

## Guideline for Regional Correspondents and Information Officers

Structure of EECA Research Inventories

Country: Azerbaijan

Date:

**General country information:**

(Please fill in the following chart)

Country name	Azerbaijan
Population	8532.7 thsd persons (beginning of 2008)
Area	86.6 thsd square km
Capital	Baku
System of Government	The Presidential Republic
Head of the Government	Prime Minister
Science Minister	There is no Ministry of Science in Azerbaijan. On the base of the President's decree (04.01.03) the Azerbaijan National Academy of Science (ANAS) is considered to be the main organization which provides and organizes the development of science in Azerbaijan Republic, carries out the scientific and technological policy of the state, connects and leads the scientific research activity in all scientific and educational institutions. Academician Mahmud Kerimov is the President of ANAS. Web site of ANAS: <a href="http://www.science.az">www.science.az</a>
Parliament	Parliament (Milli Majlis) consists of 125 members elected by direct elections
Administrative structure	The country is made up of 59 districts (rayons), 11 cities and one autonomous republic.
Geography (short description, up to 300 characters)	The country is situated in 44° and 52° of East longitude, 38° and 42° of North latitude. Baku is situated on 40 parallel. The distance from Baku to North pole is 5550 km, to equator is 4440 km. Azerbaijan is bordered by in the South: Iran (765 km) and Turkey (15 km), in the North: Russia (390 km), in the North-West: Georgia (480 km), in the West: Armenia (1007 km) and in the East the Caspian Sea, with mountainous regions to the North and West and vast, arid lowlands to the East and South.

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## **Azerbaijan S&T-related information:**

### **Research structure**

#### **Characterisation of the research system**

In Azerbaijan, like in most post-communist countries, we witness a wholesale disintegration of the research and development system and gradual destruction and erosion of its elements. Only some of the elements of the research and development system remain functional: individual research and development organizations, project teams or even individual researchers.

The decline of science in the former Republics of the USSR starts as decline in investment in science, which has taken place in all of the post-socialist European countries. The consequences of declining investments are multiple. First of all, we witness the general narrowing of national research and development systems. Since the decline most drastically affects applied and experimental research, science withdraws from the production processes and closes itself in specialized scientific institutions. The equipment is obsolete and is not being modernized; research work becomes increasingly difficult because of the inadequate material conditions. Scientists and scholars are discouraged by the explicit marginalization of their work and knowledge. The number of scientists, scholars and researchers is on the decline.

The brain waste (scientists leaving research for other occupations) has reached unprecedented proportions. The organizational model of research and development work is not changing.

Instead of science providing the rational basis for the overall social restructuring and democratization of society, we have witnessed an exactly opposite trend: political power relies on the imports of "recipes" and other kinds of "knowledge" about social restructuring, thus to a large extent abusing science. The complex field of RTD is fragmented. Institutional and functional links between the universities and professional RTD organizations have been cut. Very few companies are carrying in-house research as their resource for normal functioning and future development. However, their impact on the domestic (state-run) RTD complex is very marginal. Economic activities greatly rely on the import of knowledge and technology (a restrictive and externally strictly controlled operation), mostly under very unfavourable or unregulated conditions.

The overall creative potential is marginalized and exposed to pressures by distinctly conservative proponents advocating explicit state regulation of all scientific and research activities.

There is no Ministry of Science in Azerbaijan. On the base of the President's decree (04.01.03) the Azerbaijan National Academy of Science (ANAS) is considered to be the main organization which provides and organizes the development of science in Azerbaijan Republic, carries out the scientific and technological policy of the state, connects and leads the scientific research activity in all scientific and educational institutions.

### Research indicators in 2006

Number of organizations carried out RTD	145
Employees engaged in R&D (full-time employees)	17 973
including	
Researchers	11 698
of them	
Doctors of sciences	708
Candidates of sciences (PhD)	3 258
Besides, number of research and educational employees of higher educational institutions which are not on the staff of scientific research subsector , but carrying out R&D	11 591
of them	
Doctors of sciences	988
Candidates of sciences (PhD)	5 386
Number of academicians (full members of ANAS)	57
Number of corresponding members of ANAS	100
Number of organizations with post-graduate courses	96
Number of post-graduate students, persons	1 705
Admission to post-graduate study, persons	550
Graduation of post-graduate study, persons	340
Number of organizations with courses of D.Sc. degree	19
Number of persons working for D.Sc. degree, person	22
Admission to courses of D.Sc. degree, persons	17
Graduates of courses of D.Sc. degree, persons	11
Domestic expenditures for RTD	
million manats	32.2
in million USD	37.9
Allocated funds from state budget for science	
million manats	32.0
in million USD	37.6
in percent to GDP	0.2
in percent to expenditures of state budget	0.8

Source: Education, Science and Culture in Azerbaijan 2007, State Statistical Committee of Azerbaijan Republic (SSCAR) 2007, p. 236-23

### Research performers

## *Azerbaijan National Academy of Sciences (ANAS)*

The ANAS plays the primary role in the scientific life of the republic. In accordance with the President's decree dated 04.01.03, the Academy, being the highest scientific center of the Republic of Azerbaijan, organizes and carries out basic and applied research on scientific problems and coordinates *basic research* conducted in scientific organizations and higher educational institutions. The Presidential order clearly notes that the Academy is accorded special status in the areas of science policy development and implementation as well as science management in Azerbaijan, and in its relations with the state the Academy is to be in direct contact with the republic's Prime Minister.

There are 53 organizations functioning in the framework of the ANAS, including 34 research institutions and 3 regional research centers. Breakdown of research institutions of the ANAS main body located in Baku on their fields of activity looks is as follows: physical and mathematical sciences – 6 institutes, chemical sciences – 4 institutes, earth sciences -2 institutes, biological sciences – 6 institutes, and humanitarian and social sciences have 11 institutes.

The ANAS has been the leader of S&T research in Azerbaijan for decades. However, many of its laboratories are now not in good condition. Many scientists are struggling unsuccessfully to adjust to market economy conditions. With presently available resources, many institutes of the ANAS have increasing difficulty sustaining their multiple laboratories, which sometimes engage in overlapping research activities.

The collapse of the Soviet Union in 1991 significantly reduced the economic base that supports the ANAS and scientific research in Azerbaijan in general and also reduced the demand for products of research.

Some ANAS institutes and centers still have strong capabilities and could make important scientific contributions. Others are of marginal viability — scientifically and financially.

These developments have led to an increase in the average age of the scientists of the ANAS, with relatively few between 30 and 50 years of age. The lack of scientists in their most productive years reduces the research capacity of the ANAS and limits its ability to attract and train new scientists.

At present the ANAS is considered as the main performer of basic research. At the same time there are some ANAS institutes mainly of chemical and biological profiles which could play also important role in economic development of Azerbaijan (e.g. as the performer of applied research and experimental development). Besides, the ANAS' recognition abroad enhances Azerbaijan's international image. Furthermore, the ANAS' role is also very important in drawing out and offering scientifically substantiated recipes and expert evaluations of various programs and projects.

In 2006, the Academy system had a total staff of about 9 500 employees, including a scientific staff of about 6 230 researchers (57 academicians and 100 corresponding members, 479 Doctors of science, 1968 Candidates of science).

The ANAS should make constructive suggestions regarding the management and funding of S&T and recommend specific research priorities. However, the ability of the ANAS to achieve meaningful objectives in these areas is inhibited by both limited resources and fragmentation of efforts.

Many areas of science currently funded through the institutes of the ANAS are unlikely to yield significant returns in terms of economic development.

Redirecting resources to a few targeted areas should be undertaken.

The hard legacy of the 1990s is being gradually overcoming. Azeri scientists and researchers have to work in rather harsh environments, for shortages of funding their equipment is often obsolete for carrying out modern experiments, and their remuneration is absolutely incommensurate with that of their western counterpart.

The ANAS should be the official scientific adviser of the Government, and its proposals are required to be discussed by government agencies and state administrative units. It should also take great care to attract young researchers and scientists, who are the nation's future. It also should step up development of high tech branches through pursuance of the state's innovative development strategies, which must rely on fundamental researches.

The ANAS and the Ministry of Economical Development should be in charge of such novel entities as technoparks.

Core financing for the activities of the Academy is included as a separate line item in the state budget.

At the present stage, while in the process of negotiating the difficult path of preserving science, the ANAS in turn is implementing new approaches for the structural improvement of its own system, including the following:

- Eliminating unnecessary or ineffective departments from its administrative structure
- Consolidating research themes and unifying the efforts of groups engaged in the study of related problems
- Discussing and resolving issues concerning the more efficient economic utilization of buildings and equipment of Academy institutes and devoting the savings to the development of science
- Giving the importance of international cooperation in the aim of involving Azeri scientific community in the productive collaborative process in the international arena.

The Programme on perfection of activity, structure, and funding of the ANAS was developed and approved by the Presidium of ANAS in early 2007.

Still, besides ANAS there are other relevant research performers of the Azeri RTD system as mapped in **Figure 1**.

### ***Branch Institutes***

Government-funded research is also performed under the auspices of government ministries, universities, and other institutions. Research performed by the ministries and non-ANAS institutes is often of an applied nature tailored to meet specific needs in Azerbaijan. As such, this research may have limited transferability beyond the borders of Azerbaijan, but it could be quite valuable where circumstances and technology needs are similar to those in Azerbaijan.

These latter non-Academy institutes were previously established with the aim of developing various industrial and agricultural sectors and introducing new, more efficient technologies in them. However, in contrast to Academy research organizations, which focus mainly on basic research, the results obtained in the non-Academy institutes must find direct application in a particular branch of industry. Therefore, it is natural that these applied institutes are partly financed by the corresponding production associations (which included these expenses in the production costs of their products). Both local and foreign sponsors can also contribute to the financing of science if such activity is encouraged by the state.

### ***Leading Institutions of Higher Education***

Azerbaijan has several important public institutions of higher education, including Baku State University, Azerbaijan State Oil Academy, Azerbaijan Technical University, State Management Academy, Azerbaijan University Architecture and Construction, Azerbaijan State University of Economy and Azerbaijan Medical University.

These educational centers set the standard for the level of education in Azerbaijan and provide leadership in curriculum development and research.

Research sector in Institutions of Higher Education in Azerbaijan is rather weak.

Cuts in state funding for fellowships at the master's and doctoral levels and the long-standing lack of attention to state support for basic, cutting-edge, and promising fields of science in the sphere of postgraduate specialized education do not promote the building of linkages between science and education. Training solely within the framework of local scientific schools does not ensure the appropriate level of preparation for scientific personnel and in some cases leads to the stagnation of the scientific field itself.

Tendencies toward obsolescence are being observed in the system for training scientific personnel, along with certain randomness in the selection of scientific fields and a lack of correlation between current demands and top-priority areas

### **Research funding system**

In accordance with the official data of the State Statistical Committee of Azerbaijan Republic<sup>1</sup> the percentage share of the country's GDP allocated to RTD for the period 2000-2006 was the same and equal to 0.2 %. In the budget of 2008 the expenses on the science are foreseen at the rate 64.6 million manat (about 76 million US dollars) or 0.76 % of the part of the budget supply.<sup>2</sup>

In 2001 in Azerbaijan the expenses on the science from the budget (18 million manat) made 1.16 % of the part of the budget supply.

From 1995 there was a dynamic increase of the expenses spent on the science from the state budget. However, these expenses taken for the development of the science were not satisfying.

In 2006 the sharing of the domestic expenditures for research and development was as follows: 79.9% on budget resources, 10.9% on the customer's resources, 7.5% on the own resources of the organizations doing research, 1.9% on the out-of-budget fund's<sup>3</sup>.

The total foreign investment spent on scientific-technical sphere in Azerbaijan is extremely low (less than 0.01% of the total RTD expenditure). "British Petroleum", "Exxon Corporation", "Statoil", "Chevron" and other big oil companies work at present in Azerbaijan, but their financial support of Azeri scientific research is almost negligible.

The greater part of the funds for RTD from the state budget is actually spent on staff salaries, which, nevertheless, remain inadequate and insufficiently stimulating.

It is noteworthy that all the financial control mechanisms are applied by the Government: it is the Ministry of Finance that allocates funds for material expenditure, research projects, junior researcher employment and approval of vacancies for new appointments.

In the world experience the state mainly finances basic research. In Azerbaijan in opposite of world interest in the content of expenses on the science from the state the total weight of expenses on basic research makes almost a half of applied research. So, in 2006 out of current domestic expenditures for RTD 30.0 % were spent on basic research, 57.1 % on applied research, 12.9 % on development.<sup>4</sup>

As the statistics shows in 2006 41 % of the current domestic expenditures on RTD were spent on technical sciences, 24 % on natural sciences, 11 % on humanities, 7 % on agricultural sciences, 10 % on social sciences and 7 % on medicine.<sup>5</sup>

Although in Azerbaijan RTD expenditures have been continuously growing in the period 1995—2006, the actual RTD funding rate is still insufficient for creating the conditions required for an effective utilisation of the RTD potential. Thus, there has been significant ageing of research equipment and device, outflow of researchers from science, RTD reduction both in input and output indicators, etc.

In Azerbaijan research institutions are financing rather than research projects on competitive basis. Funding for RTD is distributive in nature.

The fact that RTD in Azerbaijan is poorly funded, undervalued and underpaid has several negative consequences; a) very low salaries of researchers; b) inability to maintain the existing, already obsolescent, equipment and purchase new equipment; c) increasingly felt unavailability of professional literature; d) very low levels of international cooperation, including the further studies of young scientists and scholars at prestigious institutions in the world; e) delays in the approval of post-graduate (especially doctoral) study programmes, which the Government does not want to (or cannot) finance as a continuation of undergraduate studies.

The inappropriate treatment of RTD institutions and universities in Azerbaijan acts as an obstacle to more intensive research activity. The country has no medium-term or long-term vision of development, nor of RTD, while the short-term policy of RTD is inconsistent, which makes any meaningful planning impossible.

## Research policy

### Context of research policy

The draft of the law about state RTD policy in an independent Azerbaijan was given the first reading in the Parliament of the Republic in 1998. After that two readings in addition took place but the law has not been accepted yet.

The ruling organization which should regulate scientific and technological development in the country is unspecified. On the base of the President's decree (04.01.03) the ANAS is considered to be the main organization which provides and organizes the development of science in Azerbaijan Republic, carries out the scientific and technological policy of the state, connects and leads the scientific research activity in all scientific and educational institutions. Along with this, as it is shown in this decree, the duties of the ANAS are to participate or to give suggestions in determination and qualification of the directions of science's development, in general, the directions of the scientific and technological policy. At the same time in the regulations of the Ministry of Economic Development of Azerbaijan it is noted that the Ministry participates in the formation of state innovation and scientific technological policy i.e. at present there is no concrete body which could determine the priorities of scientific, technological and innovation policy in the country.

Last several years actually nothing was done in order to restructure RTD system in Azerbaijan. Unfortunately, the system of project funding with the competition for individual research projects, which are subject to peer-reviews and evaluation over relatively short periods of time (one year, three years, at most five years) has not been established up to now. The financing of research and development organizations is increasingly restrictive and it should be more and more dependent on project evaluation.

The emphatically imposed state control of science found its expression in the belief that science was an expensive form of social consumption. Another consequence was the unwillingness or inability to reorganize the RTD system along the lines of some generally accepted international standards or recommended norms of transitional restructuring. The management of science was centralized and conservative. The idea of possible implementation of the strategy of development or transformation of the entire RTD complex was practically eliminated from the public and political life of the country.

The major problems in revitalisation of RTD concern the very low demand from industry for RTD results, the imbalance between basic, interdisciplinary and applied research, the need to build a stronger knowledge base in social sciences and humanities, the deterioration of physical RTD infrastructure.

Due to the low demand for RTD results from industry, the share of applied, especially industrially relevant, level of research in Azerbaijan is extremely low mainly because of the

lack of technology-oriented industrial enterprises. The business expenditures in RTD in Azerbaijan are negligible.

There are some timid attempts to concentrate structural reforms on the government RTD sector, with the aim of adapting it to a market environment.

In February of 2004 the National Coordination Council on organization and coordination of scientific research in the country was established. The ANAS President was elected to be a Chairman of the Council. There are 29 members in the Council, including leading scientists of the country, responsible persons from the Presidential Administration, Cabinet of Ministries, Parliament, and heads of ministries and organizations, enterprises, research institutions. The Coordination Council consists of 28 problem councils on various scientific fields. By its statute the Council should consider and approve major directions of research, and coordinate R&D activities of all research institutions and higher education institutions of Azerbaijan. However up to the beginning of 2008 the members of the Council had only several gatherings which as a rule were not attended by the Government representatives and the ministers. Apparently the Government does not consider the Council seriously.

In 2007 the Government decided to set up a fund of financing of research projects in the framework of Science Development Programme. In the State budget of Azerbaijan Republic for 2008 5.016 million manats (about 6 million USD) are allocated for this fund. The Statute of the fund and the mechanisms of financing of the projects will be issued in the beginning of 2008.

The scarce public resources that are available are just enough for a limited number of RTD organisations. There is a danger that basic research, which provides the foundations of knowledge for the entire innovation system, could suffer most from the shifts in priority setting.

The level of interdisciplinary research collaboration is also very low in Azerbaijan.

Another problematic issue for the revitalisation of RTD activities is the increasing deterioration of the physical research infrastructure in most Azeri RTD organizations.

The absence of a clearly formulated coordinated and publicly proclaimed science policy in Azerbaijan reflects the fact that the position of science in Azeri society and its development is not clearly defined. Lip service is paid to the social significance and achievements of science, but its true role is not recognized.

### **Research policy: objectives and priorities**

The lack of a clear science policy is responsible for the continuous marginalization of research and development work.

The research and development organizations, primarily the Azerbaijan National Academy of Sciences, branch institutes and high educational centers, reflect the organizational dichotomy in the Soviet science. Azerbaijan's science policy has failed to promote new organizational models which might be more suitable for this country. Organization modelling is particularly important for the reform of the research organizations, but has nevertheless remained in the margins, contributing nothing to the promotion and development of science. The organizational neglect has reflected itself in the retardation of research work, acting as an obstacle to more intensive and more productive scientific communication and exchange.

Neither objectives nor priorities of the research policy in Azerbaijan are determined.

### **Policy making and coordination**

Worldwide-accepted methodologies such as foresight in science and technology never were implemented in Azerbaijan, although the R&D community generated some proposals in

this direction. One usual explanation for this is that most of stakeholders are not educated and trained for implementation of foresight activities. There is a lack of confidence in the stakeholders, and an absence of systematic work in this field, as well as very strong influence of politics rather than policy awareness. The existing S&T policy documents have practically been set up without evaluation procedures and professional expertise.

The difficult economic situation in the country accounts for the R&D community to try to preserve financing from the budget as there are no other funding sources. As all initiatives to push technology transfer and the development of commercial utilisable R&D are only in a process of being set-up or even have been discontinued, the R&D system practically remains separated from the rest of the economy and society.

### **National research programmes**

There are no national research programmes in Azerbaijan

## **International RTD Cooperation**

### **Scope and objectives**

The major problems in the development of international RTD cooperation concerns the marginal position of Azeri scientific community vis-à-vis other international scientific communities in terms of RTD funding and research output.

Despite a large dependency on foreign funds for international RTD collaboration, Azeri government is still unaware that it also has to provide its own legal and economic incentives for RTD organisations to take part in international research and innovation programmes on equal financial footing, as well as to remove corresponding obstacles, such as tax and customs barriers, etc.

Unfortunately, at present there is no any organization either governmental or nongovernmental in the Republic which collects data and makes an analysis and assessment of the present state of Azerbaijan's international scientific cooperation.

### **Co-operation with EECA-countries**

After the disintegration of the Soviet Union, Azeri RTD teams lost their collaborative links with Russia and other former Republics of the USSR. This break up of the RTD networks seriously damaged RTD capacities of Azerbaijan that were not able to support large projects because of limited funding and a lack of expertise.

When Azerbaijan became independent, it started the process of negotiating new formal agreements and protocols. The renewal of the earlier bilateral agreements on scientific cooperation is a long and complex procedure, and has therefore proved of relatively small impact on RTD in Azerbaijan.

Between 1991 and 2007, Azerbaijan signed bilateral agreements on scientific and technical cooperation with many countries on the state level (inter alia Belarus, Georgia, Kazakhstan, Uzbekistan, Moldova, Russia, Ukraine)

### **Co-operation with EU-member states and associated countries**

Prior to 1991, formalized international cooperation in all sciences, especially natural sciences, by Azeri institutions was channelled through the USSR authorities in Moscow and was based on bilateral and multilateral agreements, especially those concluded by the USSR with the developed Western countries.

Azerbaijan is included in several major world information systems.

Although international cooperation looks varied and rather developed, the actual amounts of money invested by Azerbaijan into such cooperation are very small.

From the reports of the ANAS it follows that in the period 2000- 2007 each year 120-150 scientists from different ANAS Institutes visited foreign countries (mainly European countries, Turkey and USA) to participate in different conferences, symposia, workshops, seminars, etc. Unfortunately, nothing is written in these reports about long-term scientific cooperation. However, there is such a cooperation of some ANAS Institutes e.g. Institute of Geology, Institute of Physics, Institute of Radiation Problems, Institute of Botany, Institute of Chemical Processes, etc.

The ANAS signed bilateral agreements with the Academies of Turkey, Austria, Romania and the Royal Society of UK, CNRS (France) and International Center for Theoretical Physics in Trieste (Italy).

Participation in international scientific and technical events, such as symposia, congresses, summer and winter schools, specialized courses and workshops, etc. plays a significant role in the life of the scientific community. The shortage of financing made international cooperation and linkages rather difficult, resulting in isolation, unjustified complacency and a decline in the quality of scientific research in Azerbaijan. Add to this the problems of financing of visits by Azeri scientists to international gatherings outside Azerbaijan, and it becomes clear that international cooperation could not but suffer in this situation.

The education and training of research personnel at foreign institutions, especially at the doctoral and postdoctoral levels, continues mainly thanks to private arrangements, while the plans for targeted improvement and development of young scientists and scholars in fields considered important for the twenty-first century failed to materialize. So far there have been no well thought out, realistic and internationally evaluated programmes of education and training of research personnel. In the absence of a rational policy, prolonged visits by Azeri scientists to foreign research centres pose a threat of increased brain drain of the best people; another negative consequence of this practice is the concentration of the research effort on well-established, small-risk topics. This inevitably results in the replication of "scientific clones" and the accompanying decline of the quality of the research effort. The present system of financing of research programmes and projects in Azerbaijan unfortunately, favours such undesirable trend.

We can say that Azeri RTD at present is not internationalized.

### **EU-funded co-operation projects**

The number of research teams from Azerbaijan submitting application to different INTAS calls between 1997 and 2006 was about 200 and about 40 of them were successful.

Some Azerbaijani research organisations have participated in FP6 projects. However, the number of Azerbaijani participants is lower than one would expect, taking into account Azerbaijani national research capacity (up to the end of 2006 54 project proposals with participation of researchers from Azerbaijan were submitted to different calls of FP6 and only 6 of them were successful ).

Azerbaijani scientists and research community at large welcome the open character of FP7 and express their interest in participation in FP7 calls for proposals and other activities open to participation of the third countries. They are positive about the declared willingness to stimulate participation of researchers and scientific teams from the third countries in projects under ten thematic priorities of FP7 'Cooperation' Specific Programme.

Azerbaijani scientific teams and researchers aim at an increased participation in FP7, taking into account national interests and scientific and technical priorities of Azerbaijan. Most perspective areas, in this respect, are new sources of energy, resource-saving technologies, information and telecommunications technologies, ecology (including radio-

ecology) and rational use of natural resources, food quality and safety. These areas are those making overlap of scientific and technical priorities of Azerbaijan in short- and mid-term perspective and several thematic areas as defined in the FP7 'Cooperation' Specific Programme.

It is necessary to make efforts to complement international scientific and technological cooperation experience, which has been accumulated in the framework of other scientific cooperation programmes and international organisations, with good understanding of the principles and rules of participation in FP7.

Better results of Azerbaijani research teams and scientists in FP7 could be delivered through:

- Increase in contacts and familiarisation of European partners with Azerbaijani institutions research capacity through brokerage events and various partnering opportunities
- Integration of FP7 NIP Azerbaijan in the network of European NCPs
- Conclusion of a scientific and technical cooperation agreement between the Government of the Republic of Azerbaijan and the European Community. This will make it possible for Azerbaijani research teams participating in FP7 activities to access national research budget for co-funding of FP7 research.

### **Further co-operations**

The twenty-first century will be determined by scientific and technological development. The Azeri government, National Academy of Sciences, scholarly and professional societies, non-governmental organizations, etc. should take all possible measures and necessary actions to improve such activities with the help of the international community. Therefore, there is a strong need to re-establish links with the scientists and researchers of the former Soviet Union as well as to create broader research networks with the global RTD community.

Therefore the following recommendations could be given:

- a) A careful analysis and assessment of the present state of Azerbaijan's international scientific cooperation on the basis of the data supplied by the National Academy of Sciences, Ministries and the high educational centres should be done. Realistic analyses ought to be made of the past and future expenditure for scientific and professional visits, symposia, scholarships, and bilateral and multilateral scientific and technical cooperation. Present and future benefits from international scientific cooperation should be carefully weighted.
- b) Key areas of research should be defined for which cooperation with foreign partners is necessary. This will then lead to an assessment of our priorities, and how Azeri science can again become interesting for scientists throughout the world. The Azeri scientific and experimental developmental potential should be urgently integrated into the European scientific and high education frameworks. Azeri scientists and research institutions should be active in participation in Seventh European Framework Programme, their cooperation with Russian scientists and scientists of other EECA countries should be rebuilt.
- c) A thorough analysis, with the help of the international scientific community, should help us recognize the existing scientific centres of excellence and prepare for the establishment of new centres of this kind. Wherever necessary, centres of excellence should be coupled with scientific and technological parks. European

international and trans-national companies should be encouraged to take part in such activities, while Azerbaijan, as a host, should create the legislative framework and business climate to facilitate their operation. The assistance of the international community, especially the OECD countries, should be channelled in such a way that any financial support, investment or loan given to the government of the Republic of Azerbaijan should contain a provision earmarking part of the money for the development of science, experimental development, and education. The same should be done in the case of the revenue coming from the privatization of large, state-owned enterprises.

d) International advisory bodies should be established for different fields and attached to the universities and institutes. Non-governmental organizations, such as the professional and scholarly societies, should be represented in such bodies.

e) Foreign models should be studied (Finland, Sweden, Ireland, Israel, Switzerland) in preparation for the reorganization of the different sectors of scientific management. The system of financing should be changed, and international refereeing of projects should be introduced.

f) Exceptionally gifted undergraduate and postgraduate students should be monitored and considered for possible continuation of education abroad.

g) A permanent scheme should be devised to provide funding for membership fees in international societies and organizations and for the financing of international scientific events organized in Azerbaijan. Particularly important in this regard is Azerbaijan's membership in major international professional organizations, with provisions for the use of their advanced and expensive equipment, such as CERN, EMBO, etc. The membership of Azerbaijan in the European Science Foundation (ESF) may help further widening and strengthening of such links.

h) A solution should be found for the problem of purchase of scientific and technical periodicals and for the establishment of a system of subscription and standing orders for books. Membership in the most important databases is vital.

i) Bilateral cooperation should be stimulated with our neighbours and other countries, and multilateral cooperation should be realized through regional organizations.

j) In the implementation of international scientific and technical cooperation it is important to clearly define the competence and role of the government agencies (ministries, scientific councils, etc.), the universities, the National Academy of Sciences, and other non-governmental organizations (scientific and professional societies).

## References

1. *Education, Science and Culture in Azerbaijan 2007*, State Statistical Committee of Azerbaijan Republic (SSCAR) 2007, p. 236-238
2. *The State Budget of Azerbaijan Republic for 2008* "Azerbaijan" Newspaper 20 December 2007 (in Azeri)
3. *Education, Science and Culture in Azerbaijan 2007*, State Statistical Committee of Azerbaijan Republic (SSCAR) 2007, p. 274
4. *ibid*, p. 276
5. *ibid*, p. 277

## ***Partnership and Cooperation Agreement between EC and Azerbaijan,*** entered into force in June 1999

The objectives of the partnership established by PCA are:

- to provide an appropriate framework for the political dialogue between the Parties allowing the development of political relations;
- to support the Republic of Azerbaijan's efforts to consolidate its democracy and to develop its economy and to complete the transition into a market economy;
- to promote trade and investment and harmonious economic relations between the Parties and so to foster their sustainable economic development;
- to provide a basis for legislative, economic, social, financial, civil scientific, technological and cultural cooperation.

**Article 52**(that is referring directly to S&T )

Cooperation in science and technology

1. The Parties shall promote cooperation in civil scientific research and technological development (RTD) on the basis of mutual benefit and, taking into account the availability of resources, adequate access to their respective programmes and subject to appropriate levels of effective protection of intellectual, industrial and commercial property rights (IPR).

2. Science and technology cooperation shall cover:

- the exchange of scientific and technical information;
- joint RTD activities;
- training activities and mobility programmes for scientists, researchers and technicians engaged in RTD on both sides.

Where such cooperation takes the form of activities involving education and/or training, it should be carried out in accordance with the provisions of Article 53.

The Parties, on the basis of mutual agreement, can engage in other forms of cooperation in science and technology.

3. The cooperation covered by this Article shall be implemented according to specific arrangements to be negotiated and concluded in accordance with the procedures adopted by each Party, and which shall set out, inter alia, appropriate IPR provisions.

***EU / AZERBAIJAN ACTION PLAN,***

(Agreed on 14 November 2006)

By this Azerbaijan is invited to enter into intensified political, security, economic and cultural relations

with the EU, enhanced regional and cross border co-operation and shared responsibility in conflict prevention and conflict resolution.

The EU-Azerbaijan Action Plan is a political document laying out the strategic objectives of the cooperation between Azerbaijan and the EU. It covers a timeframe of five years. Its implementation will help fulfil the provisions in the Partnership and Cooperation Agreement (PCA) and will encourage and support Azerbaijan's objective of further integration into European structures. The objective of the ENP, launched in the context of the 2004 round of enlargement round, is to share the EU's stability, security and prosperity with neighbouring countries, including Azerbaijan, in a way that is distinct from EU membership.

**Priorities for Action**

*Contribute to a peaceful solution of the Nagorno-Karabakh conflict*

*Strengthen democracy in the country, including through fair and transparent electoral process, in line with international requirements*

*Strengthen the protection of human rights and of fundamental freedoms and the rule of law, in compliance with international commitments of Azerbaijan (PCA, CoE, OSCE, UN)*

*Improve the business and investment climate, particularly by strengthening the fight against corruption*

*Improve functioning of customs*

*Support balanced and sustained economic development, with a particular focus on diversification of economic activities, development of rural areas, poverty reduction and*

*social/territorial cohesion; promote sustainable development including the protection of the environment*

*Further convergence of economic legislation and administrative practices*

*Strengthening EU-Azerbaijan energy bilateral cooperation and energy and transport regional cooperation, in order to achieve the objectives of the November 2004 Baku Ministerial Conferences*

*Enhancement of cooperation in the field of Justice, Freedom and Security, including in the field of border management*

*Strengthen regional cooperation*

**In the field of science and technology, research and development the AP provides:**

*Develop Azerbaijan's capacity in technological R&D to support the economy and society*

- Develop a Research and Innovation policy directly relevant to the sustainable and equitable economic development policy objectives of Azerbaijan and its region, including through an appropriate programme of reforms in the scientific system of Azerbaijan and in the relevant regulatory framework.( amongst different elements of reform , steps will be taken to create a transparent and unbiased mechanism of competitive funding and management of scientific and technological research through inter alia open calls for proposals and an independent and high professional peer review evaluation process );

- Reinforce human, material and institutional resources in order to improve the capacities in technological R&D, including through an adequate and increased investment in research via the public sector as well as the private sector through the implementation of favourable framework conditions.

*Prepare and encourage Azerbaijan's integration into the European Research Area and into the Community R&D Framework Programmes on the basis of scientific excellence*

- Implement an appropriate information strategy to facilitate and encourage adequate participation of Azerbaijani research entities in the Community R&D Framework programmes and joint projects and through an appropriate policy-driven dialogue, determine the particular priorities and the specific needs of Azerbaijan;

- Support Azerbaijan's integration in high-level scientific exchanges by reinforcing Azerbaijani participation in international Marie Curie fellowships including support of the appropriate return mechanisms.

## ***EUROPEAN NEIGHBOURHOOD AND PARTNERSHIP INSTRUMENT /AZERBAIJAN COUNTRY STRATEGY PAPER 2007-2013***

Assistance to Azerbaijan over that period will be provided principally under the new European Neighbourhood and Partnership Instrument (ENPI) being established to promote the development of an area of prosperity and good neighbourliness between the European Union and the partner countries covered by the European Neighbourhood Policy (ENP). The principal objective of cooperation between the EU and Azerbaijan is to develop an increasingly close relationship, going beyond past levels of cooperation to gradual economic integration and deeper political cooperation, principally in the framework of the Partnership and Cooperation Agreement and the more recent European Neighbourhood Policy.

The National Indicative Programme (NIP) for 2007-2010 provides support for three priority areas:

- 1) Democratic development and good governance
- 2) Socio-economic reform (with emphasis on regulatory approximation with the EU *acquis*), fight against poverty and administrative capacity building
- 3) Support for legislative and economic reforms in the transport, energy and environment sectors.

Assistance provided under the national ENPI envelope for Azerbaijan will focus on the following three priority areas which have been selected on the basis of joint EU Azerbaijan

policy objectives and the EC's comparative advantage as a donor and lessons learnt from previous assistance and complementarity with other donors.

*Priority Area 1: Support for Democratic Development and Good Governance*

Sub-priority 1: Public administration reform and public finance management, including public internal control and external audit

Sub-priority 2: Rule of law and judicial reform

Sub-priority 3: Human rights, civil society development and local government

**Sub-priority 4: Education, science and people-to-people contacts/exchanges**

*Priority Area 2: Support for socio-economic reform (with emphasis on regulatory approximation with the EU acquis), fight against poverty and administrative capacity building*

Sub-priority 1: Promoting mutual trade, improving the investment climate and strengthening social reform

Sub-priority 2: Supporting the implementation of the SPPRED/SPRSSD, of the State Programme for Regional Development and of government plans for the non-oil sector (strengthened competitiveness and diversification of the economy).

Sub-priority 3: Sector-specific regulatory aspects, including public accounting

*Priority Area 3: Support for legislative and economic reforms in the transport, energy and environment sectors.*

### ***European Community Regional Strategy Paper for Assistance to Central Asia for the period 2007-2013***

This Regional Strategy Paper for assistance to Central Asia (CA RSP) covers EC financial assistance for the period 2007-2013 to the countries of the region, both at bilateral and regional level. At bilateral level, the EU's relations with Central Asian states are based on the Partnership and Cooperation Agreements (PCAs). The PCAs are built upon three pillars: political dialogue, trade and economic relations and cooperation in a variety of sectors.

The aim of the European Commission's assistance Strategy Paper for Central Asia (2007-13) is to promote the stability and security of the countries of Central Asia, to assist in their pursuit of sustainable economic development and poverty reduction and to facilitate closer regional cooperation both within Central Asia and between Central Asia and the EU. In order to achieve these core objectives, the Regional Strategy paper for assistance to Central Asia will focus on three priorities areas :

1. Central Asia regional cooperation and good neighbourly relations: 30-35% of total budget. *Focal priorities:*

(i) Networks

(ii) Environment

(iii) Border and migration management, the fight against international crime, and customs

(iv) **Education, scientific and people-to-people activities**

2. Reduce poverty and increase living standards: 40- 45 % of total budget

3. Promote good governance and economic reform: 20- 25% of total budget.

In the case of Central Asia, an additional specific objective has been established to promote greater regional cooperation.

Several challenges faced in Central Asia, such as developing regional trading corridors, creating energy networks and systems, managing rivers and river basins, and fighting against terrorism and organised crime, are inherently cross-border in character and can only be tackled effectively through a cooperative effort at regional level. The long-term nature of these regional challenges calls for continuity and consistency with past EC regional strategy/assistance programmes.

The EU Strategy for Central Asia – especially after EU enlargement – hence cannot be seen separately from the approach and objectives pursued by the EU through the Common Spaces Initiative and the European Neighbourhood Policy in Eastern Europe and the Southern Caucasus. To help achieve this wider objective, it is important to anchor the Central Asian countries in broader EU policies promoted through ENPI, to enhance regional cooperation and integration. Therefore, it is foreseen that CA

countries will be able to participate in ENPI regional assistance programmes on the basis of art 27 of the ENPI Regulation.

The core objectives of EU cooperation in Central Asia can therefore be summed up as follows:

-To ensure the stability and the security of the countries of the region

-To help eradicate poverty and increase living standards in the context of Millennium Development Goals

-To facilitate/promote closer regional cooperation both within Central Asia and between Central Asia and the EU, particularly in the energy, transport, higher education and environmental sectors.

For over ten years, the countries of Central Asia have been fully involved in all the Tacis Regional and Inter-State programmes. They have participated as equal partners with other CIS countries, candidate countries and new EU Member States in strategic areas such as transport and energy networks and policies, sustainable management of natural resources focusing mainly on water, and higher education. Central Asian countries have subscribed, for instance, to the TRACECA multilateral agreement on transit and transport, the INOGATE Umbrella Agreement on gas and oil, the EC-supported Environment for Europe Process, and the EU Water Initiative for Eastern Europe and Central Asia, and have been eager to align the reform of their higher education systems with the Bologna Process, notably through the TEMPUS programme. The Central Asia regional programmes in these domains have been fully integrated in the corresponding TACIS Regional programmes with the CIS countries now covered by the ENPI, with

which they shared priorities and objectives and received sizeable funding.

Between Priorities for action in 2007-2013 are also **People-to-people activities**.

People-to-people exchange actions and exchanges with regard to science and technology, as well support for the reform and upgrade of higher education, technical training and research systems; capacity building and training are key areas where EC support will be required, particularly for higher and technical education. This includes greater participation in scholarships or exchange programmes such as TEMPUS, and networking between learning and research institutions. It is also important to foster cooperation between social partners and civil society within the region and between partner countries and the EU as well as between governments. Cooperation between social partners and civil society in the EU and the partner countries, and between partner countries, is particularly important where cooperation between governments may be difficult. EC Assistance in this area will also therefore provide support for cross-region and cross-sub-region cooperation between social partners and civil society organisations;