less in 10. The decisions of the 26th Party Congress 1981 called for additional scientific research concerning the River Diversion Project. Such research must take alternative ways to solve the water management situation in Central Asia into consideration, Perevedentsev stated. As examples of such solutions he mentioned a more rational use of existing irrigation systems and the introduction of a new system of payment for water consumption.26

26 The Gerardi-Perevedentsev debate is published in Literaturnaya Gazeta 1982-03-10, "'Proekt veka' s raznykh tochek zreniya".
Perevedentsev and his views were strongly denounced a month later, in April 1982, in an article in the Uzbek paper Pravda Vostoka. It was stated here that Perevedentsev was totally uninformed and his arguments absurd. The authors of the article also repeated that the payoff period for the project would be only 10 years, as mentioned by Gerardi.

During the years following the article in Literaturnaya Gazeta, criticism of the River Diversion Project was notably scarce. The adoption of the plans for the Siberian part of the project by Gosplan 1983 seemed to indicate that the advocates of the diversion plans now had the upper hand. Another confirmation of this was an interview with the first Deputy Minister of Reclamation and Water Management, P. Polad-Zade, in Izvestiya, the paper of the Council of Ministers. Considering the future needs of agricultural production in the USSR and as a consequence of this increased irrigation, the Deputy Minister emphasized the necessity to complete the River Diversion Project.

Although official criticism of the project appeared only infrequently in the Soviet press at this time, there were protests against it from several groups. Objections against the project were formulated and sent to higher officials, and even samizdat-literature about the problem was circulated. A samizdat document of this kind was published in 1982 in the Paris-based Russian émigré paper Russkaya Mysl by the Russian writer Vasilii Belov. Belov sharply criticized the European part of the project and appealed to the Soviet leaders to give up the whole project. The article by Belov, who himself lives in the northern part of Russia, indicated how concerned many Russians were about the environment in northern Russia.

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27 The Uzbek SSR is one of the four Central Asian Soviet republics.

28 Micklin 1987, p.77.


30 Micklin 1987, p. 78. The Russian word samizdat means unofficially published and distributed literature.
The River Diversion Project was seen as a major threat to forests and villages in the north.31

Belov was not the only person who tried to achieve a cancellation of the project. Several prominent scientists and humanists also compiled material with arguments against the project. Some articles, containing substantial material on the project that had been presented for higher officials in the USSR, were published 1984 in another Russian émigré periodical, Grani (published in the FRG). In these articles a group of Russian scientists, writers and artists criticized the River Diversion Project, concentrating on the European part of it. Emphasising both the ecological and economical disadvantages of the project, the authors suggested that an expert committee should be set up to provide an additional evaluation of the whole problem, independent of the interests of the ministries and research institutes already involved in the project. As a special issue, the authors discussed the unique buildings and other memorials of great architectural and historical value in northern Russia, which according to them were threatened by the planned construction works connected with the project. Grani also presented copies of letters to the Politburo and to the General Secretary of the Communist party at that time, Yuriy Andropov, from several prominent scientists, appealing to the Soviet leaders to reconsider the whole project.32

Contrary to the opinion of many Russian intellectuals, there were clear signs of interest in the River Diversion Project in Central Asia. The Sibaral Canal was seen as a possible solution to the water shortage problems in this region. Besides the institutions engaged in the project, its strongest advocates were Central Asian politicians and offic-

31 V. I. Belov, "Können das Kaspische Meer, der Voz- und Lacasse noch gerettet werden?", Osteuropa-info, no. 57/58 1984, pp. 101-111. (This is a slightly shorter translation of the article from Ruskaya Mysl 1982-07-15).

ials. At the 25th and 26th party congresses in 1976 and 1981, several party officials from the Uzbek, Kazakh and Turkmen Soviet republics strongly supported the plans of the Siberian diversion.33 The press in Central Asia published several articles and statements about the project in the early 1980’s, expressing confidence that it would go ahead as planned.34

Towards the mid 1980’s, the River Diversion Project seemed to be close to its realization. In spite of the resistance to it among several groups in Soviet society, criticism was not brought up either officially or in the Soviet media. In 1985, however, a change occurred, which was also reflected in Soviet newspapers and periodicals. In late 1985, when the suggested guidelines for the 12th five-year plan were published in the press, the Siberian part of the project was not included. This was remarkable, considering official statements made earlier that year promoting both parts of the project.35

Following this, the official debate was started again, after some years of silence in the Soviet press. Criticism was expressed against the project, especially the European part of it. In the July edition of the Soviet periodical Nash Sovremennik, a remarkable article was presented to the public. It was a summary of a round-table conference held by the editors of the paper with a group of Soviet experts, representing several different branches of science. The experts gave an extensive critical evaluation of the whole project, concentrating on its European part, and questioned whether it was meaningful to transfer water southward on such a large scale for irrigation purposes. It would be better, they stated, to increase output from agricultural


35 Micklin 1987, p.79.
production by other means, such as better transport and storing facilities and different kinds of soil improvement.36

At the congress of the Russian Writers Union in December 1985, new objections were made to the River Diversion Project, among others by the Russian writer and engineer Sergey Zalygin.37 Zalygin's contribution was followed two months later by fundamental economic criticism of the whole idea of the project presented by five members of the Soviet Academy of Sciences, among them the prominent Soviet economist Abel Aganbegyan. In an article in Pravda in February 1986, they provided a thorough analysis of the importance of irrigation for total agricultural productivity in the USSR. According to the article, in spite of increased efforts in this area during the last few years, only 5% of the total cropland in the country was irrigated. On average, the Soviet Union invested 5 billion rubles (50 billion SEK / around $ 8 billion) annually in irrigation systems. However, only 0,2 billion rubles (2 billion SEK / $ 0,3 billion) - that is, 25 times less - were spent each year on all other methods of land improvement. Yet there were several other ways to increase agricultural output that were more appropriate than irrigation, Aganbegyan and his colleagues stated. Irrigation generally demanded large investments, without giving a corresponding return. Instead of irrigation, a more rational use of existing agricultural resources was to be considered. It was of greatest importance to economize on water resources and to stimulate lower water consumption by means of water-saving technology, instead of planning large-scale river diversions. The authors concluded their article by recom-


Kristian Gerner, " Första steget från planekonomi. Om Sovjets skrinlagda flodprojekt.", Svenska Dagbladet, 1986-12-10.
mending that the whole project be dropped from the guidelines of the 12th five-year plan.38

The article in Pravda by Aganbegyan was a sign of the turning point for the River Diversion scheme. When the final guidelines for the 12th five-year plan were proclaimed by the Soviet Government in March 1986, they contained no definite plans with regard to the River Diversion.

However, there were indications that the authorities responsible attempted to continue working on the project even after the new guidelines went into effect.39 At the 7th congress of the Soviet Writers Union in June 1986, the problem was again discussed by some Russian writers, among them Vasily Belov, Sergey Zalygin and Valentin Rasputin. In his speech at the congress, Sergey Zalygin pointed out that the Ministry of Land Reclamation and Water Management, Minvodkhoz, continued to carry on preparatory construction work for the project, in spite of the Government decision in March the same year. This observation was confirmed by Rasputin, who claimed that, through Gosplan, a go-ahead signal had already been given to Minvodkhoz to start with the construction works for the European part of the River Diversion Project. In his speech, Rasputin appealed to the Politburo and the General Secretary, Mikhail Gorbachev, to once more reconsider the whole question.40

The definite decision to cancel the River Diversion Project came in August 1986 and was published in the major Soviet newspapers on August 20. At the same time, national planning institutions, scientific research institutes and

38 "Zemlya – glavnoe bogatstvo.", A. Aganbegyan et al., Pravda, 1986-02-12.


40 The speeches of Rasputin and Zalygin at the 7th congress of the Soviet Writers Union are reproduced in Literaturnaya Gazeta, 1986-07-02.
agriculture and water authorities were ordered to prepare a complex development program for Central Asia for the year 2010. This was to be done together with the councils of Ministers of the Central Asian Soviet republics and was to be presented during the first half of 1987. Particular attention was to be paid to the region’s water management situation and agriculture production.41

If the southern part of the Kazakh SSR is added to the four Central Asian Soviet republics, we get a geographically coherent region with an area of over 2 million km² and a population of more than 35 million inhabitants.42 This is approximately one eight of the total population in the USSR. Moreover, this region has the fastest growing population in the country.43

Together with the Kazakh SSR, Central Asia has about 48% of the land used for agricultural purposes in the Soviet Union. The crop lands of the region, comprising 42 million hectares, are 19% of the total Soviet crop land (that is approximately 14 times more than the total crop land in Sweden). The remaining 220 million hectares are mainly used as grazing land. Thus Central Asia and the Kazakh SSR are most important for the Soviet economy in the area of agriculture. More than 90% of the cotton and around 20% of the grain in the USSR are produced in this region. The cotton is cultivated in the south and almost exclusively with the help of irrigation. Cotton is one of the biggest Soviet export products, and it is refined to fibers and material mainly in the European part of the USSR.

The region is rich in raw materials of different kinds, such as minerals, oil and gas. In that Central Asia is the

42 The four Central Asian Soviet republics are the Uzbek, Turkmen, Tadzhik and Kirgiz SSR.
cotton producer of the Soviet Union, the whole region has the status of raw material exporter to the other parts of the country. Although the industry in the area has been developed over the past decades, Central Asia still lags behind the other Soviet republics.

The importance of agriculture, its dependence on irrigation, the increasing population pressure and the need to develop the industry in the region - all these factors call for a good supply of water resources.

However, it is precisely the water management situation which is causing the biggest problems for Central Asia. The whole region has a distinctly dry climate, with little and irregular precipitation. Subsequently, the population in Central Asia is concentrated to the area between the upper reaches of the Syrdar'ya and Amudar'ya. These two rivers provide the bulk of the water resources used for irrigation purposes in the region. Since irrigation causes large water losses due to evaporation, filtration and other losses during transportation, it has contributed to a dramatic deterioration of the region's water management situation in the 1970's and 1980's. In 1984, more than 8 million hectares was being irrigated.

As a consequence of the increased water consumption in Central Asia, the Aral Sea has been severely affected. Of the estimated annual total river flow of 127 km$^3$ into the Aral Sea basin, Syrdar'ya and Amudar'ya contribute 73 and 37 km$^3$ respectively. Of this, only around 56 km$^3$ reaches the Aral Sea because of natural losses along the way. In addition, water consumption for irrigation and other purposes is already so high that the discharge of the rivers during dry periods has almost disappeared. Since 1961, the water level of the Aral Sea has sunk 10 metres, its area has decreased by 30%, its volume by 50% and the salinity of the lake has doubled. According to some experts, the Aral Sea may be reduced in the future to a shrunken, lifeless brine lake.

Following the decision of the Council of Ministers in August 1986 to cancel the River Diversion Project, an article was published in the Literaturnaya Gazeta in September of the
same year entitled "Learnings from the project of the centur-
y", in which the earlier discussions about the problem in
this newspaper were commented upon. In the same article,
Boris Khorev, geographer and member of the national expert
committee that had examined the project, summarized the
shortcomings of the project.\footnote{The expert committee was appointed by order of the Politburo and presented it's report to the government July 19 1986.} It lacked a realistic economic base, and sufficient consideration had not been taken regarding the possible effects of the extensive construction work on the environment. In connection with the contribution by Khorev, there was also a report from the Central Asian city of Tashkent. In the report the problems of water management in the town were described. The water consumption of Tashkent was nearly 500 litres per person and day, much too high an amount, the reporter stated. To reduce this waste of water resources, it was necessary to economixe, for example by introducing a stricter price policy for water consumption.\footnote{"Uroki proekta veka", \textit{Literaturnaya Gazeta}, 1986-09-03; and Kristian Gerner, \textit{Svenska Dagbladet}, 1986-12-10.}

Another reminder of the alarming situation of the Aral
Sea was given in the same paper in November 1986. An Uzbek
writer, Sarvar Azimov, claimed that the water in the south-
eastern part of the lake had receded 80-100 km from the old
shore line. Due to the reduction in the size of the Aral Sea,
the climate in the area already had worsened. Urgent measures
were needed to save the lake, he wrote.\footnote{Sarvar Azimov, "Kak spasti Aral?", \textit{Literaturnaya Gazeta}, 1986-11-26.}

It is obvious that the cancellation of the River Diversion
Project was seen by many as a sign of the changed policy
initiated by the party leaders, headed by the new General
Secretary, Mikhail Gorbachev, who was appointed in March
1985. In the editorial column of \textit{Pravda} on January 10, 1987,
the decision to cancel the project was described as evidence
of the party’s consciousness of environmental problems and ecological questions. Further, Minvodkhoz was criticized for not having enough respect for the public opinion against the project. In the paper of the Soviet trade unions, Trud, an article was published in October 1986, in which a representative of the Soviet Writers Union gave an account for the resistance against the diversion plans. He emphasized the role played by many Russian writers and members of the Academy of Sciences in the struggle against the authorities involved in the project. He considered the decision made in August by the Party leaders and the government to be a victory for the public opinion against the bureaucracy and the self-interest of the Soviet authorities.\textsuperscript{47}

In a contribution entitled "The turn. Learning from a discussion" in the first number of the literary monthly Novyy Mir in 1987, the author Sergey Zalygin (who is also chief editor of the periodical) once again discussed the River Diversion Project. Por Zalygin, the cancellation of the project was one of the most important proofs that perestroyka, the transformation of the Soviet society initiated under Gorbachev, had now really been put into motion in the country. The leaders of the nation had listened to public opinion and stopped a poorly prepared project. Zalygin was also severely critical towards the authorities and institutions which had been responsible for the project. These had worked only for their interests, with no concern for either the economic or ecological aspects of the problem. The Ministry for Land Reclamation and Water Resources and the Institute for Water Problems had seriously misused state funds, according to Zalygin, and instead of doing valuable research, they had tried to secure state subsidies by keeping the project alive. Further, the whole project lacked a solid economic base. Zalygin also suggested that the officials responsible for the mistakes which had been made should be severely reprimanded. The decision taken by the Soviet lead-

ers to cancel the project was a victory for the general public over corrupted authorities. Common sense had overcome bureaucratic narrowmindedness.\(^{48}\)

Although the River Diversion Project was already definitely shelved, and in spite of the flow of articles and statements in the Soviet press condemning it, there were still signs that the Central Asian lobby had not completely given up hope. After nearly two years of silence on the question, an editorial was published in the Uzbek literary journal *Zvezda Vostoka* in June 1987. Introducing two open letters from Central Asian specialists in water management as an answer to Yalygin's article in *Novyy Mir*, the Uzbek article openly stated that the Sibaral Canal was the only possible solution to the water deficit in Central Asia. Zalygin and other "anti-river diverters" had not considered the fact that Central Asia was lagging behind the rest of the country with regard to economic and social development. If the region did not get additional water resources from outside, it would end up still further behind. Further, the article claimed that the Siberian transfer had broad support from a number of Central Asian scientists.\(^{49}\)

A more objective analysis was given by the geographer B. Kamalov in the economic journal *Economicheskaya Gazeta* in July 1987. In a report from the Aral Sea he described the severe problems with the water balance in the region. During the last 25 years, more than 50 billion rubles (500 billion SEK / around \$8 billion) had been invested in new cropland and irrigation facilities. However, the returns had not been up to the expectations. Instead, there had been many cases of wasted resources and ineffectiveness. The sharply increased water consumption and exploitation of the Syrdar'ya and Amudar'ya had had to be stopped, Kamalov wrote. More effective


\(^{49}\) Sheehy, pp. 1-5.
cultivation and irrigation systems had to be introduced. A substitution of cotton by other crops that did not demand as much water, was recommendable. Instead of cotton, synthetic materials could be used in the textile industry, which would also be cheaper than the production of natural cotton.50

The article in Zvezda Vostoka showed that many Central Asian officials continued to advocate the idea of Siberian water diversions. Also, the increased publicity about the Aral Sea may be seen as evidence that some groups still think that the construction of an north-south canal from the Siberian rivers would be a solution to the worsening problems of the water situation in Central Asia.

That the party and government leaders were conscious of the problems in Central Asia was shown by the resolution from August 20, 1986 concerning a general economical development plan for the whole region, which had to be carried out by both national and Central Asian authorities. This was followed by a new resolution on June 20, 1987, expressing impatience with the ineffective use of water and land resources in Central Asia.51

Summary and conclusions.

The plans for the River Diversion Project were initiated in the 1970's. Design work on the project started seriously during the 10th five-year plan 1976-1980 and continued in the following period 1981-1985. The intention in the final plans was, in a first phase, to divert southward a total amount of 19,1 km³ and 27,2 km³ water annually from rivers in northern Russia and western Siberia respectively. The European part of the project included a water transfer through the Volga river basin to the Caspian Sea, while the Siberian part planned to take water from the Ob' and Irtysh rivers to the

51 Sheehy, p.5.
Aral Sea via the Central Asian rivers Syrdar'ya and Amudar'ya.

The reasons given for the project were that it would redress the water balance of the Caspian and Aral seas, increase the potentials for irrigation in southern Russia, Kazakhstan and Central Asia and thereby improve the agriculture production of these regions.

After a long and continuous debate in the 1980’s, with contributions from Soviet scientists, administrators, economists, writers and other intellectuals, the Soviet leaders in August 1986 decided to cancel the River Diversion Project. The debate culminated in 1985 and 1986, when the opponents of the project got the advantage in the discussion.

Both the cancellation as such and the discussion accompanying it were remarkable. When the final decision came in August 1986, research and design had been going on for more than 10 years. A large number of different planning organs, scientific research institutes and other organizations had been engaged in the project. In his article in Novyy Mir, Sergey Zalygin stated that nearly 65 thousand persons had been involved within the framework of the project. The fact that the Soviet leaders intervened and changed their minds concerning the project, in spite of the fact that it already had proceeded almost to its realisation, indicates that it both was a difficult and important decision for them to take. It also shows that the structure of the Soviet society is a very complex one, with many different interest groups involved in the Soviet planning and decision making. The development of the River Diversion Project is an illustrative example of this.

In the Soviet discussions about the project, the official debate became more intense in 1985 and the following years. The amount of articles in Soviet newspapers and periodicals about this subject significantly increased during this time. Thanks to the unusually open discussions about the

52 Zalygin, p. 13.
project, it was possible to recognize the different interest groups involved in the debate.

The scientists - mostly represented by geographers - who discussed the project in the specialist literature, generally concentrated on the possible effects on the environment because of the construction work within the river diversion plans. In most cases, they noted that more research about the environmental consequences of the project was needed. A usual opinion was that alternative solutions of the problem, especially concerning Central Asia, should be considered more carefully. Scientific articles of this kind were for the most part published in the early 1980’s, as a result of the considerable research done during the 10th five-year plan 1976-1980. Most scientists were not against the idea of the project as such; they mainly discussed how the technical solution of the problem could be solved in the best way. The Siberian part of the project was the most complicated section, as it required considerably more effort than the European part, especially the construction of the Sibaral Canal.

A clearly optimistic attitude was held by the leading representatives of the authorities and organizations involved in the planning of the River Diversion Project. They motivated the project by stating the great need for water in the southern parts of the Soviet Union, the most important agriculture region of the country. To obtain higher productivity in agriculture, increased irrigation was needed. To increase the amount of irrigated crop land, more water was needed. However, in the southern parts of the Soviet Union, water resources were no longer sufficient. Thus, water had to be transferred from the water-rich regions of the north. An argumentation of this kind was common in interviews and other contributions by Soviet officials, representing the authorities responsible for the projection work.53

Different regional interests were also involved. Many Russian intellectuals took an active part in the discussion

53 A good example of this is the article by Berezner (Long Term Projections...).
about the European part of the project. They feared that the diversions of the northern rivers would destroy many unique cultural values in northern Russia. The persistent activity by the Russian writers Belov and Zalygin are significant examples of this group.

On the other side, the strongest adherents of the River Diversion Project were to be found in Central Asia. There, many people saw the construction of the Sibaral Canal as a solution to the severe water shortage problems of the region. Additional water transfers from the Siberian rivers were considered vital for the future development of Central Asia. Among the supporters were both intellectuals, as well as party officials from the region.

The criticism raised against the River Diversion Project was principally of three different kinds; ecological, institutional-political and economic. The considerable consequences for the environment connected with the realization of the project both in northern Russia and western Siberia attracted attention from many sides. Even those scientists who in general supported the idea of the project stressed that serious considerations had to be made regarding the possible effects on the environment of the regions where the construction works were to be carried out. Also, the lobby group of Russian intellectuals had the ecological risks as their main argument against the River Diversion Project. Even officially, as in the editorial in Pravda on January 10, 1987, the cancellation of the diversion plans was seen as an evidence of the party’s consciousness about ecological problems.

In the Soviet debate serious criticism was put forward against the authorities and state organisations responsible for the projection work. They were accused of misusing their influence, wasting state resources and money and providing insufficient scientific evaluation of the problem. Not surprisingly, the decision to shelve the whole project was regarded by Zalygin and other opponents of the River Diversion Project as a victory for public opinion against the powerful Soviet bureaucracy.
The most serious arguments against the river diversion plans were based on economic considerations and came from economists such as Aganbegyan and Perevedentsev. According to them, the whole project lacked a sound economic base. The idea of huge water transfers from the north to solve the water management problem of the southern regions of the country was not realistic. It would have demanded enormous capital investments and other state resources. Instead, the problems of Soviet agriculture were to be solved by other means. The existing land and water resources had to be more effectively utilized, for example by a stricter price policy for water consumption, a more cautious use and maintenance of irrigation facilities already in existence, and by substituting water-demanding crops such as cotton with other plants that did not require as much water.

The arguments above reflect the new kind of economic thinking in the Soviet Union put forward by the Soviet leaders under the Gorbachev regime. Already as Minister of Agriculture in the period 1978-1983, Mikhail Gorbachev stressed in his work the importance of more economic effectiveness in the Soviet agricultural sector. After Gorbachev was appointed as General Secretary in 1985, he has continued to spread his economic and political ideas throughout Soviet society. The opponents of the River Diversion Project found important support in Gorbachev and his fellow thinkers.54

Considering the very extensive scientific research and planning carried out during the 10th and 11th five-year plans 1976-1985, it seems clear that the Soviet leaders decision to cancel the River Diversion Project was not made mainly because of poor planning and insufficient scientific research on the part of the responsible planning organizations. Rather economic considerations were the most important reasons for the decision in this case. The Soviets can no longer afford large-scale giant projects that appropriate considerable

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54 Among western Observers stressing the role of Gorbachev in the official decision to stop the River Diversion Project, see Micklin 1987, pp.78-79.
portions of the state budget for a long period of time. Moreover, the possible positive effects of the river diversions were not convincing enough, especially concerning the question of effective pay-off in the agricultural sector.

The Soviet River Diversion Project has until further notice been cancelled. However, according to the decision of the Soviet leaders in August 1986, further research about problems associated with water redistributions on a regional scale is to be continued. If the water management problems in Central Asia remains in the future, and if the Soviets wishes to manage the critical situation of the Aral Sea, it is not unthinkable that the idea of a larger water transfer from the north, at least to the Aral Sea, will be raised again. Perhaps in 10-20 years, and if then, perhaps in a reduced, less costly form. The development in Central Asia and the future economic and political situation in the Soviet Union will decide whether the discussion about river diversions will be started again.


