

People and the Forest: Forestry Extension in Stimulating Times

keynote address

by

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“Evolving Challenges and Changing Expectations for Forestry Extension and Technology Transfer: Meeting needs of people and forests around the globe”

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Thank you for inviting me to participate in this most timely symposium. It is an honour to have been asked.

It has been said that one of the interesting things about the human race and what makes it unique, is its ability to do things for the first time. The sub-title of this Symposium “meeting the needs of people and the forests around the globe” clearly implies that we are expected to do some things for the first time. While we’re doing that we must also remember to take every opportunity to build upon our current successes.

The term “forestry extension and technology transfer”, also part of the Symposium’s main title, led me to think in the following terms. Individuals, groups or organizations bringing to the table knowledge, experience, intuition, skills, ethics, creativity, enthusiasm and a willingness to communicate in readily understood terms.

Collectively this can be a powerful force for good. And the beauty of it is that these human values already exist. Furthermore this inherent capacity within society is there to be utilized and at virtually no extra cost.

So what then are some of the challenges and expectations in the context of meeting the needs of people and forests around the globe? In naming a few I have purposely avoided reference to the economic uncertainty that, at the time of writing, embroils most of the world. To speculate at this stage would serve no useful purpose.

- the world’s population, currently 6.9 billion, continues to grow by 75 to 80 million per year and is expected to reach nine billion by 2050;
- globally the level of urbanization is expected to rise from 50 percent in 2008 to 70 percent in 2050;
- global deforestation, mainly conversion of forests to agricultural land, continues at roughly 13 million hectares annually. The net reduction of forest area, after taking into account manual restoration and natural expansion of forests is 7 to 8 million hectares per year;
- over the past 40 years, the world’s annual production of roundwood (used for firewood and industrial wood products) has steadily increased from 2.5 billion cubic metres in 1965 to 3.5 billion cubic metres in 2005.

- the world-wide market value of imported illegal logs and products manufactured from illegal logs is estimated to range from \$13-20 billion annually;
- estimated costs of mitigating climate change through reduction in greenhouse gas emissions range from 0.1% of gross world product annually (the Intergovernmental Panel on Climate Change) to 1.0% (Nicholas Stern, head of the Government Economic Service in the United Kingdom). Stern's estimate would represent in the order of \$650 billion for the year 2007 (Worldwatch Institute);
- the IPCC in its 2007 report states that up to 30 percent of the earth's species face an increased risk of vanishing if global temperatures rise 1.6°C above the average for the 1980's and 1990's. ^[1]

Dr. Bill Parker, forest geneticist at Lakehead University, Canada brings another dimension to this issue. His current research is directed at the managing and conserving of biodiversity at the population level (the forest stand level) and utilizes the background of population level data that he has collected and the methodologies he has developed over the past 20 years to achieve his goal. As a society, he suggests, we have three choices: do nothing and let our tree species cope on their own; designate carefully chosen reserves where it is anticipated that species will survive despite climate change; or facilitate migration of chosen species. For Parker the third option is the only realistic choice.

Obviously 21st century challenges and changing expectations are substantial. In light of this is it possible to meet, with any reasonable assurance of success, the needs of people and forests around the globe? I believe that it is and I would like to share with you some examples, that may also serve as models, of forestry extension and technology transfer that in diverse ways address the needs of people and the forest. The six cases, which describe significantly different initiatives are drawn from Europe, Africa, Asia and North America.

1) The Circumboreal Model Forest Initiative

Announced by the International Model Forest Network Secretariat in June 2008, the boreal countries who thus far have identified having a significant interest in the Circumboreal Model Forest Initiative include Sweden, Finland, the Russian Federation, China, the United States and Canada.

The Initiative outlines an opportunity for the countries involved to improve understanding of the boreal ecosystem in order to better address the sustainability of forest land use, to conserve biodiversity and to help forest-dependent communities assess their vulnerabilities and adapt in the face of rapidly changing climate.

Anticipated products of the Circumboreal Model Forest Initiative over the next two to five years include: a documented body of the existing research for each project implemented under the Initiative; a well developed network of researchers with processes for collaborating; a suite of well-functioning demonstration sites and a well developed dissemination strategy; and an effective transnational network for collaborating on boreal issues. In the next five to ten years anticipated products include: a documented body of research on a number of key themes or topic areas; completed pilot and case studies that can be more broadly applied; and well-established tools and processes for effectively communicating relevant information to policy makers at all levels. ^[2]

The operative phrases here, I suggest, include: a transnational network of researchers with processes for collaborating; a well developed dissemination strategy; and processes for effectively communicating relevant information to policy makers.

2) Continuing Education and Technology Transfer

For 13 of the past 16 years Lakehead University's Faculty of Forestry and the Forest Environment has successfully undertaken a total of four separate multi-year Canadian International Development Agency (CIDA)-funded projects in partnership with universities in Ghana, West Africa and Nepal, Southeast Asia.

One activity that was conducted in both Ghana and Nepal was geomatics training of university faculty and staff and subsequently, by strong popular demand, students. Original Project plans called for the training of university instructors who would in turn incorporate geomatics into their own courses and train the students. The Ghanaian and Nepalese students were not about to wait for that two-phase process to unfold. Thus with some adjustments and significant commitment, Lakehead's team of instructors, led by Dr. Ulf Runesson, met the challenge to everyone's satisfaction.

The geomatics program in Ghana involved the establishment of laboratory facilities including a series of periodic upgrades. Today geomatics has become a truly integrated component of course offerings across the campus for the Ghanaian university. The same university has now partnered with a Dutch world class training institute in the Netherlands, the International Institute for Geo-Information Service and Earth Observation (ITC) to offer a combined Masters program in geomatics with a focus on West Africa. The facility developed in Ghana by Lakehead University is an integral part of the new MSc Program and the woman who is one of the two Ghanaian principals of this new endeavour received her introduction to geomatics when she successfully undertook a Masters Program at Lakehead University.

Graduate students and researchers visiting Ghana from the United States, the United Kingdom, Germany, the Netherlands and Canada have used, and continue to use the Project's facilities. Recently the Ghana Forestry Commission, which has participated in the Project's geomatic program for several years recently commenced a nation-wide expansion of geomatics and is currently using Lakehead personnel as architects for a GIS Master Plan.

When the Nepal geomatics program began, up-to-date natural resources data was not easy to obtain. As a result the Project built a detailed database for the campus forest using aerial imagery obtained from a Finnish country-wide surveying effort. This tree-based inventory was very detailed and accurate and continues to be used for course delivery with both Nepalese undergraduate and graduate students. Conversely data and other materials for improved land management developed by the International Centre for Integrated Mountain Development in Kathmandu is being used here in Canada in the training of Lakehead's senior forestry students in hydrology-focused remote sensing.

After the Project's initial training programs were completed Nepalese students continued to press for the inclusion of additional geomatics content in their curriculum.

3) FPInnovations

When speaking about the principle of clustering, Michael Porter, the Harvard economist, had this to say, “anyone can access anything from a distance – their computers from Germany or their information off the World Wide Web. What makes you specialized is your proximity and your relationships.” In 2007 four Canadian research organizations came together to form FPInnovations reflecting in a real way the value that they place on proximity and relationships.

In 2008 FPInnovations began the work of restructuring the four distinct divisions namely:

- Feric (the Forest-Engineering Research Institute of Canada)
- Forintek (Forestry, Industry, Technology)
- Paprican (Pulp and Paper Research Institute of Canada) and
- The Canadian Wood Fibre Centre

into a single organization capitalizing on the skills and expertise available across all of the divisions as well as building collectively on the strengths of the four organizations. In turn, by strategically engaging federal and provincial governments, industry, universities, equipment suppliers, industry associations and other research organizations a critical mass will be created. In addition FPInnovations will expand market information on product attributes which will then be used to make informed decisions on resource utilization. ^[3]

On this latter point the Canadian Wood Fibre Centre (CWFC) will contribute forest level knowledge tools and expertise to the integrated research programs of FPInnovations. The members of FPInnovations are the primary clients of the Canadian Wood Fibre Centre. They include government and industry policy makers charged with the responsibility for making resource allocation decisions; forest managers and planners requiring better tools and information with which to improve efficiency, reduce costs and add value to the resource; and researchers looking for new products, applications and markets for Canadian fibre.

One of the objectives which form the short-term development of the CWFC is particularly relevant to the theme of this Symposium, namely “to promote uptake of its products by delivering them as much as possible through regional organizations already engaged in knowledge transfer.” ⁽⁴⁾

Salient features of both FPInnovations and the Canadian Wood Fibre Centre include the effective dissemination of knowledge to, and the application of research findings by, both policy makers and resource managers.

4) Forest Cluster Ltd., Finland

Another recent partnership initiative that focuses on the potential benefits that accrue from clusters and their inherent features of “proximity and relationship” originated in Finland.

Finland's Science and Technology Policy Council has called for the establishment of five centres of excellence in the following areas: energy and the environment, metal products and mechanical engineering, the forest cluster, health and well-being, and information and communication industry and services. The first centre of excellence was established for the forest cluster in 2007 when major companies in the Finnish forest cluster together with the Technical Research Centre of Finland, the Finnish Forest Research Institute and four Finnish universities established Forest Cluster Ltd.

According to Forest Cluster Ltd. "Finland's forest sector has three key development needs: modernizing the cluster; enhancing the competitiveness of companies and forestry; and sustainable development. Toward that end seven priorities of the forest cluster's research program were identified including: sustainable forest management and research; added value from wood biomass; and intelligent and resource-efficient production technology.

Forest Cluster Ltd. goes on to say "Skilled people and a well-functioning education system are key factors for the success of Finland's forest cluster now and in the future."

One of the eight Strategic Objectives in the European Union Strategic Research Agenda (SRA), which forms the background to the national research agenda of the Finnish forest cluster, is virtually the same as an underlying principle of the Canadian FPInnovations initiative, namely "improving communication with policy makers and the wider public." ⁽⁵⁾

5) The Forestry Futures Trust, Ontario Canada

The Forestry Futures Trust, an entirely new concept in the province of Ontario and virtually all of Canada, became a reality in the mid 1990's with the passage of Ontario's Crown Forest Sustainability Act.

The autonomous nature of the Forestry Futures Trust Committee established by the Minister of Natural Resources (MNR) as provided for in the Act, is a key characteristic of the Forestry Futures Trust concept. Full credit must be given to MNR for honouring the principle of autonomy. Indeed from the very outset the Committee whose task it is to allocate funds to Sustainable Forest Licence holders in order to carry out forestry projects in accordance with the Act, received advice from a senior level of the Ministry which included:

- 1) above all else be independent – there will be occasions when special interests, including the Ministry itself, will try to "direct" the Committee. Ignore them as best you can.
- 2) don't become another "government". Many of the issues that will be brought to your table will belong with the Government. You can say no.

The Forestry Futures Committee's autonomy lent credibility to the application review and selection process. There was never an instance in my 11-year term as Founding Chair that the Ministry of Natural Resources even remotely interfered in a decision of the Committee. It was my good fortune first, to be entrusted with an exceptionally sound concept – the Forestry Futures Trust; and second to have the pleasure of working with four Committee members who were prepared to advance the idea of the Trust from the conceptual stage to the implementation

stage and hence to the on-site project stage. Their constant co-operation, strong professional input and dedication made an innovative concept a success.

The Act identifies three principal uses of the funds: intensive stand management; silvicultural expenses following damage by fire or natural causes; and pest control. During its first ten years of operation the Trust funded over 400 projects with a value in excess of \$100 million. Applicant contribution was approximately \$30 million and the total area treated exceeded 300,000 hectares.

The mandate of the Forestry Futures Trust Committee quickly expanded. For example the lead role for the administration and management of Ontario's Independent Forest Audit Program was transferred from the Ministry of Natural Resources to the Committee. On average seven to eight forest audits are conducted by audit firms annually.

Later the Enhanced Forest Productivity Science program was established and the Committee was made responsible for its implementation and management. A three-year initiative, the program was allocated \$6.9 million from the Forestry Futures Trust. By 2007 the program had funded 42 projects totalling \$6.4 million which in turn generated \$16.4 million in planned matching contributions.

The Forestry Futures Committee believes the Enhanced Forestry Productivity Science program is effective and should continue. ⁽⁶⁾ One of the keys to its success is the calibre of the 10-person Science Review Team that carefully reviewed all of the 99 proposals submitted and made recommendations to the Committee. The Trust Committee was extremely fortunate in the quality, experience and integrity of the members of the Science Review Team that it was able to form. I believe some of them are in the audience this morning.

Of particular interest to participants in this Symposium is what products will be developed by the Science projects and how will they be shared?

Publications, research papers, data and decision support models are the primary deliverables. These products will be shared with forestry practitioners and policy makers via publications, extension programs, accessible databases and by direct involvement in government and industry staff in the EFPS project. Of the five assessment criteria for ranking the proposals, "technology and knowledge transfer" and "project management and financial plan" are weighted the highest at 25 percent each.

Further illustrating the importance placed upon the theme of knowledge and technology transfer by the Forestry Futures Committee is this fact. One of the projects funded in Round 1 of the Enhanced Forest Productivity Science program was that of the Forestry Research Partnership which exclusively addressed, "knowledge and technology transfer."

The "product" of the Forestry Futures Trust should not be measured simply in terms of funds allocated, extent of area treated, number of forest audits conducted and range of research projects undertaken.

Of substantial importance, and what is not readily apparent, is the massive amount of technical, scientific and professional experience, knowledge and application of judgement rendered by those who undertake the silviculture projects, the Independent Forest Audits and the

Enhanced Forest Productivity Science Projects. Careful analysis and conservative estimates show that more than 50,000 knowledge-worker days went into carrying out Forest Futures Trust projects and programs in the ten-year period 1995-2005. Cumulative knowledge of that nature and magnitude is invaluable. Ensuring that it is used effectively and disseminated wisely is critically important. There are several ways of doing this. One that I strongly recommend is to re-establish the Ontario Advanced Forestry Program, a continuing education project that attained considerable success in the 1990's.

6) Community Outreach

The importance of “meeting the needs of people and the forests around the world” is even more evident when considered in the context of developing countries. When asked by the International Union for the Conservation of Nature and Natural Resources, now the World Conservation Union, if I would consider leading the development of a National Conservation Strategy (NCS) for Nepal, I responded in part by saying. “If I were to do that, the Strategy would have a substantial human component – both in its development and in the final product.”

During the three years it took to produce the Strategy the four-person secretariat – all of whom were Nepalese but myself, held over 100 community meetings across the country and involved literally hundreds of Nepalese directly in the process. Farmers, community groups, village and town councillors, district and regional administrators, private sector representatives, researchers, senior officials of Ministries and the National Planning Commission were among the participants.

When the NCS for Nepal was completed and approved by the Government in 1988, Nepal's Prime Minister said in the Foreword contained in the central document of the Strategy, ⁽⁷⁾ “I am pleased to say that the Nepal National Conservation Strategy has been careful to develop, in addition to pragmatic policies for the sustainable use of our natural resources, a Conservation Action Agenda that addresses the people ... in a way that takes into account their basic needs, social values, and rich cultural heritage.”

I have frequently experienced, first-hand, both in Canada and elsewhere the human population's ability and natural propensity to rise constructively to challenges and desire to do things better at the community or local level. For example. In the 1970's Nepal initiated a community forest program which for the first decade or so proceeded in a modest fashion. The underlying principle of that program was to acknowledge the importance of local communities and their participation in the protection and wise use of the forests. Today there are some 12000 Forest User Groups (community forests) across the country which in total cover nearly one million hectares. Approximately 20 percent of the country's population participates in the program.

Community outreach was a principal focus of the CIDA-funded projects referred to earlier. Some of the activities comprising the Nepal Resource Conservation and Community Outreach Project included:

- Teacher-training workshops in consultation with Nepal's Ministry of Education regarding the introduction of environmental studies into the elementary and secondary school

curricula; and agro-forestry workshops led by the University of Guelph, Lakehead University's Canadian partner university in the Project;

- Conservation Centres were established in both elementary and secondary schools. Each Centre, located within a school compound, was equipped with books, manuals and other literature, maps, atlases and posters thereby providing readily accessible resource material for both teachers and students to assist them in undertaking class assignments;
- Extraordinary field projects were soon established involving Tribhuvan University faculty and staff and the local schools. Within a year of being coached in how to establish and maintain tree nurseries, students were producing between 30,000 and 45,000 seedlings per school annually. In one case a principal provided a substantial area of land for the establishment of an agroforestry demonstration site adjacent to her school compound.
- Seedlings produced by the schools were distributed locally to women's groups who were responsible for tracts of usually degraded forest land transferred to them under the Nepal Forest Act, farmers who actively worked small farms which they owned or leased, and community forests in which women often played a major role.

Inevitably those community outreach projects produced a two-way flow of benefits. First to the members of the communities in terms of access to technical advice and planting stock and second, back to the Project in terms of the creation of successful demonstration sites of good management and forest conservation practices. Such sites served as practical models for other community members and over time for other communities.

Community outreach projects also formed a substantial part of the programs in Ghana, West Africa. Those projects included the establishment and maintenance of 20 community-operated commercial plantations and seven community-operated tree nurseries producing some 200,000 seedlings per year. Also included was the research for, and the preparation and publication of, a Traditional Ecological Knowledge manual in three local languages distributed to secondary schools and a tree-identification manual distributed to universities, colleges and libraries. Adult literacy training programs with a forestry focus (manuals were produced in three local languages and illustrated by local artists) were provided to more than 2000 villagers, more than half of whom were women.

A program to train members of six communities in establishing and managing small-scale businesses was a key feature of the community outreach program in Ghana. Following the training program, proposals were invited and 20 were funded. Those 20 businesses were sufficiently successful that more than half of the initial capital costs were paid back into a revolving fund and then used to establish additional small-scale businesses. The communities opened accounts with rural banks and established finance committees to manage the money paid into the revolving funds. Ghanaian women have natural entrepreneurial skills. The small-scale business project gave them just the kind of opportunities with which they felt comfortable.

Successful community outreach and forestry extension programs of the nature just described, can play a key role in encouraging rural populations to remain connected with the

land, their traditional communities and their cultural roots in place of the often tenuous connections that prevail following migration to urban centres.

In Summary

In keeping with part of the theme of this Symposium "...forestry extension and technology transfer..." I have endeavoured to illustrate that globally some interesting things are happening. Few would dispute however that much more needs to be done if we are to meet evolving challenges and changing expectations, also part of the Symposium theme.

The six cases discussed may be viewed not just as examples but also as models for use elsewhere if appropriately adapted to local conditions. We all agree that meeting the needs of people and forests around the globe is an important issue. What should not be overlooked is the fact that one of the needs of people is to know that they matter, that they have a role. When they are assured of that the evidence speaks for itself – the results can be impressive.

Thank you
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