

**Technology Assessment as an Instrument of Prospective
Environmental & Technological Policy.
Introduction to the Research Project.**

I. Philosophical problems of Technology Assessment

My recent project "Technology Assessment as an Instrument of Prospective Environmental & Technological Policy" is a logical extension of my thesis on philosophical problems of Technology Assessment¹.

The consequences and effects of technology are the subject matter of Technology Assessment. TA calls for forward-looking recommendations and should promote an understanding of the problem of how far technology can be shaped, so that new technological developments are responsibly justifiable and acceptable.

As Ulrich Beck noted, our age is an "age of side effects" from technology. But not only our age. The different effects of technical action have been the object of socio-cultural and philosophical reflection for a long time, at least since classical antiquity, since the myths of Prometheus, Daedalus and Icarus, Plato's "Phaedrus" and Aristotle's "Politics". In this way we can consider Technology Assessment, which appeared about 30 years ago, in the wider historical context, meaning the socio-cultural and philosophical background of reflections on technology consequences; furthermore, we can name the first-hand forerunners of Technology Assessment: W. Sombart, W. Röpke, J. Schumpeter and W. Ogburn.

There are general problems in the philosophy of technology, which are relevant for Technology Assessment. These concern in the first place a philosophical understanding of the nature and ontological mission of technology, developed by F. Dessauer, M/ Heidegger, H.

¹ Content of the thesis "Philosophical Problems of Technology Assessment":

1. Introduction. Consequences and effects of technology in the context of socio-cultural evolution and history of philosophical thought
 2. Philosophical foundations of Technology Assessment
 3. Methods of analysis, forecasting and assessment of consequences and effects of technology
 4. Guiding visions and constructivist TA approach
 5. Axiological aspects
 6. Ethical problems. TA from the point of view of far-reaching responsibility
- Conclusion

Ortega-y-Gasset, J. Ellul, H. Skolimovsky and others, as well as cognitive aspects of technical action, inventions and innovations.

One of the characteristic features of Technology Assessment is methodological pluralism. This feature and the concrete methods of TA research and forecasting are also a matter for philosophical reflection. The issue here is the interrelation between the researcher and the object of the TA research, as well as some difficulties of forecasting substantiation. Within this context, I analyse the so-called constructivist TA approaches (constructive Technology Assessment, Guiding Visions etc.).

Finally, very important aspects are axiology, the search for a normative basis of TA, numerous ethical dilemmas and the problems of moral and social responsibility.

The analysis of the above problems was my first step.

II. Recent research project „Technology Assessment as an Instrument of Prospective Environmental & Technological Policy“

I would like now to characterise my recent research project. It is the next step in the transition from the mainly philosophical, to the political and societal analysis of the problem. The issue is the operationalisation of theoretical propositions in Technology Assessment within the context of the Sustainability Paradigm.

The concept of Sustainable Development is still controversial; in spite of this, the concept of Sustainability is increasingly becoming a guiding vision for decision-making concerning social, technological and environmental challenges. Correspondingly, Technology Assessment must be considered as one of the scientific instruments used in developing a prospective sustainable policy. It, in turn, stimulates the following development of methods, approaches and institutional models of Technology Assessment.

It is widely recognised that sustainable development can be achieved if environmental, economic and social issues are combined in development plans, policies and programmes. Sustainable environmental and technological policy is a perfect example of the complexity, interdisciplinarity and methodological pluralism of TA as the instrument of such a policy. If we only consider the quantitative side, we can see that the majority of TA projects are environmentally oriented or related.

Taking into account the critical importance of the limits of the assimilative potential of natural and social systems, the orientation of Technology Assessment towards the guiding vision and purposes of Sustainability is a necessary prerequisite for successful decision-

making in these fields. The ultimate issue is a reliable future for our generation and the next. This problem concerns our broader responsibility (*Daseinsverantwortung*) and precaution.

In my project, Technology Assessment will be analysed from the point of view of the search for an optimal model of interrelations between science, politics and society. TA is interpreted as a social learning process and as an important contribution to the public acceptance of political decisions in the field of new technologies and environmental protection.

Within this context, I would define the main topics of my research as follow:

- sustainability itself,
- the principle of precaution,
- public participation and social learning,
- acceptability of relevant political decisions.

The analysis of the practical experience of western TA institutions, such as TAB, Wuppertal Institute, ITAS, ITA, IFZ etc., concrete TA projects and case studies, plays a very important role within this context. It is also important to compare Technology Assessment with other instruments of environmental and technological policy like Environmental Impact Assessment, Eco-Audit, Technology Forecasting and others. An essential step is an explanation of the present-day position and functions of TA within the structure of political consulting.

It should be noted that the project is oriented to practical use. My purpose is to prepare and publish in Russian an "Introduction to Technology Assessment". This will be the first of its kind in Russia. I would also like to give a course on this subject at my university and - if possible - at other Russian universities, and contribute to the institutionalisation of TA in my country.

This is why the last part of my research will be devoted to the specific problems of technological and environmental policy in post-communist countries or countries making the transition from planned economy to the free market. These countries must seek a balance between the policy of creating the framework for market development and the stimulation of economic growth, and the policy of sustainability.

It is especially interesting to compare recent experience in Central European countries and the new German federal lands with the experience of Russia.

III. State of the Art in Russia

During the last ten years, relatively little effort has been made to analyse the long-term needs of the Russian Federation in the field of science, technology development and its effects. The Russian Authorities have made ad hoc decisions due to a lack of solid policies and development plans. There are no specialised research establishments, such as the former US Office of Technology Assessment, the Dutch Rathenau Institute, or the Austrian Institute for Technology Assessment. TA activity in Russia is still dispersed.

This dispersion is a specific negative response to the supercentralisation of the Soviet Era. Prior to the beginning of the 1990s, Research & Development policy was based on rigid state control. The planning of scientific research and technology development was determined according to the ideological purposes of the ruling Communist party. Within this ideological context, it was the scientific and technological achievements in those fields considered critically important from the point of view of military and political competition between East and West that took on the utmost significance.

From the mid-sixties onwards, Technology Forecasting, unlike TA, was part of the process of technology development planning. In practical terms, very little attention was paid to the unwanted long-term effects of big industrial projects and the mass introduction of new technologies, with the resulting social and environmental dislocations. The communist regime had other priorities, which excluded any independent assessment of technology consequences.

The far-reaching political and economic changes following the fall of the single-party system in 1991 have resulted in qualitative modification of social status and the goals of science and technology. Scientific research and technological development are no longer the "servants" of ideology. This is why both science and technology can be considered nowadays as engines of the realistic (non-utopian) modernisation of Russia. Modernisation must be more human- and environmentally oriented. But the great importance of science and technology within the transformation process calls for new approaches to the forecasting and evaluation of technological challenges.

The participation of Russia in the Rio Process in recent years has been an important factor promoting the research and forecasting of the consequences of technical development. As a response to Agenda 21, the national conceptual programme of transition to sustainable development was launched. The "Concept of the Transition of the Russian Federation to Sustainable Development" was confirmed by the special decree (ukase) of President Boris Yeltsin in April 1996.

The operationalisation of this Concept is the task of a special research programme. The programme is policy-oriented and focuses on the interrelation of development and environment with due regard given to conditions in the Russian regions, industrial sectors, technological options etc. Research establishments and universities such as the All-Russian Institute for Scientific and Technological Information, the Institute for Systems Analysis, the Institute of Sociology, the Institute of Geography, the St. Petersburg Research Centre for Environmental Security, Moscow State University, and the International Independent University of Environmental & Political Sciences perform Technological Forecasting or partial TA studies (including environmental TA) within the framework of the programme.

However, it should be noted that the policy of the transition to Sustainability is mainly declarative in Russia. The real priority for Russian decision-makers is the creation of the framework for market development and stimulation of economic growth.

Nonetheless, some progress was made within environmental protection in the 1990s, including the application of new approaches to evaluating large technical projects and new technologies. One such approach is the Environmental Impact Assessment (EIA). The EIA procedure has been mandated as an obligatory examination of industrial projects and new technologies since 1994. The EIA departments were established within the framework of the State Committee of Environmental Protection and its regional committees. In the EIA procedure, environmental considerations are integrated into the existing planning and permit procedures. However, some EIAs have developed into a more complex examination and assessment of both the social and environmental impacts of technology. The investigation of the high-speed railway Moscow - St. Petersburg project is a striking example. Initially, the EIA of this project stimulated some environmental TA studies and - finally - public hearings in the State Duma. The result of these public hearings was the "freezing" of the project, due to its economic inefficiency and the potential damage to the local environment.

Unfortunately, the government decision of May 2000 to abolish The State Committee of Environmental Protection may lead to the loss of the regional structures of environmental protection in Russia. This would result in a substantial reduction in the application of EIA, eco-audit and other forms of analysis and assessment of the ecological consequences of technological development.

Some Russian Federal ministries and governmental agencies have special analytical services or interior research teams. For instance, the analytical service of the Ministry of Emergency and Civil Defence is oriented towards technological risk assessment as well as

early warning of technogenic catastrophes. Other governmental bodies such as the Ministry for Communication and Information (MCI) prefer to commission exterior institutions with the various studies (e. g. Institute of Informatics, Russian Academy of Sciences). TA related studies on the Internet and other information and communication technologies, data security, “Y2K problem“, etc., launched by MCI, contribute to the general societal debate about the problems of the Information Society.

Last but not least, there is a good basis for the development of theoretical and methodological TA approaches. On the one hand, many research teams are sufficiently competent in such fields as systems analysis, game theory, mathematical modelling, risk analysis, scenario methods and so on. On the other hand, technology development is the subject of various economic, juridical, sociological, political and philosophical studies.