The International Biological Program in Eastern Europe: Science Diplomacy, Comecon and the Beginnings of Ecology in Czechoslovakia

DOUBRAVKA OLŠÁKOVÁ

Institute for Contemporary History
Academy of Sciences of the Czech Republic
Vlašská 9, 118 00 Prague 1, Czech Republic
ORCID: 0000-0001-8731-2039
Email: olsakova@usd.cas.cz

ABSTRACT

The aim of this study is to analyse the international scientific policy of the countries of the Socialist Bloc in relation to the establishment of the International Biological Program. It focuses mainly on Czechoslovakia as one of the main active members of the IBP and as a close ally of the USSR when it entered the realm of international science policy after years of targeted isolation forced upon it during Stalinism. The study examines Soviet international science policy strategy and coordination from the reinstatement of Central and Eastern European countries as members of UNESCO and the ICSU to the occupation of the highest positions within IUBS and the contribution to establishing the definitive shape of the International Biological Program. The influence that socialist countries gained thanks to their international coordination efforts allowed them to modify the focus of the IBP to best meet their interests. As a result, they also ended up influencing the development and direction of the biological sciences in the 1970s and 1980s. From the perspective of institutional history, the specific infrastructure of the IBP led to the creation of not just new types of research groups and institutes but also scientific committees, which, thanks to their official status and inclusion in the IBP, and later MaB, gained political clout. New ecological paradigms and the open dialogue between scientists across the Iron Curtain within the IBP was the first serious crack in the monolithic approach of the Socialist Bloc towards the environment, through which the road to environmental initiatives – which were very frequently linked to anti-regime attitudes – led.

KEYWORDS

Science policy, history of science, science diplomacy, cold war, environmental history, communism

Environment and History **24** (2018): 543–567.
 doi: 10.3197/096734018X15137949592061

The International Biological Program (IBP) was one of the largest and most important global projects of the twentieth century to deal with the environment. It was planned during the Khrushchev thaw, launched at the hottest point of the Cold War and shut down in the era of détente. The Cold War, thus, marked the concept behind how it was conceived and how it operated. The Cold War left the largest marks on the implementation of the IBP in the countries of the Socialist Bloc.

Priorities in environmental research during the Cold War were primarily determined by the political priorities of each bloc, not only by the interests of scientists. Therefore, the IBP can serve as an exemplar of the totalitarian modus vivendi of the Socialist Bloc in international scientific policy, which can be characterised by the dominating influence of Moscow, the limited opportunities for national science communities to act independently in international arenas and, last but not least, the discontinuity in personnel as well as in scientific paradigms. In relation to environmental sciences, the IBP led to an enormous revival of interest in this issue – alongside an interest in ecology, which over the long term played an important role in reestablishing the principles of civil society in the countries of the Socialist Bloc.[1] In this sense, the situation behind the Iron Curtain, as far as the birth of environmental policy concerns, diverges in many ways from the principles described by John McCormick in his already classic work *The Global Environmental Movement*.[2]

The main aim of this paper is thus to demonstrate that global initiatives such as the International Biological Program (1964–1974) and the Man and the Biosphere Programme (since 1971) had an enormous impact on developing and stimulating scientific research behind the Iron Curtain, despite the enduring tendency towards Sovietisation.[3] In many regards these programmes acted as catalysts that sparked changes in the behaviour of national scientific communities, although their influence has been ignored or underestimated in

1. See Miroslav Vaněk, *Nedalo se tady dýchat: ekologie v českých zemích v letech 1968 až 1989* (Praha: Ústav pro soudobé dějiny AV ČR: Maxdorf, 1996).

2. John McCormick, *The Global Environmental Movement* (New York: John Wiley & Sons, 1995).

3. On the history of the programme, see Edgar Barthon Worthington (ed.), *The Evolution of IBP* (Cambridge: Cambridge University Press, 1975). For more on the development of science in the Socialist Bloc, in Czechoslovakia and Poland, see John Connelly, *Captive University: the Sovietization of East Germany, Czech, and Polish Higher Education, 1945–1956* (Chapel Hill: The University of North Carolina Press, 2000); Alena Míšková, Martin Franc and Antonín Kostlán (eds), *Bohemia docta: k historickým kořenům vědy v českých zemích* (Praha: Academia, 2010); Alena Míšková, Miroslav Šmídák and Hana Barvíková, *Československá akademie věd 1969–1972: restaurace komunistické moci ve vědě* (Praha: Ústav pro soudobé dějiny AV ČR, 1998); Leszek Zasztowt and Joanna Schiller-Walicka (eds), *Historia nauki polskiej, 1944–1989*, Część 1–3 (Warszawa: Instytut Historii Nauki im. Ludwika i Aleksandra Birkenmajerów PAN: Oficyna Wydawnicza ASPRA-JR, 2015).

national historiographies.[4] The heart of this study focuses mainly on analysing the institutional history of individual stakeholders in international science diplomacy and strategies that primarily socialist countries used to promote their interests. Thus, this study straddles the boundary between the history of science in its attempts at analysing the 'ecologisation' of biological sciences[5] in the second half of the twentieth century on the one hand, and the history of international relations and the Cold War on the other.

The all-encompassing questions that run through the text are questions of the transformation of the relationship between the state, and by extension state socialism, to the environmental sciences as such: How did the state ensure control over this type of research and in what manner did state socialism deal with the 'international priorities' of the Socialist Bloc? In this context, can the IBP be considered the beginning of the ecologization of environmental sciences in the Socialist Bloc?[6]

THE INTERNATIONAL BIOLOGICAL PROGRAM

The Cold War had a significant influence on the conception of international scientific cooperation. Both antagonistic blocs utilised various strategies, which, in keeping with international developments, gradually evolved from total isolation, through bilateral modus vivendi and limited internationalism, to active involvement in large multilateral projects. In the second half of the twentieth century, the Socialist Bloc transitioned from a bilateral mode of cooperation based on bilateral cooperation between individual countries and the USSR, often accentuated by the forced isolation of socialist countries from international influence, to open international cooperation, which, although it respected antagonistic ideological differences, in large part worked on the basic principles of international scientific cooperation.

In the second half of the 1950s the admission of the USSR, a world power, to global institutions such as the UN and UNESCO was a clear priority.[7] Khrushchev's policies and in particular the warming up of relations after the Geneva Conference provided major stimulation to the scientific community. The USSR was very much aware of the change that had occurred on the international scene, a change that it was incapable – or during this period of de-Stalinisation unwilling – to face. Therefore, the USSR very pragmatically

4. See Douglas R. Weiner, *A Little Corner of Freedom: Russian Nature Protection from Stalin to Gorbachëv* (Berkeley: University of California Press, 1999), pp. 388–389.
5. Jan Janko, 'K počátkům ekologizace naší biologie', in Petr Svobodný and Blanka Zilynská (eds), *Česká věda a Pražské jaro (1963–1970)* (Praha: Karolinum, 2001), pp. 219–225.
6. Janko, 'K počátkům ekologizace naší biologie', 219–225.
7. See Michail Reiman, 'Chruščov a jeho zahraniční politika', in Michal Reiman and Petr Luňák (eds), *Studená válka 1954–1964: sovětské dokumenty v českých archivech* (Brno: Doplněk, 2000), pp. 19–25.

elected to exploit this change in its own favour. The first global project that the USSR as well as other Socialist Bloc countries became involved in was the International Geophysical Year (IGY), which occurred in 1957–1958.[8] After two International Polar Years (1882–1883 and 1932–1933), the IGY was another important project launched involving closely related sciences, including environmental sciences. Although it was primarily focused on researching geophysical phenomena of our planet, in Cold War rhetoric it was a research project of a strategic nature, as one part, for example, focused on studying and monitoring atmospheric strontium – in other words, monitoring the use of nuclear weapons on Earth.[9]

The USSR's emergence from international isolation at the Geneva Conference and its subsequent expansion of international cooperation led to the further development of these types of global initiatives. The International Biological Program was launched under the auspices of the International Council of Scientific Unions (ICSU) in 1964 and was officially shut down in 1974. The IBP, just like the IGY, was a truly global programme and therefore was supported by not only the ICSU, but also other global organisations and institutions.[10]

Although today this project is viewed as the first successful global project in the field of environmental sciences, it had a very complicated history behind it. The International Union of Biological Sciences (IUBS) set it in motion in the late 1950s in the wake of the extremely successful IGY, and therefore the ICSU could take up coordinating it by 1961. Here, the existence of the IBP is very closely linked to three names: Sir Rudolph Peters, who served as chairman of the ICSU at a key time when the IBP was being considered (1958–1961), as well as Giuseppe Montaletti and C.H. Waddington, who headed the IUBS in 1958–1961 and 1961–1967, respectively.[11] The start of the entire programme was preceded by an intensive phase of planning and lobbying that lasted from 1959 to 1964. The first phase of the IBP was intended for 1965–1966, when mainly planning was to be undertaken and the scientific agenda to be set. The second phase ran from 1967 to 1971 when research was actually conducted, eventually stopping in 1974.

8. See Simone Turchetti and Peder Roberts (eds), *The Surveillance Imperative: Geosciences during the Cold War and Beyond* (New York: Palgrave Macmillan, 2014).

9. Otakar Poupa, *Syndrom kolibříka: neveselé kapitoly o vědě a moci, aneb, Šedesát let zkušeností* (Praha: Galén, 2000), p. 209. Cf. Simone Turchetti and Peder Roberts (eds), *The Surveillance Imperative* (New York: Palgrave, 2014).

10. Including the Food and Agriculture Organization, the World Health Organization, the World Meteorological Organization, the Scientific Committee on Antarctic Research, the Scientific Committee on Oceanic Research, and others. Within the ICSU specifically, the International Union of Biological Sciences (IUBS), the International Union of Biochemistry (IUB), the International Union for Physiological Sciences (IUPS) and the International Geographical Union (IGU) were actively involved in the IBP.

11. Worthington, *The Evolution of IBP*, p. 1.

In November 1963 the general assembly of the ICSU gave its approval to the creation of the IBP in Vienna, and in 1964 preparations began, which included, for example, creating national committees, contacting potential partner institutions, proposing project contents and so on. Discussions about its future shape culminated in July 1964 at the general assembly held in Prague and later at the first session of the Special Committee for the IBP in Paris. Although it was a global project, there was a certain failure to ensure a global nature in all fields, as attested to by the fact that that the International Union for the Conservation of Nature (IUCN), established in 1948, was not involved in this project, although it played an indirect role in its genesis.[12]

For Eastern European historiography it is important to mention that the original 28-member Special Committee for the IBP included four representatives from socialist countries: the vice-chairman was Kazimierz Petrusewicz (Poland),[13] Dionýz Blaškovič (Czechoslovakia) was an ICSU representative, Boris Yevseyevich Bykhovsky (USSR) was a regional representative and Ivan Málek (Czechoslovakia) was the convener of the 'Processes of Productivity' section.[14] Thus, the Socialist Bloc was well represented within the IBP. What is especially noteworthy, however, is that this committee included men who set the tone in biological sciences in the Socialist Bloc. For instance, both Kazimierz Petrusewicz and Ivan Málek were not only the leading representatives of biological sciences in their countries but also members of Central Committees of the relevant communist parties. It placed them in positions where they had immense influence on the direction of future development of science and research in their countries. Such combination of scientific status and political power, a symbiosis which Krementsov describes as one of the main features of Stalinist science, helps us better to understand the relative ease with which decisions even as crucial as participation in the IBP were adopted and implemented during the period of limited internationalism in the Socialist Bloc.

The example of Czechoslovakia demonstrates that, during this era of restricted internationalism, expert opinions which political representatives were commissioned to elaborate for the powers-that-be took into account mainly political factors. Socialist states were in a position where the attitude of the USSR was the decisive factor and their own national priorities secondary, whereby science remained under strict political and ideological supervision.[15] Initial Czech

12. Martin W. Holdgate, *The Green Web: A Union for World Conservation* (London: Earthscan, 1999), pp. 293–296.
13. For a biographical overview, see William Z. Lidicker, 'Kazimierz Petrusewicz', 1906–1982, *Journal of Mammalogy* **65** (1) (1984): 168–170.
14. Archives of the Czechoslovak Academy of Sciences (A ČSAV), file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 21, sign. 16/1, ČSAV pro schůzi vlády: Návrh vládního usnesení o zajištění účasti ČSSR na IBP v letech 1965–1971 – Příloha: Důvodová zpráva, p. 3.
15. Connelly, *Captive University.*

analyses conducted in 1963 took a very negative stance towards the IBP. At the second session of the Planning Committee of the IBP, held in 1963 in Rome, Jindřich Zelený, a Marxist social scientist who was active, inter alia, in science diplomacy and also worked for Czechoslovakia in the International Atomic Energy Agency, was sent as the Czechoslovak delegate.[16] His evaluation of the programme and the opportunities it offered for Czechoslovak involvement was thoroughly negative. In his opinion, the programme was overly vague and uncoordinated, as well as lacking a specific agenda; moreover, he also saw it as 'ponderous and expensive'.[17] However, its greatest problem, in his opinion, was its geographical coverage. It was dominated by Western countries and the USA, whereas with minor exceptions the USSR and the socialist countries were actually not even present when proposals were being worked out.

The USSR's attitude provided an authoritative voice for him, but things were not so simple. Beforehand the USSR had enthusiastically welcomed the launching of the IBP and promised its full support; however, in official correspondence the Soviets were more than restrained and sent no delegates to IBP planning meetings.[18] This reserved approach persisted in the USSR on the official level even much later, in fact throughout the existence of the IBP, as personal recollections of Soviet participation in the strictly politically supervised practical research clearly show. Otakar Poupa in his memoirs writes that Joe Werner, the main coordinator of the Human Adaptability project, tried to include Soviet scientists in this part of the IBP. However, all his efforts ran up against insurmountable obstacles on the side of the Soviets, barriers that were both official and purely personal. He thus naturally retrained his focus on using Central European scientists as intermediaries. He then persuaded Otakar Poupa to help his mission, who, thanks to his personal contacts in the USSR, attempted to break through that barrier during several personal visits to the Soviet Union. The plan, however, did not work out, and as he writes himself, 'the outcome of our journey was very poor, as far as the actual mission was concerned. There was enormous interest among scientists, but there was an impenetrable wall with the bureaucrats.'[19]

16. For his biography and his relations with the later chairman of the Czechoslovak National Committee for the IBP, compare Martin Franc, *Ivan Málek a vědní politika 1952–1989, aneb, Jediný opravdový komunista?* (Praha: Masarykův ústav, 2010), p. 149 and onwards.
17. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 6, Záznam o druhém zasedání plánovacího výboru pro Mezinárodní biologický program.
18. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 6, Záznam o druhém zasedání plánovacího výboru pro Mezinárodní biologický program. Cf. also Worthington, *The Evolution of IBP,* 3.
19. Poupa, *Syndrom kolibříka,* p. 220. Cooperation among engineers in the Socialist Bloc was in a very similar situation; see, for example, J. Janáč's interviews and his study of reports from study journeys to the USSR, Jiří Janáč, *European Coasts of Bohemia: Negotiating the Danube-Oder-Elbe Canal in a Troubled Twentieth Century* (Amsterdam: Amsterdam University Press, 2012), p. 211, n. 96.

Especially in the beginning, the de facto inaction on the part of the USSR in relation to discussing the IBP on an international level had a negative impact on countries of the Socialist Bloc whose communities were interested in participating in the IBP (such as Czechoslovakia or Poland). In order to definitively confirm their participation, leadership of these countries needed political permission, which, however, utterly and entirely depended on the Soviet position – and the Soviets kept silent.

From the perspective of the USSR's Eastern European allies, it seems that the Soviets initially did not want to participate in the IBP mainly because they were unsure of the political support within their own community and ultimately of loyal international support from other socialist countries. In this regard, the first half of the 1960s saw many groundbreaking events: the removal of Khrushchev and his replacement with Brezhnev, the culmination of the Sino-Soviet split, and many other external and, undoubtedly, internal factors as well. Only in spring 1965 did Soviet scientific policy reach a fundamental turning point, and representatives of the Soviet scientific community – mainly professor B.E. Bykhovsky, director of the Academy's Institute of Zoology and a member of the Academy's presidium, and his representative, professor L. Rodin – began to support the idea of the USSR's involvement in the IBP, in spite of the cold reception it received from the political cadre.[20]

Attitudes to the IBP changed shortly after Trofim D. Lysenko was recalled from the post of director of the Institute of Genetics of the Academy of Sciences of the USSR. Lysenko had been Nikita Khrushchev's long time protégé, but in 1964 Khrushchev himself left politics and was replaced by Leonid Brezhnev. Reverberations of the now-ending policy of open cooperation, championed by Khrushchev, were used especially by scientists such as B.E. Bykhovsky, who had maintained a reserved position regarding ideological interventions in science and research. Bykhovsky's involvement in favour of Soviet participation in the IBP coincided with the official rehabilitation of genetics and its main principles, which, after Lysenko's demotion, could once again become part of the official Soviet science. It ought to be noted that it was Bykhovsky who, after Lysenko's downfall, was one of the very first scientists to officially endorse Mendel (in his article published in the Soviet *Pravda* on 24 June 1965) and thus crucially contribute to a rehabilitation of genetics in the USSR.[21] Lysenko's downfall was also an expression of official abandonment of the main goals of Stalin's Great Plan for the Transformation of Nature, which had been officially adopted as the leading doctrine of biological and

20. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis z 3. schůze Čs. národního komitétu IBP, konané 10.3.1965.

21. Michel Tatu, *Power in the Kremlin: From Khrushchev's Decline to Collective Leadership* (London: Collins, 1969), p. 379; David Joravsky, *The Lysenko Affair* (Chicago: University of Chicago Press, 1986); Nikolay L. Kremencov, *Stalinist Science* (Princeton, NJ: Princeton University Press, 1997); Valery Nikolaevich Soyfer, *Rudá biologie: pseudověda v SSSR* (Brno: Stilus, 2005).

agricultural sciences in 1948. The IBP thus in several ways helped speed up the rehabilitation of sciences which had been, during the period of implementation of Stalin's Great Plan, officially banned.[22]

Only once the serious crisis of Stalinism, which was embodied in the pseudo-scientific theories advocated by the Stalinist elite, was overcome and broad support with the scientific community of the Socialist Bloc was shored up did the Soviets join this global project. Being the leader of the Socialist Bloc, however, the Soviet Union felt pressurised to assume leadership also within preparations of the IBP. Soviet influence is apparent in two areas. In the first part of the following, we try to describe the mechanism of power that the Soviets used to impose their influence in the international arena. In the second part, we focus on the original definition of the IBP and changes the Soviets managed push through in order to promote their own priorities. From an institutional perspective, however, the most interesting impact of the IBP on Eastern Europe is the way it influenced the institutional foundations of COMECON in the area of coordination of science and technology.

The first step was for the Soviets to gain as large an influence as possible on international scientific policy. To this end the Soviets utilised central institutes – that is, UNESCO – as well as the ICSU and in particular individual scientific unions. After joining the ICSU, the Soviet Union was immediately involved in all international activities. It was then naturally possible to elect Soviet representatives to fill important positions; besides the vice-chairman of the ICSU, biochemist Vladimir Alexandrovich Engelhardt, and member of the IUBS executive committee, Andrey Lvovich Kursanov, the Soviets later succeeded in occupying one of the main positions at UNESCO. In 1959 Viktor Abramovich Kovda was appointed to the key position of head of the Department of Natural Sciences at UNESCO.[23] He was an exceptional soil specialist, a professor at Moscow University, who held this position at UNESCO until 1965. His later role in advocating for the IBP internationally was critical, considering the nature of his position, even though in accessible period materials his biography is thoroughly neglected.[24] The fact that a person such as Kovda held such a high position is certainly surprising, particularly because in the 1950s he was one of the leading scientists to support the launch of the Stalin Plan for the Transformation of Nature in the USSR. In the 1950s he was one of the leading proponents of Lysenkoism and to a great degree facilitated and

22. On the history of definition and later abandonment of these doctrines in Central Europe, see Doubravka Olšáková, *Věda jde k lidu!: Československá společnost pro šíření politických a vědeckých znalostí a popularizace věd v Československu ve 20. století* (Praha: Academia, 2014).

23. See http://www.unesco.org/science/adgs_sc.shtml (accessed 20 July 2014)

24. For example, he is not mentioned at all in one concise history of the IBP: Worthington, *The Evolution of IBP*.

supported Lysenko's rise to power.[25] After the war he was put at the head of the 'special works' department,[26] which was established as a special centre facilitating relations between the Central Committee of the Communist Party of the Soviet Union and the Academy of Sciences of the USSR; and in 1950–1953 he chaired the Committee for Large Hydrotechnical Works that was established at the Academy of Sciences of the USSR.[27] Thus, he was a very capable and, diplomatically speaking, very successful figure, and with his appointment to this position the USSR acquired relatively significant influence over operations at the Department of Natural Sciences of UNESCO. Based on existing knowledge of how Stalinist science worked, it can be assumed that he was one of those powerful men behind the scenes of the entire system.[28]

After the Soviets succeeded in occupying the highest posts, the next logical step that ensued was the shoring up of their unprecedented position by creating as broad a member base as possible by recruiting from within the Socialist Bloc. Thus, under the guidance of the USSR, a plan for gradually occupying as many key seats and positions as possible in the IBP was adopted. In order to do so, it was necessary to increase the number of Socialist Bloc member states in the IUBS. The countries of the Socialist Bloc that were not yet members of the IUBS were therefore after the meeting held in April 1964 called to immediately apply for membership, specifically, the GDR,[29] Romania, Hungary, North Korea, North Vietnam, Mongolia, the People's Republic of China, and Cuba (the USSR, Poland, Bulgaria, Yugoslavia, and Czechoslovakia were already members).[30] Two countries, Hungary and Romania, actually applied. They were accepted without any major problems, so at the Fifteenth General Assembly their membership was approved.

Once the number of members increased, it was necessary to push through to the leadership of the IUBS, as well as of the planned IBP, representatives from the Socialist Bloc. Therefore, the first step was to ensure the presence of the Socialist Bloc in the nominating committee of the Fifteenth General Assembly. At a nomination meeting of the Socialist Bloc, M.S. Gilyarov (USSR), I. Emanuilov (Bulgaria) and A. Kleinzeller (Czechoslovakia) were

25. Nikolai L. Kremencov, *Stalinist Science* (Princeton, N.J.: Princeton University Press, 1997), p. 197.
26. Kremencov, *Stalinist Science*, p. 197 (n. 10).
27. Komitet sodeistvia stroitelstvu gidroelektrostancij, kanalov i orositelnych system Akademii Nauk SSSR.
28. Kremencov, *Stalinist Science*, p. 197.
29. The GDR's position in international politics and the fact that it was unrecognised by Western powers negatively influenced its possibilities for joining international institutions. This situation had a thoroughly destructive impact on the possibilities for East German scientists to become involved in international structures. See Jens Niederhut, *Wissenschaftsaustausch im Kalten Krieg: die ostdeutschen Naturwissenschaftler und der Westen* (Köln: Böhlau, 2007).
30. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 10, sign. 6/2 1964, Záznam z porady zástupců zemí socialistické tábora konané dne 17.7.1964 v Praze.

proposed.[31] The nominating committee, with its new composition, agreed on the nomination of new members of the IUBS executive board, who were to be elected in at the Fifteenth General Assembly of IUBS. The following candidates from the Socialist Bloc were approved: Boris Yevseyevich Bykhovsky (USSR – zoology), Kazimierz Petrusewicz (Poland – general biology), and Ivan Málek (Czechoslovakia – IUBS vice-president). Once again we thus encounter the names of three main representatives of biological sciences in the Socialist Bloc whose advancement to the top echelons of 1960s science policies – from which they could influence, among others, the scientific agenda of the IBP – was the result of changes in the political and scientific direction of the USSR. Kazimierz Petrusewicz (1906–1982), a biologist and ecologist, was one of the leading communist scientists in postwar Poland. By late 1940s, he had a brilliant career not only in the Polish government but also in the area of establishing a new Polish scientific infrastructure. Following the Soviet model, this infrastructure was strictly centralised and subject to supervision by the Central Committee of the Polish United Workers' Party, where Petrusewicz in 1949–1956 headed the department of science and higher education. In 1952–1956 and then again in 1962–1968, he was also secretary for biological sciences in the Polish Academy of Sciences. His main domain, however, was ecology. In 1956–1979 Petrusewicz was director of the Institute of Ecology of the Polish Academy of Sciences and in 1953–1979 he headed the Committee for Ecology of the Polish Academy of Sciences. The era of his undisputed reign over biological sciences is nowadays seen with some reserve: on the one hand, he was an uncritical admirer of Lysenkoism, which he promoted until the early 1960s, but, on the other hand, he played an important role in promoting Polish participation in programmes such as IGY or IBP.[32] A similar fusion of power and ideology, as well as active support of Lysenkoism, characterised his Czech colleague, the microbiologist Ivan Málek (1909–1994). Like Petrusewicz, Málek played an important role in creating a new, centralised infrastructure of Czechoslovak science, where – following a Soviet model – the Academy of Sciences played the role of the main coordinator. Having served as director of the newly established Institute of Biology of the Czechoslovak Academy of Sciences in 1952–1961, Málek then became director of the newly established Institute of Microbiology of the Czechoslovak Academy of Sciences, which he headed in 1962–1970. Like Petrusewicz, Málek was member of the Central

31. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 10, sign. 6/2 1964 – *Zpráva o přípravě čs. účasti na IBP a o výsledcích porady zástupců národních biologických komitétů ZST* (IX. zasedání presidia ČSV dne 6.května 1954) – Zpráva o poradě zástupců národních biologických komitétů zemí socialistického tábora, konané 28.-29.4.1964 v Praze (příloha).

32. Michael David-Fox and György Péteri (eds), *Academia in Upheaval: Origins, Transfers, and Transformations of the Communist Academic Regime in Russia and East Central Europe* (Westport: Bergin and Garvey, 2000), p. 149; Connelly, *Captive University*, pp. 52, 67, 236–237, 323.

Committee of the Communist Party of Czechoslovakia and he was in charge of the section for biological sciences. He was thus a vastly influential decision maker with respect to biological sciences. The identical positions within their respective scientific communities and almost identical academic careers of these two biologists and advocates of the IBP within the Socialist Bloc were a direct consequence of a Soviet system of scientific coordination, which had been mechanically adopted following a Soviet model in early 1950s and implemented throughout Central and Eastern Europe. This system produced in Eastern Europe very specific scientific elites, in which biological sciences in the 1950s and 1960s were represented by men such as Málek and Petrusewicz.

Once it became possible to engage in international collaboration, the goal of these socialist scientific elites was to achieve a maximally influential position in the international arena. In parallel to the strengthening of the position of the Socialist Bloc in the executive committee of the IUBS, it was also strengthened at the head of the IBP, which operated independently of the executive committee of the IUBS but worked in close cooperation with it. Regular coordination meetings were held, where how to proceed was debated in detail. At the coordination meeting held in July 1964, talks were also held on joint action among the socialist states, on the tasks of individual delegates and voting strategy; the main attention, however, was focused on the IBP's agenda itself. The Socialist Bloc here focused on two key areas that were at the forefront of its interest: biological productivity (of terrestrial, freshwater, and marine communities) and human adaptability.[33] The socialist countries objected to the IBP's originally planned scope, which also encompassed molecular and cell biology; their goal was to vote against the development of these areas within the IBP.[34]

Thus, two different conceptions of the IBP's agenda stood against each other; in the end, victory was gained – somewhat surprisingly – by the Socialist Bloc... The moment the Soviets decided to become involved in this project – along with the other countries of the Socialist Bloc – the project's original scope was significantly changed. Originally, the IBP was supposed to be focused on three areas: 1) human heredity, 2) plant genetics and breeding, and 3) the study of natural biological communities exposed to modification or destruction. Two leading Soviet scientists who held influential positions – biochemist Vladimir Alexandrovich Engelhardt, the vice-chairman of the ICSU, and Andrey Lvovich Kursanov, a member of the executive committee of the IUBS – however, pointed out to IUBS leadership that the official subtitle of the IBP was originally supposed to be *The Biological Basis of Productivity and Human Welfare,* which – in their opinion – did not correspond with the

33. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 10, sign. 6/2 1964, Záznam z porady zástupců zemí socialistické tábora konané dne 17.7.1964 v Praze, f. 2.

34. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 10, sign. 6/2 1964, Záznam z porady zástupů zemí socialistické tábora konané dne 17.7.1964 v Praze, f. 2.

proposed areas of concentration.[35] ICSU leadership found itself against the wall and, in spite of C.H. Waddington's reluctance to further support the idea of this project it was decided that the IBP would be indeed launched, but due to the Soviet intervention new areas of focus would be determined in place of the originally planned ones. The new areas of focus became human genetics, nature conservation and improving natural resource exploitation.[36]

Thanks to the strong position of scientists from socialist countries in the IUBS – and thanks to the strong position of the Soviets in top-level international scientific politics – the Soviets and their allies were able fundamentally to influence the future direction of the IBP. The Socialist Bloc was able to do so thanks to coordinated cooperation between the socialist countries, which, on the eve of critical meetings, regularly held coordination meetings attended by their own IBP representatives, where they agreed upon joint action.

The fact that the General Assembly of the IUBS took place in Prague in 1964 played a role; it meant that the coordination efforts of the Socialist Bloc could not be fundamentally threatened by unforeseen external forces. Without the coordination meetings, the Socialist Bloc would certainly not have had the initial success it had in shifting the planned research agenda of the entire IBP.[37] All leading IUBS delegates attended the General Assembly, 120 delegates in total from 26 member states as well as from UNESCO, ICSU and other organisations. For the Socialist Bloc, the outcome of the General Assembly was nearly spectacular, as the main goals set at the two preceding coordination meetings were accomplished: Ivan Málek was elected the secretary of the IUBS Executive Committee and B.Y. Bykhovsky, was also elected.[38] K. Petrusewicz was nominated to sit on the Executive Committee of the Special Committee for the IBP; his nomination was later confirmed in Paris. The planned strategy had therefore been followed and, as we can read in a general report from the Prague General Assembly, one of the three main characteristic features of this assembly was 'the clear rise of biologists from the countries of

35. Worthington, *The Evolution of IBP*, p. 5.

36. Ibid., p. 6.

37. The selection of Prague itself for the General Assembly held on 18–22 July 1964 provided an inkling that the Socialist Bloc's entrance into international science diplomacy was in its way a follow-up to the Soviet offensive in international politics in the 1950s, when Prague was assigned the role a sort of Eastern European Geneva, where major pro-communist organizations were headquartered. See Karel Bartošek, *Zpráva o putování v komunistických archivech: Praha – Paříž (1948–1968)* (Praha: Paseka, 2000). French original: Karel Bartošek, *Les aveux des archives: Prague-Paris-Prague 1948–1968* (Paris: Seuil, 1996).

38. The following people were elected to the Executive Committee of IUBS: C.H. Waddington (U. K.), president; G. Montalenti (Italy), past-president; J.G. Baer (Switzerland), vice-president; D.J. Farner (USA), general secretary; I. Málek (ČSSR), secretary, and F.Y. Staflen (Netherlands), treasurer. G.G. Hedén (Sweden) and P. Drach (France) were elected for the general biology section, K. Grell (FRG) and B.Y. Bykhovsky (USSR) for the zoology section, and G. Taylor (UK) and K.C. Bora (India) for the botany section.

the Socialist Bloc in international biology as well in international biological organizations'.[39]

Thanks to this coordinated effort, the Socialist Bloc was able to overturn the original concept of the IBP, which emphasised human genetics, and to shift its primary focus to basic biological research

> in all sectors, where its results could manifest themselves in deeper understanding and activation of natural resources for improving the life of man, and which at the same time would lead to increased knowledge about man's ability to adapt to changing conditions for life, whether in countries that are transitioning from a colonial to a civilized phase, or in highly developed countries.[40]

Under this new definition, the main area of focus shifted from genetics and the mutual influences of man and his environment to the environment as such.

The seven basic topics focused on by the IBP, which were derived from the original three areas of focus, corresponded with the original scope of the IBP as interpreted and perceived by the Socialist Bloc. The topics included 1) ecology, 2) physiology, 3) nature conservation, 4) the productivity of freshwater communities, 5) the productivity of marine communities, 6) human adaptability and 7) the use and management of natural resources. The practical tasks of these sections were then determined to be the following: to create a global plant gene bank, to create a global animal gene bank, and to study the genetic changes in little-used and new plants (in the tropics and subtropics), biological pest control, the ecology and epidemiology of plant diseases, new biological resources for the use of man (including algae, new methods of using biological resources), and food protection (particularly to seek out traditional methods for the needs of tropical countries).[41]

The rejection of heredity and microbiology by the Socialist Bloc, which had voted against the adoption of the original subjects (human heredity, plant genetics and breeding and the study of natural biological communities exposed to modification or destruction) and in favour of human genetics, nature conservation and improving natural resource exploitation, was most unexpected. In fact it went against the current trend in the Socialist Bloc, which was gradually freeing itself from Stalinist science and 1950s ideological paradigms. The rejection of microbiology is especially surprising given the leading position of Ivan Málek, founder of the Czechoslovak Institute of Microbiology of the Czechoslovak Academy of Sciences, in the structures of the IUBS.

39. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 10, sign. 6/2 1964, Předběžná zpráva z XV. valného shromáždění IUBS, f. 3.

40. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 10, sign. 6/2 1964 – *Zpráva o přípravě čs. účasti na IBP a o výsledcích porady zástupců národních biologických komitétů ZST*(IX. zasedání presidia ČSV dne 6. května 1964) – Zpráva o přípravě čs. účasti na IBP, f. 1.

41. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis z 2. schůze Československého národního komitétu IBP, konané dne 3. září 1964, f. 2.

Nonetheless, the newly defined areas of interest suited the Socialist Bloc, which but a short time earlier had abandoned Lysenkoism and Stalin's Great Plan, much better than the originally proposed ones. What they represented was a degree of continuity with previous development, not a radical departure from earlier positions.[42] In addition to continuity, ideology was also important, as were the economic needs of the Communist states – as seen, for instance, in the area of improvement of natural resource exploitation, which offered a way of addressing the agricultural crisis affecting most countries of the Socialist Bloc in early 1960s. In Czechoslovakia, for instance, the third five-year plan, originally due to run in 1960–1965, collapsed by 1961 due to insufficient agricultural production. In the USSR, agricultural and biological sciences did not fare much better, mainly due to the legacy of problems linked to the introduction of Lysenkoism and its methods in agricultural practice. Moreover, the Socialist Bloc could accept only a formulation which spoke of 'improvements' in natural resource exploitation because of its rejection of neo-Malthusian principles. Neo-Malthusian principles were increasingly popular in the West, while the Socialist Bloc found them ideologically utterly unacceptable because both Marx and Engels had unequivocally rejected Malthus's theories.[43] On top of that, despite the radical rejection of neo-Malthusianism, in the 1960s it was gradually becoming ever more clear in the Socialist Bloc that natural resources are not unlimited and their exploitation would have to be drastically revised — and at this time there appeared the first critical voices demanding just that.[44] The abovementioned change in the IBP agenda thus in many respects corresponded to a fundamental change in the Soviet approach to global research in biological and agricultural sciences, which took place on the level of the UNESCO, where V.A. Kovda, one of the main architects of Stalin's Great Plan for the Transformation of Nature, actively promoted and supported the idea of creating a World Soil Map.[45]

Even after the adoption of the IBP and after its implementation received an official blessing from the political elites, the initiative was encountering insurmountable obstacles caused by the rigid nature of cooperation within the Socialist Bloc. The last but not least issue within this problematic model of

42. Stephen Brian, *Song of the Forest: Russian Forestry and Stalinist Environmentalism, 1905–1953* (Pittsburgh, Pennsylvania: University of Pittsburgh Press, 2011); Douglas R. Weiner, *A Little Corner of Freedom: Russian Nature Protection from Stalin to Gorbachëv* (Berkeley: University of California Press, 1999).

43. Daniel P. Todes, *Darwin without Malthus: the Struggle for Existence in Russian Evolutionary Thought* (New York: Oxford University Press, 1989).

44. Petr Jehlička and Joe Smith, 'Out of the Woods and into the Lab: Exploring the Strange Marriage of American Woodcraft and Soviet Ecology in Czech Environmentalism', *Environment and History* **13** (2) (2007): 187–210.

45. Viktor Abramovich Kovda, *Velikij plan preobrazovanija prirody* (Moskva: Izd. Akademii nauk SSSR, 1952); Viktor A. Kovda, *Aridizacija suši i bor'ba s zasuchoj* (Moskva: Nauka, 1977); Viktor A. Kovda and I. Szaboles (eds.), *Modelling of soil, salinization and alkalization* (Budapest: [Agrokémiai Kutató Intézet], 1979).

international collaboration, which was supposed to take place within a bloc of totalitarian states with one clear leader at its head, was a modification of international collaboration within the Socialist Bloc. The biggest problem in the particular case of implementation of the IBP was that, even in the second half of the 1960s, the Soviets continued to insist on the necessity of maintaining bilateral cooperation, which, along the lines of international cooperation in the 1950s, was prioritised at the expense of multilateral cooperation. Nothing characterises the heavy-handedness of scientific cooperation within the Socialist Bloc better than the persistence of bilateral agreements within a multilateral project of a global nature. Even so, some states eventually managed at least in some areas to extricate themselves partially from the web of bilateral agreements under strict Soviet control. It seems, however, that in trying to maintain a bilateral form of control over socialist countries within the IBP, the Soviet Union significantly underestimated the scope of this programme. Indeed, there is evidence that the USSR lost control over scientific knowledge in Central and Eastern Europe; for example, at one of the first meetings of leaders and secretaries of working groups on the Czechoslovak IBP committee, the Human Adaptability section complained that it had practically no contact with the USSR.[46] Cooperation with the USSR also failed in other areas: the Soviet national committee did not provide necessary documentation or as part of international academic exchanges was unable to guarantee stays at its own institutes to foreign scientists, which was otherwise a standard part of academic exchanges, not just within the IBP but also within academia in general. Many Czechoslovak scientists experienced this failure, as the Soviets did not send them letters of invitation far enough in advance – or did not send them at all.[47]

In setting up their own IBP research agenda, the socialist countries agreed that they would include in their plan for mutual bilateral cooperation the study of the productivity of terrestrial and freshwater ecosystems, the study of photosynthesis and the use of solar energy, and the study of nitrogen fixation.[48] This collaboration functioned well but it was also necessary to define this model on an official level. During the entire period of implementation of the IBP, the socialist states were trying to establish a sort of hybrid system of multilateral collaboration under Soviet supervision, which is also why they proposed the creation of a special coordination secretariat of socialist countries. Already

46. A AV ČR, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 21, sign. 16/1, Zápis z porady vedoucích a sekretářů pracovních skupin Čs. národního komitétu pro Mezinárodní biologický program při ČSAV, konané 31.5.1965, f. 2.

47. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis z porady vedoucích a sekretářů pracovních skupin Čs. národního komitétu pro Mezinárodní biologický program při ČSAV, konané 15.2.1967, f. 2.

48. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 5, sign. 622, Setkání zástupců národních komitétů IBP socialistických zemí 1964–1971, Zpráva o průběhu zasedání zástupců Národních komitétů IBP socialistických zemí v Praze ve dnech 7. a 8. Června 1966, f. 2.

in July 1964 – that is, at the very start of the IBP – the Polish ecologist K. Petrusewicz proposed the establishment of a joint secretariat of the countries of the Socialist Bloc that would rotate between different Academies of Sciences, specifically housed at one of their specialised commissions (a biological commission as a rule), every two years.[49] The same proposal was raised by Ivan Málek in 1967 and was immediately rejected.[50] The Soviets' double rejection of plans for a coordination centre for the Socialist Bloc confirms the unwillingness of the Soviet scientific cadre to participate in international projects, even though Soviet scientists were extraordinarily interested in them.

From the how IBP topics were dealt with and the USSR's reluctance to officially support the establishment of a coordinating body for the Socialist Bloc, it can be concluded that the primary interest of the USSR was not to develop international cooperation across the Iron Curtain, but to control it from the position of a hegemon within both the Socialist Bloc and the world as a whole. Decision-making mechanisms did not take into consideration the interests of scientists 'from below', but merely tried to fill orders from the main power players.

The Soviets' interest in the IBP did not derive from their endeavours to strengthen the influence of the Socialist Bloc or the influence of socialist countries; it was primarily dictated by their interest in strengthening their own position. Here, the Soviets more-or-less copied their stance within socialist international organisations, such as the Council for Mutual Economic Assistance.[51] However, from the mid-1960s onwards, attempts at centralising the coordination of research among the socialist countries, which was supposed to be ensured multilaterally by Comecon, began to be reflected more and more in the conception of international cooperation. This occurred, for example, in the development of applied entomology, zoology and botany. All these fields became priorities for Comecon, which apparently was planning on creating a united platform for new opportunities in breeding. One of the specific tasks of Comecon was in 1966 to organise a floristic excursion 'to areas where plant varieties were created, so that workers could find new foundations for breeding work'.[52] It seems, however, that the Comecon agenda in this field

49. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 10, sign. 6/2 1964, Záznam z porady zástupců zemí socialistické tábora konané dne 17.7.1964 v Praze, f. 2.

50. A AV ČR, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 16, sign. 6/2, Zpráva Ivana Málka o cestě do SSSR na zasedání výkonného výboru IUBS 26.9.-4.10.1966, 7.10.1966, f. 2.

51. English abbreviation Comecon, CMEA, or CAME. See, for example, Randall W. Stone, *Satellites and Commissars: Strategy and Conflict in the Politics of Soviet-Bloc Trade* (Princeton, N.J.: Princeton University Press, 1996).

52. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 21, sign. 16/1, Zápis ze schůze Čs. národního komitétu pro Mezinárodní biologický program při ČSAV, konané 9.11.1966, f. 7.

significantly overlapped with the IBP's, as many researchers from socialist countries who were also involved in the IBP pointed out.[53]

In the Socialist Bloc this was a crucial moment that went on to influence international cooperation for the next two decades. One report focused solely on IBP progress openly claims that, thanks to cooperation within IBP working groups, 'in some fields the groundwork was laid for initiating cooperation within Comecon'.[54] In the Socialist Bloc the IBP become a model for scientific cooperation, the principles of which Comecon then tried to integrate, sometimes more successfully, sometimes less, into its own science policy.[55]

The USSR changed its approach to negotiating international cooperation and coordination within Comecon at the same time it entered international science policy. In 1972 a fundamental change in overall international cooperation occurred: in official documents related to fleshing out the new MaB project, 'the possibility of transferring IBP activities to the MaB project, to Comecon, or to other projects focused on international cooperation' begins to come up.[56] Talks about the continuation of the IBP were held in June and July 1969 within UNESCO, with the primary goal of the Man and Biosphere project being the evaluation and monitoring of data acquired as part of the IBP in addition to a secondary goal of carrying on with research and thus keeping projects running that would have otherwise ended without the IBP.

The gradual change in the Soviets' approach, however, is attested to by the establishment within Comecon of a special Committee for Scientific and Technical Cooperation at the twenty-eighth Comecon board meeting in 1974, when the USSR had already accrued a great deal of experience in being involved in and coordinating international science projects at a global scale.[57] Knowledge and experience gained from these programmes were also applied in institutions fully under the control of the USSR. Closer integration of the sciences picked up in the second half of the 1970s and culminated in 1982 with the *Comprehensive Programme for Scientific and Technological Progress of CMEA Member Countries up to the Year 2000.*[58]

53. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 21, sign. 16/1, Zápis ze schůze Čs. národního komitétu pro Mezinárodní biologický program při ČSAV, konané 9.11.1966, f. 7. Cf. Janáč, *European Coasts of Bohemia,* p. 143 and onwards.
54. Závěrečná zpráva o československé účasti v mezinárodním biologickém programu, f. 5.
55. See Randall W. Stone, *Satellites and Commissars*, pp. 171–203.
56. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis ze schůze Čs. národního komitétu pro IBP při CČSAV, konané 17. dubna 1973, f. 5.
57. Stone, *Satellites and Commissars,* p. 171. See Michael Charles Kaser, *Comecon: Integration Problems of the Planned Economies* (London: Oxford University Press, 1965), pp. 101–107.
58. *Comprehensive Programme for Scientific and Technological Progress of CMEA Member Countries up to the Year 2000, and Development of Science and Technology in Czechoslovakia* (Moscow: Novosti, 1985). For more details of this programme, see Randall W. Stone, *Satellites and Commissars*, pp. 171–203.

THE IBP AND THE BIRTH OF CZECHOSLOVAK ECOLOGY

In describing the general characteristics of the benefits of the IBP for such a 'small' scientific community as Czechoslovakia's, it is necessary to emphasise several critical points, which in synergy led to the boosting of ecology's standing within Czechoslovak biology. Jan Janko describes the environment of biological sciences in Czechoslovakia in the 1960s as follows: The main preconditions of a possibility of 'ecologisation of biology' were 1) legal provisions for the protection of nature; 2) progress in agricultural research, which led to the first ecologically significant activities; 3) change in the perception of natural environment and the role of humans in its creation both in countryside and in towns; 4) development of international collaboration, including the role of the IBP; and 5) continued endorsement of technocratic methods in planning, which – somewhat paradoxically – enabled long-term planning of nature protection.[59]

Changes to legislation had been taking place also on the level of individual states and here again one can see a synchronisation within the Socialist Bloc. Changes of attitude towards the environment in the legislative area took place at a time when the IBP was near its end: it was an indirect consequence of the IBP, where the preparations of the Socialist Bloc for the United Nations Conference on the Human Environment played a special role. This conference took place on 6–16 June 1972, and countries of the Eastern Bloc in the end boycotted it. Internationalisation of the issue of environmental protection, which was one of the core priorities of the IBP, did, however, contribute to the fact that, by the early 1970s, almost all socialist countries had taken the first steps to legal institutionalisation of environmental protection. As in the past, the first step in this process was a resolution of the Highest Soviet of the USSR of September 1972 'On Measures Leading to Further Improvement in the Protection of Nature and Rational Exploitation of Natural Resources'.[60] Environment councils attached to the governments of the individual countries were created in Czechoslovakia in 1971 (separately for the Czech and the Slovak Republics). In 1973 such councils were then established in Rumania, Hungary and Bulgaria, while in the USSR such a council was created only in 1976. It was attached to the State Planning Commission of the USSR and named Office for the Protection of Living Environment.[61]

Regarding the particular areas of research and sciences included in the IBP, it is rather characteristic that the Czechoslovak community focused on problems that were at that time debated also on a political level, especially in connection with the abovementioned crisis in agriculture. The Czechoslovak

59. Janko, 'K počátkům ekologizace naší biologie', 225.

60. Zdeněk Madar, *Právo socialistických států a péče o životní prostředí* (Praha: Academia, 1983), p. 9.

61. Madar, *Právo socialistických států ,* pp. 257–258.

scientific community expressed great interest in the IBP in the areas of the productivity of terrestrial and freshwater ecosystems, the study of photosynthesis and the use of solar energy, and the study of nitrogen fixation.[62] These areas to a large extent represented continuity with previous research into productivity of sea algae, which in the Czechoslovak environment had a somewhat special importance. This research, which happened to be led from the second half of the 1950s by Ivan Málek, then director of the Institute of Biology of the Czechoslovak Academy of Sciences, investigated mainly the possibility of using sea algae in the socialist food industry as a replacement for some particular ingredients and vitamins that were in short supply.[63] The use of algae in production, however, required extensive basic research that would help explain their biological cycle and possibilities of practical exploitation. This pilot project, which considered, for instance, even the possibility of adding sea algae to foods, was terminated in the mid-1960s, partly due to the agricultural crisis affecting Czechoslovakia at that time.

The major question of 'human adaptability' interested socialist countries the most.[64] Besides the human adaptability project, which was a direct consequence of changes in the perception of the position of humans in nature, for Czechoslovakia a main goal and benefit was the development of molecular and cell biology, for which I. Málek and A. Kleinzeller were responsible. Their main goal was to increase interest in this field and make it a priority in scientific policy in the Socialist Bloc; they were successful despite the fact that socialist countries were originally against the idea of this type of research in the IBP.[65] In the 1960s, a further development of microbiology even became one of the main scientific priorities of Czechoslovak science and the IBP played an important role in this process.[66]

In the late 1960s and early 1970s, in place of molecular biology and physiology, disciplines that were promoted primarily in the 1960s, thanks to the IBP, disciplines related to the research of organisms and their communities

62. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 21, sign. 16/1, Zápis ze schůze Čs. národního komitétu pro Mezinárodní biologický program při ČSAV konané 9. listopadu 1966.

63. Martin Franc, *Řasy, nebo knedlíky?: Postoje odborníků na výživu k inovacím a tradicím v české stravě v 50. a 60. letech 20. století* (Praha: Výzkumné centrum pro dějiny vědy, 2003), pp. 158–161.

64. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 19, sign. 6/19, Zápis ze schůze Čs. národního komitétu pro Mezinárodní biologický program při ČSAV konané 2. října 1967, f. 8.

65. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis ze schůze Československého národního komitétu pro biologické vědy konané dne 31. března 1964, f. 5–6.

66. Martin Franc, *Ivan Málek a vědní politika 1952–1989, aneb, Jediný opravdový komunista?* (Praha: Masarykův ústav, 2010), pp. 149, 157; Tomáš Hermann and Doubravka Olšáková (eds), *Plánování socialistické vědy: Dokumenty z roku 1960 ke stavu a rozvoji přírodních a technických věd v Československu* (Červený Kostelec: Pavel Mervart, 2013), pp. 39, 52, 107.

came to the forefront.[67] Primarily, 'for example, a scientific discipline is taking shape, which could be called the science of the human environment. It is a new synthetic scientific field that will likely bring together some fields in medicine, hygiene, some aspects of sociology, psychology, and many technical sciences.'[68] The continuation of the IBP in the shape of the long-lasting MaB framework bolstered this trend and expanded it to include other aspects involving ecology and the impact of human activities, such as architecture and environmental issues (e.g., the topic of urbanisation as a response to the humanisation of the environment).[69]

Another characteristic feature marking the implementation of IBP in Czechoslovakia was the internationalisation of Czechoslovak science and the ten-year existence of the IBP, which resulted in a smoother establishment of ecology within the environmental sciences. A large majority of the institutes involved in the IBP were founded in the early 1960s and the bulk of their work focused on IBP research. These included, for example, the Institute of Botany of the Czechoslovak Academy of Sciences and the Institute for Forming and Protecting the Landscape of the Czechoslovak Academy of Sciences (1962, in 1971 merged with the Cabinet for the Theory of Architecture and Forming the Environment of the CSAS, giving rise to the Institute of Landscape Ecology of the CSAS).

Opening the doors to international cooperation led to the establishment of inter- and multidisciplinary teams and research projects. In the following years, we can therefore observe a growth in ecological projects, in which interdisciplinary teams made up of botanists, soil scientists, geographers, climate scientists, microbiologists, zoologists and other specialists participated.[70] IBP research projects were implemented at the national level primarily by the Czechoslovak Academy of Sciences: the Institute of Botany of the CSAS focused on the productivity of Central European communities, the Department of Algae Production Technology Development of the Institute of Microbiology of the CSAS in Třeboň focused on the productivity of cultivated and wild-growing plant species, the Institute of Experimental Botany of the CSAS focused within the IBP on hydrologic regimes and photosynthesis, and the Laboratory of Hydrobiology of the CSAS focused on the productivity of reservoirs. The Institute for the Forming and Protection of the Landscape of the CSAS in cooperation with the Institute of Landscape Biology of the Slovak Academy of Sciences focused on landscape protection and the State Institutes for Historical Preservation and Nature Conservation in Prague and Bratislava

67. Janko, 'Ekologie a politika v 70. letech 20. století', 282.

68. Janko, 'K počátkům ekologizace naší biologie', 220.

69. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis ze schůze předsednictva Čs. národního komitétu pro IBP při ČSAV konané 10. března 1970, f. 10.

70. Závěrečná zpráva o československé účasti v mezinárodním biologickém programu, f. 6.

dealt with practical conservation issues. The Institute of Experimental Phytopathology and Entomology of the Slovak Academy of Sciences and the Institute of Entomology of the CSAS undertook joint research on biological insect control.[71]

Czechoslovakia was also involved in the institutionalisation of the IBP in the Socialist Bloc, which importantly stimulated the development of especially the Institute of Microbiology of the CSAS and later also the Institute of Landscape Ecology of the CSAS. It was again Ivan Málek who crucially contributed to the success of this enterprise, but also the technocratic approach which the authorities applied to planning. That enabled an increase of budgetary means to satisfy the demands of the main coordinator of the Czechoslovak part of the IBP, who was, once again, Ivan Málek. From the very beginning of the IBP, one could observe in Czechoslovakia a curious synergy between the IBP and the state plan of research, which was in 1964–1974 continually adapted so as to suit, among other things, the demands of the IBP, both regarding its economic requirements and the research agenda.[72] Thanks to this supportive attitude of the technocratic elites and Málek's influence on the creation of the state budget in the area of basic state research, it was then also possible to create an international coordination centre in one of the countries of the Socialist Bloc.[73] Czechoslovakia thus became the only country within the Socialist Bloc where an IBP sectional international secretariat was created, specifically for coordinating the research of the Production Processes section. This secretariat was established at the beginning of the research phase of the IBP, and in 1965–1971 was based at the Microbiological Institute of the Czechoslovak Academy of Sciences; as of 1 July 1971 it fell under the Institute of Landscape Ecology of the Czechoslovak Academy of Sciences.[74] This secretariat served as a coordination body of the entire section throughout the entire world. Due to practical needs, in 1968 it was expanded to include coordinating activities for the intersectional Working Group for Photosynthesis and Productivity in Different Environments, and in 1972 it also took on coordinating the intersectional Working Group for Wetland Ecosystems.[75]

71. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis z 3. schůze Čs. národního komitétu IBP konané 10. března 1965, f. 5.
72. Archiv ČSAV, fond Sekretariát místopředsedy ČSAV akademika Ivana Málka, karton 10, sign. 6/2 1964 – *Zpráva o přípravě čs. účasti na MBP a o výsledcích porady zástupců národních biologických komitétů ZST* (IX. zasedání presidia ČSV dne 6. května 1954) – Zpráva o přípravě čs. účasti na MBP, p. 3.
73. Archiv ČSAV, Sekretariát místopředsedy ČSAV akademika Ivana Málka, karton 21, sign. 16/1, Zápis z porady vedoucích a sekretářů pracovních skupin Čs. národního komitétu pro Mezinárodní biologický program při ČSAV, konané 31.5.1965, p. 1–2.
74. A ČSAV, Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1: *Účast ČSSR na organizování IBP na mezinárodní úrovni,* f. 1.
75. See Slavomil Hejný, Štěpán Husák, Jan Květ, and Oldřich Lhotský, 'Forty Years of Hydrobotany in Czechoslovakia', *Folia Geobotanica & Phytotaxonomica* **20** (4) (1985): 339.

The relocation of one of the administrative centres to a socialist country led to a larger number of sectional events being held in socialist countries. In comparison with the IBP average, the number of such events was many times higher and included, for example, international meetings in Prague and Moscow in 1965, the Third General Assembly of the IBP in Varna, Bulgaria in 1968, assessment symposia of the photosynthesis subsection in 1969 in Třeboň, Czechoslovakia and Moscow, assessment symposia of the nitrogen fixation subsection in 1970 in Prague, an IBP and UNESCO symposium on aquatic higher plants in 1970 in Bucharest and Tulcea, Romania, a symposium on wetland ecosystems in 1972 in Mikolajki, Poland, and so on.[76] Cooperation also worked across the Iron Curtain – Poland and Austria worked together on research on the productivity of reedbeds; Poland, the USSR and France teamed up to study the productivity of algae, and so on.[77] Under the aegis of the IBP the first multilateral projects across the Iron Curtain arose – which was after all one of the original goals of this global programme.

In the environment of state socialism, institutionalisation played an absolutely crucial role: thanks to a centrally directed system, it was possible to influence decisions on both lower and higher levels. In this respect, institutionalisation of the first secretariat of ecological sciences in the Czechoslovak scientific environment clearly played a key role and was another indirect consequence of the IBP. On the level of international institutionalisation, an ecological section of the IUBS existed from the Fourteenth General Assembly in July 1961, but did virtually nothing and did not develop any activities. It was revived in September 1967 at the IUBS General Assembly in Montreux. This section was created on the initiative of British ecologists; in the IUBS planning group led by F.A. Stafleu from the Netherlands we can also find F. Bourlière from France, G. Baerends from the Netherlands, J. Cantlon and A. Hasler from the USA, R.S. Glover from Scotland and H. Ellenberg from Germany. K. Patalas from Poland, who worked at the Hydrobiological Department of the Institute of Freshwater Fisheries, represented the socialist countries.[78] Czechoslovak representative Jan Květ was also co-opted into the committee of the International Association for Ecology, as this new and former IUBS section was called, where he was one of three Socialist Bloc representatives on the twelve-member committee.[79]

76. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, *Účast ČSSR na organizování IBP na mezinárodní úrovni,* f. 1–2.
77. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 21, sign. 16/1, Zápis ze schůze Čs. národního komitétu pro Mezinárodní biologický program při ČSAV, konané 9.11.1966, f. 3.
78. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka, arch. unit 19, sign. 19/2, Appendix 1 – IUBS Section of Ecology: Working party to prepare a proposal.
79. M. Todorovic of Yugoslavia became treasurer; P.B. Vipper represented the USSR as a committee member. A ČSAV, file Sekretariát místopředsedy ČSAV akademika Ivana Málka,

Endorsement of the existence of this group on an international level, and moreover within the framework of a programme that had the blessing of the USSR, opened the way to other similar activities in the Socialist Bloc. This new stimulus then led to the establishment of an independent Czechoslovak National Committee for Environmental Problems, whose scientific secretary was Jan Květ.[80] He took part in the IBP from the very beginning and from 1965 onwards he contributed to coordinating international activities within the Production Processes section; from 1970 onwards he worked in the Intersectional Wetlands Working Group, which was created on the initiative of Czechoslovakia, Poland, and Romania. This committee later led to the establishment of the Ecological section of the Biological Society Czechoslovak and Slovak Academy of Sciences, which played an important role in environmental protection in the 1980s and worked very closely with dissident movements and Charter 77.

CONCLUSION

The circulation of ideas and new scientific knowledge during the Cold War is today a major theme in the global history of science.[81] The role of international global projects however has thus far escaped the attention of historians due to the fact that their global nature seemingly bars the study of national priorities or the political interests of both blocs. Global projects such as the IBP and IGY[82] are, however, unique arenas, wherein international science diplomacy political and scientific representatives from both blocs clashed for the first time.

The development and implementation of the IBP in the Eastern Bloc highlights the main features of the development of science in the Socialist Bloc in the 1950s to 1970s, especially a shift away from bilateral mode of cooperation towards multilateral collaboration, whereby a model adopted, inter alia, from the IBP, stood at the beginning of this process. In the area of stimulation of science and development of particular scientific disciplines, it even fulfills the prediction American scientist Frederick E. Smith made in 1968 about the IBP's effects. He wrote that the greatest contribution of this programme would be

arch. unit 19, sign. 6/19, Zpráva o účasti na XVI. valném shromáždění IUBS v Montreux (13.–17.9.1967).

80. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 1, Zápis ze schůze Čs. národního komitétu pro IBP při ČSAV konané 28. května 1974, f. 3. Cf. A ČSAV, file Československý národní komitét pro mezinárodní biologický program při ČSAV, arch. unit 2, Závěrečné usnesení symposia *Výsledky československé účasti v Mezinárodním biologickém programu*, 3. dubna 1975.

81. See John Krige and Kai-Henrik Barth (eds), *Global Power Knowledge: Science and Technology in International Affairs* (Washington: History of Science Society, 2006); John Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe* (Cambridge: MIT Press, 2006).

82. Simone Turchetti and Peder Roberts (eds), *The Surveillance Imperative*.

the 'establishment of ecological sciences and the development of ecologists in countries where as of now they are not to be found'.[83]

The analysis of prioritising certain IBP issues in the Socialist Bloc and the strategy used by the Soviets to manipulate small communities within the bloc are, from the perspective of international science diplomacy, a confirmation of the existence of 'restricted scientific internationalism' as described in the existing historiography.[84] From the perspective of the development of the biological sciences and their interconnectedness with the Western community, the isolation and its consequences were fully negated thanks to the IBP and the boom in biological sciences seen with the rise of ecology in Czechoslovakia corresponds with global developments. Thanks to the IBP, the development of individual disciplines was synchronised on both sides of the Iron Curtain. These disciplines then more or less followed the same trajectory. Within the IBP, although outside of its main area of activity and scope, science and politics merged in the later 1960s and early 1970s.

From this perspective the International Biological Program influenced and stimulated not just the development of scientific disciplines that were actively part of the IBP, but also international science diplomacy; and, as a result, indirectly influenced the rise of environmental movements in Central and Eastern Europe with its emphasis on the interconnectedness between humans and the environment. At the same time, the state supported IBP research, which led to the establishment of new institutions and new professional committees that gained a certain amount of political influence and power. Therefore, the impact of the IBP cannot be seen just in the development of new scientific disciplines and fields in the biological sciences but also in the change in, or more precisely the reversal of, the way society thought about the environment. From here it was not far to the transformation of scientists' attitudes towards the state, whose environmental policies would later go against the paradigms that its scientists adhered to within the IBP.

83. Frederick E. Smith, 'The International Biological Program and the Science of Ecology', *Proceedings of the National Academy of Sciences of the United States of America* **60** (1) (1968): 8–11.

84. See Kai-Henrik Barth, 'Introduction: Science, Technology, and International Affairs: New Perspectives', in John Krige and Kai-Henrik Barth (eds), *Global Power Knowledge,* pp. 1–24; Jeroen van Dongen (ed.), *Cold War Science and the Transatlantic Circulation of Knowledge* (Leiden: Brill, 2015); Carola Sachse and Mark Walker (eds.), *Politics and Science in Wartime: Comparative International Perspectives on the Kaiser Wilhelm Institute* (Chicago: University of Chicago Press, 2005); Raf de Bont, Simone Schleper and Hans Schouwenburg, 'Conservation Conferences and Expert Networks in the Short Twentieth Century', *Environment and History* **23** (4) (2017): 569–599.

GLOSSARY

ICRO – International Cell Research Organization
ICSU – International Council of Scientific Unions
IBP – International Biological Programme
IGY – International Geophysical Year
FAO – Food and Agriculture Organization of the United Nations
WHO – World Health Organization
WMO – World Meteorological Organization
SCAR – Scientific Committee on Antarctic Research
SCOR – Scientific Committee on Oceanic Research
IUBS – International Union of Biological Sciences
IUB – International Union of Biochemistry
IUPS – International Union of Physiological Sciences
IGU – International Geographical Union

? = username
$REMOTE_ASSR = IP address
Fri, 18 Sep 2020 18:20:21 = Date & Time