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## CZECHOSLOVAK-HUNGARIAN HYDRO-ELECTRIC PROJECT IN DANUBE VALLEY DROPPED

(See end for Summary)

The first national atomic energy conference met in Budapest from 8 to 10 January 1969. Some 400 Hungarian experts and a good number of foreign guests, including top Soviet specialists, discussed the application of atomic energy to non-military projects. The conference offered a welcome opportunity to extol the virtues of the first Hungarian atomic power plant, which is to be erected with Soviet assistance and whose first unit should go into operation by 1975.(1)

The plant will be built on the Danube near the town of Paks in County Tolna (2) and the keynote of the conference was that it will open a new era in Hungarian Atomic Technology and will also initiate a long-term and large-scale program of atomic power plant construction.(3)

Deputy Minister of Heavy Industry Geza Szili pointed out at the conference that, though the building costs of atomic power plants are higher than those of power stations using hydro-carbons(4) the difference is after all not significant, and in a country which is relatively as short of conventional sources of electric energy as Hungary, the use of atomic energy is quite feasible in the long run.(5)

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- (1) For details, cf. Hungarian Situation Report, Radio Free Europe Research, 8 July 1966.
  - (2) Cf. Hungarian SR/10, RFER, 9 February 1968.
  - (3) Cf. Magyar Nemzet and Magyar Hirlap, 11 January 1969.
  - (4) The Paks station is expected to cost some seven thousand million forint -- cf. Esti Hirlap, 9 January 1969.
  - (5) Cf. Magyar Nemzet, 9 January 1969.

This optimistic forecast tallies with earlier statements on the subject. For example, in the opinion of Minister of Heavy Industry Ferenc Levardi (6) the use of atomic energy is "economical" even in countries which can rely on abundant conventional sources of energy -- which is surely not the case in Hungary. It was estimated in 1967 that the expected production cost of electricity generated by atomic energy will be 20 per cent lower than that of imported hydro-electric power and 10 per cent under the production cost of power generated by Hungarian thermo-electrical power plants.(7) It is known that nuclear fuel (uranium oxide) for the Hungarian plant will be provided by the Soviet Union which will use for the purpose uranium ore mined in Hungary. The processing of uranium ore is said to be far beyond Hungary's technical-economic capacity.(8)

Finally, it is expected that the building of the Hungarian atomic power plant -- for which Hungary will construct the turbine and generators (9) -- will open a market for Hungary's power plant equipment industries, which are internationally renown, in other countries planning to build atomic power plants.(10)

What was not mentioned at the first national atomic energy conference was that the building of the first Hungarian atomic power plant is the reason for the abandonment of a cherished project of the late Fifties and early Sixties -- the building by Czechoslovakia and Hungary of a joint system of hydro-electrical power plants on the Danube.

This very interesting item of information leaked out because of the curiosity of the students of the Miskolc Technical University. In December 1968, Lajos Cseterky, Secretary of the Presidential Council and Member of Parliament representing Miskolc, staged a "question period" at the university, during which he was confronted with an "exciting" question of "common interest": the fate of the Czechoslovak-Hungarian hydro-electric project. Cseterky replied that the project had been struck off the agenda of the government some time ago. Instead, Hungary had decided to build a

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- (6) Cf. Magyar Hirlap, 3 September 1968.
  - (7) Cf. Magyar Nemzet, 10 May 1967.
  - (8) Cf. Ferenc Levardi's statement in Magyar Hirlap, 3 September 1968.
  - (9) Cf. Hungarian SR, RFER, 8 July 1966.
  - (10) Cf. Radio Budapest, Homeland program, 6 June 1967.



cheaper atomic power plant. He added that the first such plant, whose construction was already in preparation, would be followed by a second Hungarian atomic power plant. "These are more up-to-date than the Danubian hydro-electric project, and we also possess the basic raw material of atomic fuel -- namely, uranium ore." Cseterky expounded at some length the Hungarian view of the post-21 August 1968 Czechoslovak "events," but he was quick to add that the Czechoslovak-Hungarian hydro-electric project on the Danube had not been dropped because of them: the pertinent decision was taken at a "much earlier time." (11)

Lajos Cseterky has thus for the first time lifted the veil from an important question of Czechoslovak-Hungarian economic cooperation. In doing so, he virtually answered the question which was posed by Smena of 13 April 1968 and summarized by Uj Szo of 16 April 1968. It was then asked in a spirit of passionate search for truth -- one of the main features of Czechoslovakia's political "spring" of 1968 -- whether the Czechoslovak-Hungarian system of Danubian hydro-electrical power plants would be built after all. In the light of Cseterky's above-quoted statement, one has to conclude that the project in question has been scrapped.

Smena and Uj Szo gave highly revealing glimpses of the Czechoslovak approach to the project. The papers said that, after 15 years of preparatory work, including top level discussions and agreements between the two countries, and the deep involvement of the leading Czechoslovak organs -- the project was discussed 12 times by the government and eight times by the supreme Party organs -- the project was eventually vetoed by Novotny in 1966. Against the majority of the Party Presidium, who favored the project, he refused to put it to the vote and ordered the elaboration of further "alternatives." Smena and Uj Szo imply that in doing so, Novotny sided with a minority of experts who -- in opposition to the larger number of supporters of the Danubian hydro-electrical project -- advocated instead the building of the Danube-Elbe-Oder Canal. This minority planned to prevent the inclusion of the hydro-electric project even in the Czechoslovak five-year plan of 1970-1975, and they hoped that the building of the Danube-Elbe-Oder Canal could be inserted instead.

The two papers disclose that it was forbidden in the Novotny era to give the public full information about the Danubian hydro-electric project. They say that if journalists made inquiries about the protracted delay in the implementation of the project,

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(11) Cf. Eszak-Magyarország, 14-15 September 1968.

they were told that "the Hungarian partner was momentarily displaying no interest in it." Smena and Uj Szo, which dealt with the subject in April 1968, refused to believe that such explanations corresponded to the truth, and argued that only the Hungarian partner could supply satisfactory clarification. The papers admitted that there might have been some mistakes in cooperation, but claimed that everything ought to have been placed before the public as objective information, instead of which the truth had been withheld.

In the absence of a comprehensive official explanation, one can only reconstruct what really happened to the Czechoslovak hydro-electric project. The Hungarian authorities have been considering the building of hydro-electric power plants on the Danube since 1946. They selected as the most suitable site the Nagymaros area, where the river makes a bend and is narrowed by mountains on both sides. After extensive studies carried out between 1951 and 1956, the project was given fresh impetus in 1957.(12) According to the issues of Smena and Uj Szo quoted above, the Czechoslovak government decided in 1952 to harness the hydro-electrical force of the Danube and set up a large number of committees which drafted some 20 alternatives. Talks between Czechoslovakia and Hungary about joining their forces to exploit the Danube as a source of power began under the auspices of Comecon in 1956-1957.(13) The Comecon Executive Council discussed several times the exploitation of the power potential of the Danube between the Austrian border and the Black Sea and selected as the most convenient place the bend of the river at Nagymaros.(14)

In October 1958, Hungarian Deputy Premier Antal Apro and Czechoslovak Deputy Premier Karel Polacek signed an agreement in Prague which provided for the joint exploitation of the common stretch of the Danube by the two countries, and called in the first place for the construction of the Nagymaros hydro-electric power plant to be undertaken between 1961 and 1965. Apro hailed the plan as an important landmark of friendly relations between the two countries, which would supply Czechoslovakia and Hungary with new sources of energy.(15)

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(12) Elet es Tudomany, 12 January 1958, and Nepszava, 9 October 1958.

(13) Cf. Elet es Tudomany, 12 January 1958 and Magyar Nemzet, 6 October 1963.

(14) Cf. Magyar Nemzet, 1 May 1958.

(15) Cf. Nepszabadsag, 8 October 1968.



Solemn words do not seem to have been followed by deeds. In 1960, I.T. Novikov urged the two partners at the 13th session of the Comecon Executive Council in Budapest to draw up, as soon as possible, plans which corresponded to the mutual interest of the partners and to the realities of the situation, and which would make possible the building of the Nagymaros power plant.

The situation came to a head in October 1963 when Janos Kadar paid a "friendly visit" to Czechoslovakia. The communiqué issued at the end of the visit called explicitly for the acceleration of the Danube project.(16) In the wake of this visit, Hungarian communications media showed much interest in the project in 1963 and 1964. It was said that the project would consist of two large power plants, one to be built at Gapcikovo, with a maximum capacity of 700 megawatts, and the other at Nagymaros with a 200 megawatt capacity. It was agreed that the two countries should share on a fifty-fifty basis both the expenses of the plants and the energy produced by them. It was expected that the whole project would cost between 10 and 12 thousand million forint. The Nagymaros power plant was to be the first installment and the whole project was scheduled to be completed between 1966 and 1975.

In 1964 the Hungarian authorities engaged in large-scale preliminary technical explorations. Besides reporting on the progress of the various technical operations in the Nagymaros area, the newspapers took to depicting in the liveliest colors the changes which the Nagymaros power plant would make in the surrounding area. There were expected to be a large number of fringe benefits, such as better conditions for irrigation and navigation. Moreover, the plant was to become a tourist attraction.(17)

#### The Subject Is Dropped

After such heavy coverage, it is surprising that the subject should have completely vanished from communications media since the end of 1964. Figyelo of 4 November 1964 still mentioned the Gapcikovo-Nagymaros hydro-electric system as one of the major items of energy-producing investment in the Third Hungarian Five-Year Plan, but referred also to the building of a huge new thermo-

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(16) Cf. Nepszabadsag, 5 October 1963.

(17) Magyar Nemzet, 6 October 1963, Esti Hirlap, 3 June 1964, Magyar Nemzet, 7 July 1964, Nepszabadsag, 20 August 1964.

electrical power plant near Gyongyos, with a 600 megawatt maximum capacity. Figyelo pointed out that the Gyongyos power plant, with the attached opencast mine of low grade soft coal (lignite), would cost only seven thousand million forint against the approximately 10 thousand million forint of the Gapcikovo-Nagymaros project. But, despite the difference, the building of the large hydro-electric plants was said to be justified. This was the last reference to the Gapcikovo-Nagymaros hydro-electric project.

Since the beginning of 1965, great emphasis has been laid on the building of the Gyongyos thermo-electric power plant, as well as on the creation of an attached large-scale opencast soft coal mine. The first two units of the Gyongyos plant, with a capacity of 100 megawatts each, should go into operation in 1969. (18)

It is possible that the Gyongyos plant (which has been given the name of Gagarin since May 1968) is being constructed in lieu of the Gapcikovo-Nagymaros hydro-electric project because the Hungarian government got the impression that the Czechoslovak government and Party leadership were not seriously interested in the implementation of the project. The articles in Smena and Uj Szo mentioned above supply a number of points which substantiate such a conclusion. In June 1966, the Hungarian government took further steps to increase the future supply of electric energy by signing a treaty with the Soviet Union on the building of the first Hungarian atomic power plant.

It appears from Smena and Uj Szo, that the Bratislava Hydroproject experts were rather unhappy about the delays which dogged the joint Czechoslovak-Hungarian project from its very inception. They complained that the dilatory tactics of the supreme Czechoslovak authorities resulted in an expense of 200 million KCS on the long series of plans, and to this one should add the severe damages caused by the Danube floods, valued at some 5,500 million Kcs, which might have been avoided had the project been carried out in due time. The experts of the Bratislava Hydroproject complained that the Czechoslovak authorities failed to see how economical hydro-electric power is even today: We are the only country in the world where hydro-electric power is not economical," they remarked bitterly.

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(18) Nepszava, 8 September 1965, 11 March 1966 and 16 June 1967.



If the Czechoslovak-Hungarian hydro-electric project on the Danube had been abandoned on grounds of real economic or technical impracticability (as Cseterki claimed), little could be said in its defense. The passionate plea quoted above from the specialists of the Bratislava Hydroproject for the exploitation of the Danube as a source of energy seems to indicate, however, that a lance may have been split for the project. According to the Smena and Uj Szo articles already mentioned, these specialists also claimed that the Danube hydro-electric project could produce as much energy in a year as 15,000 coal miners in Slovakia. On top of that the specialists claimed that a hydro-electric power plant is a fully automatized plant operated by a few people. It should be added that the construction of hydro-electric power plants is fairly costly, but that, once they are built, they produce cheap energy for a very long time. Maintenance and running is simple and inexpensive. The Danube is a sluggish river but it carries huge masses of water most of the year. Aside from purely technical considerations, one should, however, not lose sight of the strictly economic and political ones. The building of the Gapcikovo-Nagymaros system might have forged strong ties between the two neighboring countries in the spirit of mutually fruitful cooperation in the Danube valley, which is known to be a favorite theme of the Hungarian regime's foreign policy. At the same time both countries' dependence on the Soviet Union for the supply of sources of electrical energy could have been reduced to some extent.

#### Dependence on the Soviet Union

As for Hungary, this dependence could not be heavier. The country's position regarding the sources of electrical energy is characterized by two factors. On the one hand, there is an "absolute energy source gap," meaning that even the most far-reaching expansion of domestic resources could never keep abreast of the country's mounting demand for electrical energy. On the other hand, this "absolute gap" is complicated by the fact that available sources are not best suited to guarantee optimal conditions for producing electrical energy. At present the principal source is coal, the quality of which is rather low. The mining of coal in Hungary is -- by world standards -- in most cases very economical. The average caloric content of the coal mined in Hungary is decreasing from year to year. The worldwide tendency to replace coal by other sources of electric energy (that is, other hydro-carbons, atomic or water power) is nowhere more warranted than in Hungary.(20) It is little wonder therefore that this country would also like to make a sizeable switch from coal to other hydrocarbons (oil or gas) in the next few years. In 1960, 77.4 per cent of energy was supplied by coal, but the ratio dropped to 62 per cent in 1965, and is expected to diminish to

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(19) Radio Budapest 9 May, 1963; Nepszabadsag 2 October and 6 November 1963, Nepszava 11 March 1966, and Nepszabadsag 31 December 1966.

57.3 per cent in 1970 and to some 42-45 per cent by 1975. At the same time, the share of other hydro-carbons rose from 20.7 per cent in 1960 to about 28 per cent in 1965, and is slated to increase to 40-45 per cent by 1970 and to between 49 and 55 per cent by 1975. (20)

The large quantities of hydro-carbons needed for such a switch cannot be supplied by domestic sources, even if the production of both crude oil and natural gas is planned to increase considerably in the next four years.(21) The "deficit" will have to be covered by the imports of crude oil coming principally from the Soviet Union by the "Friendship pipelines." In 1968, the production of Hungarian crude oil amounted to about 1.7 million tons, while in the same year 3.2 million tons were imported -- to an overwhelming extent from the Soviet Union. In 1969, Hungary plans to import 3.6 million tons of Soviet crude oil. (22) It is estimated that Hungarian imports of Soviet crude oil will double during the current third five-year plan (which ends in December 1970) in comparison with the second five-year plan, and a further increase is anticipated in the fourth five-year plan. Moreover, plans are being made to build a high capacity pipeline for the import of Soviet natural gas. At present, Hungary imports very little natural gas (200 million cubic meters from Rumania). Domestic production amounted to 2.6 thousand million cubic meters. (23)

Besides primary sources of electric energy, Hungary has to bridge the gap by large imports of electricity. In 1967, 14.2 thousand million kilowatt-hours of electrical energy were consumed in the country; 14.8 per cent of the total consumption was met by imported energy, principally from the Soviet Union by the "Peace" long-distance transmission line. In 1969, the country plans to import some 2,000 million kilowatt-hours from the Soviet Union. (24) In August 1966 Antal Apro mentioned in a lecture delivered at the Central Committee's Political Academy that in 1970

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(20) Muszaki Elet 19 November 1964; Nepszabadsag 12 July and 31 December 1966; Magyar Hirlap 3 September 1968.

(21) Nepszabadsag 6 November 1963; Muszaki Elet 19 November 1964 and Nepszabadsag 13 May 1967.

(22) Nepszava 14 January 1969.

(23) Magyar Hirlap 3 September 1968.

(24) Esti Hirlap 21 February 1968, and Nepszava 14 January 1969.



alone Hungary will import more electric energy from the Soviet Union than it did during the whole period of the second five-year plan. In 1970, he said, total Hungarian electric power imports will run into 3000 million kilowatt-hours.(25)

### Conclusion

In conclusion, it can be said that Hungary's dependence on Soviet supplies, both of primary sources of electrical energy and of energy itself, present a rather gloomy picture. One is confronted, basically speaking with a problem which also dominates Hungary's principal sources of industrial raw materials. Out of the twelve most important raw materials, Hungary possesses in abundant quantities only one: bauxite. The others -- for example: 2.7 million tons of iron ore, over 2 million cubic meters of timber, 0.5 million tons of coking coal -- are supplied up to the full Hungarian demand (or a very large part of it) by the Soviet Union (26).

The question arises whether and how far Hungary will be willing and able to loosen this unilateral grip. While it would be unrealistic to indulge in sanguine hopes of a speedy and more substantial loosening of the Soviet "fettters," one can discern a few straws in the wind indicative of modest Hungarian efforts to grope for "alleviating" contacts with other countries. Since April 1968, Hungary and Austria have been connected by a long-distance power line. For the time being, it serves only for the exchange of surplus power according to the different needs of the two countries. but technically speaking, it might also be the instrument of Austrian power exports to Hungary. (27) Hungary is examining a Yugoslav proposal for the construction of a long-distance electrical transmission line in Yugoslavia. Hungary would participate in the construction and receive in return Yugoslav electric current. (28) In 1968, Hungary concluded a barter agreement with Iran to supply industrial goods valued at 40 million dollars in exchange for Iranian crude oil. (29) The building of a pipeline between the Yugoslav port of Rijeka and south-western Hungary is under discussion, and it might be used to convey Iranian and other non-Russian crude oil to Hungary.(30)

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(25) Magyar Nemzet 6 August 1966.

(26) Figyelo 3 July 1968.

(27) Hungarian Situation Report/30, EFER, 3 April 1968.

(28) Hungarian Situation Report/73, RFER, 7 November 1968.

(29) Hungarian Situation Report/15, RFER, 27 February 1968.

(30) Hungarian Situation Report/73, RFER, 7 November 1968

Finally, the newly organized share company, "Geominco" -- founded to exploit Hungarian mining expertise in prospecting for mineral resources, mainly in the developing countries of the "third world" -- might eventually be instrumental in giving Hungary access to raw materials outside the Soviet orbit.(31) All these are, it ought to be repeated, only modest beginnings, but ones which nevertheless deserve to be watched.

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Summary: In connection with Hungary's first national atomic energy conference, this paper discusses expectations which the regime places on the building of the first nuclear power plant, the crucial elements of which will be supplied by the Soviet Union. It refers to the first official statement that the implementation of a long-standing Czechoslovak-Hungarian project for a large-scale Danubian hydro-electric power plant system was abandoned by the Hungarian government some time ago, and that it has no connection with the recent Czechoslovak "events."

Subsequently the paper outlines the history of the joint Czechoslovak-Hungarian project and stresses that the implementation of the project might have supplied a good example of Czechoslovak-Hungarian cooperation in the Danube Valley and also eased to a certain extent both countries' dependence on Soviet power imports.

The paper then reviews in some detail the electric power situation of Hungary, which is characterized by an "absolute" power gap and the absence of optimal resources of electric energy. The gradual shift from coal to other hydro-carbons is likely to increase Hungary's dependence on the Soviet Union. In addition to this, imports of electricity from the Soviet Union are expected to grow substantially in order to keep abreast of Hungary's mounting demand for electrical energy.

The paper concludes that Hungary's heavy reliance on Soviet supplies in the field of electrical energy is only one facet of the country's extremely heavy dependence on the Soviet Union for her raw material imports. While it would be illusory to expect a sizable and speedy change of such a situation of subordination, the paper points to some straws in the wind indicating the country's modest and groping efforts to find supplies of crude oil, electric power and minerals outside the Soviet orbit.

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(31) Hungarian Situation Report/87, RFER, 30 December 1968.