

# THE ROLE OF REGIONAL COOPERATION BETWEEN BACSA MEMBER COUNTRIES IN BUILDING VALUE CHAINS IN SERICULTURE

By

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# Introduction

Until the beginning of 90s of the last century the BACSA region had an annual fresh cocoon production of around 50,000 tons, occupied the third place in the world after China and India and nearly one million farmer's households were engaged with the sericulture. The Central Asian region, including Uzbekistan, Tajikistan, Turkmenistan and Iran still is a big cocoon and silk producer, engaging in this industry more than 450,000 farmer's households, while in Europe and Caucasus the sericulture activities considerably declined.



**Now the basic aims of expansion of BACSA inter – regional cooperation are to transmit sericulture germplasms, silkworm eggs, advanced technologies, training, dry cocoons, raw silk and silk allied products.**



# Present situation and possibilities of the regional cooperation between BACSA member countries.

Unfortunately some parts of the sericulture value chain have been partly or completely broken in the BACSA member countries. Presently the situation is as follows:

| Country     | Parts of the sericulture value chain broken |                       |                              |                          |  |                           |              |                                     |   |                         |
|-------------|---|-----------------------|------------------------------|--------------------------|--|---------------------------|--------------|-------------------------------------|---|-------------------------|
|             | science, education and training             | sericulture germplasm | mulberry saplings production | silkworm eggs production | silkworm rearing and cocoon production | primary cocoon processing | silk reeling | Silk winding, doubling and twisting | silk processing to fabrics and garments | silk products marketing |
| Albania     | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Armenia     | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Azerbaijan  |   |                       |                              | ■                        | ■                                      |                           |              |                                     |   |                         |
| Bulgaria    |   |                       |                              |                          | ■                                      | ■                         | ■            |                                     | ■                                       | ■                       |
| Georgia     |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Germany     | ■   | ■                     |                              | ■                        | ■                                      | ■                         | ■            |                                     |   |                         |
| Greece      |   |                       | ■                            | ■                        |  | ■                         | ■            |                                     |   |                         |
| Iran        |   |                       |                              | ■                        |  |                           |              |                                     |   |                         |
| Italy       |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            |                                     |   |                         |
| Kazakhstan  | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Poland      |   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Romania     |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            |                                     |   | ■                       |
| Switzerland | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            |                                     |   |                         |
| Tajikistan  |   |                       |                              | ■                        |  |                           |              |                                     | ■                                       | ■                       |
| Turkey      |   |                       |                              |                          |  |                           | ■            |                                     |   |                         |
| Ukraine     |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Uzbekistan  |   |                       |                              | ■                        |  |                           |              |                                     | ■                                       | ■                       |



On the other hand in the most region countries the broken sericulture value chain parts do not coincide with the broken parts in the others, so it might be possible some of the problematic parts of the value chain in one country to be “repaired” by the help of other countries where the same part of the value chain is well working.

| Country     | Parts of the sericulture value chain broken |                       |                              |                          |  |                           |              |                                     |   |                         |
|-------------|---|-----------------------|------------------------------|--------------------------|--|---------------------------|--------------|-------------------------------------|---|-------------------------|
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| Albania     | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Armenia     | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Azerbaijan  |   |                       |                              | ■                        | ■                                      |                           |              |                                     |   |                         |
| Bulgaria    |   |                       |                              |                          | ■                                      | ■                         | ■            |                                     | ■                                       | ■                       |
| Georgia     |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Germany     | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            |                                     |   |                         |
| Greece      |   |                       | ■                            | ■                        |  | ■                         | ■            |                                     |   |                         |
| Iran        |   |                       |                              | ■                        |  |                           |              |                                     |   |                         |
| Italy       |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            |                                     |   |                         |
| Kazakhstan  | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Poland      |   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Romania     |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            |                                     |   | ■                       |
| Switzerland | ■   | ■                     | ■                            | ■                        | ■                                      | ■                         | ■            |                                     |   |                         |
| Tajikistan  |   |                       |                              | ■                        |  |                           |              |                                     | ■                                       | ■                       |
| Turkey      |   |                       |                              |                          |  |                           | ■            |                                     |   |                         |
| Ukraine     |   |                       | ■                            | ■                        | ■                                      | ■                         | ■            | ■                                   | ■                                       | ■                       |
| Uzbekistan  |   |                       |                              | ■                        |  |                           |              |                                     | ■                                       | ■                       |

# Cooperation in the science and technology transfer, education and training

It may be developed in the following directions:

- bilateral research projects: they may be financed by the each participating country's government as the existing practice through grant competitions, announced periodically by the Ministries of education and sciences.
- bi and/or multilateral projects, financed by the EU: the initiative should be taken by the scientists/experts from BACSA countries which are EU members through forming consortiums and attracting as co – participants also researchers and experts from the non – EU BACSA countries.
- specializations and training of students and technical personnel in leading research centers and commercial companies, financed by EU/national programmes.

# Mulberry saplings production and supply

In fact almost all BACSA member countries have some own mulberry genetic resources available. However in some countries the mulberry genebank collections are bigger and they also have more productive and adaptable varieties. The richest mulberry genetic resources are in Azerbaijan (about 290 accessions), Uzbekistan (~220), Bulgaria (~150), Italy (~120), Ukraine (~110) and Georgia (~90).



In some region countries however the mulberry sapling production costs are too high, in some countries there are no human capacity and facilities for sapling production, so they are forced to import saplings. It's recommendable to import mulberry saplings preferably from some neighboring countries because the varieties are well adapted to the similar climatic conditions and the transportation may be cheaper and easier. Mulberry sapling import from China or other far East countries is not recommended because of the following main reasons:

- the mulberry varieties have been developed at much different climate, thus they hardly adapt to the BACSA countries conditions, especially to the too cold winter;
- the saplings are usually delivered by ship cargo for lower costs and because of the too high distance most of them are harmed during the transportation.
- we risk to import pest insects or diseases which are not typical of our countries.

# Silkworm egg production and supply

Ideally it is the best if each country is able to satisfy by itself the silkworm egg needs. Unfortunately presently it is not possible in most of BACSA member states. Silkworm genetic resources are not available in Albania, Armenia, Germany, Kazakhstan, Kyrgyzstan, Poland and Switzerland. The silkworm genetic resources available are comparatively small in Tajikistan, Turkey and Greece. The richest silkworm germplasms are maintained in Bulgaria (265 strains), Italy (~200), Uzbekistan (~180), Ukraine (~115), Azerbaijan (~90), Romania (~50) and Georgia (~50).



Recently in some member countries like Ukraine, Georgia, Greece and Romania due to the bad managerial and financial status of maintaining institutions and lack of governmental support the silkworm germplasm resources are under a risk of destroy and lose.



**The results, obtained by the BACSA regional project “Comparative studies of silkworm hybrids performance for sericultural enterprise development in Black, Caspian seas and Central Asia region”, implemented in 2006 and 2007 and partly supported by the FAO and its follow ups revealed that the best silkworm hybrids, produced now in the BACSA region countries perform at the level of the best world standards.**



**In the present time the only one commercial silkworm egg producers in Europe and Caucasus are Bulgaria, Turkey and Azerbaijan, while Italy has a very low silkworm egg production. The rest countries like Albania, Armenia, Georgia, Germany, Greece, Switzerland, Poland, Romania and Ukraine if they are in need of commercial silkworm eggs they should import them. Unfortunately countries like Georgia, Romania and Ukraine who still have had commercial silkworm egg production several years ago now are not able to produce. In Central Asia, in Tajikistan, Turkmenistan and Uzbekistan the local silkworm egg production provides only about 55-70 % of the demand, and the remaining eggs are imported from China. The bad quality of silkworm eggs imported often causes considerable loses of cocoon crop.**



Therefore it might be recommended to those who import silkworm eggs to increase the share of eggs, imported from BACSA member states. The silkworm egg import price of the Chinese eggs in Tajikistan, Turkmenistan and Uzbekistan is about 8 - 9 US\$/box. At the same price even a bit lower price silkworm eggs may be imported also from Bulgaria for example. If the silkworm egg market is safe the egg production might be revived in some countries like Ukraine, Romania, Georgia and much increased in Azerbaijan and Bulgaria. If realized, this will increase the cocoon production in those countries and also would contribute to the general sericulture revival.



There is also an other option of the regional cooperation which may lead to silkworm egg quality and quantity improvement: this is the P3, P2 and P1 silkworm egg categories to be produced in one country, but the F1 eggs production to be in other country. In this scheme even also countries having good pure lines and qualified personnel, but too high labor and other costs may be involved. The upper categories of silkworm eggs are produced in not big volume, but the egg price is much higher than the F1 eggs. Even though the P1 egg price is higher than the F1, the P1 egg costs if they are imported will be much lower compared with the costs to maintain local facilities and personnel for the same purpose, but with doubtful egg quality produced.

Other option is a joint silkworm egg production between two neighboring countries where the different parts of egg production process are shared between the two countries according to their the best capabilities.

# Dry cocoon marketing

As in some of the BACSA member states the fresh and dry cocoons marketing is a real problem which limits the amount of production even stops any silkworm rearing, the regional cooperation in the dry cocoon and raw silk marketing is also very important. Presently there are no any or not in commercial operation silk reeling facilities in Albania, Armenia, Georgia, Germany, Greece, Italy, Kazakhstan, Poland, Romania and Ukraine.



**In some region countries like Turkey, Greece, Uzbekistan and Tajikistan even they have reeling facilities due to different reasons sometimes the dry cocoon export appeared to be more profitable than raw silk export. An option of the regional cooperation is the cocoons, produced in one country to be reeled in some neighboring country and the raw silk produced to be returned back. In the BACSA region presently it seems that only Iran and Azerbaijan import some dry cocoons, but at comparatively low prices like 7-9 US\$/kg. Therefore the dry cocoon trade between the BACSA region countries is not very promising.**



# Raw silk marketing

Presently the raw silk producers in the region are the following:

In Europe and Caucasus: Azerbaijan, Bulgaria and Turkey;

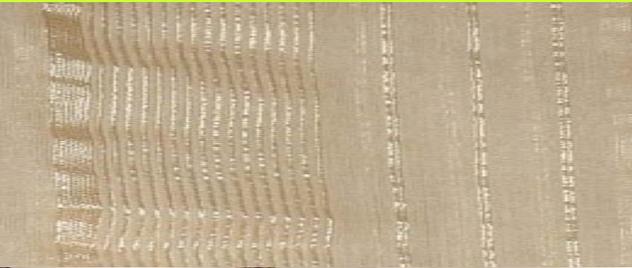
In Central Asia: Iran, Tajikistan, Turkmenistan and Uzbekistan.

The raw silk exporters from the region now are Tajikistan, Turkmenistan and Uzbekistan.

The raw silk importers from the BACSA member countries are Iran, Italy, Switzerland, Turkey, Greece, Romania and Bulgaria.

In our opinion the region countries which have good potential to be created as new high quality raw silk sources are Bulgaria, Romania, Ukraine, Georgia and Azerbaijan. By the same time the state policies in the Central Asian countries like Tajikistan, Turkmenistan and Uzbekistan should be directed in increase the share of raw silk export or local processing on the account of decrease of dry cocoon export.

On the other hand in some countries, having well developed silk industry, but too high labor and other costs like Greece, Italy and Switzerland efforts may be made for some small niche textile production of cocoons and silk as a kind of internal cooperation between the different parts of sericulture value chain. An other option for most of the BACSA member countries would be the silk handcrafts production and their selling both at the local market and export to some of the region and other countries.



# Thrown silk and gray silk fabrics marketing

The present exporters from BACSA member states are Italy, Tajikistan, Turkmenistan, Uzbekistan, Bulgaria, Switzerland and Romania. Some of them however buy the raw silk from China and after further processing re-export it. The main importer is Italy. The region countries which have good potential to be created as new high quality twisted silk and gray silk fabrics sources are Bulgaria, Romania, Ukraine, Georgia and Azerbaijan.



# Silk fabrics and garment production and marketing

The main producers in the BACSA region countries are Italy, Germany, Switzerland and Uzbekistan, but Iran and Turkey are big silk carpet producers. The biggest market of silk fabrics and garment is in the western European countries like Germany, Switzerland and Italy. It is however expected that in the Eastern Europe EU member states, Russia, Ukraine and Turkey the silk products demand will increase in the future. A medium-term target may be increase of silk fabrics and garment production in Eastern Europe and Central Asia mostly for export to EU and Russia.



# Building regional value chains in sericulture

The main parts of the possible regional value chains could be:

- Regional integrated research, training and germplasm preservation;
- Regional supply with mulberry saplings and silkworm eggs;
- Regional supply with dry cocoons, raw silk, thrown silk and gray silk fabrics.



# Conclusions

We expect the following medium/long term outputs from the regional cooperation between BACSA member countries development:

- Bilateral research projects, financed by the each participating country's government;
- Bi and/or multilateral research/technical projects, financed by the EU;
- Specializations and training of students and technical personnel in leading research centers and commercial companies in other region countries;

# Conclusions

- Exchange of sericulture germplasm resources between the BACSA member countries and improvement the mulberry sapling and silkworm egg quality;
- Saving the sericulture germplasm in the BACSA region;
  - Supply of mulberry saplings of highly productive varieties in the countries having needs;
- Increase of silkworm egg production in Azerbaijan and Bulgaria and revival of silkworm egg production in Italy, Ukraine, Romania and Georgia for meeting the local demands and export to some BACSA region countries;
- Where necessary and possible the cocoons, produced in one country reeled in some other BACSA region country and the raw silk produced returned back.

# Conclusions

- Creation of some of Eastern European countries as new high quality raw silk, twisted silk and gray silk fabrics sources for the Western European silk industries by attracting investors;
- Improvement the raw silk quality and increase the share of raw silk export or local processing on the account of decrease of dry cocoon export in Tajikistan, Turkmenistan, Uzbekistan, Greece, Turkey etc.;
- Small niche textile production of cocoons and silk and silk handcrafts production development in some of the region countries;
- Increase of silk fabrics production in Eastern Europe and Central Asia mostly for export.
  - Creation of regional sericulture value chains with participation of two or more countries.



The fifth BACSA international conference SERIPRODEV 2011 will be held in Bucharest, Romania from 11 to 15 April 2011

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The Black, Caspian Seas and Central Asia Silk Association (BACSA) was established after the "International Workshop on Regional Cooperation of Sericultural Insects and Silk Production in the Black, Caspian Seas and Central Asia Region" organized by FAO in cooperation with the Government of Uzbekistan and the Government of Tashkent, Uzbekistan from 1 to 15 April 2001 to promote sericulture production in the region countries. The association's main tasks are to:

- \* generate sericulture projects from external resources, including bilateral and multilateral cooperation;
  - \* send delegations to governments and respective departments to promote local and regional activities which show the cooperation between the countries of the Black, Caspian seas region and Central Asia to develop concrete activities that finally lead to sustainable development of the sericulture in the region;
  - \* promote making agreements for international scientific, technical cooperation and business relations between the countries;
  - \* promote market studies, training, and dispersion of sericultural germplasm, and silkworm eggs.
- For the operation of the association there are, chosen democratically by the members a President, two Vice-presidents, national coordinators for each member country, members of an Executive Committee. The members of the Executive Committee are directly the people in charge of coordination of all the raised activities for their country, within the regional context. The Executive Committee it is the bridge between the country, the national coordinator and the other countries of the association, to execute the actions defined in the region. The Committee gathers at least once a year and has the following functions:
- \* To evaluate the work made by each national coordinator in activities of coordination in her/his country with respect to the BACASA.
  - \* To recommend the names of the people in the association to receive training abroad.
  - \* To evaluate and to watch the handling of the "Rotary Funds" and "Research Funds", that will be probably created and to give the recommendations on orientation and better use of these resources.
  - \* To present/display the research proposals that require financing on the part of the "Research Fund" and to approve the necessary resources for this aim.
  - \* To give recommendations and suggestions on all publications and written material that takes place within the frame of the BACASA.
  - \* To advise to the association's President on the advances and progresses that must take place in the development of the activities and give recommendations her/him on the modifications and corrections that are due to make for the final success of the projects.