AN INTERNATIONAL FOREST STRATEGY FOR CANADA

RESEARCH PAPER ON THE INTERNATIONAL FOREST DIALOGUE IN THE POST-UNCED PERIOD

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for

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The views expressed in this paper are those of the author only, and do not necessarily represent the views of the Department of External Affairs

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EXECUTIVE SUMMARY

This paper is an overview of the international forest dialogue in the post-UNCED era and, as such, will address the purpose, background, considerations and options that are relevant to this dialogue. It is in Canada's economic and environmental interests that this international dialogue continues and that an international forestry strategy is adopted. Recommendations and a conclusion are oriented toward such a strategy.

During the past few years, issues related to global forests have been receiving increasing attention in international deliberations, and recently, in the context of UNCED, the need for environmental protection in industrialized countries versus the need for economic development in the developing countries polarized the North and South with respect to forest-related issues. The sovereign right of nations to use their forests as they see fit also polarized interests.

There is now almost universal recognition of the fact that conservation, management and sustainable development of global forests is not only an environmental priority but also necessary to secure economic development, and to provide for basic human needs such as food, fuel, shelter, fodder, fibre, literacy and employment. The latter needs are particularly threatened in developing countries facing tremendous population growth and aggravated poverty; environmental concerns are, for this reason, not as preoccupying as development concerns in these countries. In order to ensure the South's participation in any future international deliberations on forests, development aspects must therefore be appropriately accentuated in international discussions, taking into account the multiple dimensions of this critical issue, and exploring potential solutions that would strengthen international cooperation.

Canada should support the proposed establishment of a World Commission on Forests and Sustainable Development (WCFSD) in order to address its strategic domestic and international agenda on forests. Such an initiative will maintain the momentum of the international dialogue on the conservation and sustainable development of forests. Canada should start positioning itself now, in order to influence the deliberations of such a Commission.

Jim MacNeill - an eminent Canadian - articulates in a recent book the need to build trust and to strike comprehensive deals in order to respond to new information and an evolving political situation. His words are clearly relevant to the situation Canada is presently facing with respect to the on-going dialogue on forest-related issues:

"The key to action and to winning is to get on base and to play the game as it develops. The aggressive pursuit of a series of smaller bargains would build trust. This course would also offer the opportunity to move around potential blocking coalitions that could obstruct more comprehensive deals; it would generate information on what works and what doesn't work; and it could take advantage of the progressive changes in environmental values and domestic political pressure."[1]

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[1] **MACNEILL**, Jim, **WINSEMIUS**, Pieter and Taizo **YAKUSHIJI**, Beyond Interdependence: The Meshing of the World's Economy and the Earth's Ecology, Oxford University Press, New-York, 1991, p. 117.

- A Forestry Strategy for Canada -

I ISSUE

To build support in favour of continuing the process of developing an international consensus on forests through negotiation of an International Convention on Forests (ICF).

II PURPOSE

A commitment by the international community to negotiate an ICF would be an important foreign policy achievement for Canada.

Our strategic objectives in pursuing an ICF are three-fold:

1) to protect and strengthen Canada's international trade in forest products, particularly in response to green consumerism;

2) to promote conservation and sustainable development of Canada's forests by developing internationally-accepted criteria for sustainable forest management;

3) to develop a comprehensive international policy and institutional framework for future Canadian cooperation in the forest sector.

III BACKGROUND

Canada's public commitment to a "global convention or agreement" on forests goes back to the 1990 Houston Economic Summit Declaration signed by the Prime Minister.[1] The fact that the United Nations was planning a major world conference on the environment and development (UNCED) provided a natural forum for pursuing the goal of such a convention. Leading up to the Earth Summit held in Rio de Janeiro, Brazil, June 1-12, 1992, four Preparatory Committee (PrepCom) meetings were held over a two-year period.

At PrepCom I, in August 1990, Canada drew attention to the G-7 Houston Declaration and proposed that UNCED study the conservation and sustainable development of forests rather than the much narrower topic of deforestation which was originally proposed.

At PrepCom II, in March-April 1991, two events of major importance occurred:

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[1] See appendix I, an excerpt from the Houston Summit Declaration. The Houston Declaration expanded the initial focus on tropical forests to include temperate and boreal forests; thus, global forests emerged prominently on the international political agenda at that time.

1) a consensus emerged among delegations in favour of using UNCED as the primary forum, until June 1992, for "conclusive decisions pertaining to forests";[2]

2) a decision was made to develop "non-legally binding principles on forests" that could be a stepping stone to an ICF.[3]

As a result, no agreement was reached in Rio to negotiate a legally binding forest convention, only a "non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests".[4] In addition, there was an agreement on a chapter of Agenda 21, Chapter 11, "Combatting deforestation".[5]

Despite the fact that an ICF was out of reach, the consensus achieved in these documents is an important step toward raising the profile of forests as an issue for continuing action. For instance, preambular paragraph (d) of the "Guiding Principles" refers to the need to keep the principles "under assessment for their adequacy with regard to further international cooperation on forest issues". In a similar fashion, paragraph 11.13 (e) of Agenda 21, highlights both the need "to facilitate and support the effective implementation" of the non-legally binding authoritative statement of principles, and the feasibility of "all kinds of appropriate internationally-agreed arrangements" to promote international cooperation on forest management, conservation and sustainable development of all types of forests.

IV CONSIDERATIONS

1. Problems facing the world's forests

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[2] This was meant as a clear signal to the Food and Agriculture Organization (FAO) and the International Tropical Timber Organization (ITTO), in particular, not to preempt the UNCED process by pushing competing instruments on forests.

[3] That decision was reaffirmed in July 1991, at the London Economic Summit, where the world's seven largest industrial democracies endorsed the idea. See appendix II, an excerpt from the London Summit Declaration.

[4] See appendix III, a copy of these "Guiding Principles".

[5] See appendix IV, a critical appreciation of this chapter. This appreciation was written in January 1993, by Dr. Ron D. Ayling, Program Officer, Forestry Sector, IDRC. However, it does not necessarily reflect the official position of IDRC.

The root problem facing the developing world is the rapid growth of population that strains the ability of natural resources to sustain economic development.[6] More people demand more employment opportunities, and agriculture has been the traditional area where they have found work. Thus, the exploding population has created an increasing demand for agricultural land; with this expansion of the agricultural frontier, forests are receding at an alarming rate. As well, two-thirds of the people in the Third World rely on wood to supply their energy needs. With an ever-growing consumer population (the global population is expected to double to 10 billion over the next 50 years) and a declining resource base, fuelwood supplies are severely threatened.[7] It is essential to the long-term survival both of one of the world's most bountiful and valuable natural ecosystems and its human inhabitants that environmentally sound and sustainable forms of forest development be found.

Second, despite the vast opportunities created by the technological revolutions of the twentieth century and despite progress over the past generation, more than 1 billion people, one-fifth of the world's population, live on less than one dollar a day - a standard of living that Western Europe and the United States attained two hundred years ago.[8] As a consequence, they suffer grossly inadequate access to resources such as education, health services, infrastructure and credit; resources that are necessary for a better life. The essential task of development should therefore be to provide opportunities for people of developing countries, as well as for the hundreds of millions of people from other countries not much better off, to reach their potential.[9]

Third, although timber production is not the main cause of tropical deforestation - only a small proportion of tropical timber harvested is used for industrial purposes (17%), logging efforts have clearly contributed to the problem. For a large proportion of the world's population that lives in developing countries, the prospects for economic progress, growth, and development hinge on the production and export of primary commodities. Those commodities are of vital importance to these countries because they constitute their principal domestic economic activity, are the main source of their foreign exchange earnings and the material base of the initial stages

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[6] See appendix V, the average annual percentage change in a country's population (1980-1991). Source: The World Bank, The World Bank Atlas-25th Anniversary Edition, Washington, D.C., 1992.

[7] Source: FAO, Global Overview of Status and Trends of World's Forests, Rome, 1991.

[8] See appendix VI, an indication of the standard of living in various countries (GNP per capita, 1991). Source: The World Bank, The World Bank Atlas-25th Anniversary Edition, Washington, D.C., 1992.

[9] See appendix VII, the illiteracy rate, 1990, showing the percentage of the population age 15 or older who cannot read and write a short simple statement about everyday life.

Source: The World Bank, The World Bank Atlas-25th Anniversary Edition, Washington, D.C., 1992.

of their industrialization.[10] Unless it can earn sufficient alternative economic returns, sustainable timber management will be unable to compete with alternative uses of forest land, such as agriculture or cattle ranching.

Fourth, another aspect of the problem facing the world's forests is that we are just beginning to recognize that there is a global dimension to forest issues, beyond their very real importance for local and national economies. The international discussion on deforestation up until now has been heavily concentrated on the responsibility of tropical forest countries to manage their resources for the benefit of mankind. This one-sided focus on global sustainability has failed to take into account the development concerns of these countries. We need to put our discussion of the problems facing the temperate and boreal forests on the same footing as our discussion on tropical forests if we are to move the debate beyond the problem of deforestation and toward the sustainable development of all of the world's forests.

2. Importance of forests for Canada and the world

Fifty percent of Canada's land mass is covered with forests. Canada has the third largest stock of forests in the world with ten percent of the world's forests, exceeded only by the CIS and Brazil. Forests are essential for a healthy environment; they play an important role in regulating global climate by, for example, locking up large amounts of carbon dioxide (CO_2) during photosynthesis. Trees prevent erosion, flooding and the formation of deserts. Forests contain over half of the world's plant and animal species and provide a home, fuel and food to many of the world's native peoples. They also provide raw materials for some medicines and have the potential to supply the building blocks for much-needed products for the biotechnological industry. As a source of timber for manufacturing and other commercial uses, forests also represent a vital ecosystem for social, cultural and spiritual pursuits. As such, they have a critical impact and are an integral part of the Canadian and global environment.

3. Importance of the forest industry for Canada

Forestry is vital to our economy. It is Canada's largest industry employing over 800 000 persons directly in forest industries or companies that support them, producing over $50 billion annually and generating more net export earnings than fishing, agriculture, energy and mining combined. In 1991, it accounted for $20 billion in export sales (higher than any other country in the world). As the largest contributor to a positive balance of trade ($17.5 billion in 1991), the forest industry plays a vital role in the economic prosperity of all regions of the country by supporting 350 single industry towns. The forest industry also ranks third in the manufacturing

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[10] Source: United Nations Conference on Trade and Development (UNCTAD) Bulletin, Commodity Policy: A "Safety Net" for Survival, No. 248, November-December 1988.

sector. It represents 45% of manufacturing in B.C., 21% in the Atlantic provinces, 16% in Quebec, 9% in the Prairie provinces and 6% in Ontario. Canada's forests are also vital to the multi-billion dollar tourism and recreation industries.

4. Position of Canadian stakeholders

All Canadian stakeholders are committed to strengthening the Canadian forest sector through domestic and international actions. There is a high degree of consensus and support in Canada from the provinces, business, labour, NGOs and the academic community for the negotiation of an ICF, containing internationally-accepted criteria for sustainable forest management. This position is well reflected in the Forest Round Table on Sustainable Development, a Canadian stakeholders' group implemented by the National Round Table on the Environment and the Economy. The National Round Table acted as a catalyst to establish a forest round table with the broadest collection of interests ever assembled.[11]

The round table movement is unique to Canada. It tries to reach across all institutional lines, be they governmental, business, occupational, social, political, environmental, or regional, in order to encourage the flexibility of response necessary for the transition to a sustainable society. In particular, it seeks to identify more clearly the economic pathways to sustainable development.

5. Canada's international involvement in forestry

Canada plays an active role in the forestry meetings of the Food and Agriculture Organization (FAO) which has been the world's main organization for dealing with forest utilization and conservation since 1946. Canada is also a signatory to the International Tropical Timber Agreement (ITTA), that instituted the International Tropical Timber Organization (ITTO). Canada has important ties in forestry with Europe through the Organization for Economic Cooperation and Development (OECD), the European Community (EC), as well as with other individual European and developing countries. For instance, in addition to being a member of the Commonwealth and a member of the Organization of American States (OAS), Canada has strong ties with La Francophonie, which includes many African countries, through the Agency for Cultural and Technical Cooperation (ACTC).

Canada has long been one of the leading supporters of international forestry programmes, most of which are administered by the Canadian International Development Agency (CIDA). Perhaps, one of the best example of such programmes is the Tropical Forestry Action Plan (TFAP) - the main response of the World Bank and the United Nations agencies to the problems

[11] See appendix VIII, a progress report of the Forest Round Table on Sustainable Development.

of tropical deforestation. The TFAP is a tool or strategy the developing countries can use to turn the tropical forest crisis into a development opportunity. It is also a unique mechanism for harmonizing national efforts with the international technical and financial assistance that the developing countries need to move ahead with the necessary speed and intensity.[12] Bilateral forestry accords have been signed with the USA and Mexico under the North American Forestry Commission (NAFC) as well as memoranda of understanding with Finland, Russia and China, leading to productive and informative exchanges between scientists over several years.

Canada hosted the International Union of Forestry Research Organizations (IUFRO) in Montreal, during their 100th anniversary annual meeting in 1990. The World Forestry Congress (WFC) held in Paris, in 1991, had a major Canadian delegation of government and private foresters. In Montreal, from September 27 to October 1, 1993, Canada will host an international symposium on the sustainable development of temperate and boreal forests, sponsored by the Conference on Security and Cooperation in Europe (CSCE), that will bring together technical and policy experts on forestry.

Canada is also working towards setting up an International Model Forests Programme, which will establish an international network of "model forests", designed to demonstrate effective and sustainable forest management practices in a practical way. So far, Mexico and Russia have accepted our invitation to participate in the programme and workshops will be held soon in both of these countries to identify sites and develop formal letters of intention. A third country will also shortly be officially announced. Some $10 million is being made available by External Affairs and International Trade for this programme, administered in cooperation with Forestry Canada.

6. Canada's changing policy toward development assistance

Canada, and more particularly CIDA, will continue to stress the priorities of Canadian foreign policy and sustainable development, including the promotion of human rights, democratic development, good government and the environment, and will also keep its promise to maintain funds allocated to famine relief. Nevertheless, it should be noted that funding for these priorities will not be as substantial as in the past.

In his December 1992 Economic Statement, Finance Minister Mazankowski announced that, in the next two years, funds allocated to Canada's development assistance program will be reduced by 10 percent per year, or a total of $642 million, by early 1995 (cuts of $50M, $292M

[12] See appendix IX, descriptive information on the Tropical Forestry Action Plan (TFAP).

and $300M from the International Assistance Envelope in years 1992-93, 1993-94 and 1994-95 respectively).[13]

7. Other international conventions

The international community concluded two new conventions - on climate change and biodiversity at UNCED - and initiated negotiations on a third - desertification. All will have an impact on forests and will approach forests from a particular ecological perspective - for instance, as a carbon sinks for climate change or as refuges for biodiversity. However, in emerging international conventions, forests should not be addressed only with respect to reducing climate change and/or protecting biodiversity. The environmental, economic, social and cultural dimensions of forests need to be addressed as a whole. Why?

Forests play a variety of other important ecological and economic functions. In the absence of an instrument that focuses on the multiple uses of forests, there is a risk that, for example, the climate change and the biodiversity conventions will regulate how forests are to be managed and developed. This could generate conflicting provisions, based on partial perspectives.

As well, the result could be a depreciation of the true value of our forest resources with insufficient attention paid to the important economic roles that they play. The emergence of real or threatened environmental barriers to trade has become a major trade policy issue for many sectors of economic activity, including the forest sector. Therefore, an ICF could also play a valuable role in securing international trade in forest products, a role that is not currently addressed by the new conventions.[14]

8. Countries relevant to international forestry-related discussions

A) Forest resources[15]

Ten countries account for 65.76% of the total forest area of the world:

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[13] Development assistance received the biggest cut of any programme. By comparison, Canada's military budget remains four times higher than its aid budget and is being cut by only 3.1 per cent over the next two years.

[14] The ITTO has done some very valuable work in recent years, bringing together environmental concerns about the long-term survival of tropical production forests, with economic concerns about securing a long-term future for the tropical timber trade. Nevertheless, an ICF could help broaden that debate to include the international trade in all forest products.

[15] Source: FAO, Forestry: Statistics today for tomorrow, Rome, 1991.

Rank	Country	Forest area (1000ha)	% of world total
1	CIS	739 900	20.53
2	Brazil	518 335	14.38
3	Canada	264 100	7.33
4	USA	226 454	6.28
5	Zaire	177 612	4.93
6	China	127 780	3.55
7	Indonesia	118 813	3.30
8	Peru	70 724	1.96
9	Bolivia	66 786	1.85
10	India	59 302	1.65
Total		**2 369 806**	**65.76**

Eighteen countries account for 76.01% of forest resources, if we include, in decreasing order, Angola, Colombia, Mexico, Sudan, Argentina, Tanzania, Australia and Papua New Guinea.

Thirty countries account for 85.08% of forest resources if we also include, in decreasing order, the Central African Republic, Venezuela, Botswana, Myanmar, Zambia, Ethiopia, Cameroon, Sweden, Japan, Congo, Malaysia and Gabon.[16]

B) Exportation of forest products[17]

Four countries account for 50.62% of the total value of the world's forest products exports:

Rank	Country	Exports ($ million)	% of world total
1	Canada	18 379	19.39
2	USA	12 399	13.01

[16] For more details, please see appendix X.

[17] Source: FAO, Forestry: Statistics today for tomorrow, Rome, 1991.

3	Sweden	8 745	9.23
4	Finland	8 526	8.99
Total		**48 049**	**50.62**

Ten countries account for 74.72% of this value, if we include, in decreasing order, Germany, CIS, Indonesia, France, Malaysia and Austria.

Twenty countries account for 90.71% of this value, if we also include, in decreasing order, the Netherlands, Belgium/Luxembourg, Italy, Brazil, Norway, Japan, the United Kingdom, Yugoslavia, Portugal and Switzerland.[18]

C) Importation of forest products[19]

Four countries account for 50.33% of the total value of the world's forest products imports:

Rank	Country	Imports ($ million)	% of world total
1	USA	15 799	15.63
2	Japan	13 978	13.83
3	Germany	10 850	10.74
4	United Kingdom	10 238	10.13
Total		**50 865**	**50.33**

Ten countries account for 73.35% of this value, if we include, in decreasing order, Italy, France, the Netherlands, China, Belgium/Luxembourg and Switzerland.

Twenty-six countries account for 90.68% of this value, if we also include, in decreasing order, Canada, the Republic of Korea, Denmark, Spain, Hong Kong, Sweden, Australia, Austria, CIS, Singapore, Egypt, Yugoslavia, Thailand, Norway, Finland and Portugal.[20]

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[18] For more details, please see appendix XI.

[19] Source: FAO, Forestry: Statistics today for tomorrow, Rome, 1991.

[20] For more details, please see appendix XI.

D) Production of forest products[21]

Ten countries account for 71.64% of the world's total production:[22]

Rank	Country	Production ($ million)	% of world total
1	USA	89 712	23.27
2	CIS	46 398	12.03
3	Canada	33 382	8.66
4	China	22 689	5.88
Sub-total		**192 181**	**49.84**
5	Japan	21 782	5.65
6	Brazil	15 016	3.89
7	Germany	13 489	3.50
8	India	13 256	3.44
9	Indonesia	10 478	2.72
10	Sweden	10 014	2.60
Total		**276 216**	**71.64**

E) Consumption of forest products[23]

Ten countries account for 71.74% of the world's total consumption:[24]

Rank	Country	Consumption ($ million)	% of world total
1	USA	93 112	23.76
2	CIS	43 732	11.16

[21] Source: FAO, Forestry: Statistics today for tomorrow, Rome, 1991.

[22] For more details, please see appendix XI.

[23] Source: FAO, Forestry: Statistics today for tomorrow, Rome, 1991.

[24] For more details, please see appendix XI.

3	Japan	34 334	8.76
4	China	26 008	6.64
Sub-total		**197 186**	**50.32**
5	Germany	18 069	4.61
6	Canada	16 930	4.32
7	Brazil	13 565	3.46
8	India	13 531	3.45
9	United Kingdom	11 700	2.99
10	France	10 164	2.59
Total		**281 145**	**71.74**

F) Annual average change (%) of forest coverage (1980-1989)[25]

Rank	Country	%
1	Haiti	-4.0
2	Paraguay	-3.9
3	El Salvador	-3.6
4	Brunei	-3.5
5	Gambia	-3.1
6	Côte d'Ivoire	-2.8
7	Nicaragua	-2.8
8	Viet Nam	-2.8
9	Malawi	-2.6
10	Niger	-2.6
11	Antigua/Barbuda	-2.6
12	Panama	-2.5

Rank	Country	%
13	Ecuador	-2.4
14	Nigeria	-2.2
15	Honduras	-2.0
16	Guatemala	-1.9
17	Philippines	-1.8
18	Liberia	-1.7
19	Thailand	-1.6
20	Bangladesh	-1.3
21	Benin	-1.3
22	Malaysia	-1.2
23	Mexico	-1.2
24	Mongolia	-1.1

[25] Fore more details, please see appendix XII.

Note: The table above supports the contention that, for a variety of reasons (e.g. insufficient land tenure systems), and under certain conditions (e.g. when environmental and/or other costs are externalized), excessive forest exploitation will significantly reduce a country's forest land base over time. This observation flows from a simple recognition that forested countries with no, or only recently developed forest products industries, will not, as yet, be harvesting at unsustainable levels. Thus, from the above, one might conclude that in order to maintain large forest coverage (in percentage terms), forest exploitation must be relatively small.

However, the table below shows that a number of developing countries with a large proportion of total area maintained as forests are experiencing lower deforestation problems. Consequently, low rates of forest exploitation (i.e. small forest industries) do not seem to be a necessary condition/prerequisite for the maintenance of healthy and sustainably managed forests.

G) Forest coverage as % of total land area[26]

Rank	Country	%
1	Suriname	95
2	Solomon Islands	91
3	Papua N.G.	84
4	French Guiana	83
5	Guyana	83
6	Gabon	78
7	Zaire	77
8	Cambodia	76
9	Finland	76
10	Vanuatu	75
11	Korea, D. R.	74
12	American Samoa	70
13	Sweden	68
14	Japan	67

Rank	Country	%
15	Korea, Rep.	66
16	Brazil	65
17	Fiji	65
18	Indonesia	63
19	Congo	62
20	Guinea	60
21	Malaysia	58
22	Central Afri.	57
23	Bhutan	55
24	Lao	55
25	Peru	54
26	Cameroon	53
27	Bolivia	51
28	Zimbabwe	50

[26] Fore more details, please see appendix XIII.

Source: The World Bank, The World Bank Atlas-25th Anniversary Edition, Washington, D.C., 1992.

However, it can not be concluded that healthy and sustainably managed forests can always be maintained in the presence of large forest industries. Clearly, certain conditions such as those present in countries like Finland, Sweden and Canada (e.g. a well-informed public, clear management rules and effective enforcement mechanisms), need to exist in order to align public and private interests. Therefore, under certain conditions, countries can develop healthy/viable forest industries and maintain large and, in some cases, increasing forest areas.

9. Canada's negotiating position at UNCED

Canada's negotiating position at UNCED was based upon two premises:

1) that Canada must protect the economic interests of its largest industry;

2) that Canada must maintain its position as an international environment and sustainable development leader successfully bridging the interests of developed and developing countries.

Regarding the first premise, the clearcutting, old growth forest preservation and wood-supply issues are of major concern and are increasingly being focused upon by opinion leaders in a number of our key international markets (e.g. USA, Japan, the United Kingdom, Germany, the Netherlands and France). For instance, some environmental groups have mounted a campaign in Europe arguing against the use of chlorine bleaching in paper making and claiming that Canadian forest products come from unsustainably managed forests.[27]

Regarding the second negotiating premise, there is currently a heated North-South debate about what constitutes "sustainable management" and whether it is indeed possible. Simply, the North wants the South to put more effort into conserving its forests; the South says it has the right to exploit its forests to further its development objectives, even if this means chopping them down as they claim the North has already done. Furthermore, the South argues that the North should be willing to pay if it wants the South to conserve its forests.

10. Canada's cooperation with other countries

A) Why a country may not be willing to cooperate

There are at least four reasons why a country might decline, at least initially, to join in a cooperative effort to solve an environmental problem:

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[27] See appendix XIV, a copy of the "Brazil of the North" allegation.

1) the country may find the scientific evidence unconvincing, and therefore not accept that there is a problem, or believe that risks are exaggerated, or even that proposed remedies will be ineffective;

2) the country may accept that a particular environmental problem exists, but attach a lower priority to solving it than do the countries seeking the international agreement. This disagreement may also take the form of a dispute over the relationship between benefits and costs;

3) the country may disagree with the proposed inter-country allocation of responsibility for dealing with regional and global environmental problems. Responsibility may include modifying behaviour, income transfers to compensate individual countries for taking care of global environmental assets, and assistance to low-income countries in order that they might obtain environmentally-friendly technology;

4) the country may try to "free-ride" on the efforts of other countries to solve the problem. It is important to note that the characterization of "free-riding" presupposes a view about the appropriate allocation of property rights. Different points of view about the latter could lead to a country's actions being viewed as "free-riding" by critics, but as a legitimate exercise of property rights by the country itself.[28]

B) Options for promoting cooperation

Whatever the differences of views may be, international multilateral negotiations require balancing the ideal Canadian outcome with the interests, prejudices and concerns of other countries. In the context of UNCED, this situation was further complicated by the fact that some forty different subject areas were being negotiated concurrently. Consequently, frustrations experienced by some delegations in one area sometimes resulted in obstructive behaviour in other areas.

There are two basic strategies for promoting cooperation:[29]

1) identify which of the four reasons listed above are behind the decision to not participate, and then to try to overcome them;

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[28] Source: **ANDERSON**, Kym and **BLACKHURST**, Richard, The greening of the world trade issues, Harvester/Wheatsheaf, Great Britain, 1992, pp. 256-258.

[29] Ibid.,.

2) create incentives for other countries' participation, incentives that outweigh the reasons why the countries initially opted for non-participation.[30]

A brief survey of some of the countries' statements delivered at the United Nations General Assembly (UNGA), in November 1992, will confirm these varying points of view regarding cooperation with respect to environmental issues.[31]

C) How we have approached negotiations in the past

From the outset of the UNCED process (PrepCom I), and despite the G-7's commitment at the Houston Summit to negotiate a "global convention or agreement" on forests (subsequently referred to as an ICF), there was hesitation within the G-7 over a legally binding convention and it was therefore unlikely that anything would be formalized in time for June 1992. It was evident that the only countries vigorously advocating an ICF were Canada, the USA, Sweden, Finland, the Netherlands [the Nordic Countries], Germany, Japan, the United Kingdom and the European Community. It was therefore concluded that it would be premature to begin negotiating timetables until there would be a clear consensus in favour of an ICF.

Among developing countries, there seemed to be broad, though rather soft, support for such an ICF. The two significant hard-line countries against an ICF were Malaysia - adamantly opposed to being pushed into a negotiating timetable to produce an ICF by June 1992 and India - a country that rejected the usefulness of an ICF altogether.

At PrepCom II, Malaysia delivered a hard-hitting statement (Malaysia held the pen but was closely advised by India, Kenya and Ghana - the Chair of the G-77), criticizing developed countries for trying to pin the blame for global environmental problems, such as climate change, on developing countries, while underestimating the environmental effects of deforestation in temperate areas. In fact, Malaysia criticized those who advocated an ICF for "playing to the galleries", before tackling the more important problem of carbon dioxide (CO_2) emissions. Subsequent statements by developing countries demonstrated that Malaysia was doing its lobbying effectively, as virtually none of them came out favouring an ICF.

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[30] Trade policies, aid policies, and debt policies will be essential components of many of these bargains, especially involving nations in Africa, Asia and Latin America.

[31] See appendix XV.

Interestingly, behind Malaysia's public bluster[32], it was evident that their delegation had serious interests in seeking a substantive results on forests by UNCED, provided that they could control the pace of the proceedings. In the meantime, Brazil made a short statement arguing that as hosts of UNCED they would be very concerned if the Conference's participants were not able to agree on a substantive package on forests for approval by June 1992.

At PrepCom III, the Canadian delegation proved once again to be one of the central players in the three-week debate over forests. Both the Malaysian and Brazilian delegations praised Canada for the formulation of the London Summit Declaration affirming the PrepCom II decision to achieve an "authoritative statement of principles on forests" by UNCED. Hence, there were now even more formal statements of support for the concept of a "free-standing" forest convention as a goal to be pursued after Rio. In fact, the European Community came out solidly behind this objective for the first time, indicating that they had now come around to the view that Canada had held since the Houston Summit; namely, that forests could not simply be dealt with through a Climate change or Biodiversity Convention.

Nevertheless, the first procedural challenge at PrepCom III was to achieve an agreement on a statement of principles on forests. The USA, Germany, France and Canada all arrived with their own set of principles, while Malaysia developed a package reflecting a developing countries' perspectives. After the general statements were delivered, the G-77 then tabled its own draft. Following two days of procedural discussions, this latter text was accepted as a basis for discussion. The group spent two weeks negotiating this text. A large number of developed and developing country delegations took active part in the debate, including the USA, the Netherlands (on behalf of the European Community), the United Kingdom, Japan, Norway, Sweden, Finland, Australia, New Zealand, CIS, Malaysia, China, India, Kenya, Uganda, Zambia, Brazil, Bolivia and Mexico. Nevertheless, by the end of PrepCom III, no consensus had been reached.

At PrepCom IV, negotiations pertaining to the "Guiding Principles" (expected to be the final series of negotiations), were difficult and led to an inconclusive series of exchanges. As a matter of fact, negotiations bogged down quickly into a deeply-rooted political debate between North and South. The minority of delegations within both developed and developing camps who assumed extreme positions succeeded in transforming the discussions into a highly-polarized debate for much of the negotiations.

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[32] The Malaysian delegation subsequently said that they had to argue strenuously within the G-77 with a number of the more disruptive and "anti-Western" North African delegations, in favour of having a decision at all on forests at PrepCom II.

Despite the fact that the moderates (who made up the majority of both North and South) regained the upper hand toward the end of the negotiations, insufficient time remained to resolve this irascible debate. Thus, at the end of PrepCom IV, at least 25% of the text still remained to be negotiated.

Now, on a more positive note, although the negotiating sessions for the "Guiding Principles" at PrepCom IV were disappointing for Canada and many other nations, the unproductive Malaysian lead was being openly challenged by other G-77 nations. At the same time, a greater sense of common purpose among developed and developing national delegations resulted in the pace of negotiations beginning to pick up somewhat. These positive developments left some measure of hope for Rio.

In light of PrepCom IV, there was wide support within the OECD group for the negotiation of an ICF. In general, the European Community was onside (especially Germany, France and the United Kingdom) as were the Nordic countries. The Japanese remained committed to an ICF, but were more flexible on the timing and process, due to sensitivity for the concerns of other developing countries in the Asian/Pacific region. The United States, on the other hand, displayed little appreciation of developing countries' concerns in their approach to negotiating "Guiding Principles", and in pursuing an ICF.

On their part, developing countries led by Malaysia and including India and Kenya, used PrepCom IV discussions on the "Guiding Principles" as a forum to exercise leverage on other issues on the UNCED agenda, particularly financial resources and technology transfer. Once again, these countries were extremely defensive about what they perceived to be developed countries' attempts to limit their ability to exploit their natural resources, in the name of "global responsibilities". Thus, the majority of other developing countries maintained bloc solidarity with Malaysia and India, with varying degrees of enthusiasm. Hence, it was time for Canada and other OECD countries that favour an ICF to convince the majority of developing countries that an ICF would benefit, not retard, their development.

Given the G-7 origins of the call of a "global convention or agreement" on forests, Canada had a major interest in breaking the dead-lock. Indeed, we ventured to establish a strategic negotiating approach to help conclude negotiations at UNCED by:

1) Working closely with the United States delegation before Rio to both understand American concerns and to impress upon the USA delegation the need to respect the developmental aspirations and ideological sensitivities of developing countries, while pursuing the common objectives;

2) Encouraging Japan to actively lobby the Asian developing countries, particularly Malaysia, to moderate their positions on the "Guiding Principles", and an ICF, in the interests of an agreement acceptable to all in Rio;

3) Encouraging the European Community, notably Germany, France, the United Kingdom and Denmark to take a more active stance in promoting the "Guiding Principles", and an ICF, by ensuring more effective leadership on this issue in Rio by the EC Presidency (Portugal) and by exercising influence with developing countries in advance of the Conference;

4) Approaching the African countries (such as Nigeria, Gambia, Ethiopia, Mali and Mauritania) which were very committed to an International Convention on Desertification (ICD) to see if they were prepared to consider the similarities between the rationale for the two Conventions (forests and desertification);

5) Meeting on a bilateral basis with the moderate and influential developing countries such as Indonesia, Thailand, Brazil, Mexico and Gabon to reassure them that the positive results we all seek from the sustainable development of the world's forests will be pursued at a pace with which everyone is comfortable.

Thus, in the PrepCom process leading up to UNCED, Canada has played a constructive role with the G-7 and in the broader international community in attempting to find a common ground based on our definition of Canada's and other countries' economic interests, and in building bridges in accordance with our official negotiating position.[33] It is clear that all along, Canada has had a coherent vision of its role in this UNCED process. One can only hope that this momentum will be kept and that, perhaps, our goal to maintain and enhance the long-term health of our forest ecosystems, for the benefit of all living things both nationally and globally, will be achieved while providing environmental, economic, social, and cultural opportunities for the benefit of present and future generations.

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[33] Even the NGOs were hesitant to overtly criticize forestry practices in Canada. The fact that they were risking losing some of the only spokespersons representing their main concerns in the negotiations was especially important to NGOs (NGOs got a clear message from the outset that the Canadian delegation was at the forefront of the attempt to ensure that forests were viewed in a wider context, i.e. as complete ecosystems, which was a primary NGO priority). The Canadian lead on this received broad support from both Canadian and non-Canadian NGOs, and it was strongly supported by Australia, the European Community and the United States.

D) How we should approach negotiations in the future

Whether it is a developed country, such as Canada or Finland, or a developing country, such as China or India, self-interest necessarily gets in the way of coming to an international consensus regarding sustainable development. If the aim of "sustainable development" is to protect and preserve the environment on which we all depend, then this should be promoted as a common interest, while the interest in developing our own resources should be treated not as an end in itself but as a means to sustainability.

Since sustainability is in fact an urgent need - not only to sustain forest life, but all human life - then methods of sustainability should be defined and then put into practice.[34] We need to pool our scientific expertise to look at the world's forests as though we were looking into our own back-yard. From this point of view, the questions pertaining to sustainable development are simplified: How can the whole be maintained? How can we recover and replenish what has been destroyed?[35]

Overcoming acute poverty and deforestation are equally important for the survival of humanity; development is not, although the long-term elimination of poverty and deforestation obviously require long-term projects, and development is certainly a means to this end. Since sustainable environmental management is a common interest and, as such, must be assumed by us all equally, it is not necessary to choose sides in the North-South debate in order to determine a suitable plan of action.

There are certain minimum requirements which are necessary a priori to pursue, protect and promote other interests and, therefore, should be legally guaranteed to every human being. The preservation and protection of the environment has become one of these requirements. Our contract with each other should therefore reflect this in a legal commitment.[36]

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[34] As a reminder, one of Canada's key objectives in promoting the concept of an ICF is the desirability and the need for internationally-accepted and environmentally-sound guidelines for sustainable forest management, enshrined in a legally binding agreement.

[35] See appendix XVI, an excellent historical perspective on sustainable development of Canada's forests by Glen Blouin, Executive Director, Canadian Forestry Association.

[36] Different considerations apply to agreements intended to protect the global commons. These agreements in particular depend on trade restrictions with non-parties. The benefits of an agreement to protect the global commons accrue to all states. However, in the absence of sanctions on non-parties, it is only the parties to an agreement who bear the cost of any measures. Thus, trade sanctions on non-parties fulfill a double function: first, they seek to prevent "free-riders" enjoying the benefits of an agreement without contributing to the cost (this argument based on equity is a justification in itself); second, they encourage participation in a global agreement. Without such sanctions, there will often be greater benefit in remaining a non-party. And if there is greater benefit

UNEP should consider establishing dispute settlement provisions whereby a failure to respect environmental norms agreed to by consenting parties would be assessed and classified according to degrees of seriousness. The new Earth Council, to which Maurice F. Strong - another eminent Canadian - has been recently elected first Chairman, could also take on such an endeavour.[37] It is after such an assessment that environmentally-friendly technologies could be considered for specific countries so that foreign aid can be targeted to whatever is required to set up those technologies to the presently harmful-ones, implementing specific programmes tailored to their socio-economic needs, and providing access to proper education. It is at this stage that UNDP's role could be specified to meet the requirements of such an under taking.

It is obviously both developed and developing countries that are potential "offenders". Since it is not always the least developed countries who pollute and harm the globe, new and additional resources to finance development are not always going to eliminate environment problems. Rather, industrialized countries might have to clean up, share their expertise, or at least make trade "free and green".[38]

The cooperation of developed and developing countries is also necessary, just as effective aid depends on both the desire to help and the desire to be helped. If these desires are absent and cooperation does not prevail, then one should have recourse to more drastic measures such as stopping an exchange which is not conducive to environmentally-healthy production, thus making it impossible for the harmful situation to perpetuate itself. It is at this stage that consensus could be sought on trade measures that would discourage environmentally harmful behaviour.[39]

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in remaining a non-party, international agreement to protect the global commons will obviously be difficult, if not impossible.

Source: UNCED, Relationship between environmental agreements and instruments related to trade and development, Prepared by J.O. Cameron, T. Mjolo-Thamage and J.C. Robinson, Research paper No. 35, February 1992.

[37] This Council is already being described as an "independent global ombudsman on sustainable development matter".

[38] Please see appendix XVII,"environmental issues need not conflict with free trade", argues the Honourable Environment Minister Jean Charest.

Source: Environment Strategy Europe 1992, "Making Trade Free and Green", Campden Publishing Limited, Hong Kong, 1992, pp. 62-63.

[39] Should trade policy measures be found necessary for the enforcement of environmental policies, certain principles and rules should apply. These could include, inter alia: the principle of non-discrimination; the principle that the trade measure chosen should be effective and the least trade restrictive necessary to achieve the objectives; an obligation to ensure transparency in the use of

Finally, as important as "national sovereignty" may be to nation states, the sovereign issue here is international, and international economic policies must adapt accordingly. This is clearly the heaviest consequence to assume in order to assure sustainable development; but it is a consequence that must be accepted, if sustainable development is ever to be more than just an idyllic concept i.e. a concept resisted as an impractical or impracticable ideal. Democracy too was resisted as an idyllic concept; however, not only was it the most viable long-term solution and, therefore, practical, but history has shown that it was indeed practicable, if not preferable.

Any change requires new efforts. An ICF certainly implies massive change, involving not only the conversion of our "throw away" culture into an environmentally conscious one (which is already happening in many industrialized countries), but also involving a whole new economic structure that would guarantee the future of individuals who had been dependent on methods of production which no longer reflect the needs of society as a whole. Such change is indeed the challenge of today as much as it is the basis on which we can all aspire to a better tomorrow.

V OPTIONS

1. Status Quo

There are linkages between a healthy trade in international timber and achieving sustainable forest management; but current policies affecting tropical timber production and trade are not providing the appropriate incentives for sustainable management of producing forests. Thus, the option of "doing nothing", i.e. allowing existing timber trade policies to remain as they are today, and not implementing additional policies aimed at promoting sustainable forest management, should not be considered the best possible policy option.

Perhaps, "doing nothing" would be the appropriate policy choice if other policy options appear ineffective or undesirable, or if the costs of these options outweigh the benefits. Another obvious attraction of the "doing nothing" option is that it does not present any administrative or institutional obstacles, clearly not the case for any new forest policy initiative. Similarly, no new support mechanisms such as enforcement would have to be devised.

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trade measures related to the environment and to provide adequate notification of national regulations; and the need to give consideration to the special conditions and developmental requirements of developing countries as they move towards internationally-agreed environmental objectives.

Source: UNCTAD, Strengthening National and International Action and Multilateral Cooperation for a Healthy, Secure and Equitable World Economy, Agenda item 8, Paragraph 152, Eight session, Cartagena de Indias, February 8, 1992.

Nevertheless, "doing nothing" should not be considered as a viable policy option given current trends in, for instance, tropical timber and tropical deforestation (less than 1% of the tropical forest under exploitation can be consider to be sustainably managed), and given that sustainable management of producing forests has still not been achieved worldwide. Since trade policy distortions in developed and developing countries have in the past exacerbated this situation, then trade can not promote sustainable management of producing forests unless appropriate domestic forestry policies and regulations are implemented.[40]

Market and government intervention failures (primarily in the areas affecting forest management decisions) have distorted, and will continue to distort, domestic and international markets. In fact, the resulting inefficiencies have distorted forest management to the extent that exploitation levels are unsustainable in many tropical forest countries. Thus, the public policy question that must be addressed is as follows:

What combination of domestic and international policies (and/or standards) is necessary to eliminate existing distortions so as to minimize waste and thereby return commercial use of tropical forests to sustainable levels?

2. The Food and Agriculture Organization (FAO)

Within the United Nations system, the FAO has the clear mandate to act as the world organization for forests. Established in 1945, FAO programming has focused primarily on agricultural issues, notably on food.[41] Programmes in its two other domains, forestry and fisheries, have historically been proportionately small in comparison (only 4.2% of the FAO's regular budget is dedicated to forestry during the present biennium, i.e. 1992-93, and is projected to slip even further in 1994-95). The FAO's failure to secure a proportion of its own funding that would reflect the importance of forestry at a national as well as global level has raised serious doubts about the commitment and capability of the FAO to deal with the critical issues being discussed within the global forestry community.

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[40] Source: The economic linkages between international tropical timber trade and the sustainable development of the tropical forest, London Environmental Economics Centre, International Institute for Environment and Development, London, 1992.

[41] Canada hosted the inaugural session of FAO on October 16, 1945, at the Château Frontenac, in Quebec City. The Chairman of the Quebec Conference was Lester B. Pearson. As it happened, Pearson was instrumental in getting forestry added to the FAO mandate.

The FAO's inability to come to terms with the challenges to forests in the global context is perhaps best witnessed by its poor performance in working with other partners to coordinate the Tropical Forestry Action Plan (TFAP). The problems of the TFAP have been compounded by an even more fundamental failure of the governing bodies of the FAO to clearly set out a path for the TFAP to follow. This could be explained by the following critical observation:

"... a more serious and fundamental problem lies with the FAO governing body and the organization's primary objectives - a historic conflict of interest is evident. The governing bodies of FAO are dominated by agriculture ministers and functionaries who are rightly concerned with agricultural issues. Inclusion of forest activities in a primarily agricultural organization accounts for much of the problem."[42]

Nevertheless, the TFAP remains potentially one of the most important mechanisms for approaching the issue of tropical forests, indeed the most contentious component of the global forest dialogue. Yet, despite this potential importance, the failure of collective governance and strong leadership has resulted in a state of near paralysis and collapse for the TFAP. In view of the rapid advance of deforestation in developing countries and the high profile which forests have received as a result of the UNCED process, expectations for progress within the global forests dialogue are high.

In Canada's view, the FAO plays an essentially supportive role within the United Nations' system for following up the results of UNCED. In fact, the Committee on Forestry (COFO) is the main opportunity for the forest community to give guidance to the organization in formulating the next programme of work and budget, for the 1994-95 biennium. Some tough choices will have to be made: "The task is enormous and, with limited funding, the organization will have to set priorities based on its experience, expertise and comparative advantage."[43] That is why that during the last COFO meeting, held in Rome, Italy, from March 8-12, 1993, Canada recommended that in view of FAO's mandate and its limited resources, the organization should concentrate on: i) policy advice for the management, conservation and sustainable development of forests; ii) national capacity building; iii) formulating approaches to the conservation and utilization of biodiversity; and iv) formulating criteria and indicators for forest sustainable development.

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[42] Source: **ROBERTS**, Ralph W., **PRINGLE**, Stanley L. and George S. **NAGLE**, Leadership in world forestry, in The Forestry Chronicle, December 1991, Vol. 67, No. 6, p. 670.

[43] See appendix XVIII, a Canadian intervention at the FAO Committee on Forestry, March 9, 1993, by Jean-Claude Mercier, Deputy Minister, Forestry Canada.

3. The International Tropical Timber Organization (ITTO)

The International Tropical Timber Agreement (ITTA) established the International Tropical Timber Organization (ITTO) in 1983 to undertake research, provide technical assistance, and disseminate market information. The ITTO also serves as a forum for discussion between tropical timber producing and consuming nations. More recently, administration of aid projects and environmental matters have been added to the ITTO agenda. The ITTA expires in March 1994, and negotiations on a new Agreement will begin April 13 in Geneva, Switzerland.

The negotiations on a new Agreement appear to be heading towards a major North-South confrontation. The text tabled by consumers (North) would strengthen the environmental protection components of the ITTA by including references to sustainable development of forests in the Agreement itself. The text tabled by producers (South) would expand the scope of the Agreement to all timber (to provide "a more equitable international focus" on the management of both tropical and temperate forests), and radically increase aid financing through the introduction of mandatory funding to aid projects by developed countries. The NGOs support expansion as a means of drawing attention to the forestry practices of developed countries, particularly Canada.[44]

The continued existence of the ITTO is not assured, as an ITTA which does not take into account environmental concerns is of limited interest to many consumers, while many producers have concluded that, to date, the ITTA has not provided sufficient benefits to offset the environmental pressures brought to bear through the ITTO. Perhaps it will be up to ITTA parties to determined whether they wish environmental issues to dominate the ITTA renegotiation to such an extent that it threatens the very existence of the ITTO, originally designed to be a commodity trade rather then an environmental organization.

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[44] In fact, some of the environmental groups that participate in the ITTO consider Canada has not done enough to promote the sustainable use of forests and environmental protection. For example, the following comment is an excerpt from the NGO's statement to consumers on inclusion of temperate timber in the new ITTA, at the First Session of the PrepCom for the renegotiation on the ITTA in Yokohama, Japan, on November 11, 1992:

"Why is that you want to renegotiate an agreement that imposes forest management conditions on developing countries, that you are unwilling to impose on yourselves? This is carrying the British maxim "Don't do as I do, do as I say" into the realm of international negotiations."

This is broadly based on the fact that some NGO's have produced a series of reports on the conditions of temperate forests, which show clearly that these forests suffer from many of the same problems as tropical forests, and in many cases are not managed in a sustainable or environmentally sound manner. See, as an example, the latest World Wildlife Fund (WWF) Report on temperate forests, 1992.

Canada is committed to managing, conserving and sustainably developing its forests and to assisting other nations in doing likewise with their own forests. However, the proposal to expand the ITTA to include all timber does not address the broader questions of multiple values of forests and biodiversity as championed by Canada at UNCED. Furthermore, an expanded ITTA with references to sustainable development limited to timber values could be used to undermine support for the broader ICF desired by Canada, the G-7, other nations and groups.

The first International Negotiating Committee (INC) is expected to consist primarily in stating positions and probing for areas of flexibility. As the producer and consumer positions are very far apart, it is highly unlikely that substantial progress will be made toward bridging this gap in the few days allocated. The formal renegotiation will take place in two sessions, April 13-16 and June 21-25, 1993, in Geneva, and all United Nations members states will be invited to participate. There will also be an ITTO Council meeting on May 11-19, 1993, in Kuala Lumpur, Malaysia, involving only the 50 members of the ITTO.

The following reflects Canada's position to the ITTA renegotiations:

1) Not to prejudice progress towards an International Convention on Forests (ICF) in renegotiations of the ITTA. An ICF, addressing all forest values and recommended by the Commission on Sustainable Development (CSD), remains an essential Canadian objective;

2) Non-support of an expansion of the ITTA mandate to include all timber if it concentrates solely on timber values without also considering biodiversity and the multiple values of forests, as this is unlikely to provide a solid basis on which to build toward an ICF;

3) Opposition to the inclusion of assessed contributions for aid projects in the ITTA as this would undermine Canada's control of its ODA expenditures;

4) Keeping in sight the ITTO's function as a commodity organization dealing with tropical timber while expanding focus on aid and environmental concerns would be addressed.

Canada is only a minor participant in the international tropical timber trade. Nonetheless, its national interests are engaged and despite its original limited focus on the international trade in tropical timber, the ITTO has become a venue for the world debate on quarrelsome issues such as sustainable forest management practices and an ICF. The ITTO membership permits Canada to participate in a forum where the world response to these questions is being shaped. As the outcome of the tropical timber dialogue can be expected to have spillover effects into the

management of temperate forests, the Canadian forestry industry and the provinces are following the international efforts closely. Therefore, their interests can best be protected through active Canadian participation in this particular forest debate and in all of its venues worldwide.

4. The United Nations Commission on Sustainable Development (UNCSD)

At the 47th Session of the United Nations General Assembly (UNGA), as its first step in follow-up to UNCED, the UNGA established a high-level Commission on Sustainable Development (CSD) that will report to the UNGA through ECOSOC in order to guide the implementation of Agenda 21 and other agreements negotiated at UNCED. In addition to monitoring and promoting implementation of UNCED accomplishments, it is envisioned that the Commission will enhance dialogue with non-governmental and independent sector groups and work with the other UN agencies to integrate principles of sustainable development throughout the UN system. The Commission will adopt a multi-year thematic programme, based on a yearly selection of issues from Agenda 21.[45]

On February 16, 1993, Canada was elected to one of the 53 seats of the CSD. At the organizational session of the Commission, held February 24-26, 1993, Canada's Ambassador for Sustainable Development, Arthur H. Campeau, was elected to the position of Vice-Chair of the Bureau of the Commission for the period of its first year of operations. Further discussions and decisions on the workplan of the Commission will occur at the first substantive session to be held June 14-25, 1993, in New York. Canadian priorities for the Commission include building international cooperation on forest management, conservation and sustainable development of all types of forests, formulating internationally-accepted scientifically-based criteria for sustainable forestry practices and, based on these criteria, developing national guidelines. Another Canadian priority is to ensure transparency in the Commission's work by involving indigenous groups, business, scientific and other major groups.[46]

However, at the current time, Canada recognizes that the CSD will be overloaded with a vast array of post-UNCED issues and that the role of the CSD, as currently established, will not permit lengthy or in-depth discussion. Thus, the challenge is to secure a mechanism which will determine options/recommendations for the future of the world's forests such that the CSD would only be responsible for making final recommendations regarding decisions at the UNGA.

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[45] A review conference under the auspices of the UNGA and the new CSD is due to take place in five years' time. The "Guiding Principles" and the forestry chapter in Agenda 21 should be reviewed as part of the Commission's 1994-1996 work programme.

[46] See appendix XIX, a news release and a backgrounder on the CSD.

5. A World Commission on Forests and Sustainable Development (WCFSD)

In October 1991, a group of eminent persons gathered together at the Woods Hole Research Center, Massachusetts, for a high level meeting on the conservation and utilization of the world's forests.[47] The critical observation that led to the discussions was that political progress in addressing environmental issues internationally could not be made without a consensus in the scientific community as to the definition of the problem and an equally clear definition of potential solutions.[48]

As a follow-up on the "Guiding Principles" on forests, negotiated at the Earth Summit, in Rio, a group of eminent policy makers, science and policy advisors, met in Rome on July 24-25, 1992, to consider the establishment of a Commission. The meeting was sponsored by the Swedish Agency for Research Cooperation with Developing Countries (SAREC), and the Woods Hole Research Center. It was hosted by Ambassador and former Swedish Prime Minister, Ola Ullsten.

Subsequently, a first formal meeting of the organizing committee was held November 23-24, 1992, in Ottawa. It was sponsored by the International Development Research Centre (IDRC) and the Woods Hole Research Center. This organizing committee of eminent persons established the Commission's founding principles which recognize the need to bring forests into the main stream of environmentally sustainable economic development and to widen the scope of international cooperation in terms of capacity building, research and development, marketing, financial assistance and mutually supportive policies and actions. These principles also recognize that there is a critical need for more specific consensus on guidelines for environmentally sound forest management and on maintaining a sustainable relationship between the ecological and economic roles of forests.

A second meeting of the organizing committee is to be held before the organizing committee formally requests the Secretary General of the United Nations to establish a Commission. There have been preliminary indications that the Secretary General of the UN, the Under Secretary General for ECOSOC (who is also responsible for the UNCSD), as well as a number of countries in the North (e.g. Germany, UK, USA), and the South (e.g. Malaysia,

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[47] The Woods Hole Research Center, founded in 1985, and located in Woods Hole, MA, U.S.A., addresses global environmental problems generated by the expansion of the human enterprise over a finite earth. The Center is committed to discovery and management: formulating principles that govern nature and helping to draw the actions and laws of people into congruence with the laws of nature. The tools are basic research in ecology, policy analysis involving science applied to public affairs, and education. The subject is ecology, applied to the common interest in a habitable earth.

[48] For further information, please see appendix XX.

Indonesia, India), would not be opposed to giving serious consideration to the establishment of a World Commission on Forests and Sustainable Development (WCFSD).

VI RECOMMENDATIONS

There is an urgent need to adopt a legally binding international agreement covering the utilization and conservation of all types of forests that take into account all of their social and biophysical values. An effective formal ICF will require far more systematic and probing analyses of scientific and economic issues than are currently available. Such analyses are considered urgent and will be sufficiently complex to merit being pursued immediately by a Commission charged specifically with the responsibility for recommending detailed international actions necessary to address the problems in international forestry.

Canada should, therefore, strongly and actively support the establishment of a World Commission on Forests and Sustainable Development (WCFSD) in order to promote the convergence of the views of scientists and politicians around the world, and to identify the issues to be dealt with in an ICF. Such a Commission could help forge the coalition of interests, part of a process that could eventually lead to the negotiation of an ICF.[49]

But the process need not be limited to the work of the Commission. During the PrepCom process leading up to Rio, it was said that, from a Canadian point of view, we could not afford to engage in "paralysis through analysis". This is consistent with the following affirmation made by Ambassador John Bell, ex-Special Advisor on the Environment to the Secretary of State for External Affairs and Senior Advisor to Prime Minister Mulroney at UNCED:

"Policies are seldom formulated on perfect information; the policy process is usually constantly evolving".[50]

Therefore, the "Beyond Rio Seminar" held September 14-15, 1992, aimed at bringing together senior officials involved in UNCED with senior officials whose work was going to be affected by its outcome, was an excellent initiative that should perhaps be repeated. The present idea of bringing together the divisions in the various departments involved in all aspects of the forests issues through an Inter-departmental Committee on International Forests Issues that could

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[49] To better understand the importance as well as the rationale behind the establishment of such a Commission, please see appendix XXI, a speech by the Honourable Ambassador Ola Ullsten, former Prime Minister of Sweden, on February 17, 1993, in Indonesia: "A Habitable Earth Needs Its Forests".

[50] Source: Canadian intervention in the ad hoc working group on forests, PrepCom II, Geneva, March 25, 1991.

develop policy, coordinate activities and exchange information is mandatory in order to build support based on an integrated Canadian position on the post-UNCED international forest agenda.[51]

The following is an overview of the roles that each could play along with new initiatives that could also be undertaken in pursuit of our objective: to build support in favour of continuing the process of developing an international consensus on forests through negotiation of an ICF.

1. The Canadian International Development Agency (CIDA)

The Canadian International Development Agency (CIDA) provides development assistance to developing countries to assist them in conserving and developing their forest resources. To be sustainable, this assistance must take into account the environment and all of the interrelated political, social and economic conditions and needs. By cutting its international aid budget, Canada is decreasing its exchanges with African, Asian and Latin American countries whose contributions in achieving sustainable forest management practices worldwide will be decisive.

There is a risk that cutbacks in Canada's ODA budget will have a negative impact on commitments in the forestry sector. This comes at a time when Canada should be considering increased support to the sector.[52]

Support to Agenda 21 forestry programs through CIDA and other donor agencies can provide the necessary underpinnings that would enable less developed countries' efforts to meet obligations under an ICF. Development help from agencies such as CIDA will be critical to providing necessary incentives/compensation for sustainable forests development and practices worldwide.

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[51] At its latest meeting, it was agreed that a small drafting group will begin work on a position paper, with particular emphasis on the future roles of the FAO and the ITTO, and on the merits of creating a new international institution focusing solely on forest issues. Perhaps, a good starting point could be for the group to read an appropriate paper briefly summarizing these issues and offering three scenarios for the future of world leadership in forestry. As such, it would "form the basis for a more in-depth appraisal of alternatives and recommendations for improved world leadership in forestry conservation." Please see appendix XXII, "Leadership in world forestry", op. cit.,.

[52] This is an example of where Canada could take more initiative with respect to budget priorities, to honour its international funding promises (see section 6), and to satisfy pressure groups who would like to see the environment given higher priority than, say, military defence.

2. Environment Canada

The International Affairs Directorate (IAD) is a division within the Corporate Policy Group, one of six services of Environment Canada. IAD provides corporate direction on the management of international affairs by establishing strategies, policies and plans. It also coordinates and participates in intergovernmental and interdepartmental activities related to global environmental issues. IAD has three divisions: Issues and Integration, Bilateral Relations and Multilateral Relations.

One of the roles of the Issues and Integration division is to develop and implement effective corporate and federal strategies and positions on priority and emerging international environmental issues.

The Bilateral Relations division manages Environment Canada's bilateral cooperation programmes and coordinates their implementation. The main objective of these programmes is to protect and promote Canada's environmental interests. Its activities include the strengthening of key partnerships (such as with the U.S., Mexico, Russia, China, France, Germany, and Japan), the strategic selection of other potential bilateral partners, and the implementation of work programs which make Canadian environmental expertise and technology available to the international community.

The Multilateral Relations division ensures that Canada's relations with key multilateral mechanisms are managed to protect and promote national environmental security and interests. These mechanisms include key institutions such as the Organization for Economic Cooperation and Development (OECD), the Economic Commission for Europe (ECE) and many United Nations agencies and organizations. This division also advises on, coordinates and participates in the development and representation of Canada in international environment discussions, negotiations and events.

The powers, duties and functions of this department extend to matters over which Parliament has jurisdiction, and are not assigned to any other department, board or agency of the government of Canada (the preservation and enhancement of the quality of the natural environment, including water, air and soil quality; renewable resources, including migratory birds and other non-domestic flora and fauna; water; meteorology as well as national parks, among others). Given the relationship between these issues and legislation, this department should be fully aware of the approach Canada intends to take regarding forests when it negotiates on the international scene with respect to Biodiversity and Climate change. In the meantime, this department should be commended for its great initiatives under the Canada Green Plan as well as for its ten domestic model forests and its research on sustainable development.

3. External Affairs and International Trade Canada

The Department of External Affairs and International Trade Canada is responsible for international relations which includes particular trade policy aspects of Canada's forest exports as well as international negotiations. For example, External Affairs involvement with tropical forest products is done through trade commodity agreements such as the International Tropical Timber Agreement (ITTA). In terms of international environmental issues, External Affairs deals with forestry in such fora as the various United Nations' agencies and the Economic Summits. Together with la Francophonie and the Organization of American States (OAS), the Commonwealth continues to be one of Canada's important windows on the world. Thus, it gives Canada an international constituency and influence it would not otherwise have.

The Commonwealth is an important instrument for our diplomacy in support of Canada's position and for building North-South consensus on issues such as democratization, respect for human rights and women's equality, Third World debt, and protection of the environment. The Commonwealth allows Canada to better understand the concerns of other countries and learn about other cultures, traditions and lifestyles. This helps Canada to better target its assistance to those countries that need it most. Since Canada provides approximately $40 million each year for Commonwealth programmes, the protection of the environment and the promotion of sustainable development could be given a higher priority, particularly in light of the Commonwealth Forestry Conference to be held this fall in Kuala Lumpur, Malaysia. Other organizations with which Canada is associated should also be given special attention in promoting a constructive dialogue regarding the forests of the world as ecosystems, i.e. not seen solely from an economic point of view.[53]

As well, participants in the latest prosperity consultations, organized through the Forest Sector Advisory Council (FSAC), noted that there are currently only three overseas posts with forestry sectoral specialists. There should be more such specialists in our overseas embassies and consulates in order to increase our knowledge on the evolution of other countries' forest-related practices. These specialists could also help build support toward Canada's initiatives in relation to worldwide sustainable development practices, and promote the benefits for other countries of an international legally-binding instrument on forests such as an ICF.

The appointment of Arthur H. Campeau, as Canada's Ambassador for Environment and Sustainable Development, provides another important domestic and international opportunity to heighten awareness of the prominent role Canada plays in solving environment problems and promoting the principles of sustainable development.

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[53] See appendix XXIII, a list of such organizations by name, theme and region.

4. Forestry Canada

At the federal level, Forestry Canada's mandate is to promote the sustainable development and competitiveness of Canada's forestry sector for present and future generations of Canadians. Forestry Canada provides the lead on forestry research nationally through six regional laboratories and two national institutes, and is engaged in a wide range of activities.

In cooperation with the industry and provinces, it supports research on forest products at Forintek and on forest engineering at Forest Engineering Research Institute of Canada (FERIC). Forestry Canada also influences forestry activities in Canada through Federal-Provincial Regional Development Agreements and through active participation in the Canadian Council of Forests Ministers. It also played a very influential role in formulating Canada's National Forest Strategy in March 1992. Another positive initiative is the Minister's annual report submitted to Parliament on the State of Canada's Forests. Perhaps, people should be aware that this review to Parliament is one of the unique undertakings and achievements in the world - **no other nation produces anything similar.**

Forestry Canada also represents Canada in many international policy and scientific fora, both intergovernmental and non-governmental, and was responsible for positioning Canada as a leader in international negotiations on forests during the UNCED process. At the same time, Forestry Canada was successful in mobilizing a wide range of stakeholders in Canada in support of Canada's negotiating positions at UNCED. Thanks in large part to this high international profile, backed by Canada's status as a major forest nation, Canadian views on forests are now sought extensively by national governments and international institutions alike, making Canada a key player in global discussions on the future of the world's forests.

5. The International Development Research Centre (IDRC)

The International Development Research Centre (IDRC) is a public corporation created by the Parliament of Canada in 1970 to stimulate and support scientific and technical research by developing countries for their own benefit. The programmes that the Centre supports help developing countries build the scientific competence and capacity of their institutions and researchers so that these countries can work to solve their own problems. Research projects supported by IDRC are identified, designed, conducted, and managed by developing country researchers in their own countries, to meet their own priorities.

IDRC also helps create and support international networks through which developing countries can learn from each other, share common experiences, and conduct similarly designed studies in areas of mutual concern. The Centre also promotes cooperation between researchers

in developing countries and their counterparts in Canada. IDRC has its headquarters in Ottawa, with regional offices in Cairo, New Delhi, Nairobi, Dakar, Singapore and Montevideo.

In the long term, one of the best ways to help developing countries is to strengthen their scientific and technical potential. Not only is a solid scientific and technical base necessary to eliminate under-development, but humanity as a whole cannot afford to neglect the innovative contribution of its scientists. By increasing scientific support in developing countries, Canada is fostering the advent of a world where science and technology will be used everywhere to solve global problems. With continued financial resources to support such programmes and exchanges, IDRC is well positioned to undertake such an endeavour.

6. The Cabinet Committees and the House of Commons Standing Committees

At the current time, there are three Cabinet committees where forest issues are the most likely to be raised: the Environment committee (chaired by the Honourable Jean Charest), the Economic and Trade Policy committee (chaired by the Honourable Michael Wilson), as well as the Foreign and Defence Policy committee (chaired by the Honourable Barbara McDougall). The Honourable Frank Oberle, Minister of Forestry, is a member of two of these three committees (Environment and Economic and Trade Policy); however, he is not a member of the Priorities and Planning committee like his Cabinet colleagues Charest, Wilson and McDougall. Discussions on forest issues in these committees are crucial for any conceivable domestic and international progress. There has to be a strong political will in order to efficiently pursue our objectives pertaining to forests.

A good starting point could be to undertake a study through the Standing Committee on Forestry and Fishery. Such a study could follow the same approach as the one taken by the Standing Committee on Environment, in November 1992, which studied the implications of both the Biodiversity and Climate change Conventions. For a long time, fishery has been the main topic in this committee and yet the same biological and physical conditions that produce Canada's abundant forest lands also create some of the world's most productive fish habitats. These resources are not exhaustible, except by mismanagement, nor can one be developed without affecting the another.

In the post-UNCED era, the evidence is now more clear than ever: future viability and sustainable development of our renewable resource base depends on fully-integrated strategies for resource management and protection; forestry and fishery are no exceptions.[54]

[54] See appendix XXIV, a descriptive relation between fish habitat and forestry.

7. The International Parliamentary Associations

If foreign relations were conducted entirely by the Department of External Affairs and a few related government agencies, then there would be little point in parliamentarians concerning themselves with this field. Instead, a great number of private and non-governmental groups, as well as government bodies, are involved in relations with foreign countries and organizations of one kind or another, and Canada's interactions with the world have to be seen in this broader sense.

Parliamentarians have a part to play in this broader stream of foreign relations. Sometimes they have roles in foreign policy formulation, through the conduct of enquiries in committees, or open debates in the House of Commons, or the Senate. But sometimes they are also involved in the presentation of Canadian viewpoints and perspectives abroad. They do not rival the government as the representative of Canadian national interests, but they can have some impact in the defence of Canada's reputation and Canadian positions. Their foreign contacts and exchanges can be very useful in helping others to understand Canada's situation. In view of the remarkable forward march of democracy in the world, the special ties that are being forged through parliamentarians bring significant promise in terms of the development of Canada's international relations.[55]

8. The National Round Table on the Environment and the Economy (NRTEE)

The role of the NRTEE is to promote sustainable development and to stimulate all Canadians to accept and implement it. It is an independent body reporting directly to the Prime Minister. Members of the NRTEE took a decision in 1990 to encourage specific sectors of the Canadian economy to undertake dialogues on sustainable development. Canada's forest sector was considered as posing urgent international problems and therefore was chosen as one of their specific sector.

Some twenty-five stakeholders in the Forest Round Table on Sustainable Development include representatives from industry, unions, the Aboriginal Forestry Association, the NRTEE, and the Sierra Club. It has three objectives:

1) to develop a common vision and principles for the sustainable development of Canada's forests;

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[55] In fact, this gives Canadian parliamentarians remarkable opportunities to learn the policy positions and attitudes of other countries. For example, in January of 1992, European Community members of GLOBE (Global Legislators Organization for a Balanced Environment International) successfully obtained an Europarliament resolution encouraging EC support for an ICF, at the June 1992 Earth Summit.

2) to develop action plans by each stakeholder agency for its own contribution to sustainable development;

3) to make recommendations to governments and other jurisdictions with regard to policies and actions for sustainable development.

Knowing that all these participants compose a sub-system (national), of a larger system (international), perhaps members of the former could make the latter aware of Canada's international interests pertaining to forests and therefore integrate the international spectrum with policies and actions considerate of the respective Canadian stakeholder agencies. Such initiatives from those members could then strengthen the momentum necessary to achieve our objectives internationally.

9. An International spokesperson

Since sustainable development is indeed an issue that touches us all, an international spokesperson who could endorse Canada's policies in a simple way would be a great motivating factor for the general public's interest in sustainable development. Such a person should be internationally recognized as having unbiased and humanitarian views. He or she should be a well-known Canadian, acknowledged as a spokesperson for the "Canadian point of view", while expressing global environmental concerns in an impartial and straight-forward way.

Donald Sutherland, internationally recognized for his contributions to the film industry and an actor who promotes humanitarian interests, could be one such spokesperson. Another is Frédéric Back, film maker and creator of "The Man Who Planted Trees", a 30-minute film about a man who, over his life-time, converts a desolate land into a forest and, subsequently, converts a desolate region of the world into a thriving community. This film won an Oscar for best animated short film in 1989.[56]

[56] The cinematographic artistry of Frédéric Back is showcased in this story about a man whose toil and dedication brought life to a barren region in the French Alps. Back's illustrations offer a visual complement to Jean Giono's narrative of the story of shepherd Elzéard Bouffier, a man who planted and nurtured a forest of thousands of oak trees. The narrator's fascination with the man and his mission draws him back to the mountains, where he sees the landscape transformed into thriving villages and farmland, thanks to Bouffier's incredible forest.

VII CONCLUSION

Canada is a forest nation: hosting 10% of the world's forest cover, generating 23% of international trade in forest products, and providing 9% of international assistance in forestry. Any international deliberations on forests are of major economic and environmental significance to Canada. During the UNCED process, Canada played a leadership role in negotiations related to forests. It is crucial for Canada to continue its leadership and assume an influential position in any future international deliberations on forests.

Forests have many functions: ecological, economic and social. Environmentally sound forest management practices are aimed to ensure that forests are managed as ecosystems and not only as a source of industrial wood supply. The future of tropical and temperate forests are interrelated and a global approach to forest policy is imperative from both the environmental and economic points of view. The aim is to ensure the preservation of multiple values and sustainable use of all types of forests. Thus, we need to have an appropriate mechanism to establish first the scientific, technical and legal basis that would eventually ensure, at the world level, the conservation and sustainable development of the world's forests within the framework of an ICF. With strong and active support from Canada, such a mechanism could well be a World Commission on Forests and Sustainable Development (WCFSD).

No nation exists in isolation; humanity's future depends on common actions toward common goals. As a wealthy and privileged nation, Canada has important contributions to make in the community of nations; as a major forest nation, Canada should continue to be a key player and provide effective leadership in global discussions on the future of the world's forests.

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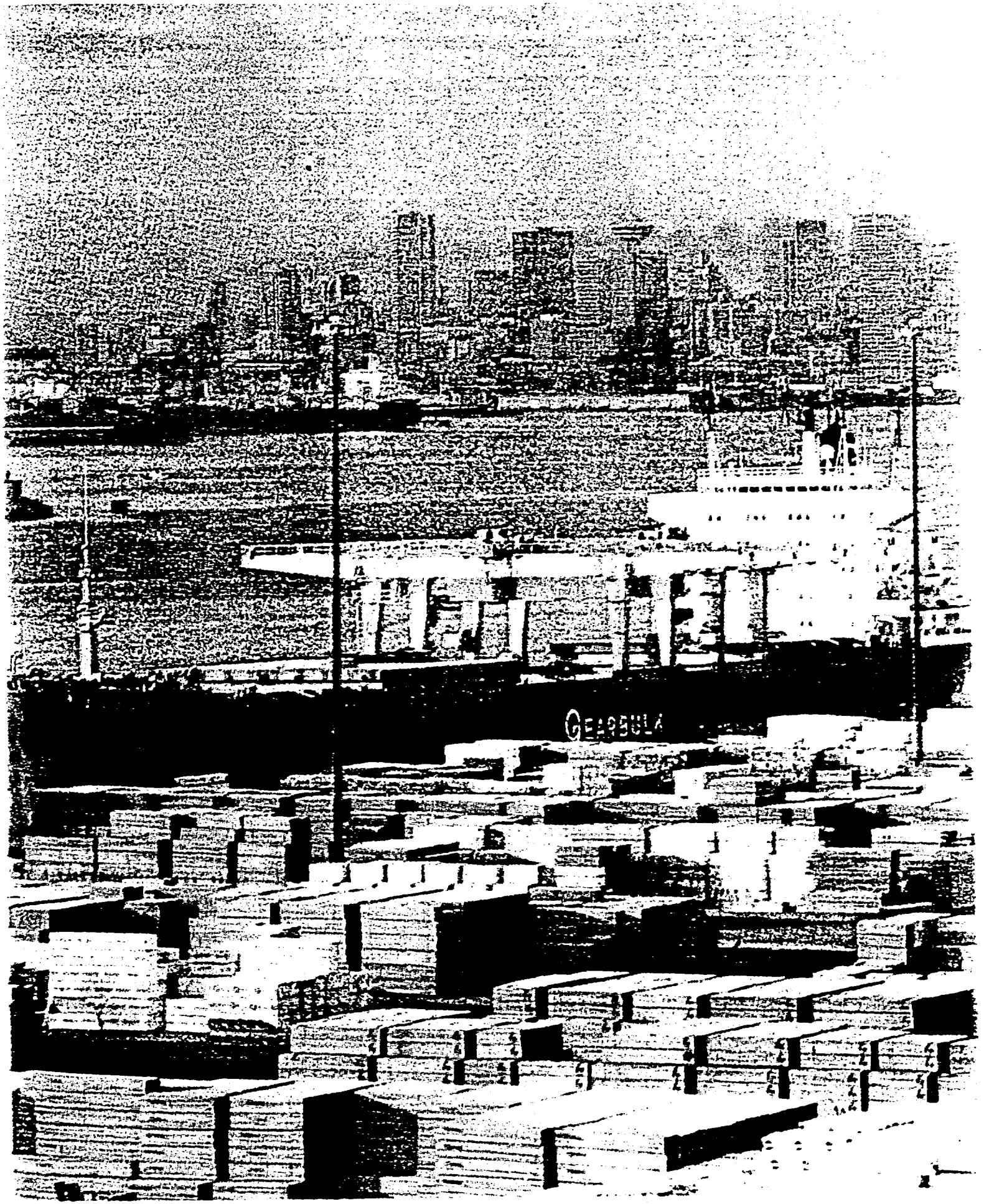

umber export terminal in Vancouver: a hot property on commodity markets

Appendix I

HOUSTON ECONOMIC DECLARATION

July 11, 1990

1. We, the Heads of State and Government of the seven major industrial democracies and the President of the Commission of the European Communities, meeting in Houston for our annual Economic Summit, celebrate the renaissance of democracy throughout much of the world. We welcome unreservedly the spread of multiparty democracy, the practice of free elections, the freedom of expression and assembly, the increased respect for human rights, the rule of law, and the increasing recognition of the principles of the open and competitive economy. These events proclaim loudly man's inalienable rights: When people are free to choose, they choose freedom.

2. The profound changes taking place in Europe, and progress toward democracy elsewhere, give us great hope for a world in which individuals have increasing opportunities to achieve their economic and political aspirations, free of tyranny and oppression.

3. We are mindful that freedom and economic prosperity are closely linked and mutually reinforcing. Sustainable economic prosperity depends upon the stimulus of competition and the encouragement of enterprise -- on incentives for individual initiative and innovation, on a skilled and motivated labor force whose fundamental rights are protected, on sound monetary systems, on an open system of international trade and payments, and on an environment safeguarded for future generations.

4. Around the world, we are determined to assist other peoples to achieve and sustain economic prosperity and political freedom. We will support their efforts with our experience, resources, and goodwill.

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recent U.S. Enterprise for the Americas initiative to support investment reform and the environment in Latin America needs to be given careful consideration by Finance Ministers.

Structural Change

58. For countries implementing courageous reforms, commercial banks should take realistic and constructive approaches in their negotiations to conclude promptly agreements on financial packages including debt reduction, debt-service reduction and new money.

59. Creditor nations will continue to play an important role in this process through ongoing contributions to the international financial institutions, rescheduling of official debt in the Paris Club, and new finance. We encourage the Paris Club to continue reviewing additional options to address debt burdens. In the case of the lower middle-income countries implementing strong reform programs, we encourage the Paris Club to lengthen the repayment period, taking account of the special situations of these countries. We welcome the decisions taken by France with respect to Sub-Saharan Africa and by Canada with respect to the Caribbean to alleviate the debt burden of the lower middle-income countries.

Debt

60. Creditor governments have also provided special support for the poorest countries through the implementation of Toronto terms in Paris Club reschedulings. All of us have cancelled official development assistance (ODA) debt for the poorest countries. We encourage the Paris Club to review the implementation of the existing options that apply to the poorest countries.

61. We note and will study with interest the Craxi Report on debt commissioned by the UN Secretary General.

THE ENVIRONMENT

Environment

62. One of our most important responsibilities is to pass on to future generations an environment whose health, beauty, and economic potential are not threatened. Environmental challenges such as climate change, ozone depletion, deforestation, marine pollution, and loss of biological diversity require closer and more effective international cooperation and concrete action. We as industrialized countries have an obligation to be leaders in meeting these challenges. We agree that, in the face of threats of irreversible environmental damage, lack of full scientific certainty is no excuse to postpone actions which are justified in their own right. We recognize that strong, growing, market-oriented economies provide the best means for successful environmental protection.

63. Climate change is of key importance. We are committed to undertake common efforts to limit emissions of greenhouse gases, such as carbon dioxide. We strongly support the work of the

Intergovernmental Panel on Climate Change (IPCC) and look forward to the release of its full report in August. The Second World Climate Conference provides the opportunity for all countries to consider the adoption of strategies and measures for limiting or stabilizing greenhouse gas emissions, and to discuss an effective international response. We reiterate our support for the negotiation of a framework convention on climate change, under the auspices of the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO). The convention should be completed by 1992. Work on appropriate implementing protocols should be undertaken as expeditiously as possible and should consider all sources and sinks.

Environment

64. We welcome the amendment of the Montreal Protocol to phase out the use of chlorofluorocarbons (CFCs) by the year 2000 and to extend coverage of the Protocol to other ozone depleting substances. The establishment of a financial mechanism to assist developing countries to tackle ozone depletion marks a new and positive step in cooperation between the developed and developing worlds. We applaud the announcement in London by some major developing countries, including India and China, that they intend to review their position on adherence to the Montreal Protocol and its amendments. We would welcome their adherence as a crucial reinforcement of the effectiveness of the Protocol, which would ultimately lead to a worldwide phase out of ozone depleting substances. We urge all parties to ratify the amended Protocol as quickly as possible.

Energy

65. We acknowledge that enhanced levels of cooperation will be necessary with regard to the science and impacts of climate change and economic implications of possible response strategies. We recognize the importance of working together to develop new technologies and methods over the coming decades to complement energy conservation and other measures to reduce carbon dioxide and other greenhouse emissions. We support accelerated scientific and economic research and analysis on the dynamics and potential impact of climate change, and on potential responses of developed and developing countries.

66. We are determined to take action to increase forests, while protecting existing ones and recognizing the sovereign rights of all countries to make use of their natural resources. The destruction of tropical forests has reached alarming proportions. We welcome the commitment of the new Government of Brazil to help arrest this destruction and to provide sustainable forest management. We actively support this process, and we are ready for a new dialogue with developing countries on ways and means to support their efforts. We are ready to cooperate with the

Government of Brazil on a comprehensive pilot program to counteract the threat to tropical rain forests in that country. We ask the World Bank to prepare such a proposal, in close cooperation with the Commission of the European Communities, which should be presented at the latest at the next Economic Summit. We appeal to the other concerned countries to join us in this effort. Experience gained in this pilot program should immediately be shared with other countries faced with tropical forest destruction. The Tropical Forestry Action Plan must be reformed and strengthened, placing more emphasis on forest conservation and protection of biological diversity. The International Tropical Timber Organization action plan must be enhanced to emphasize sustainable forest management and improve market operations.

67. We are ready to begin negotiations, in the appropriate fora, as expeditiously as possible on a global forest convention or agreement, which is needed to curb deforestation, protect biodiversity, stimulate positive forestry actions, and address threats to the world's forests. The convention or agreement should be completed as soon as possible, but no later than 1992. The work of the IPCC and others should be taken into account.

68. The destruction of ecologically sensitive areas around the world continues at an alarming pace. Loss of temperate and tropical forests, developmental pressures on estuaries, wetlands and coral reefs, and destruction of biological diversity are symptomatic. To reverse this trend, we will expand cooperation to combat desertification; expand projects to conserve biological diversity; protect the Antarctic; and assist developing countries in their environmental efforts. We will work within UNEP and other fora to achieve these objectives, and will participate actively in UNEP's work to protect biodiversity.

69. Efforts to protect the environment do not stop at the water's edge. Serious problems are caused by marine pollution, both in the oceans and in coastal areas. A comprehensive strategy should be developed to address land-based sources of pollution; we are committed to helping in this regard. We will continue our efforts to avoid oil spills, urge the early entry into force of the existing International Maritime Organization (IMO) Convention, and welcome the work of that organization in developing an international oil spills convention. We are concerned about the impact of environmental degradation and unregulated fishing practices on living marine resources. We support cooperation in the conservation of living marine resources and recognize the importance of regional fisheries organizations in this respect. We call on all concerned countries to respect the conservation regimes.

70. To cope with energy-related environmental damage, priority must be given to improvements in energy efficiency and to the development of alternative energy sources. For the countries that make such a choice, nuclear energy will continue to be an important

contributor to our energy supply and can play a significant role in reducing the growth of greenhouse gas emissions. Countries should continue efforts to ensure highest worldwide performance standards for nuclear and other energy in order to protect health and the environment, and ensure the highest safety.

71. Cooperation between developed and developing countries is essential to the resolution of global environmental problems. In this regard, the 1992 UN Conference on Environment and Development will be an important opportunity to develop widespread agreement on common action and coordinated plans. We note with interest the conclusions of the Siena Forum on International Law of the Environment and suggest that these should be considered by the 1992 UN Conference on Environment and Development.

72. We recognize that developing countries will benefit from increased financial and technological assistance to help them resolve environmental problems, which are aggravated by poverty and underdevelopment. Multilateral development bank programs should be strengthened to provide greater protection for the environment, including environmental impact assessments and action plans, and to promote energy efficiency. We recognize that debt-for-nature swaps can play a useful role in protecting the environment. We will examine how the World Bank can provide a coordinating role for measures to promote environmental protection.

73. In order to integrate successfully environmental and economic goals, decisionmakers in government and industry require the necessary tools. Expanded cooperative scientific and economic research and analysis on the environment is needed. We recognize the importance of coordinating and the sharing the collection of satellite data on earth and its atmosphere. We welcome and encourage the ongoing discussions for the establishment of an International Network. It is also important to involve the private sector, which has a key role in developing solutions to environmental problems. We encourage the OECD to accelerate its very useful work on environment and the economy. Of particular importance are the early development of environmental indicators and the design of market-oriented approaches that can be used to achieve environmental objectives. We also welcome Canada's offer to host in 1991 an international conference on environmental information in the 21st Century. We support voluntary environmental labelling as a useful market mechanism which satisfies consumer demand and producer requirements and promotes market innovation.

74. We note with satisfaction the successful launching of the Human Frontier Science Program and express our hope that it will make

positive contributions to the advancement of basic research in life science for the benefit of all mankind.

NARCOTICS

75. We urge all nations to accede to and complete ratification of the UN Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (the Vienna Convention), and to apply provisionally terms of the Convention.

76. We welcome the conclusion of the UN Special Session on Drugs and urge the implementation of the measures contained in the Program of Action it has adopted.

77. We support the declaration adopted at the ministerial meeting on drugs convened by the United Kingdom that drug demand reduction should be accorded the same importance in policy and action as the reduction of illicit supply. Developed countries should adopt stronger prevention efforts and assist demand reduction initiatives in other countries.

78. We endorse the report of the Financial Action Task Force (FATF) and commit our countries to a full implementation of all its recommendations without delay. As agreed at the May meeting of Task Force Finance Ministers, the FATF should be reconvened for a second year, chaired by France, to assess and facilitate the implementation of these recommendations, and to complement them where appropriate. All OECD and financial center countries that subscribe to the recommendations of the Task Force should be invited to participate in this exercise. The report of the new FATF would be completed before we next meet. We also invite all other countries to participate in the fight against money laundering and to implement the recommendations of the FATF.

79. Effective procedures should be adopted to ensure that precursor and essential chemicals are not diverted to manufacture illicit drugs. A task force similar to the FATF should be created for this purpose, composed of Summit participants and other countries that trade in these chemicals, with the involvement of representatives of the chemical industry. The task force should address the problems which concern cocaine, heroin and synthetic drugs and report within a year.

80. We support a strategy for attacking the cocaine trade as outlined in particular in the Cartagena Declaration. We recognize the importance of supporting all countries strongly engaged in the fight against drug trafficking, especially Colombia, Peru, and Bolivia, with economic, law enforcement, and other assistance and advice, recognizing the need to make contributions within the framework of actions against drug trafficking carried out by the producer countries.

Drugs

Appendix II

London Economic Summit 1991

ECONOMIC DECLARATION

BUILDING WORLD PARTNERSHIP

1. We, the Heads of State and Government of the seven major industrial democracies and the representatives of the European Community, met in London for our seventeenth annual Summit.

2. The spread of freedom and democracy which we celebrated at Houston has gathered pace over the last year. Together the international community has overcome a major threat to world peace in the Gulf. But new challenges and new opportunities confront us.

3. We seek to build world partnership, based on common values, and to strengthen the international order. Our aim is to underpin democracy, human rights, the rule of law and sound economic management, which together provide the key to prosperity. To achieve this aim, we will promote a truly multilateral system, which is secure and adaptable and in which responsibility is shared widely and equitably. Central to our aim is the need for a stronger, more effective UN system, and for greater attention to the proliferation and transfer of weapons.

Economic policy

4. Over the last year, some of our economies have maintained good growth, while most have slowed down and some gone into recession. But a global recession has been avoided. The uncertainty created by the Gulf crisis is behind us. We welcome the fact that there are now increasing signs of economic recovery. Progress has been made too in reducing the largest trade and current account imbalances.

5. Our shared objectives are a sustained recovery and price stability. To this end, we are determined to maintain, including through our economic policy coordination process, the medium-term strategy endorsed by earlier Summits. This strategy has contained inflationary expectations and created the conditions for sustainable growth and new jobs.

Economy

which should be treated as exceptional cases;

(b) the Paris Club's continued examination of the special situation of some lower middle-income countries on a case by case basis.

44. The poorest, most indebted countries need very special terms. We agree on the need for additional debt relief measures, on a case by case basis, for these countries, going well beyond the relief already granted under Toronto terms. We therefore call on the Paris Club to continue its discussions on how these measures can best be implemented promptly.

Debt

45. We recognise the need for appropriate new financial flows to developing countries. We believe the appropriate way to avoid unsustainable levels of debt is for developing countries to adopt strengthened policies to attract direct investment and the return of flight capital.

46. We note the key role of the IMF, whose resources should be strengthened by the early implementation of the quota increase under the Ninth General Review and the associated Third Amendment to the Articles of Agreement.

Environment

47. The international community will face formidable environmental challenges in the coming decade. Managing the environment continues to be a priority issue for us. Our economic policies should ensure that the use of this planet's resources is sustainable and safeguards the interests of both present and future generations. Growing market economies can best mobilise the means for protecting the environment, while democratic systems ensure proper accountability.

Environment

48. Environmental considerations should be integrated into the full range of government policies, in a way which reflects their economic costs. We support the valuable work in this field being undertaken by the OECD. This includes the systematic review of member countries' environmental performance and the development of environmental indicators for use in decision-making.

49. Internationally, we must develop a co-operative approach for tackling environmental issues. Industrial countries should set an example and thus encourage developing countries and Central and East European nations to play their part. Co-operation is also required on regional problems. In this context, we welcome the consensus reached on the Environmental Protocol of the Antarctic Treaty, aimed at reinforcing the environmental preservation of this continent. We note the good progress of the Sahara and Sahel Observatory as well as the Budapest Environmental Centre.

50. The UN Conference on Environment and Development (UNCED)

in June 1992 will be a landmark event. It will mark the climax of many international environmental negotiations. We commit ourselves to work for a successful Conference and to give the necessary political impetus to its preparation.

51. We aim to achieve the following by the time of UNCED:-

a) an effective framework convention on climate change, containing appropriate commitments and addressing all sources and sinks for greenhouse gases. We will seek to expedite work on implementing protocols to reinforce the convention. All participants should be committed to design and implement concrete strategies to limit net emissions of greenhouse gases, with measures to facilitate adaptation. Significant actions by industrial countries will encourage the participation of developing and East European countries, which is essential to the negotiations.

b) agreement on principles for the management, conservation and sustainable development of all types of forest, leading to a framework convention. This should be in a form both acceptable to the developing countries where tropical forests grow and consistent with the objective of a global forest convention or agreement which we set at Houston.

52. We will seek to promote, in the context of UNCED:

a) mobilisation of financial resources to help developing countries tackle environmental problems. We support the use of existing mechanisms for this purpose, in particular the Global Environment Facility (GEF). The GEF could become the comprehensive funding mechanism to help developing countries meet their obligations under the new environmental conventions.

b) encouragement of an improved flow of beneficial technology to developing countries, making use of commercial mechanisms.

c) a comprehensive approach to the oceans, including regional seas. The environmental and economic importance of oceans and seas means that they must be protected and sustainably managed.

d) further development of international law of the environment, drawing inter alia on the results of the Siena Forum.

e) the reinforcement of international institutions concerned with the environment, including the United Nations Environment Programme (UNEP), for the decade ahead.

53. We support the negotiation, under the auspices of UNEP, of an acceptable framework convention on biodiversity, if possible to be concluded next year. It should concentrate on protecting ecosystems, particularly in species-rich areas, without impeding positive developments in biotechnology.

54. We remain concerned about the destruction of tropical forests. We welcome the progress made in developing the pilot programme for the conservation of the Brazilian tropical forest, which has been prepared by the Government of Brazil in consultation with the World Bank and the European Commission, in response to the offer of co-operation extended following the Houston Summit. We call for further urgent work under the auspices of the World Bank, in co-operation with the European Commission, in the framework of appropriate policies and with careful attention to economic, technical and social issues. We will financially support the implementation of the preliminary stage of the pilot programme utilising all potential sources, including the private sector, non-governmental organisations, the multilateral development banks, and the Global Environmental Facility. When details of the programme have been resolved, we will consider supplementing these resources with bilateral assistance, so that progress can be made on the ground. We believe that good progress with this project will have a beneficial impact on the treatment of forests at UNCED. We also welcome the spread of debt for nature exchanges, with an emphasis on forests.

55. The burning oil wells and polluted seas in the Gulf have shown that we need greater international capacity to prevent and respond to environmental disasters. All international and regional agreements for this purpose, including those of the International Maritime Organisation (IMO), should be fully implemented. We welcome the decision by UNEP to establish an experimental centre for urgent environmental assistance. In the light of the recent storm damage in Bangladesh, we encourage the work on flood alleviation under the auspices of the World Bank, which we called for at the Arch Summit.

56. Living marine resources threatened by over-fishing and other harmful practices should be protected by the implementation of measures in accordance with international law. We urge control of marine pollution and compliance with the regimes established by regional fisheries organisations through effective monitoring and enforcement measures.

57. We call for greater efforts in co-operation in environmental science and technology, in particular:-

a) scientific research into the global climate, including satellite monitoring and ocean observation. All countries, including developing countries, should be involved in this research effort. We welcome the development of information services for users of earth observation data since the Houston Summit.

b) the development and diffusion of energy and environment technologies, including proposals for innovative technology programmes.

Drugs

58. We note with satisfaction progress made in this field since our Houston meeting, notably the entry into force of the 1988 United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychiatric Substances. We welcome the formation of the United Nations International Drugs Control Programme (UNDCP).

59. We will increase our efforts to reduce the demand for drugs as a part of overall anti-drug action programmes. We maintain our efforts to combat the scourge of cocaine and will match these by increased attention to heroin, still the principal hard drug in Europe and Asia. Enhanced co-operation is needed both to reduce production of heroin in Asia and to check its flow into Europe. Political changes in Central and Eastern Europe and the opening of frontiers there have increased the threat of drug misuse and facilitated illicit trafficking, but have also given greater scope for concerted Europe-wide action against drugs.

60. We applaud the efforts of the "Dublin Group" of European, North American and Asian governments to focus attention and resources on the problems of narcotics production and trafficking.

Drugs

61. We commend the achievements of the task-forces initiated by previous Summits and supported by an increasing number of countries:-

a) We urge all countries to take part in the international fight against money laundering and to cooperate with the activities of the Financial Action Task Force (FATF). We strongly support the agreement on a mutual evaluation process of each participating country's progress in implementing the FATF recommendations on money laundering. We endorse the recommendation of the FATF that it should operate on a continuing basis with a secretariat supplied by the OECD.

b) We welcome the report of the Chemical Action Task Force (CATF) and endorse the measures it recommends for countering chemical diversion, building on the 1988 UN Convention against drug trafficking. We look forward to the special meeting in Asia, concentrating on heroin, and the CATF meeting due in March 1992, which should consider the institutional future of this work.

62. We are concerned to improve the capacity of law

Appendix III

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ORIGINAL: ENGLISH

Agenda item 9

ADOPTION OF AGREEMENTS ON ENVIRONMENT AND DEVELOPMENT

Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests

PREAMBLE

(a) The subject of forests is related to the entire range of environmental and development issues and opportunities, including the right to socio-economic development on a sustainable basis.

(b) The guiding objective of these principles is to contribute to the management, conservation and sustainable development of forests and to provide for their multiple and complementary functions and uses.

(c) Forestry issues and opportunities should be examined in a holistic and balanced manner within the overall context of environment and development, taking into consideration the multiple functions and uses of forests, including traditional uses, and the likely economic and social stress when these uses are constrained or restricted, as well as the potential for development that sustainable forest management can offer.

(d) These principles reflect a first global consensus on forests. In committing themselves to the prompt implementation of these principles, countries also decide to keep them under assessment for their adequacy with regard to further international cooperation on forest issues.

(e) These principles should apply to all types of forests, both natural and planted, in all geographic regions and climatic zones, including austral, boreal, subtemperate, temperate, subtropical and tropical.

(f) All types of forests embody complex and unique ecological processes which are the basis for their present and potential capacity to provide resources to satisfy human needs as well as environmental values, and as such their sound management and conservation is of concern to the Governments of the countries to which they belong and are of value to local communities and to the environment as a whole.

(g) Forests are essential to economic development and the maintenance of all forms of life.

(h) Recognizing that the responsibility for forest management, conservation and sustainable development is in many States allocated among federal/national, state/provincial and local levels of government, each State, in accordance with its constitution and/or national legislation, should pursue these principles at the appropriate level of government.

PRINCIPLES/ELEMENTS

1. (a) "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies and have the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction".

(b) The agreed full incremental cost of achieving benefits associated with forest conservation and sustainable development requires increased international cooperation and should be equitably shared by the international community.

2. (a) States have the sovereign and inalienable right to utilize, manage and develop their forests in accordance with their development needs and level of socio-economic development and on the basis of national policies consistent with sustainable development and legislation, including the conversion of such areas for other uses within the overall socio-economic development plan and based on rational land-use policies.

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(b) Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of present and future generations. These needs are for forest products and services, such as wood and wood products, water, food, fodder, medicine, fuel, shelter, employment, recreation, habitats for wildlife, landscape diversity, carbon sinks and reservoirs, and for other forest products. Appropriate measures should be taken to protect forests against harmful effects of pollution, including air-borne pollution, fires, pests and diseases in order to maintain their full multiple value.

(c) The provision of timely, reliable and accurate information on forests and forest ecosystems is essential for public understanding and informed decision-making and should be ensured.

(d) Governments should promote and provide opportunities for the participation of interested parties, including local communities and indigenous people, industries, labour, non-governmental organizations and individuals, forest dwellers and women, in the development, implementation and planning of national forest policies.

3. (a) National policies and strategies should provide a framework for increased efforts, including the development and strengthening of institutions and programmes for the management, conservation and sustainable development of forests and forest lands.

(b) International institutional arrangements, building on those organizations and mechanisms already in existence, as appropriate, should facilitate international cooperation in the field of forests.

(c) All aspects of environmental protection and social and economic development as they relate to forests and forest lands should be integrated and comprehensive.

4. The vital role of all types of forests in maintaining the ecological processes and balance at the local, national, regional and global levels through, inter alia, their role in protecting fragile ecosystems, watersheds and freshwater resources and as rich storehouses of

biodiversity and biological resources and sources of genetic material for biotechnology products, as well as photosynthesis, should be recognized.

5. (a) National forest policies should recognize and duly support the identity, culture and the rights of indigenous people, their communities and other communities and forest dwellers. Appropriate conditions should be promoted for these groups to enable them to have an economic stake in forest use, perform economic activities, and achieve and maintain cultural identity and social organization, as well as adequate levels of livelihood and well-being, through, inter alia, those land tenure arrangements which serve as incentives for the sustainable management of forests.

(b) The full participation of women in all aspects of the management, conservation and sustainable development of forests should be actively promoted.

6. (a) All types of forests play an important role in meeting energy requirements through the provision of a renewable source of bio-energy, particularly in developing countries, and the demands for fuelwood for household and industrial needs should be met through sustainable forest management, afforestation and reforestation. To this end, the potential contribution of plantations of both indigenous and introduced species for the provision of both fuel and industrial wood should be recognized.

(b) National policies and programmes should take into account the relationship, where it exists, between the conservation, management and sustainable development of forests and all aspects related to the production, consumption, recycling and/or final disposal of forest products.

(c) Decisions taken on the management, conservation and sustainable development of forest resources should benefit, to the extent practicable, from a comprehensive assessment of economic and non-economic values of forest goods and services and of the environmental costs and benefits. The development and improvement of methodologies for such evaluations should be promoted.

(d) The role of planted forests and permanent agricultural crops as sustainable and environmentally sound sources of renewable energy and industrial raw material should be recognized, enhanced and promoted. Their contribution to the maintenance of ecological processes, to offsetting pressure on primary/old-growth forest and to providing regional

employment and development with the adequate involvement of local inhabitants should be recognized and enhanced.

(e) Natural forests also constitute a source of goods and services, and their conservation, sustainable management and use should be promoted.

7. (a) Efforts should be made to promote a supportive international economic climate conducive to sustained and environmentally sound development of forests in all countries, which include, inter alia, the promotion of sustainable patterns of production and consumption, the eradication of poverty and the promotion of food security.

(b) Specific financial resources should be provided to developing countries with significant forest areas which establish programmes for the conservation of forests including protected natural forest areas. These resources should be directed notably to economic sectors which would stimulate economic and social substitution activities.

8. (a) Efforts should be undertaken towards the greening of the world. All countries, notably developed countries, should take positive and transparent action towards reforestation, afforestation and forest conservation, as appropriate.

(b) Efforts to maintain and increase forest cover and forest productivity should be undertaken in ecologically, economically and socially sound ways through the rehabilitation, reforestation and re-establishment of trees and forests on unproductive, degraded and deforested lands, as well as through the management of existing forest resources.

(c) The implementation of national policies and programmes aimed at forest management, conservation and sustainable development, particularly in developing countries, should be supported by international financial and technical cooperation, including through the private sector, where appropriate.

(d) Sustainable forest management and use should be carried out in accordance with national development policies and priorities and on the basis of environmentally sound

national guidelines. In the formulation of such guidelines, account should be taken, as appropriate and if applicable, of relevant internationally agreed methodologies and criteria.

(e) Forest management should be integrated with management of adjacent areas so as to maintain ecological balance and sustainable productivity.

(f) National policies and/or legislation aimed at management, conservation and sustainable development of forests should include the protection of ecologically viable representative or unique examples of forests, including primary/old-growth forests, cultural, spiritual, historical, religious and other unique and valued forests of national importance.

(g) Access to biological resources, including genetic material, shall be with due regard to the sovereign rights of the countries where the forests are located and to the sharing on mutually agreed terms of technology and profits from biotechnology products that are derived from these resources.

(h) National policies should ensure that environmental impact assessments should be carried out where actions are likely to have significant adverse impacts on important forest resources, and where such actions are subject to a decision of a competent national authority.

9. (a) The efforts of developing countries to strengthen the management, conservation and sustainable development of their forest resources should be supported by the international community, taking into account the importance of redressing external indebtedness, particularly where aggravated by the net transfer of resources to developed countries, as well as the problem of achieving at least the replacement value of forests through improved market access for forest products, especially processed products. In this respect, special attention should also be given to the countries undergoing the process of transition to market economies.

(b) The problems that hinder efforts to attain the conservation and sustainable use of forest resources and that stem from the lack of alternative options available to local communities, in particular the urban poor and poor rural populations who are economically and socially dependent on forests and forest resources, should be addressed by Governments and the international community.

(c) National policy formulation with respect to all types of forests should take account of the pressures and demands imposed on forest ecosystems and resources from

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influencing factors outside the forest sector, and intersectoral means of dealing with these pressures and demands should be sought.

10. New and additional financial resources should be provided to developing countries to enable them to sustainably manage, conserve and develop their forest resources, including through afforestation, reforestation and combating deforestation and forest and land degradation.

11. In order to enable, in particular, developing countries to enhance their endogenous capacity and to better manage, conserve and develop their forest resources, the access to and transfer of environmentally sound technologies and corresponding know-how on favourable terms, including on concessional and preferential terms, as mutually agreed, in accordance with the relevant provisions of Agenda 21, should be promoted, facilitated and financed, as appropriate.

12. (a) Scientific research, forest inventories and assessments carried out by national institutions which take into account, where relevant, biological, physical, social and economic variables, as well as technological development and its application in the field of sustainable forest management, conservation and development, should be strengthened through effective modalities, including international cooperation. In this context, attention should also be given to research and development of sustainably harvested non-wood products.

(b) National and, where appropriate, regional and international institutional capabilities in education, training, science, technology, economics, anthropology and social aspects of forests and forest management are essential to the conservation and sustainable development of forests and should be strengthened.

(c) International exchange of information on the results of forest and forest management research and development should be enhanced and broadened, as appropriate, making full use of education and training institutions, including those in the private sector.

(d) Appropriate indigenous capacity and local knowledge regarding the conservation and sustainable development of forests should, through institutional and financial support, and in collaboration with the people in local communities concerned, be recognized, respected, recorded, developed and, as appropriate, introduced in the implementation of programmes. Benefits arising from the utilization of indigenous knowledge should therefore be equitably shared with such people.

13. (a) Trade in forest products should be based on non-discriminatory and multilaterally agreed rules and procedures consistent with international trade law and practices. In this context, open and free international trade in forest products should be facilitated.

(b) Reduction or removal of tariff barriers and impediments to the provision of better market access and better prices for higher value-added forest products and their local processing should be encouraged to enable producer countries to better conserve and manage their renewable forest resources.

(c) Incorporation of environmental costs and benefits into market forces and mechanisms, in order to achieve forest conservation and sustainable development, should be encouraged both domestically and internationally.

(d) Forest conservation and sustainable development policies should be integrated with economic, trade and other relevant policies.

(e) Fiscal, trade, industrial, transportation and other policies and practices that may lead to forest degradation should be avoided. Adequate policies, aimed at management, conservation and sustainable development of forests, including where appropriate, incentives, should be encouraged.

14. Unilateral measures, incompatible with international obligations or agreements, to restrict and/or ban international trade in timber or other forest products should be removed or avoided, in order to attain long-term sustainable forest management.

15. Pollutants, particularly air-borne pollutants, including those responsible for acidic deposition, that are harmful to the health of forest ecosystems at the local, national, regional and global levels should be controlled.

Appendix IV

Combating Deforestation? Not With This Chapter!

> "forests are essential to economic development and the maintenance of all forms of life" (Preamble to UCED's *Statement of Principles on Forestry*)

Given this as a background statement, one might expect more from a chapter specifically devoted to deforestation, a chapter of substance and a prominent place within Agenda 21. Instead, what is served up is a cautious, inoffensive document of vague proposals, many of which have been tried in some form for the past twenty or so years.

Forests are essential to the maintenance of all forms of life. They provide a wide variety of goods and services at local and regional levels, and are often major ingredients in national economies. Forests may have both direct and indirect effects on soil productivity, water quality, and agricultural production, and can provide food security, employment and cash generation to millions of rural poor, particularly in developing countries.

Of particular importance are the broad expanses of circumpolar boreal and circumequatorial humid forests and their influence on hydrological and atmospheric conditions. Such systems play a vital role in maintaining watertables and regulating streamflows, reducing flooding, downstream sedimentation and eutrophication. Through the sequestering of carbon dioxide in photosynthesis, forests, particularly those of the humid tropics, help slow down the process of global warming caused in part by the release of carbon dioxide from the burning of fossil fuels. Tropical forests are also important in global climate patterns because the tropics are an important source of energy which drives atmospheric circulation. There is also increasing evidence that removal of large tracts of forest result in localized climatic changes: less rainfall, higher air temperatures, increased wind velocities.

Forests are the principal sources of the world's terrestrial biodiversity - woody and non-woody plants (including the wild relatives of important agricultural crops), animals, fish, insects and other life forms - species of actual or of potential socioeconomic value as future food and medicinal stocks. Again, forests of the humid tropics are particularly important. A commonly quoted estimate is that these forests which may cover as little as seven per cent of the world's land surface may contain at least half of the world's species. Repetto writes that "a single hectare of tropical forest may contain 300 different trees, most of them represented by a single individual" and that "the Amazon contains one fifth of all bird species on earth, and at least eight times as many fish species as the Mississippi River system" (1).

Much has been said and continues to be said about "biodiversity"; how to maintain, measure, value, enhance "it". Recognition of the

central role of forests should be essential to the implementation of UNCED's Convention on Biodiversity.

In spite of the obvious importance of forests to the global community, "Combatting Deforestation" is a disappointing consensus on the politically acceptable. Developed countries of the North exploited their forest resources for centuries to expand their agriculture, win their wars and fuel their economies. But loss of forest cover of many developed countries has stabilized during this century, and in some instances forest area has even increased because of land taken out of agriculture (although the quality of replacement of natural forests may be questioned). In contrast, forest areas in the developing countries have declined by nearly a half in the same period. Countries of the South, heavily in debt to foreign banks, rightly see their forests as the means to fund development and growth and meet the social and economic needs of their increasing populations. According to the FAO's 1990 reassessment of tropical forest cover, preliminary estimates of the annual rate of deforestation of the humid tropics is just under 17 million hectares, with the highest rates of change for the last decade being in West Africa and in Central America and Mexico. This figure apparently does not include areas where forests are being degraded and ecosystem integrity compromised. In fact, again according to the FAO, there are indications that the loss of biomass in tropical forests is occurring at significantly higher rates than the loss of area due to deforestation.

The issue of deforestation - where it is happening, why and who benefits, is thus very much one of politics and economics, and central to the confrontation between developed and developing countries. The North, having benefited from exploiting its owe forests, sees tropical forests as global common property; the South expects financial compensation for forgoing exploitation and for conservation efforts.

Yet chapter 11 is not about politics nor economics. It is an outline of action on the management of forestry activities and planting programmes, and because of its bias towards developed countries, even includes "urban forestry", something which may seem a bit out of place in the context of many developing countries.

The chapter, without a unifying introduction or concluding statement, consists of four Programme Areas, each preceded by a brief preamble justifying action. The boundaries between programmes are not firm although the presentation of each is similar and thus useful for comparison. Sections on international and regional cooperation and coordination are particularly weak and without specifics. These Programme Areas are untitled but are introduced by a rambling collection of words. Programme A, for example, becomes *"Sustaining the multiple roles and functions of all types of forests, forest lands and woodlands"*. After reading what follows, this could be shortened to:

A. Institutional and Human Resource Strengthening: activities here relate to the development of "rational and holistic approaches" to sustainable forest development, including the development of programmes, plans, policies and projects on management, conservation and sustainable development.

Programme B *"Enhancing the protection, sustainable management and conservation of all forests, and the greening of degraded areas, through forest rehabilitation and other rehabilitative means"* is, in other words:

B. Rehabilitation Forestry or "Greening Activities: this is mainly concerned with the promotion of planting activities (including urban forestry and industrial and non-industrial plantations) with some mention of the need to establish protected areas, buffer and transition zones, the conservation of genetic resources and the need to improve planning and management of existing forests for multiple benefits.

Programme C aims at *"Promoting efficient utilization and assessment to recover the full valuation of the goods and services provided by forests, forest lands and woodlands"*. This translates to:

C. Capturing Forest Values: this programme is to develop methods to determine social, cultural, economic and biological values of forest systems, promote improved and efficient utilization of industries and secondary processing, recognize and promote non-timber products, promote the efficient utilization of fuelwood and energy, and promote ecotourism.

And finally, under the exhaustive heading of *"Establishing and/or strengthening capacities for the planning, assessment and systematic observations of forests and related programmes, projects and activities, including commercial trade and processes"*, is Programme D:

D. Global Information: activities here are to increase the capacities for integrated forest planning, including improving economic information on forest and land resources.

Each of these programmes comes complete with an absurd and optimistic price tag - $ 18 billion US dollars *per year* to capture forest values but a mere $ 750 million is considered sufficient for the global information programme each year. These are billions and millions being tossed about, not recycled but new money. What global recession? If these figures have any use whatever, it is to allow comparison between Programme Areas. There is no indication of how they were arrived at nor where the money is to come from.

In spite of its title, this chapter is not really about combatting deforestation. It is strong on planting trees (even in urban centres) but weak on conserving forests. It neglects to mention the real causes of world deforestation - poverty and landlessness in the South, excessive consumerism in the North. Even a passing

recognition of their existence would have been useful. There is only one brief reference to landless farmers, and a suggestion on the need to limit and aim to halt "destructive shifting cultivation" by addressing the underlying social and ecological causes". Nothing is said on how this need will be addressed. Nothing is said about the consumerism of developed countries. Myers in 1980, for example, gives the following average *per capita* figures for yearly paper consumption: developing countries 5 kg; developed countries 155 kg (2). These figures are very likely out of date.

Chapter 11 is a chapter on curative activities, not on preventative ones (which are more political). As such, it is a document which manages to ignore much of the forestry development literature of the last ten years or so, especially in the areas of social and community forestry. It proposes activities such as the development of industrial and non-industrial plantations and the development of national plans for planted forests. It suggests activities to promote the efficient use of fuelwood and energy, subjects which have been explored at length by most, if not all, donor agencies and national governments. Many of these activities (villages woodlots, government plantations, improved woodstoves) have been largely ineffective in reversing or even reducing tropical forest loss. Many are simply uneconomical and/or socially harmful. To present them as something new, as unique ideas after months of deliberation, shows at best only partial understanding of the complexities of deforestation. Time and again, it has been shown (at least in Africa) that government-run plantations are costly to establish and maintain, and the product, especially if fuelwood, must either be heavily subsidized or else it is too expensive.

Chapter 11 is disappointing but given the politics of the topic perhaps the best that could be achieved. It is a start. Whatever it's imperfections, it is the follow-up which is important. The issue of deforestation, forest conversion or forest degradation, whatever we wish to call it, along with all the other closely related issues discussed at UNCED - desertification, atmospheric protection, water quality, biodiversity - should not be allowed to slip to the inside pages.

A zoologist friend notes that a frog, placed in a pot of water, and the water gradually brought to a boil, the frog fails to recognize the subtle changes in its environment until it is too late. The global community, especially the affluent North, needs to cut the rhetoric and become committed to action before it is too late. Forests are essential to the maintenance of all forms of life.

NOTES:

1. Repetto, Robert. "The Forest for the Trees? Government Policies and the Misuse of Forest Resources". WRI 1988

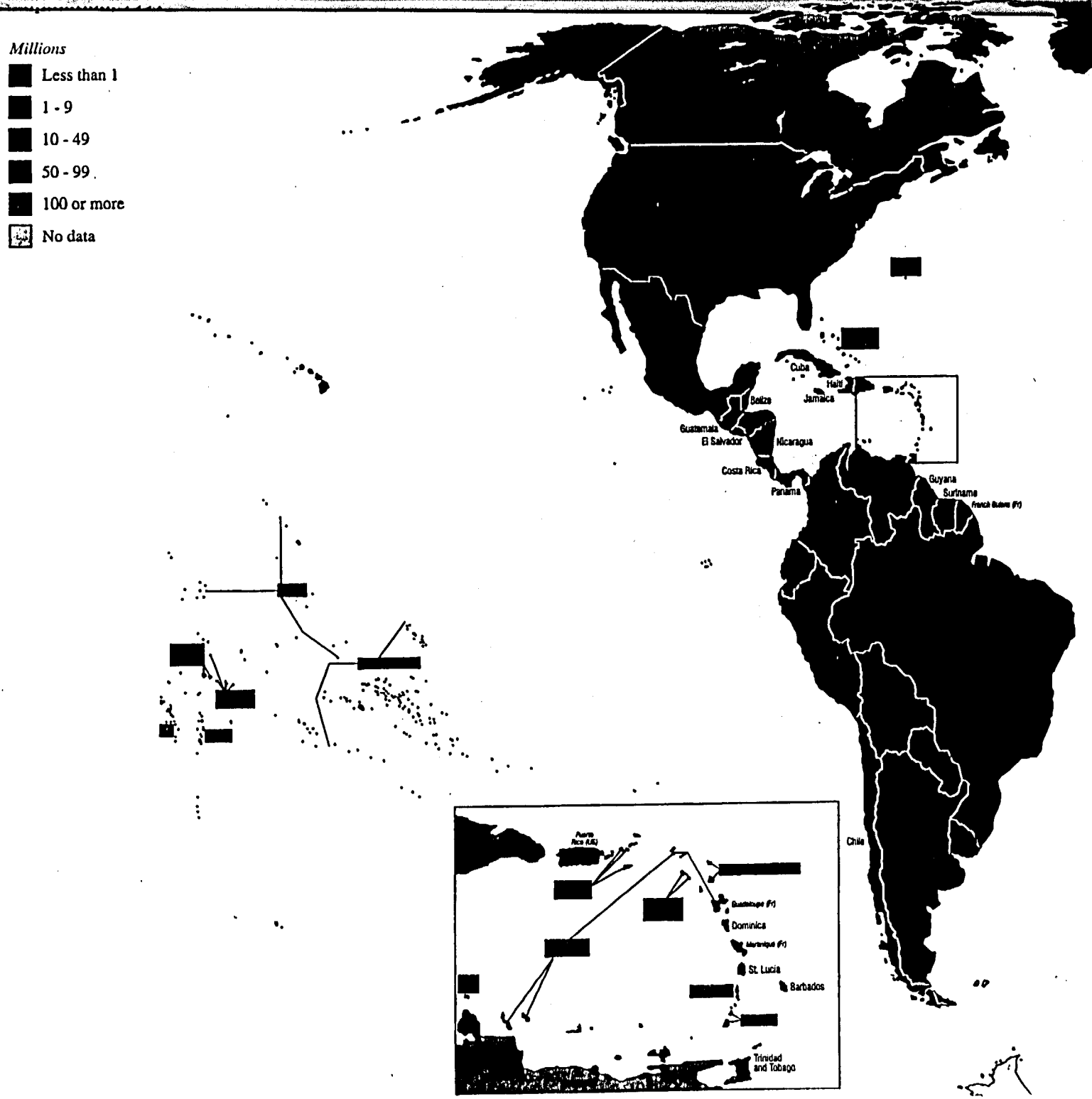
2. Myers, Norman. "Conversion of tropical moist forests". US Nat Acad. Sci. 1980.

Appendix V

Population of 200 countries and territories

Population de 200 pays et territoires

Población de 200 países y territorios




Iceland
Norway
Netherlands
Denmark
Ireland
Liechtenstein
Portugal
Monaco
Albania
Greece
Cyprus
Lebanon
Israel
Dem. People's Rep. of Korea
Rep. of Korea
Viet Nam
Philippines
Gambia
Guinea-Bissau
Sierra Leone
Liberia
Togo
Equatorial Guinea
Djibouti
Sri Lanka
Malaysia
Indonesia
Papua New Guinea
Nauru
New Zealand

Population growth rate, 1980-91

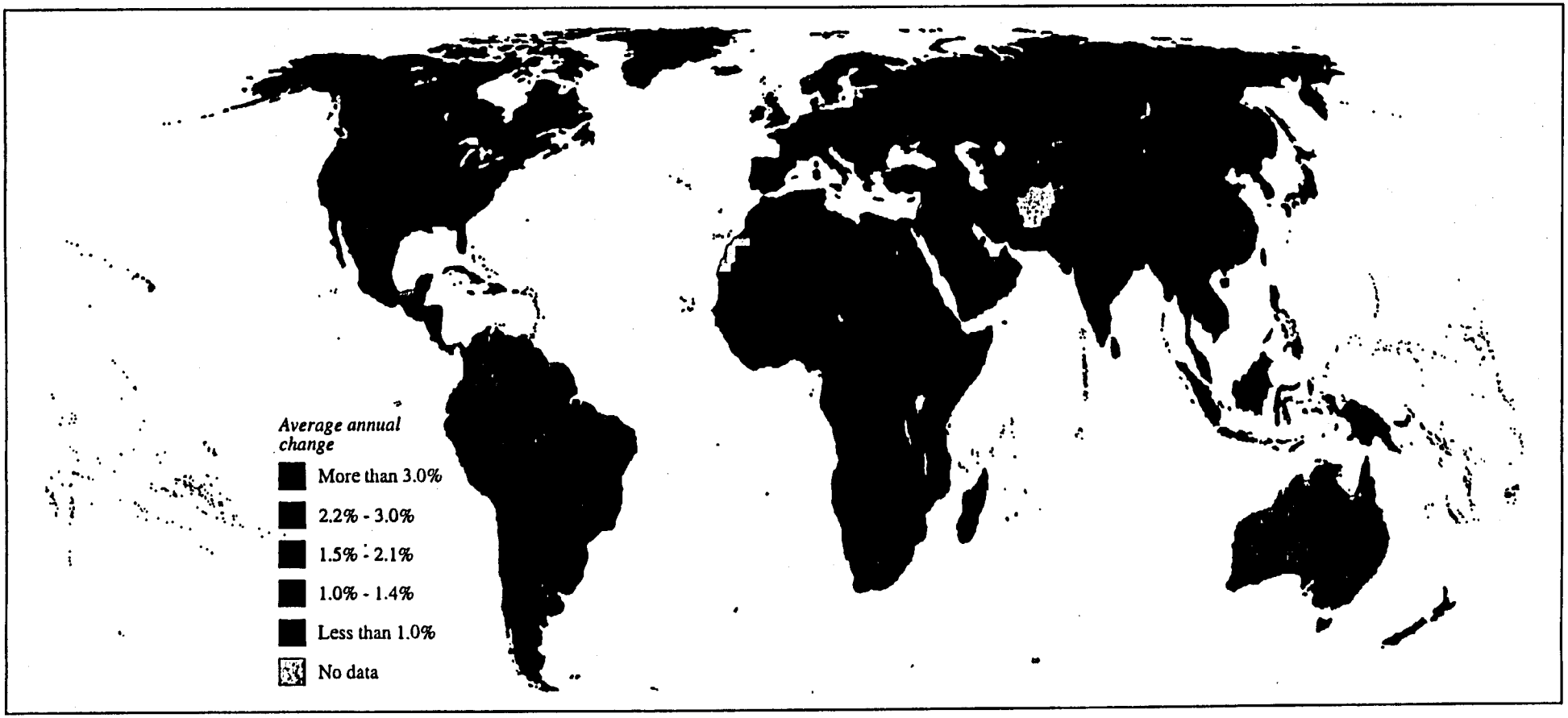
The average annual percentage change in a country's population. The absolute change in a year is the sum of births and immigrants minus the sum of deaths and emigrants.

Taux de croissance de la population, 1980-91

Taux moyen annuel de variation de la population. La variation absolue au cours d'une année est égale à la somme des naissances et du nombre d'immigrants, moins la somme des décès et du nombre d'émigrants.

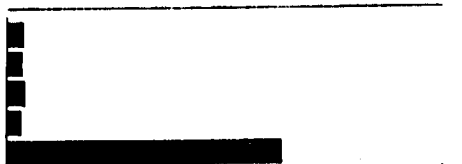
Tasa de crecimiento de la población, 1980-91

La variación porcentual anual media del número de habitantes de un país. La variación absoluta en un año es la suma de los nacimientos y los inmigrantes menos la suma de las defunciones y los emigrantes.

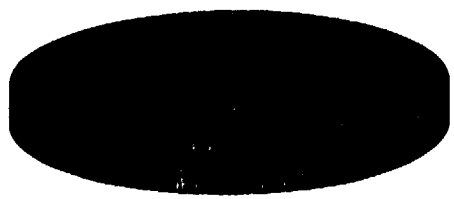


Population growth rate, 1980-91	*Number of economies*	*GNP (US$000,000) 1991*	*Population (000,000) 1991*	*GNP per capita (US$) 1991*
More than 3.0%	46	612,000	635	960
2.2% - 3.0%	46	647,000	696	930
1.5% - 2.1%	29	1,717,000	1,577	1,090
1.0% - 1.4%	17	1,141,000	1,304	870
Less than 1.0%	59	17,553,000	1,160	15,130
No data	3	1,000	0	4,760

Average GNP per capita of groups of economies with different population growth rates



Shares of world population living in economies with different population growth rates



The people

Economy	Population (000) 1991	Growth rate (% p.a.) 1980-91	Life expectancy at birth (years) 1991	Total fertility rate (births per woman) 1991	Under-5 mortality rate (per 1,000 live births) 1991	Daily calorie supply per capita 1989	Secondary school enrollment (%) 1989	Illiteracy rate (%) 1990	Female labor force (% of total) 1991
Afghanistan	§	..	..	..	..	..	..	..	..
Albania	3,303	2.0	73	3.0	30	2,761	80	‡	41
Algeria	25,798	3.0	66	4.9	84	2,866	61	43	10
American Samoa	40	1.8	..	..	..	..	..	..	..
Andorra	50	..	..	..	..	..	..	..	..
Angola	10,301	2.6	46	6.6	215	1,807	11	58	38
Antigua and Barbuda	80	0.5	74	1.9	23	2,385	..	..	..
Argentina	32,646	1.3	71	2.8	34	3,113	74	5	28
Armenia	3,360	0.8	73	2.4	23	..	..	..	..
Aruba	60	..	..	..	..	..	..	..	..
Australia	17,341	1.5	77	1.9	9	3,216	82	‡	38
Austria	7,730	0.2	76	1.5	10	3,495	82	‡	40
Azerbaijan	7,219	1.5	71	2.6	29	..	..	..	..
Bahamas	259	1.9	69	2.1	29	2,761	..	..	..
Bahrain	518	4.0	69	4.7	37	..	84	23	10
Bangladesh	108,756	2.3	52	4.4	148	2,021	17	65	7
Barbados	258	0.3	75	1.8	13	3,279	..	..	47
Belarus	10,328	0.6	73	2.1	15	..	..	..	..
Belgium	9,968	0.1	76	1.6	11	..	99	‡	34
Belize	193	2.7	68	4.6	51	2,656	..	..	..
Benin	4,883	3.2	51	6.3	163	2,305	..	77	47
Bermuda	58	..	..	..	..	3,016	..	..	..
Bhutan	1,467	2.1	49	5.5	178	..	5	62	32
Bolivia	7,356	2.5	60	4.8	115	1,916	34	23	26
Botswana	1,289	3.3	68	4.5	45	2,375	37	26	35
Brazil	153,164	2.2	67	3.1	66	2,751	39	19	28
Brunei	264	3.3	76	3.8	10	2,837	..	..	..
Bulgaria	8,798	0.0	73	1.9	16	3,707	75	‡	46
Burkina Faso	9,271	2.6	48	6.5	198	2,288	7	82	46
Burundi	5,600	2.9	47	6.8	175	1,932	4	50	47
Cambodia	8,660	2.6	51	4.5	163	2,166	..	65	38
Cameroon	12,081	3.0	57	5.8	123	2,217	26	46	33
Canada	26,756	1.0	78	1.7	8	3,482	100	‡	40
Cape Verde	383	2.6	66	5.4	50	2,706	20	§	29
Central African Rep.	3,113	2.7	49	5.8	165	2,036	11	62	46
Chad	5,828	2.4	48	6.0	205	1,743	7	70	21
Channel Islands	145	1.1	77	1.7	10	..	..	..	..
Chile	13,360	1.7	72	2.5	20	2,581	75	7	29
China	1,150,091	1.5	70	2.4	33	2,639	44	27	43
Colombia	32,873	2.0	69	2.6	43	2,598	52	13	22
Comoros	492	3.7	56	6.8	128	1,968	17	..	40
Congo	2,351	3.4	53	6.6	176	2,590	..	43	39
Costa Rica	2,875	2.4	75	3.0	20	2,808	41	7	22
Côte d'Ivoire	12,331	3.8	55	6.6	135	2,577	20	46	34
Cuba	10,712	0.9	76	1.9	14	3,141	89	6	32
Cyprus	708	1.1	77	2.2	12	..	88	..	36
Czechoslovakia	15,694	0.3	72	2.0	14	3,632	87	‡	47
Denmark	5,143	0.0	75	1.5	10	3,628	100	‡	45
Djibouti	441	3.5	49	6.6	189	..	36	..	..
Dominica	72	-0.3	75	2.7	.	2,810	..	..	..
Dominican Rep.	7,197	2.2	67	3.1	69	2,359	..	17	15
Ecuador	10,503	2.4	66	3.6	64	2,531	56	14	19
Egypt, Arab Rep.	53,087	2.4	61	3.9	98	3,336	81	52	10
El Salvador	5,308	1.5	64	4.1	67	2,317	26	27	25
Equatorial Guinea	426	2.1	47	5.5	198	..	..	50	40
Estonia	1,591	0.7	71	2.1	16	..	..	..	..
Ethiopia	52,892	3.1	48	7.5	193	1,667	15	§	37
Faeroe Islands	47	1.0	..	..	..	..	..	..	..
Fed. Sts. of Micronesia	102	..	..	..	..	..	..	..	..
Fiji	751	1.6	65	3.0	28	2,887	..	§	21
Finland	4,999	0.4	76	1.8	8	3,253	100	‡	47
France	56,681	0.5	77	1.8	9	3,465	97	‡	40
French Guiana	96	..	..	..	..	2,855	..	..	..
French Polynesia	202	2.4	73	3.3	23	2,786	..	..	..
Gabon	1,168	3.5	54	5.8	154	2,383	..	39	37
Gambia, The	901	3.3	45	6.5	227	2,370	16	73	40
Georgia	5,478	0.7	73	2.1	23	..	..	..	..
Germany /a	79,632	0.1	77	1.5	9	3,522	97	‡	39
Ghana	15,336	3.4	55	6.2	133	2,248	39	40	40
Gibraltar	31	0.0	..	..	..	..	..	..	..
Greece	10,083	0.4	77	1.5	14	3,825	97	7	27
Greenland	56	..	..	..	..	..	..	..	..
Grenada	91	0.2	70	3.0	36	2,706	..	..	..
Guadeloupe	390	1.8	75	2.3	18	2,712	..	..	44
Guam	139	2.5	73	2.6	13	..	..	..	..
Guatemala	9,466	2.9	64	5.4	81	2,235	21	45	17
Guinea	5,873	2.6	44	6.5	229	2,132	9	76	40
Guinea-Bissau	999	1.9	39	6.0	249	2,506	7	64	41
Guyana	802	0.5	65	2.7	65	2,710	..	4	25
Haiti	6,603	1.9	54	4.8	134	2,013	19	47	41
Honduras	5,259	3.3	65	5.3	75	2,247	..	27	19
Hong Kong	5,855	1.4	78	1.5	8	2,853	73	§	..
Hungary	10,500	-0.2	71	1.8	19	3,644	76	‡	45
Iceland	258	1.1	78	2.1	9	3,611	99	‡	43
India	865,020	2.1	59	3.8	115	2,229	43	52	25
Indonesia	181,388	1.8	62	3.0	78	2,750	47	23	31
Iran, Islamic Rep.	57,764	3.6	63	6.2	110	3,181	53	46	18
Iraq	19,567	3.6	63	6.2	84	2,887	47	40	22
Ireland	3,502	0.2	75	2.1	9	3,778	97	‡	29
Isle of Man	67	-0.7	..	..	..	..	..	..	..
Israel	4,888	1.9	76	2.8	12	3,174	83	..	34
Italy	57,719	0.2	78	1.3	10	3,504	78	‡	32
Jamaica	2,440	1.2	73	2.7	19	2,609	61	2	46
Japan	123,969	0.5	79	1.6	6	2,956	96	‡	38
Jordan	3,453	4.0	68	6.2	62	2,634	..	20	11
Kazakhstan	16,899	1.2	69	2.7	29	..	..	..	..
Kenya	25,016	3.8	59	6.5	102	2,163	23	31	40
Kiribati	71	1.9	56	4.2	83	2,959	..	..	..
Korea, Dem. Rep.	21,947	1.7	71	2.3	30	2,823	..	..	46
Korea, Rep.	43,177	1.1	71	1.8	20	2,852	86	‡	34

.. Not available. § See map for range estimate. ‡ According to Unesco, illiteracy is less than 5%.

Note: Figures in italics are for years other than those specified; the number 0 or 0.0 means zero or less than half the unit shown and not known more precisely.

Economy	Population (000) 1991	Population growth rate (% p.a.) 1980-91	Life expectancy at birth (years) 1991	Total fertility rate (births per woman) 1991	Under-5 mortality rate (per 1,000 live births) 1991	Daily calorie supply per capita 1989	Secondary school enrollment (%) 1989	Illiteracy rate (%) 1990	Female labor force (% of total) 1991
Kuwait	2,212	4.4	74	3.3	16	3,195	90	27	15
Kyrgyzstan	4,448	1.9	69	3.6	36	..	..	..	..
Lao PDR	4,279	2.7	50	6.7	165	2,630	27	§	44
Latvia	2,693	0.5	71	2.0	13	..	..	..	..
Lebanon	§	..	..	..	..	..	..	..	..
Lesotho	1,816	2.7	56	5.6	130	2,299	26	§	43
Liberia	2,639	3.1	55	6.3	178	2,382	..	61	30
Libya	4,714	4.1	63	6.6	88	3,324	..	36	9
Lithuania	3,765	0.8	73	2.0	12	..	..	..	..
Luxembourg	378	0.4	75	1.5	10	..	70	‡	32
Macao	467	3.5	73	2.1	13	2,162	..	..	..
Madagascar	12,016	3.0	51	6.3	167	2,158	19	20	39
Malawi	8,796	3.4	46	7.6	248	2,139	4	§	41
Malaysia	18,294	2.6	70	3.7	19	2,774	59	22	35
Maldives	221	3.3	62	6.1	93	2,386	..	..	..
Mali	8,706	2.6	48	7.1	222	2,314	6	68	16
Malta	356	-0.3	74	2.1	11	3,248	80	§	23
Marshall Islands	48	..	..	..	..	..	..	..	..
Martinique	364	1.0	76	2.1	12	2,739	..	..	44
Mauritania	2,023	2.4	47	6.8	200	2,685	16	66	22
Mauritius	1,083	1.0	70	1.8	24	2,887	53	§	27
Mayotte	76	3.6	..	..	..	..	..	..	..
Mexico	87,821	2.0	70	3.2	45	3,052	53	13	27
Moldova	4,384	0.9	69	2.7	23	..	..	..	..
Mongolia	2,184	2.7	63	4.6	80	2,479	..	..	46
Morocco	25,731	2.6	62	4.4	89	3,020	36	51	21
Mozambique	16,142	2.6	47	6.5	203	1,680	5	67	47
Myanmar	42,528	2.1	62	3.8	83	2,440	24	19	37
Namibia	1,834	3.2	58	5.9	127	1,946	..	..	24
Nepal	19,406	2.6	52	5.7	176	2,077	30	74	33
Netherlands	15,023	0.5	77	1.6	9	3,151	100	‡	31
Netherlands Antilles	191	0.9	77	2.1	15	2,913	..	..	..
New Caledonia	168	1.8	69	2.8	37	2,862	..	..	..
New Zealand	3,429	0.8	76	2.0	12	3,362	88	‡	..
Nicaragua	3,975	3.4	65	5.3	70	2,265	43	..	26
Niger	7,909	3.3	46	7.2	212	2,308	6	72	47
Nigeria /b	118,811	3.1	52	5.9	157	2,312	19	49	35
Norway	4,259	0.4	77	1.8	10	3,326	98	‡	41
Oman	1,618	4.6	66	7.0	38	..	48	..	9
Pakistan	115,588	3.1	56	5.7	146	2,219	20	65	13
Panama	2,460	2.1	73	2.8	24	2,539	59	12	27
Papua New Guinea	4,013	2.5	55	5.1	74	2,403	13	48	35
Paraguay	4,441	3.2	67	4.6	38	2,757	29	10	21
Peru	22,135	2.3	63	3.7	82	2,186	67	15	24
Philippines	62,687	2.4	65	3.4	49	2,375	73	10	31
Poland	38,337	0.7	71	2.1	20	3,505	81	‡	46
Portugal	10,393	0.6	75	1.6	15	3,495	53	15	37
Puerto Rico	3,554	0.9	76	2.2	15	..	..	..	..
Qatar	452	4.7	71	5.6	32	..	85	..	7
Réunion	602	1.6	72	2.2	15	3,075	..	..	34
Romania	23,276	0.4	70	2.1	28	3,155	88	‡	47
Russian Federation	148,930	0.7	72	2.2	20	..	..	..	..
Rwanda	7,403	3.3	48	8.3	201	1,971	7	50	48
San Marino	20	..	..	..	..	..	..	..	..
St. Kitts and Nevis	39	-1.2	70	2.6	41	2,639	..	..	..
St. Lucia	152	1.9	72	3.1	22	2,595	..	..	..
St. Vincent	108	0.9	71	2.6	25	2,604	..	..	..
São Tomé and Principe	120	2.3	67	5.1	88	2,419	..	§	..
Saudi Arabia	15,431	4.6	65	7.0	77	2,874	46	38	8
Senegal	7,632	3.0	48	6.5	125	2,369	16	62	39
Seychelles	69	0.8	71	2.8	21	2,335	..	..	..
Sierra Leone	4,239	2.4	42	6.5	245	1,799	18	79	33
Singapore	3,045	2.1	75	1.9	8	3,198	69	§	32
Solomon Islands	326	3.0	65	5.6	66	2,191	..	..	..
Somalia	8,041	3.1	48	6.8	208	1,906	..	76	39
South Africa	36,762	2.4	62	4.2	86	3,122	..	..	36
Spain	39,045	0.4	76	1.5	10	3,572	100	5	24
Sri Lanka	17,194	1.4	71	2.3	23	2,277	74	12	27
Sudan	25,855	2.7	51	6.2	165	1,974	..	73	22
Suriname	457	2.5	68	3.3	47	2,957	..	5	30
Swaziland	825	3.5	57	6.7	144	2,591	50	§	39
Sweden	8,588	0.3	78	1.9	7	2,960	91	‡	45
Switzerland	6,740	0.6	78	1.7	8	3,562	..	‡	36
Syrian Arab Rep.	12,824	3.6	66	6.5	58	3,003	54	36	18
Tajikistan	5,412	2.9	69	4.9	54	..	..	..	..
Tanzania	25,270	3.1	47	6.6	193	2,206	4	..	48
Thailand	56,679	1.8	66	2.4	31	2,316	28	7	44
Togo	3,761	3.5	54	6.6	139	2,214	22	57	36
Tonga	100	0.5	67	3.9	25	2,983	..	..	..
Trinidad and Tobago	1,249	1.3	71	2.8	29	2,853	83	..	30
Tunisia	8,223	2.3	67	3.4	54	3,121	44	35	25
Turkey	57,237	2.3	67	3.4	74	3,236	51	19	34
Turkmenistan	3,748	2.5	66	3.9	66	..	..	..	..
Uganda	16,876	2.5	46	7.3	197	2,153	13	52	41
Ukraine	51,999	0.4	73	2.1	16	..	..	..	..
United Arab Emirates	1,630	4.2	72	4.5	26	3,309	64	..	7
United Kingdom	57,536	0.2	76	1.8	10	3,149	82	‡	39
United States	252,040	0.9	76	1.9	11	3,671	..	‡	41
Uruguay	3,110	0.6	73	2.2	24	2,653	77	4	31
Uzbekistan	20,955	2.6	69	3.9	41	..	..	..	..
Vanuatu	156	2.7	65	5.6	88	2,567	..	..	..
Venezuela	20,191	2.7	70	3.5	40	2,582	56	12	28
Viet Nam	67,843	2.2	67	3.7	51	2,233	..	12	47
Virgin Islands (U.S.)	111	1.0	74	2.3	21	..	..	..	..
Western Samoa	168	0.7	66	4.6	58	2,509	..	..	..
Yemen Rep.	12,533	3.4	49	7.7	180	..	..	62	13
Yugoslavia /c	*23,690*	*0.7*	*72*	*2.0*	*28*	*3,634*	*80*	*7*	*39*
Zaire	38,473	3.2	52	6.2	150	1,991	24	28	35
Zambia	8,373	3.7	49	6.7	133	2,077	20	27	29
Zimbabwe	10,080	3.4	60	4.8	70	2,299	52	33	34

a. Data refer to the unified Germany except for secondary school enrollment and illiteracy.

b. Provisional 1991 census estimate of population is 88.5 million; when further details are available, current estimate will be adjusted.

c. Data refer to the former Socialist Federal Republic of Yugoslavia.

Appendix VI

GNP per capita, 1991

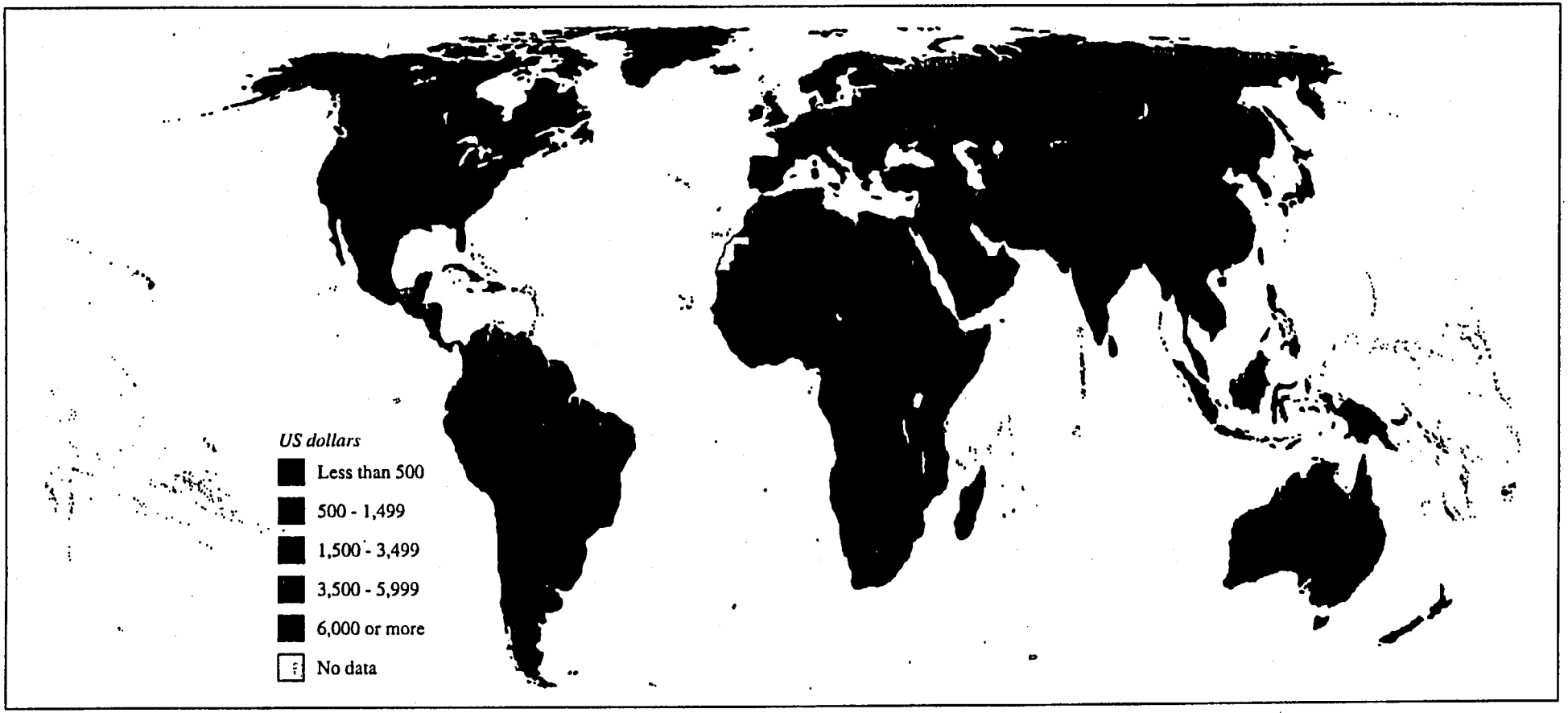
A country's gross national product divided by its population.

PNB par habitant, 1991

Produit national brut divisé par le nombre d'habitants.

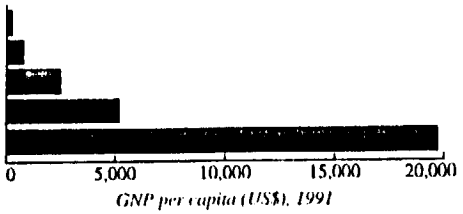
PNB per cápita, 1991

El producto nacional bruto de un país dividido por su número de habitantes.

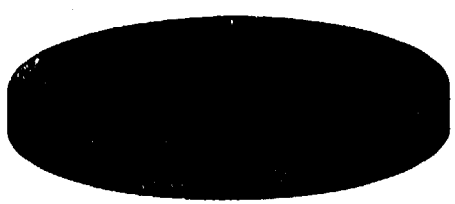


GNP per capita, 1991	Number of economies	GNP (US$000,000) 1991	Population (000,000) 1991	GNP per capita (US$) 1991
Less than 500	43	933,000	2,857	330
500 - 1,499	44	500,000	612	820
1,500 - 3,499	46	2,466,000	985	2,500
3,500 - 5,999	14	114,000	22	5,180
6,000 or more	53	17,658,000	896	19,710
World	200	21,671,000	5,372	4,030

Average GNP per capita of groups of economies with different levels of GNP per capita



Shares of world population living in economies with different levels of GNP per capita



The economy

Economy	GNP: Millions of US$ 1991	GNP: Real growth rate (%) 1980-91	GNP per capita: US$ 1990	GNP per capita: US$ 1991	GNP per capita: Real growth rate (%) 1980-91	Share of agriculture in GDP (%) 1991	Share of exports in GDP (%) 1991	Share of investment in GDP (%) 1991
Afghanistan	..	..	..	a	..	§	..	..
Albania	..	..	..	b	..	..	..	..
Algeria	52,239	2.1	2,330	2,020	-0.8	13	29	31
American Samoa	..	..	..	c	..	*50*	..	..
Andorra	..	..	..	c	..	..	..	..
Angola	..	..	..	b	..	*13*	31	12
Antigua and Barbuda	355	4.4	4,290	4,770	3.8	*4*	..	..
Argentina	91,211	-0.2	2,380	2,780	-1.5	15	11	13
Armenia /d	7,233	*2.9*	2,380	2,150	*2.1*	*13*	*36*	*38*
Aruba	..	..	..	c	..	..	..	..
Australia	287,765	2.8	16,560	16,590	1.2	*3*	*17*	*21*
Austria	157,528	2.3	19,000	20,380	2.1	*3*	*41*	*25*
Azerbaijan /d	12,065	*1.9*	1,640	1,670	*0.4*	*28*	*44*	*20*
Bahamas	3,044	3.3	11,550	11,720	1.3	*5*	..	..
Bahrain	3,679	0.1	6,830	6,910	-3.8	1	*119*	*22*
Bangladesh	23,449	4.2	210	220	1.9	35	9	12
Barbados	1,711	1.6	6,460	6,630	1.3	*7*	63	19
Belarus /d	32,131	*4.0*	3,110	3,110	*3.3*	*16*	*48*	*34*
Belgium	192,370	2.2	17,580	19,300	2.1	*2*	*74*	*21*
Belize	389	5.3	1,960	2,050	2.5	*22*	*56*	*26*
Benin	1,848	2.1	360	380	-1.1	37	27	15
Bermuda	..	..	..	c	..	..	..	..
Bhutan	260	9.0	190	180	6.8	*43*	*36*	..
Bolivia	4,799	0.5	630	650	-2.0	*24*	18	14
Botswana	3,335	9.3	2,230	2,590	5.8	5	*59*	*22*
Brazil	447,324	2.5	2,680	2,920	0.4	*10*	*7*	*22*
Brunei	..	..	..	c	..	..	..	..
Bulgaria	16,316	1.7	2,320	1,840	1.7	13	62	13
Burkina Faso	3,213	4.0	330	350	1.3	*32*	11	24
Burundi	1,210	4.3	210	210	1.4	55	10	16
Cambodia	1,725	..	170	200	..	44	..	..
Cameroon	11,320	2.1	960	940	-0.9	30	22	9
Canada	568,765	3.1	20,380	21,260	2.1	*4*	*25*	*21*
Cape Verde	285	4.8	680	750	2.2	27	21	26
Central African Rep.	1,218	1.2	390	390	-1.5	42	15	11
Chad	1,212	6.3	180	220	3.8	43	19	8
Channel Islands	..	..	..	c	..	..	..	..
Chile	28,897	3.4	1,950	2,160	1.7	§	36	19
China	424,012	9.4	370	370	7.8	27	20	36
Colombia	41,922	3.2	1,260	1,280	1.2	16	18	16
Comoros	245	2.6	480	500	-1.0	42	16	16
Congo	2,623	3.1	1,000	1,120	-0.2	12	42	11
Costa Rica	6,156	3.4	1,900	1,930	1.0	18	39	23
Côte d'Ivoire	8,523	0.3	750	690	-3.4	46	37	10
Cuba	..	..	..	b	..	..	..	..
Cyprus	6,135	6.0	8,230	8,640	4.9	6	46	27
Czechoslovakia	38,427	0.7	3,190	2,450	0.4	*8*	42	31
Denmark	121,695	2.2	22,440	23,660	2.1	*5*	*35*	*18*
Djibouti	..	..	..	b	..	*4*	*66*	*17*
Dominica	175	4.4	2,220	2,440	4.7	26	*54*	*27*
Dominican Rep.	6,807	1.9	830	950	-0.2	18	27	16
Ecuador	10,772	2.0	960	1,020	-0.3	15	31	22
Egypt, Arab Rep.	33,068	4.5	610	620	2.0	18	30	20
El Salvador	5,697	1.1	1,000	1,070	-0.3	10	15	13
Equatorial Guinea	142	*5.8*	340	330	*3.4*	55	27	52
Estonia /d	6,088	*2.8*	4,170	3,830	*2.1*	15	*38*	*34*
Ethiopia	6,144	1.5	120	120	-1.6	42	8	10
Faeroe Islands	..	..	..	c	..	..	..	..
Fed. Sts. of Micronesia	..	..	..	c	..	..	..	..
Fiji	1,377	1.5	1,780	1,830	0.0	*20*	*63*	*19*
Finland	121,982	2.9	24,540	24,400	2.5	*6*	*23*	*27*
France	1,167,749	2.3	19,590	20,600	1.8	*3*	*23*	*22*
French Guiana	..	..	..	f	..	..	..	..
French Polynesia	..	..	..	c	..	..	..	..
Gabon	4,419	-0.9	3,550	3,780	-4.2	9	50	26
Gambia, The	322	3.2	340	360	-0.1	*29*	63	19
Georgia /d	9,000	*2.9*	2,120	1,640	2.2	*29*	*40*	*20*
Germany /g	1,516,785	2.3	22,360	23,650	2.2	*2*	*32*	*22*
Ghana	6,176	3.1	390	400	-0.3	53	17	17
Gibraltar	..	..	..	f	..	..	..	..
Greece	65,504	1.6	6,010	6,230	1.2	*17*	23	17
Greenland	..	..	..	c	..	§	..	..
Grenada	198	*4.9*	2,130	2,180	*5.3*	16	58	34
Guadeloupe	..	..	..	c	..	..	..	..
Guam	..	..	..	c	..	..	..	..
Guatemala	8,816	1.0	910	930	-1.8	25	18	13
Guinea	2,669	..	440	450	..	28	27	19
Guinea-Bissau	194	3.3	180	190	1.3	51	9	20
Guyana	233	-3.8	380	290	-4.2	*38*	*78*	*42*
Haiti	2,471	-0.6	370	370	-2.4	..	*12*	*11*
Honduras	3,010	2.6	640	570	-0.7	23	31	21
Hong Kong /h	77,302	6.9	11,700	13,200	5.4	*0*	141	29
Hungary	28,244	0.5	2,780	2,690	0.7	*12*	37	19
Iceland	5,814	2.4	22,090	22,580	1.3	*12*	*37*	*19*
India	284,668	5.5	360	330	3.3	32	9	21
Indonesia	111,409	5.8	560	610	3.9	19	27	35
Iran, Islamic Rep.	127,366	2.5	2,490	2,320	-1.1	*21*	22	*21*
Iraq	..	..	..	c	..	§	..	..
Ireland	37,738	2.4	10,370	10,780	2.2	*11*	*62*	*21*
Isle of Man	..	..	..	c	..	..	..	..
Israel	59,128	3.7	11,160	11,330	1.8	§	28	23
Italy	1,072,198	2.4	16,880	18,580	2.1	*3*	*21*	*21*
Jamaica	3,365	1.0	1,500	1,380	-0.3	5	72	29
Japan	3,337,191	4.3	25,840	26,920	3.7	*3*	*11*	*33*
Jordan /i	3,881	*0.6*	1,340	1,120	*-3.3*	7	57	21
Kazakhstan /d	41,691	*2.1*	2,600	2,470	*0.9*	*34*	*21*	*45*
Kenya	8,505	4.1	370	340	0.3	27	27	21
Kiribati	53	*2.4*	720	750	*0.5*	..	..	..
Korea, Dem. Rep.	..	..	..	b	..	..	..	..
Korea, Rep.	274,464	10.0	5,450	6,340	8.8	8	29	39

.. Not available. § See map for range estimate.

Note: Figures in italics are for years other than those specified; the number 0 or 0.0 means zero or less than half the unit shown and not known more precisely.

Economy	GNP Millions of US$ 1991	GNP Real growth rate (%) 1980-91	GNP per capita US$ 1990	GNP per capita US$ 1991	GNP per capita Real growth rate (%) 1980-91	Share of agriculture in GDP (%) 1991	Share of exports in GDP (%) 1991	Share of investment in GDP (%) 1991
Kuwait	..	..	..	c	..	1	56	19
Kyrgyzstan /d	6,900	4.1	1,570	1,550	2.1	32	30	29
Lao PDR	965	4.2	200	230	1.2	§	10	13
Latvia /d	9,193	3.4	3,590	3,410	2.8	18	43	23
Lebanon	..	..	..	e	..	..	..	..
Lesotho	1,053	2.7	540	580	0.0	..	16	94
Liberia	..	..	..	b	..	§	..	..
Libya	..	..	..	f	..	§	..	..
Lithuania /d	10,220	3.4	3,110	2,710	2.5	30	43	46
Luxembourg	11,761	4.2	29,010	31,080	3.8	2	98	27
Macao	..	..	..	c	..	..	89	20
Madagascar	2,560	0.5	230	210	-2.4	33	17	9
Malawi	1,996	3.5	200	230	0.1	35	25	20
Malaysia	45,787	5.6	2,330	2,490	2.9	§	81	36
Maldives	101	10.2	450	460	6.7	§	..	..
Mali	2,412	2.5	280	280	-0.1	44	17	23
Malta	2,598	3.5	6,690	6,850	3.8	4	85	33
Marshall Islands	..	..	..	e	..	..	..	..
Martinique	..	..	..	f	..	..	..	..
Mauritania	1,026	0.6	500	510	-1.8	22	50	16
Mauritius	2,623	7.2	2,310	2,420	6.1	11	64	28
Mayotte	..	..	..	..	..	..	..	..
Mexico	252,381	1.5	2,490	2,870	-0.5	9	14	25
Moldova /d	9,529	2.7	2,390	2,170	1.8	36	48	26
Mongolia	..	..	..	b	..	20	23	30
Morocco	26,451	4.3	970	1,030	1.6	19	22	22
Mozambique	1,163	-1.1	80	70	-3.6	65	24	43
Myanmar	..	..	..	a	..	57	3	14
Namibia	2,051	1.6	1,080	1,120	-1.5	11	55	17
Nepal	3,453	4.7	180	180	2.1	59	14	19
Netherlands	278,839	2.1	17,570	18,560	1.5	4	57	21
Netherlands Antilles	..	..	..	c	..	..	..	..
New Caledonia	..	..	..	f	..	..	..	..
New Zealand	41,626	1.0	12,570	12,140	0.2	9	27	22
Nicaragua	1,897	-1.4	420	340	-4.6	35	19	10
Niger	2,361	-0.9	310	300	-4.1	38	16	9
Nigeria	34,057	1.4	290	290	-1.7	37	38	17
Norway	102,885	2.5	22,830	24,160	2.2	3	44	21
Oman	8,787	9.3	5,650	..	4.5	3	53	13
Pakistan	46,725	6.5	400	400	3.2	26	16	18
Panama	5,254	0.3	1,900	2,180	-1.8	10	29	15
Papua New Guinea	3,307	1.7	850	820	-0.7	26	39	29
Paraguay	5,374	2.3	1,090	1,210	-0.8	27	23	25
Peru	38,295	-0.4	1,100	1,020	-2.6	7	8	16
Philippines	46,138	1.2	730	740	-1.2	21	30	20
Poland	70,640	1.2	1,690	1,830	0.5	14	19	22
Portugal	58,451	3.2	4,950	5,620	2.7	§	35	32
Puerto Rico	22,498	1.8	6,060	6,330	0.9	1	76	16
Qatar	6,968	-6.6	15,870	..	-10.9	§	..	..
Réunion	..	..	..	c	..	..	..	..
Romania	31,079	0.3	1,620	1,340	-0.1	20	15	36
Russian Federation /d	479,546	2.0	3,430	3,220	1.3	17	19	25
Rwanda	1,930	0.5	310	260	-2.6	38	12	13
San Marino	..	..	..	c	..	..	..	..
St. Kitts and Nevis	156	4.5	3,540	3,960	5.8	9	47	46
St. Lucia	380	4.8	2,350	2,500	2.9	14	69	..
St. Vincent	187	6.1	1,710	1,730	5.2	19	..	..
São Tomé and Principe	42	-1.2	400	350	-3.5	§	25	57
Saudi Arabia	105,133	0.4	7,070	..	-4.2	7	46	17
Senegal	5,500	2.9	710	720	0.0	21	26	12
Seychelles	350	3.2	4,820	5,110	2.5	5	74	21
Sierra Leone	904	1.1	250	210	-1.3	43	19	11
Singapore	39,249	7.1	11,200	12,890	4.9	0	185	37
Solomon Islands	184	6.7	590	560	3.5	§	54	28
Somalia	..	..	..	a	..	65	10	16
South Africa	90,953	3.3	2,530	..	0.9	5	26	19
Spain	486,614	3.2	11,010	12,460	2.9	5	17	26
Sri Lanka	8,665	4.0	470	500	2.5	27	28	23
Sudan	10,107	0.3	400	..	-2.4	29	7	9
Suriname	1,649	-2.2	3,350	3,610	-4.5	11	27	16
Swaziland	874	6.8	1,030	1,060	3.1	18	78	26
Sweden	218,934	2.0	23,780	25,490	1.7	3	30	21
Switzerland	225,890	2.2	32,250	33,510	1.6	§	37	29
Syrian Arab Rep.	14,234	1.4	1,000	1,110	-2.1	28	27	14
Tajikistan /d	5,669	2.9	1,130	1,050	-0.1	30	38	23
Tanzania /j	2,424	2.0	110	100	-1.1	59	18	25
Thailand	89,548	7.8	1,420	1,580	5.9	12	38	39
Togo	1,530	1.8	410	410	-1.7	33	42	19
Tonga	110	2.2	1,020	1,100	1.5	..	..	..
Trinidad and Tobago	4,525	-3.9	3,460	3,620	-5.2	3	44	19
Tunisia	12,417	3.5	1,450	1,510	1.2	18	39	24
Turkey	103,888	5.4	1,640	1,820	2.9	18	19	22
Turkmenistan /d	6,387	3.2	1,690	1,700	0.7	36	35	35
Uganda	2,762	5.9	180	160	3.3	66	9	14
Ukraine /d	121,458	2.7	2,500	2,340	2.3	24	28	30
United Arab Emirates	32,813	-1.8	19,870	..	-5.8	2	55	25
United Kingdom	963,696	2.8	16,080	16,750	2.6	2	25	19
United States	5,686,038	3.1	21,810	22,560	2.1	2	10	16
Uruguay	8,895	0.2	2,620	2,860	-0.4	10	24	13
Uzbekistan /d	28,255	3.4	1,340	1,350	0.8	32	26	29
Vanuatu	175	2.6	1,100	1,120	-0.2	19	37	37
Venezuela	52,775	1.1	2,560	2,610	-1.5	6	31	21
Viet Nam	..	..	..	a	..	..	..	14
Virgin Islands (U.S.)	..	..	..	c	..	..	..	..
Western Samoa	156	6.0	920	930	5.1	50	14	32
Yemen Rep.	6,746	..	540	540	..	22	14	13
Yugoslavia /k	70,038	-0.7	2,940	..	-1.4	12	24	22
Zaire	8,123	1.6	220	..	-1.6	30	25	11
Zambia	3,394	0.7	420	..	-2.9	17	32	14
Zimbabwe	6,220	3.6	650	620	0.2	13	..	..

a. GNP per capita estimated to be less than $500. b. GNP per capita estimated to be in the $500-$1,499 range. c. GNP per capita estimated to be $6,000 or more. d. See the technical notes. e. GNP per capita estimated to be in the $1,500-$3,499 range. f. GNP per capita estimated to be in the $3,500-$5,999 range.

g. Economic data refer to the Federal Republic of Germany before unification. h. References to GNP relate to GDP. i. Data for GNP cover the East Bank only. j. Data for GNP and GNP per capita cover mainland Tanzania only. k. Data refer to the former Socialist Federal Republic of Yugoslavia.

Appendix VII

Illiteracy rate, 1990

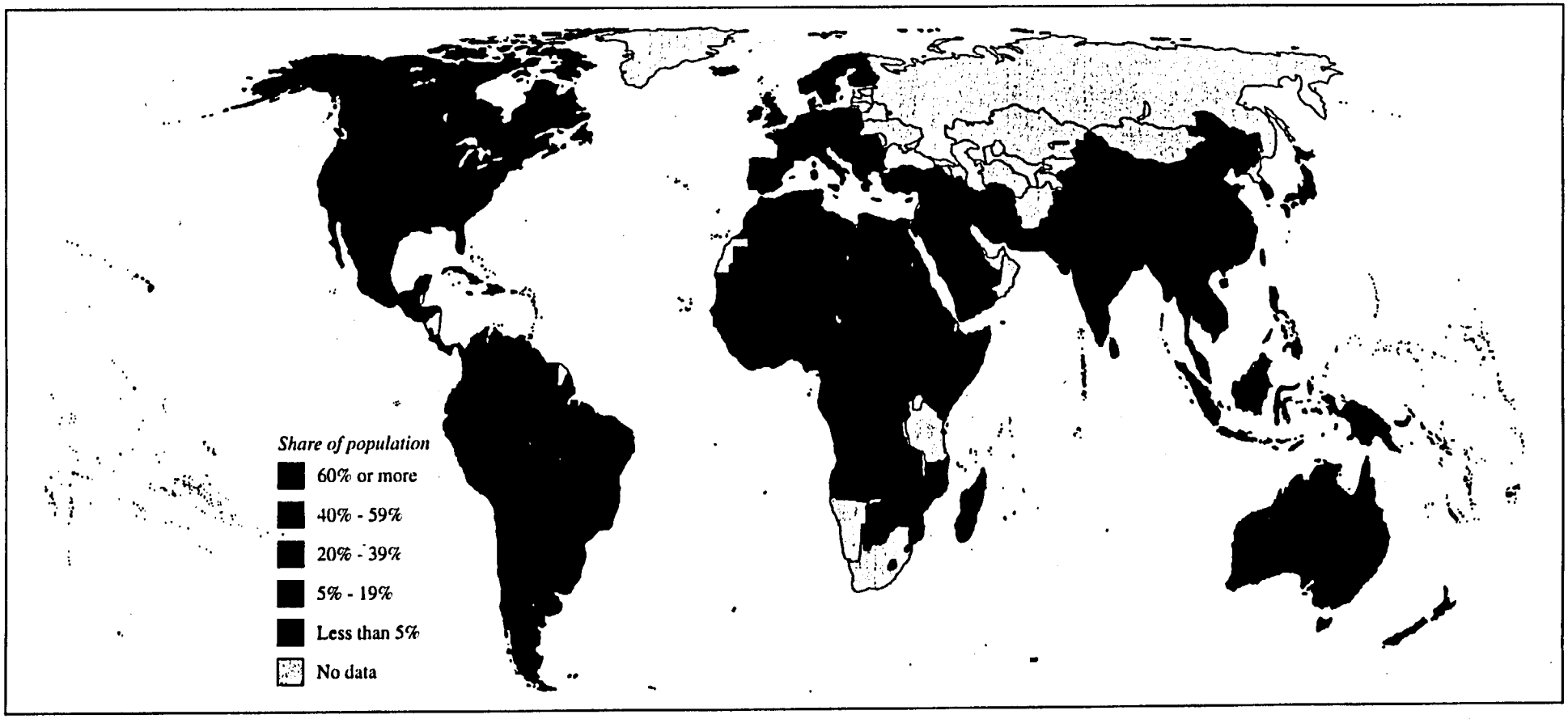
The percentage of the population age 15 or older who cannot read and write a short simple statement about everyday life.

Taux d'analphabétisme, 1990

Le pourcentage des jeune âgés d'au moins 15 ans incapables de lire et d'écrire, en le comprenant, un exposé simple et bref de faits en rapport avec leur vie quotidienne.

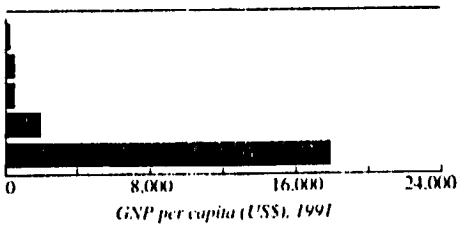
Tasa de analfabetismo, 1990

El porcentaje de la población de 15 años o más que no es capaz de leer, comprendiéndolo, ni de escribir un relato breve y sencillo sobre la vida cotidiana.

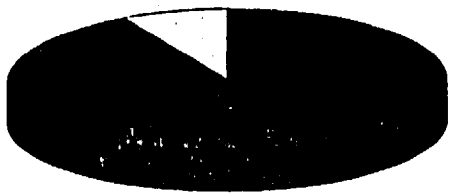


Illiteracy rate, 1990	Number of economies	GNP (US$000,000) 1991	Population (000,000) 1991	GNP per capita (US$) 1991
60% or more	23	124,000	401	310
40% - 59%	23	661,000	1,271	520
20% - 39%	22	848,000	1,567	540
5% - 19%	30	1,499,000	746	2,010
Less than 5%	35	17,341,000	969	17,900
No data	67	1,198,000	419	2,860

Average GNP per capita of groups of economies with different illiteracy levels



Shares of world population living in economies with different illiteracy levels



Appendix VIII

Forest Round Table

on

Sustainable Development

A Progress Report

September 1992

National Round Table on the Environment and the Economy,
1, Nicholas Street, Suite 1500, Ottawa, Ontario, K1N 7B7.

Tel: (613) 992-7189
Fax: (613) 992-7385

Membership in the Forest Round Table

1991-1992

Moderator	Hamish Kimmins
Canadian Federation of Professional Foresters Associations*	Chris Lee
Canadian Federation of Woodlot Owners	Peter DeMarsh
Canadian Forestry Association	Glen Blouin
Canadian Nature Federation	Paul Griss
Canadian Paperworkers Union	Keith Newman
Canadian Parks & Wilderness Society	Diana Keith
Canadian Pulp and Paper Association*	David Barron
Canadian Silviculture Association	Dirk Brinkman
Canadian Wildlife Federation	Gary Blundell
Canadian Wildlife Service	Gerry Lee
Council of Forest Industries of British Columbia	Tony Shebbeare
Forest Caucus Canadian Environmental Network	Lois Corbett
Forest Products Branch, ISTC.	Bruce Gourlay
Forestry Canada*	Tom Lee
Fur Institute of Canada	Gerry Wilde
IWA Canada*	Claire Dansereau
Miramichi Pulp and Paper Inc.	Joe O'Neill
National Aboriginal Forestry Association	Harry Bombay
Ontario Forest Industries Association	Marie Rauter
Sierra Club of Canada	Elizabeth May
Task Force on the Churches and Corporate Responsibility	Peter Chapman
University Forestry Schools	Rod Carrow
Weldwood of Canada Ltd.	Don Laishley
Wildlife Habitat Canada*	David Neave
National Round Table on the Environment and the Economy*	John Houghton Diane Griffin Josefina Gonzalez
NRTEE Secretariat	Steve Thompson

A Steering Committee (*) was drawn from leaders of stakeholder groups listed above, and the National Round Table on the Environment and the Economy.

NRTEE, 1 Nicholas Street, Suite 1500, Ottawa, Ontario, K1N 7B7. Tel: (613) 992-7189. Fax: (613) 992-7385

Forest Round Table on Sustainable Development

Sustainable Development in Canada's Forests

During the summer and fall of 1990, the National Round Table on the Environment and the Economy (NRTEE) consulted with the main national stakeholders in the Canadian forest sector to engage their commitment to join in a Round Table dialogue on sustainable development. At the same time the Canadian Council of Forest Ministers (CCFM) was planning to hold a set of public consultations on a strategy for Canada's forests, and both bodies agreed to support each other. The Forest Round Table contribution has been to build common understanding and provide commitments to action in support of sustainable development by the main stakeholders in Canada.

The first Forest Round Table meeting took place in June 1991. John Houghton, a member of the National Round Table, and Chairman of the Quebec and Ontario Paper Company, led the NRTEE approach. The NRTEE formed a small sector steering committee, which invited professor Hamish Kimmins of the University of British Columbia to chair and moderate the meetings. Some 25 stakeholders in the Forest Round Table include the Sierra Club, the Aboriginal Forestry Association, and industry and union representatives, thus comprising one of the broadest ranges of interests assembled to represent all of the values inherent in the forest. Participants agreed on, and worked toward, three objectives for completion in 1992:

- **Develop a common vision and principles for sustainable development in Canada's forests.**
- **Each stakeholder agency to develop action plans for its own contribution to sustainable development.**
- **Recommendations to governments and other jurisdictions with regard to policies and actions for sustainable development.**

The Forest Round Table has met seven times to date, and has also made four field trips to working forests in Alberta, British Columbia, Ontario and New Brunswick to ground-truth some of the principles under discussion. Great care has been taken in the early meetings to allow mutual confidence and respect to grow among stakeholders, so that the progress made is the result of full discussion. Stakeholders are now moving forward into action plans which represent their own contributions to sustainable development in Canada's forests. These action plans are available from each stakeholder organization. ■

The Role of the National Round Table

The Round Table model for sector Dialogues encompasses both a catalytic phase and a managerial phase in which a portion of the planning and leadership for the process is undertaken by the NRTEE and a guiding group drawn from the sector.

Dialogues encourage economic sectors to build towards consensus on development which is sustainable at its inception, rather than being subject solely to regulatory and remedial measures. The NRTEE catalyses the process of dialogue between protagonists. Matters of content, such as specific targets and plans, come largely from the participants themselves, but the National Round Table plays a role in the process.

Problem solving sessions within sectoral "Round Tables" build a **common understanding** on sustainable development, including **Vision and Principles**, and lead to **codes of practice or action plans** for stakeholders, and **policy options** for government and for governing bodies of business, education and public interest groups. NRTEE may ask individual sector groups to meet together if a widening circle of dialogues uncovers inter-sectoral issues which require their participation.

Who is a Stakeholder?

- ☐ organized national or near-national groups impacted by, or impacting on, the sector.
- ☐ any such group willing to **develop principles and action plans** to further sustainable development in the sector.

Principles of Sustainable Development

- used in a broad sense to apply to environment-economy linkages perceived by all stakeholders in the sector. But specific enough to act as a clear base for action by members of each stakeholder's constituency - eg. industry associations, unions, public interest groups, etc.

Action Plans

- plans for action and partnerships by each stakeholder group, with targets and measuring sticks.

The Process:

- ☐ An inaugural meeting of stakeholders to shortlist the issues of sustainable development for discussion, and to adopt the "Round Table" type of process
- ☐ One or more round tables set up to deal with issues.
- ☐ Groups work over several months to hammer out plans.
- ☐ An "end of Phase 1" conference to ratify and publish results, and take note of implementation responsibility assumed by stakeholders' members.

■

Introduction to Principles

Forests dominate a significant portion of Canada's land mass, and serve a number of environmental functions which give rise to values and opportunities for Canada and the world. These functions are values of the first order; without their perpetuation, other values cease to exist. Traditionally, these functions have not been valued, on the assumption they were an ecological given, an environmental unmeasurable. It is now recognized that forest functions are the environmental underpinnings that support and provide forest values as we currently understand them. To abuse them renders suspect our ability to describe and then follow a sustainable long-term path of forest resource use and enjoyment; to ignore them invites disaster.

Canada is first and foremost a forest nation. The Canadian forest epitomizes the world's perception of what Canada is all about. The Canadian forest industry is by far the largest contributor to Canada's balance of trade; counting the contributions from forest-dependent tourism, recreational and subsistence industries, that contribution grows even larger. Canada's 453 million hectares of forested land accounts for one tenth of all forests in the world. Forests are the traditional home of the majority of Canada's Indian nations, having shaped the cultural, spiritual and socio-economic aspirations and dependencies of those nations for centuries.

Forests are the outcome of natural forces at work over millennia, and predate human influence on the landscape. Forests, like grasslands, wetlands and tundra, function as as fixers of atmospheric carbon for our planet. Forests function as a water source for lakes, rivers and streams, capturing precipitation from the air and controlling its release much like a sponge. It is estimated that 20% of the world's fresh water flows from Canadian forested watersheds. Forests function as habitat for wildlife, providing food, shelter, protection and breeding opportunities for a large proportion of Canada's biota. Forests function as local climate regulators, softening the blow of winter and summer extremes as well as delaying the rapid transitions from one season to the other. Forests are soil builders, contributing nutrients and humus through the annual growth cycles of its flora and fauna; indeed, much of the most productive agricultural land in Canada is forest-originated. And finally, forests function as an indicator of environmental health, alerting us to the consequences of inappropriate long-term environmental impacts arising out of direct or indirect human activity.

The values Canadians associate with these forests and the functions they serve cover a broad range, from commercial harvesting to personal inspiration and satisfaction from site-specific conservation. Forests are valued as a place to work and live. Values also include tourism benefits, benefits to and from wildlife (both plant and animal), drinkable water supplies, cultural and spiritual values, genetic diversity, and of course, the many fibre-oriented values associated with forest products.

Canadians must consider the many functions our forests perform and the larger range of values that derive from these functions. The sustainability of our forest resources - fibre and non-fibre alike - weighs heavily not only on the future well-being of Canadians but on the world itself.

Canada is now facing a challenge as it aspires to achieve sustainable development objectives and to secure viable economic and employment opportunities for all Canadians. Because Canada's forests are extensive and large-scale human intervention in them is relatively recent, we have more options than many other nations. Within this context, public aspirations both within and outside Canada as to how our forest resources should be used have undergone rapid change in the past three decades, frequently without regard to past commitments, obligations and investment. In short, the dilemma for Canada is that world-level as well as Canadian aspirations, obligations and pressures are being imposed on local forest resources by virtue of the fact that Canada is the owner of a major portion of the world's remaining forested lands.

The Forest Round Table has been fully aware of this challenge from the outset, seeking solutions, directions and accommodations that would respond to these sustainability aspirations in a positive and prompt manner. The Round Table has benefitted from the very active participation of all stakeholder sectors. The frank yet constructive articulation and discussion of stakeholder views and positions is leading in many instances to higher ground. Discussion and debate both in the field and in the meeting room have led to a clearer vision of how our forests must serve us and the world in the years to come. The guiding principles that have emerged serve as the context for the Round Table's vision for Canadian forests. The principles serve also as the foci for the action plans under development by each of the stakeholder groups participating in the Forest Round Table.

A Vision for Canadian Forests

Our vision is of healthy forest ecosystems that meet present and future human needs while sustaining other life forms and ecological processes.

Principles for Sustainable Development

All activities in the forest are premised on respect for this vision. Our commitment is to act now through the following principles to ensure that our practices sustain Canada's forest ecosystems:

1. Looking after the Environment

1.1. Ecosystem integrity
All activities on forested land should respect the intrinsic natural values of the forest environment and recognize the need to protect the integrity of forest ecosystems.

1.2 Biodiversity
Biodiversity should be maintained within the natural range of variation that is characteristic of both the local ecosystem and the region.

1.3 Global Issues
Canada should play a leadership role in its global responsibilities both in the way it manages its forests and in its contributions to the sustainable development of forests world-wide.

Principles for Sustainable Development

2. Taking Care of people

2.1 Public Awareness and Involvement
Public involvement in the forest policy, planning and decision processes is a right, of which responsibility and accountability are inherent components. An aware, educated and informed public is essential for effective participation in these processes. To these ends the public has a right to timely access to relevant information.

2.2 Aboriginal Recognition
Forest management practices and policy must recognize and make provision for the rights of aboriginal people, reflecting their distinctive position and needs within Canadian society.

2.3 Community and Cultural Stability
The distinctive needs of forest-based communities and cultures are recognized as a major component in the sustainability of the forest.

2.4 Worker Health and Safety
Worker health and safety must not be compromised in the sustainable development and use of forest lands.

2.5 Public Health and Safety
Public Health and Safety must not be compromised in the sustainable development and use of forest lands.

2.6 Conflict Resolution
Processes that recognize the inherent rights, accountability, and responsibility of the various stakeholders, and which provide opportunity for meaningful discussion within a mutually defined time frame, are vital to the resolution of conflict.

Principles for Sustainable Development

3. Land Use

3.1 Land Use Policies

Land use policies developed by the responsible jurisdictions are a necessary prerequisite to effective long term management of Canada's forest land base.

3.2 Protected Areas

Protected forest reserves such as ecological areas, natural areas, parks, wildlife reserves, and wilderness areas are essential components of a land use strategy.

3.3 Public Land Use and Allocation

The policies and processes for allocating use of public forests should consider:

- ☐ The productive capacity and values of the land base and the ability of the land base to satisfy user needs and aspirations over time;
- ☐ The potential for zoning forest land for multiple use, dominant use and protected areas.

3.4 Economic Evaluation

A comprehensive economic evaluation of the various options is an essential part of land use decisions.

Principles for Sustainable Development

4. Managing Resources

4.1 Recognition of Multiple Values
Management of the forest will recognize the potential for sustainable development of the full range of forest resources and values.

4.2 Tenure
Forest lands should be managed under that combination of tenure systems which balances rights with responsibilities, encourages stewardship, optimizes the sustained supply of various values from forest lands, and contributes to fair and sustainable markets, and healthy communities.

4.3 Jurisdiction
Interjurisdictional equivalency in legislative and regulatory controls will reduce duplication and contradiction, enhance competitiveness and promote sustainable development.

4.4 Regulating Land Use on Private Forest Land
In cases where public goals override traditional property rights of private land owners, the owners must be fully involved in planning such restrictions on land use as may be required, including the provision of incentives or compensation where appropriate.

4.5 Codes of Practice
Sustainability of forest lands and forest uses requires that those who use the forest accept their obligations for its care through the development, application and reporting of user codes of practice covering all activities in the forest.

4.6 Information Base
An adequate information base is essential to the sustainable development of forest lands, and requires current, appropriate and comparable inventories for all forest values.

4.7 Research
A significant and continuing commitment to research, development, transfer and application of results, is essential to the sustainability of forest lands and forest uses.

Principles for Sustainable Development

4.8 Workforce Education
Sustainability of forest lands and forest uses requires broadly educated and skilled work forces at the vocational, technical and professional levels with continuing life-long education and training.

4.9 Economic and Policy Instruments
Economic health is integral to the sustainable development of forests. Economic and policy instruments should be consistent with the sustainability of a full range of values from forest lands.

4.10 Shared responsibility
The costs of achieving sustainable development in the forest sector should be shared by all sectors of Canadian society. Compensation and new economic development strategies for dependent communities should be inherent components of sustainable forestry.

4.11 Competitiveness
Markets should operate as level playing fields and reflect costs in a way which promotes competitiveness without damage to the sustainability of the world's forests.

4.12 Protection
The potential impact of natural forces such as fire, insects and disease, will be managed in ways to enhance the management objectives for the areas involved, using environmentally acceptable technology.

4.13 Definition of Terms
Effective communication among forest stakeholders requires a common set of definitions.

Glossary Items

Ecosystem Integrity: Maintenance of the dynamic ecological processes which constitute the interactions and feedback mechanisms over time and space among individual species and the physical environment.

Economic and Policy Instruments : Economic instruments are those which allow regulated parties to consider cost and benefits in their responses to regulations. Policy instruments cover the range of laws, regulations and transfer payments used by governments.

The National Round Table on the Environment and the Economy

In its 1987 report on "Our Common Future" the United Nations "Brundtland" Commission on Environment and Development expressed optimism that the world could resolve its environmental and economic problems. It even predicted a new era of economic growth based on environmentally sound and sustainable development practices.

In response to Brundtland, Canada set up Round Tables on the Environment and the Economy, reporting to First Ministers. The National Round Table on the Environment and the Economy (NRTEE) was announced by the Prime Minister of Canada in October, 1988, and held its first meeting in June of 1989.

The National Round Table acts as a catalyst for change and for the development of consensus. It seeks to achieve its goals by forging new partnerships that focus on the link between the environment and the economy. It is an independent forum, chaired by Dr. George Connell, former president of the University of Toronto, and reporting directly to the Prime Minister.

Traditionally, Canada's institutions have been designed to bring together individuals and groups with similar interests or goals. However, the Round Table brings together the many competing interests in a forum where they can find common ground on which to take action for sustainable development.

National Round Table on the Environment and the Economy,
1, Nicholas Street, Suite 1500, Ottawa, Ontario, K1N 7B7.
Tel: (613) 992-7189
Fax: (613) 992-7385

Appendix IX

FAO, as the United Nations agency responsible for forestry development, and as one of the original partners in the TFAP — along with the World Bank, the United Nations Development Programme and the World Resources Institute — has been entrusted with the responsibility for coordinating this international effort.

FOR FURTHER INFORMATION PLEASE CONTACT:

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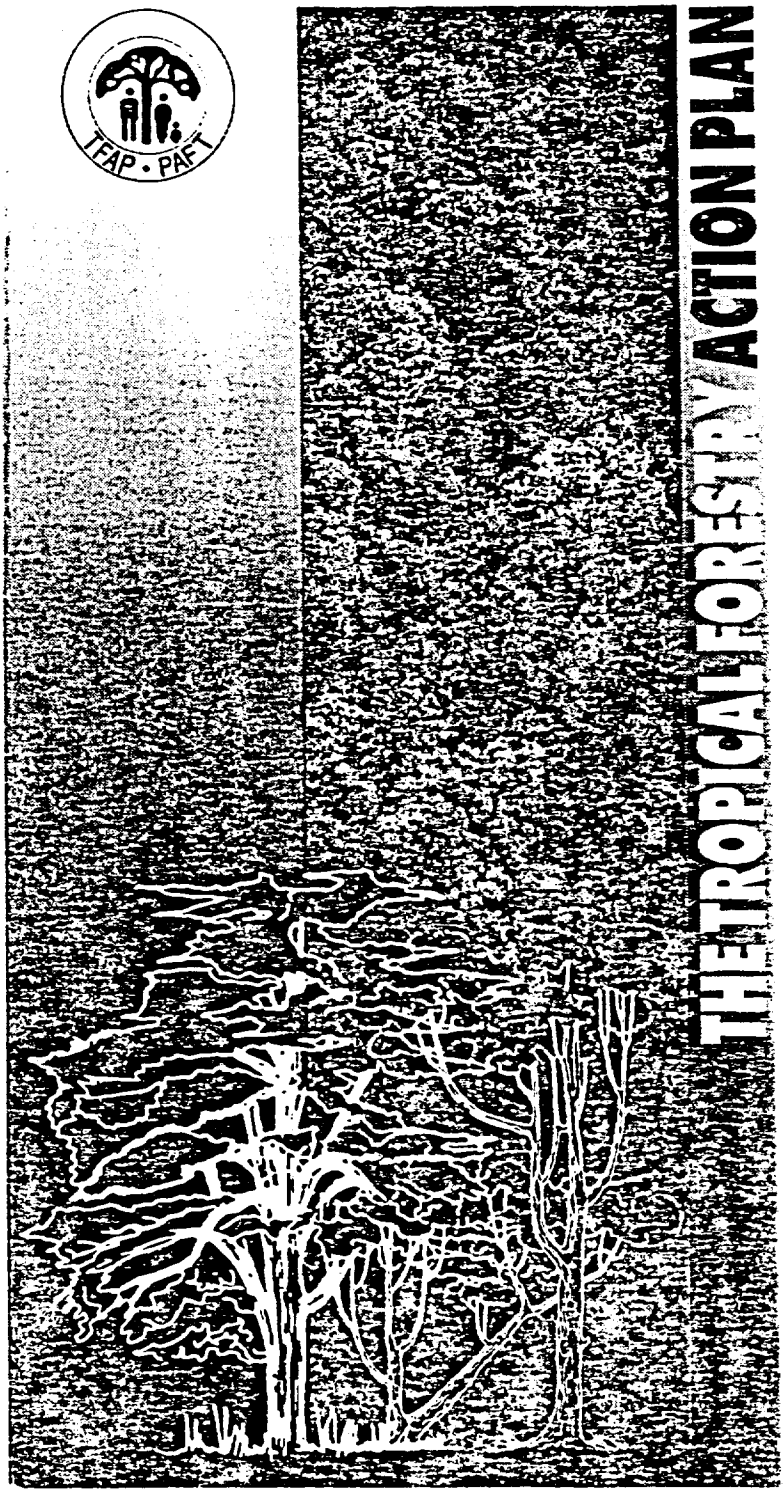
TFAP • PAFT



THE TROPICAL FORESTRY ACTION PLAN

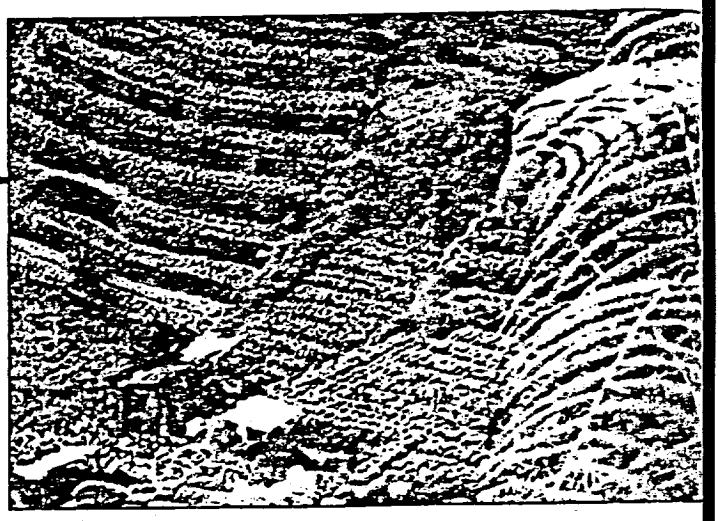
WHAT IS THE TROPICAL FORESTRY ACTION PLAN?

The Tropical Forestry Action Plan (TFAP) provides a flexible framework with which developing countries can review and redirect forestry policies and practices, develop more effective strategies to conserve precious forest resources, and manage them for maximum sustainable benefits. Despite its name, however, the Tropical Forestry Action Plan is not a rigid plan externally imposed on a country. The TFAP is a tool or strategy the developing countries can use to turn the tropical forest crisis into a development opportunity.

Rather than viewing forestry in isolation or even in competition with other development sectors, the TFAP proposes a holistic approach. Virtually every development sector contributes to or is affected by deforestation; therefore, each must take an active part in the campaign to bring it under control. The TFAP stresses the importance of high-level political support for forest conservation and management to ensure that forestry development efforts receive an appropriate share of attention and resources, and that they are supported by effective policies and strategies.

Balancing the need for high-level commitment, the TFAP is equally firm in its call for grass roots support and participation. Any effort to halt tropical deforestation that does not guarantee local people the opportunity to be actively involved in both formulation and implementation, as well as a fair share of the benefits of such an effort, is doomed to failure.

Finally, the TFAP is a unique mechanism for harmonizing national efforts with the international technical and financial assistance that the developing countries need to move ahead with the necessary speed and intensity.



HOW DO COUNTRIES APPLY THE TFAP?

There is no single formula for the application of the TFAP. Each nation has a unique forestry situation and set of development priorities. However, the TFAP suggests a flexible framework as a common point of reference.

The first step is a critical review of the current state of forestry and forest resources in the national environmental, economic and social context. The TFAP identifies five critical areas for consideration:

- forestry in land use;
- fuelwood and energy;
- conservation of forest ecosystems;
- forest-based industrial development;
- the institutional base for forestry development.

Reflecting the challenges and priorities identified by the sector review, the country then formulates a long-term forestry strategy and a plan for priority action. In all cases, the strategy will have to focus on forestry as one critical element of an intersectoral approach to environmental stability and overall sustainable socio-economic development. To ensure this, the participation of professionals from relevant development sectors, and especially of the organizations that represent local people, must be secured.

The third step is the identification of required policy and institutional reforms, and the formulation of specific programmes and projects. These activities need to cut across sectoral lines, thereby ensuring that forestry activities complement those of other sectors. A key element is the establishment of an order of priority so that the most important or pressing issues are accorded attention first in terms of financing and implementation.

Of course, once the national plan has been formulated action must start expeditiously. But many developing countries wishing to apply the TFAP suffer from inadequacies of financial, technical and human resources: therefore, the TFAP offers a mechanism through which interested donor countries and agencies can be involved at every stage of the process.

1) The forests provide off-farm employment for millions of rural people.
2) Forests and trees are essential for the maintenance of environmental stability and biological diversity.
3) Local people and the non-governmental organizations that represent them must be fully involved in the TFAP process.
4) Under appropriate management, forest industries are a sustainable source of income.

THE TROPICAL FORESTRY ACTION PLAN

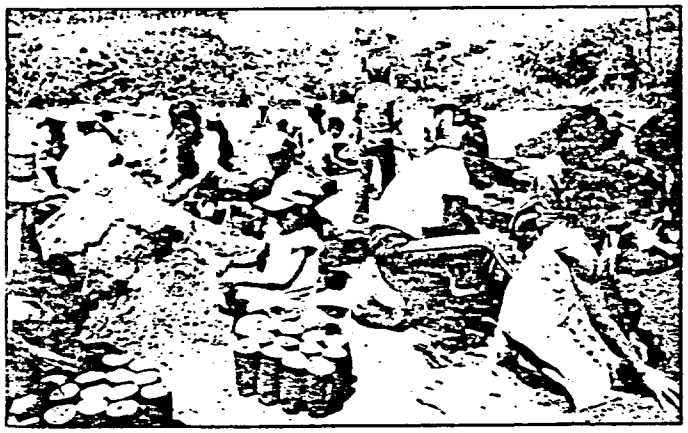
WHAT HAS BEEN ACHIEVED SO FAR?

Since the launching of the TFAP in 1985, concern for the conservation of world forest resources has reached an unprecedented level. The governments of most countries, both developing and developed, within and outside the tropics, have given their approval and support to the principles of conservation and sustained management of the tropical forests. At the grass roots level across the globe, local people's organizations have taken up the cause of the tropical forests. More than 70 tropical countries have officially embraced the TFAP. Of these, some 15 have already completed their sector reviews and have formulated long-term forestry development strategies incorporating the fundamental principles of conservation and sustainable use of forest resources.

The relatively short period since the official launch of the TFAP means that most of the new forestry development projects formulated to achieve the objectives of the long-term national plans have yet to be implemented. In many countries, however, progress has already been made towards ensuring the necessary funding. In others, field-level action is already under way as existing projects and activities are coordinated within the framework of the TFAP.

The TFAP has also proven to be effective in stimulating increased international technical and financial assistance to tropical forestry, and as a coordinating mechanism to ensure maximum efficiency and minimum duplication of effort. Although not necessarily linked directly, when the TFAP was launched in 1985, international assistance to forestry totalled an estimated US$400 million per year; in 1988, international assistance commitments to tropical forestry were some $1100 million.

Yet the battle to save the tropical forests has only just begun.



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WHAT MUST STILL BE DONE?

With the aim of further strengthening the TFAP, a high-level independent review of the Plan has recently been completed. The review confirmed that the TFAP should receive continued support as "*a long-term programme aimed at the conservation and sustainable development of forest resources in the interests of the inhabitants of the countries concerned and the global community*".

The review stressed that, for the full potential of the TFAP to be realized, more attention must be given to "*building up the institutional capacity of the tropical countries to conserve and manage their forest resources, and to establish a [national] policy-making and planning process that will lead to their sustainable development... The policy and planning process will, in turn, generate projects which donors can support...*"

Within the forestry sector there must be full commitment to incorporating the principles of sustainable resource utilization, due respect for the environment, and people's participation in all projects and programmes, whether new or ongoing. Special attention should be given to institutional arrangements that encourage and provide incentives for management of natural resources by local people.

The international community should redouble its political commitment and financial support to the conservation and wise use of the tropical forests for the long-term benefit of the developing countries, as well as for the maintenance of the biosphere. The approach must be one of true partnership with the participating countries.

Full implementation of the Tropical Forestry Action Plan and the achievement of its ultimate aim — conservation and sustainable management of the world's forest resources — will not come cheaply. It will require substantial investments of time, and resources, both human and financial. But the cost of failure to achieve these goals would be infinitely greater.

TROPICAL FORESTS: AN ESSENTIAL BUT ENDANGERED RESOURCE

The forestry sector makes an essential contribution to economic and social well-being. Forests and trees play a vital role in helping to maintain a stable environment in which agriculture can flourish. The forests provide both shelter and livelihood for rural people in developing countries; they contribute a wide range of foods for direct human consumption as well as a significant proportion of fodder for livestock.

More than two-thirds of the people in developing countries depend mainly on wood for their household energy needs. In rural areas, the forest as a source of fuelwood is fundamental to everyday life.

The harvesting, processing and sale of fuelwood and literally hundreds of other forest products provide income to millions of rural households.

Forest industries play a significant role in the national economy of many countries, both developing and developed.

From a global perspective, the tropical forests are a unique storehouse of plant and animal genetic resources and contribute significantly to the biological diversity of our planet.

There is general agreement that forests and wooded areas help to maintain the climatic stability of the biosphere, particularly in respect of the absorption of atmospheric carbon dioxide.

Yet, despite their importance, the forests of both the humid and the dry tropics are being degraded and destroyed at an increasing and alarming rate. According to the most recent estimates of the Food and Agriculture Organization of the United Nations (FAO), the forest cover is removed from some 17 million hectares of tropical forest each year. Although a small portion of this is the result of well-planned and sustainable expansion of agriculture and other uses, for the most part the clearing of the tropical forests is a wasteful, destructive process.

The underlying causes of deforestation are demographic pressure and poverty, compounded by short-sighted exploitation. Population in most of the tropics is increasing rapidly and, with it, the need to grow more food, to feed more animals, and to provide more wood for fuel, shelter and other domestic uses. The inequitable allocation of land and user rights also contributes to deforestation.

In the absence of appropriate forest management and land use planning, logging also contributes to forest degradation, particularly where logging roads facilitate encroachment and subsequent deforestation.

To meet the demands of growing populations, most of the developing countries will need to continue to convert some of their forest area with the potential to sustain other uses, including agricultural production, shelter, and infrastructure.

But the pace of deforestation can be slowed dramatically by ensuring that for local people, the conservation and management of forest resources is more attractive than their destruction; and that commercial interests utilize forest land only in a sound, sustainable manner.

The first requisite for a reduction of tropical deforestation is recognition — at local, national and international levels — of the value of conserving forest resources and commitment to their wise management and use for socio-economic development.

Equally important is full understanding, particularly at government level, that *action restricted to the forest sector, no matter how intense, will never be sufficient.* What is required is a well-articulated framework through which countries can harmonize their national forestry plans with overall development priorities and thereby conserve and manage their forest resources, while increasing agricultural productivity and ensuring the maintenance of the equilibrium of the biosphere.

Finally, a mechanism is required through which both national efforts and international technical and financial support to forestry development can be increased and coordinated.

These basic elements form the backbone of the Tropical Forestry Action Plan.

Appendix X

FOREST RESOURCES
RESSOURCES FORESTIÈRES
RECURSOS FORESTALES

	1989		
	Forest Forêts Bosques	% land % surface % superficie	Other[1] Autres[1] Otras[1]
	(1 000 ha)		
WORLD	3 603 731	27	1 696 432
AFRICA	707 974	25	1 335 138
Algeria	2 198	1	2 168
Angola	53 757	43	28 400
Benin	3 886	35	6 832
Botswana	32 560	57	20 000
Burkina Faso	4 747	17	9 360
Burundi	60	2	24
Cameroon	25 638	54	15 600
Central African Republic	35 890	57	21 100
Chad	13 503	11	10 550
Congo	21 357	62	2 500
Djibouti	71	3	44
Egypt	40	-	-
Equatorial Guinea	1 295	46	1 175
Ethiopia	27 248	24	35 300
Gabon	20 594	79	1 500
Gambia	216	21	560
Ghana	8 768	38	9 480
Guinea	10 652	43	9 900
Guinea-Bissau	2 105	53	577
Côte d'Ivoire	9 879	31	15 390
Kenya	2 541	4	38 105
Lesotho	3	-	16
Liberia	2 046	21	5 640
Libyan Arab Jamahiriya	333	-	446
Madagascar	13 466	23	7 500
Malawi	4 351	46	380
Mali	7 255	6	15 100
Mauritania	554	-	3 980
Mauritius	14	7	32
Morocco	3 557	8	1 161
Mozambique	15 460	20	42 700
Niger	2 559	2	7 880
Nigeria	14 913	16	49 450
Reunion	90	35	42
Rwanda	259	10	155
Sao Tome and Principe	56	58	-
Senegal	11 057	57	3 115
Sierra Leone	2 061	29	4 278
Somalia	9 061	14	53 050
South Africa	1 347	1	2 803
Sudan	47 838	20	98 600
Swaziland	176	10	-
Togo	1 695	31	3 720
Tunisia	424	2	-
Uganda	6 061	30	1 700
United Republic of Tanzania	42 138	47	17 900
Zaire	177 612	78	29 700
Zambia	29 548	40	10 800
Zimbabwe	19 930	51	3 570
NORTH/CENTRAL AMERICA	563 063	26	338 036
Bahamas	324	32	-
Belize	1 449	63	574
Canada	264 100	28	172 300
Costa Rica	1 801	35	240
Cuba	1 612	14	1 005
Dominican Republic	635	13	321
El Salvador	142	7	315
Guadeloupe	93	52	-
Guatemala	4 557	42	1 865
Haiti	49	2	96
Honduras	3 997	35	1 900
Jamaica	80	-	386
Mexico	48 509	25	85 000
Nicaragua	4 497	38	1 580
Panama	4 169	54	124
Trinidad and Tobago	224	43	63
United States	226 454	24	71 622
SOUTH AMERICA	871 757	50	253 065
Argentina	45 100	16	16 500
Bolivia	66 786	61	12 050
Brazil	518 335	61	161 820
Chile	8 367	11	8 550
Colombia	51 795	49	14 400
Ecuador	14 773	53	3 470
French Guiana	7 832	87	85
Guyana	18 696	94	315
Paraguay	19 713	49	12 730
Peru	70 724	55	8 660
Suriname	15 008	92	295
Uruguay	630	3	120
Venezuela	33 994	38	14 070
ASIA	458 772	18	623 291
Afghanistan	1 221	2	690
Bangladesh	1 055	8	315
Bhutan	2 147	45	230
Brunei	323	61	237
Cambodia	12 655	71	625

[1] Other wooded land Autres formations boisées Otras tierras arboladas

FOREST RESOURCES
RESSOURCES FORESTIÈRES
RECURSOS FORESTALES

	1989		
	Forest Forêts Bosques	% land % surface % superficie	Other[1] Autres[1] Otras[1]
	(1 000 ha)		
China	127 780	13	27 730
Cyprus	153	16	40
Hong Kong	–	–	13
India	59 302	19	14 848
Indonesia	118 813	65	41 260
Iran	3 793	2	14 250
Iraq	1 250	2	300
Israel	75	3	34
Japan	23 889	63	1 309
Jordan	71	–	75
Korea, Democratic People's Republic of	4 800	39	4 200
Korea, Republic of	6 515	66	–
Laos	13 636	58	5 735
Lebanon	38	4	45
Malaysia	21 022	63	4 825
Mongolia	9 528	5	4 335
Myanmar	31 957	49	20 700
Nepal	2 140	16	340
Pakistan	2 640	3	1 105
Philippines	9 810	32	3 520
Sri Lanka	1 771	27	1 068
Syrian Arab Republic	190	1	239
Thailand	15 789	30	1 300
Turkey	8 856	11	11 343
Viet Nam	10 314	31	11 080
EUROPE	136 652	28	41 701
Albania	930	34	312
Austria	3 754	45	–
Belgium/Luxembourg	682	20	160
Bulgaria	3 400	30	400
Czechoslovakia	4 435	35	143
Denmark	466	11	18
Finland	19 865	65	3 340
France	13 875	25	1 200
German Democratic Republic	2 700	25	255
Germany, Federal Republic	6 989	28	218
Greece	2 512	19	3 242
Hungary	1 612	17	37
Ireland	347	5	33
Italy	6 363	21	1 700
Netherlands	294	8	61
Norway	7 635	25	1 066
Poland	8 588	28	138
Portugal	2 627	28	349
Romania	6 190	26	150
Spain	6 906	14	23 584
Sweden	24 400	59	3 442
Switzerland	935	23	189
United Kingdom	2 027	8	151
Yugoslavia	9 100	36	1 400
OCEANIA	91 292	10	66 720
Australia	41 658	5	64 242
Fiji	851	46	6
New Caledonia	705	37	630
New Zealand	7 046	26	46
Papua New Guinea	38 197	84	1 530
Samoa	142	50	31
Solomon Islands	2 457	89	40
Tonga	–	–	8
Vanuatu	236	16	–
USSR	739 900	33	189 700

[1] Other wooded land Autres formations boisées Otras tierras arboladas

Appendix XI

FOREST PRODUCTS
PRODUITS FORESTIERS
PRODUCTOS FORESTALES

	1989				
	*Production	Imports	Exports	% of trade	Consumption
	(Million $)				
WORLD	385 589	101 060	94 793	3	391 856
AFRICA	19 658	2 137	1 316	1	20 479
Algeria	125	348	–	–	473
Angola	183	–	–	–	183
Benin	156	2	–	–	158
Botswana	41	–	–	–	41
Burkina Faso	264	9	–	–	273
Burundi	124	–	–	–	124
Cameroon	577	35	100	12	512
Central African Republic	121	–	16	10	105
Chad	129	–	–	–	129
Congo	183	5	123	15	64
Egypt	184	793	–	–	977
Equatorial Guinea	40	–	–	–	40
Ethiopia	1 240	3	–	–	1 243
Gabon	267	4	131	8	139
Gambia	28	–	–	–	28
Ghana	672	5	77	9	601
Guinea	167	1	1	–	167
Guinea-Bissau	22	–	–	2	22
Côte d'Ivoire	669	27	236	9	460
Kenya	1 199	24	4	–	1 218
Lesotho	18	–	–	–	18
Liberia	319	2	78	17	243
Libyan Arab Jamahiriya	27	–	–	–	27
Madagascar	293	9	1	–	301
Malawi	243	8	–	–	251
Mali	175	–	–	–	175
Mauritius	2	–	–	–	2
Morocco	169	226	61	2	334
Mozambique	509	1	1	–	509
Niger	138	2	–	–	140
Nigeria	3 933	33	2	–	3 965
Reunion	1	–	–	–	1
Rwanda	182	–	–	–	182
Sao Tome and Principe	1	–	–	–	1
Senegal	143	–	–	–	143
Sierra Leone	95	1	–	–	96
Somalia	213	2	–	–	216
South Africa	2 275	216	361	2	2 130
Sudan	716	–	–	–	716
Swaziland	183	1	83	20	100
Togo	30	3	–	–	32
Tunisia	168	123	5	–	285
Uganda	474	1	–	–	475
United Republic of Tanzania	1 072	16	2	–	1 086
Zaire	1 158	4	17	1	1 144
Zambia	394	5	–	–	400
Zimbabwe	334	6	4	–	335
NORTH/CENTRAL AMERICA	127 998	18 804	30 871	6	115 930
Bahamas	–	18	–	–	18
Belize	8	3	2	2	9
Canada	33 382	1 928	18 379	16	16 930
Costa Rica	258	40	23	2	274
Cuba	262	193	2	–	453
Dominican Republic	32	51	–	–	83
El Salvador	156	18	2	–	172
Guadeloupe	1	16	–	–	16
Guatemala	256	69	18	2	307
Haiti	169	5	–	–	173
Honduras	272	25	27	3	270
Jamaica	17	73	1	–	89
Martinique	1	24	–	–	25
Mexico	3 241	404	14	–	3 631
Nicaragua	152	11	3	1	160
Panama	75	36	1	–	110
Trinidad and Tobago	6	55	–	–	61
United States	89 712	15 799	12 399	3	93 112
SOUTH AMERICA	21 562	979	2 608	3	19 932
Argentina	1 231	151	37	–	1 346
Bolivia	66	4	22	3	48
Brazil	15 016	299	1 751	5	13 565
Chile	2 010	43	707	9	1 345
Colombia	1 012	104	20	–	1 096
Ecuador	642	98	21	1	718
French Guiana	8	1	2	4	7
Guyana	18	3	8	4	13
Paraguay	451	13	25	2	439
Peru	515	88	3	–	599
Suriname	25	8	5	1	28
Uruguay	153	11	7	–	157
Venezuela	417	155	–	–	572
ASIA	88 138	25 678	11 042	1	102 773
Afghanistan	271	–	–	–	271
Bangladesh	971	11	–	–	981
Bhutan	92	–	–	–	92
Brunei	25	7	–	–	32
Cambodia	191	–	–	–	191
China	22 689	3 063	721	2	26 008

* Production Importations Exportations % du commerce Consommation
Producción Importación Exportación % del comercio Consumo

FOREST PRODUCTS
PRODUITS FORESTIERS
PRODUCTOS FORESTALES

	1988				
	*Production	Imports	Exports	% of trade	Consumption
			(Million $)		
Cyprus	22	67	–	–	88
Hong Kong	57	1 252	458	1	851
India	13 256	291	16	–	13 531
Indonesia	10 478	302	3 677	17	7 103
Iran	353	193	–	–	545
Iraq	25	–	–	–	25
Israel	122	248	11	–	358
Japan	21 782	13 978	1 427	1	34 334
Jordan	6	61	9	1	57
Korea, DPR	240	–	–	–	240
Korea, Republic of	3 106	1 816	396	1	4 527
Laos	125	–	10	13	115
Lebanon	61	70	2	–	129
Malaysia	4 863	298	3 037	12	2 123
Mongolia	159	7	–	–	166
Myanmar	742	18	115	29	646
Nepal	574	7	–	–	581
Pakistan	995	148	–	–	1 143
Philippines	1 673	181	228	3	1 626
Singapore	225	899	758	2	366
Sri Lanka	299	24	1	–	322
Syrian Arab Republic	23	115	–	–	138
Thailand	1 740	746	100	–	2 386
Turkey	2 020	215	50	–	2 185
Viet Nam	938	–	–	–	938
EUROPE	76 425	50 993	44 035	3	83 384
Albania	118	–	1	–	117
Austria	3 846	1 090	2 803	9	2 134
Belgium/Luxembourg	1 492	2 720	1 843	2	2 369
Bulgaria	822	133	41	–	914
Czechoslovakia	2 861	80	347	2	2 594
Denmark	587	1 526	362	1	1 751
Finland	8 697	574	8 526	37	745
France	7 934	5 527	3 297	2	10 164
German Dem. Rep.	2 032	473	134	–	2 372
Germany, Fed. Rep.	11 457	10 377	6 138	2	15 697
Greece	366	463	37	1	792
Hungary	755	340	135	1	960
Ireland	201	485	132	1	554
Italy	3 989	5 979	1 775	1	8 193
Netherlands	1 421	3 987	2 026	2	3 382
Norway	2 353	664	1 558	6	1 459
Poland	3 001	222	301	2	2 922
Portugal	1 853	495	1 189	9	1 158
Romania	2 146	105	314	2	1 938
Spain	3 778	1 477	738	2	4 516

	1989				
	*Production	Imports	Exports	% of trade	Consumption
			(Million $)		
Sweden	10 014	1 183	8 745	17	2 452
Switzerland	1 291	1 981	992	2	2 280
United Kingdom	2 860	10 238	1 398	1	11 700
Yugoslavia	2 550	784	1 201	9	2 133
OCEANIA	5 419	1 392	1 167	2	5 645
Australia	3 160	1 181	328	1	4 013
Fiji	44	8	23	5	29
New Caledonia	1	–	–	–	1
New Zealand	1 841	154	685	7	1 309
Papua New Guinea	328	6	110	9	224
Samoa	8	17	1	11	23
Solomon Islands	32	1	17	21	15
Vanuatu	5	–	2	9	3
USSR	46 398	1 088	3 753	3	43 732
DEVELOPED, ALL	275 097	85 585	81 378	3	279 303
DEVELOPING, ALL	110 492	15 475	13 415	2	112 552

* Production Importations Exportations % du commerce Consommation
Producción Importación Exportación % del comercio Consumo

Appendix XII

Change in forest coverage, 1980-89

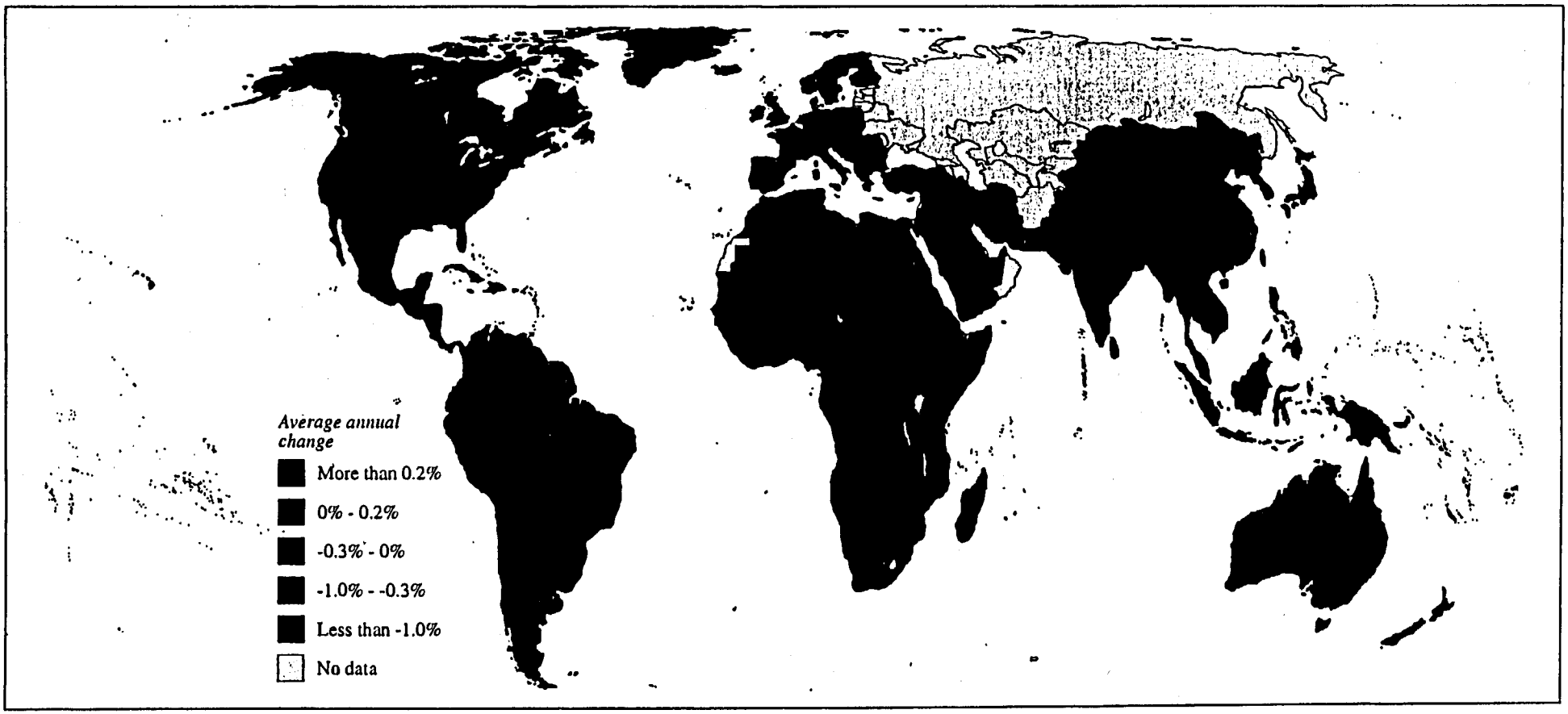
The percentage change in forest area.

Variation du couvert forestier, 1980-89

Le pourcentage de variation de la superficie boisée.

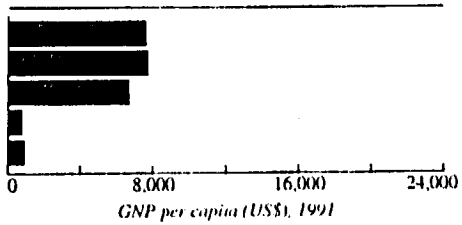
Variación en la cubierta forestal, 1980-89

La variación porcentual en la superficie cubierta de bosques.

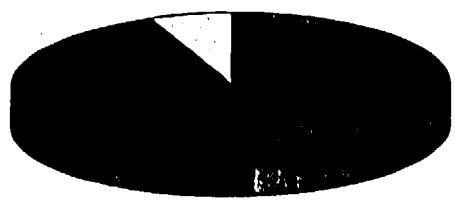


Change in forest coverage, 1980-89	*Number of economies*	*GNP (US$000,000) 1991*	*Population (000,000) 1991*	*GNP per capita (US$) 1991*
More than 0.2%	22	3,297,000	435	7,590
0% - 0.2%	62	5,254,000	680	7,730
-0.3% - 0%	25	9,920,000	1,486	6,670
-1.0% - -0.3%	33	1,499,000	1,840	810
Less than -1.0%	24	571,000	609	940
No data	34	1,130,000	323	3,500

Average GNP per capita of groups of economies with different percentage change in forest area



Shares of world population living in economies with different percentage change in forest area



The environment

Economy	Energy use (oil equivalent) Per capita (kg) 1990	Energy use (oil equivalent) GDP output per kilogram (US$) 1990	Water use As % of total water resources /a 1970-87	Water use Per capita (cubic m) 1970-87	Forest coverage Total area (000 sq km) 1989	Forest coverage As % of total land area 1989	Forest coverage Annual average change (%) 1980-89
Afghanistan	..	..	52	1,436	19	3	0.0
Albania	1,152	..	1	94	10	38	0.4
Algeria	1,956	1.2	16	161	47	2	1.0
American Samoa	..	..	..	..	0	70	0.0
Andorra	..	..	..	..	..	..	..
Angola	203	..	0	43	530	42	-0.2
Antigua and Barbuda	..	*3.2*	..	..	0	11	-2.6
Argentina	1,801	1.8	3	1,059	593	22	-0.1
Armenia	..	..	..	..	..	..	..
Aruba	..	..	..	..	..	..	..
Australia	5,041	3.4	5	1,306	1,060	14	0.0
Austria	3,503	5.8	3	417	32	39	-0.3
Azerbaijan	..	..	..	..	..	..	..
Bahamas	..	*1.8*	..	..	3	32	0.0
Bahrain	11,813	0.7	..	..	..	..	..
Bangladesh	57	3.7	1	211	20	15	-1.3
Barbados	1,953	3.5	..	..	..	..	..
Belarus	..	..	..	..	..	..	..
Belgium	..	..	72	917	..	..	..
Belize	..	*3.9*	..	..	10	44	0.0
Benin	46	8.7	0	26	35	32	-1.3
Bermuda	..	..	..	..	0	20	0.0
Bhutan	13	15.0	0	15	26	55	0.2
Bolivia	257	2.4	0	184	557	51	-0.1
Botswana	425	5.9	0	98	109	19	-0.1
Brazil	915	3.4	1	212	5,531	65	-0.4
Brunei	7,912	..	..	..	2	45	-3.5
Bulgaria	4,945	0.5	7	1,600	39	35	0.1
Burkina Faso	17	20.2	1	20	67	24	-0.9
Burundi	21	9.8	3	20	1	3	0.8
Cambodia	59	2.9	0	69	134	76	0.0
Cameroon	147	6.5	0	30	247	53	-0.4
Canada	10,009	2.1	1	1,752	3,580	39	0.6
Cape Verde	303	2.4	..	..	0	0	0.0
Central African Rep.	30	14.4	0	27	358	57	0.0
Chad	17	12.4	0	35	128	10	-0.6
Channel Islands	..	..	..	..	..	..	..
Chile	887	2.4	4	1,625	88	12	0.1
China	598	0.5	16	462	1,246	13	-0.8
Colombia	811	1.6	0	179	506	49	-0.6
Comoros	37	13.8	..	..	0	16	0.0
Congo	213	5.9	0	20	212	62	-0.1
Costa Rica	622	3.3	1	770	16	32	-0.8
Côte d'Ivoire	173	4.8	1	68	76	24	-2.8
Cuba	1,192	..	..	..	28	25	0.9
Cyprus	1,701	4.2	..	..	1	13	0.0
Czechoslovakia	5,081	0.6	6	379	46	37	0.1
Denmark	3,618	7.0	11	277	5	12	0.0
Djibouti	1,276	..	..	..	0	0	0.0
Dominica	287	8.2	..	..	0	41	0.0
Dominican Rep.	347	2.9	15	453	6	13	-0.3
Ecuador	678	1.5	2	561	112	40	-2.4
Egypt, Arab Rep.	598	1.1	97	1,202	0	0	0.0
El Salvador	233	4.5	5	241	1	5	-3.6
Equatorial Guinea	73	5.0	..	..	13	46	0.0
Estonia	..	..	..	..	..	..	..
Ethiopia	20	5.8	2	48	272	25	-0.4
Faeroe Islands	..	..	..	..	..	..	..
Fed. Sts. of Micronesia	..	..	..	..	..	..	..
Fiji	538	3.4	..	..	12	65	0.0
Finland	5,650	4.9	3	774	232	76	-0.1
France	3,845	5.5	22	728	148	27	0.1
French Guiana	..	..	..	..	73	83	0.0
French Polynesia	..	..	..	..	1	31	0.0
Gabon	1,158	3.8	0	51	200	78	0.0
Gambia, The	66	5.9	..	..	2	16	-3.1
Georgia	..	..	..	..	..	..	..
Germany /b	3,491	5.4	26	668	104	30	0.1
Ghana	68	5.7	1	35	81	35	-0.8
Gibraltar	..	..	..	..	..	..	..
Greece	2,092	3.1	12	721	26	20	0.0
Greenland	..	..	..	..	0	0	0.0
Grenada	284	7.9	..	..	0	9	0.0
Guadeloupe	..	..	..	..	1	41	-0.1
Guam	9,818	..	..	..	0	18	0.0
Guatemala	171	4.8	1	139	38	35	-1.9
Guinea	73	6.8	0	115	146	60	-0.4
Guinea-Bissau	37	5.3	..	..	11	38	0.0
Guyana	..	*0.8*	..	..	164	83	0.0
Haiti	53	8.0	0	46	0	1	-4.0
Honduras	198	2.8	1	508	33	30	-2.0
Hong Kong	1,717	7.2	..	..	0	12	-0.4
Hungary	3,211	1.0	5	502	17	18	0.5
Iceland	7,226	3.2	..	..	1	1	0.0
India	231	1.5	18	612	667	22	-0.1
Indonesia	272	2.2	3	452	1,134	63	-0.4
Iran, Islamic Rep.	1,026	2.1	39	1,362	180	11	0.0
Iraq	774	..	43	4,575	19	4	-0.2
Ireland	2,653	4.6	2	267	3	5	0.8
Isle of Man	..	..	..	..	..	..	..
Israel	2,050	5.7	88	447	1	5	-0.4
Italy	2,754	6.9	30	983	67	23	0.8
Jamaica	931	1.8	4	157	2	17	-0.5
Japan	3,563	6.7	20	923	251	67	-0.1
Jordan	994	1.3	41	173	1	1	1.3
Kazakhstan	..	..	..	..	..	..	..
Kenya	100	3.6	7	48	24	4	-0.8
Kiribati	..	*5.0*	..	..	0	3	0.0
Korea, Dem. Rep.	2,370	..	..	..	90	74	0.0
Korea, Rep.	1,898	3.0	17	298	65	66	-0.1

.. Not available.

Note: Figures in italics are for years other than those specified; the number 0 or 0.0 means zero or less than half the unit shown and not known more precisely.

Economy	Energy use (oil equivalent) Per capita (kg) 1990	Energy use (oil equivalent) GDP output per kilogram (US$) 1990	Water use As % of total water resources /a 1970-87	Water use Per capita (cubic m) 1970-87	Forest coverage Total area (000 sq km) 1989	Forest coverage As % of total land area 1989	Forest coverage Annual average change (%) 1980-89
Kuwait	6,414	*2.1*	..	238	0	0	0.0
Kyrgyzstan	..	..	..	..	..	..	..
Lao PDR	39	5.3	0	228	128	55	-0.8
Latvia	..	..	..	..	..	..	..
Lebanon	968	..	16	271	1	8	-0.8
Lesotho	0	0.0	1	34	..	..	..
Liberia	169	..	0	54	18	18	-1.7
Libya	3,399	*1.6*	404	623	7	0	1.5
Lithuania	..	..	..	..	..	..	..
Luxembourg	..	..	..	..	..	..	..
Macao	765	..	..	..	..	..	..
Madagascar	40	6.6	41	1,675	157	27	-0.9
Malawi	41	5.3	2	22	37	40	-2.6
Malaysia	974	2.4	2	765	191	58	-1.2
Maldives	144	3.3	..	..	0	3	0.0
Mali	24	12.4	2	159	70	6	-0.4
Malta	1,627	4.0	..	..	..	..	..
Marshall Islands	..	..	..	..	..	..	..
Martinique	..	..	..	..	0	36	-0.8
Mauritania	114	4.7	10	473	49	5	1.3
Mauritius	394	6.0	16	415	1	31	-0.2
Mayotte	..	..	..	..	..	..	..
Mexico	1,300	2.1	15	901	430	23	-1.2
Moldova	..	..	..	..	..	..	..
Mongolia	1,277	0.8	2	272	139	9	-1.1
Morocco	247	4.2	37	501	79	18	0.2
Mozambique	85	1.1	1	53	144	18	-0.8
Myanmar	82	..	0	103	324	49	0.1
Namibia	0	0.0	2	79	182	22	-0.2
Nepal	25	6.7	2	155	25	18	0.0
Netherlands	5,123	3.6	16	1,023	3	9	0.3
Netherlands Antilles	..	..	..	..	..	..	..
New Caledonia	..	..	..	..	7	39	0.0
New Zealand	4,971	2.6	0	379	73	27	0.4
Nicaragua	..	*1.3*	1	370	35	29	-2.8
Niger	40	8.1	1	44	21	2	-2.6
Nigeria	138	2.2	1	44	122	13	-2.2
Norway	9,083	2.7	0	489	83	27	0.0
Oman	2,648	2.5	22	561	..	..	..
Pakistan	233	1.5	33	2,053	35	5	1.7
Panama	1,694	1.2	1	744	33	44	-2.5
Papua New Guinea	..	*3.9*	0	25	382	84	-0.1
Paraguay	232	5.3	0	111	144	36	-3.9
Peru	509	3.3	15	294	687	54	-0.4
Philippines	215	3.3	9	693	106	35	-1.8
Poland	3,416	0.5	30	472	87	29	0.1
Portugal	1,507	3.6	16	1,062	30	32	0.0
Puerto Rico	2,026	..	..	..	2	20	-0.2
Qatar	15,260	1.1	..	..	..	..	..
Réunion	..	..	..	..	1	35	-0.9
Romania	3,623	0.4	12	1,144	64	28	0.0
Russian Federation	..	..	..	..	..	..	..
Rwanda	41	7.3	2	23	6	23	-0.5
San Marino	..	..	..	..	..	..	..
St. Kitts and Nevis	500	7.6	..	..	0	17	0.0
St. Lucia	347	7.2	..	..	0	13	0.0
St. Vincent	206	8.7	..	..	0	36	0.0
São Tomé and Principe	125	3.5	..	..	..	..	..
Saudi Arabia	5,033	1.3	164	255	12	1	0.0
Senegal	156	5.0	4	201	59	31	-0.1
Seychelles	1,747	3.0	..	..	0	19	0.0
Sierra Leone	77	2.8	0	99	21	29	-0.2
Singapore	5,685	2.1	32	84	0	5	0.0
Solomon Islands	..	*3.2*	..	..	26	91	0.0
Somalia	64	1.8	7	167	91	14	-0.1
South Africa	2,447	1.2	18	404	45	4	0.6
Spain	2,201	5.7	41	1,174	157	31	0.1
Sri Lanka	179	2.7	15	503	17	27	-0.1
Sudan	58	6.1	14	1,089	451	19	-0.6
Suriname	1,720	2.1	..	..	149	95	0.0
Swaziland	285	3.5	..	..	1	6	0.7
Sweden	6,347	4.2	2	479	280	68	0.0
Switzerland	3,902	8.6	6	502	11	26	0.0
Syrian Arab Rep.	913	1.3	9	449	7	4	3.2
Tajikistan	..	..	..	..	..	..	..
Tanzania	38	2.6	1	36	411	46	-0.3
Thailand	352	4.2	18	599	142	28	-1.6
Togo	51	8.7	1	40	16	30	-0.6
Tonga	..	*5.5*	..	..	0	11	0.0
Trinidad and Tobago	5,940	0.7	3	149	2	43	-0.4
Tunisia	520	3.0	53	325	6	4	1.8
Turkey	857	2.3	8	317	202	26	0.0
Turkmenistan	..	..	..	..	..	..	..
Uganda	27	6.4	0	20	56	28	-0.9
Ukraine	..	..	..	..	..	..	..
United Arab Emirates	10,874	*1.7*	300	565	0	0	0.0
United Kingdom	3,646	4.7	24	507	24	10	1.4
United States	7,822	2.8	19	2,162	2,939	32	-0.1
Uruguay	821	3.3	1	241	7	4	0.9
Uzbekistan	..	..	..	..	..	..	..
Vanuatu	..	*3.3*	..	..	9	75	0.0
Venezuela	2,582	0.9	0	387	305	35	-0.9
Viet Nam	100	1.4	1	81	98	30	-2.8
Virgin Islands (U.S.)	..	*0.5*	..	..	0	6	0.0
Western Samoa	423	2.2	..	..	1	47	0.1
Yemen Rep.	83	7.2	147	127	31	6	-0.3
Yugoslavia /c	2,409	1.5	3	393	93	37	0.2
Zaire	71	2.9	0	22	1,746	77	-0.2
Zambia	379	1.0	0	86	289	39	-0.2
Zimbabwe	531	..	5	129	192	50	-0.4

a. Refers to internal renewable water resources. b. Refers to the Federal Republic of Germany before unification.

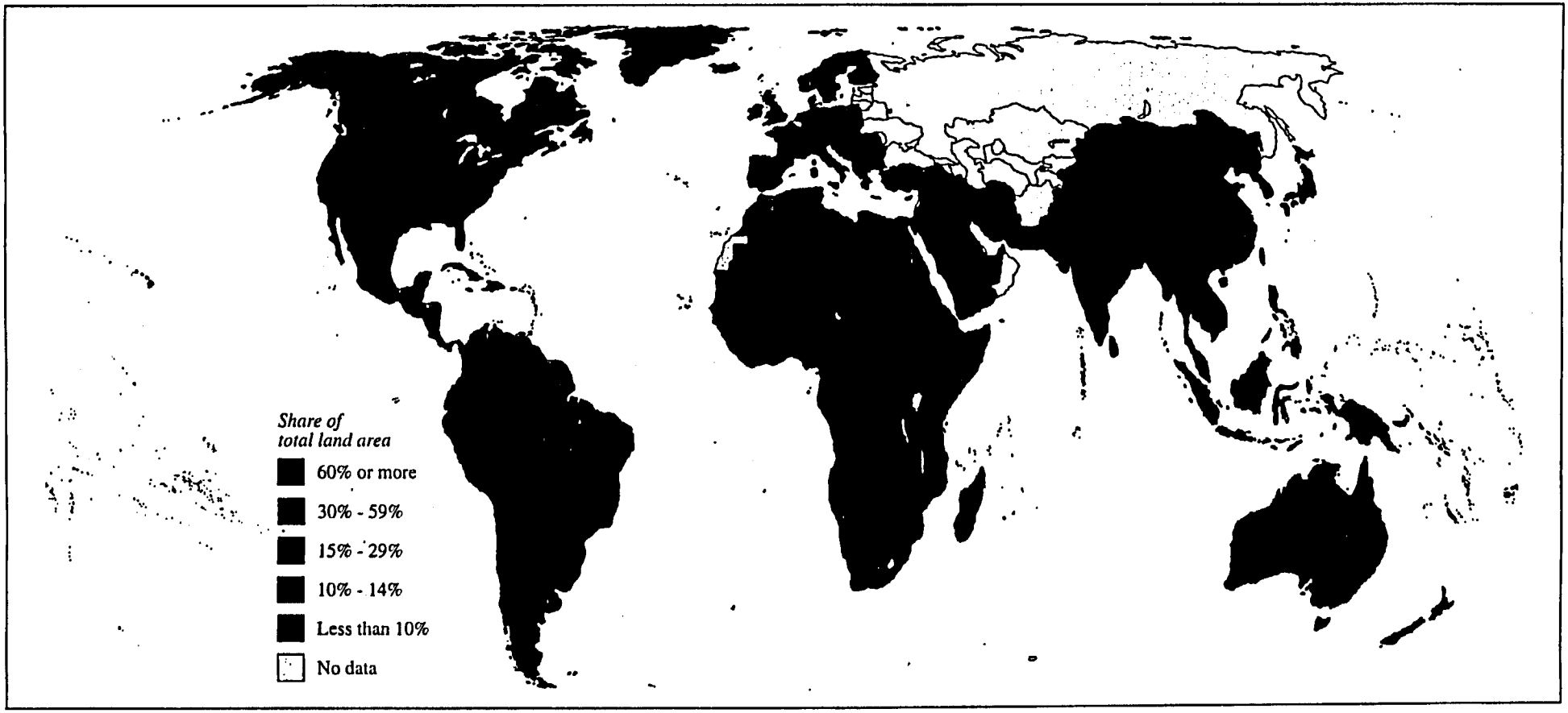
c. Data refer to the former Socialist Federal Republic of Yugoslavia.

Appendix XIII

The percentage of total land area that is covered by forest and woodland.

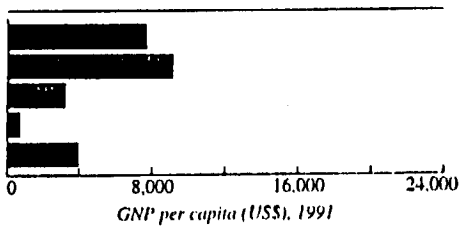
Superficie boisée en pourcentage de la superficie totale des terres.

El porcentaje de la superficie continental del planeta que está cubierto de bosques y tierras arboladas.

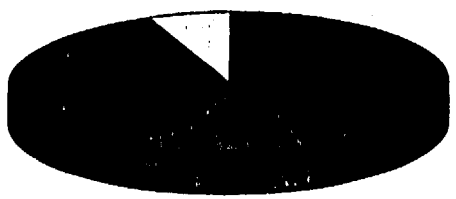


Forest coverage, 1989	Number of economies	GNP (US$000,000) 1991	Population (000,000) 1991	GNP per capita (US$) 1991
60% or more	19	4,552,000	595	7,660
30% - 59%	52	7,617,000	836	9,110
15% - 29%	42	5,285,000	1,631	3,240
10% - 14%	15	1,150,000	1,499	770
Less than 10%	38	1,939,000	488	3,970
No data	34	1,130,000	323	3,500

Average GNP per capita of groups of economies with different forest coverage



Shares of world population living in economies with different forest coverage



Appendix XIV

Why Canada's Forestry Policies Have Earned it the Title

BRAZIL OF THE NORTH

Massive deforestation in Brazil has justifiably attracted much criticism from the world community. Canada has considered what could be done to help Brazil develop a sustainable forest industry. This only perpetuates abroad the false pretense which the Canadian government maintains at home, for Canada itself does not practise sustainable forestry. In fact, many environmentally concerned Canadian citizens consider Canada to be the corollary, in the northern hemisphere, of Brazil. Consider the following facts:

Size of Canada: 9.9 million square kilometres	
Size of Brazil: 8.5 million square kilometres	
% of Canada covered by forest:	45%
% of Brazil covered by Amazon rainforest:	41%
Hectares of forest cleared in Canada in 1988: (Latest figures available; 1990 will be similar or higher)	1,021,619
Hectares of Brazilian Amazon cleared or burned in 1990:	1,382,000
In Canada, one acre of forest is clearcut every 12 seconds	
In Brazil, one acre is cut or burned every 9 seconds.	
Amount of productive Canadian forest which is now either barren or "not sufficiently restocked" after clearcutting:	10.3%
Amount of Brazilian rainforest that has disappeared:	12%
Estimated no. of Indians & Metis in Canada's Boreal forest:	100,000
Estimated no. of Indians in the Amazonian forest:	170,000

Source: Equinox Magazine, Forestry Statistics Canada, 1992 State of the World Report.

In earlier years, there was a larger difference between the rate of deforestation in Canada and Brazil, but Brazil is slowing down. Canada, on the other hand, is undergoing an expansion of its pulp industry. $13.2 billion worth of pulp expansions will mean devastation of Canada's northern Boreal forest, greatly increasing the rate of clearcut logging.

Canada has 10 percent of all the forest in the world, and thus what happens to that forest is also of great concern to every nation on the planet.

Deforestation in Canada

Industry and government critics of the "Brazil of the North" campaign argue that Canadian deforestation is different because the wood is utilized and the forests are replanted. There is also massive wood waste in the clearcutting of Canada's forest. However, under a thin film of superficial differences, there are many more similarities in the deforestation of these two countries, its impact upon the environment and its consequences upon the human beings who live both close at hand and all over the world.

Clearcutting is deforestation, regardless of whether new trees are planted.

Clearcutting means the land is totally denuded of its forest. When it's replanted, vast acreages of tiny seedlings starting from scratch in the rubble do not make a forest. The biological functions served by the living forest have been annihilated. It will take 60-120 years or more before these trees are useful to the forest industry again. It might be longer than that before its biological functions are fully restored.

The old growth forest is coming to an *end* in Canada.

Forest management policies in Canada have long been based upon liquidation of the old growth forest. Now that liquidation is close to being accomplished. A federal State of the Environment Report says that the ancient forests are rapidly disappearing all over Canada. Presently very little still exists in the Atlantic provinces. The second growth trees will be cut again when they are 60-120 years old and far smaller. It is unlikely that the climax forest will ever exist again on these areas

Canada's commercial forest is being *permanently* reduced in volume.

The old growth trees currently being cut may be 200 to 1,000 years old, up to ten feet in diameter and soar 250 feet into the air. Some estimates suggest the volume reduction from old growth to harvestable second growth will be 20-60%, depending upon the type of forest. But while some second growth is ready for cutting, vast acreages will still have only seedlings or very small trees on them. So the volume reduction will be much greater than what is indicated by looking at the volume of harvestable second growth. The "falldown" in forest volume also means a massive "falldown" in forest jobs. Then, too, forest volume is carbon storage space. Canada is liquidating a large percentage of its carbon stores at a time when it is known that deforestation releases carbon dioxide into the atmosphere where it contributes to global warming.

Replanting does not necessarily mean regrowing.

Some areas in Canada have been replanted three, four or five times without success. This may be because the clearcutting was done on environmentally sensitive areas which should never have been cut at all. Or it may be that the logging damaged soil fertility. Some areas have trees growing on them, but not enough to be profitable for logging. Global warming, ozone depletion, acid rain and other environmental problems will have a growing impact on our forests. As a result, the seedlings now being pressed into the ground on ravaged hillsides face a more uncertain future than ever.

Canada's commercial forest is being reduced in area.

In the last ten years, an area in Canada the size of East Germany has been stripped of its forest *Every year, an area the size of Prince Edward Island fails to regenerate itself and may never do so. As the shift to second growth brings a drastic reduction in volume of forest on a given area of land, an ever growing expanse of land will be denuded each year to keep up productivity.*

The biological legacy of Canada's forest is being drastically reduced.

The aim of silviculture in Canada has not been to replenish natural forests, but to create tree plantations which are uniform forests of profit crops. These differ from natural forests in many ways. Important steps in the natural progression by which nature builds soil fertility have been bypassed. Many kinds of plants and animals which play important roles in forest processes have been eliminated. Trees for replanting come from limited genetic stock. Because these plantations lack genetic, species and age diversity, an increasing number of scientists are alarmed at the possibility that they could be destroyed on a massive scale by insects, disease, or other factors.

Clearcut logging will be greatly increased in the Boreal forest of northern Canada.

Canada has given away vast areas of its northern Boreal forest to satisfy pulp mill expansions, without environmental assessment impacts to the forest. *Nearly 100 percent of Canada's most productive Boreal forest has already been committed in 20-year leases.* Clearcut logging will be greatly increased as the pulp mills begin operation. Because of harsh climatic conditions and poor soils, this forest takes a long time to regenerate. Some of it may never regenerate, especially as global warming becomes a reality.

Clearcutting of the Boreal forest is a world crisis.

A study published in *Science* magazine by a scientist from the U.S. National Aeronautics and Space Administration concludes that the bulk of carbon dioxide created by human activity is absorbed by soils, plants and trees in the northern hemisphere. Large quantities will be released by clearcutting the Boreal forest. Carbon dioxide emissions are causing global warming, which threatens the planet with massive ecological and social disasters. Canada is the world's fifth largest per capita emitter of carbon dioxide on earth, and the forest industry contributes massive quantities through saw mill and pulp mill discharge, slashburning, and other breakdown of wood.

Clearcutting of the Boreal forest will shatter native cultures.

100,000 native people and Metis depend upon the Boreal forest for their food and their whole way of life. Decimation of the forests will be the final blow to these cultures. Right now native people in Canada are carrying high levels of toxic chemicals discharged by pulp mills in their bodies, the result of eating contaminated fish. Not only their culture but their health is endangered.

Vanishing forest means degradation of Earth's life support system.

Deforestation in Canada has caused and will continue to cause erosion, siltation of streams, mudslides, floods, destruction of fisheries, contamination of community water supplies, and loss of biodiversity. Vanishing forest also means a decreasing base for economic support through the forest and tourism industries.

Intensive silviculture — lots of talk, little funding.

Other countries have increased their forest yield through intensive silviculture. In Canada there is much talk of doubling the rate of forest growth, but neither government nor industry are willing to pay for the research and the intensive silviculture which is needed. Canada is a vast country. It would take a gargantuan change to put commercial forests across the country under sufficiently intensive silviculture to double the forest growth rate. Government shows no signs of even beginning this change, and industry resists even small changes which are being advocated. What's more, an increasing number of forest ecologists are warning us that intensive silviculture does further environmental damage due to chemical fertilizers, insecticides, herbicides which poison many forms of life and further reduce biodiversity. What is needed is to slow down the rate of logging to a sustainable level, not an impossible effort to increase the rate of forest growth to catch up with the rate of loggng.

Deforestation in British Columbia

The Canadian province of British Columbia contains a rich temperate zone forest which is also of world significance. BC's forest is among the largest in the northern hemisphere, equalling the entire area of the U.S. National Forest. BC accounts for about half of the wood production in Canada. On the coast of BC the forest was originally composed of huge ancient trees soaring over 250 feet into the air. This coastal forest is one of the richest forests in the world in terms of supporting a great mass of living things. It also stores huge quantities of carbon. However, BC plays a large role in making Canada "Brazil of the North".

The end of commercial old growth forest is in sight.

The annual area logged is approximately 1,000 square miles a year in BC. The federal government's recent State of the Environment Report states that at this rate, in 16 years all the commercial coastal old growth will be gone, except the miniscule amount which is protected in parks. Various estimates put the end of the commercial old growth around the province only 20 years away.

Eighteen years to clearcut, 60-120 years to regrow.

Half of the cumulative volume of wood taken out of BC forests since 1911 was removed in the last 18 years. If the old growth does disappear in twenty years, that will mean a time lag of 20-120 years before these clearcuts will be ready to cut again.

Environmental degradation threatens health, safety, property and pocketbooks.

The forest controls the quality and flow of water, and holds soil on the steep mountain slopes. Clearcutting in BC has caused contamination, diversion, and flooding of community water supplies, as well as mudslides which have destroyed private property and human lives. This erosion decreases forest productivity. The incidence of giardia in BC is four times the national average and is increasing. That's just the medically reported cases. Giardia is an intestinal disease which comes from contaminated drinking water. Some communities have had to install expensive water purification systems. Various BC medical, health and law groups believe that logging in watersheds has caused these outbreaks. Consequently they have opposed road-building and logging in certain watersheds.

Precious wilderness and wildlife habitat is being clearcut.

BC has some of the most magnificent wilderness remaining in the world. These areas teem with wildlife, such as grizzly bears, mountain goats, caribou and many, many other animals. As habitat disappears, wildlife populations dwindle. Only 5.7% of the province has been protected from industrial uses. Only 2.6% of BC's prime forests fall within these protected areas. The Valhalla Society has put most of the public park proposals in BC on its Endangered Wilderness Map. They add up to 14% of BC. If enacted, this would boost the amount of prime old growth forest in protected areas to approximately 5.5%. A university study has shown that with proper forest management, this could be done while actually *increasing* forest industry jobs, but the government is ignoring many of these proposals.

The government talks while the forest industry logs.

The new government of BC was elected on a platform which promised to preserve 12% of the province. The government's new study process for candidate areas contains far less forest than the Endangered Wilderness Map. Like the old government, the new one is allowing many areas proposed for protection to be clearcut while purportedly studying them for preservation. The study process they have set up is a long and onerous one. Almost a third of the areas proposed for protection by the public are being logged or will be in the next few years. Roadbuilding into some of these areas has accelerated.

The BC Forest Industry

The BC forest industry has pumped millions of dollars into a public relations campaign to combat the environmental movement. It has created organizations and panels which claim to be environmental groups or taskforces, but which support the forest industry on issues of any substantial import. At the community level these groups are usually called "Share" groups and they are composed chiefly of forest industry and mining industry workers.

The BC Forest Alliance

Another group is called the BC Forest Alliance. It's name is easily confused with that of Canada's Future Forest Alliance, a coalition of grass roots community groups across the nation protesting the giveaway of Canada's forests to new and expanded pulp mills. However, the BC Forest Alliance board of directors includes logging company executives and is funded by the forest industry. In spite of these facts it claims to be "independent".

The Western Environment and Development Taskforce

A panel by this name was set up specifically for the purpose of going to the U.N. Conference on Environment and Development in Brazil in June. The industry hired the former BC Minister of Forests to head this taskforce. It purports to be the only environmental organization in BC concerned for sustainable development.

City people versus rural people not a real issue.

The forest industry's front organizations all claim to represent rural BC. In actual fact, many thousands of rural residents in BC are trying to stop the degradation of their water supplies by clearcut logging. Their efforts have been vigorously opposed by the false environmental groups and panels set up by the forest industry. What's more, a great many forest industry employees live and work in and around the big cities of Vancouver and Victoria.

The real causes of job losses are ignored.

These groups have made the issue of jobs their central. Yet they studiously ignore the real causes of job losses. Consider the following facts:

Automation — Between 1979 and 1986, the forest industry cut 22,000 jobs, mostly by automation. Automation is still going on. Recently Price-Waterhouse consulting firm held a conference on the forest industry. The audience was told that 10,000-20,000 forest industry jobs would be eliminated in the near future due to new "efficiency measures." The forest industry puppet groups do not protest this.

Overcutting — After 1986, record rates of logging allowed 13,000 jobs to be recovered. The result was more rapid depletion of the forest. Like the rate of logging, the employment level was unsustainable. Many jobs have been lost in areas where there are timber shortages. The BC Forest Commissioner has stated 120,000 direct and indirect jobs could be lost over the next twenty years as the old growth forest is depleted. Yet the forest industry groups oppose any attempt to lower the rate of cutting.

Failure to Invest in Value-added Manufacturing — Over the years in which thousands of forest industry jobs have been lost due to automation and overcutting, the industry has blatantly continued to export raw logs, lumber and pulp rather than keeping these materials in BC to support manufacturing jobs. As the large old trees which support BC's solid wood industry began to disappear, the companies should have invested in an expansion of value-added manufacturing facilities, which would have allowed the rate of logging to be

decreased, while actually increasing the number of jobs. However, BC's giant multinational logging corporations preferred to put their investments into pulp mills which would allow them to make fortunes out of the small trees left in BC, with less labour, using BC's rivers, coastal waters and air as receptacles for toxic waste.

As a result, the forest industry has gotten more and more wood while BC has gotten fewer and fewer jobs. Quebec and Ontario get between two and three times as many jobs as BC gets out of the same truckload of wood. In 1988 the Ontario forest industry provided almost as many jobs as the BC forest industry, on 34% as much wood. This shows now much BC could cut back and still maintain employment levels, given sufficient development in value-added manufacturing. However, some other countries and some states in the U.S. do considerably better in this respect than Ontario. *The forest industry's puppet organizations do not protest any of this.* They've even been heard to say they *like* being efficient.

Changing Markets — Since 1990 changing market conditions have greatly accelerated job losses in the BC forest industry. The reasons include the fact that the market value of BC forest exports have dropped because they are more or less raw materials with little processing. Some BC companies are also moving to the U.S. to take advantage of cheaper labour. *The so-called environment-and-jobs groups still do not criticize the forest industry.*

Parks & environmentalists are falsely blamed for job losses.

What the forest industry groups do criticize is *real* environmentalists and parks. In the last ten years, only two or three new parks of significant size have been created in BC. The commercial forest in these parks does not significantly alter the percentage of BC's prime forests which are protected; it remains at about 2.6%. Yet the forest industry puppet groups blame parks and environmentalists for the forest industry job losses suffered over the last few years. They fight every proposed new park.

What's more, they are setting the stage to blame environmentalists for the much more massive job losses to come as the old growth forest is further depleted. The head of the BC Forest Alliance, has already stated on national TV that international award-winner Colleen McCrory, chairperson of the Valhalla Society, is working to shut down the forest industry and will be responsible for the economic collapse of communities due to forest industry job losses. These collapses are indeed looming in BC, not because of McCrory or any environmentalist, but because of overcutting.

This false charge is a repetition of what has caused Ms. McCrory and other environmentalists to be subjected to abuse and hardships in the past. Because resource workers have been made to feel over the years that McCrory is taking their jobs away, she has been libelled, slandered, threatened, harassed, lost her store due to a boycott and suffered economic hardship. Yet all along she has worked to advocate increased value-added manufacturing to create more jobs for forest industry workers. Far more jobs could be created this way than would be lost if the Endangered Wilderness Proposal were enacted.

Overcutting has led to resource conflicts.

Logging companies which have consumed most or all of what was their rightful due are now turning, as a last-ditch-effort, to consume forest which the residents need for the necessities of life such as water and economic support through tourism. Several hundred people have been arrested to date on logging blockades which seek to protect watersheds or preserve a park. Often they are not totally opposed to logging in their area; they just want meaningful controls on logging, such as adequate planning processes, selection logging, and preservation of areas where logging would pose high environmental risks. This resistance has delayed logging in some places. Any jobs lost because of these delays are small in comparison to the massive job losses caused by automation, overcutting and market changes. BC needs to find a level of employment which is ecologically sustainable over the long term.

Is Canada the Brazil of the North? Yes!

If Brazil was just wasting wood, it would not have received so much criticism from the world community. Global warming, erosion, loss of biological diversity, shattering of native cultures, and dwindling economic support bases are profound damages with effects which travel around the world. Brazil has become representative of the human tendency to act in disregard of nature's laws, to destroy long term economic prospects for short term gain, and to pursue these profits heedless of the consequences on other cultures and on the whole world community. However, Brazil is certainly not the only example.

We can think of no better description to fit Canada's forest policies. Indeed, the greatest difference between the forest policies of Brazil and Canada is that in Brazil the desperation of population growth and poverty have been the driving factors; whereas in Canada the greed of multinational corporations and their ability to tyrannize over the public by virtue of their wealth and political influence have been the central cause.

Millions of Canadian citizens do not think this difference is flattering and do not want this situation to continue. Polls have shown they are willing to pay for increased environmental protection, but the federal and provincial governments ignore them. We don't ask that the cutting of Canada's forest stop. But we do ask that the rate of cutting be reduced to a level which is sustainable over the long term and will allow our depleted forest to be restored. This must be based on an accurate inventory of the forest across the country. We also ask that Canada meet its stated goal of preserving 12% of the country, including an adequate amount of old growth forest.

In BC people who provide information like this to other countries have been called ***traitors*** by forest industry interests, including the head of the BC Forest Alliance. People advocating the reforms stated in this pamplet are also called ***extremists*** by the BC government, whereas the actual extremity is in the gross abuses these people are enduring to expose the truth.

The *REAL* environmental groups of BC and Canada desperately need your help. Please make a generous donation to the organization of your choice. You may want to designate your funds towards the Valhalla Society's Endangered Wilderness Project, or to Canada's Future Forest Alliance. A "Brazil of the North" poster is available from the Society for $8.00 Canadian.

The Valhalla Society, P.O. Box 224, New Denver, BC, V0G 1S0.

Appendix XV

A brief survey of some of the countries' statements delivered at the United Nations General Assembly (UNGA), in November 1992, regarding cooperation with respect to environmental issues.

- Brazil

* believes that the protection of the environment depends on the advancement of development and that in fact the "right to development" must be respected in order to meet environmental needs;
* appeals to concrete pledges from developed countries.

- China

* like Brazil, China wants developed countries to take more responsibility, to make concrete financial commitments that reflect the needs of developing countries, notably with respect to their "right to sustainable development";
* believes that cooperation must respect state sovereignty.

- Czechoslovakia

* appeals to guidance from experts on the CSD, wants an inter-governmental forum, as well as developing guidelines;
* wants the status of development in individual countries to be explicit, wants to create national focal points for implementation of Agenda 21.

- Finland

* would like to see an ICF that would promote sustainable multiple use of natural forests;
* emphasizes the shared nature of the responsibility in implementing sustainable development and endorses national sovereignty with respect to sustainably managed resources;
* would financially support projects on reforestation and training in developing countries;
* wants the CSD to encourage exchanges of information and is willing to share expertise for national implementation of Agenda 21;
* intends to reach 0.7% target GNP, priorities for cooperation include alleviating poverty and protecting the environment, supporting democracy and human rights.

- Finland (on behalf of the Nordic Countries)

* will sponsor implementation of Agenda 21 by providing financial and technological support to developing countries;
* believes both national and international mechanisms are necessary to implementing the Conventions on Climate change and Biodiversity, emphasizing the need for international efforts regarding renewable sources of energy;

* would like to see an ICF strategy developed;
* believes that Eastern and Central Europe should take responsibility for combatting human suffering and environmental problems but it is not against international cooperation especially with respect to development and capacity-building.

- **France**

* has pledged to give 0.7% of its GNP by the year 2000;
* another projected contribution of $800 million is destined to issues specified by Agenda 21 as priority (including forests).

- **Germany**

* wants prompt implementation of both Climate change and Biodiversity Conventions and will allocate 10 million DM in 1993 to this end;
* would like the CSD to review the forest principles for an eventual ICF;
* believes developing countries could be helped in making full use of their own capacities by breaking down trade barriers; trade policy should also reflect sound environmental practices;
* endorses new living patterns and their establishment through education and training; would like to see poverty and population growth and under-development remedied at both national and international levels (development should be a question of self-help, creating suitable economic conditions and democratic government); has made budgetary provisions to support UNDP's Capacity 21;
* has made a financial commitment (IDA) and endorses an earth increment;
* encourages the punishment of environmental "crime" at an international criminal court, urges the creation of a task force for environmental emergencies.

- **India**

* believes development should take precedence over environmental concerns;
* would like more financing and more attention given to modalities of transfer of technology and the removal of trade imbalances;
* affirms the sovereignty of a country over the use of its natural resources and does not want international regulation of forest principles although international cooperation is solicited (financial, technical and scientific);
* puts onus on developed countries to take responsibility concerning environmental degradation and on providing the means to fund technology and development.

- **Indonesia**

* prioritizes both poverty and vulnerable ecosystems, wants both national and international implementation of sustainable development;

* expects developed countries to provide financing and access to technology without "restrictions of conditionality";

* considers the conservation of forests as an instrument for national and international development;
* believes a country should have sovereignty in developing their natural resources and does not want legally-binding forest principles.

- **Japan**

* wants to endorse agreements via institutional arrangements;
* intends to give financial and technical support to cooperation (expert advice and proposals/consultations with developing countries);
* believes that self-help is required for development and that financial mechanisms for the International Development Assistance (IDA) fund should be explicit;
* intends to increase its ODA over five years.

- **Malaysia**

* considers UNCED a failure, having inadequately addressed the issues of financing and transfer of technology, having failed to advocate accountability for environmental destruction, having insufficiently addressed the inequalities of economic structures;
* believes reform is necessary in order for the South to gain economic space that would enable the transition to "ecologically sound and socially equitable development";
* affirms that Agenda 21 needs both financial and scientific cooperation in order for sustainability to be implemented nationally and internationally, notes that the current ODA is $70 million short of its annual target;
* believes the CSD should not determine development through an environmental prism, and that finance and trade should be its main concerns.

- **Mexico**

* prioritizes the eradication of extreme poverty and transfer of technology;
* appeals to developed countries to contribute 0.7% of its GNP.

- **The Netherlands**

* insists that poverty must be fought before sustainability can be practised;
* wants a definition of environmental space and criteria for its allocation;
* suggests tradeable emission rights, taxes on energy and fuel as means and incentives for sustainable development;
* is already spending more than 0.7% of its GNP but has increased funding by 1%; with the E.C. = 3 billion ECU;
* endorses an earth increment.

- **Russia**

  * considers sustainable development as both a prerequisite and a final objective for universal security;
  * believes success of Agenda 21 depends on national efforts and economic policies;
  * attaches importance to defining new mechanisms for allocating resources and establishing a centre for urgent assistance.

- **Sweden**

  * wants sustainable development implemented globally;
  * believes fees/levies could be a means to control resource use and pollution;

- **The United Kingdom (on behalf of the European Community)**

  * wants an ICF; national plans are underway to implement the forest principles;
  * prioritizes poverty reduction, transfer of technology and capacity building;
  * wants G.E.F. restructured in accordance with Chapter 33 of Agenda 21.

- **The United States of America**

  * prioritizes the reporting on deforestation and its relationship to poverty in order to review subsidies given to sustainable development;
  * wants a CSD with coercive powers;
  * considers economic growth a means to protect the environment, encourages debt reform, open investment policies and free trade to this end;
  * ODA contribution = $11 billion (UNDP = $125 million, UNEP = $22 million).

- **Gabon ***

Following its move last year to end funding for commercial logging in tropical moist forests, the World Bank has approved a $22.5M loan to prevent the destruction of Gabon's tropical forests. Environmentalist pressures to cut back on logging are, however, not the greatest of the Gabonese timber industry's worries. Of more concern has been the continued poor performance of the dollar which favours Asian competitor countries and accentuates the difficulties of Franc Zone producers. As well, the construction of private houses has been in decline, since 1989, in France, which is the main importer of Gabonese timber. The reduced expectations of recovery in Europe have weakened prospects for Gabonese timber exports in 1992 and 1993. Thus, Gabon may well be losing its footing in the international market of tropical woods in the near future.

* No statement delivered at UNGA but nevertheless an important country to be considered.

Source: Country Report: Gabon, The Economist Intelligence Unit, London, 1992.

Appendix XVI

A Brief to the
Liberal Caucus Consultations
on Sustainable Development

January 27, 1993

Glen Blouin
Executive Director
Canadian Forestry Association
Association Forestière Canadienne

Introduction

Thank you for the opportunity to meet with you today. Very briefly, for there may be a few of you who are not familiar with the Canadian Forestry Association, a little background: CFA is Canada's oldest forest conservation group, established ninety-three years ago. We are a federation of nine Provincial Forestry Associations, whose membership consists of a broad range of individuals who share a common concern for our forests. Nationally, CFA is a non profit registered charitable organization, not aligned with the forest industry. We do however cooperate with the industry, and with government and all other conservation and environmental groups, in delivering our public awareness and educational programs.

An Historical Perspective

To put the subject of sustainable development of the forests of Canada into historical perspective, it might be helpful to undertake a cursory review of the evolution of forest development in this country.

There have been five rather distinct stages of interaction between man and the forests of Canada: the pre-Cabot/Cartier era of forest wilderness; a colonization/deforestation period; a lumbering/exploitation phase; a move to sustained yield/multiple use; and now the age of sustainable development. Some would suggest that we have not yet reached this latter stage, but there is little doubt that we are moving towards it.

Prior to the settlement of Canada by the Europeans, our forests were of course virtual wilderness. In the eighty percent of the forest classified as boreal, a seven thousand year history of forest fires, subsequent natural regeneration, growth to maturity, and recurring fires, on average forty to seventy year "rotations", continued virtually uninterrupted by man. From the Beothuks of Newfoundland to the Queen Charlotte's Haidas, the impact on the forest ecosystem of that portion of native people who were woodland dwellers was minimal. Numbers were small, communities isolated, and through hunting, fishing, and gathering, needs were met via a more or less symbiotic relationship with the forest.

In the ensuing era of colonization by white settlers, forests were viewed as obstacles and impediments to farming and settlement.

They were cleared, often by burning, with utilization essentially limited to firewood and shelter. This was the deforestation era, with some striking historical parallels to patterns in today's Amazon rainforest.

With the advent of the Napoleonic Wars, the British saw value in the great white pines of eastern Canada for shipbuilding, and these forests were "selectively" harvested, removing the tallest, the straightest, and of course the most accessible trees - the first "highgrading" of Canadian forests. Thus began the exploitation stage.

With increased settlement and the opening of export markets, sawmills were built along waterways, and the forests were even more intensively highgraded, this time for sawlogs.

In 1866 the first pulp mill was built in Canada, and species utilization was once again broadened to include most long-fibred softwoods, the source of the strongest of papers. Trees and stands which were previously bypassed were now harvestable commodities.

Clearcutting, which in the boreal forest approximated the cyclical "harvests" of forest fires, became more widespread. The exploitation continued. The philosophy was economically driven: harvest raw materials to feed mills at minimum cost with maximum efficiency and return. There was no need to put anything back - there was always more available over the next hill - resources were considered inexhaustible and endless.

At the turn of the century, a few influential individuals inspired the birth of the conservation movement in North America. Among those with foresight were Bernhard Femow, Henri Joly de Lotbiniere, Elihu Stewart, and Gifford Pinchot. This conservation ethic resulted in the founding of the Canadian Forestry Association in 1900, and within a decade faculties of forestry at the University of Toronto, the University of New Brunswick and Laval. The conservation movement persisted, however, mainly as an undercurrent in the mainstream of forestry, surfacing periodically in the likes of Aldo Leopold. As the forest industry grew to be Canada's largest industry, the emphasis was, unfortunately but understandably for the time, on productivity and efficiency of logging. In the famous words of former TV star Ronald Reagan, "Progress was our most important product".

The conservation ethic did, however, spawn new attitudes within the forestry community, specifically the concepts of multiple use and sustained yield. The former recognized values of the forest other than timber, in particular wildlife and most notably the game species; the latter acknowledged the limits of the natural resource and the need to replenish the resource for future use. Both concepts were perhaps more utilitarian than altruistic, but they did represent the first serious attempts to both broaden our focus and establish a long-term perspective on our forests. They signified a positive shift from myopic exploitation to responsible, albeit self-serving, stewardship.

After the mid point of this century, the art and science - and business - of silviculture grew in Canada, encompassing harvest, site preparation, planting, tending, thinning and eventual re-harvest. The forest industry strove to perfect a systematic, efficient approach to intensive forest management to ensure a continuous supply of sawlogs and pulpwood furnish for its mills.

Today we are venturing awkwardly into the era of sustainable forest development, an approach as future-oriented as that of sustained yield, but much broader in scope. Timber supply is but one of many values to be protected and enhanced - soil, water quality, biodiversity, wildlife, old growth, endangered species, non-timber species, even micro-organisms. In a sense we are returning to the recognition that all components of the ecosystem have a purpose, and even an intrinsic value.

Sustainable Development

Today, there are two elements of common ground, no matter where one stands on the issues.

1. *A recognition of the economic importance of forestry in Canada.*

2. *A concern about the environmental implications of forest management.*

Coincidentally, these two principles form the basis of the concept of sustainable development.

To accomplish this delicate balance between economic and environmental benefits, a land use conservation strategy is necessary. A strategy which encompasses all of the values we hold for our forests.

A simplified approach to a land use strategy may lie in the identification of three models or paradigms:

1. *the preservation forest*

2. *the working forest*

3. *the multiple use forest*

The preservation forest. *There can be no rational argument against the preservation of a representative network of forested ecological areas, in the form of ecological reserves, parks, wilderness areas, etc. Canada's present system of national parks is a treasure which Canadians and visitors alike enjoy. The federal government has committed itself to expansion of the system.*

Additionally, there is an urgent need for federal-provincial cooperation in developing a comprehensive and consistent multi-disciplinary natural forest values inventory, based upon biogeoclimatic zones or Terrestrial Ecoregions or other mutually-agreed-upon system. This would facilitate selection of sites representative of the diversity of forest ecosystems. Preservation areas may range from virtually no-use (except research) to limited use such as recreation, but the underlying premise is minimization of human intervention and maintenance of biodiversity. Nature may be allowed to take its course, or active management may take place (e.g. fire fighting) to preserve the integrity of the ecosystem, depending on goals.

Twelve percent

The government has agreed to a twelve percent target by the year 2000, based on the somewhat oblique reference to that number by the Brundtland Commission. A comprehensive inventory of representative forest ecosystems might reveal the need for an adjustment to the figure, either up or down, but in the interim twelve percent would appears to be a worthwhile goal, and reflects the seriousness of the government's commitment.

The Other 88%

With twelve percent set aside the natural question which follows is: "What about the other 88%?" It is within the other 88% that man will have the most significant impact on the forest ecosystem, and it is within the other 88% that the principles of sustainable development can be implemented. Following are the other two components of a land use strategy: the working forest and the multiple use forest.

The working forest. *Canada has been and will continue to be a major supplier of wood products to its citizens and those of other countries. As an exploding world population will inevitably generate increased demand, Canada can play an exemplary role in ecologically sound forest management to produce the products needed. While consumption reduction and recycling may temper the demand somewhat, the reality is that the wise use of renewable resources, i.e. forests, will play a key role in supplying the needs of the anticipated population increase.*

The working forest would entail a portion of the non-preserved land allocated to timber production as the single or dominant use, to be intensively managed for marketable wood products not only on a sustained yield basis, but also ensuring the sustainability of the land to continue to produce.

Such "tree farms", whether a result of plantations or natural regeneration, might be most naturally suited, but not limited to designated components of the boreal forest, with its seven thousand year history of repeated forest fires, frequently monocultural stands and evenage structures, established forestry-based communities and facilities, and access to markets. Harvesting and related forest management practices would be undertaken with the most efficient, economical, and environmently sensitive technologies, without compromising the integrity or viability of the soil and water. Ongoing research into the long term environmental impact of management practices would be essential.

The multiple-use forest. *The third paradigm would be the multiple-use forest, from which a variety of benefits would be derived. These would include wood products, tourism and recreation, hunting, fishing and trapping, aesthetics, etc. The dominant use would be determined through public participation processes and based upon local social, economic and biological considerations. Timber harvesting, if deemed to be a secondary use, would not conflict with the primary or dominant use. Such a scenario would represent the optimum solution to the biodiversity issue, producing a spatial and temporal mosaic of forest ecosystems, each evolving at various rates, each with its own particular attributes at any given point in time, thereby satisfying both the economic and the environmental elements inherent in sustainable development.*

The National Round Table Forestry Dialogue, a multi-stakeholder group, recently included among its Statement of Principles the following:

The policies and processes for allocating use of public forest should consider the potential for zoning forest land for multiple use, dominant use, and protected areas.

We agree.

National Forest Strategy

There have been a number of processes undertaken in the last few years which focus on sustainable development of the forests - at the local, provincial, national, and international levels. Internationally, the UNCED process has resulted in a chapter on forests (Ch.11) in Agenda 21, as well as the non-legally binding ***Guiding Principles for Forests.*** *Both these documents focus on the management, conservation, and sustainable development of our forests.*

On the national level the Round Table Forestry Dialogue has produced its own set of principles, and is now compiling a list of factors for consideration in forest harvesting.

Also on the national level of course was the Report of the Standing Committee on Forestry, ***Forests of Canada: The Federal Role****, the result of a long consultation process. The twenty-four recommendations therein, to substantially strengthen and broaden the role of Forestry Canada to achieve sustainable development, were endorsed by eight national conservation, woodlot owner and forest industry groups representing over one million Canadians. The recommendations were not implemented.*

Perhaps the most representative and concrete document is the National Forest Strategy, the culmination of a year-long cross-country consultation with over three hundred various forest stakeholders. Through five regional forums, a national workshop, and countless drafts, each improving on the other, the Strategy reached fruition at the National Forest Congress in March of 1992, jointly organized by the Canadian Forestry Association and the Canadian Council of Forest Ministers. An additional outcome was the signing of the Canada Forest Accord by both levels of government and fifteen representatives of the NGO forest community. At the end of the Congress a coalition of nine NGO's offered to monitor the implementation of the Strategy, and the offer was accepted by CCFM. As a result there is now in place a national committee to oversee implementation, with representation from federal and provincial governments, the forest industry, and national conservation organizations.

The National Forest Strategy is a 5 - year blueprint to achieve sustainable development of the forests, and requires the commitment to action by all agencies who contributed to its development. The Study addresses nine Strategic directions, with many of the action items having associated timeframes.

But as comprehensive as it is, it is just a document. Unless all stakeholders work as diligently in implementing it as they did in developing it, it will remain just that - a collection of ideas on paper. The federal government must take a leadership role in encouraging all stakeholders to put into practice what they have all committed to do.

EDUCATION

Finally I would like to speak to the need for better understanding of forest related issues by the Canadian public. There was a time, in the not-too-distant past, when the Canadian public was generally apathetic to their forests. If a tree fell in the forest, not only did nobody know, but apparently no one cared.

The times have changed. The polls today tell us that the public is very concerned about the plight of our forests. Spurred on by concerned environmental groups and a sympathetic media, the public is registering unprecedented interest in the forests. All forest practices are being publicly analyzed with a critical eye.

There are at least five valid reasons for the public and media attention:

1) *91 percent of our forests are owned by the people of Canada,*

2) *they are the essence of the Canadian environment,*

3) *they provide the cornerstone of our economy,*

4) *they form the roots of Canadian history,*

5) *they represent the recreational haven for millions for camping, canoeing, hiking, hunting, fishing, photography, birdwatching, wilderness adventures, as well as the spiritual reserve for our native people and countless others.*

Why has the public attitude changed? Sociologists might say it is partly explained by Maslow's hierarchy of needs, i.e., as the material needs and wants of the majority of citizens in developed countries are for the most part being met, individuals look both inward and outward for gratification; partly as a result of photographs of our planet taken from space, a recognition of the reality of Mcluhan's global village; partly as a result of the warnings of Rachel Carson and those that followed her; partly as a result of the maturing of the non-conformist sixties generation into the enlightened opinion leaders of the nineties; partly out of a common concern for the welfare of future generations, "our children's children"; partly as a result of the mass media's preoccupation with the negative and the sensational; partly by association of forest managers with their fellow managers in pulp mills, the perceived "purveyors of pollution"; partly as a result of the urbanization of a formerly pioneer public that has lost touch with nature, except as some vague romantic concept; partly because of a popular distrust of multinational corporations.

Sociologists could probably list dozens of other reasons, but the reality is that society has changed, preoccupations have changed, but more importantly values have changed.

Although these concerns are often emotional, and occasionally irrational, they do reflect the beginning of a land ethic which had been absent in the past.

As a result of this concern, society wishes to participate in the decision-making process. It's their land. It's their children's future. They want to have a say in what happens on that land.

The advent of public participation underscores the need for a public that is informed and knowledgable. But in these days of outrageous statements such as "Brazil of the North" and "The Rape of the Boreal Forest", the public is confused. Is all well in the forest sector? Is there nothing to worry about? Or are all of our forest ecosystems being systematically destroyed?

The need and demand for objective balanced information has never been greater.

Public participation is a worthy process in a democracy. But there is a responsibility of those who are participating to be as informed as possible. In 1989, the Canadian Forestry Association, in its brief to the House of Commons regarding Bill C-29 to establish a federal department of Forestry, urged the government to include public education in Forestry Canada's mandate. As a result Bill C-29 was amended, and part of that process has been the publication of annual State of the Forest reports.

Meanwhile, CFA continues to address the more controversial forest issues by publishing special issues of our periodical ***Forestry on the Hill.*** *Thus far we have printed editions on Clearcutting, Biodiversity and Monocultures, Herbicides, and Forest Wildfires. Upcoming is a special issue on the subject of Old Growth Forests. In these volumes we compile material written by specialists in the subject areas, regardless of point of view, written in layman's language. Each edition contains 20 to thirty perspectives on the subject - a typical volume might contain articles from both the Sierra Club and the Canadian Pulp and Paper Association, for example.*

The publications are distributed, as a public service, to political leaders, school teachers, NGO's, the forest industry, forestry students, and the media. Where there is controversy, our aim is to present balance, to help our readers formulate their own positions based on exposure to the best available information.

The availability of credible, balanced, sound information on forestry issues will be an absolute necessity for meaningful public participation in decision making.

Summary

In summary then - yes, we are on the road to sustainable development. Some might argue that we have not travelled far enough; others might caution us to proceed slowly and carefully. It is a journey, and along the way we may waver, or stumble, or meander, or even take a few steps backwards. With public scrutiny and self discipline we will soon be back on the right track.

Several obstacles must be overcome if we are to come closer to our destination:

1. *We need a national forest values database,*
2. *We need a comprehensive land use strategy,*
3. *We need more opportunities for public participation,*
4. *We need better informed Canadians to ensure that the decisions we make are the ones that will lead us towards our goal,*
5. *We need less conflict and greater cooperation.*
6. *We need to implement the recommendations of the National Forest Strategy.*

The federal government can and should take a leadership role in all of these.

Appendix XVII

Making Trade Free and Green

Environmental issues need not conflict with free trade, argues **Jean Charest**

Free trade must be environmentally sound trade

Trade and the environment are increasingly major concerns in international relations. In recent years, we have been coming to a new understanding of them, and of how they bear on each other. On the one hand, we have the industrialised countries of the North who seek to avert threats to the global environment – urgent problems such as global warming, deforestation, ocean pollution and species loss. On the other hand, we have countries of the South who seek to emerge from the cruel cycle of poverty, and claim for their peoples the same economic security enjoyed by the industrialised world.

Trade a key tool

Both North and South see trade as a key tool for achieving their goals, but can the same tool serve for such different ends? There are those who doubt that it can. Some fear that trade liberalisation would undermine the fragile economies of developing nations, or subvert the environmental protection efforts of developed countries. Others fear that environmental concerns may give rise to a new wave of protectionism, swamping our efforts towards increased free trade.

I would argue otherwise, however. More free trade is what we all need. We also need environmental protection. If we implement both intelligently, they will help to safeguard the global environment, and will also help promote prosperity in developing and developed nations.

If we simply establish strict environmental conditions for international trade, we might satisfy the wishes of people in the developed countries. But the cost might then be borne by the economies of developing nations, which might no longer be able to compete in the global trading system.

On the other hand, if we abolish all barriers to trade overnight, we could spur development in the countries of the South. But uncontrolled development and population growth would destroy the environment in those countries and ultimately throughout the planet.

Trade policy

Instead, governments and the private sector must make environmental considerations a formal part of the process of developing and implementing not only economic policy but, more specifically, trade policy. And we must make trade considerations a part of the process of developing and implementing environmental policy. If we do this, trade liberalisation will help us implement sustainable development. That is, it will promote a healthy environment and a healthy economy for all countries.

We are starting to see that integration in our international trading system. For example, the General Agreement on Tariffs and Trade, or GATT, has reactivated its Working Group on Environmental Measures and International Trade. This group evaluates how the GATT deals with trade and the environment. Among other subjects, it is

examining the use of trade measures in multilateral environmental agreements, and how these measures relate to the GATT.

At the same time, environmental policy must take into account trade considerations. One way of doing that is by harmonising the environmental policies of different countries. This makes sense on environmental and economic grounds. It would also help reduce the unilateral use of trade measures to complement a country's environmental policies.

International co-ordination

We need international co-ordination on transboundary and global environmental problems. Within a short time, the world community has made major strides in that direction. An example is the 1987 Montreal Protocol on the Ozone Layer.

The international community is recognising the need for multilateral conventions of this type to address global and transboundary environmental problems. The multilateral approach eliminates the pressures for unilateral action, and so it reduces the risk of conflict between environmental and trade policies.

Less generally accepted is the need to co-ordinate policies and standards in dealing with domestic environmental issues. Here too, however, co-ordination can help reduce trade-environment friction.

Governments should also prefer environmental policies that cause the least distortion to trade. An example would be labelling programmes to designate consumer products and services with reduced environmental impact. On both sides, therefore, we must seek to achieve compatibility in trade and environmental policies.

An international body working to foster that compatibility is the Organisation for Economic Co-operation and Development. The OECD has formed a joint working group of experts charged with drafting guide-lines for governments on trade and the environment — an effort that Canada firmly supports.

Any such guide-lines must take into account the special concerns of developing countries. Their hopes for higher living standards largely depend on a free world trading system. They would be devastated by a return to protectionism. And like their living standards, their environmental standards have not yet risen to meet those of industrialised countries. Accordingly, global environmental agreements must provide for their special needs.

The Montreal Protocol does so. In its timetable for phasing out ozone-depleting substances, it gives extra time to developing countries with a lower per capita consumption of those substances. It has also created a Multilateral Fund to furnish technological and financial assistance to developing countries in the phase-out process.

Countries of the South have been pushing for sharply increased assistance of this kind. But ultimately, this is not enough to eliminate the problems of poverty and low environmental standards in developing countries. Instead, the long term solution is freer trade between the industrialised North and other countries.

North American Free Trade Agreement

These concerns all play a part in the current negotiations on a North American Free Trade Agreement, or NAFTA. The negotiations are proceeding in a format that ensures due consideration for environmental factors.

The result of this approach will be a North American Free Trade Agreement consistent with the principles of sustainable development. In addition, NAFTA will promote economic growth in Mexico, providing the resources to enable that country to enhance its environmental protection.

I firmly believe in NAFTA, and am convinced that the agreement we reach will be good for the environment and economy of all three countries. I also believe it will establish a model of partnership between developed and developing nations.

What we see, then, is a coming together of different elements to produce a more effective approach — one ensuring that trade and environmental concerns are compatible. And the key is to change the way we make decisions and formulate policies. If we do that, the result will be renewed prosperity and environmental health for the world.

Honourable Jean Charest is Minister of the Environment, Government of Canada.

Appendix XVIII

Canadian Intervention
FAO Committee on Forestry, March 9, 1993

Item 6
Forestry and Sustainable Development:
UNCED Outcome and implications for FAO's Forestry Programmes

Jean Claude Mercier
Deputy Minister, Forestry Canada

Mr. Chairman; Thank you for the opportunity to share Canada's views on this important topic. UNCED was a very important landmark event in the continuing evolution of international deliberations on global forests. There is no doubt that global forests are on the international political, social, environmental and community level agenda and this agenda is highly fractionated. While there was considerable polarization of views on the global forests, the Rio Summit marked the first consensus on the conservation, management and sustainable development of forests and formulated the Forest Principles and an international plan of action and cooperation under Agenda 21, Chapter 11. In spite of many shortcomings, Canada considers these outputs as an important point of departure towards meeting our collective interests on global forests.

Mr. Chairman, in my brief remarks, I would like to address three topics. First, comment on the evolving debate on global forests; second, describe Canada's follow-up action to UNCED on issues related to forests, and thirdly, our expectations of FAO's contribution to the issues and opportunities related to global forests.

On the evolving deliberations on global forests, Mr. Chairman, I am pleased to note that during the preparatory process leading to UNCED, the debate evolved from "Combatting Deforestation" to "Conservation, Management and Sustainable Development of Forests". "Combatting Deforestation" is a rather negative way of addressing the global forests issues and opportunities; but when one considers that placing forests on the UNCED agenda was not prompted from the forestry but from a narrow environmentalist perspective, it is not surprising that the global forests debate was framed in these terms. Unfortunately, during the early stages of the UNCED process, the forestry community was largely absent in these deliberations and consequently unable to present a more positive perspective on the global forests issues as well as opportunities. I am pleased to note that the Canadian delegation played a very active role in restructuring the debate and in engaging the world forestry community in these deliberations.

Mr. Chairman, we now face the challenge of where do we go post-UNCED? I would like to propose two themes in this regard. First, the forestry community must take the lead in formulating, managing and delivering on the future global forestry agenda. Secondly; the global forests should be cast not in terms of an issue but also as an opportunity and a challenge, i.e., how do we, the forestry community, meet the socio-economic, cultural and environmental needs of the expanding population from a shrinking resource base. We must advocate the view that we, the forestry community, are concerned with meeting the basic human needs; including fuel, food, fibre, economic development, employment, education, environment and shelter. Forests do provide a wide range of benefits, and we must view our contribution as impacting well beyond the forests and the millgate.

In Canada, we have taken the Rio outputs on forests very seriously and we are in the process of implementing these both domestically and internationally. Firstly, at home, Canada will be implementing the Forest Principles and Agenda 21 through our new National Forest Strategy formulated in 1992; the latter is highly convergent with both these key forest outputs at UNCED. In Canada, the Federal and Provincial Governments, industry and the NGOs have all committed to implement our action plan and modify our forestry practices towards sustainable forest management. We are also reviewing all relevant policies to align them with our UNCED commitments. As well, we have established new model forests where we will experiment with innovative approaches to practice sustainable forestry.

Internationally, Canada will continue to assist developing countries to implement Agenda 21 for forests and the Forest Principles through the programmes of the Canadian International Development Agency and the International Development Research Centre. In addition, at Rio, Canada committed itself to establishing model forests in partnership with three other countries. This initiative will be developed as a mechanism to share experience two ways with international partners.

Under the auspices of the Conference on Security and Cooperation in Europe, Canada is also organizing an important seminar on sustainable development of boreal and temperate forests, to be held in Montreal from September 27 to October 1, 1993.

We, the forestry community, also need to involve ourselves with the deliberations on the convention on Combatting Desertification. We also need to address emerging issues such as soil and water conservation as well as the rehabilitation of degraded lands to pastures, agricultural land, and forestland. Only by involving ourselves with these critical issues that address some of the basic human needs, would we progress towards conservation and sustainable development of global forests. We must take the lead where our particular competence and knowledge are needed in the development of policies and action plans to resolve these global problems. This will demonstrate the required degree of commitment and our leadership.

The relationship between conservation and sustainable forest development and international trade in forest products is another emerging issue. Green consumerism is increasing and the market is now sending green signals. We must respond to the green market signals by formulating internationally accepted, scientifically based criteria for sustainable forest development, and from these formulate national guidelines on the conservation and sustainable development of forests. We are convinced that sustainable forest development will take place through profits and incentives and not through punitive actions. Recent deliberations with regard to labelling at GATT once again highlight the need for national guidelines based on internationally-accepted criteria for sustainable development of forests. We hope FAO expertise will be involved in this initiative.

The present international institutional structure will be hard-pressed to respond to these post-UNCED challenges. From Canada's perspective, the United Nations Commission on Sustainable Development has a particularly important role to play in serving as a point of focus on following up on our collective commitments for forests made at UNCED.

We need to maintain the UNCED momentum on the international dialogue to address global forest issues. The proposed initiative of a World Commission on Forests and Sustainable Development, as discussed at the recent meeting on Global Forests in Bandung, Indonesia, and presented by the Indonesian delegation this morning has many of the elements which appear to address the concerns of both North and South. Canada is particularly attracted to the notion of a Commission, which would be time-limited, and independent in its deliberations, yet would report to the global community through the UN. In our view, such an initiative may provide the necessary forum for UNCED follow-up and may have the potential to significantly advance the dialogue and partnership on global forests.

Turning to the specific item of the implications of UNCED follow-up to the FAO, Canada is appreciative of the contributions of the FAO Secretariat in preparing for Agenda 21, on chapter 11.

In Canada's view, the FAO has essential <u>supportive</u> role within UN system for following up the results of UNCED. COFO is the main opportunity for the forest community to give guidance to the organization in formulating the next programme of work and budget, for the 1994-95 biennium.

UNCED has clearly set out the magnitude of the challenge for sustainable forest development. The task is enormous and with limited funding, the organization will have to set priorities, based on its experience, expertise and comparative advantage.

Canada *generally* concurs with the list of priorities presented by the Secretariat for incorporating sustainable development in the organization's programming from a forestry perspective as outlined in paras 29 through 44. However, not all of these priorities can be addressed within the framework of existing resources. Some tough choices will have to be made.

Canada recommends that in view of FAO's mandate and the organization's limited resources, the organization should concentrate on four areas, i) policy advice for the management, conservation and sustainable development of forests; ii) national capacity building; iii) formulating approaches to the conservation and utilization of biodiversity; and iv) the formulation of criteria and indicators for forest sustainable development. The World Forest Resources Assessment provides a vital component in FAO's capacity to contribute in these areas.

Document COFO-93/8 reviews the organization's response in rather general terms. We look forward to the Secretariat response in defining priority actions in considerably more detail, as the approval process proceeds through the governing bodies.

In summary, Mr. Chairman, the world forestry community stands at an historic point, and as pointed out in the Deputy Director General's address yesterday, we need to emphasize the role of forests in meeting basic human needs. UNCED's Agenda 21 has clearly laid out the challenge for forests. The Forest Principles provide guidance as to how this challenge should be met, yet the forestry agenda post-Rio remains highly fractionated. To respond to this challenge, the forestry community and the FAO need to become actively engaged in formulating, managing and delivering on the future agenda on global forests. Secondly, the forestry community needs to find ways of making forestry better serve the present and future basic needs of humankind on a sustainable basis. Fellow delegates, we only have a short window of opportunity of two-to-three years. It is we of the forestry community assembled here and elsewhere who need to establish a true governance for forests reflective of the enormous importance of our issue, based on principles of sovereignty and international cooperation. It is up to us to make certain that the FAO is fit to serve us in facing this challenge.

Appendix XIX

Government of Canada | Gouvernement du Canada

news release

Date December 23, 1992 No. 244

For release

UNITED NATIONS ESTABLISHES COMMISSION ON SUSTAINABLE DEVELOPMENT

External Affairs Minister Barbara McDougall and Environment Minister Jean Charest today welcomed the adoption by the United Nations General Assembly of a resolution establishing the Commission on Sustainable Development. Canada has played an active role throughout the discussions leading up to the establishment of the Commission.

"The global character of environment problems means that no nation can act in isolation. We all face common sets of problems that need new co-operative efforts if we are to deal with them," said Mrs. McDougall. "This Commission is a significant step forward in getting the world community to organize itself to better deal with the challenges of sustainable development."

"Canada looks forward to open and constructive exchanges with other members of the Commission on their action plans for Agenda 21," said Mr. Charest. "Canada is also committed to sharing its Green Plan experience with other countries as they prepare their sustainable development plans."

The Commission has been given a comprehensive and forward-looking mandate regarding the implementation of Agenda 21, the principal document agreed to by world leaders at the June 1992 Earth Summit in Rio de Janeiro. In addition, its mandate will cover the Rio Declaration on Environment and Development, the Guiding Principles on Forests, and new co-operative arrangements related to sustainable development. Canada will look to the Commission to build international co-operation on forests and fisheries and to provide impetus to the development of international environmental law.

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For further information, media representatives may contact:

Media Relations Office
External Affairs and International Trade Canada
(613) 995-1874

BACKGROUNDER

UNITED NATIONS COMMISSION ON SUSTAINABLE DEVELOPMENT

The United Nations has established a high-level Commission on Sustainable Development to guide implementation of Agenda 21, a comprehensive strategy for global action on sustainable development, and other agreements negotiated at the United Nations Conference on Environment and Development (UNCED).

UN Secretary-General Boutros Boutros-Ghali announced on December 4, 1992, that the Secretariat of the Commission will be located in New York in the new Department of Policy Co-ordination and Sustainable Development. The Department will be headed by Nitin Desai (India), who served as Deputy to Maurice Strong, Secretary-General of UNCED.

How the Commission Will Work

The Commission will be made up of high-level representatives of 53 states elected from the UN member states. Membership will rotate among governments and will be drawn equitably from various geographic regions. Canada will apply for membership to the Commission during the February 1993 organizational session of the UN Economic and Social Council (ECOSOC), of which the Commission will be a subsidiary body.

The Commission will:

- monitor implementation of Agenda 21, recognizing that it is a dynamic document that could evolve over time;
- promote incorporation of the principles of the Rio Declaration and the Guiding Principles on Forests in the implementation of Agenda 21;
- consider implementation of Agenda 21 by governments, on the basis of information provided by them, including problems relating to financial resources and the transfer of environmentally sound technology;
- review commitments made by donor countries in Agenda 21, including the provision of new and additional financial resources and the transfer of technology on favourable terms;
- review and analyze relevant input from competent non-governmental organizations, and enhance the dialogue with non-governmental and independent sector groups; and
- work with other UN agencies to integrate principles of sustainability throughout the UN system.

Timetable of Meetings

The Commission will be formally established and its members elected at the organizational session of ECOSOC, February 2 to 5, 1993. An organizational session of the new Commission will be held in New York,

possibly in February 1993, to elect officers and decide on the agenda of its first substantive session planned for New York during the May/June 1993 period. The location of future meetings is still to be decided.

It is expected that rules of procedure for non-governmental organizations (NGOs)' participation will be considered at the organizational session of ECOSOC, in time to permit NGO involvement in the Commission's sessions. Canada is very supportive of NGO involvement in the work of the Commission and has played a significant role during negotiations to ensure their active participation.

Program of Work

The Secretary-General will submit proposals for the Commission's program of work to its organizational session. At the same time, the UN General Assembly recommended that the Commission adopt a "multi-year thematic program," setting particular issues in Agenda 21 as priorities each year.

The Assembly recommended that, to ensure an integrated approach to environment and development and to link sectoral and cross-sectoral issues, the Commission's work could be "clustered" as follows: financial resources and mechanisms; the transfer of environmentally sound technology; capacity-building; and implementation (at international, regional and national levels) of Agenda 21 and relevant environmental conventions.

A high-level meeting, to include government ministers, would also be held as part of the Commission's annual session to provide an integrated overview of implementation of Agenda 21 and to consider emerging policy issues. This meeting is intended to give political impetus to the decisions taken at the Earth Summit and to the fulfilment of commitments made there.

Canada's Priorities for the Commission

Canada's key substantive priorities for the Commission include:

- building international co-operation on forest management, conservation and sustainable development of all types of forests;
- providing impetus for the development of new international environmental law;
- ensuring transparency in the Commission's work by involving Indigenous groups, business, scientists and all major groups; and
- supporting the work of the UN Conference on High Seas Fishing.

Appendix XX

THE WOODS HOLE RESEARCH CENTER

The Woods Hole Research Center, founded in 1985, addresses global environmental problems generated by the expansion of the human enterprise over a finite earth. The Center's purposes are discovery and management: formulating principles that govern nature and helping to draw the actions and laws of people into congruence with the laws of nature. The tools are basic research in ecology, policy analysis involving science applied to public affairs, and education. The subject is ecology, applied to the common interest in a habitable earth. The Woods Hole Research Center is a non-profit and non-governmental institution which enjoys a tax-exempt status conferred by the U.S. Government.

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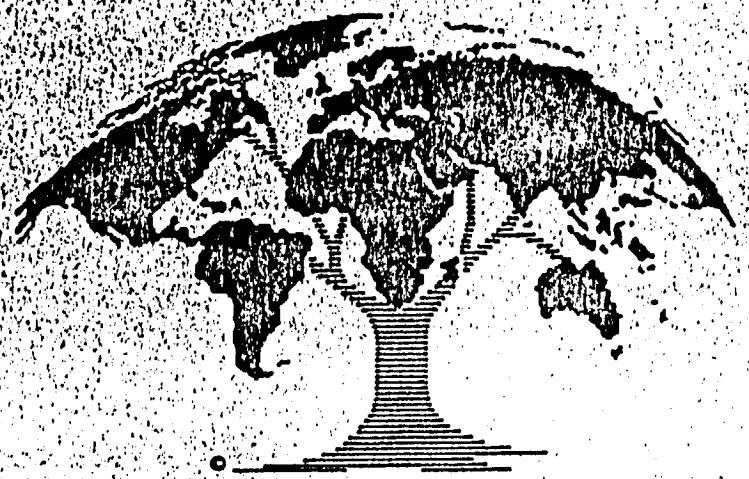
REPORT OF THE WORKSHOP ON THE CONSERVATION AND UTILIZATION OF WORLD FORESTS

OCTOBER 17-20, 1991
WOODS HOLE, MASSACHUSETTS



THE WOODS HOLE RESEARCH CENTER

REPORT OF THE WORKSHOP ON THE CONSERVATION AND UTILIZATION OF WORLD FORESTS

Kilaparti Ramakrishna George M. Woodwell

The Woods Hole Research Center
Woods Hole, Massachusetts
1991

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FOREWORD

The critical observation that led to discussions at The Woods Hole Research Center reported in the following pages was that in no case has there been political progress in addressing environmental issues internationally without a consensus from the scientific community as to the definition of the problem and an equally clear definition of potential solutions.

There is a conspicuous evolution of interests in forests that extends far beyond common commercial interests. The new interests are strong enough that efforts are underway to formulate a non-legally binding authoritative statement of principles on forests to be adopted at the United Nations Conference on Environment and Development to be held in Brazil in June, 1992. The discussions reported here were to speed the process of reaching a constructive international convention on forests by investigating and articulating related scientific and economic issues.

The first step was the preparation of a series of papers as background for the Workshop. These papers were prepared as a book distributed at the meeting. The book will be published by the Yale University Press.

The statement that follows is based on the discussions at the two and one-half day meeting organized by The Woods Hole Research Center in Woods Hole, October 18-20, 1991, the background papers prepared for that meeting, and the experience of the authors.

Drafts of the statement have been reviewed by Jayanta Bandyopadhyay, Ian Burton, F. Herbert Bormann, Rudolf Dolzer, Alan Hecht, Richard Houghton, Jag Maini, Norman Myers, Salleh Mohamed Nor, Ola Ullsten and Bernardo Zentilli.

Kilaparti Ramakrishna George M. Woodwell

The Woods Hole Research Center
Woods Hole, Massachusetts
December 1991

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REPORT OF THE WORKSHOP

I. INTRODUCTION: AN INTERNATIONAL COMMISSION ON THE CONSERVATION AND UTILIZATION OF WORLD FORESTS

The nations of the world agree with the overall objective of a global consensus governing forests: a cessation of forest destruction and a global shift to sustainable forest management and conservation. Currently, efforts are underway to conclude a non-legally binding, authoritative statement of principles on the conservation and utilization of all types of forests to be presented at the United Nations Conference on Environment and Development in June 1992. These efforts will lay the foundation for a convention on the conservation and utilization of world forests. Such a convention is a prerequisite to reversing current global trends toward biotic impoverishment and to preserving forests for present and future generations.

Yet, questions arise as to how a shift to sustainable forest management might be implemented. Unless clear incentives that support the sustainable use and conservation of forests on the local, national, and regional levels exist, there will be no progress. Those incentives must form part of the strategies aimed at supporting the role of forests in the global environment. Basic technical questions about how the world works remain: are forests necessary? If forests are necessary, how much and what kind, where and for what?

The conclusion of an effective formal convention among nations will require far more systematic and probing analyses of scientific and economic issues than are available currently. Such analyses are sufficiently complex and urgent that they should be pursued immediately by an International Commission on the Conservation and Utilization of World Forests charged specifically with the responsibility for recommending details of international action appropriate to the current forest crisis. The searches for scientific and political agreement can and should be complementary. The continuation of scientific and economic analyses of forests and forest management should not preempt or slow continued political progress toward a convention. This conclusion was the product of a two and one half day workshop held in Woods Hole, October 17-20, 1991 attended by specialists from around the world.

II. SOCIO-ECONOMIC ISSUES

Participants recognized the need to decrease deforestation, increase area in forests, and to promote the sustainable use of forests through proper forest management and other land use practices. The goal of such actions is in part to maximize social and economic benefits of forests, to minimize adverse social and economic effects of unsustainable uses of forests, and to protect the interests of indigenous populations. Participants also recognized the need for the dissemination of information on sustainable forest management and for improved analysis of management practices.

A. Forest Products and Services

* World forests have a two-fold function in environment and development: (1) to meet needs of an expanding population for wood and other forest products; and (2) to provide various ecological and biological services.

* The use of a diversity of products from forests is one important factor in local and regional economic development.

* The sustainable use of forests is enhanced by the consideration of forests as ecosystems that can provide a greater number of products and services than timber and fuelwood.

* The high biodiversity of forests, especially in the tropics, yields a continuing flow of new foods and pharmaceutical products. It is necessary to stop the further impoverishment of the landscape which occurs not only through the loss of species, but also through the systematic replacement of forests by shrublands or lesser vegetation, and through the impoverishment of soils.

* The evaluation of the goods and services of forests is problematic; economic theory appropriate to sustainable use of forests must be developed.

* Forests contribute to the stabilization of the composition of the atmosphere by preserving carbon pools in trees and soils. They also help stabilize landscapes, drainage basins, water flows and water quality. The warming of the earth and its apparent ties to all types of forests as both cause and potential cure of the accumulation of heat-trapping gasses has brought new attention to what might be called the global "common property values" of forests as opposed to local and/or national economic interests in using forests as a natural resource.

* Forestry is moving from attempts at sustained yields of timber and pulp to planning for sustainable use of landscapes; forestry is also moving to approaches that incorporate ecological and environmental considerations into planning for long-term use of landscapes for support of finite numbers of people. Such changes should be supported and expanded locally, nationally and internationally.

B. Indigenous Peoples

* An interest in proper forest management also extends to the protection of indigenous people of forests, wherever they live, their cultures and their rights to a wholesome habitat.

C. Appraisals of Forests and Forest Management

* Ecological and commonly recognized economic values must be incorporated into appraisals of forests, including classical forest inventories.

* Forest values not commonly measured monetarily must be incorporated in decisions on forest utilization and evaluation, taking into account the consumptive and non-consumptive uses of forests.

* The relationships between economic policies and land-use change are not well defined or recognized. Further investigation is required.

D. Information Dissemination

* There is an urgent need for information at all levels on forest management and conservation.

There are fundamental scientific and economic questions, not yet answered, as to how to maintain biotic environmental services, productivity of the land and water, and a healthy and stable environment while supporting large numbers of people in an industrial society. These issues involve the definition of limits on intensity of human use. What are they, how can they be recognized, and how can they be defined in such a way as to be recognized and respected? Current negotiations appear to be stalled on such issues.

III. SCIENTIFIC FACTS

Forests are the major natural vegetation type of much of the habitable portion of the earth; they have a large influence on local, regional and global climates, water supplies and mineral nutrient budgets; they are habitat for most of the earth's terrestrial species; and they harbor in indigenous populations a rich endowment of specialized knowledge not yet shared with a world largely ignorant of forests. Participants recognized that forests also stabilize land, water flows, and the composition and quality of the atmosphere.

A. Forests and the Global Carbon Cycle

* The forests of the world hold in their plants and soil on the order of 1200 BMT (billion metric tonnes) C, 60% more carbon than is contained in the atmosphere at present.

* The metabolism of temperate zone and boreal forests is largely responsible for the seasonal oscillation in the concentration of carbon dioxide conspicuous in the atmosphere of the northern hemisphere. Annual photosynthesis and respiration in forests transfers an amount of carbon dioxide equivalent to 12-14% of the atmospheric content of 750 BMT.

* Human use of forests, including deforestation, reforestation, and degradation of forests, is responsible for a net release of between 1.5 and 3.0 BMT C to the atmosphere annually. Over the last century, deforestation has contributed about 125 BMT to the atmosphere, somewhat less than the amount released from worldwide combustion of fossil fuels over that same period (about 200 BMT C).

* Reforestation of large areas (about 1000 X 10^6 ha) thought to be suitable for reforestation might accumulate on land between 100 and 150 BMT C over the next 50 to 100 years. Once those forests were grown they would continue to hold the carbon accumulated but would accumulate no more.

B. Forests, Water and Climate

* All types of forests influence local, regional, and, perhaps, global climate through their influence on evapo-transpiration and water transfers in soils. Tropical forests are thought to be particularly important in global climate because a large amount of the energy leaving these forests is latent energy, and because the tropics are such an important source of the energy that drives atmospheric circulation.

C. Downstream and Downwind Effects of Forests

* Forests hold nutrients, thereby preventing downstream eutrophication.

* They regulate flows of water, reducing floods.
* They reduce both wind and water erosion.
* They stabilize soils.

D. Biodiversity and Impoverishment

* Forests in all latitudes are the major reservoirs of the diversity of plants and animals on land. The replacement of forests by shrub or grass communities usually involves a loss of species, a reduction in primary productivity, and may involve a long term, possibly permanent, loss in the potential of the site for support of life. These transitions constitute impoverishment.

* The number of species on earth is not well known, but their value in maintaining the integrity of the human habitat is well established, despite frequent assertions to the contrary. In addition the potential of plants and animals for pharmacological and agricultural uses has barely been tapped.

E. Cultural Knowledge

* Forests are also the home for numerous indigenous peoples who also have rights to survival and whose knowledge of the forest, its species, and functions are an essential part of any program for sustainable use of forests or the human habitat.

F. Changes in Forests from Climatic Change

* Uncertainty accompanies predictions of the effects of warming the earth on forests and their storage of carbon. If the warming progresses as rapidly as it has during the past two decades (approximately 0.2 degree C/decade) all forests and their soils will almost certainly be impoverished. Forests and tundra can be expected to lose carbon to the atmosphere. The process appears to be underway at present.

* If the warming occurs at a slower rate approaching 0.1 degree/century, we would expect forests to adapt to the changes, possibly to thrive, all other factors being equal.

* A rapid warming is expected to release carbon (as both carbon dioxide and methane) to the atmosphere from increased rates of decomposition and respiration. The effect is expected to be greatest in boreal and temperate forests where the greatest warming is predicted, and where the greatest stores of soil organic matter are found (stores approaching the carbon content of the atmosphere).

* Increasing concentrations of carbon dioxide in the atmosphere may tend to increase the storage of carbon on land. But, the effect is expected, under present projections of the

rate of warming, to be substantially less than the effect of the warming on rates of respiration, including decay.

* Changes in hydrology or soil moisture are also expected to change the storage of carbon on land. Drier conditions may reduce carbon storage; wetter conditions may increase storage. Tropical forests, especially seasonal and dry forests, are believed to be most sensitive to changes in evaporation and precipitation.

IV. LAW AND POLICY ISSUES

A. International Regulation of the Conservation and Utilization of World Forests

* There is an urgent need to adopt an international instrument covering the utilization and conservation of all types of forests that takes into account all of their functions. The moment for such an agreement appears to be now. Efforts in that direction are hampered in part by the lack of consensus in science and on the fundamentals of what the issues are and what should be done. They are hampered also by an inability to offer appropriate appraisals of the full costs of any action, including inaction.

* A review of international agreements indicates that, with the exception of the

International Tropical Timber Agreement, forest conservation and utilization has never been the topic of international legal negotiations. Despite this fact and the desire expressed in different fora for the adoption of a convention on forest conservation, the community of nations is not prepared to negotiate a specific convention on forests. There are several reasons, but one is the simple reason that the questions posed as the basis for this Workshop have not been addressed: there is no broad consensus as to the economic or scientific details necessary for the conclusion of an international convention on forest management. While there is every reason to proceed rapidly and globally in the preservation of the earth's remaining forests and in the re-establishment of forests over large areas, participants recognized that the process will be continued over a long period of time and will require a flow of analyses, data, and discussion around the world not yet available. To speed this transition participants in the Workshop recommended the establishment of an international commission to address the management of forests globally.

B. An International Commission on the Conservation and Utilization of World Forests

The Need for a Commission

* Workshop participants concluded that there is an urgent need for an enhanced consensus in science on issues concerning sustainable forest management and conservation. Economic analyses of forests and forest management must also be pursued vigorously. Participants felt, however, that searches for scientific and political agreement can and should be complementary. Further analyses in the science and economics of forests and forest management should not preempt or slow continued political progress.

* An International Commission on the Conservation and Utilization of World Forests would be established with the immediate objective of speeding the convergence of the views of scientists and politicians around the world and of identifying the issues for a possible international instrument on forests. A Commission would be seen as part of a process that would eventually lead to the framing of a convention on forest utilization and conservation.

* Recent examples of such opinion-forming studies could be found in Atmospheric

Ozone 1985-- the report of an internationally coordinated scientific exercise, the World Commission on Environment and Development's report Our Common Future, and the First Assessment Report by the Intergovernmental Panel on Climate Change (IPCC). The atmospheric ozone panel's report stimulated the political action which resulted in governments taking steps to protect the ozone layer. Likewise, Our Common Future solidified support for the United Nations Conference on Environment and Development which will take place in June 1992. Adding to this precedent, the IPCC's First Assessment Report helped generate the needed scientific and political support for the negotiation of a convention on climate change.

* The formation of an International Commission on the Conservation and Utilization of World Forests which draws upon the strengths of similar initiatives appears to be the most practical way of obtaining appropriate answers to the scientific and socio-economic issues raised in this document. An International Commission on the Conservation and Utilization of World Forests would also help form the coalition of interests needed for a convention on all types of forests.

The Mandate of the Commission

* To call upon the scientific community to define the importance of forests in maintaining the human habitat globally and to see that such definitions are quantitative: how much forest is there now? how is it changing? where is it? what must be done to assure that forests continue to exist and to perform their functions, not only in providing food, fuel and fiber, but also in maintaining the common interest in a human habitat not subject to progressive impoverishment.

* To see that the global, regional and local common property values of all types of forests are defined both scientifically and economically and that these values and costs enter decisions that would change the area, structure or function of forests.

* To define and protect the interests, knowledge, and rights of indigenous people of forested zones.

* To define forest sustainability in ecological and economic terms.

* To investigate scientific, economic and policy-related aspects of the conservation and utilization of all types of forests.

* To synthesize the current state of knowledge on 1) the ecological, economic and social value of forests; and 2) sustainable forest management.

* To stimulate further scientific research on the ecological, economic, and social value of all forests on local, regional and global levels.

* To advance a new, more informed view of all types of forests on a global scale, not just of tropical forests.

* To identify needed transfers of financial and technical resources from industrialized nations to developing countries and recommend suitable mechanisms to accomplish this transfer.

* To develop criteria for sustainable forest management and guidelines for forest managers. These guidelines should include an emphasis on local training and capacity building.

* To serve as a forum for governments to make commitments to forest protection and sustainable use.

* To promote bilateral and regional cooperation among countries on research and sustainable forest management practices.

* To study, define and suggest a system for monitoring land-use on a global basis which complements similar structures likely to be established under the climate and biodiversity conventions.

* To review the existing institutions and propose new ones where needed.

The Formation and Composition of the Commission

* The Commission should be an independent group of eminent individuals with scientific and/or policy backgrounds who will serve in their own right and who will as a group reflect the diversity of humanity.

* The Commission should provide a means for contributions from independent sectors.

* The Commission might be expected to serve as an expert advisory group to the negotiations.

Financing the Commission

* The Commission should be able to raise money from independent sources, including governments, intergovernmental organizations and private foundations.

C. Regional Initiatives on the Conservation and Utilization of World Forests

* Existing initiatives for increased cooperation among countries that share the Amazon should be strengthened.

* The formation of an International Boreal Forest Association requires full international support.

* A Continuous Global Forest Inventory (CGFI) project with an ecosystem component which would provide a holistic view of humans, land and forests should be established to keep a continuing flow of objective data for forest management.

V. CONCLUSION

There is general agreement on the urgency of defining and protecting the remaining forests globally. The urgency is attached not only to the role that forests have in determining details of the composition of the atmosphere, the stabilization of landscapes, water flows and water quality, but also to their role as the major reservoirs of biotic diversity in all latitudes, and as the habitat of diverse indigenous populations. The information available, however, on both the economic and ecological implications of changes in the area and management of forests is inadequate at the moment to support the details of more than the most general international agreement on forests.

The most constructive step at the moment is the establishment of an International Commission on the Conservation and Utilization of World Forests to address the issues over a period of 2-3 years with the specific mandate to stimulate the fusion of ecological and economic interests in forests to provide both details of the problem and of the potential solutions. The problem is sufficiently urgent that action might well precede the United Nations Conference on Environment and Development.

AGENDA

FRIDAY, OCTOBER 18

Introduction: George M. Woodwell, The Woods Hole Research Center, USA

Session 1: The Scientific and Technical Issues: What are the global, national, regional, and local interests in forests? What will be required to define these quantitatively? How can forests be maintained in an expanding economy?

Chair: John Cantlon, Chairman, Board of Directors of the Woods Hole Research Center

Rapporteur: Philip Fearnside, Instituto Nacional da Pesquisas da Amazonia, Brazil

Session 2: The Scientific and Technical Issues: (Analysis continued)

Chair: Bill Schlesinger, Department of Botany, Duke University, North Carolina, USA

Rapporteur: Jayanta Bandyopadhyay, International Centre for Integrated Mountain Development, Nepal

Session 3: The Scientific and Technical Issues: (Analysis continued)

Chair: Jag Maini, Forestry Canada

Rapporteur: 'Wale Adeleke, World Wildlife Fund, Switzerland

Session 4: The Scientific and Technical Issues: (Analysis continued)

Chair: Salleh Mohamed Nor, Forest Research Institute, Malaysia

Rapporteur: Carlos Nobre, Instituto de Pesquisas Especiais, Brazil

SATURDAY, OCTOBER 19

Session 5: Policy Issues: What are the global, national, regional and local policy issues in assuring the continuity of essential forest resources?

Chair: Alan Hecht, U.S. Environmental Protection Agency, Washington, D.C., USA

Rapporteur: Barbara Bramble, National Wildlife Federation, Washington, D.C., USA

Session 6: Policy Issues: (Analysis continued)

Chair: Rudolf Dolzer, German Bundestag's Enquete Commission, Germany

Rapporteur: Brooks Yeager, National Audubon Society, Washington, D.C., USA

Session 7: Policy Issues: (Analysis continued)

Chair: Ian Burton, International Federation for the Institutes of Advanced Study, Canada

Rapporteur: Dan Dudek, Environmental Defense Fund, New York, USA

Session 8: Policy Issues: (Analysis continued)

Chair: Ola Ullsten, Embassy of Sweden, Italy

Rapporteur: Nels Johnson, World Resources Institute, Washington, D.C., USA

SUNDAY, OCTOBER 20

Session 9: Conclusions and Recommendations

Chair: Kilaparti Ramakrishna, The Woods Hole Research Center, USA

Rapporteur: Richard Houghton, The Woods Hole Research Center, USA

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Appendix XXI

GLOBAL FOREST CONFERENCE

JAKARTA & BANDUNG

17-20 FEBRUARY 1993

"A Habitable Earth Needs Its Forests"

Speech on February 17 given by Ambassador OLA ULLSTEN
Sweden

A habitable Earth needs its forests. We must look after the world's forests as much as we need to look after other renewable natural resources. We need clean water to drink, fresh air to breathe and fertile soil for growing our crops.

But we also need our forests. In some northern countries forest products are a mainstay in rich economies. In my own country, Sweden, we get 50 percent of our net export earnings from our forests. In Indonesia, our host country, some 40 percent of her export earnings come from her forests.

In developing countries more than seven out of ten me. women and children depend on forests for their heating and cooking needs. Trees provide material for housing construction, furniture, fencing, tools and household implements.

In all parts of the world the forests are essential for an endless variety of necessities ranging from fodder for lifestock to nuts and honey. From providing raw material for the production of rubber to being the habitat of an enormous diversity of animal and plant species, which are crucial for finding remedies for diseases and improved methods for food production, among many other things.

We also know that forests have an impact on the world's climate. The warming of the earth, to which deforestation and combustion of fossil fuels are two of the most contributing factors, is the most intimidating of all scenarios of a collapsing environment. We know that cutting down the forests up-stream of big rivers aggravates flooding of huge areas of land. And that in other situations doing away with the forests is turning what was once fertile land into deserts, with all the misery this brings. Africa is suffering a lot from this phenonomen.

We need our forests. Although there is a lack of science regarding the role of forests in development as well as for the environment, it seems, however, clear to me that the more forests disappear the more desperately we need what is left. And the more effort is needed from us to stop further impoverishment of forest land. The list of economical and environmental services that forests provide exemplified above should be proof enough.

Estimates are that historically the global forest cover has been reduced by about one third, from an estimated 6,3 billion hectars to about 4,2 billion hectars. 180 million hectar forest cover has disappeared since 1980 according to the latest FAO-figures.

There are a lot of reasons why this trend will have to be reversed, and at least one of those reasons is indeed hard to argue against; we are already five billion human beings living on the Earth. In forty years' time the number of people will have doubled, and it will double again during the second part of the next century. People need forest products and more people will need more forest products.

In fact the rate of increase in the use of forest products is usually greater than the rate of increase in population. Current projections suggest that over the next three decades, the increase in demand of forest products will be about 3 percent annually, while the anticipated doubling of the population in four decades equals an annual growth rate of 2,5 per cent.

For the developing countries, many of which have excellent climatic and other conditions for growing forests this would look like a golden opportunity for improving their over-all economic situation. But in reality a number of developing countries which used to be net exporters of forest products have now become net importers. And since this trend is accelerating, we will also most likely see in the near future some of today's major forest producers ending up in the wrong statistical column. Simply because their sometimes desperate economic situation forces them to run their forests as if they were mines of limited capacity rather than an ever renewable natural resource.

Finding ways and means to introduce sustainable forest management, also in various kinds of tropical forests, is of course the answer to this and the core of the forest issue. Seen in its so often ignored development perspective, the key question should be: Taking into account the obvious increase in the demand of forest products, how do we meet that demand without exhausting the forest resource base?

This is, as I see it, putting the forest issue into the mainstream of economic development without ignoring the forests' ecological role. On the contrary, it may be a way of clarifying, better than we have been able to do so far, the true relation between those two dimensions of forest management.

This approach easily leads to the conclusion that there is no obvious contradiction between the environmental and the economical role of the forests. In fact there are few, if any, examples of an expression of environmental degradation that isn't also to the disantvanta of the economy. What happens to the forests is no exception. Turning forest land into something less productive is always negative for development.

The reasons why it still happens are many. One is the lack of understanding of the inter-action between economy and ecology that has been a characteristic of development from the time of the industrialization and onward. That's what the Brundtland report and the Rio Conference were all about. Another reason is poverty.

Today we all seem to understand this. The problem lies in the changing of direction. That takes investments that the poor countries can't afford and it takes a re-thinking of ingrained human goals and habits of which we so far have seen very few signs in any kind of society.

The impoverishment of the world's forests have ma causes. Temperate forests are falling victim to air born pollution and fires. Before the Iron Curtain was pulled down and we could see what had happened to nature on the other side of it, we used to suggest that forest destruction in the north was due to affluence, while in the south the main reason was poverty. Now we know that poverty, whether imposed by nature or by politics, or both, is a destructive agent wherever it appears.

The same goes for greed. Shifting cultivation practices of masses of poor people, in search of a bit of land to survive on, certainly is the main cause of tropical deforestation. But also unfavourable terms of trade in timber and other wood products play a role. Basically made possible by the fact that some countries are rich and others are poor, existing trade patterns, not only of forest products, put pressure on the forest resources

to the detriment of other factors, including bio-diversity and lots of other ecological services.

Thus, a lot of things will have to change. Current terms of trade, and even imposed bans on tropical timber, are only part of the parcel. Chapter 11 of Agenda 21 from the Rio Conference contains an impressive list of such changes, all of them with a price tag. The list is far from complete, but it represents a good start. The chapter doesn't contain any real commitments and it hardly reflects anything that could be called a "philosophy of forests", but it acknowledges many hitherto ignored problems.

And there is a message, although sometimes hidden in complicated language; whether seen from the point of view of its role as environmental agent or as an economic good, we need our forests. Thus the current loss of between 15 and 20 million hectars of useful forests annually is nothing less than a global disaster, which requires fast and firm counteraction by all of us.

Agenda 21 on the whole, even in its forest chapter, is also a call for action. The non-legally binding principles on the management, conservation and sustainable development of all types of forests, also adopted at Rio, provide the political framework for those actions;

- we need to respect the sovereign and inalienable right of nations to manage their forests in accordance with their development needs;

- we need to see the subject of forests in relation to the entire range of environment and development issues;

- we need to take into account the likely economic and social stress which will appear when forest use has to be constricted and restricted;

- we need more international financial co-operation, also through the private sector;

- we need to make use of already existing institutional arrangements for facilitating international cooperation in forestry;

The signatories have agreed to a prompt implementation of the Rio-principles and to keeping them under assessment for their adequacy for further international cooperation on the forest issues.

A review conference under the auspices of the United Nations General Assembly and the new Commission on

Sustainable Development is due to take place in five years time.

Between now and then there is both a golden opportunity and a need to take a fresh look at some of the key issues involved in developing a comprehensive and cohesive approach to the issue of Forests and Sustainable Development.

The Earth Summit did lay a good foundation for such an approach. Considering the circumstances, the negotiations at Rio were indeed successful. It would however be wrong not to admit that the debate on the principles also uncovered some deep seated differences between governments, industry, international organizations and NGO's which are yet to be addressed.

Some of these differences are obviously rooted in a lack of knowledge both in the North and South. We lack a solid base of scientific information. There are also gaps in our understanding of the social and econom environmental and political roles played by the forests in different communities and nations and at the global level.

We may ask ourselves: So what? Do we need an internationally agreed solid base of information on the world's forests? Do we need more political consensus between nations than is already expressed in the Rio documents? Isn't forest management and conservation a concern of people who live in the forests, and <u>of</u> the forests, something that local communities and national governments are there to deal with?

Yes, it is true. If a forest is well-managed or mismanaged as has been, and will always, depend on the ambitions, conditions, means and knowledge of local communities and national governments. Forests grow on land over which the international community doesn't have and shouldn't have control. Forests can't be run international bureauracies or governed by international regulations.

That isn't to say that the forest issue doesn't contain a global or an international dimension.

If it didn't, the forests wouldn't have been part of the Rio agenda. We wouldn't have had an International Timber Trade Organisation or a Tropical Forestry Action Programme. Nor would the United Nations have invited its members to report to its General Assembly on their performance in the forest area.

The international community does have a stake in the forest issue. An obligation to assist and a right to be concerned.

An obligation:
to guarantee unimpaired trade in forest products;

to provide technological transfer, financial and technical assistance needed to implement policies of sustainable forest management and conservation;

A right to be concerned:

about the role of forest in climate change and about the protection of the biodiversity of the forests;

about the spread of airborn pollution from one country damaging forests in another;

about watershed management with cross boundary consequences for peoples security and livelihood.

In fact, as I see it, the Rio-Conference acknowledged the need of a world strategy on forests and sustainable development, listed the areas that such a strategy would have to comprise, but stopped far short from completing a comprehensive and cohesive approach to the world forest issue.

Many still outstanding questions need to be answered before there will exist a base for such a strategy. What do we mean by sustainable forest managment in moist tropical forests? Who should pay for income forgone as a result of forest preservation that benefit humanity as a whole? Which is the future role of plantation forests in meeting the demand of forest products? Which role can restoration of degraded forest land play? How much natural forests need to be preserved?

Hence an obvious follow-up to the Rio-conference would be to try to find answers to those and other questions and search for the widest possibel consensus on policies to be pursued. A practical format for starting such a process would be for the Secretary General of the United nations to promote the establishment of a World Commission on Forests and Sustainable Development.

An Organizing Committée, in which I have the honor of working closely with Minister Emil Salem of Indonesia, has been established to promote this idea. The Committe, also comprises prominent members from many other tropical countries, leading scinetists in forestry and climate change as well as the Secretary Generals both of the Bruntdland Commission and the Rio Conference.

Minister Salim and I have met with the Secretary General of the UN to inform him about our idea. We are now in the process of seeking support from Governments, International Organisations, Industry and NGO:s. This conference is the first significant international forum to be informed.

The Committe suggests that the number of people in such a Commission should be limited to 20 to 25, representing countries with important forest resources as well as countries that are major consumers. The members should be independent eminent individuals with a background in politics, policy-making and sciences.

They should serve in their personal capacity and be asked to be ready to submit a report to the General Assembly in time for the earlier mentioned review of the Rio Principles.

What the Committe is proposing is not a new institution; it is not a body that would compete with any existing institutions or processes in the forest area; it is not a forum for intergovernmental negotiations; it is not a pretext for a forest convention or any particular institutional arrangements.

Nor is it meant to be an eternally ongoing process. When the proposed Commission has finished its report, it is to be dissolved and it will be up to the General Assembly, and ultimately to its member states, to support, or not, the Commission's conclusions and recommendations.

One purpose of the Commission would be to give the future of the world's forests more prominence on the international agenda. It would be an attempt to advance the forest issue as part of the mainstream of economic development. It can also be seen as a confidence building measure in this politically sensitive area.

There are a number of transcending themes against which the Commission would wish to examine the key issues, such as; interdependence, equity, sustainability and security.

As for interdependence the growing interlinkage between national economies, ecological and technological factors, communication, trade and political systems must be one of the main concerns of the commission;
A major implication in this context is of course that, as the interdependence increases, the ability of governments to deal unilaterally with problems on a national and local scale will diminish;

The difficult part in conceiving policies conducive to more sustainable forest management is not to analyse the various components that make up what we call interdependence. The difficult task is to put it all together in terms that are at once scientifically sound, politically acceptable and operational. That would be a formidable challenge for the Commission.

As for equity, the obvious problem facing us is that the countries that would be the ones most in need of a

sustainable use of their forests, the poorest, are the ones most likely to ruin their forest through unsustainable practices. How does the international community move from that observation to doing something about it. Action has to come soon, it will have to be substantial and pursued by ways and means acceptable to all parties concerned.

As for sustainability the Commission, still focusing on the forest aspect of development, would have to examine a range of policies in many directly relevant sectors such as agriculture, fisheries, industry, investment, trade and development assistance.

The problem of distorted trade patterns has already been mentioned. Other disturbing factors include subsidies, tax abatements, fiscal incentives and other kinds of policies that can rig the market not only against the economy, but also against the environment and, ultimately, against development itself.

Focusing on the forests also brings us to the area of security and environmental risks. In Bangladesh tens of thousands of people are constantly at risk of being drowned by floods caused by bad watershed management.

In Switzerland, mountain forests protecting villages from avalanches and valley cities from flooding are seen as the nation's first line of defense. Forest management plays a crucial role for the security of nations and for the safety of man.

We need our forests and we need a global strategy for the way to manage them. Not in order to tamper with either the rights or the responsibilities of local communities or national governments to pursue forest management in accordance with their development needs and priorities.

There is an acknowledged role to play for the international community, then there is also a need for an international consensus on how to pursue that role.

We do have bits and pieces of an international policy on forests; ITTO/ITTA which deal with timber and trade; TFAP which is primarily a mechanism for coordination of foreign assistance to the forest sector; the Rio principles which provide a policy framework.

A World Commission on Forests and Sustainable Development wouldn't be the last word on the international forest issue. But it would be a well needed follow up on the many declarations made at Rio. An attempt to fill the policy framework, established by the Earth Summit, with substance.

Given the prestige of the United Nations without being burdened by its bureaucracy, an independent Commission should be able to achieve more than the smallest common denominator on the issue it would be asked to pursue. Its report could be a challenge for governments, international organisations, NGO:s and industry.

What is at stake is an indispensable but rapidly vanishing natural resource. We need to move forward on policy-making. Because we do need our forests.

Appendix XXII

Leadership in world forestry

by Ralph W. Roberts[1], Stanley L. Pringle[2], and George S. Nagle[3]

Background

The 10th World Forestry Congress and the UN Conference on Environment and Development will take place at an historic crossroads in the path of global forest-based development. Problems of unstainable forest exploitation, inappropriate conversion of forest to agriculture, and loss of the earth's natural biodiversity have reached a climactic stage in many countries, and even whole regions.

The commitment of world leaders and nations is clear — as expressed in the Houston declaration of the Group of Seven, by Commonwealth Heads of Government, by the preparatory meetings for UNCED '92, and the 1990 COFO Meeting at FAO in Rome. Significant new allocations have been made to forestry and conservation. The potentials for sustainable forest-based development remain strong.

The need for unequivocal world leadership in forest management and related resource conservation is urgent. There is a need for innovation and new balances in the national and global structures of forest management, conservation and forest-based development.

There are serious risks of missed communications between the current realities of development under conditions of poverty, the scientific needs of resource conservation, and the perceived needs of politically powerful preservation lobbies in wealthy countries. These risks are amplified by the diffuse and feeble nature of current international agencies holding the global forest mandate.

CIDA has funded this enquiry as a first step in what must be a careful analysis by all sides: whether a new "world order" in the forest will require a new order in global forest management and conservation organizations.

The study is indebted to recent reviews of world forestry data and issues by many international agencies, national and non-governmental organizations. These efforts have done much to improve knowledge of the issues related to forests and to focus attention on them.

The paper briefly summarizes the issues, and offers three scenarios for the future of world leadership in forestry. This paper is meant to open a broad discussion, not offer official conclusions. Any implied conclusions or errors belong to the authors. No official CIDA or Canadian policy is implied.

World Forest Resources

The world's forests comprise some 3 400 million ha. Plantations account for about 130 million ha of this area. In addition there are about 1 700 million ha of very open forest and shrubland. In total this amounts to nearly two-fifths of world land area. This area is about equally divided between temperate/boreal and tropical forests. This compares with about 11% in global cropland.

A different set of ecological and socio-economic problems confronts each of the major world forest zones. The total pressure of demand on the forest — for products, services and land — is increasing rapidly.

Tropical forests have drawn much attention in recent years because of rapid deforestation and degradation. Diverse causes have led to an increase of at least 60% in the annual rate of tropical deforestation during the past decade. Such a high rate of conversion to other land uses spells disaster for conservation and sustainable forest-based development.

World Forest Uses

For millennia, human populations have been enjoying the harvested and environmental benefits of the forest. Harvested products in the 1990's range from the simplest of wood-based fuels and building poles to sophisticated natural medicines to high-tech wood-based manufacturers and paper products. Environmental benefits encompass water flow control, soil conservation, atmospheric influences, natural biodiversity protection and even spiritual values.

Over the past 40 years, removals of both industrial wood and fuelwood have more than doubled, despite greatly increased use of wood residues and waste paper. Differing estimates of future growth of industrial wood consumption over the next 40 years range from increases of only one-third to three-quarters over current levels. Fuelwood is the major forest product of the tropics and requirements will expand nearly as rapidly as population.

In the late 1980's the direct annual contribution to the economies of developing countries from the forestry sector was about US$ 105 billion. The total value of locally produced and used building materials, foods, medicines, vines/fibres and other forest products is seriously underestimated in most of the national economic data which lies behind these estimates.

Unfortunately the trends in environmental benefits point to global losses rather than gains. Flood damage has increased in many regions. Water supplies are becoming critical in drier climates. With the loss of natural forests, important aspects of bio-diversity are threatened.

Issues in Sustainable Forest-based Development

Forest Management and Conservation

A major issue in all forest regions is the extent and location of natural forest protected areas needed for preservation of biodiversity and other non-consumptive uses. Conflicts have emerged between this need and the wood requirements of forest industries and with needs of local residents.

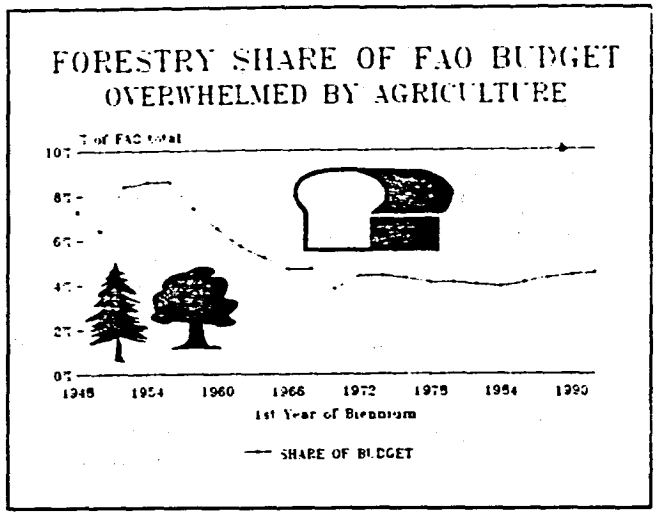
A second major issue currently is the feasibility of practicing sustained forest management in each forest zone. This issue has been linked to another — establishing an international trade system which would approve timber harvested from forests under sustained management. Proposals for such a system do not as yet provide for sustaining all major goods and environmental services provided by forests.

[1]Director, Forestry and Conservation, CIDA.
[2]Forest Economist, Penticton, BC. Retired Director, Forest Policy and Planning, FAO.
[3]Resource Economist, Victoria, BC.

Table 1. The international forest community[1].

Food & Agriculture Organization (FAO) Lead UN agency				
Other UN agencies	Other agencies	Banks & funds	Bilateral aid agencies	Non-government agencies
UNDP	Trade	World Bank	ADAB	Environment
	ITTO	IBRD	CIDA	IUCN
UNEP	GATT		DANIDA	WWF
UNIDO			DAO	IIED
UNESCO	Research	IFAD	DSE	WRI
UNCTAD	CGIAR	GEF	FINNIDA	
WFP	ICRAF		(France)	Development
UNSO	IUFRO		(Italy)	CARE
	IDRC		JICA	OXFAM
			(Netherlands)	
Regional	Regional	Regional	NORAD	
Economic	Community	Banks	ODA	
Commission	EEC	IDB	SIDA	
ECE	OAS	CDB	(Spain)	
ECA	ALADI	AsDB	(Switzerland)	
ECWA	CARICOM	AfDB	USAID	
ECLAC	CACM			
ESCAP	ASEAN			
	SADCC			
ECOSOC	Commonwealth			

[1]This list is indicative of the community scope and is not definitive. It would also include National, State, Provincial and Communal Forest Services; Regional, National and Community NGOs; Forest Industry Organizations, Universities and Research Agencies.



serious constraint to forest sector development in the developing world, the situation is vastly improved from that of the 1950's and 1960's.

The depth and breadth of forest sector assistance has expanded exponentially during the past five years. The Tropical Forest Action Program (TFAP) has attempted to organize and increase investment in tropical forest management and conservation. Current commitment levels have exceeded original (1986) targets of US$ one billion per annum.

Table 1 depicts the scope of world forestry organizations, with emphasis on the field of international forest sector development and forest conservation. In actual fact the bulk of forestry activities take place within or under the mandate of the national forest organizations which are footnoted, but not listed in the table.

The magnitude and urgency of global forest sector issues makes it eminently clear that strong effective leadership is required at world level. Countries, other international agencies and non-government and private organizations need current and accurate baseline information and analyses in order to devise the most effective strategies for action.

FAO in Forestry

Since 1946, the Food and Agriculture Organization of the United Nations (FAO) has been primarily responsible for leadership in world forestry. Relatively small portions of the responsibility have been shared by other UN agencies. In addition to its historic responsibility, FAO now acts as the principal coordinator of the TFAP.

FAO Forest Department functions comprise three areas:

- information collection, analysis, processing and dissemination to assist countries in formulating policy and planning investments
- assistance in developing integrated resource management and processing within the forest sector, insuring rural people more equitable share of benefits
- promotion of the development of the sector to reconcile the interplay of social, protection and production factors and maximize sector contribution to socio-economic growth.

The first of these functions is one of the essential tasks of world forest sector leadership. The second function, which involves execution of field projects and provision of leadership "from the ground up", is essential, but may be questionably placed within a strategic organization. The third implies effective dissemination of informatioin which is a highly important function in the world of the 1990's.

During the lifetime of FAO forestry, its performance has often been criticized. Many observers have noted that FAO's forest sector units are staffed with competent officers, deeply frustrated by being unable to make the contribution toward world forestry leadership of which they are capable. The problem in part results from the very institutional and bureaucratic nature of most United Nations agencies.

However, a more serious and fundamental problem lies with the FAO governing body and the organization's primary objectives — a historic conflict of interest is evident. The governing bodies of FAO are dominated by agriculture ministers and functionaries who are rightly concerned with agricultural issues. Inclusion of forest activities in a primarily agricultural organization accounts for much of the problem.

Within this structure, forest sector program priorities have little prominence and are difficult to establish and forestry budget allocations are hard to secure. The problem has a long history, perhaps best illustrated in brief by forestry's share of FAO's "regular programme" budget (as distinct from the budgets of field projects predominately financed by funds coming from outside sources). See Figure 1.

The forestry share of the total FAO budget peaked in 1956 when it accounted for 9.1% of the total. Since then, the relative share of forestry has declined continuously until the 1984–85 budget when the share had declined to less than 4%. Thereafter, the share has increased modestly. In the proposed 1992–93 budget, forestry accounts for 4.5% of the total. The limitations on the forestry budget has been the subject of

The creation of a new and separate Forest Agency would give much incentive for governments to formally recognize the need for stronger national forestry agencies and would lead to improved status for forest services. This phenomenon was evident in the environment sector following the creation of UNEP.

With a new beginning, its governing principles might give fuller recognition of the need to have greater participation of the private sector and NGO's. Direct liaison with other concerned bodies will be simpler and stronger. However, this would require substantial changes in the established UN pattern. It is doubtful that these could be easily or quickly made.

The seeming disadvantage, that separation of forestry from agriculture would preclude integrated land use planning and ease of dealing with the interface between these two activities, is most questionable. The track record of FAO in dealing with these matters is dismal. An independent forest agency would be on a more nearly level playing field in the debate with agriculture over integrated land use issues.

3. Create a New World Forest Organization (WFO)

Most of the comments on the advantages of a new UN Forestry Agency are also pertinent in this case.

However, an organization created outside the UN system would have the added advantage of not being bound by the acknowledged limitations and bureaucracy of the established UN structure. It would readily give status recognition to important elements of the private forest sector, including local peoples, and to concerned NGOs.

Potential membership and/or representation could include not only national governments but also regional agencies, international and national NGOs and appropriate bodies from the private sector.

Potential donors would not be bound by many of the restricting regulations now affecting financial contributions.

The initial difficulties in obtaining and securing recognized international status for the agency might be a short-term disadvantage.

There are, however, international bodies concerned with the resource sector which have been operating very successfully with a "hybrid" membership extending much beyond that of national governments. These are the Consultative Group for International Agricultural Research (CGIAR) and the International Union for the Conservation of Nature (IUCN).

These organizations operate with innovative governance and funding arrangements. The function of the CGIAR, which has no formal or legal status, is largely advisory. The IUCN, with more than 600 members worldwide (including governments, state agencies and NGOs) has developed a system of equal standing and balanced voting power.

The possibilities of creating an international forest agency with hybrid membership holds very considerable promise.

Recommendations

The study team recommends that this report

1. Be given consideration by all agencies and parties concerned with the international forest sector.
2. Be submitted to the Secretary-General of the United Nations Conference on Environment and Development for consideration to determine the appropriate manner for this important issue to be dealt with by the Conference.
3. Form the basis for a more in-depth appraisal of alternatives and recommendations for improved world leadership in forestry and conservation.

Note: A version of this report, showing greater detail of trends and issues and of the three alternatives proposed for improving the status of world leadership in forestry, is available from Ralph W. Roberts, CIDA-RNF, 200 Promenade du Portage, Hull, Quebec, Canada K1A 0G4.

List of Acronyms of Agencies

ADAB	Australian Development Assistance Bureau
AfDB	African Development Bank
ALADI	Latin American Integration Association
ASDB	Asian Development Bank
ASEAN	Association of South East Asian Nations
CACM	Central American Common Market
CARE	Cooperative for American Relief Everywhere
CARICOM	Caribbean Community and Common Market
CDB	Caribbean Development Bank
CGIAR	Consultative Group on International Agriculture Research
CIDA	Canadian International Development Agency
DANIDA	Danish International Development Agency
DAO	Development Agency Office (New Zealand)
DSE	German Foundation for International Development
ECA	Economic Commission for Africa
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ECOSOC	Economic and Social Council of the United Nations
ECWA	Economic Commission for Western Asia
EEC	European Economic Community
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization of the United Nations
FINNIDA	Finnish International Development Agency
GATT	General Agreement on Tariffs and Trade
GEF	Global Environment Fund
IBRD	International Bank for Reconstruction and Development (World Bank)
ICRAF	International Council for Research in Agroforestry
IDB	Inter-American Development Bank
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
ITTO	International Tropical Timber Organization
IUCN	World Conservation Union (formerly International Union for the Conservation of Nature and Natural Resources)
IUFRO	International Union of Forestry Research Organisations
JICA	Japanese International Cooperation Agency
NORAD	Norway, Ministry of Development Cooperation
OAS	Organization of American States
ODA	Overseas Development Administration (UK)
OXFAM	Oxford Famine Relief Org.

Appendix XXIII

CANADA AND MULTILATERALISM

Sample list of Organizations with which Canada is associated

By Organization

United Nations
Commonwealth
La Francophonie
Organization of American States
Organization for Economic Cooperation and Development
North Atlantic Treaty Organization
Conference on Security and Cooperation in Europe
General Agreement on Tariffs and Trade
Northwest Atlantic Fisheries Organization
North Atlantic Salmon Conservation Organization
International North Pacific Fisheries Commission
Pan-American Health Organization

By Theme

SECURITY:

United Nations
North Atlantic Treaty Organization
Conference on Security and Cooperation in Europe
International Atomic Energy Agency
Nuclear Non-proliferation Treaty
Open Skies (?)
UNITAF (Somalia)

ECONOMIC:

G-7
G-24
United Nations
Organization for Economic Cooperation and Development
General Agreement on Tariffs and Trade
Free Trade Agreement
North American Free Trade Agreement
Multilateral Trade Negotiations (?)
Forum Francophone des Affaires
Economic Commission for Latin America and the Caribbean
Economic Commission for Europe
Association of South-East Asian Nations
International Bank for Reconstruction and Development
International Monetary Fund
European Bank for Reconstruction and Development
Inter-American Development Bank
Asian Development Bank
African Development Bank
Caribbean Development Bank
APEC
World Intellectual Property Organization

ENVIRONMENTAL:

United Nations
United Nations Environment Programme
Intergovernmental Panel on Climate Change
Northwest Atlantic Fisheries Organization
North Atlantic Salmon Conservation Organization
International North Pacific Fisheries Commission
International Law Commission
Inter-governmental Negotiating Committee on Climate Change
Montreal Protocol
NOX Protocol
Law of the Sea
Global Convention on the Control of Transboundary Movements of Hazardous Wastes
Global Environment Facility
Arctic Environmental Protection Strategy
Food and Agriculture Organization Committee on Forestry (COFO)
Arctic Council
Earth Charter
Protection of the Arctic Environment (?)
General Agreement on Tariffs and Trade Working Group on Environmental Measures and International Trade
Organization for Economic Cooperation and Development Environmental Policy Committee (EPOC)

NUCLEAR:

International Atomic Energy Agency
Nuclear Non-proliferation Treaty
Organization for Economic Cooperation and Development Nuclear Energy Agency

HUMANITARIAN:

United Nations
United Nations High Commission for Refugees
United Nations Development Programme
United Nations Childrens Fund
International Committee of the Red Cross
World Health Organization
United Nations Centre for Human Settlements (HABITAT)

DEVELOPMENTAL:

United Nations
United Nations Development Fund
United Nations Childrens Fund
United Nations Industrial Development Organization
Commonwealth Fund for Technical Cooperation (CFTC)
Agency for Cultural and Technical Cooperation (ACCT)
Consultative Group on International Agricultural Research
Inter-American Institute for Cooperation in Agriculture
Industrial Development Fund

International Bank for Reconstruction and Development
International Emergency Food Reserve
World Institute for Development Economics Research
World Food Programme

By Region

The Americas

Organization of American States
Economic Commission for Latin America and the Caribbean
Caribbean Development Bank
Caribbean Community and Common Market
Inter-American Institute for Cooperation in Agriculture
Inter-American Development Bank
Inter-American Institute for Cooperation in Agriculture
Inter-American Drug Abuse Control Commission
Inter-American Women's Commission
Pan-American Health Organization
Pan-American Institute of Geography and History
Free Trade Agreement
North American Free Trade Agreement
FOCAL

Europe

Economic Commission for Europe
Conference on Security and Cooperation in Europe
North Atlantic Treaty Organization
Northwest Atlantic Fisheries Organization
North Atlantic Salmon Conservation Organization
European Bank for Reconstruction and Development
European Community
European Free Trade Association
European Space Agency
European Programme for High Technology Research and Development (EUREKA)

Asia Pacific

Association of South-East Asian Nations
APEC
South Asia Association for Regional Cooperation
Asian Development Bank
Asian Development Fund
International North Pacific Fisheries Commission

Africa

Southern African Development Conference
Commonwealth Foreign Ministers Group on South Africa
UNITAF (Somalia)
African Development Bank

Appendix XXIV

FISH HABITAT AND FORESTRY

Fish habitat means spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes . . . . No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.

Fisheries Act, Section 31

Introduction

Much of Canada's wealth is stored in natural resources. Consequently, the economic and social prosperity of all Canadians depends on the wisdom and foresight with which this treasury is managed. Conservation of non-renewable resources such as oil and minerals has long been recognized as necessary to ensure the self-sufficiency of future generations. Now, in the 1980s, Canadians are learning the importance of the word "renewable" as it applies to the resources we harvest from our forests, streams, lakes and oceans. These resources are **not** exhaustible, except by mismanagement, nor can one be developed without affecting another. In recent years, resource users and managers have faced serious environmental and socio-economic concerns when fish habitat losses have been attributed to forestry practices. The evidence is clear. Future viability of our renewable resource base depends on fully-integrated strategies for resource management and protection.

Forestry and Fisheries Interaction

Forests are Canada's most valuable renewable resource. Forestry ranks third among the primary industries which contribute to Canada's gross national product, while forest products rank first among the country's export commodities. With 10 per cent of the world's forest reserves, Canada supplies 30 per cent of all international pulp and paper sales and controls 22 per cent of the international market for manufactured forest products.

United Nations forecasts show that to maintain Canada's current share of world markets, this country's forest harvest would have to increase substantially. Meeting this demand will create increased pressure on watershed components such as river systems, streams, and estuaries. Thus, we see how issues affecting the forestry sector translate directly to issues affecting fish, fish habitat, and certain important fisheries in Canada.

The same biological and physical conditions that produce Canada's abundant forest lands also create some of the world's most productive fish habitat. In fact, commercial and sport fisheries ranks fifth among Canada's primary industries, contributing more than $3 billion annually to the national economy in 1982 dollars.

Problems between forestry and fisheries arise where improper forestry practices may damage fish habitat. The most sensitive fishery resources are those found in streams and rivers, estuaries, and nearshore coastal waters. Salmon,

trout and char require high-quality stream environments in which to live. Other fish species potentially affected by improper forestry practice include gaspereau, striped bass, smelt, and shad, which also rely on freshwater for completion of their life cycles, and clams, oysters, shrimp, crabs, and fish food organisms which live in estuaries or are found in shallow areas along the coast.

It is essential that we understand the fisheries-forestry relationship if the two are to co-exist. Careful planning of forestry operations, locations and timing can substantially reduce potential hazards to fish.

How Forest Characteristics Influence Fish Habitat

Forests play an important role in regulating fish habitat. Trees intercept rainfall and, by evaporation and transpiration, influence the amount of water that reaches a stream. Trees and ground vegetation also take up large quantities of groundwater; their roots stabilize and bind the soil, thus reducing erosion on hillsides and along stream banks. Removal of forest cover by harvesting or natural events (e.g. forest fires) can result in more fallen snow and accelerated snow melt. In turn, these effects can advance spring run-off and affect the timing and magnitude of storm-peak stream flows. The tree canopy also limits the sunlight reaching the forest floor, thereby maintaining cool stream temperatures. The trees and branches that fall naturally into a stream help create the diversity of pool and riffle habitats upon which stream productivity depends. Riffles are the principal fish food-producing areas, while pools provide fish with growing space and cover from damaging storm flows and predators. Forest debris naturally anchored in the stream armours the banks and creates steps in the streambed which reduce water velocity and prevent excessive stream scour. This, in turn, lessens the risk of fish eggs being washed away during high water flows. Needle and leaf fall provide essential energy for the fish food chain. Clearly, the way in which the forest is managed affects the make-up of fish habitat.

Timber Harvesting

Logging involves the development of access routes, the felling of trees and the hauling of cut logs from the woods by cable yarders, tractors or skidders. In addition to affecting stream flow and run-off, these operations can affect fish habitat by accelerating erosion, introducing logging debris or removing large natural debris from streams, and eliminating streamside vegetation.

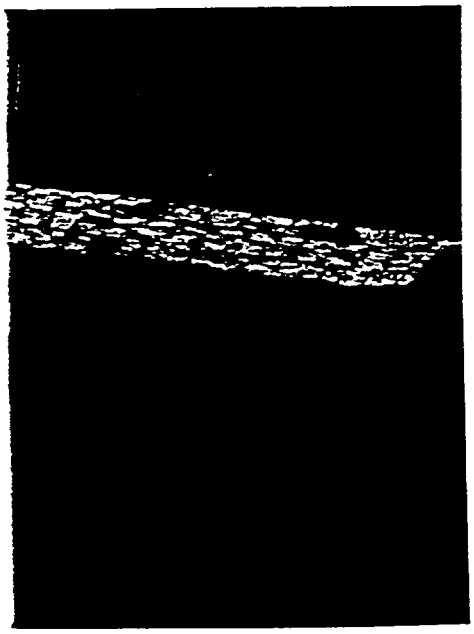
Clearing the land of trees when combined with snow-melt may produce stream flow increases which cause major changes in stream channels. Such changes may result in shifting or displacement of gravel used by spawning fish. Bottom-dwelling plants and animals, which are vital elements

of the fish food chain, can be reduced in numbers or completely washed away from their gravel environments. Increased run-off during summer, on the other hand, can benefit fish by increasing stream flows at rearing time.

Some of the most serious problems are associated with increased soil erosion or soil mass movements such as landslides and earth slumps.

Erosion accelerates the transport of sediment into streams, where it can affect fish habitat in several ways. Sediment fills the spaces between the gravel, reducing the flow of oxygen-rich water that is vital to fish egg survival. When it is time to rise from the gravel and begin stream life, the emerging young fish can be trapped and killed by sediment. Heavy sedimentation can also smother insects, thus reducing the food available to fish.

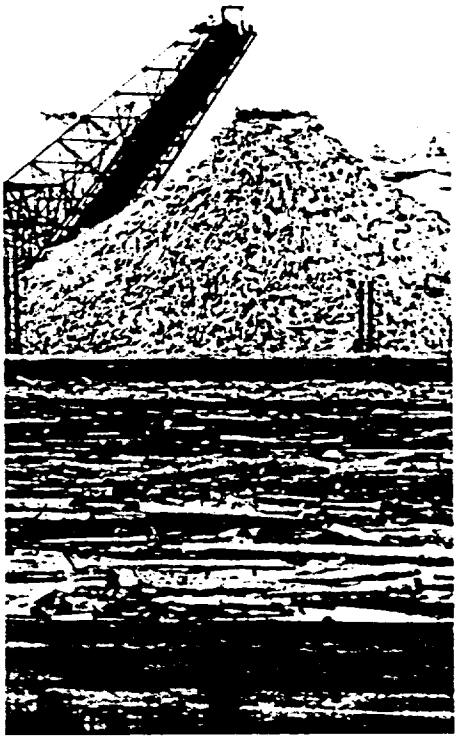
In several disturbed areas, large amounts of eroded material can overtax a stream's ability to transport sediment. The stream begins to fill up with shifting gravel and debris. Deposits may be so great that some stream sections appear to "dry up". The stream actually goes underground; but nevertheless, surface flows stop, spawning and rearing areas disappear, and fish migration is prevented.



Forest debris accumulations can block migrating fish and produce channel shifts. While removal of debris from streams reduces these threats, overzealous clean-up can do more harm than good.

The removal of streamside vegetation by logging can increase water temperatures to levels unsuitable or even lethal to fish, and can increase the activity of disease-producing organisms. Temperature increases, however, do not always have a negative effect. In streams where temperatures are naturally cool, warmer waters can boost aquatic productivity and even increase fish growth. Streamside vegetation plays a further role in providing an environment for terrestrial insects which fall into streams and contribute substantially to the diet of fish.

Careful planning and better knowledge of fisheries values can avoid or significantly reduce many of the potentially detrimental effects of timber harvesting. Logging methods and patterns designed for local soils and wind conditions and the phased removal of timber can reduce the possibility of erosion and streamflow changes. Leaving green strips along streams can protect banks, reduce debris in channels and maintain normal



stream temperatures. Careful timing of logging operations can mitigate the effects of increased sedimentation on developing eggs and migrating fish.

Forest Roads

In many areas of Canada, forest roads may pose a greater risk to fish habitat than actual logging. Gravel roads can contribute larger quantities of sediment to streams during and after construction, particularly during heavy use by logging trucks. Road construction results in changes in water drainage patterns which can lead to surface erosion and landslides. Attention to site-specific detail in the design and installation of road culverts is essential to habitat protection. Having too few culverts or improperly designed and constructed culverts can cause water velocity barriers or road washouts, preventing upstream migration of fish.

Locating, constructing and maintaining roads to minimize erosion can greatly reduce sedimentation problems. Proper care

applied to road building operations in the vicinity of streams can reduce the amount of debris entering streams and eliminate the physical disturbance to stream beds.

Transportation and Storage

Land transport of logs does not usually affect the fishery resource. However, wood debris, when improperly discarded at dry sorting areas, can introduce toxic chemicals (leachates) into water.

Canada's coastal waters, rivers, and lakes are often used for the transport of logs by raft or barge, detrimentally affecting fish habitat. Log dumping and storage in shallow areas can compact the bottom and crush food organisms and aquatic vegetation. After extended use, bottom areas can accumulate large quantities of sunken bark and logs. The decomposition of this material and leaching of chemicals can lead to contamination of nearby waters and a reduction in dissolved oxygen levels, rendering habitat unsuitable for fish use and reducing the numbers of fish food organisms. Propeller wash from boats in log storage areas can stir up and disperse bottom materials, thus degrading water quality. Many of these detrimental effects can be avoided if log handling and sorting are carried out on dry land.

Silviculture

After a forest is logged, silvicultural activities such as site preparation, planting and seeding, brush removal and thinning are carried out to establish and nurture a new forest. The effects of silviculture treatments on fish habitat are often similar to those associated with logging, log storage and transport but they are generally far less severe. Burning and mechanical cultivation are commonly used to prepare sites for planting and, in some cases, these activities can increase sedimentation in streams. In steepland areas, where brush helps to maintain soil stability, burning can also cause loss of root strength, leading to potential landslides.

Fertilization of forest sites can increase nutrient concentrations in streams. In extreme cases, enrichment of stream water leads to rapid growth of algae, covering stream bottoms and reducing fish food production. Decay of this material can reduce dissolved oxygen concentrations in streams. Chemical biocides or pesticides used to control brush and insects can pose a serious problem to fish. Pesticides which enter streams may be toxic to fish and aquatic invertebrates and lead to long-term reductions in stream productivity. Bioaccumulation of these chemicals can render fish unacceptable for human consumption or result in chronic fish toxicity.

Wood Processing

Making pulp and paper and cutting logs into sawn lumber are processes that pose potential dangers to fish habitat. The manufacturing of pulp and paper requires large quantities of water which are ultimately discharged into the aquatic environment. Untreated waste water contains a large quantity of oxygen-consuming organic substances, including pulping chemicals, resin acids, and wood fibers. If not adequately treated, the effluent can be toxic to fish and can consume large amounts of oxygen in the water while in the process of being degraded. Effluents can adversely affect receiving-water quality and fish habitat many kilometres distant from mill outfalls. Chlorinated organic compounds, which can be produced

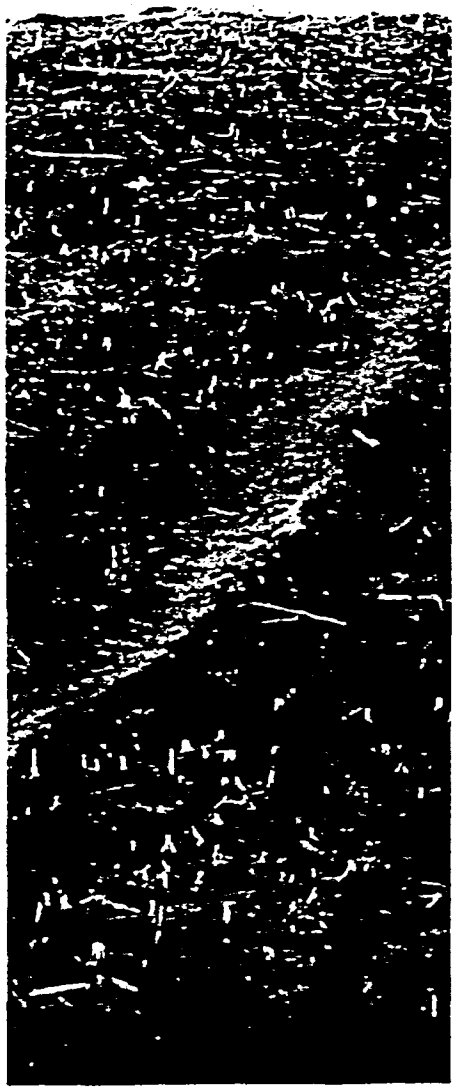
during the pulp bleaching process, are often persistent and can accumulate within fish. They are capable of inducing physiological or behavioural damage in fish and fish food organisms.

For the most part, pulpmill wastes require two levels of effluent treatment; *primary treatment* to take out the large particles (such as wood fiber, wood chips, etc.) and *secondary treatment* which usually involves the use of micro-organisms to decompose pulp wood wastes in biological treatment basins. These systems can be very effective in reducing the harmful effects. Good housekeeping and maintenance of treatment systems, however, are necessary to reduce long-term risks to fish habitat. In addition to pulpmill effluents, leachate from chip storage areas, wood-waste landfills and refuse areas are highly toxic and must be properly managed.

The major challenges associated with sawmill operations are the management of wood-preserving chemicals, usually chlorophenols, and the protection of fish habitat from the indiscriminate disposal of wood waste. Lumber-dipping facilities used in wood preservation should be paved and, where necessary, roofed to reduce run-off. Wood waste should be burned or deposited in areas well removed from watercourses. Drainage from dipping facilities and wood-waste deposits should be collected and, if necessary, treated prior to discharge.

The Importance of Canada's Fisheries

Like farmland and forests, our fish habitats are national assets. They are contributors to the wealth



of our nation and to the quality of our lives. Commercial and sport fisheries contribute more than $3 billion annually to the national economy in 1982 dollars and fish is a staple food and an important cultural element for many native communities. This important resource must be preserved and enhanced for future generations.

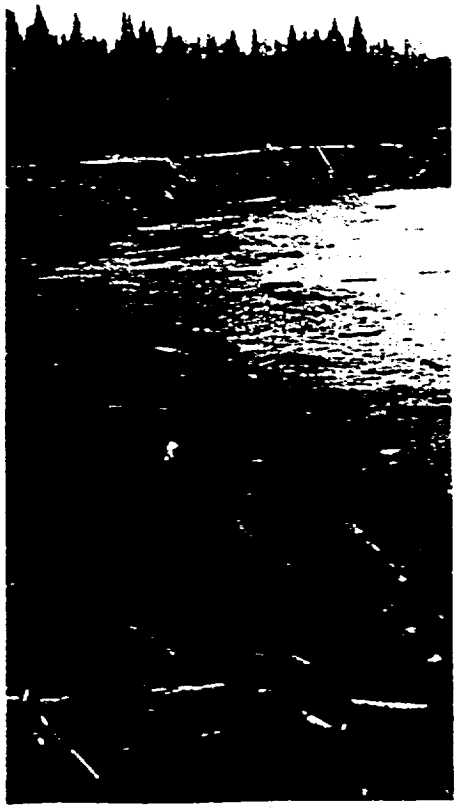
The Role of the Department of Fisheries and Oceans

The objective of the Department of Fisheries and Oceans Fish Habitat Management Program is to conserve, restore and develop fish habitats to maintain and improve the production of Canada's fisheries resources for the benefit of present and future generations. To realize this objective, strict controls on activities and substances which threaten fish and fish habitat are necessary.

Canada's **Fisheries Act** provides the Minister of Fisheries and Oceans with the authority to ensure fish and fish habitat are protected. The Department's role includes enforcement, regulation, inspection, monitoring and research. Continuing research is necessary to increase our understanding of the importance of fish habitat and the effects of activities which alter or destroy it. In meeting its goal of protecting fish habitat, the Department applies the principle of NO NET LOSS to new works and undertakings to ensure that habitat productive capacity is maintained. In addition, efforts are made to restore previously altered or destroyed habitat and to develop new habitat, thereby providing for a NET GAIN of habitats for selected fisheries.

When managed with care and understanding, the land can yield both fish and trees. In the majority of situations, cooperation and early planning by people involved in forestry and fisheries can avoid major risks to fish habitat. Through greater awareness of the relationships between fish, fish habitat and forests, a concerned public can conserve its renewable resources and thereby ensure a continuing flow of benefits to the Canadian economy.

This brochure is one in a series prepared by the Department of Fisheries and Oceans to inform the public and interested parties about the impacts of various human activities on Canada's fish habitat.



Others in this series:
- Fish Habitat and Dredging
- Fish Habitat and Mining

Other habitat management leaflets available on request
- Fish Habitat, The Foundation of Canada's Fisheries
- Fish Habitat, Conserving our Hidden Assets
- Canada's Fish Habitat Law
- Offshore Oil and Gas and Canada's East Coast Fisheries
- Acid Rain and Fisheries

For further information about fish habitat protection please contact the departmental offices listed below:

Federal Fisheries Contacts

Director
Fish Habitat Management Branch
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Ottawa, Ontario
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Regional Director General
Western Region
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501 University Crescent
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Regional Director General
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Regional Director General
Québec Region
Fisheries and Oceans
901 Cap Diamant
Québec City, Québec
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Telephone: 1-(418)-694-3010

Regional Director General
Gulf Region
Fisheries and Oceans
P.O. Box 5030
Moncton, New Brunswick
E1C 5B6
Telephone: 1-(506)-758-9044

Regional Director General
Scotia-Fundy Region
Fisheries and Oceans
P.O. Box 550
Halifax, Nova Scotia
B3J 2S7
Telephone: 1-(902)-426-2581

Regional Director General
Newfoundland Region
Fisheries and Oceans
P.O. Box 5667
St. John's, Newfoundland
A1C 5X1
Telephone: 1-(709)-737-4589

Provincial Fisheries Contacts

In Alberta, Saskatchewan, Manitoba, Ontario and the inland waters of Québec, where the federal **Fisheries Act** is administered by the provincial government, contact the appropriate provincial fisheries management agency.

In British Columbia, in areas which support purely freshwater fish species, contact the provincial Department of Environment.

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