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A TECHNOLOGICAL CONTROVERSY TOWARD THE DISCLOSURE?

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Abstract

The unusual case of the Danube Dam System seems an anomaly in Social Studies of Technology. The article follows the path how a disclosure of the debates over the construction process became overwhelming by 1989.

Keywords: disclosure, technological controversy, fixed interpretation.

Maintaining the Interpretation Fixed by the State

In a previous article in this periodic we described and analysed the early story of a dam system to be built up on the Danube. This plan was a common endeavour of two socialist countries, Hungary and Czechoslovakia. There was a very long hesitation period before the interstate contract was undersigned in the end of 1977. The decisive effect was the shock caused by the energy crisis from the early 70s. Surprisingly enough the next twelve years led to a progressive disintegration of the project fixed by the interstate agreement. Let us begin with this phase of the construction story of the dam system in this article.

The project was not developed against a fixed background, even not during the preparatory phase. As mentioned already, agriculture was reevaluated in the 60s, international shipping got a new accent, especially in connection to the Rhein – Main channel, by the 70s, a new opportunity for development probably more understood by the Slovaks than by the Hungarians.

Two more elements which flew into the later unified problem of environment protection also changed the background to the technological project. One of them was an 'objective' one, that was the rapid growing of the quantity of sewage that slowly begun to make an influence on the technological planners to widen the perspective. (The raise of industrial and communal sewage during 30 years was of order.) The second one was a new ecological consciousness pushing much more emphasis on the preservation

of natural environment, especially the practically full neglecting of this perspective in the earlier period of industrialisation ideology. The background, the system of the objectives to be considered for the technological construction work, began to change. The agricultural interests in some measure, shipping were included into the extended construction work, much less the problem of sewage. But it seems not to be a mistake to state that the natural environment protection was fully neglected before 1977. It was together with the problem of diverting sewage and some other components that got included into the complex environmental problem that became one of the main points against the dam building by the 80s.

Three other components of the resistance in the 80s were 'preprinted' by the earlier decisions. We mentioned already that the technological decision had a component dealing with national interests when the decision fell for the favour of an artificial canal. The changing weight of national interests by the 80s brought with it at least a new accent in the evaluation of the technological construction. We also mentioned already that the 'technological controversy' was of a socialist type, highly omitting everything not included officially into the politician – expert ensemble set by the politicians. This is the point through which the dam project became one 'tensile text' of the socialist political system. The third point, the economic rentability of the project on national economy scale became also especially serious by the 80s.

From the viewpoint of constructivistic STS studies this preparatory phase of the dam project is interesting as the socialist state variant of setting, managing and closing technological controversies, seemingly leading to a closure and 'successful' construction of the artifact. With reference to our earlier statement about the explanation need of success it is to say that the energy crisis in the 70s together with the energy shock, a contingent element stabilized the decision on the construction, made one contingent possibility of the possible 'interpretations' of a Danube dam system the officially fixed one. Neither earlier nor much later was the situation favourable enough.

The socialist variant means the special role of the state, the reduced milieu, etc. that was mentioned earlier. From a theoretical point of view it is nothing but a variant how successful artifacts may be developed and accepted by society. This is of minor interest. From the viewpoint of historian it is an important independent type. But our main interest is in the reverse process, how, through what mechanism the realisation of once fixed projects can lead to their disintegration and rejection.

It is time to begin to deal with this phase of the construction of the dam system. It began in 1977 and ended by May 1989. The main characteristics from the point of view of a social constructivist interpretation of

technology development is that this process was a progressive disintegration of the closure, which was officially set up in 1977. The analysis of this progressive disintegration can bring us nearer to an understanding of the pathways of failing technological projects.

Let us now just give some details of the planned complex artifact. Two dams were planned about 120 km from each other. One of them, on the Czechoslovakian side had to function as a hydroaccumulation plant with the production of 720 MW. To utilize it the most effectively it was planned that this plant would produce peak energy. That is why the second plant would have been built up in Hungary. It should have held off the regular daily flood that was needed to the peak energy production. A reservoir had to ensure peak energy production and a diversion canal had to bring the water to the power plant and bring it back to the Danube below the power plant. We shall see that the technological solution of the possible power plant brought with it a lot of different non-technological problems. We remind now on one of them, mentioned already earlier, that in principle there were three possibilities to realize the canal, either on the Hungarian or the Czechoslovakian side or to use the so-called Old Danube and build up the dam on the Danube bed. The canal on the Czechoslovakian side was preferred for technological and economic reasons. This was a solution that gave a political flavour to the project (just as the preference for the canal on the Hungarian side would have done). By the end of the 80s the dam project became subject of various types of protest, among them a political one. Even the political protest became a structured one and included criticism on the typical decision making process in socialism as well as problems of nations.

State Supported Expertize Neglects the Awaking Public Society

The first 'alternative interpretation' to the state project came from the agricultural neighbourhood of the planned dam system. It was to be clarified whether the leading off of the water from the Old Danube bed to the canal would be damaging for the agriculture and forestry. The rejection of the concerns mainly followed a well-known path: the people were ridiculed as non-experts by the state hydraulic organisations even when the concerns were raised by members of the Hungarian Hydrological Society.

Another concern has been in the air from the very beginning. Hungary is very much depending on the world market for its export makes about 50% of its yearly production. On the other hand, Hungary was suffering during the 80s from the lack of mobilizable capital. Nevertheless, one of the

most urgent tasks was to develop the semifinal production. Hungary simply stood for bankruptcy in 1981 and even governmental circles were inclined to postpone the beginning of the building process. For a lot of economists the big investment did not mean anything else than an investment that would suck money without any profit for very long time.

The Hungarian government agreed with the Czechoslovakian one on postponing the beginning of the building process until 1985. During these four years a detailed protest was developed. One element of this process was that of the Hungarian Academy's. The Academy mobilized itself from as early as 1981. In 1983 the Academy developed an overall criticism.[1]

It did not criticize the project on political grounds. The criticism was restricted to technological, agricultural and transport problems, to economic and environmental problems. It stated that the Academy accepted that the agreements between the two governments restricted the possibilities of decision making. Nevertheless, they stated that the problems with the possible environmental damages proved to be more serious than it was expected. This happened in a changing situation of the world economy when the economic priorities were urgently to be changed.

Concerning the problem of ecology the main concern was about the missing overall environmental impact assessment investigation. (An EIA was made then, finished in 1985. This EIA did not deal at all with possible alternative technological solutions, as the repeated report of the Academy stated in 1985.)[2] Concerning the accounting the Academy report showed that the so-called additional investments could not be divorced from the so-called basic ones in this case. They also showed that the project could not be justified by the needs of energy production, only up to 50-60%. But the main economic objection was that there was not any comparative calculation on macroeconomic level. Hungary was to be included into an investment that was putting money somewhere without any hope of benefit for a couple of years. In 1985 the new report compared the two main variants of the functioning of the dam system. They were the so-called peak energy production and a normal functioning. Making a compromise, the Academy suggested, to avoid the worse, that the additional investments should be finished before the dam had to begin to work, if it was not to be avoided. But they would have preferred the omitting of the peak energy

[1] The standpoint of the Presidium of the Hungarian Academy concerning the questions, scientifically debated about the Gabcikovo - Nagymaros barrage system. In: Henrik Havas, A Bős - Nagymaros dosszié avagy egy beruházás hordalékai (The Gabcikovo - Nagymaros Dossier or The Deposits of an Investment), Codex, Budapest. 1988.

[2] The opinion of the Hungarian Scientific Academy of the EIA of the Gabcikovo - Nagymaros barrage system. In: Henrik Havas (1988), pp. 79 - 85.

production at all. This criticism was repeated once again, just before voting by the Parliament in 1988.

It is time to summarize the mechanisms which were used by the socialist state to built up and maintain the social and cognitive barriers in order to maintain the definition of the dam system fixed in the treaty between the two states. One element has been mentioned already. 'Experts' were disconnected from 'non-experts'. Experts belonged to the firms and state offices trusted with the construction work. Opinions of hydraulic and other engineers were simply treated in an off-hand manner when they raised critical voices. Nearly the same happened to the Academy as well as to regional organisations. A typical method of assuring the overwhelming weight of the official expertise during the whole process of the 80s was that expert reviews became only accessible for a very short time shortly before decisions were made. This happened to the Parliament in 1988.

'Green' groups, moving on the frontier of legality, embodying a unified expertise of engineers and lawyers among others, were simply not allowed to get access to the official construction materials. In other words a hierarchized discrimination was realized. The wide public opinion was simply (excluded from the discussion by prohibition of any publication of information in daily news on the dam project until 1985. It is small wonder that the dam project got a special political interpretation. We can follow later how the dam project acquired this feature.

Unfortunately, there is no place here for a detailed description of the social construction of the dam system into some details for it gives a striking demonstration of the constructive mechanisms. On the one hand, the continuous effort for an energy optimizing approach to the dam system led to the plan of an additional pumping system with the aim of providing additional water in peak time. On the other hand, some protests were to be heard. Among others, an idea of realizing the Nagymaros dam 30 km further to the north was explored, for some experts were concerned on geophysical grounds. The dam system, being a very complex artifact, was open to a huge amount of smaller changes even when the basic idea has already been fixed.

As mentioned earlier, the dam project during its about 30 years' development, had to face a changing social background. One of the elements of this was the rapidly growing sensibility for ecological problems from the early 80s. The criticism of the project was first oriented to its non-rentability in comparison with other energy productive possibilities, until the mid-70s. Then a strong concern was raised about the prognosed watertable falling in connection to the agricultural and forestry interests. Then, in the last phase of the discussion, from the mid-80s, the concern about the quality of water, in connection with the waterbasis and water-

pipes became dominant. When the debate reached its peak in 1988, when it was impossible to prevent that the debate became one of the main public ones, the powers stretching against each other were characterised by the interpretation they gave to the dam project. The official definition insisted on maximum energy production, taking the ecologically most problematic peak-energy producing functioning of the dam system into account as one of the most reasonable things.

(In this situation as a compromise when peak-energy production was to be seen as a still indisputable basic parameter of the project, a refinement of the conception of the peak-energy production was born when a Hungarian engineer suggested taking some ecological criticism into account. His suggestion was to make the daily flood, needed to peak-energy production much smoother than the originally planned rough daily damming up. Preserving the energy optimizing basic attitude of the project, this was the maximum of acknowledging environmental protection.)

It demonstrates an example of the technological flexibility of complex artifacts when their functioning could be changed without any change in the configuration. This is an important point when an STS study – as technology assessment – intends to make people conscious of the whole field of alternatives to be used for compromising among the different interests. Reminding of Collingridge's notice of 1980 on keeping technology as disentrenched as possible, it is to be seen that the functioning of a fixed configuration may yet preserve some option for alternative utilisation of the same artifact.[3]

The 'Danube-Saurus' Becomes a 'Political Investment'

In the last eight years the usual STS literature has been analysing the possible 'interpretations' of a technological artifact, in their technological objectives. There is a peculiarity of the dam story. One can surely say that an interpretation of the dam system to be realized was when it was called a 'Danube-saurus' or 'Danube-monster'. One can wonder if the evaluation expressed in these names is rightful or not. It is not our task to judge it now. We want only to call into attention, purely descriptively, that, for more and more people, a would be technological artifact was losing its decisive characteristic of being a technological artifact, that means of realizing a meaningful human objective. At least for some experts and a wide mass of lay people it really did. The question arose if they were able to persuade the decision makers of accepting their 'interpretation'.

[3] Collingridge, David: The Social Control of Technology, Milton Keynes, The Open University Press.

Some called the dam project 'a political investment' by 1987, interpreting the artifact itself as the reification of the socialist decision system. Wide masses conceptualized the dam project according to this peculiarity by 1988. Zoltán Király, a leading member of the small oppositional group in the late socialist parliament, characterised it as the symbol of a self-destroying political system. One year earlier another opposition, Imre Mécs, identified the artifact as nothing but a 'political investment'.[4] I may add that a lot of 'greens' tried to demarcate themselves from this politicisation of the discussion on a technological artifact leading to major ecological problems.

'Danube-saurus', 'a political investment', – these interpretations show some peculiarity. Technological artifacts regularly get different 'interpretations' by the different groups interested in their different technological functioning. Such artifacts obviously will be constructed and realized in a web of social relations. People playing role in these relations may interpret the artifacts through their eyes, say, as a bureaucratic problem, or as something threatening the moral or something else. These interpretations seldom will be acknowledged as being of overall importance or of more importance for society than the technological definitions of these artifacts. They can-not be the definition of the artifact.

The growing sensibility for environmental issues revealed three types of possible environmental damages to be caused by the dam system. Firstly, the problem of ground water, secondly, the problem of drinking water, thirdly the destruction of a large area of natural environment. For technocrats concentrating reductively on the expected technological functions, these could have meant a by-product of the functioning of the dam-system. For 'greens', having a different value preference scale, it was the interpretation that had to be the fixed 'definition'. The same concerns the political identification of the dam project. At least by the mid-80s the dam project had become something to be defended for the old generation of party and state leaders at the risk of losing face. On the other hand, that is why it got the same identification for all those, too, who either looked for an obvious case to demonstrate the totalitarian nature of the state decision system in socialism or for those who got persuaded that their ecological problem could not be solved independently from the political connotation. Technology which is always entrenched by a whole web of social relations, got redefined, at least for a lot of people and organisations, of being a political issue.

[4] Compare with the article of Miklós Duray (Eine Politische Investition), in Michael Köcher (ed.). Nagymaros, ÖH - Verl. der Österreichischen Hochschülerschaft, Vienna. 1987, pp. 50 - 52, (in the German version).

We have mentioned already the EIA, finished in 1985, by state order. Environmental impact assessment often overlaps with technology assessment. (In contrast to EIA, TA always deals with the social consequences of a technology introduced anywhere.) One of the striking features of the explorations was that no overall technology assessment had been made officially. One of the many possible objects of research of this type could have been the estimation of the fate of a compact Hungarian minority after the dam system had been finished. Such a survey might have shown how radically traditional agricultural working conditions would change for these people. It was left to the much persecuted opposition in Czechoslovakia to raise the voice in this respect.

In October 1988 the late socialist Hungarian Parliament voted for finishing the dam system as it was expected of them by the political leadership. The only remaining possibility for resistance was only requesting the delay of the beginning of functioning of the dam system. It was a very important point for not only the building of the sewage diverting systems but also that of the needed monitoring system were delayed both in Hungary and Czechoslovakia. The interest in requesting the delay was much stronger on the Hungarian side than on the Czechoslovakian one. Czechoslovakia was ahead of Hungary in building the sewage devastating systems, but the main bulk of sewage, with a magnitude of order, was coming from this side. Moreover, the Danube became a Hungarian river not much further making the problem of sewage a Hungarian one. A sewage diverting system is usually identified as an additional investment not necessarily belonging to the functioning of a dam. This case shows, however, how hard headed insistence on text-book categorisation could lead to mistaken actions.

The political situation had undergone a radical change in Hungary by mid - 1989. A new, reform-communist government got confronted with the Danube problem. One of its most important tasks was to establish its political credibility. Among the possible targets the Danube dam seemed to be the easiest to reach. Facing an amount of different, very serious economic problems concerning the dam project, understanding the possible ecological damages, this urgent need of raising the political credibility gave the decisive moment for the stopping decision. This decision concerned the Nagymaros dam, being totally on Hungarian territory. The effect of this decision was that the Gabcikovo dam loose its possibility to work for peak-energy production. (We remind the reader that peak-energy production was the main reason on two grounds for building a dam system for energy production. Peak energy could serve the consumer when most needed and it was a significant raise of the production capacity. But it is also to be remembered that peak-energy production was identified as the possible most threatening ecological threat.) The project if it was to preserve some-

thing from it got a redefinition through acceptance of ecological forbidding values.

The failure of developing a complex technological project was finally caused by the need for redefinition of the project in ecological rentability and political terms. A needed political consensus could only be achieved by rejecting the project.

The project got a political definition on the Hungarian side but it was not different on the Czechoslovakian one, either. We should analyse now how it became a main object of national prestige of a new state to be born, the Slovakian one. What is interesting for STS studies would be how this led politicians and engineers to look for technological alternatives, either perhaps acceptable for the Hungarians, as the Vavrousek variant was, by modifying the reservoir over the Gabcikovo dam, or, by digging an artificial canal fully in Czech-Slovakia and building a new dam, to be able to realise without the permission of the Hungarians. This type of technological modification was begun in 1991 and realized by October 1992. Unfortunately, we have no place here to make a social constructivist analysis of this phase of the building process, although, it would be rather interesting for theoretical reasons. A project, fixed by states in 1977, seemingly having closed the technological controversy in 1977, first was reopened in a second phase and rejected in its original form. Then it got a new closure once again in 1992. Living now immediately in history nobody knows if the dam project, to be investigated by the Hague court soon, will be disclosed anew.