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Food and Agriculture Organization of the United Nations

International Poplar Commission Thematic Papers

International Workshop

“Improve the contribution of Poplars and Willows in meeting sustainable livelihoods and land-use in selected Mediterranean and Central Asian countries”

FAO Project GCP/INT/059/ITA



Izmit, Turkey, 27-31 July 2009



**Forest Resources Development Service
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Acronyms

CFS	Corpo Forestale dello Stato (Italy)
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GAP	<i>Guneyudogu Anadolu Projesi</i> (Southeastern Anatolia Project)
GTZ	<i>Deutsche Gesellschaft für Technische Zusammenarbeit</i> (German Agency for Technical Cooperation)
IFAD	International Fund for Agricultural Development
IPC	International Poplar Commission
IPS	International Poplar Symposium
ITTO	International Tropical Timber Organization
IUFRO	International Union of Forest Research Organizations
KFW	<i>Kreditanstalt für Wiederaufbau</i> (Reconstruction Credit Institute)
LFA	Logical Framework Approach
MDG	Millennium Development Goals
P&W	Poplar and Willow
PFGFTRI	Poplar and Fast Growing Forest Trees Research Institute (Former National Poplar Institute – Izmit, Turkey)
UN	United Nations
WB	World Bank
WWF	World Wide Fund for Nature

International Workshop

“Improve the contribution of Poplars and Willows in meeting sustainable livelihoods and land-use in selected Mediterranean and Central Asian countries”

Izmit, Turkey
27-31 July 2009

Opening Session

The International Workshop “Improve the contribution of Poplars and Willows in meeting sustainable livelihoods and land-use in selected Mediterranean and Central Asian countries” was held from 27 to 31 July 2009, at the kind invitation of the Poplar and Fast Growing Forest Trees Research Institute (PFGFTRI) in Izmit/Kocaeli, Turkey. The purpose was to better understand the needs and to provide more effective methods in transferring knowledge and technology in translating scientific research of Poplars and Willows into policies, plans and practices through pilot projects. To this end, the objectives of the workshop were to prepare problem analyses and logical frameworks of action from working sessions to assist in packaging concept notes and proposals to funding agencies for their potential support. A concept note is detailed in *Appendix A*.

The International Workshop was organized by FAO, in collaboration with the Ministry of Environment and Forestry of the Government of Turkey, and funded by the FAO Project GCP/INT/059/ITA, kindly supported by the Government of Italy.

The following countries were represented: Belgium, Bosnia and Herzegovina, China, Croatia, Egypt, Estonia, France, Georgia, Italy, Kazakhstan, Kyrgyzstan, Romania, Tajikistan, Turkey and Uzbekistan. An observer from the International Fund for Agricultural Development (IFAD) also attended the meeting. The list of participants is in *Appendix C*.

Dr. Ahmed Şenyaz, Head, Research and Development Department in the Turkish Ministry of Environment and Forestry, opened and chaired the opening session of the Workshop.

Mr Faruk Şakir Özay, Director, National Poplar Research Institute, Turkish Ministry of Environment and Forestry, welcomed participants and reminded them of the strong linkages between the Institute, FAO and Italy. Mr Özay stressed the progressive reduction of natural forest areas in the world and the role of fast-growing species in meeting the need for renewable raw material for both wood and fuel production.

Mr Mehmet Nakkaş, Deputy Director General, General Directorate of Afforestation and Erosion Control, Turkish Ministry of Environment and Forestry, stressed the role of fast-growing species to reduce pressure on natural forests and increase area productivity. Mr Nakkaş also highlighted the multiple roles of poplar plantings in agriculture. Poplar is often used for windbreaks and when harvested, at the end of the rotation, provides a good return on investment in wood sales. The General Directorate was still active in poplar plantations as it still produced 25,000 seedlings per year, and it established 291 ha of poplar plantations during the period 2005–2009. However, wood quality can only be obtained with good silvicultural and management practices and suitable site conditions. The most planted species by the General Directorate are *Populus euphratica*, in the GAP region (Southeastern Anatolia Project), as it is a very resistant species to saline soils, and *Populus tremula*. Mr Nakkaş finally recalled the role of Italy in the cooperation on poplar application for the CARPATA Project that was implemented during the period 1998-1999 when nurseries were established and about 1,400 ha of poplar were planted on private lands, gallery

plantations and agroforestry systems. Under the project, three meteorological stations and two soil laboratories were established.

Mr Osman Kahveci, Director General of Forestry, Turkish Ministry of Environment and Forestry, highlighted that Turkey annually supplied only one fifth of the total high-quality wood market demand and poplar plantations annually produced 3.5 million m³ from a total planted area of 145,000 ha. There was still a need to improve research activities in poplar culture with reference to provenance, trials, economic analyses, demonstrative plantations and field surveys. Mr Kahveci also acknowledged the role and the need of fast-growing species for development of the paper and chip wood industries, high-quality wood and bio-energy.

Mr Jim Carle, Chief, Forest Resources Development Service, FAO/Rome, welcomed co-hosts and participants on behalf of FAO and stressed the long-standing partnership between FAO and the Izmit Institute. He also highlighted the role of poplars and willows as components of agricultural and forest systems in temperate regions, especially for smallholder farmers. Poplars and willows provided a valuable raw material supply for poles, pulp and paper, panel boards, plywood, veneer, sawn timber, packing crates, pallets, furniture manufacturing and increasingly as feedstock for bio-energy or biofuel production. As the wood is odourless, colourless and tasteless, it was often used in food and fruit packaging and health products. They also provide a range of non-wood products such as important fodder for livestock and valuable medicines. Poplars and willows could also provide valuable environmental and social services, as well as shelter, shade and protection of soil, water, crops, livestock and dwellings; played an important role in phyto-remediation of severely degraded sites, rehabilitated fragile ecosystems (including combating desertification), forest landscape restoration (often integrated with agriculture, horticulture, viticulture and apiculture), and as fast-growing species, and were effective at sequestering and storing carbon, often on difficult sites. They created employment, could boost exports and contributed to social and economic development and sustainable livelihoods in rural areas. They could beautify urban and peri-urban parks, schools, lakes, waterways, recreational areas and highways as green buffers. Poplars in particular were also leading the way in transgenic research and development.

Mr Carle also stressed that the role of the International Poplar Commission (IPC), its National Poplar Commissions and Working Parties, was to undertake scientific research and prepare management tools, promote exchange of knowledge, undertake joint research programmes, host congresses and study tours and network and report between researchers, growers and users. The IPC mandate was to translate Poplar and Willow science into policies and management practices to enhance their contribution towards sustainable forestry, sustainable land-use and sustainable livelihoods. Whilst striving to meet the needs of people, we were increasingly facing the major impacts, adaptation to, and mitigation of changing climate, the increasing incidence, severity, scale and impacts of extreme weather events (droughts, floods, high winds, etc), the increasing risks of fire, insects, diseases, other invasive species and the spiralling demands for bio-energy and biofuels.

Finally Mr Carle introduced the FAO-Italy Project as an important tool to explore how to improve the contribution of poplars and willows in meeting sustainable livelihoods and land-use globally, and specifically in selected Mediterranean and Central Asian countries in accordance with the UN Millennium Development Goals (MDG). The project was to strengthen country capacity to combat desertification, rehabilitate degraded lands and provide other social and ecosystem services, whilst also producing sustainable supplies of wood, fibre, bio-energy and non-wood forest products to meet peoples' livelihood needs.

Nomination of the Chair

Prof. Khoran Tunçtaner (Turkey) was elected as Chairperson of the Workshop.

Approval of the Agenda

The Provisional Agenda was adopted without amendment and is available in *Appendix B*.

The International Poplar Commission (IPC), and Objectives of the Workshop

Mr Jim Carle drew attention on the purpose of the workshop: to better understand constraints and needs in Eastern Mediterranean and Central Asian countries, to strengthen interactions with Poplar and Willow specialists from regions and poplar and willow specialists from Belgium, China, France, Italy and Turkey; to undertake study tours to discuss policy, technical issues and impacts and benefits of poplars and willows in Turkey; to prepare project proposals; to detail impacts, outcomes, outputs and activities to improve the contribution of poplar and willow to sustainable livelihoods and land use; and to consider IPC membership. Mr Carle also explained the mandate and the mechanism of the IPC and its role in the framework of FAO

Italy-FAO Poplar and Willow Project to enhance the contribution of Poplars and Willows towards Sustainable Livelihoods and Land-use in the Eastern Mediterranean and Central Asian countries

Mr Alberto Del Lungo, Forestry Officer, Forest Resources Development Service, FAO/Rome, and Project Technical Advisor, introduced the Project GCP/INT/059/ITA on Poplars and Willows supported by the Government of Italy, and highlighted that the main target of the Project was in line with the UN Millennium Development Goals (MDGs) with particular reference to MDG 1: “Eradicate extreme poverty and hunger” and MDG 7: “Ensure environmental sustainability and develop global partnerships for development”. Mr Del Lungo also reported on the Project activities and work already carried out in one year, and provided some more details on the workshop and on the activities foreseen after the workshop.

Statements by representatives of Poplar Growers and Sawmill Owners

Mr Ismet Karakaş, representative of Poplar Growers from Cildirlar village, welcomed the participants. He stressed that farmers were planting poplars in this area since the establishment of the PFGFTRI, at the beginning of ‘60s. Over more than 40 years, poplar improved the quality of life by providing better incomes than agricultural crops would have done. Poplar culture also reduced the pressure on natural forests over the years; however poplar prices had recently progressively decreased, being less competitive than wood produced by other plantations initially established by the Directorate of Afforestation and Erosion Control, that were now at the end of their rotation period and were re-planted after having been harvested.

Mr Tayfun Şahin, owner of “Şahin Company”, a producer of pallets with almost 40 years experience, spoke on behalf of Sawmill Owners. Mr Şahin acknowledged the role of the National Poplar Institute in providing technical support to the private sector. Thanks to the work of the Institute, the poplar area increased in the region over the last 40 years and many farmers decided to establish nurseries and plantations in the region. Incomes have always been quite significant but in 2005 the poplar sector faced a strong crisis for various reasons, including the decreased support of the Ministry to the Poplar Research Institute. However, despite the crisis, poplar was still planted in the region as it provided a good source of income and reduced the pressure on natural forests. Mr Şahin stressed that the crisis mainly affected poplar plantations producing low-quality wood and was due to the availability of wood from natural forests and from other plantations now at the end of their rotation period, cheaper than poplar as regards silvicultural treatments. However, poplar growers were still getting good income from poplar wood production and often re-invested gains in expanding poplar cultivations. The practice of agroforestry was also quite remunerative in poplar culture as farmers get agricultural crops during the first three years of age of their plantation. Poplar culture practice was also quite common for land owners that are not necessarily farmers as it required fewer treatments than agricultural crops. Finally, Mr Şahin

highlighted the role of poplar as forest plantation in preventing soil erosion in the mountains and plains and the capacity of this culture to remunerate many villagers during the entire cycle of production.

Country reports and discussion

Participants reported on the status and needs of poplar and willow cultivation in their country and presented the state of poplar and willow, including benefits, challenges and constraints faced. A brief summary of the country results was provided by Mr Jim Carle and is reported here below (see also end of *Appendix K*).

- Context. Poplar grows in a wide range of natural forests that are mainly used for conservation, protected areas and recreation. Willow generally grows along water courses and covers less area than poplar. Intensive poplar plantations average area cover from 10,000 to 50,000 ha but face difficulties to expand. Intensive plantations are mainly established for production of wood, fibre and potentially wood energy. Some plantations are also established for rehabilitation of degraded lands and as carbon storage. Intensive plantations are often established with a limited number of clones while intensive plantations of willow cover limited areas and are mainly used for phyto-remediation, bio-energy and treatment of water waste. Agroforestry in poplar cultivation covers a diverse range of mechanisms while agroforestry in willow cultivation is relatively less spread and covers small areas.
- Key stakeholders in poplar and willow development. The main institutions involved in countries responsible of governance in poplar and willow policies, programmes and technical support are Ministries of Forestry, Environment and/or Agriculture. Research on poplar and willow is carried out by State Forest Institutes and Universities. Most countries have Universities for professional training or access to neighbouring countries while technical/operational training for forest managers and artisans needs to be strengthened. There is also a strong need for forest extension (smallholders, farmers). The main investors in poplar and willow afforestation/harvesting/end use are still the government and State enterprises. Farmers, smallholders, companies and private lands depend upon land-use and crop ownership rights
- Benefits from poplar and willow cultivation (economic, environmental and social). Benefits from poplar and willow cultivation depend upon purpose, scale, investor and land-use. Poplar and willow are very flexible species and can be grown in a wide range of mechanisms from small to large scale. They are particularly suitable for carbon sequestration/storage, protection of waterways, soils, watersheds, shelters of villages, roads, public utilities, bio-energy. Both poplars but specifically willows are particularly suitable for phyto-remediation, treated and untreated water waste. Poplars provide valuable supply of wood, fibre and many other products. Poplar and willow culture support rural employment. They can be very suitable if planted and managed with appropriate technology, in phase with livelihood needs, local products for local people, help to combat urban drift, development of village-based industries.
- Major issues in poplar and willow culture. There is a need for coherent, consistent, clear policy, legal and regulatory frameworks to enable investing conditions. There is also a need for well defined institutional frameworks to support transition from centralized/decentralized systems. The State control is still strong, but the private sector is slightly emerging with smallholders and farmers. Poplars and willows require inter-sectoral/multi-disciplinary management. Still the limited species and clones used are a serious risk for their vulnerability to insects, diseases and other pests. There is also a public and political negative perception about poplars and willows. The emerging issues of bio-energy and carbon sequestration are the major issues to be considered for poplar and willow application. The industrial use of poplar and willow is in infancy with strong emphasis on protection and conservation.

- Problems/constraints experienced in poplar and willow culture. The State dominance with unchanged policy and legal frameworks is still a constraint in the diffusion of poplar and willow cultivation; there is also a bias against intensive poplar and willow plantations. Threats of insects, diseases, pests, fires, natural disasters (droughts, floods, winds, etc) related to changes in hydrology are also other serious constraints especially in arid lands. The small private sector feels uncertainty for market situation. There is also a lack of sustainability management tools. There is a poor public perception and negative bias for poplar and willow plantations that require extension practices, especially with smallholders and investors.
- Opportunities to meet sustainable livelihoods and land-use. Poplar and willow cultivation enables conditions for private smallholders and corporate. There are possibilities with village-based industries and industry development. Poplars and willows can be used for renewable, energy efficient, environmentally sensitive provision of products and services. They can also be used for suitable rehabilitation of degraded or marginal lands. In agroforestry practices, they require less intensive management than annual crops; they are also flexible over forestry and agricultural land-uses and their fast-growing capabilities are relevant for carbon and bio-energy markets.
- Priority needs to support poplar and willow development. The multiple potentials of poplars and willows must be recognized. There is a need to integrate institutional support systems – forestry and agriculture. Policy, legal and long-term strategy development (including climate change mitigation, bio-energy, etc.) should be improved. Better networking and collaboration between scientists are requested to share research and results. Science, policy and practices must be linked. Public awareness and understanding of poplar and willow cultivation should be improved through pilot projects to demonstrate to politicians and to the public. Finally, there is a need to support investment in industry and development

Guidelines for working sessions and introduction to the Logical Framework Approach (LFA)

Mr Jim Carle provided the Guidelines to working sessions and introduced participants to the Logical Framework Approach (LFA), the methodology adopted by the United Nations to package project proposals and projects. Both guidelines and the introduction to LFA are available respectively in *Appendix D* and *Appendix E*.

Working sessions

Working Sessions were organized on Tuesday and Friday to allow participants to draft project proposals based on the country needs reported during the Plenary Session. Three Working Groups were set up, mainly according to common regional needs: Working Group No. 1: East European countries; Working Group No. 2: Central Asian countries; and Working Group No. 3: Egypt, Georgia and Turkey. On Tuesday the three Working Groups worked on the following:

- Identification of project priority needs
- Project impact and outcomes
- Project outputs and actions
- Project outputs, actions, key players, indicators and risks

At the end of the day, participants met again in Plenary to discuss their preliminary results and provide feedback.

Participants met once more in their Working Groups on Friday to finalize their project proposals based on the information collected during the field trip which had been planned on Wednesday and Thursday.

Results of the work done by the three Working Groups are summarized here below while the full set of project proposals formatted according to the LFA are detailed in the tables reported in *Appendix F*. Both Working Groups 1 and 2 were able to identify common problems at regional level that can be addressed with only one regional project, while Working Group 3 prepared three different projects according to the needs of each country, taking into account that these needs were too far and different in terms of political conditions and ecological regions.

Working Group No. 1: East European countries

- Identified problems: (1) Policy approach: smallholders in the country are not actors of the process (policy and institutional); (2) Lack of transfer of knowledge through extension services; (3) Insufficient data about suitability and availability of land; (4) Insufficient collaboration between stakeholders; (5) Insufficient reproduction material and technology transfer; (6) Natura 2000 and environmental services/problems.
- Project impact: Promotion of effective land use and livelihood improvement through sustainable P&W management in intensive and/or natural systems.
- Project outcomes: (1) Increasing the effectiveness of authorities/institutions in decision making process regarding P&W production and wood utilization; (2) Improving the management of natural P&W-based stands through transfer of knowledge, innovation and capacity building using environmentally sustainable and cost effective tools.

Working Group No. 2: Central Asian countries

- Identified problems: (1) Institutional and systematic issues (no uniform system for poplar growing, and conservation of natural poplar forests); (2) Need for poplar plantations to satisfy demands for construction materials and energy; (3) Water shortage; (4) No experience for conservation (Tugai forests); (5) Weak legislative and regulative system for private ownership of forest cultivation; (6) Institutional weakness – e.g. under the Ministry of Agriculture and Water Resources (Uzbekistan); (7) No guidance/structure for the control of poplar plantations in the State programme (Tajikistan); (8) Create legal framework for poplar plantations; (9) No institution for poplar development; (10) Weak financing; (11) Technological issues.
- Project impact: Assistance to improvement of ecological conditions through a sustainable development of rural communities.
- Project outcomes: (1) Improvement of legislative, regulatory and policy issues; (2) Development of P&W for adaptation to climate change, water resources management, bio-energy use; (3) Increasing of the capacity and public awareness; (4) Increasing cross-sectoral cooperation.

Working Group No. 3: Egypt, Georgia, Turkey

Egypt

- Identified problems: (1) Wood imports are too expensive as local wood is unavailable; (2) Lack of intensive plantations; (3) Lack of water resources; (4) Disposing and recycling of sewage water (phyto-remediation).
- Project impact: Ensure environmental sustainability of water resources through the use of Salicaceae and increase people wellbeing.
- Project outcomes: Increase wood production, job opportunities and improve environment quality.

Georgia

- Identified problems: (1) Establish policy framework; (2) Define priority areas suitable for poplar (Georgia has already a forest inventory to be updated); (3) Allocate areas for intensive plantations (Government), and allocate public land to farmers to grow poplar.
- Project impact: Achieving sustainable livelihood and people wellbeing through poplar and willow culture.
- Project outcomes: Increase state and private sector wood industries and development of smallholder economy.

Turkey

- Identified problems: (1) Lack of Government support to strengthen poplar cultivation; (2) Need for detailed market analysis; (3) Need for fibres and bio-energy, capacity building in short-rotation crops; (4) Inventory of natural and planted poplar; (5) Need to strengthen poplar certification from poplar.
- Project impact: Contribution of forestry and agroforestry to sustainable development.
- Project outcomes: Increase poplar and willow culture and use.

Field Trip

A field trip was organized on 29 and 30 July by PFGFTRI in the Akyazi and Iznik provinces, to demonstrate the role of poplar culture in forestry and agroforestry. The field trip was a good opportunity to show the achievements in poplar culture after many years of cooperation through multi- and bi-lateral projects carried out by FAO and Italy. Participants had the possibility to visit nurseries, intensive plantations and agroforestry applications of poplar. Particularly relevant were the visits made to three different sawmills that utilize poplar wood for different uses: plywood, pallets and fruit boxes. This was another opportunity for participants to realize the different end uses of poplar wood. Of particular interest was a quick visit to the farm of the PFGFTRI to see a collection of poplar clones established in 1959 and left unmanaged and untreated over the last 20 years because of the lack of funds. Most of the poplar clones are still alive, show high vitality and look as naturalized in the surrounding environment. Also, most of the clones have a very interesting high-standing shape and could be utilized as further reproductive material. The booklet describing the sites visited during the field trip is available in *Appendix G*.

Debriefing after the field trip on relevant issues for finalization of project proposals, including technical, policy and institutional issues relating to provision of wood and non-wood products and social and environmental services

On Friday 31 July, a short debriefing after the field trip on relevant issues highlighted for the project proposal finalization was carried out in Plenary session. A summary of the issues reported is provided here below.

Central Asia

- The field trip provided many different ideas on the use of poplar that would be interesting to implement in Central Asia.
- There are many differences between Turkey and Central Asian countries in land uses, land ownership, climate (arid conditions) and soil (water scarcity).
- Poplar represents a good compromise between agriculture and agroforestry and the integration of poplar in agroforestry systems is quite interesting.
- Training, through pilot projects and demonstration to farmers, is a key element in the development of poplar culture as demonstrated in Turkey.
- Farmers are very much involved in poplar development as there is a marked demand and poplar culture is profitable.
- Farmers are also quite integrated in poplar development through linkages with research organizations like in the case of the Poplar Institute in Turkey.

- There is a well developed system for poplar processing along the entire chain from the crop to the final end use.

China

- Linkages between researchers and farmers should be strengthened for a better use of clones and forestry and agroforestry models to integrate poplar with other agricultural crops.

Europe

- Turkish economy is developing very fast. Major positive effects took place during the last ten years that can also be appreciated in poplar culture.
- Application of science and technology to poplar culture in Turkey is similar to Europe.
- Turkey is a bridge between Europe and Northern Africa, Eastern Europe and Central Asia in poplar culture.
- The integration between poplar and agriculture is particularly successful, very interesting and provides supplementary income to farmers.
- There are still many different opportunities in poplar culture in Turkey, particularly in biomass end use.
- Training has been particularly effective to farmers as it can be seen from their participation and their improvement in poplar culture and industries.
- Clonal selection is still related to Europe. More attention and care should be given to local natural resources as area of *Populus euphratica* that seems to be in danger for intensive exploitation.
- More breeding programmes should be carried out, especially for resistance of poplars to drought.
- Farmers should be more careful and use more registered poplar clones, especially if they aim to achieve high wood quality. PFGFTRI should provide more support through training and registered replication material.

Revise logical Framework of project proposals, including impacts, outcomes, outputs, activities, key actors, indicators and risks

Based on the information collected in the field, participants met again in Working Groups to finalize the project proposals prepared earlier.

Final Plenary Session

Participants finally met in Plenary to present and discuss the refined five project proposals – one for Eastern European countries, one for Central Asian countries, one for Egypt, one for Georgia and one for Turkey. Project proposals standardized within the Logical Framework Approach are reported in *Appendix F*.

Ms Sheila Mwanundu (IFAD) made a presentation on funding programmes carried out by IFAD and mechanisms to apply. Ms Lorenza Colletti (Corpo Forestale dello Stato, Italy) made a presentation on funding programmes by the European Union and on the mechanisms to apply. Mr Jim Carle made a presentation on possibilities to work with FAO as technical executing agency. All mentioned presentations are available on *Appendix H*.

Mr Alberto Del Lungo made a short presentation on mechanisms and potential benefits to apply to the International Poplar Commission membership. Copy of the presentation is available in *Appendix I*.

Prof. Giuseppe Scarascia-Mugnozza, Responsible for hosting the IUFRO International Poplar Symposium V (IPS) meeting, to be held in September 2010 in Orvieto, Italy, welcomed the attendance of participants. Copy of the presentation is available in *Appendix J*.

Closing remarks

In his closing remarks, Mr Jim Carle stressed the need to network and work together to accomplish the project proposals. FAO would be responsible for drafting concept notes and submitting them to Italy, the European Union and Funding Agencies, IFAD and the World Bank. Resource countries would help in supporting project proposals, and participants from developing countries would work with their governments to support project implementation.

Prof. Tunçtaner, Chairperson of the Workshop, declared the International Workshop closed.

