The workshop was divided in three parts: The first one aimed at providing background information for the group discussion. It had the presence of around 70 people from all Research Institutes in the country, in addition to representatives from the varietal release committee, Ministry of Agriculture, Ministry of Environment and Agricultural University. The second part intended at discussing the strengths and weaknesses of the national plant breeding and associates biotechnology research institutes. Around 20 people were present at this section. The final part was held in the office of the Deputy Minister of Agriculture, Mr. Bakhram H. Aliyev. The objective was to inform him on the decisions made during the first two parts and ask for his support to the strategies proposed to strengthen national plant breeding and associated biotechnology capacity.

The first part began with words from Mr. Asad Musaev, Director General of the Agricultural Science Centre. It was followed by three technical presentations:
- Assessment of the National Plant Breeding and Associated Biotechnology Capacity Worldwide: Focus on Caucasus – Mr. Elcio P. Guimaraes
- Azerbaijan’s Plant Breeding and Associated Biotechnology Capacity Assessment – Mr. David Bedoshivili.
- ICARDA/CIMMYT’s Crop Improvement Strategy for the Caucasus – Mr. Alexei Morgounov

The relevant comments to be considered in the design of strategies to strengthen Azerbaijan’s plant breeding and related biotechnology capacity are summarized as:

**Local plant genetic resources diversity** – Several speakers indicated that one of the strengths of the country is its large amount of genetic diversity for cereals, fruits, vegetables, and medicinal and aromatic plants. Some stressed that Mr. Vavilov considered Azerbaijan as center of origin of wheat, which is the most important crop in the country. According to the participants’ comments the country has more plant genetic diversity than the rest of Europe. The group stressed that even though Azerbaijan is rich in plant genetic diversity, there has been no governmental policy to collect, conserve and use these plant genetic resources (PGR) and genetic erosion is been observed in several species mainly due to land developments. Therefore, there was a general recommendation for the local authorities to develop a national strategy focusing on conservation including expeditions for collection, promoting *in situ* conservation, strengthening facilities for *ex situ* conservation and encouraging PGR use.

**Human resources capacity building** – The participants made clear that the country’s scientific capacity to fully utilize its PGR needs to be strengthened. They also indicated that in designing any strategy to strengthen national capacity to use PGR human resources development has the highest priority of all. There was a recommendation to policy-makers to prepare a medium- and long-term human resources development strategy for Azerbaijan. The results of the national assessment indicated that there are more than 200 breeders

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1 This report was prepared by Elcio P. Guimaraes (FAO), David Bedoshivili (ICARDA/CIMMYT) and Alexei Morgounov (ICARDA/CIMMYT). The document was revised and approved by the Azerbaijani delegation during their participation in the regional workshop held in Tbilisi, 21-22 February 2007. Final document was prepared on 28 February 2007.
carrying out plant breeding programmes for the most important crops in the country. However, the trend is downwards. The focus of these capacity building programmes must be on plant breeding techniques including the application of biotechnologies to enhance breeding.

**Plant genetic resources (PGR)** – The participants felt that the country does not have limitations regarding access to relevant PGR for their breeding programmes. Recently a new genebank facility was constructed with the capacity to conserve ex situ more than 30,000 accessions, in addition there are breeding lines and some of the local materials stored in the genebanks of the different Research Institutes. The country has relevant links with CGIAR centres (e.g. CIMMYT, ICARDA ICRISAT, IPGRI and others), which allows it to easily access new PGR. The main limitation to strengthen use of PGR is the limited characterization of the existing PGR. The participants recommended preparing strategies to provide resources for PGR characterization including the provision of a national information system and computer links in the Research Institute for information access and sharing. The existing database system for information storage and sharing is not complete and is only available at the Genetic Research Institute.

**Biotechnology** – The biotechnology tools were ranked as highly important by the participants. The general feeling was that the country needs more investments in this area, including upgrading the laboratories facilities and capacity building on the utilization of modern techniques. According to the group there are several breeding problems where the most appropriated alternative for solution relies on application of biotechnologies tools. One example where biotechnology tools can improve use of PGR is the pre-breeding activities been carried out by the Genetic Resources Institute. The group proposed to create a national centre of excellence for biotechnology where all research in the area could be concentrated and all Research Institutes would have access. It was suggested that the Botany Institute could be chosen as this national centre.

**Relationship among plant breeders, genebank managers and biotechnologists** – It was clearly stated by almost all participants the lack of opportunities and formal mechanisms to promote communication among these three groups. Genebank managers indicated that the available PGR have not been fully utilized by the breeders, which stressed the need for a better knowledge of the characteristics of the conserved material. Biotechnology research is not necessarily linked with real plant breeding problems. The participants proposed that a better coordinating mechanism should be put in place and indicated that the Agricultural Science Center should be the coordinator of this mechanism.

**Policy issues** – The representative from the Agrarian University System stressed the need for change in policy to stimulate students to enter the Agronomy Universities. Currently there is a very limited number of students interested in the field of agriculture. Use of PGR will suffer from the consequences in a medium term since there will be no plant breeders to replace the ones retiring from the Research Institutions. The group pointed out that recognition for the work done on issues related to PGR does not exist and current salary policies do not stimulate new scientists to join the research system. Therefore, the participants recommended policy-makers to revise the national policy for the sector looking for mechanisms to make it more attractive for more resources allocation.

**Seed systems** – The country has joined UPOV in December 2004. The plant variety protection is a mechanism designed to promote use of PGR and the development of new varieties. Though, the breeding programmes have not benefited from it yet. Farmers do not have access to seeds with quality and affordable prices. Therefore, this mechanism is not promoting use of PGR. The group recommended revising the national legislation to ensure benefit to plant breeding programmes, breeders and a better seed delivery to farmers. The
development of mechanisms facilitating public-private relationship maybe is an alternative to tackle this priority area.

**Identification of priority crops for utilization of PGR** – The participants agreed on the following priority crops for utilization of PGR for possible project preparation: wheat, cotton, tomato, apples and grapes.

**Broad traits for incorporation into existing varieties** – The Deputy Minister of Agriculture emphasized the need to enhance two major traits in the new crop varieties for Azerbaijan: salinity tolerance considering that more than 1 million ha of arable land is affected and drought tolerance as a consequence of climate change.

**Regional and international cooperation to utilize plant genetic resources** – During the discussions reference was made to international cooperation and specifically to the joint work with CIMMYT and ICARDA targeting development of new varieties. The cooperation seemed to be effective and productive giving rise to a number of new varieties which are already being used by the farmers. PGR are also a focus of cooperation with CGIAR centers. The participants reinforced the importance of international cooperation and recommended that preparation and implementation of new projects on strengthening the capacity to use PGR shall involve them.

**Request for FAO support for a project addressing PGR utilization** - The Deputy Minister of Agriculture expressed the interest of the Government of Azerbaijan in developing a project addressing the priority topics to strengthen the capacity of Azerbaijan to utilize PGR. Such a project shall be developed based on the recommendations of the workshop in close cooperation with FAO, ICARDA and CIMMYT. The Government of Azerbaijan will look for possibilities of funding such a project and will also approach different donors. FAO will also be approached to consider support of some most essential key components of the project through its Technical Cooperation Programme.

**Designing breeding strategies to strengthen national capacity** – The design of strategies to strengthen plant breeding programmes including associated biotechnology in Azerbaijan has to prioritize human resources capacity building. The local government was asked to put in place a medium- and long-term capacity building programme with its vision for agriculture improvement. The breeding strategies have to rely on the local PGR diversity, emphasis being placed on five main crops (wheat, cotton, tomato, apples and grapes) and relationship with international organizations. In order to fully take advantage of these PGR a strong programme of collection, evaluation and characterization is foreseen, including the creation of a national database system for PGR information storage and exchange. Biotechnological tools have to be allied to the breeding programmes ensuring their application as tools to enhance plant breeding activities. The strategy has to forge links among plant breeders, genebank managers and biotechnologists and this can be facilitated by the creation a plant breeding coordination mechanism and a biotechnology centre.