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ARTICLE

Techno-Nationalizing the Levees on the Danube: Romania and Bulgaria after World War II

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Abstract

In this article, I focus on the context in which levees were constructed on the Lower Danube, along the Bulgarian–Romanian border. I argue that after World War II, while the two states shared the management of the river in this region, Romania pursued a techno-nationalist hydraulic policy, which led to the complete damming of the left bank of the Danube with levees. Bulgaria also succeeded in building levees on its side of the Danube, that is the right bank of the common border; however, Bulgaria used different technologies and its building works proceeded at a different pace. Techno-nationalism as delineated in this article considers nation-states as basic units in the analysis of technologies. Technological development is not a flowing process, as it becomes entangled with the interests of nation-states seeking legitimation. Hydraulic technology may strengthen nation-states, and in some circumstances leads to the emergence of nationalistic ideologies.

Keywords: Danube; hydrotechnical constructions; levees; techno-nationalism; Southeast Europe

In June 1970 a large portion of the Bulgarian city of Vidin, including the newly built industrial areas, was flooded by the Danube. The Bulgarian authorities reacted rapidly by heightening and consolidating the existing Danube dikes. Moreover, they transformed this event into a political celebration of the Communist regime, embodied by Todor Jivkov, the head of the Bulgarian state.[1] However, the facts behind the images of the 1970s floods are far more complicated. As recorded in the local archives, the flood was caused by the rapid construction of high dikes on the Romanian shore.[2] This view was expressed by the local authorities from Vidin in the circulars they sent to the central government in Sofia. But the Bulgarian government's reply was prompt. It dismissed the claim that Romania bore any responsibility, emphasizing that the levee construction along the Romanian–Bulgarian corridor had been approved in the mid-1960s as part of the 1948 Belgrade Danube Commission, and both sides had signed the agreement. Consequently, the Bulgarian government drafted a two-year program to consolidate the dikes in the Vidin area.[3] The government tried both to give satisfaction to the queries of the local authorities and to uphold the agreement with Romania.

In the context of the socialist states of eastern and southeastern Europe, beyond the internationalist rhetoric and the idea of dissolution of the nation-states, the levee construction and the hydrotechnical improvements on the Danube revealed divergences with regard to the technological projects aimed at improving and utilizing the big river. The dispute between Hungary and Czechoslovakia over the construction of the Gabčíkovo dam, a project that gave rise on both sides of the Hungarian–Czechoslovakian border to public protests and environmentalist movements with a political impact, is well known (Fitzmaurice 1998; Harper 2005, 226–228; McCaffrey and Neville 2010, 30–33; Schwabach 1996). Another project, less known, was that of the Iron Gates

(Creţan and Vesalon 2017; Schwabach 1996; Štanzel 2017, 193–207). But it had its own share of nationalistic disputes, with Bulgaria being excluded from taking part in the project.[4]

The Bulgarian–Romanian Danube border imposed comanagement of the river on both countries from the first decade of the 20th century onward (Dorondel, Şerban, and Cain in press). From the very beginning, Romania exploited the opportunities for navigation and hydrotechnical construction on the Danube more consistently than Bulgaria (Kostov 1995). Moreover, against the backdrop of a growing technical elite, the Romanian state boosted the emergence of a nationalist, even xenophobic, corps of local engineers by means of preferential contracts (Jensen and Rosegger 1985; Kostov 2009). In the interwar period and, more obviously, after World War II, Romania pursued techno-nationalist policies, which led to the complete damming of the Lower Danube. By the end of the 1950s, Romania had succeeded in gaining an autonomous position within the socialist camp: at this point the state embarked on an ambitious program of national industrialization. The government revived its interwar water management policies with the help of several leading hydrological engineers. Thus the Danube was linked to national energy and irrigation networks, with the levees being the evident sign of this quasi-invisible complex. For its part, Bulgaria embarked on ambitious damming projects on the Danube even during the interwar period, but from a different ideological perspective aligned with the state's plans for national electrification and irrigation programs. Furthermore, during the socialist period, the Bulgarian government lacked its interwar hydraulic engineers, who were harassed and even jailed at the command of Soviet commissaries, while the policies of electrification and building irrigation capacity relied on internal river networks, leaving the Danube aside. In addition, the government's targets for national industrialization were more realistic, which led to less demanding policies regarding the use of national waters.

In this article, I explain the way in which large scale technologies, which are in fact potentially biased from a political and ideological perspective (Akrich 1992), have led to the legitimation and strengthening of nation-states during the socialist period. Furthermore, as in the case of postwar Romania, such technologies contributed to the emergence of a strident nationalism within the socialist states, which were essentially internationalist in outlook. First, I position the topic within the wider debate surrounding the state's relationship with hydraulic technology, in particular the construction of dams, and outline the key role that technocracy plays in nationalizing water resources. In the next section, I follow the interweaving of water resource policies in Bulgaria and Romania in the 1950s with the political context at that time and emphasize Romania's attempt to become independent within the socialist camp. Then, I demonstrate the way in which this attempt gave rise to a nationalistic bias as reflected in Bulgarian and Romanian state archives, leading to the river being channeled between high levees in the 1960s. I conclude by bringing to the fore the role that water technology plays in the case of these two states. Their competitive attitude toward managing the great river Danube sparked nationalistic rivalries, despite them belonging to the same unified socialist camp.

Techno-Nationalism, Techno-Statism, and Hydraulic Technocracy

Technology is seen as a major indicator of the modernity and modernization of a social system such as the nation-state. Whether this is the expression of a rationalization of a bureaucratic type, based on scientific advances that become dominant throughout the modernization process, or whether it is simply embedded in a complex fabric of socio-economic and political determinants and more dependent on social and cultural practices (Feenberg 2010, 137; Härd 1996, 416–427; Härd and Jamison 2005, 19–96; Hughes 2012; Pinch and Bijker 2012), the technological factor produces deep changes in modern social systems as well as in their environments. Still, the classic theories of social and political modernization pay less attention to the impact of technology on environment (Misa 2003, 11–12) or to the appropriation of a national development pattern through technological progress.[5]

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In fact, the most profound and irreversible environmental changes in general, and to rivers in particular, occurred against the backdrop of national modernization linked to stronger state institutions and massive technological transfer. The literature regarding the development of water resources using modern technologies shows that the process took place alongside the modernization of nation-states. The literature explains how rivers were integrated into networks administered at the national level: transport by the improved navigation, power systems generated through the construction of hydroelectric power stations, water management through extending the irrigation systems.[6]

Employing the concept of techno-nationalism, I shed light on some aspects that contribute to the emergence of hydraulic technologies and their impact on national policies. While technology transfer depends on the political context, the tangible effects on the economy and society of a nation-state are related to the state's capacity for assimilation and spreading technologies globally (Camprubi 2014, 11–12; Edgerton 2006, 105–111). Furthermore, some technologies, such as communication technologies, are transferred more rapidly, while the assimilation of other technologies depends to a large extent on a nation's cultural, social, and political backdrop (Edgerton 2007, 14–15). Technologies that have an environmental impact, including those involved in river development, fall into this latter category.

The transfer and sustainable implementation of technologies at the national level depend on the state's institutional and political makeup. That is why the introduction of an intermediary term, "techno-statism," sheds more light on the various types of technology transfer as well as on the results they produce. The term "national system of innovation" combines the idea of techno-nationalism with the concept of techno-statism, revealing the role that public science, technology development policies, and experts play from a very early stage of national integration (Edgerton 2006, 105; Montresor 2001, 410).

On one hand, techno-statism is a complex way to conceptualize the state: it is an assemblage of groups, institutions, ideologies, and technologies that together reveal and legitimize its power over a given territory (Menga and Swyngedouw 2018, 4). At the same time, this informal and multifaceted concept of the state explains geopolitical conflict and cooperation between states, with particular reference to the management of transboundary waters (Harris 2012; Menga 2016; Sneddon and Fox 2006; Zinzani 2018). The case of the Danube at the Bulgarian–Romanian border falls into this category, and the vignette that opens this article illustrates this idea. The levees that the Romanian government has erected on the left bank of the Danube were part of a wider state policy to annex the river. However, the Bulgarian government's response demonstrates that building these levees was not just an internal matter. This hydraulic construction project brought to the fore the interdependency of the two states and the issue of their common management of the Danube.

On the other hand, the Danube case requires a more specific definition of nation and nationalism. Edgerton's concept of techno-nationalism relies on Ernst Gellner's perspective: "For Gellner, nationalism was a way of adapting to a modern, industrial and globalising world" (2006, 106). Without disregarding these concepts that certainly facilitate an understanding of technological cooperation between nation-states, I emphasize their competition and use of ideology and power to monopolize their border territories, and in particular transboundary waters (Menga 2016). Thus, the state overlaps with the nation (Polese and Horák 2015, 458), in the sense that the state's various actors, institutions, and settings rely on the strength of national solidarity and symbolism when they have to implement state policies on a large scale. I am not suggesting that levee construction on the Romanian bank of the Danube was achieved through community engagement and mobilization, stirred by "banal nationalism" (Billig 1995; Polese, Morris, Pawłusz, and Seliverstova 2018). On the contrary, as I show below, the people forced to work with their carts and oxen, erecting levees on the Romanian bank of the Danube, disregarded the socialist government's orders. Nevertheless, the Romanian state has continued to apply policies that include the Danube as part of its national fabric, delivered by its devoted bodies of hydraulic technocrats. These technocrats' ill-considered nationalism has led to a massive reconfiguring of the landscape, environment, and water resources. This is another example of the two-sided coin that is nationalism. Furthermore, as Menga argues, following

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Jeremy Allouche, this disparate collection of policies strengthens the state's power, giving birth to a form of water nationalism (Allouche 2010, 53–54) and causing transboundary water conflicts (Menga 2016, 710).

State intervention and integration of water systems at the national level requires the simultaneous rationalization of river landscapes. In fact, this reflects the propensity of the "high modernist state" to simplify landscapes and environment to gain more efficient state control (Scott 1998, 11–52). Carried out by a body of bureaucrats working for the state, a body that is sometimes keen to justify its existence by promoting new technological projects, such schematization leads to the rupture of the human-nature and local culture–river eco-biography relationships (Blackbourne 2006, 189ff; Camprubi 2014, 103–111; Mitchell 2002, 51–53; Pritchard 2011, 23ff; White 1995, 67; Zeisler-Vralsted 2015, 7, 115ff). However, the long period of time during which these processes took place shows how powerful the obsession with developing river landscapes is.[7] For example, the ideas and projects for improving the Great Valley of California, splendidly described by Donald Worster in his classic work, *The Rivers of Empire* (1992), started to take shape as early as the mid-19th century, but only a century later could they be realized through the construction of the Friant-Kern canal. Furthermore, several governmental institutions were set up to serve this mega-project, giving rise to a hierarchical system of water-management decision-making in the name of the purportedly generous "ideology of democratic conquest" (Worster 1992, 115ff).[8]

The importance of hydraulic technocracy that modifies rivers' landscapes reflects very well the concepts of techno-nationalism and techno-statism.[9] This is also a topic that has been extensively addressed in the environmental literature (see for instance, Headrick 1988; Liu and Beattie 2016; Molle, Foran, and Käkönen 2009). In fact, it was native technical elites who undertook a "hydraulic mission" and, inspired by globally shared models, have developed institutional blueprints and state structures for mastering the rivers (Molle 2009, 490; Bocquet 2007, 235).

Of these technologies, levee and dam constructions are the most political, revealing both political decisions and a certain hierarchy of power that governs access to the goods resulting from the levees: electrical power, irrigation water, and new agricultural land (Bijker 2007, 116; Mitchell 2002, 44–45; Swyngedouw 2007, 15–20). Furthermore, everywhere in the world states are the main actors when it comes to large levee and dam construction projects (Klingensmith 2007; McCully 2001, 236–237). The techno-statist essence of these big projects is revealed by the fact that it is not only the authoritarian and totalitarian states, either fascist, like Mussolini's Italy (Armiero and Hardenberg 2013) or Franco's Spain (Sweyngedow 2007, 2015), or socialist ones (Olšáková 2016), that employ large environmental change projects to legitimize themselves politically, but also democratic states, as in the case of France.[10] Thus, the dams' construction could be used to legitimize the state's power, regardless of political regime. The construction of the Aswan dam on the Nile, commenced with technical support and funding provided by the United States and completed against the backdrop of the Cold War, with the involvement of the USSR, is a good example in this respect (McCully 2001, 238–240). It was also American experts who facilitated improvements to the Volga River in the USSR during the 1930s; there are few technological differences between this mega project and the works carried out during the same period on the Mississippi (Zeisler-Vralsted 2015, 79–82). In such a way, the techno-statism of the socialist era persists today, although the former socialist states, either European Union member states or independent countries, such as the former soviet republics, espouse open and cooperative behavior in the sphere of global international relations. For instance, the levee and dam construction projects are at present used politically in the elaboration of national identities and state building in the former soviet republics such as Tajikistan and Kyrgyzstan (Feux de la Croix 2014; Menga 2015).

The notions of techno-statism and hydraulic technocracy are particularly important to understanding the way in which levee construction on the Lower Danube turned into a national political project throughout the socialist period. In the next two sections, I show how the political project that led to the total damming of the Romanian Danube's floodplain combined the might of state technocracy, technology, and national ideology, all three of which were strong forces in socialist Romania.

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Hydraulic Projects and Techno-Nationalism in the Socialist Era

After World War II, the combination of techno-nationalism and techno-statism in the former Soviet countries emerged because of the way in which the technologies employed by the socialist states' large industrial development programs were implemented. Importing technology from the West, as the USSR had done in the 1930s (Josephson 1995, 528; Josephson et al. 2013, 84; Sutton 1973; Zeisler-Vralsted 2015, 81–82), the socialist bloc states were able to achieve, technologically speaking, "socialism in a single country" (Edgerton 2007, 22ff). Furthermore, it has become apparent that some states, such as the Democratic Republic of Germany, were more advanced technologically than the USSR, the leader of the socialist bloc (Stokes 2000, 7).

Regarding river development technologies at the beginning of the postwar period, the socialist states, such as Czechoslovakia, Hungary, and Poland, were inspired by the Stalinist Soviet model, based on the damming of the Dnepr and Volga rivers, which began during the interwar period (Josephson 2016, 20–33). In the same period, plans for damming the Yellow River in China were also achieved with the active participation of Soviet experts (Josephson 1995, 523–524, Pietz 2015, 152ff). Alongside technological advances, there were two key objectives behind the hydraulic development plans, namely massive electricity production, an obsession imposed on the USSR by Lenin as early as the 1920s,[11] and the construction of irrigation systems capable of providing water to the agro-technical complexes created after land collectivization was introduced. After Stalin's death in 1953, every socialist country developed its own version of this original model.

For Bulgaria and Romania's totalitarian regimes, transforming the Danube was a symbol of their absolute power. In the early 1950s, after an earlier Soviet experiment (Josephson 1995, 536), two hydrotechnical sites were opened on the Danube, which were essentially labor camps for political prisoners. In Bulgaria, there is the Island of Persina, between the cities Nikopol and Svishtov (Koleva 2012). Romania employed a similar practice once the building of the Danube–Black Sea canal had commenced (Štanzel 2017, 176–188; Turnock 1986, 69). Neither site was completed during that period: the works were resumed with appropriate technical means and were finalized in the 1970s and 1980s.

Later, the departure from the Soviet model for major hydraulic projects, a national electricity system and integrated irrigation networks, became a sensitive issue. In Bulgaria, the energy law that came into force on January 1, 1948, nationalized electricity production and distribution facilities. The following two five-year plans, covering the period 1950–1960, stipulated that the energy sector be developed according to the GOERLO Soviet plan, with the draft projects being first approved by Moscow experts. The installed power capacity of the entire system grew from 140 MW in the interwar years to nearly 1,000 MW in the early 1960s. Although the hydro-energy percentage remained significant, as in the interwar years, the Danube was not used for the construction of hydroelectric facilities, which were built on internal rivers (Donev 1972, 23; Spirov 2000, 43–46).

In Romania, after the 1948 nationalization of electricity production and distribution facilities, a law on electrification and use of waters for the period 1951–1960 was passed, which stipulated that the installed capacity of the entire national system be increased from 740 MW to 2,600 MW.[12] The commission that drew up the draft law was made up of Ministry of Energy experts that included important interwar electrification authorities, such as Dimitrie Leonida, Nicolae Vasilescu Karpen, Dorin Pavel, and Constantin Dinulescu (Costinaș 2004, 136–145; Groza and Cogălniceanu, 1964, 362).[13] Perhaps the most illustrative technocrat from this group is Dorin Pavel (1900–1979). Having studied energy engineering and completed a PhD in 1925 at the Polytechnic University of Zurich, he returned to Romania after having taught for a short period of time at the Technische Hochschulle of Zürich. Throughout the interwar period, he was involved in Romania's hydropower development programs, with his 1933 work constituting the model for the development of Romanian hydropower after World War II (Pavel 1933). After the communist regime came to power, he was employed in the same fields of expertise on various high-level technical committees within the Romanian government; he was involved in projecting the Iron Gates hydroplant in the

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mid-1950s (Štanzel 2017, 199) and in the construction of Danube–Black Sea canal when it resumed in 1973 (Stematiu 2011, 22–24; Tănăsescu 2010).

In this context, the Danube became an integral part of the Romanian electrification project. In the early 1960s, in a survey carried out by the Ministry of Energy, the energy potential of the Danube was estimated at 3,428 MW, of which the share for Romania would have been 2,100 MW, the remaining belonging to the other riparian countries, namely, Yugoslavia at 912 MW, Bulgaria at 636 MW, and Ukraine and Moldova at 80 MW. The plan provided for the construction of hydropower plants, including those in the Danube Delta, on the two branches situated entirely in Romania (Sulina and Sfântu-Gheorghe).[14]

Soviet experts participated in the drafting of the electrification law as well as a subsequent draft irrigation law (Botzan, Haret, Petrescu, and Merculiev 1959, 18), but only as advisers; their role was essentially symbolic. For instance, the largest hydroelectric power station built in the 1950s was Bicaz, on the Bistrița River, with an installed capacity of 210 MW; Soviet experts participated in its construction and after its inauguration it was named "V.I.Lenin" (Groza and Cogălniceanu 1964). However, the project dated from the end of the 1920s, having the aforementioned Dimitrie Leonida as its main designer, and was later named after King Ferdinand "in recognition of the former king's great interest in electrification" (Turnock 2008, 29).

In Romania, the Danube is included in irrigation system construction projects. In the late 1950s, the engineer Marcu Botzan, heading a team of experts, resumed an earlier 1911 irrigation project on the southeast Romanian plain, between the River Siret and the Danube, which involved building a canal that included the Danube–Bucharest route.[15] Botzan underlined that irrigation of 1,100,000 hectares of that area was facilitated by an increase in electricity production as well as the establishment of levees along the Danube.[16] Although this project failed, the left bank of the Danube was subsequently divided into 20 districts, each with its own Danube water pumping system transporting water inland both from the river and the drainage system, from where it would return gravitationally and irrigate the adjacent lands. The installed power capacity of the pumps in each of these districts was around 32 MW (Boțan et al. 1990, 65, 73, 82–90).

In Bulgaria the irrigation projects from the interwar period were not completed due to the outbreak of World War II. However, they were resumed for a period of several years throughout the entire area of the Bulgarian Danube, after the establishment of the socialist regime.[17] In 1955 the irrigation system became entirely state-owned, and private water syndicates were outlawed (Theesfeld and Boevsky 2005, 179). However, the new state focused its investments on the interior river network. The overall volume of 600 million cubic meters collected in the reservoirs of central and southern rivers ensured the irrigation of 210,000 hectares and an installed power capacity of 350 MW (Donev 1972, 23–24). By contrast, on the Danube, six irrigation districts had been created, whose pumps delivered a combined power of 11.6 MW distributing water over a maximum area of 20,000 hectares per district (Donev 1972, 31; Jechev and Petrov 1963).

Besides the institutional networks and native technocracy, the national riparian states' plans to alter the Lower Danube were spurred on by the favorable international status of the Danube. The changes in the Danube's status after World War II were far less connected to the events of the war or the peace that followed than the changes that occurred in relation to World War I. The two international commissions with administrative powers for the Danube in the interwar period, the European Danube Commission and the International Danube Commission, were replaced at the 1948 Belgrade Danube Conference by a Special River Administration of the Danube, in which members were exclusively the riparian states, such as Czechoslovakia, Hungary, Yugoslavia, Bulgaria, and Romania. Among these, all except Yugoslavia were under the umbrella of the USSR (Benea 2009; Schwabach 1996, 320; Simeonova 2011). As a matter of fact, the USSR was not very interested in the technological administration of the Danube, so the riparian states were free to carry out their own projects, either alone or in cooperation. Furthermore, having in mind the Tennessee Valley Authority model, a proposal to establish a commission of the socialist riparian states for the hydraulic improvement of the river was tabled (Schmid 2013, 50–52). That is why the large-scale

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hydrotechnical alterations on the Lower Danube fell within the scope of the bilateral treaties signed by the riparian countries. The Lower Danube's construction program on the section corresponding to the Bulgarian–Romanian river border thus became an issue solely for the two riparian states.

In comparison with Bulgaria, the Romanian government played for high stakes in this context, and by the mid-1950s, after Stalin's death, assumed a position of independence from the USSR by resuming negotiations with Yugoslavia over the construction of the Iron Gates hydroelectric power system (Benea 2009; Štanzel 2017, 196–200). This great hydrotechnical project on the Danube was reinforced at the beginning of 1960s after the appointment of the technocrat Ion Gheorghe Maurer as Prime Minister.[18] While backing up Romania's economic independence, Maurer was aiming for a new national technocracy. As in the case of other socialist countries, for instance the Democratic Republic of Germany (Dolores 2007, 188–190), because of the objectives it promoted, these groups of experts often collided with the communist nomenclature (Ionescu 1994, 354–355, 362–368; Tismăneanu 2003, 123).

In the 1960s, the Romanian state openly opposed Soviet plans to integrate the regions of south Ukraine, southeast Romania, and northeast Bulgaria into a vast agricultural production area, which would have played an important economic role in the free exchange market between socialist countries (COMECON). The Valev Plan, named after the Soviet economist Emil Valev, was resoundingly rejected by the socialist government of Romania at the June 1962 COMECON meeting (Deletant 2007, 497; Ionescu 1994, 374–382; Tismăneanu 2003, 175–181). Romania's argument was that such a plan would have hindered the building of large industrial facilities in the southeastern part of the country, such as the steel works in Galați (the construction of which had commenced in 1961). Furthermore, the same plan would have rendered pointless the construction of the Iron Gates hydroelectric power station, the purpose of which was to supply electricity to industrial facilities, like the Galați steel works.[19] Thus the path to nationalizing the Danube waters was paved, and the hydrotechnical constructions that appeared in subsequent years, particularly dams and levees, were meant to absorb the mighty river into the national blueprint.

Levees into the Hydraulic Techno-Nationalism

At the end of the interwar period in Romania, the puzzle of intentions and projects, carried out to different extents, resulted in the levees being constructed on only 58,000 hectares in the Danube floodplain, almost 15 percent of the total area. The main goal of this levee construction was to acquire more agricultural land. In Bulgaria the damming of the Danube that started in the mid-1920s was linked to efforts to resettle the massive wave of refugees from territories lost after the First World War (Dragostinova 2006, 553–554). In those turbulent political times, the Bulgarian government called on the League of Nations for help with resettlement plans. Among the proposed measures was the drainage of 21,000 hectares of wetlands, a portion of the 132,000 hectares required for resettlement (League of Nations 1926, 8). Despite loans from the League of Nations, the lack of financing for the construction of dams became a chronic issue, so that by the mid-1930s, out of the 80,000 hectares of the Bulgarian Danube floodplain, only 45,000 hectares had undergone levee construction, with the projects at different stages of development (Angelov 1933, 19).

After World War II, Romania continued to be more interested than Bulgaria in constructing levees along the Danube. Thus, while Bulgaria concentrated on the setting up of an extensive network of irrigation syndicates on the inner river network, in 1949, immediately after the Belgrade Conference, Romania established a state commission that decided to construct levees on 330,000 hectares of the 450,000 hectares that made up the floodplain between the Iron Gates and Isaccea (Stoiculescu 2008, 32).[20] The government intended to acquire more agricultural land this way, but also to ease the construction of irrigation network and hydro-plants on the big river. Still, the actual works lagged behind throughout the 1950s. It was only in 1962 that the prime minister, Ion Gheorghe Maurer, signed a government decision that called for the "flood defense of certain Danube floodplain lands," but led in fact to the complete damming of the Danube floodplain (Stoiculescu 2008, 25). Sticking to this plan, the Romanians started to construct nonsubmersible

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levees for the continuous damming of the Romanian Danube bank. As the vignette that opens the article shows, the impact of these works on the Bulgarian riverbank was immediately noticed by the Bulgarian government, a situation that called, in the years 1963–1965, for the commencement of negotiations between the two states with regard to the technical designs on which the construction of the levees was to be based.

As a starting point for the talks, both parties accepted that while the Danube's Bulgarian bank was being dammed continuously during the interwar period and the years immediately after the war, and that the elevation of those levees was enough to protect the embanked areas, the Romanian bank was entirely exposed to floods since the dams built during this period were insufficient. It was reckoned that in the late 1950s, along the Bulgarian bank almost 73,000 hectares had been dammed (51,000 up to 1940, 22,000 between 1948 and 1960), representing more than 90 percent of the Bulgarian bank's floodplain, while on the Romanian side only 8 percent of the 450,000 hectares of the Danube floodplain were dammed.[21] Romania therefore argued in support of an accelerated levee construction program by means of continuous and nonsubmersible levees. Along with some *de facto* arguments, such as flood protection or the fact that the levees would not impair the hydrological processes of the Danube, nor would they alter the river's course, the Romanian party emphasized the *de jure* aspects of levee construction, namely, in the interwar period there was no bilateral agreement between the two countries on levee construction on the Danube. In the interwar period, Romania agreed to the levee construction on the Bulgarian bank only in its capacity as a member of the International Danube Commission.[22]

It was based on this latter argument that the Romanian side also rejected the idea of compensation proposed by the Bulgarian side, which estimated, pursuant to an impact study, that the damage caused by the levees built along the Romanian bank amounted to 53 million *leva*.[23] Besides the juridical argument, the levee investments both in the interwar years and in the 1950s were carried out without a bilateral agreement with Romania. The Romanian side also contended that such investments were amortized and, moreover, the levees on the Bulgarian bank had caused damage over time to the Romanian side.[24] Romania's position of strength in the negotiations with Bulgaria was reinforced by the bilateral agreement between Romania and the USSR with regard to levee construction on the Prut River, which was then a border between the two states.[25] It was under such circumstances that in late 1965 the two sides signed the bilateral agreement regarding levee construction on the Danube.

Romania's powerful position was rooted in a string of circumstances but also in its techno-nationalistic water policies. On one hand, the decision behind the river's massive program of building levees was strictly political and it reflected the totalitarian character of the socialist state. The 1962 government decision, which gave impetus to the project of levee construction on the Danube's Romanian bank, was never published in the *Official Gazette*, and it was only in 2008 that it was revealed at the request of researchers (Stoiculescu 2008, 73). On the other hand, experts were asked for their opinion with regard to issues related to levee construction on the Danube. As in the interwar period, two categories of divergent views emerged: those of biologists, naturalists, and ecologists versus those of hydrotechnical engineers. While the former pleaded for the ideas of Grigore Antipa (1910) and his school to be reconsidered,[26] as well as for the maintaining of a balance between the strictly economic exploitation of the area through levee construction, irrigation, land improvement, and ecosystem conservation (Banu 1967, 544–547; Popescu Zeletin 1967), the latter stressed the needs of the national economy under expansion through industrialization and intensive agriculture (Blidaru, Georgescu, Gheorghiu, and Vlădescu 1962, 676; Petrescu 1974).[27]

It seemed that the Romanian government of the 1960s had opted for comprehensive levee construction on the Danube for purely economic reasons. However, the levee construction, both along the Danube and encompassing the entire Romanian hydrographic network, was linked directly with the political regime's ideology, namely, national development through "socialization of agriculture." The dispossession of the landowners on the floodplains made possible land consolidation and the implementation of large-scale land networks, irrigation systems, or draining

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projects. Also, in a rural country, as Romania was in the 1960s, the socialization of the labor regime in collective farms made the "rational" employment of the workforce in the socialist state's hydraulic projects easier to implement (Blidaru et al. 1962, 27).

This ambiguous state of affairs carried over into the domain of hydrotechnical innovation. On one hand, in accordance with a countrywide industrialization program, as early as the late 1950s the government of Romania commenced a vast program of importing technology from western European countries (Ionescu 1994, 376), which also covered hydrotechnical installations, such as the Francis and Pelton turbines for several hydroelectric power stations built in the 1950s (Groza and Cogălniceanu 1964, 363–367). On the other hand, in the early 1960s, these technological means were far from "rational." For instance, transporting materials used for the construction of 20 km of levees along the Danube in an area close to the town of Zimnicea, aimed at defending 6,000 hectares of agricultural land, was provided by horses or oxen teams from 16 villages located as far as 15–20 km away. In 1960, the labor schedule drawn up for one village by the district's communist party committee provided for the transport of 208,000 cubic meters of materials and laying of the dams' foundations. In order to meet this target, 78 horses and oxen teams and 156 individuals from the village were employed on a daily basis on the Danube bank.[28]

The Romanian socialist state was thus the main actor and ideological beneficiary of the Danube's levee construction project, while the technology required by the construction works became an instrument entirely at the disposal of the state's political will. The consequences for the Danube were catastrophic, as by the end of the 1970s the whole Romanian Danube floodplain had been dammed, and in the 1980s, pursuant to the same techno-nationalistic ideology, some 50,000 hectares of the Danube Delta's 500,000 hectares were dammed.

In this context, Bulgarian–Romanian technological cooperation on the Danube River was weak. Plans to build hydrotechnical complexes in the Somovit–Islaz area and to the east, in the Belene–Turnu Măgurele region, were unsuccessful; the completion of the latter project was to include a hydroelectric power plant similar to that of the Iron Gates, as well as the construction of a dam on the Danube at Silistra–Călărași.[29] Instead, Romania finished building the second hydroelectric plant at Iron Gates in 1984 in cooperation with Yugoslavia. Furthermore, while the Romanian government partially fulfilled its plans to link the Danube with the interior of the country by means of canals,[30] Bulgaria's plans to do likewise remained on paper.[31]

Conclusion

In the socialist period, after the first decade of tough Soviet control that ended with Stalin's death and the arrival of Krushchev as leader of the USSR, Romania challenged the unity of the socialist bloc and, at the beginning of the 1960s, commenced an ambitious program of national industrialization and economic development. Thus, the damming of the Romanian bank of the Danube was intertwined with the need for a wider program of electrification and irrigation building system, which the Romanian government has pursued. Techno-nationalism merged with a kind of techno-statism that the totalitarian capture of political power facilitated. The backdrop of such techno-nationalism was Romania's largely successful attempt to break away from the USSR's influence within the socialist bloc. Technological transfer from western countries as well as the consolidation of a national technocracy capable of internalizing and implementing this import of technology were significant pillars in the process. In socialist Bulgaria, connections between the River Danube, the national electricity system, and irrigation networks were far weaker. The levees on the big river were inherited from the interwar period, now restored and heightened, but no major hydraulic construction projects were initiated. In fact, technological cooperation on the Danube between Romania and Bulgaria was itself affected by a string of setbacks, hesitation, or by a lack of trust. Many projects begun on the basis of cooperation between Romania and Bulgaria were abandoned.[32]

The type of techno-nationalism delineated in this article emphasizes the assimilation of technology and technological innovation, rather than the opposite of what had been termed

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techno-globalism. My argument is that techno-nationalism can develop without it being in opposition to the worldwide currents of technological flow. Even in the special circumstances of Bulgaria and Romania, isolated together with the other countries in the socialist bloc, techno-nationalism grew with catastrophic consequences for the Danube landscape, at least in Romania's case. A second trait of techno-nationalism linked to levee construction on the Bulgarian–Romanian Danubian border was that large-scale technologies, such as hydrotechnical constructions on the Danube, could be used by "peripheral" nations, such as these two southeastern European countries, to compete with one another. Although hampered by rudimentary technologies and a severe lack of investment capital, both states engaged in the most formidable task of constructing levees along approximately 470 km of the Danube's riverbank that constitutes the border between them. The commitment stems mainly from the appropriation of a national development pattern through technological progress.

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Notes

1 *Tsentralen Durzhaven Arhiv Vidin*/Bulgarian State Archive, Vidin Branch (hereafter TsDAV), Fund 489, *opis*/part 29, doss. 14/1970.
2 TsDAV, Fund 489, part 21, doss.5/1970, f.10.
3 TsDAV, Fund 489, part 7, doss. 317/1970, p.4; TsDAV, Fund 489, part 21, doss.5/1970.
4 The setting up of the joint Romanian–Yugoslavian commission for the development of the Iron Gates was made during the 1921 Paris Conference on Danube. Then Bulgaria demanded the right to participate in these improvement works, but as the Iron Gates places exclusively at the Romanian–Yugoslavian common border, its request was rejected from the very beginning by the two riparian states (Florescu 1975, 156; Ministère 1921; Benea 2009, 55ff; *Arhiva Ministerului Afacerilor Externe. Guvernul României*/Archive of Ministry for Foreign Affairs. Romanian Government, issue 220/1965/Bulgaria, vol. 1 (hereafter AMAE), ff. 147ff.
5 See for instance, the installation of the national grid in Great Britain, Hughes (1983, 58–66); also more theoretically, Edgerton (2007).
6 Within Europe, see, for instance, Blackbourne (2006) on the German case, Swyngedouw (2015) and Camprubi (2014) on Spain, Pritchard (2011) on France, Kaika (2006) on Greece, or Josephson (1995) and Zeisler-Vralsted (2015) on Russia.
7 Or, in the words of Trischler and Weinberger (2005, 58), it was the obsession with moving huge volumes of water and earth.
8 See the same argument in the case of the damming of the Mississippi by the Tennessee Valley Authority, whose main purpose was allegedly not the creation of energy sources, but the transformation of a mostly rural population into a civilized, urban population of true American citizens by means of cheap electricity (Zeisler-Vralsted 2015, 78, 90ff).
9 Technocracy means "the tendency to give precedence to technological competence over political legitimacy, to rational administration over the hazards of public debate" (Picon 2007, 197).
10 See, in the case of the Rhône River, Pritchard (2011, 7–11), Camprubi (2014, 11–12), and more generally Hecht (2001) and Menga (2015, 481–483).
11 Zeisler-Vralsted (2015, 80). Lenin's maxim "Communism equals Soviet power plus electrification of the entire country" (Josephson 1995, 523) spread rapidly in the new socialist countries.

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12 Cartianu and Albert (1996, 25); Dinculescu (1981, 17). The plan was partly implemented in 1963, Romania having 2,356 MW, of which 327 MW was supplied by hydropower (Georgescu 1964, 354).

13 In 1949 the Institute for Studies and Research in Energy was established. Within this framework, a group of technocrats, including interwar energy engineers, drew up a general plan for 1951–1960 (Cartianu and Albert 1996, 94). The reverse was true in Bulgaria; despite the country's national electrification project following plans drafted in 1941, it cannot find the names of any interwar energy engineers. Furthermore, in the 1950s, under pressure from Moscow, two energy ministers, Traicho Kostov and Manol Sakelarov, were accused of "actions against the State" and jailed (Spirov 2000, 18).

14 Cartianu and Albert (1996, 103). The project that gave the clearest expression to these plans was the construction of the Iron Gates hydroelectric power complex (see below).

15 In 1911 at the command of the Directorate of Land Improvement, together with Romanian engineers, foreign experts, a Briton, William Wilcocks, and an Italian, Luigi Villoresi, were asked to draw up plans for a canal to link the rivers Siret and Danube across Bucharest (Botzan et al. 1959, 8–17; Willcocks 1914). William Wilcocks became famous for his work building the Aswan Dam and the Suez Canal (Molle 2009, 487), while Villoresi was the head of hydraulic construction in San Benedetto on the River Pad (Manfredini 2010, 102).

16 Botzan et al. (1959, 3, 8); Blidaru et al. (1962, 34). One of the main reasons to building the "V. I. Lenin" hydro-plant was to provide electricity and irrigation waters for the Baragan plain (Štanzel 2017, 84). In 1963, the rate of electricity consumed in agriculture was 40 times higher than in 1938 (Georgescu 1964, 357).

17 TsDAV, Fund 28, part 1, doss.1/1949, 3/1948, 4/1949, 5/1950; Theesfeld and Boevsky (2005).

18 Maurer is a curious figure among the leaders of the socialist camp. He was born in 1902 (d. 2000) into a French family that settled in Romania, and became prime minister in 1961 after a string of internecine fights against Stalinist factions (Tismăneanu 2003, 179–186). He was a leader of the left parliamentary parties in the interwar years and a lawyer. In this capacity he defended Gheorghe Gheorghiu Dej, the chief of the Communist party in the 1960s.

19 Ionescu (1994, 374ff).

20 The small town Isaccea, close at east to Galați, is considered the end of the Danube flooded area and the starting point of the Delta.

21 AMAE, issue 220/1965/Bulgaria, vol.1, pp. 4, and in more detail ff. 19, 29–30.

22 AMAE, issue 220/1965/Bulgaria, vol.1, ff. 12, 77–80.

23 AMAE, issue 220/1965/Bulgaria, vol.1, ff. 11, 15, 46, 48-52. The Bulgarian side's claims were not at all exaggerated. After the levees were constructed on the Romanian bank, in December 1966 the Bulgarian government allocated the sum of 49 million *leva* just for the Vidin area, for the protection of goods and the local population, including the consolidation and heightening of the levees (TsDAV, Fund 489, part 5, doss. 14, ff. 143–144).

24 AMAE, issue 220/1965/Bulgaria, vol.1, ff. 11, 81–82, 96.

25 AMAE, issue 220/1965/Bulgaria, vol. 1, f.15. The improvement works and levee construction on the Prut River commenced at the same time as the improvement of the Lower Danube. There was an international commission set up for the Prut River in 1870, the members of which were solely the riparian states in those times, namely, Austria, Romania, and Russia (Romanian National Archives. Galați Branch, Fund 159, Prut Mixed Commission).

26 Grigore Antipa (1867–1944) was a Romanian naturalist. He studied in Jena where he took his PhD in 1891, as a student of Ernst Haeckel, the founder of ecology. While studying for his PhD he was recommended by Haeckel for stages at the research stations in France (Villefranche sur Mer) and for scientific expeditions in the North Sea. He founded a school of hydrobiology and ichthyology in Romania and was the director of the Bucharest Natural History Museum.
In 1929, the ideas and projects of Antipa and his team were taken into consideration, when a new law on the improvement of the Danube floodplain was debated and adopted (Ministerul 1929).

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27 Hydraulic engineers warned too that the costs of relocating the harbour facilities once the levees were built would be very high (Romanian National Archives, Galaţi Branch, Fund Company of the River Navigation NAVROM Galaţi, doss. 175/1963, ff. 12–20).
28 Romanian National Archives, Teleorman Branch, Fund Collection of the Viişoara commune hall, doss. 79/1960, ff. 19–31. However the engineers' reports are full of complaints regarding the villagers' failure to complete allocated tasks. Later, in most cases the levees were constructed using hired workers and modern machinery.
29 Groza and Cogălniceanu (1964, 362); TsDAP, Fund 940, part 2, doss. 5/1979, f. 3; Papazov (1981, 86).
30 The Danube–Black Sea canal was finished in 1984. In the next year, construction of the Danube–Bucharest canal began, then stopped midway at the beginning of the 1990s.
31 The plans concerned two canals, one linking the River Danube with the Black Sea (the Ruse–Varna canal, a project dating back to 1927–1928) and the other linking the Danube with Sofia through Pleven (Papazov 1981, 87, 90–92; TsDAP, Fund 177, part 6, doss. 116/1970).
32 I have mentioned above plans for hydroelectric plants dating back to the beginning of the 1960s. The same is true of the construction of bridges over the Danube. Although the first plans to unify Bulgaria and Romania by building bridges over the Danube were drafted in 1909 (Cain 2012, 192), it was not until 1954 that a bridge connecting the towns of Ruse–Giurgiu was finally opened; it was called the "Friendship Bridge." The second bridge, between Vidin and Calafat, opened in 2012 after endless delays on the Romanian side.

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