IMFNS

The International Model Forest Network Secretariat (IMFNS, the Secretariat) was established in 1995 at the International Development Research Centre (IDRC) in Ottawa, Canada, to support the development of a global network of model forests that would:

- Foster an international exchange of ideas on the concept of sustainable forest management (SFM)
- Facilitate international cooperation in the application of SFM at the field level
- Use these concepts and applications to support ongoing international discussions on the principles, criteria, and policies related to SFM

The Secretariat works with a variety of organizations and national government agencies to support model forests. Some of its key areas of activity include:

- Partnership development
- Local capacity-building for project delivery
- Economic diversification within the natural resource sector
- Measurement and assessment of progress toward SFM
- Development and application of SFM tools
- Knowledge-sharing and networking
- Support of special projects and initiatives

The Secretariat carries out its work through site-level support, training, and extension activities; facilitation of networking among model forests; regional, national, and international meetings and workshops; and communications and advocacy.

The IMFNS is a donor-supported international secretariat, legally and administratively hosted by IDRC and governed by a Board of Directors consisting of IDRC, Foreign Affairs Canada (FAC), the Canadian International Development Agency (CIDA), Natural Resources Canada – Canadian Forest Service (NRCan–CFS), the Regional Model Forest Network for Latin America and the Caribbean (RMFN-LAC), and the Food and Agriculture Organization (FAO) of the United Nations.
**Milestones**

1992  Canadian Model Forest Network established with 10 model forests

1994  IMFN established with three member countries: Canada, Mexico (two model forests), and Russia (one model forest in the far east of the country)

1995  IMFNS established at IDRC in Ottawa, Canada, to develop a global network of model forests

1996  Chiloe Model Forest established in Chile

1997  Lin’an Model Forest established in China

1999  Government of Japan, through FAO Trust Fund, sponsors the Regional Model Forest Project (RMFP–Asia) in Southeast Asia, consisting of four model forests (one each in China, the Philippines, Thailand, and Myanmar) with a 3-year grant of USD 1.6 million

2000  Indonesia joins IMFN with Berau Forest Management Project (sponsored by the European Union)

2001  RMFP–Asia completes first phase and continues as four-country initiative with support from IMFNS and FAO

2002  Regional Model Forest Network for Latin America and the Caribbean (RMFN–LAC) established, consisting of eight model forests. United Nations Development Programme (UNDP) hosts Network in Santiago for first phase

2004  • RMFN–LAC moved to the Tropical Agricultural Research and Higher Education Center (CATIE) in Turrialba, Costa Rica  
• Sweden launches the Vilhelmina Model Forest, the first model forest in Europe  
• FAO joins IMFNS Board of Directors

2005  • Brazil launches two model forests: the Pandeiros and Mata Atlantica  
• Cameroon identifies two sites for development  
• India’s Kodagu Model Forest joins IMFN  
• Japan initiates development of the Kyoto Model Forest  
• Russia identifies Kovdozersky site for development of its second model forest
What is a Model Forest?

A model forest is about much more than trees. The term “model forest” was first used in 1991 to describe an innovative program launched by the Government of Canada to develop broad-based voluntary partnerships within large forested landscapes that would translate sustainable forest management (SFM) policies into practice. Each site was intended to be a “model” from which others could learn and advance toward SFM.

Because the conditions under which SFM develops can vary significantly from one site or region to another, the model forest approach was designed to be flexible. Since the program’s inception, it has been applied in a wide range of landscapes, cultural settings, and political situations across the globe. Nevertheless, all model forests share six key attributes that give the program coherence and provide the basis for networking:

1. An inclusive and dynamic partnership: those with an interest in their area’s natural resources agree on a process for defining SFM in locally relevant terms, prioritize goals, then work together to achieve those goals.
2. A commitment to sustainable forest management.
3. A landscape large enough to represent an area’s diverse forest uses and values.
4. A governance structure that is representative, participative, transparent, and accountable.
5. A program of activities reflective of partner needs and values.
6. A commitment to knowledge-sharing and networking, from the local to the international levels.

Model forests are unique in several ways: the comprehensiveness and flexibility of their approach, the scale of operation, the breadth of their partnerships, the level of policy they aim to affect, and the importance placed on networking.

While individual model forests work toward a common vision of SFM for their area, the International Model Forest Network (IMFN) provides an efficient mechanism for sharing model forest research and experiences, so that the strengths and lessons learned at one site can be made available to others — accelerating innovation across the Network. The IMFN Secretariat supports model forests through regional and global meetings, training and extension work, specialized workshops, and the dissemination of information. Although it is not a donor institution, the IMFN does manage a limited program fund to share costs of selected key objectives at the site level, fund regional activities, and facilitate knowledge transfer between and among sites.

With 40 sites worldwide either in existence or under development, the IMFN constitutes an integrated global community of practice in virtually every aspect of SFM. In this and other respects, the IMFN is making a unique and valuable contribution to the realization of tangible, practical, and durable solutions to sustainable forest management at the operational level.

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FROM THE PRESIDENT, IDRC

Ten years ago, the International Model Forest Network Secretariat (IMFNS) was established at the International Development Research Centre (IDRC) with three member countries and a mandate to create a global network of model forest sites. The goal was, and remains, to develop practical solutions to the challenges of SFM, based on the idea of fully inclusive, participative, and dynamic partnerships operating on large landscapes.

The Secretariat fits naturally within IDRC. Our mission, empowerment through knowledge, reflects a dedication to promoting interaction and fostering a spirit of cooperation and mutual learning among social groups, nations, and societies by creating and adapting the knowledge that the people of a country judge to be of greatest relevance to their own prosperity and security. This goal is best achieved through partnerships operating under a transparent and accountable governance structure, a fundamental attribute of the model forest approach. By their very nature as open fora, model forests give voice to those often not heard, particularly women and indigenous peoples, helping build programs that reflect their communities’ specific social, economic, cultural, and environmental needs and priorities.

IDRC builds local capacity in developing countries to undertake research and effect innovation, believing that people from developing countries must take the lead in producing and applying knowledge for the benefit of their own communities. This country-led approach is also key to the model forest concept, and the IMFNS has been enormously successful in using its network to make knowledge and lessons learned available to all its partners, fostering alliances and accelerating innovation across and between local, scientific, research, and development communities around the world.

This publication, which celebrates the 10th anniversary of the IMFNS, demonstrates that while model forest partnerships are often challenging to create, they are neither a luxury nor an option. Rather, because model forest partnerships provide the context and framework in which sustainable solutions emerge, they are an essential and powerful component of every project undertaken to achieve sustainable resource management.

I am delighted to mark the 10th anniversary of the IMFNS and to share with you its important and successful work.

Maureen O’Neil
President, IDRC
August 2005
FROM THE CHAIR OF THE BOARD OF DIRECTORS, IMFNS

Canada’s prime minister announced the international model forest program at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 with a pledge of USD 8.5 million. He invited other countries to join in testing this innovative approach to SFM that was showing promise in Canada.

For 10 years, the IMFNS has been working with partners around the world to translate globally agreed upon policies of SFM into practice through the model forest approach. Moreover, model forests have become directly relevant to national forest programs worldwide through their role as SFM demonstration areas of national significance.

Model forests directly address a number of the most important policy objectives of the international forest community, helping countries achieve significant political consensus on SFM in the process. Beginning with UNCED’s 1992 Statement of Forest Principles, through the 1995–2000 Intergovernmental Panel on Forests/Intergovernmental Forum on Forests (IPF/IFF), to the UNFF, we have seen repeated emphasis on the need for good governance, partnership development, and poverty alleviation in pursuit of SFM.

But how do we achieve and measure good governance? How can we effectively include marginalized voices in discussions of how the resources they depend on are to be managed? The forest community has tended to shy away from the social dimension of SFM – largely because of the complex social dynamics involved – in favour of more easily accessible economic or science-based approaches. However, model forests directly address the social aspects of sustainability, making them a workable approach to SFM and the many challenges associated with it.

As chair of the IMFNS, it has been gratifying for me to see the Network grow and to see its partnerships with countries and institutions strengthen. With this growth come new international opportunities to use this network of landscape-level experiments to consider new research and development efforts, to evaluate and improve understanding of issues such as governance and participatory processes, and the link between forest ecosystem health and economic opportunity.

In the coming years, we look forward to the development of new alliances and partnerships that will allow us to share the IMFN’s considerable knowledge while we benefit from the substantial expertise within the broader SFM community.

Richard (Dick) Ballhorn
Chair, IMFNS Board of Directors and Director General
Environment and Sustainable Development Affairs Bureau
Foreign Affairs Canada
August 2005
FROM THE EXECUTIVE DIRECTOR, IMFNS

This publication celebrates the 10th anniversary of the creation of the IMFNS and the work that we have jointly undertaken with our many network partners in support of SFM. Like the model forests themselves, the success of the IMFN and its Secretariat is a testimony to the value of partnerships.

Since the first model forests were created in Canada in 1992, the model forest approach has been adopted and applied at 40 sites, in 19 countries around the world. In each case, the approach is being used to define and address SFM in ways that are relevant to particular landscapes and partnership groups, creating opportunities to develop new alliances, views, approaches, and solutions to the SFM challenges they face.

Over the past year, the IMFNS has drawn together the activities, insights, and lessons learned from individual model forests to present a snapshot of the model forest experience, and this publication showcases some of the important contributions that model forest partnerships around the world are making in support of SFM. Because each model forest is unique in both its local features and history, they cannot be defined by a single representation. But there are strong thematic similarities across the Network. In five areas — governance, economic opportunity, conservation and protection, forest science, and networking — we have highlighted how model forest partnerships are registering impacts, how they work and what they do, and how they interact to learn from one another.

Above all, these successes confirm that inclusive partnerships operating at a landscape scale are workable and that local communities and stakeholders can be full participants in, and contributors to, resolving SFM challenges. Indeed, model forests demonstrate that such partnerships are essential to mobilize the resources, perspectives, and commitment needed for lasting progress in SFM.

The Network, as a global community of practice, demonstrates that there is strength in numbers. From the global to the site level, with more than 900 partner organizations, the IMFN today engages a great diversity of partners and collaborators in support of SFM. The IMFN has also benefited from collaboration with institutional partners, such as the FAO, the Center for International Forestry Research (CIFOR), CATIE, UNDP, and others. As a whole, the IMFN comprises operational and policy-level expertise on virtually every aspect of SFM — expertise that can be made available peer to peer and cost-effectively to other Network members and to the broader SFM community.

The future holds many opportunities for new partnerships, strategic alliances, and initiatives. On issues ranging from governance to climate change, and from boreal to tropical forests, the IMFN will continue its innovative work in pursuit of practical, tangible, and applicable SFM practices. I invite you to join us.

Peter Besseau
Executive Director, IMFNS
August 2005
PARTNERSHIP:  
THE HEART OF MODEL FORESTS

From the beginning, model forests have upheld the idea that partnerships and participatory processes are the key to SFM. Although the concept of partnerships is not new, it has not always been clear what our various roles should be. In addition, achieving meaningful engagement among all stakeholders has often been difficult. For example, what is expected of the subsistence farmer, the woodlot owner, the land manager, indigenous peoples, conservation groups, community organizations, the municipal or national government, and the forest industry in terms of moving individually and collectively toward SFM?

Model forests have been instrumental in bringing together these highly diverse — and often opposing — interests to work toward a common vision of SFM. And the many successes that model forests have achieved over the last decade are a direct result of the extraordinarily rich pool of experience, expertise, perspectives, and resources contributed by their partners. With more than 900 participating organizations at the Network’s 40 sites, the model forest initiative represents the world’s largest experiment in SFM.

Model forest partnerships strive to harmonize economic and non-economic priorities for the landscape and to understand the nature and price of the trade-offs involved. To that end, they are active on a number of diverse issues and in various activities: education, science, research, protecting biodiversity, sustainable economic development, and developing local indicators to monitor progress toward SFM goals within the model forest area. The role of governments is crucial because political will is required to make the efforts work. As the guardians of public land, or by virtue of their policy and regulatory responsibilities, they are key stakeholders. Indeed, having a dynamic link to policymakers through their active participation is necessary if policy is to be influenced by innovative practices in a model forest.

In addition to the expertise found within their own partnerships, each model forest is also a member of a larger regional association. Model forests in Canada, Asia, and Latin America and the Caribbean have combined to form three regional model forest networks — each dedicated to sharing knowledge, experiences, and ideas. Model forests in areas without regional networks, such as Sweden and Russia, participate through information and knowledge exchanges with other sites. Together, all model forests make up the IMFN, which facilitates the exchange of lessons learned across regions and with other organizations.

Although partnerships may create new challenges or increase the complexity of existing ones, they also offer the opportunity to share information, make trade-offs between conflicting objectives, and learn from, and about, one another. After all, only through shared understanding can we develop effective, lasting solutions to SFM issues.

A successful partnership depends on a number of key elements, including broad representation, adequate resources, an appropriate and locally relevant decision-making process, and sufficient time to develop.
BEYOND FORESTS: PUTTING POLICY INTO PRACTICE

In 1992, UNCED signaled an unprecedented global consensus on the urgent need to find real, practical, and sustainable solutions to the serious environmental challenges facing the planet. It was there that the IMFN was announced and work began to demonstrate what a sustainable development agenda could look like when translated into action in a defined forested landscape.

By the late 1990s, it became clear that working in voluntary partnerships was leading to reductions in conflict among stakeholders, new ideas on sustainable economic development and poverty alleviation, new thinking about the relation between conservation areas and the communities in and around them, and more focused application of existing resources. In fact, the model forest approach was being used to address many more issues than originally conceived as local-level partnerships throughout the world figured out for themselves how to translate the policies of SFM into practice. The relevance of what model forests are doing to national and international policy objectives is striking. A number of examples are highlighted below.

National forest programs (NFPs): Many, if not most, of the guidelines describing NFPs are found in model forests — their partnership and participatory mechanism, ecosystem context, focus on local community and indigenous stakeholders, respect for land tenure and national sovereignty, development of criteria and indicators, capacity-building, and active development of international linkages. In addition, as all model forests have the support of national or appropriate subnational governmental bodies — an essential component for an NFP — national support of an enabling environment for SFM through a local stakeholder group is in place.

"Model forests and other forms of demonstrating and sharing knowledge about SFM implementation are at the core of FAO’s work and we greatly appreciate the advances in this field achieved by the IMFN. FAO is closely liaised with IMFN and we look forward to continued fruitful collaboration and joint action."

Hosny El-Lakany
Assistant Director General, FAO Forestry Department
Model forests can provide a cost-effective way to test and refine key NFP objectives for a given landscape or in a given watershed, rather than beginning on a national scale. This experimentation allows for lower-risk — and lower-cost — development.

**Millennium Development Goals (MDGs):** Ensuring environmental sustainability means integrating “the principles of sustainable development into country policies and programmes [and reversing] the loss of environmental resources.” A model forest represents a place, a partnership, and a process to do just that, to affect people’s lives in tangible and positive ways by reversing environmental degradation through research and science; providing training and alternative economic opportunities; and encouraging conservation and reforestation programs.

The number one MDG is poverty alleviation. Because the partnerships themselves determine their priorities within the context of sustainability, model forests in developing countries consistently place issues of governance and poverty alleviation at the top of their lists, tackling these concerns in creative, effective, and collaborative ways. Moreover, they are also active in promoting gender equity (goal 3), ensuring environmental sustainability (goal 7), and developing a global partnership for development (goal 8) through the IMFN.

**Convention on Biological Diversity (CBD):** One of the key agreements adopted at UNCED was the CBD. It sets out “commitments for maintaining the world’s ecological underpinnings as we go about the business of economic development.” Every model forest in the IMFN encompasses landscape areas with significant conservation or preservation values, such as national parks, biosphere reserves, or world heritage forests. Some contain species at risk, such as the Siberian tiger or the grizzly bear. Working at a landscape or ecosystem level allows partners to see and understand their environment without borders, which is a precondition for developing strategies to reduce forest fragmentation, enhance wildlife habitat, and develop collaborative strategies with local communities for managing biodiversity, while also recognizing the legitimate needs of those communities to derive benefit from the land. In this sense, model forests can be seen as responding very strongly to the spirit and intent of the CBD.

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Convention to Combat Desertification (CCD) and the UN Framework Convention on Climate Change: Other global instruments designed to halt and reverse environmental degradation can also be put into operation through model forest partnerships. For example, the Sabana Yegua Model Forest in the Dominican Republic faces the looming crisis of a disappearing forest and loss of water for rural and urban users, problems well known across its border in Haiti. It is applying the model forest approach to advance strategies and programs to ensure that this does not happen.

On another front, the Canadian Model Forest Network (CMFN) recognizes that climate change has the potential to alter forest ecosystems and wildlife habitats rapidly — affecting the future of forests and the communities that depend on them. Its model forests are cooperating in an initiative aimed at helping communities gauge their vulnerabilities and identify strategies to reduce potential impacts. Through the IMFN, Canada will share its experience with others, contributing to global discussions surrounding this important topic.

United Nations Forum on Forests (UNFF): The UNFF seeks to focus forest sustainability issues in a coherent and comprehensive manner and continues to work with UN member states and institutions to facilitate implementation of the more than 270 proposals for action developed through the IPF/IFF process. These proposals have been bundled into thematic groupings; model forests — in one respect or another — are involved in all of them. They include such themes as economic aspects of forests, traditional forest-related knowledge, forest-related scientific knowledge, social and cultural aspects of forests, and criteria and indicators of sustainable forest management. In the area of innovative financial mechanisms, model forests have been notably successful in leveraging an extensive array of financial, technical, and political resources at all levels from local to international.

In its final statement, the XII World Forestry Congress (Québec, 2003) called for industry, governments, environmental groups, and individuals to pursue sustainable development of forest resources through participatory processes; equitable and transparent governance structures; collaborative partnerships; research, education, and capacity-building; sustainable economic development; and the creation of criteria and indicators for SFM and forest certification schemes. Each of these elements is reflected in the model forest approach, and locally based partnerships around the world now have over a decade of experience in how to do this.
Traditional approaches to SFM have tended to marginalize or ignore the social science of sustainability in favour of biophysical sciences or economic considerations. Success in SFM requires us to acknowledge that understanding and managing ourselves and the demands we place on our natural resources is as important as the traditional sciences we have used to understand our environment.

Model forests address the social aspect of sustainable development head-on. One of the main goals of the IMFN is to explore innovative solutions to SFM challenges by building relations that allow a broad range of actors to work collaboratively. This is achieved through the development of model forest governance structures that are representative of the wide range of forest values and interests in a given area; that are participatory, transparent and accountable in their decision-making structures; and that are oriented toward concrete action.

Although there are attributes that describe what a model forest is, there is no template for how a model forest must be structured. Each model forest creates a governance structure that reflects the standards and norms of its country or region. Voluntary participation is the key to the process — within a model forest partnership, no organization surrenders its legal rights or responsibilities nor can the partnership impose land-use decisions on participants. Model forests provide a neutral forum allowing people, especially those who have traditionally been left out of the decision-making process, to have an equal voice around the table where the issues and decisions that affect them are discussed. In fact, in areas where model forests have been established, the model forest format has often been the only one that constructively brings together government, individuals, communities, conservationists, indigenous groups, and others.

GOVERNANCE IN A MODEL FOREST CONTEXT: GIVING PEOPLE A VOICE IN THEIR FUTURE

A model forest partnership brings together a wide range of organizations and people who agree to work together toward a common vision of sustainable forest management.
Non-traditional partnerships creating SFM solutions

One of the key attributes of a model forest is an inclusive and dynamic partnership group that agrees to work toward a common vision of SFM for their area. Each model forest group includes representation from the area’s stakeholders, who may consist of:

- Various **government departments and agencies** at the local, regional and national levels. China’s Lin’an Forestry Bureau in the Lin’an Model Forest provides administrative support and participates in research on issues of interest to the partnership.

- The forest, mining, and oil and gas **industries**. Indonesia’s Perhum Perhutani forestry company is a key partner in the Margowitan Model Forest and became involved through an interest in exploring ways to balance the management of its teak plantations with the economic needs of local communities.

- **Academic institutions and scientific researchers**. In addition to being the initiator of Canada’s Model Forest Program, the Canadian Forest Service is actively involved in many of the research activities in Canada’s model forests, including development of an operational-scale carbon accounting model, forest management impacts on water quality, and public participation mechanisms.

- **Indigenous groups**. Russia’s Nanai and Udege peoples, through their involvement with the Gassinski Model Forest, have developed a range of wood and non-wood forest products leading to increased employment.

- **Protected areas**. Like most model forests, Futaleufú Model Forest in Argentina contains a protected area, offering opportunities for education through interpretive programs and acting as a benchmark for scientific research.

- **Local communities**. The Lake Abitibi Model Forest in Canada has developed numerous working relationships with local communities and community groups, including the Iroquois Falls Chamber of Commerce, the Town of Cochrane Community Development Corporation, the Abitibi-Black River Outdoor Association, and the Polar Bear Riders Snowmobile Club.

- **Environmental nongovernmental organizations**. The Protected Areas Association of Newfoundland and Labrador is one of over 20 partners working in the Western Newfoundland Model Forest in Canada to help resolve issues surrounding an endangered species.

- **Religious institutions**. As an integral part of every day life, the Catholic Church is involved in Chile’s Chiloé Model Forest. In fact, the church has been instrumental in engaging local communities in discussions on sustainable resource use.

- **Military**. As a way of reducing conflict in the area, the Philippine Army joined the Ulot Watershed Model Forest to help local communities address their development needs.

Sustainable forest management is defined as “management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations.”

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3 The only mandatory partner, as guardians of public lands and the makers of public policy, the role of governments is crucial.

Working together to protect rural livelihoods

Through its partnership group, each model forest develops strong ties to all facets of the resource community, combining social, cultural, and economic needs in a strategic vision of long-term sustainability.

The livelihood of the indigenous Sami people of northern Sweden is based on a 1 000-year-old tradition of reindeer husbandry. Yet recently, forest management practices in old-growth areas have reduced the supply of hanging lichen, the reindeer’s chief winter food. Although the Sami are guaranteed access to land for reindeer grazing, alternative forest management practices need to be explored to ensure a continuous supply of lichen for the reindeer. As members of the partnership group for Europe’s first model forest, the Vilhelmina Model Forest (VMF) created in 2004, the Sami are working with other partners to resolve these issues.

“Reindeer husbandry depends on the presence of continuous areas of natural forests – something that cannot easily be combined with modern forestry,” says Karin Baer, Sami leader of the Vilhelmina North Samivillage. “The activities within the Model Forest should provide good examples for the future of how forestry can be adjusted to meet the viewpoints and needs of indigenous land users.”

The Sami have also partnered with the indigenous Cree of Canada’s Prince Albert Model Forest to support and encourage sharing of knowledge and experience.

As part of its activities, the VMF partnership is examining ways to create habitat corridors in migration areas and exploring new thinning practices and selective cutting and improved scarification techniques to reduce damage to ground lichen. The VMF group will be looking at the Canadian experience, among others, in these fields for possible application in their country.

"Model forests represent a very innovative and successful experiment to implement sustainable management of the forest landscape at an operational level and to meet multiple needs. The IMFN has successfully built consensus among diverse stakeholders, mobilized their rich experience and fostered their partnership at the local, national, regional and global levels."

Jagmohan S. Maini, O.C., PhD
former Head of the United Nations Forum on Forests
Reduced conflict leads to long-term sustainability

Tension over forest resources was common in the northern Thai province of Lampang. The overharvesting of bamboo, coupled with population pressure and poor resource management, led to long-standing conflict between villagers and the local forest authority, as well as among communities. As bamboo became more and more scarce, people began to encroach on protected areas, increasing tensions even further.

Conflict resolution was one of the driving forces behind establishment of the Ngao Model Forest in Lampang in 2002. Initially, partners organized meetings where all stakeholders could air their concerns, collectively identify the causes of bamboo loss, and collaborate on SFM.

As a result, partners agreed on their rights and responsibilities and reached consensus on the sharing of benefits deriving from bamboo cultivation and harvesting. They defined community harvesting areas, established cutting regulations, and identified a need for improved forest management. They also launched a successful initiative to support a forest rehabilitation program begun by the village of Ban Hua Tung in 1998.

Implementation of the agreed-on approach to SFM has greatly reduced conflict in the Model Forest area; it has led to improved forest conditions, augmented people’s incomes, and generated a commitment to SFM practices. Key to this outcome was the fact that stakeholders worked together to identify sustainability issues for their area, determine options, and then take action to address these issues for mutual benefit.

RESOLVING ISSUES THROUGH CONSENSUS

Chile’s Araucarias del Alto Malleco Model Forest is the site of a long-standing and intense conflict over ancestral land claims. For many years, agricultural expansion by settlers has pushed the indigenous Mapuche-Pehuenche off their traditional territory onto increasingly marginal land. They have also been left out of economic development opportunities, putting them in an increasingly insecure financial position.

The Model Forest was the first and only organization to bring all the stakeholders together and allow the Mapuche-Pehuenche to be heard. Today, eight of the 22 members on the Model Forest’s Board of Directors are indigenous. Significantly, the board has reached consensus on all of the issues it has tackled without ever having to resort to a vote.

“We have the right to voice our opinions and to vote,” explains Mario Curical, director of the Alto Malaco Model Forest. “We have no problems reaching agreements. We coexist very well in the Board of Directors.”

In 2004, just 4 years after its formation, the Model Forest was presented with the University of Chile’s National Prize for Citizenship Innovation (Civil Society category).
As one of the pillars of SFM, sustainable economic development is a priority for the many resource-dependent communities located throughout the Network. Many stakeholders expect their support for SFM to better their lives. In other words, they want sustainability to have an economic dividend.

However, making informed choices about appropriate economic activity is not always easy. Access to information about available alternatives, non-traditional resource uses, more sustainable natural resource extraction processes, as well as the consequences of some economic activities on the landscape allows stakeholders to make knowledgeable decisions. Through various projects, model forests are providing opportunities for partners to assess their alternatives and find appropriate balances between the economic and non-economic values of the resources at their disposal.

In this and other respects, individual model forests have identified economic goals that speak directly to national and international policy objectives (MDGs, NFPs, the CBD, and others) addressing issues such as poverty alleviation, balancing conservation and biodiversity values with economic needs of communities, and providing specific opportunities for enhancing the livelihoods of indigenous peoples.
Building on local resources in the Russian Far East

The Gassinski Model Forest of Khabarovsky state in Russia was formed to advance SFM in an area that had suffered frequent forest fires and overexploitation, and to create alternative forest-based enterprises that would increase economic growth and provide local employment opportunities in balance with social and environmental values.

When the Gassinski Model Forest was established in 1994, its partners agreed that they would support extensive research during the initial phase to generate a database on which to build a strategy for sustainable economic development of the area. At the time, the unemployment rate, particularly among the forest-dependent indigenous Nanai and Udege peoples, ranged from 30 per cent to as much as 100 per cent in some villages.

Based on the long-term *Strategy for Sustainable Economic Development of the Nanai Region* developed by the Gassinski Model Forest with support from Canada’s McGregor Model Forest, CIDA (USD 3.48 million) and Khabarovsky state (USD 1.5 million), government officials undertook a 5-year project that focused on several natural resource areas:

- Value-added wood processing capacity
- Non-wood forest product enterprises
- A regional tourism strategy, infrastructure, and enterprises
- Commercial projects for Russian indigenous peoples
- Creation of a national park

"This is the only aid project that went directly to the villages," says Elizaveta Telushkina, Deputy, Khabarovsky State Economic Department. “[It] created very practical results.”

The two model forests provided the mechanism through which to link a range of partners, allowing for the development of a broad approach to sustainable economic development in the area. By the end of the project in July 2004, more than 500 people had been trained (60 per cent were women, 39 per cent were indigenous peoples) and overall unemployment dropped by 8.6 per cent as 34 new enterprises were created.

GASSINSKI PROJECT OUTCOMES

- **Value-added wood processing**, included lumber processing and drying; wood-framed house construction; round-log construction; house component construction; and Greenwood furniture making. One of the more significant spin-offs from the training provided was the creation of two new wood-processing enterprises, one owned and operated by indigenous peoples. As a result of these successes, the Khabarovsky state government is now very keen to develop a wood-framed housing industry in the Russian Far East.

- **Entrepreneurial development related to non-wood forest products** resulted in a 9.5 per cent increase in the number of self-employed with the creation of 23 new businesses, including the production and sale of birch sap, using Canadian tapping equipment and spray-nozzle technology. In 2003, an entrepreneurial development fund was also set up to ensure ongoing economic development, contributing significantly to the project’s objective of replicating successful activities on a broader scale.

- **Tourism** related to high-value international hunting, homestay arrangements and Amur River cruises included recognizing the importance of tourism associations, collective advertising and service-oriented operating methods. As a result of this project, state leaders now consider tourism a legitimate and important industry.

- **Entrepreneurial development among indigenous peoples** resulted in the creation of nine community-based businesses in six villages, ranging from traditional handicraft revitalization and production to fishing, baking, and forestry.

Model forests are living landscapes that include a variety of land uses — from forests, farms, and industrial activity to towns, cities and protected areas.
Increasing incomes through non-wood forest products in the Philippines

The pili (Canarium ovatum) is considered a high-value tree with multiple uses: the nut is eaten as a snack and used in desserts; the pulp is a nutritious delicacy; the shell is made into handicrafts and used as a component in the production of charcoal briquettes; and the tree’s resin is used in the manufacture of plastics, printing inks, perfumes, lacquer, and varnish. It was no wonder that the partners in the Ulot Watershed Model Forest (UWMF) turned to this important crop to reduce reliance on unsustainable timber extraction on Samar Island in the Philippines.

"Forests provide an array of goods and services that are beneficial to the community. When these forest resources are sustainably managed, the communities are assured of their economic welfare," says Lourdes Wagan of the Department of Environment and Natural Resources (DENR), a partner in the UWMF. “More livelihood enterprises are developed based on non-timber or minor forest products… and communities shift away from destructive activities and toward conservation.”

In 2004, with a USD 6,000 grant from the IMFNS and USD 4,600 from the DENR, the Model Forest bought enough grafted pili seedlings to cover 15 hectares of land. In addition, 32 participants from six people’s organizations were trained in pili tree management techniques, including land preparation, pest and disease control, and intercropping.

The success of this project in providing an economic alternative gained the attention of the UNDP Small Grants Programme for Operations to Promote Tropical Forests, which provided the people’s organizations with USD 53,600 in 2005. With this funding, they expect to plant another 100 hectares of pili trees, benefiting even more communities in the area.

"[The Model Forest] changed the way I think. I used to think small. This is my land, my grandfather’s land. I was going to hand it over to my children. But now I think outside my land to the community and to the prospects of maybe even reaching the community outside Chiloé.”

Huilliche farmer and Chiloé Model Forest partner
Small grants initiative creating alternative livelihoods in Chile

What do hazelnuts and ecotourism have in common? In Chile’s Chiloé and Araucarias del Alto Malleco Model Forests both are providing local communities with the means to develop alternative income opportunities that are contributing to the conservation of forest ecosystems and biodiversity.

In 2002, with support from the IMFNS, CIDA, and local municipalities, the Chiloé Model Forest was able to expand its small grants program. Local community groups obtain a grant through annual “competitions” where 10 to 15 of the most viable projects are awarded funding of up to USD 10 000.

As of February 2005, communities in Chiloé had undertaken more than 80 projects in 3 years. To qualify for funding, projects must be linked to SFM and include:

- The development of eco-ethnotourism opportunities
- The training of indigenous forest monitors and formalization of illegal activities
- Recycling of unused timber to produce furniture and handicrafts
- Environmental education in rural and urban schools
- The collection of folk remedy recipes for use in hospitals
- The development of non-wood forest products, such as hazelnuts and honey
- The reintroduction of traditional handicrafts

With the completion of eight projects in 2004, the Araucarias del Alto Malleco Model Forest is replicating Chiloé’s success in five thematic areas: education and culture, tourism, forestry, agroforestry, and value-added wood processing.

Biodiversity store brings increased stability

In much of the world, handicraft production is regarded as a viable option for generating sustainable forest-based revenue. But handicrafts can be a precarious business with tourism-dependent producers frequently earning an income for just a few weeks or months a year. The 2003 launch of Chiloé Island’s Biodiversity Store is changing all that.

The idea for a permanent store was born out of Chiloé Model Forest’s Biodiversity Trade Fair, an annual event focused on the generation of new products and income strategies for local communities, linking resource conservation and the market, in a space where consumers and producers interact. Two years after opening its doors in downtown Castro, nearly 400 artisans from across Chiloé are displaying their work at the store on a year-round basis; 87 per cent of them are women. Items for sale include natural-dyed woollen clothes, wooden carvings, ecotourism services, educational materials, and more. The community welcomes the project.

“Our experience with the store has been very positive,” says Jorge Negrón, artist and vendor. “It has allowed us to access a public that is more conscious and appreciative of work done with natural resources... and to earn an income all year round, not just in the summer.”

The conversion of handicraft production from a seasonal activity to a permanent job is significant. The Chiloé Model Forest has learned that part of SFM and biological conservation is poverty alleviation. But poverty reduction efforts must be self-sustaining — both financially and with respect to resources used — to achieve long-term results. By encouraging people to organize their work in a sustainable manner and focusing on cultural distinction they are accomplishing just that.
Developing tools to help partners achieve forest certification

As consumers become more and more aware of the environmental and social impacts of unsustainable forest management practices, demand is growing for wood that originates in forests that are certified as sustainably managed.

Consequently, model forest partners are increasingly looking at forest certification as a way of both testing and demonstrating the sustainability of their forest management practices and addressing business survival.\(^5\)

In their efforts to achieve certification, both large industry and private landowners are using the expertise, knowledge, and tools developed by model forest partners. For example, local-level indicators, public participation, alternative harvesting systems, and other tools can all be used by organizations in their certification efforts.

In areas where there are a significant number of small private landowners, model forests have helped them work together to obtain certification as a group. In 2002, the Eastern Ontario and Bas-Saint-Laurent Model Forests in Canada helped two groups with a combined membership of 476 landowners obtain the Forest Stewardship Council’s (FSC’s) SmartWood resource management certification. The Bas-Saint-Laurent Model Forest’s 436-member Groupement forestier de l’Est du lac Témiscouata is the largest group in the country to receive SmartWood certification.

In 2003, the Eastern Ontario Model Forest was successful in having nine sawmills and a local hardwood pulp-and-paper mill sign memoranda of understanding to pay landowners a management fee for all forest products originating from the SmartWood-certified forests, increasing their ability to manage their forests sustainably.

With help from the model forests, both groups are working toward obtaining FSC’s globally recognized Chain of Custody certification, assuring consumers and intermediate processors that the wood they buy comes from certified forests. Four other Canadian model forests are now also involved in the certification process.

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\(^5\) Forest certification is a voluntary process through which a forestry company or other organization interested in responsible forestry undergoes an independent audit or assessment of its forest management system.
Focusing on marginalized workers

In rural forest-based or agricultural areas, disabled workers tend to be at a disadvantage in terms of income-earning opportunities. With about 1700 disabled agricultural workers in Lin’an China, the Lin’an Model Forest has taken direct action to improve the economic situation of this marginalized group.

For example, with support to the Lin’an Handicapped Association, the Model Forest provided training in bamboo shoot, hickory and tea cultivation and processing techniques, generating alternative income opportunities for 600 disabled farmers in the region. At the same time, disabled farmers were offered free seedlings as part of a larger forest management plan.

The bamboo industry is now the economic pillar of rural Lin’an. So far, more than 30,000 households are growing bamboo, and Lin’an has become the largest food bamboo garden in southern China. These and other targeted projects have helped raise the standard of living for many disabled people in the Lin’an Model Forest area, alleviating poverty among this group.

The development of non-wood resources in Lin’an not only protects forest resources, but also enhances the area’s scenic value, which has led to the development of ecotourism. This, in turn, encourages more people to protect forest resources. Lin’an’s bamboo processing, hickory, and ecotourism industries are now estimated to be worth more than USD 75 million.

“I am amazed how this modest concept has been put into practice through the efforts of thousands of dedicated individuals working to sustain diverse forest ecosystems around the world. Imagine the ever-growing value from shared experiences and knowledge as this emerging global community of model forests continues its expansion in this, only its second decade.”

Fred Pollett
SFM consultant and originator of the model forest concept
All but a few model forests contain significant protected or conservation areas. These areas play an important role in SFM for a number of reasons: the natural values they are managed for, the educational opportunities they provide through interpretive programs, their value as recreation areas, and the benchmarks they provide for scientific research. As benchmarks, protected areas offer researchers information on how natural, unmanaged ecosystems evolve, allowing comparisons with managed landscapes.

Although the creation of protected areas is an important element in safeguarding habitat, effective conservation practices and stewardship within managed landscapes must also take place. Conservation within managed landscapes considers elements such as connectivity of habitat patches, coarse woody debris, riparian buffer strips, and alternative management practices that minimize soil disturbance and maintain water quality.

Model forests that include a high diversity of land uses and values — such as protected areas, resource extraction, and agriculture — play a critical role in allowing us to see beyond borders drawn on maps. As “living landscapes,” the territorial diversity that makes up a model forest can bring a different way of thinking and planning vis-à-vis the ecological processes at work on the earth.
Conservation, habitat protection, and stewardship

Crossing international boundaries to conserve butterfly habitat

Each year, an estimated 300-million Monarch butterflies make an incredible 3 200-km journey from as far north as central Manitoba, Canada (where the Manitoba Model Forest is located) to an area along the border of the west-central Mexican states of Michoacan and Mexico (site of the Mariposa Monarca Model Forest).

But by the early 1990s — despite the existence of a 16 000-hectare reserve — land-clearing to expand subsistence agriculture, illegal harvesting for fuelwood and timber, and wildfires had degraded the Mexican overwintering grounds of the Monarch by 44 per cent. Beginning in 1995, the two Model Forests began cooperating on projects that would help reverse the loss of critical butterfly habitat and raise awareness of Monarch conservation.

Four types of projects were identified: building local knowledge of butterfly conservation and SFM, generating alternative income opportunities that would make it worthwhile to reduce deforestation, providing the means to reduce fuelwood consumption, and reforestation.

“Forests are renewable resources and rich, resilient ecosystems, which, when managed sustainably, can provide society with essential goods and service — timber, medicines, food, water and jobs — and conserve biodiversity, for generations to come.”

The Montréal Process, 1994

BUILDING KNOWLEDGE

Between 1998 and 2004, with more than USD 20 000 in funding from the IMFNS and almost USD 44 000 from Foreign Affairs Canada, Canadian Wildlife Service scientists determined the exact migration routes of Monarch butterflies. During this time, the Manitoba Model Forest also began a Monarch habitat education project that included providing environmental education materials at publicly accessible interpretation centres located near two Mexican butterfly sanctuaries. The project also provided schoolchildren living in the Mariposa Monarca Model Forest with an opportunity to chat “live,” via the Internet, with children in Manitoba about the Monarch’s habitat and the environment.

In addition, the Manitoba Model Forest helped build and repair four interpretation centres within the butterfly sanctuaries. Guide training in ecotourism for 20 people was also provided, increasing incomes among this group.

TAking ACTION

Between 2001 and 2004, the Manitoba Model Forest received about USD 125 000 in financial and in-kind support from CIDA to help the Mariposa Monarca Model Forest undertake alternative income-generating activities, obtain new types of stoves that would reduce fuelwood consumption, and replant and fence-in deforested land.
Managing watersheds to conserve fundamental resources

The world's watersheds are important elements in assuring the quality and quantity of water available to their human and wildlife populations and natural resources. Sustainably managing watersheds, including reducing or mitigating erosion and flooding, helps to conserve this valuable resource. One of the key attributes of a model forest is that its scope of operation must reflect all the forest's uses and values: watersheds are the ideal scale for this approach and several model forests are operating at this level, including Costa Rica's Reventazón Model Forest (RMF).

The area that includes the RMF, located about 35 km from the capital of San José, provides 25 per cent of the country's potable water and contains hydroelectric generation facilities that supply more than 30 per cent of its electricity. The region faces a number of environmental challenges, including significant soil erosion, soil contamination from agro-chemicals, high-risk natural disaster areas, high demands for water and electricity production, and urban sprawl.

In 2004, the Costa Rican government, recognizing the strategic importance of the Reventazón watershed, joined Costa Rica's CATIE, national and municipal government agencies, the Reventazón watershed management commission, communities, farmers' cooperatives, and local nongovernmental agencies to create the Model Forest.

The RMF's primary goal is to use a holistic approach to ensure that the socioeconomic and institutional needs of the watershed's population are met, while at the same time ensuring that the watershed continues to provide vital environmental services. To that end, the RMF will embark on a plan of adaptive learning to increase knowledge among its members and communities about such issues as ecosystem-based management; improved agricultural practices, including organic agriculture; and payment for environmental services.

Maintaining ecological integrity and biodiversity

Fires and other natural disturbances can bring balance and renewal to forest ecosystems. Both Foothills and Manitoba Model Forests in Canada are developing tools to help natural resource managers emulate natural disturbances through their forest management activities.

In the Natural Disturbance Program at the Foothills Model Forest (FMF), researchers aim to understand how disturbances, including forest fires, insects, disease, flooding, and windstorms, interact and how management practices can be designed to mimic these natural disturbances to maintain ecological integrity and conserve biodiversity.

As part of this program, the FMF and its partners have implemented a 10-year (2004–2013) disturbance plan for a 70 000-hectare area
that will use natural disturbance research and knowledge to guide operational activities. A forest industry partner is using the research results to modify its harvesting and reforestation practices. As well, Jasper National Park of Canada, another Model Forest partner, is developing controlled fire strategies to return the park’s forest to a more natural state.

In an effort to return regenerating harvested areas to a natural forest state as quickly as possible, in 2000 the research partners at the Manitoba Model Forest developed a Guide to Harvesting Practices to Regenerate a Natural Forest. The guide shows forest operators how to harvest in a way that mimics the wildfire disturbance patterns common to the boreal forests of the area. Additional research is currently being conducted, using these guidelines, to compare the recovery of post-harvest areas with post-fire areas.

Although it is not always possible to emulate all aspects of natural disturbances, this type of work allows forest managers to base their decisions on an ecological foundation.

Regeneration through protection

Based out of Ingeniero Juárez, the Western Formoseño Model Forest is located in one of the poorest and most isolated regions of Formosa province, Argentina. Prolonged overharvesting of the red quebracho tree (Schinopsis lorentzii) for tannin, cattle grazing, cutting trees for fuelwood, and clearing land for vine growing have left the soil compacted and degraded. Local farmers who depend on livestock as their principle source of income have been affected, as well as indigenous Wichi and Toba peoples who live by hunting and gathering in this area.

One of the creative ways in which Model Forest partners are trying to meet community needs has been through the construction of a 250-hectare area of native woodland, where livestock have been effectively fenced-out. Through what is called the Community Production Development Project (supported by the Japan International Cooperation Agency [JICA]), the Model Forest is instigating a substantial research and recovery initiative that is aimed principally at the Toba, but will hopefully be replicable in similar forest ecosystems in the region.

The project seeks to merge current activities (livestock grazing, timber extraction, honey production, fuelwood collection, and others) with the concept of sustainability by recovering soil capacity. This will be achieved by allowing the growth of native grasses, reforestation, and the elimination of less useful shrubs. There is also the possibility of introducing more economically productive species to enhance the diversity of the woodland. To that end, the Toba have established a tree nursery capable of producing more than 80,000 seedlings a year.

“The presence of [the Model Forest] has aroused the interest of the population in looking to the past to live as they did before, with a lot of pride in having a healthy forest,” explains Gerson Ortiz, president of the B° Com’lec Civil Association. “We also live off it; it provides us with an important component that we sometimes do not appreciate.”
SFM involves complex issues, requiring both a great deal of information and the technology to gather and assess that information. Science can lead to a greater understanding of individual forest values, as well as the interactions between those values. The knowledge obtained through science can also help people assess management options and make informed decisions on a wide range of resource management issues. As such, the scientific community is an important partner in each model forest.

Model forest activities, particularly those in Canada, have led to a greater understanding of ecological processes, the impacts of various human and natural disturbances on forest ecosystems, and the socioeconomic dimensions of SFM. The creation of databases and geographic information system (GIS) models have also enabled managers and other stakeholders to review large amounts of information and to assess resource management alternatives.

Equally important, model forests have endeavoured to use the time and tools available to share scientific and technical information with non-technical and non-scientific partners in ways that they can understand. This greatly increases the level of knowledge, the quality of discussion, and, at the end of the day, clarifies options that all parties can agree to.

USING SCIENCE AND BEST PRACTICES TO ADVANCE SFM

Model forests have been instrumental in the application of research and the demonstration of best practices, providing knowledge for informed decision-making.
CARBON BUDGET MODELING

A joint project between the CMFN and NRCan–CFS has resulted in the development of a computer model that can be used to track and predict the amount of carbon stored in managed forests. The Carbon Budget Model (CBM–CFS3), designed for use at the management unit level, can also assess the impact of forest operations on carbon stocks, enabling forest managers to evaluate alternative management options. Because the model simulates how forests store and release carbon, it will help Canada meet the international reporting requirements of the Kyoto Protocol.

The CBM–CFS3 was tested over 3 years by model forests and their partners across Canada. Although the model currently contains ecological parameters set for Canada, it can be modified, allowing for its application in other countries.

Each of these three leading science-based initiatives — the development of local level indicators, a strategic approach to climate change, and carbon budget modeling — can be adapted and applied outside Canada and it is here that the IMFN has a comparative advantage. Knowledge and technology transfer is facilitated by the IMFNS, accelerating innovation across the Network.

Measuring progress toward SFM

Changing the way we think about and use forested lands takes dedication, energy, and time. It can even be risky. So how can we be sure that efforts to manage our forest resources sustainably are having the desired effect?

Although international criteria and indicators of SFM exist, as do some national guidelines, their broad nature can make them difficult to apply at the management unit level. For example, although state governments may cite the status of endangered species as an indicator of forest health, they cannot necessarily pinpoint which species managers should use — what is endangered in one part of a country may not be applicable in another part of that same country.

With expert assistance from their partners, each of Canada’s model forests developed a suite of local-level indicators to help assess their progress toward SFM for their particular landscape. To share their knowledge and experiences with others throughout the Network, the CMFN documented their criteria and indicator work in a Users’ Guide to Local Level Indicators of Sustainable Forest Management, released in 2000. The guide’s information has been shared across Canada and has also formed the basis for model forest workshops in Asia and Latin America.

ADAPTING TO CLIMATE CHANGE

Because climate change can rapidly alter forest ecosystems and wildlife habitats — affecting the future of forests and the communities that depend on them — the CMFN launched a Climate Change Strategic Initiative in 2004.

As part of this initiative, Canada’s model forests are developing a guidebook aimed at helping forest communities determine their vulnerabilities to climate change and identify adaptation strategies to reduce potential impacts. The guidebook is currently being tested in communities with different characteristics: an Aboriginal community, a community with a forestry focus, and one that is heavily dependent on recreation. To complement the workbook, the CMFN is also conducting community workshops and larger, regional seminars focused on the potential effects of climate change. Public release of the workbook is expected in late 2006.
International networking develops vital GIS skills

Model forest partners need a vast array of geographic information to carry out their SFM activities. They need to understand how past actions have influenced the landscape and how their present activities will help meet the sustainability requirements that have been legislated by their governments. Model forests also need to be able to develop systems for forecasting the outcome of natural and other disturbances.

The most effective tool to date for obtaining and analyzing complex layers of information is GIS software. Depending on the parameters used, GIS provides information on everything from wildlife habitat and soil conditions to roads, settlements, and past timber harvesting blocks. Becoming skilled in using GIS software is important to the work of model forests and obtaining GIS training is a focus of many IMFN partners.

Forecasting the likelihood, severity, and potential damage of forest fires is of vital importance in countries where large numbers of people depend on the forest and its bounty for survival. For this reason, the Gassinski Model Forest invested in GIS software and training to assist in the development of innovative computer models for forecasting the severity of potential forest fires and in the simulation of forest fire propagation and suppression in the Model Forest area.

Over a 3-year period, the Model Forest and one of its partners, the National Technical University (Institute of Computer Technologies), used Gassinski’s GIS mapping and forest inventory data to create forest fuel-model maps. These maps allow different forest fire propagation scenarios to be examined based on forest type, density, moisture content and other information.

Combined with other mathematical models that provide information on how forest fires spread and the rate of spread under various conditions, the maps and models allow firefighters to assess a fire’s potential effects and determine whether it should be suppressed or allowed to burn. The software can be easily adapted to different conditions around the world and is currently being used to help train forest firefighters in a number of other countries.

Latin American model forests are equally interested in the potential of GIS technology. In 2002, the IMFNS sponsored two forestry engineers, one from Chile’s Chiloé Model Forest, the other from one of Chiloé’s partners, the Chilean National Forestry Corporation (CONAF), to travel to Québec City, Canada, to undertake 3 weeks of GIS training. The training, provided by the Québec Ministry of the Environment, gave participants a starting point to identify and implement their own basic, but effective, GIS models.

Since then, Chiloé has used GIS and satellite images for a variety of activities, including tracking vegetation cover over time, creating a development plan for the zone surrounding Chiloé National Park, tracking illegal logging and forest-fire damage, and determining measures needed to protect waterways.

The important dimension to both stories is that peer-to-peer training, facilitated by the model forests involved, was a cost-effective and practical experience.
Using science and best practices to advance SFM

Tracking forest cover with satellite imagery

Through the use of conventional aerial photography and modern technology, such as satellite imagery, the Mariposa Monarca Model Forest (MMMF) has completed comparative studies within its boundaries and found that forest cover has diminished considerably over the past 30 years. Local agricultural activity, primarily subsistence agriculture, was identified as a leading cause of the loss of 140,000 hectares of forest cover and changes in land use.

This discovery has inspired the MMMF’s partners to continue their collaborative research efforts and forge new partnerships in areas such as monitoring the impact of decreased forest cover. In international spheres, the Model Forest has well-established professional and technical exchanges with, and resource support from, the Manitoba Model Forest in Canada. The MMMF is also involved in intern exchanges with the Falls Brook Centre, the Chicago Academy of Sciences, the United States Department of Agriculture Forest Service, the World Forestry Institute, the Society of San Diego Zoo, and the WWF, as well as the Association of Community Tourism Guides of Guarguaya, Ecuador.

Tapping into centuries of traditional Aboriginal knowledge

Canada’s Aboriginal peoples are well positioned to contribute to today’s SFM practices for the benefit of their communities and all Canadians. Over the centuries, close contact with the land, combined with systems for transferring knowledge between generations, has led to the development of a unique understanding of forest ecosystems among Aboriginal peoples. Tapping into this extensive “traditional” knowledge is one of the key tools model forests are using to advance their SFM goals.

For example, moose is the main “bush” food for the Waswanipi Cree living in northern Québec, Canada, and more than 30 per cent of the Waswanipi’s population of 1,200 rely on moose hunting for part of their livelihood.

Until recently, little scientific data were available on the impact of large-scale harvesting of black spruce forest on moose habitat. In 2003, the Waswanipi Cree Model Forest, in partnership with Université Laval, undertook a 3-year study to determine whether new moose habitat management strategies could be developed and adapted to the socioecological context of the Waswanipi Cree.

The study, to be completed in 2006, is using global positioning system collars to track 15 female moose, which are considered to be more habitat selective than males. So far, more than 60,000 accurate moose locations have been tracked annually. This information will be combined with data from four winter aerial surveys and Cree traditional knowledge — gathered through individual interviews, workshops, and field visits with Cree hunters and land managers — to define moose habitat needs and assess the impact of forest operations over the last 30 years.

Partial results to date show that the Cree’s extensive knowledge about moose habitat requirements on their ancestral land is consistent with the scientific data. Several observations by the Cree about the impact of forestry on moose habitat are also confirmed by biological science.

The combination of the university study and Cree traditional knowledge is greatly increasing the database on moose habitat for the area. In turn, this is leading to the development of land management strategies that will assure enhanced protection of moose habitat, benefiting not only Cree hunters and land managers, but also the sociocultural life of the community.
A fundamental attribute of model forests is the commitment to share the knowledge, experience, and lessons learned from developing and implementing their activities. The Network is, therefore, much more than a “community of practice”: it is a construct for transferring and exchanging knowledge, know-how, and new ideas. In this way, the comparative strengths or advantages of one site can be made available to others who need guidance or knowledge in those same areas.

Through this collaboration, model forests can apply more resources to an issue than would be possible individually — enhancing the probability of project success, introducing innovations otherwise not considered, and potentially reducing the time required to develop an effective solution to a particular SFM challenge. For example, Gassinski, Russia’s first model forest, is now helping in the development of the newly established Kovdozersky Model Forest, while China has provided technical information and field demonstrations to its Asian model forest partners on ways to improve bamboo cultivation. This site-to-site, peer-to-peer exchange is not only cost-effective, it confirms that many of our SFM challenges are indeed universal and that there are experts out there who can guide and inspire innovation.

The IMFNS has been instrumental in providing technical support to model forests, enhancing their capacity to function as effective partnerships.
Training and development for model forest capacity-building

Supporting local and regional model forest workshops has been a key activity of the IMFNS since its inception in 1995. In 2004, for example, the Secretariat sponsored five regional workshops in Asia and in Latin America and the Caribbean, as well as several site-level workshops. These meetings were designed to enhance model forest capacity with regard to planning, monitoring and evaluation, and resource mobilization.

- **Impact monitoring and evaluation**: A 4-day workshop was designed and implemented by the IMFNS to enhance capacity to monitor the impacts of model forest activities on an ongoing basis and to conduct periodic evaluations of progress toward achieving objectives. The workshop was delivered in both Asia and Latin America and the Caribbean.

- **Strategic and annual work planning**: Closely linked to impact monitoring and evaluation, this 2-day planning workshop, held in China, focused on the tools required to assist model forests in defining a vision of SFM and the strategic and operational directions required to achieve that vision.

- **Toward financial sustainability — skills for resource mobilization**: Cosponsored by IDRC’s Partnership and Business Development Division, this 4-day workshop was held at the Margowitan Model Forest in Indonesia. It provided knowledge and tools to help participants identify options for leveraging financial and other resources for program implementation. Plans are underway to conduct similar training for the RMFN-LAC.

- **Payment for environmental services**: Sponsored by the Secretariat, CATIE, and Costa Rica’s Ministry of Environment and Energy, this workshop provided the foundation from which Latin American model forests can explore the concepts of payment for environmental services with their partners.

“The IMFN can be considered a concrete application of sustainable forest management issues developed through international policy processes. The Network has great potential to contribute to international work in support of the sustainable forest management principles, as recognized by the UN Forum on Forests and, among others, the resolution of conflicts among stakeholders related to the use of natural resources, the search for new and additional sources of funding for the improvement of forest management, and advance monitoring and reporting about criteria and indicators related to sustainable forest management.”

The findings, results and lessons learned during the development and management of Model Forests will continue to provide scientific and factual data to support the implementation of many of the decisions and recommendations of the UN Forum on Forests. In that context, we are looking at a close and fruitful collaboration between IMFN and UNFF.”

Pekka Patosaari,
*Director, United Nations Forum on Forests Secretariat*
Scholarships, bursaries, and volunteers

In addition to regional and local workshops, capacity-building within the IMFN is supported by international training opportunities, bursaries for courses, and volunteers with relevant skills who work in model forests.

- In 2004, IDRC provided scholarships to three model forest participants from Indonesia and the Philippines to attend the International Program for Development Evaluation Training held at Carleton University, Ottawa, Canada. The aim of the course was to build skills in conducting meaningful evaluations of development initiatives.

- The Costa Rican government and CATIE offer model forest participants from the RMFN-LAC bursaries and scholarships to attend courses offered by CATIE. To date, model forest participants have attended courses in diversified management in tropical forests, climate change and project design of clean mechanism development in the forestry and bio-energy sectors, and the economic basis for the management and valuation of environmental goods and services.

- Since 2001, CUSO, one of Canada’s leading sources of volunteers working abroad, has been sending “cooperants” to model forests in Latin America and the Caribbean to provide technical assistance and expertise. CUSO has also provided South–South cooperants to model forests in the same region. Cooperants have brought with them skills in eco-tourism, GIS, communications, project management, and forestry.

“For the last decade the IMFN has been doing what so many other organizations just talk about - getting different groups to work together to manage their forests better and helping them to learn from their experiences as they go along. CIFOR has found it extremely useful to work with the IMFN. We have learned a lot from the model forest approach and have adopted many of its principles and approaches in our own work.”

David Kaimowitz
Director General, CIFOR
Sharing knowledge, experiences and information through study tours and seminars

Although the beauty of China’s Lin’an Model Forest is generating interest in the region as a tourist destination, the Model Forest has also become a popular stop for study tours on the sustainable development of non-wood forest products (NWFPs).

Since 2000, Lin’an Model Forest has hosted more than 1,500 forestry and agricultural practitioners from 28 countries and another 6,000 from China. The tours, which include field visits to bamboo, hickory, tea, and chestnut demonstration sites, as well as to villages, are complemented by workshops in which Model Forest partners explain NWFP cultivation (particularly “green” cultivation related to reduced or non-pesticide use) and management and processing techniques.

To further assist in farmer capacity-building, the Model Forest has produced and distributed a number of small technical manuals on various NWFPs. The most recent include, Technical Rules of Ginkgo (Gingko biloba) Production and Technical Rules of Red Bayberry (Myric rubra) Production.

Elsewhere in Asia, Thailand’s Ngao Model Forest hosted a 1-day seminar in 2003 in which 145 participants, representing 10 Lampang province districts, became familiar with the model forest approach, as well as the experiences and lessons learned from projects undertaken by the Ngao Model Forest and model forests in China, the Philippines, and Myanmar.

Participants discussed the positive role of the subdistrict administration organization in the development of the Ngao Model Forest partnership and its impacts, particularly in decreasing illegal logging. Notably, discussion also included feedback from villagers about the empowerment they feel from being part of the Model Forest.

As a result of the information provided in this seminar, the governor of Lampang, committed USD 20,000 to help strengthen the Ngao Model Forest and extend the model forest approach to two nearby districts.
Enhancing the capacity of the next generation of sustainable forest managers

For more than a decade, university and college students have been involved in model forests through graduate research, practicums, and internships. Student involvement ensures that advances in SFM become an integral component of future management practices.

The CMFN has been highly successful in including students in its activities. Numerous graduate theses have been completed on topics ranging from Newfoundland pine marten habitat to combining biological science and Cree traditional knowledge, improving moose habitat management in Québec, and an analysis of soil nutrient content in fire-disturbed areas of northern British Columbia. In 2003, a 3-year study was initiated by PhD and master’s students at Nova Scotia’s Dalhousie University and the University of Manitoba to examine model forest partnerships in Canada.

Since 1992, the Eastern Ontario Model Forest has hosted eight interns and 15 practicum students, all at the university level. The one Japanese, three Canadian, and four European interns were involved in a variety of projects, including carbon sequestration studies and forest certification activities. In the summer of 2004, the Model Forest also hosted four forestry students from France, who were conducting a feasibility study of the model forest concept and how it might be applied in their country.

In other parts of the world, a PhD student at the University of Tasmania, Australia, is currently undertaking research within the Regional Model Forest Network for Asia on the contribution model forest partnerships are making toward the advancement of SFM. Further, the headquarters for the RMFN-LAC is hosted by CATIE, a postgraduate school specializing in natural resource management, agroforestry, and watershed management, among others. As a partner in the Reventazón Model Forest, CATIE encourages graduate students to conduct their research in the Model Forest area when appropriate. To date, three research projects have been completed with another five pending.

“For me, the forest was beautiful; it was an ecosystem, but I hadn’t managed to understand it as something of tremendous value for sustaining human life. The idea of participative action and care for the environment is very much associated with the Model Forest, and I believe it has had a large impact on the community.”

Virginia Elena Canedi
social psychologist, Jujuy Model Forest
Despite the fact that the inhabitants of an area play a leading role in all actions linked to the use of the natural resources that sustain them, people often have difficulty recognizing that they can affect change. For this reason, many model forests run outreach and education programs geared toward schoolchildren.

One of the most developed programs is in Chiloé Model Forest in Chile, where the Huillín Environmental Education Centre is located. The interpretive centre, supported by a wide variety of Model Forest partners, promotes Chiloé’s biodiversity agenda through school tours, speaking engagements, poster competitions, and an environmental library. The demand for speakers, school tours, and workshops continues to rise as more and more people in the community discover the centre and its successful programs.

Jujuy Model Forest in Argentina has also placed special emphasis on fostering environmental awareness. In partnership with the Pericos Valley Irrigation Consortium and others, the Model Forest developed a practical environmental education project for rural schools in the catchment area.

**NETWORKING IS KEY**

The IMFN and its Secretariat do not work in isolation. Recognizing that other institutions and organizations are working to tackle similar issues using similar approaches to SFM, and with a decade of experience under its belt, the IMFN is particularly well-placed to share its expertise by linking with other leading organizations. As it now stands, the IMFNS works in cooperation with several international agencies, including the FAO, UNDP Global Environment Facility (GEF), the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC), and CATIE.
NEW AND DEVELOPING MODEL FORESTS

In the past few years, the number of new model forest sites has increased exponentially. Some of these sites represent a country’s first experiment with the model forest approach, while others are the second, third, or even fourth site.

The message here is clear: model forests work. They are making contributions of value to local stakeholders and policymakers alike, and demonstrating that communities can be active and important partners in sustainability. Although each country has its own particular motivation for using the model forest approach, those joining the Network can now take advantage of the path that this first generation of sites has cleared and use their experiences — good and bad — to become operational more quickly. For example,

- The newly established Vilhelmina Model Forest in Sweden can consider the experience in Canada’s boreal region in the development of its own approach, and Canadian model forests now have a means to explore how Sweden has advanced the sustainable management of its boreal forests.

- Partners at Brazil’s two new sites in the state of Minas Gerais plan to take advantage of the experiences of relatively mature sites in neighbouring Argentina and Chile through mentoring relationships and collaboration.

- Russia’s recently established Kovdozersky Model Forest in the Murmansk region is involved in exchanges with the well-established Gassinski Model Forest to help the former devise strategies for its implementation.

- In Cameroon, Dja et Mpomo and Campo Ma’an have been selected as candidate sites. With CIFOR’s central Africa office partnered with IMFNS on this initiative, a CIFOR staff member will undertake a study tour of Canadian model forest sites as part of a capacity-building initiative.

Accelerating innovation

Each of these new sites, as with others in the Network, is unique in its history of resource use, its settlement patterns, and the specific nature of its priorities and pressure points around SFM. Broadly speaking though, the big issues that they deal with — governance, conservation, and economic development, for example — are not developing or developed country issues; they are familiar in all our landscapes. And, with a common but flexible approach to SFM applied by all model forests, we create the foundation on which networking, sharing experience, and accelerating innovation can take place.
Our goal is to establish at least one site in each of the world’s major forest types. With model forests well-established in Canada, Latin America, and Asia, our focus is now on site development in Africa and additional sites and partnerships in Europe. There is no limit to the number of model forests we can develop and each new site adds to the knowledge, skills, and resources of the Network as a whole, contributing to the global pursuit of putting SFM into practice.

NEW AND DEVELOPING MODEL FORESTS

- **Argentina** — Currently developing its fourth model forest, the Norte de Neuquén
- **Bolivia** — In July 2005, Bolivia officially requested membership in the Network with a proposed site, the Chiquitano, in the country’s southeast
- **Brazil** — In June 2005, the state of Minas Gerais unveiled two model forests: the Mata Atlantica and the Pandeiros
- **Cameroon** — Two sites have been proposed for model forest development: Dja et Mpomo and Campo Ma’an
- **Chile** — The Panguipulli Model Forest will be Chile’s third
- **Dominican Republic** — The new Sabana Yegua Model Forest will develop an integrated approach to watershed management
- **France** — A model forest feasibility study is underway in the Burgundy region
- **Honduras** — A site has been proposed for development on its north coast
- **India** — The Kodagu Model Forest has been developing over the past 2 years and was officially launched in October 2005
- **Indonesia** — The Margowitan and Berau Model Forests were officially launched in 2004
- **Japan** — Kyoto Prefecture initiated development of the Kyoto Model Forest in January 2005
- **Mexico** — With one of the first model forests developed outside of Canada, Mexico has recently begun establishment of the Sierra de Quila Model Forest
- **Russia** — Also one of the first countries to develop a model forest, the Russian government recently approved establishment of the Kovdzerosky site in Murmansk Oblast
- **Sweden** — At its September 2004 launch, the Vilhelmina Model Forest became the first model forest in Europe and other sites have been proposed
LEVERAGING RESOURCES

The benefit of broad-based partnerships is not simply acknowledging and accommodating the rights of others to work through difficult problems. Model forest partnerships have demonstrated very convincingly that these partnerships also bring new resources, such as ideas, facilities, data sets, professional services, access to policymakers and community leaders, and cash — resources that were not previously in place or not directed toward addressing the challenges of SFM. For example,

• In Chile, the Chiloé Model Forest has more than quadrupled the core contribution it receives from its national government

• Canada’s 11 model forests, each with a major forest industry partner, have leveraged the core contribution of the Canadian federal government by an average ratio of 1:2

• In Russia’s Gassinski Model Forest, the ongoing contribution of professional services, facilities, equipment, and data from multiple scientific and technical partners has greatly strengthened the quality of work and opportunities for applying research results

Fiscal sustainability

Leveraging resources for model forests is significant because there have been fewer dollars supporting SFM over the years. But equally important is what this leveraging represents and what happens because of it — agreement on a shared problem, a shared approach, a shared risk, and a shared investment in an outcome is a new way of thinking and a rejection of business as usual.

Further, leveraging resources among stakeholders in a given landscape addresses a recurring and perennially difficult problem — sustainability of the initiative itself. Particularly in terms of official development assistance (ODA), the question of what happens when the ODA runs out is always an important consideration. Model forests do not claim to have fully resolved this issue, but, because they are locally driven, because they are processes and not projects, and because stakeholders are expected to contribute, model forests seem to operate for longer periods and on modest budgets.
Building strategic alliances

Over the years, the IMFNS has provided individual and regional grants in support of model forests of more than USD 8.5 million. These funds are the total contributions of the four founding Canadian partners in the IMFN — FAC, NRCan-CFS, IDRC, and CIDA.

As well, the IMFNS has facilitated and supported technology and knowledge-transfer among model forests in support of key objectives in most sites. For their part, model forests, through national and local partners, have typically contributed substantially more than what the IMFNS has provided. In practice though, most model forests have needed some external resources to achieve their goals or to underwrite more ambitious undertakings (training, for example) or to participate in regional programming.

Individual and regional model forest initiatives have benefited enormously from the technical and financial contributions of a large number of national and international aid and development agencies. The Regional Model Forest Network for Asia was launched through an initiative of the government of Japan via a trust fund delivered by the FAO’s regional office for Asia and the Pacific in Bangkok. Today the FAO, with which IMFNS worked extensively on the model forests in Asia from 1999 to 2003, is represented on the IMFNS Board of Directors and remains very active in the IMFN.

Most donor funds go directly to regional initiatives or to individual sites:

- UNDP-GEF has supported a multi-year project at Chiloé Model Forest
- FAO supported a strategic planning process at Jujuy Model Forest in Argentina
- JICA funds have supported work in Argentina’s Formosa Model Forest and Dominican Republic’s Sabana Yegua
- IMFNS and CIFOR are working in close partnership in Cameroon and are exploring further links in Latin America and in Asia
- The United States Agency for International Development has provided targeted grants to individual sites, such as China’s Lin’an Model Forest
- The International Tropical Timber Organization has targeted support for Thailand’s Ngao Model Forest
- Russia’s Gassinski Model Forest has benefited from support from the World Bank (forest fire management) and WWF (voluntary certification work)

Securing adequate technical and financial support remains an important and ongoing task for all Network members.
LESSONS LEARNED

Although the IMFN has much to celebrate, its successes have been achieved with a great deal of time, resources, trial and error, and learning. In the early 1990s, the model forest idea was very much an untested prototype. As such, there was a steep learning curve involved in its application and a fair amount of risk. However, with each use of the approach, we were better able to see patterns in how model forests develop, which helped us understand what works and what does not, so that we could improve how they are supported. Among the main lessons that we have learned are:

- **SFM must be understood as a process not a project.**
- **Partnerships take time to demonstrate their full worth:** Model forests are difficult to establish, with partnerships typically requiring 2, 3, or more years to demonstrate to each partner that they are accomplishing more together than they were on their own. An important risk mitigation strategy is time and ground rules for conduct.
- **Model forests must be country-driven to succeed:** Governments (national or subnational) not only create enabling conditions for model forests, they are among the chief beneficiaries in terms of better management decisions, fewer conflicts, better policy options or execution, and better understanding of the nuances of NFP implementation.
- **Networking works, but only with resources, a deliberate strategy and with participants clearly identifying how they wish to benefit and what each will contribute:** Peer-to-peer networking among model forests is a cost-effective and efficient way to transfer knowledge.
- **SFM needs to be made understandable to all stakeholders:** With each partnership including members with different skills and familiarity with technical issues, an informed and open discussion on SFM options can only take place if the time and tools are made available to ensure that the concepts and options are fully understood. For traditionally marginalized groups, such as women and indigenous peoples, separate and focused support may be needed.
- **Particularly in developing countries, SFM must provide tangible economic and social dividends:** Consistently, the two issues at the top of model forest priorities in developing countries are issues of governance and economic opportunity within the resource sector.
- **The partnership must set priorities:** Not all issues can be tackled at once. This means the partnership has to make informed decisions about when or whether to support a given area of activity (certification, biodiversity, carbon trading, economic development, or others).
- **Model forests need a “champion” to move the process forward:** In all cases, champions helped generate interest, facilitate the process, and attract resources and political support.
LOOKING FORWARD

The vision and objectives that we set for ourselves 10 years ago remain as important and as relevant today as they were that first day. The IMFN, though, has changed enormously in size, in maturity, and in opportunity. Looking at the next decade, the IMFN is in an excellent starting position. It has a validated, demand-driven concept; well-developed sites; strong and growing regional hubs; cost-effective delivery; impacts in key policy areas; and a global community of practice and experience that is dedicated to networking. Those are powerful tools.

So, where do we go from here? We need to continue to deliver our mandate: to create an international network of model forest sites that are developing and delivering practical, tangible, relevant solutions to SFM at the landscape level. We need to ensure that the expertise gained is shared with the widest possible audience, and we need to strengthen links to policy levels so that the achievements of model forests can be reflected in policy decisions. In setting ourselves these goals, we can now begin to take advantage of two relatively new features of the Network: its global reach and its depth of experience.

With this global reach and hundreds of experienced partners, we can now consider linking sites for long-term research on issues of shared policy relevance, from participatory processes to climate change, or linking sites and countries with similar forest types (e.g., boreal or tropical) or shared trans-boundary migratory species. Looked upon as landscape-level platforms for such activity, these sites are uniquely and ideally suited to demonstrate, train, inform, and create opportunities, through policy and otherwise, for scaling up best practices within their own countries.

In the immediate future, though, we need to ensure that further growth does not come at the expense of what has already been built. Because model forests are processes, not projects, both existing model forests and new sites need mentoring, technical support, and resources. Related to this, after a decade of building we need to objectively examine the model forest experience in a rigorous way and systematize our findings so that they can be useful to the Secretariat, to model forests, and to broader audiences.

In terms of future growth, there is no maximum number, but it is easily conceivable to consider 50, 60, or more model forest sites, perhaps linked through a focus on the various criteria and indicator processes, or reporting on progress through member states of the UNFF.

These and other opportunities are no longer on the horizon, they are directly in front of us. To take advantage of them, we will need to develop more robust networking structures and technical groups to ensure that we seize opportunities for action. To grow well we will also need new strategic partners and more resources.

The past 10 years were mostly years of trial, error, experimentation, refinement, and development. We now have a clear understanding of the potential of model forests and of the IMFN. We are more than the sum of our partners and we have a great decade ahead of us!
ACRONYMS AND ABBREVIATIONS

CATIE – Centro Agonómico Tropical de Investigación y Enseñanza (Tropical Agricultural Research and Higher Education Center)
CBD – Convention on Biological Diversity
CBM-CFS3 – Carbon Budget Model of the Canadian Forest Service
CCD – Convention to Combat Desertification
CIDA – Canadian International Development Agency
CIFOR – Center for International Forestry Research
CMFN – Canadian Model Forest Network
CONAF – Chilean National Forestry Corporation
DENR – Department of Environment and Natural Resources (Philippines)
FAC - Foreign Affairs Canada
FAO – Food and Agriculture Organization of the United Nations
FMF – Foothills Model Forest (Canada)
FSC – Forest Stewardship Council
GEF – Global Environment Facility (of UNDP)
GIS – geographic information system
IDRC – International Development Research Centre
IMFN – International Model Forest Network
IMFNS – International Model Forest Network Secretariat
IPF/IFF – Intergovernmental Panel on Forests/Intergovernmental Forum on Forests
JICA – Japan International Cooperation Agency
MDG – Millennium Development Goals
MMMF – Mariposa Monarca Model Forest (Mexico)
NFP – National Forest Program
NRCan-CFS – Natural Resources Canada – Canadian Forest Service
NWFP – non-wood forest product
ODA – official development assistance
RECOFTC - Regional Community Forestry Training Centre for Asia and the Pacific
RMF – Reventazón Model Forest (Costa Rica)
RMFP–Asia – Regional Model Forest Project, Asia
RMFN-LAC – Regional Model Forest Network for Latin America and the Caribbean
SFM – sustainable forest management
UNCED – United Nations Conference on Environment and Development
UNDP – United Nations Development Programme
UNFF – United Nations Forum on Forests
UWMF – Ulot Watershed Model Forest (Philippines)
VMF – Vilhelmina Model Forest (Sweden)