Prof. Ionel HAIDUC
President, Romanian Academy

The Academy in the Society[*]

Abstract

The ACADEMY can serve the society as advisor due to three attributes:
a) source of scientific expertise and information
b) political neutrality and independence;
c) continuity (independence from electoral cycles). It can act on its own initiative and/or at the request of state bodies (presidency, government, parliament).
Examples will be given from the experience of Romanian Academy.

Is there advice needed?

The world is confronted, both at national and international levels, with many problems which require experts to help solve them and the possible solutions can come only with the help of science and technology. Such problems include climate change and global warming, energy, water resources and management, population growth, food security, genetically modified organisms and crops, health problems and global infectious diseases, bioethics, transport, etc. Solutions to these problems need political decisions but the decision makers, i. e. the politicians (members of parliaments, ministers, civil servants) seldom have a scientific background. They depend on correct scientific information and good advice in order to make informed and correct decisions. On the other hand the scientists need to know how politics functions and how they

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can cooperate with politicians. Only joint efforts of these two categories, scientists and politicians, can bring about right solutions.

It should be remembered that there is a clear distinction between the way of thinking and acting of the two categories.

The politicians are dependent of the election cycles and they should make decisions which would help their reelection and therefore they must solve *short term* problems. The *scientists* can afford to think and act on a *long term* basis and they can anticipate phenomena of not immediate visibility. As a consequence, when scientists identify long terms risks they have to convince the politicians about the problem and about the need to act. I believe that the most politicians as decision makers are prepared to accept convincing arguments, based upon best scientific knowledge available, and to act accordingly. In a democratic society *the general public* needs also to be informed, to exercise correct influence and pressure upon the decision makers. Even in authoritarian regimes the leaders also need correct scientific advice to make right decisions influencing the welfare of their societies.

Why the Academies?

Why should governments seek advice from Academies rather than from a consultancy firms, governmental advisory committees or other institutions ?

Academies (in addition to universities or even better than them) can be important in the advisory process for several reasons (accordig to Yves Quéré). First, the Academies *concentrate knowledge and expertise at the highest levels*, since their members are elected on a merit basis. They can give high quality, competent advice, That's why Academies *are useful*. Secondly, Academies *are necessary* because they are *independent of political interests* and are *permanent institutions*, with their members elected for life and not connected to any terms. As such, Academies can provide objective, scientifically sound advice.

The Academies can and should act in two ways:

a) *At the request of decision makers* (parliaments, governments, presidents) if they enjoy sufficient prestige, recognition and /or authority in their countries.

b) *At their own initiative*, when they identify problems which need to be subjected to the attention of the decision makers or to the society at large.

It is a different matter whether the advice form the Academies is accepted or not, but it is their duty to act.

The role of academies in society is a subject of intensive current interest, first of all from the academies themselves but also from the society at large. It seems that the importance of the advising role of scientists, including the Academies, is appreciated and recognized without reservations in advanced countries and more and more in all countries.

The interest for the subject under discussion is reflected in the organization of frequent debates and conferences dealing with this theme. I will mention only two most recent, which took place this year:

- The international conference on „**The role of Academies of Science as advisors to their governments,"** held in Amsterdam in January 2008.
- **The „Science and Technology in Society Forum, 5th annual meeting"**, held in Kyoto, Japan, between October 5-7, 2008.

Thus, on January 28, 2008, the Royal Netherlands Academy of Arts and Sciences (KNAW) marked its 200th anniversary by organizing, in cooperation with the Inter Academy Council (IAC), an international conference on „The role of Academies of Science as advisors to their governments". The invited speakers were: Prof. R. J. Cicerone *(President of the National Academy of Sciences, USA),* Lord Rees of Ludlow *(President of the Royal Society, UK),* Prof. Yongxiang Lu *(President of the Chinese Academy of Sciences)* and Prof. Bruce M. Alberts *(Co-chairman of the IAC* and *former President of the National Academy of Science, USA).*

It was pointed out at this conference that the degree of influence exercised by Academies of Science on their respective governments differs considerably from one country to the next. Academies also arrive at their recommendations in different ways.

I would like to quote here some interesting opinions about the importance of the presence of Academies in society.

At its 132 nd Annual Meeting, Washington, DC, April 24, 1995, Bruce Alberts (then President of US National Academy of Sciences) noted: „…*Governments today are questioning both their level of support for science and the rationale for this support. …Therefore, as scientists, we need to try harder than ever before to explain to the public why we do science and why it is so productive. I see the Academy as the obvious place to lead these efforts. The research we all do clearly brings great benefit to our society.*

… Economists who have carried out serious studies of the productivity of fundamental research have concluded that scientific, medical, and engineering research are enormously beneficial as a social good, with rich benefits to the economy and to society as a whole. …Different analyses find that the fundamental scientific research carried out in the United States produces a rate of return on the financial investment of between 20 and 50 percent per year – an enormous yield compared to other organized endeavors. This rate of return from our research investments applies both to research carried out in universities and to research carried out in industry. But the contribution made by research in universities is even further enhanced by the simultaneous production of human capital".

Speaking about „The Role of National Academies of Sciences and Engineering" Bruce Alberts made the following statement: „*I will emphasize the importance of broad merit-based, integrating organizations, such as academies, for strengthening and rationalizing the science and technology institutions and policies that are critical to every nation's economic and social development. These must be sufficiently independent of the government to provide honest, public advice on the science and technology that should underlie both short-term and long-term government polices. Because all scientists share a common culture, organizations of this type also serve to build critical bridges of trust and understanding between nations. They therefore can serve as effective unofficial communication channels between nations when governments are in conflict".*

How some Academies do it?

For the preparation of this presentation I decided to find out how different Academies act in the society of their respective countries, with the hope that something can be learned from the experience of others. I will concentrate of some information about Academies which are less represented in the program of our conference. Many academies have in their charters the attribute of serving as advisors to the governments and other authorities. I cite some examples.

United States National Academy of Sciences

The US National Academy is perhaps the best example. It comprises four organizations: the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine and the National Research Council. They are officially declared „*advisers to the nation on science, engineering and medicine and perform a public service by bringing together committees of experts in all areas of science and technology to address critical national issues and give advice to the federal government and the public*".

The National Academy of Sciences of the United States of America (NAS) was established in 1863 by the U. S. Congress. Under the terms of its charter, signed by President Abraham Lincoln, „*The Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States*".

Currently, the National Academy of Sciences fulfills two distinct, although not entirely unrelated, functions. It serves as an honorific society, election to which is widely regarded as among the highest honors that can be conferred on an American scientist. The Academy also serves, in accordance with the terms of its charter, as an important and influential advisor to the U. S. government on issues involving science and technology.

Requests from the U. S. government for the advisory services of the NAS started almost as soon as the institution was founded. The first such requests, during 1863–1864, were for reports on weights, measures, and coinage; magnetic deviations in iron ships; and protecting bottoms of iron ships from corrosion. In fulfillment of the terms of its charter, NAS continued to serve the government as an independent and influential source of advice and, during the first few decades of its existence, issued reports that played a major role in the establishment of the U. S. Geological Survey, a new Naval Observatory, the National Park Service, and the National Park System.

During the 133 years since its founding, the National Academy of Sciences has undergone substantial growth and profound change in response to the changing character and demands of science and society … providing the government and nation with independent expert advice on a wide range of sci-

ence and technology issues. At the same time, this mission has expanded … now extends to education, health, commerce, social welfare, the environment, transportation, and virtually every other aspect of human welfare. The range of themes, encompassed by the Academies' studies, reports, and other activities now extends to virtually all of science, technology, and society (see Jack Halpern, Vice-President, National Academy of Sciences, *The U. S. National Academy of Sciences—In service to science and society,* Proc. Natl. Acad. Sci. USA, Vol. 94, pp. 1606–1608, March 1997).

It is interesting to note that on September 17, 2008, a report from the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine offered guidance to presidential candidates John McCain and Barack Obama on making key science and technology appointments in the federal government after the election. The report lists approximately 80 high-level S&T experts suggested as appointees who could be important in advising the new president on issues that range from energy to economic growth.

The principal liaison office between the National Academies and Capitol Hill is The Office of Congressional and Government Affairs (OCGA). Its activities include: (a) negotiating legislative requests to the National Academies; (b) monitoring current legislation and relevant congressional activities; (c) coordinating briefings to Congress for the National Academies; (c) responding to inquiries from congressional offices; (d) reviewing and advising on the congressional testimony of representatives of the National Academies; (e) distributing National Research Council reports to interested members of Congress and federal officials; (f) preparing an annual Report to Congress in conjunction with the Office of News and Public Information.

***France: Academy of Sciences* (*Académie des Sciences*).**

The institution was established in Paris in 1666 under the patronage of *Louis XIV* to advise the French government on scientific matters. In meantime this advisory role has been largely taken over by other bodies, and its role is now predominantly honorific. However, the missions of the Academy of Sciences (*Decree of 31 January 2003*) include (partial quotation)**:**

„Article 2. The Academy of Sciences is independent and durable, it encourages scientific life, and contributes to progress in the sciences and in their applications:

– *it studies social questions associated with the development of the sciences and formulates recommendations,*
– *it monitors the quality of the teaching of the sciences and works to ensure that the products of scientific development are integrated into the culture of people of our time, – it encourages the diffusion of science among the public,*
– *it diligently upholds the role and the quality of French scientific language.*

It carries out this activity:
– *by undertaking studies on its own initiative or at the request of international, national or regional public powers;*
– *by dealing with social problems having scientific components and by publicly taking up a stance via detailed reports;*
– *by presenting recommendations, wishes or suggestions concerning problems of national or international interest;*
– *by designating its members to represent it, when invited, on councils or committees or by giving its opinion on nominations. It makes known the conclusions which it has reached in publications, in communiqués or by any other means which ensures a broad diffusion for the former;*
– *by an involvement in providing information to the media and the public, distinguishing between that which can be considered to be fact and that which remains hypothetical; – by ensuring that ethical rules are respected in scientific activities;*
– *by working for the propagation of science as a component of culture."*

P. R. China: Chinese Academy of Sciences

The Chinese Academy of Sciences has the following mission statement: „*To conduct research in basic and technological sciences; to undertake nationwide integrated surveys on natural resources and ecological environment; to provide the country with scientific data and advice for governmental decision-making, and to undertake government-assigned projects with regard to key S&T problems in the process of social and economic development; to initiate personnel training; and to promote China's high-tech enterprises by its active involvement in these areas*".

Sweden: Royal Swedish Academy

The Royal Swedish Academy has among its objectives:
„– *to act as a voice of science and influence research policy priorities;*
– *to stimulate interest in mathematics and the natural sciences in schools;*

– *to disseminate scientific and popular-scientific information in various forms.*"

United Kingdom: The Royal Society

THE ROYAL SOCIETY „is the independent scientific academy of the UK and the Commonwealth dedicated to promoting excellence in science. *As the UK's leading science organization, the Royal Society is able to provide advice to government on all aspects of science*".

The Royal society promotes a „*MP pairing scheme which aims to improve science policymaking in the UK by giving members of the UK parliament and scientists the chance to find out more about each others work and the demands they face, exploring ways in which they can work together to improve links in the future*'.

According to recent documents The Royal Society Strategy is refocusing its efforts around five strategic priorities:

- *Invest in future scientific leaders and in innovation*
- *Influence policymaking with the best scientific advice*
- *Invigorate science and mathematics education*
- *Increase access to the best science internationally*
- *Inspire an interest in the joy, wonder and excitement of scientific discovery.*

The Royal Society will increase the science advisory work to ensure that policies on key issues are influenced by the best independent science through the creation of a Science Policy Centre. The Centre will focus on climate change, energy and environment; new and emerging technologies; biosciences and health; science base and innovation;

„*The Science Policy Centre will increase the ability of the Royal Society to influence policy by:*
– *providing more extensive coverage of key themes*
– *identifying emerging issues*
– *engaging more actively at all stages with those we seek to influence, and creating stronger links with government, Parliament, European policymaking bodies, multilateral organizations, industry and NGOs*
– *systematically conducting structured dialogue with public groups and stakeholders over policy issues, and building on our reputation as a pioneer in*

incorporating dialogue into policy studies by continuing to be innovative in this area
- *interacting more vigorously with other organizations and world scientific bodies, ensuring we play a leading role*
- *stepping up work with the media to ensure science is accurately represented.*
- *Create five dedicated units within the Science Policy Centre each focusing on critical national and global challenges. They will involve Fellows and other leading scientists from around the world.*
- *Increase the capability of scientists in general to engage with and influence policymakers through our successful MP-Scientist Pairing Scheme and its European equivalent and through other activities including internships in government departments and training workshops.*
- *Look at new ways to encourage public participation in science so that people of all backgrounds can share their aspirations for science, and contribute their views about its applications and significance*".

Switzerland: Swiss Academy of Sciences

The Swiss Academy of Sciences „*makes use of expert knowledge of a network of over 35,000 scientists and promotes the dialogue between science and society. To this end it defines clear local, thematic, disciplinary and interdisciplinary focuses*".

Germany: German Academy of Sciences Leopoldina

The German Academy of Sciences Leopoldina is now Germany's first National Academy of Sciences. The official appointment by the Joint Science Conference of Germany's Federal and Länder Governments was celebrated on 14 July 2008 in Halle. The Leopoldina will advise the government, the parliament, and the public about socially relevant scientific issues. „*Counselling national and international parliaments and bodies on scientific matters and the support and promotion of young scientists are the most important tasks of the Leopoldina at the beginning of the 21st century*."

Case study: The Romanian Academy

Article 4 of the Romanian Academy charter lists among its missions „*The elaboration of studies, analyses, recommendations, evaluations and national strat-*

egies for the Presidential Administration, Parliament, Government and other national institutions – at thir request or from its own initiative, relative to national policy in the field of sciences, letters and arts and major problems of the country".

Several examples can be cited.

The Academy had the major role in the elaboration of Strategy for Pre-accession to the European Union, in the early 2000's. This was accepted by all political parties, with no exception. The experience was renewed in 2008, when the Academy collaborated with the Ministry of Development and the United Nations Development Program (Office for Romania) produced the „*National Sustainable Development Strategy – Romania 2013-2020-2030*", requested by the European Union. The project was launched by the President of Romania in the Aula Magna of the Romanian Academy and when the project was ready for public debate, after five rounds of discussion in the Academy with several groups of experts and civil society representatives, the project was presented by the Prime Minister.

In some other cases the Academy acted on its own initiative. Thus, the Academy expressed strong opposition to an open pit gold mine project in the Western Carpathians, which would seriously damage the environment, would destroy important archeological sites (Roman gold mine galleries), would use cyanide as chemical extraction reagent and requires the displacement of hundreds of people and destroying part of the village of Rosia Montana.

The Academy also expressed concern about a plan of the government to introduce iron chemicals in all flour based food products (bread, pasta, etc.) to aleviate the problem of large scale anemia identified in the country. The medical section of the Academy demonstrated that not everybody needs additional iron in the food and it can be even dangerous for healthy people. The government listened and gave up.

The Academy got into some controversy with the Ministry of Education about the contents of subjects for the final examinations at the high school graduation. The reason was that the exam of Romanian literature ignored important Romanian writers, and instead introduced texts from articles in newspapers or from speeches of European politicians. The comments in the press were in favor of the Academy.

The relations of the Academy with the Parliament are excellent. The Academy is not supporting any political party and perhaps that's why all political parties support the Academy. Thus, when a law providing for a substantial increase of the salaries in the Academy was discussed in the Parliament, in 2007, it passed with an overwhelming majority, although it was not supported by the government, who is less generous when it comes to money matters. More recently, another law providing for the recovery of the Academy properties confiscated by the communist regime also passed with the same great majority. The Parliament also voted the Academy budget without any cut, when it was proposed by the government. We believe that this reflects the prestige of the Academy in the political circles of the country.

The relations with the media should also be mentioned. Sometimes there are some critical or nasty comments about the Academy in certain newspapers, but in general the attitude is favorable. One of the daily newspapers has every week (on Fridays) a whole page at the disposal of the Academy, to publish interviews with scientists or to present activities of the Academy. The National TV recently presented the Academy during a whole week, every day, in a series of prime time broadcasts. Not always, but in many cases the television is present in the Academy to relate occurring events.

These are just a few examples about the presence and visibility of the Romanian Academy in the life of Romanian society. Well, we could do more, and some people even ask the Academy to intervene in some society problems, but sometimes we are afraid of being the victims of our own success, because there are people to ask impossible things.

Conclusions

The conclusion of this presentation is that National Academies can and should have a presence in the life of society, without becoming part of politics, but providing expert advice when requested and by expressing competent opinions and reactions to events of national importance.