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Sustainability and Security: Timber Certification in Asia-Pacific Region

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Resumen: La expansión de las iniciativas de desarrollo sustentable desde los años 90 es un reflejo del énfasis que se da a las soluciones integrales al desarrollo económico, la estabilidad socio-política y la salud ambiental en la comunidad global. En el mismo contexto, el concepto tradicional de seguridad tuvo que ampliarse en dos direcciones: primero, la noción de seguridad tuvo que expandirse desde el ámbito militar a los ámbitos económico, social, ambiental y político; segundo, el objeto de la seguridad tuvo que incluir además del Estado-nación, al individuo, como un nivel anterior, y al sistema internacional como un nivel superior. La industria forestal y la certificación de madera en la región de Asía-Pacífico fueron seleccionadas para el estudio de caso, dado que representan un excelente ejemplo para ilustrar la interrelación entre el desarrollo sustentable y la seguridad ambiental. Este trabajo presenta un panorama crítico de la industria forestal y el estatuto de la certificación de madera a nivel global, con un énfasis especial sobre Asia-Pacífico, bajo el enfoque del "pensamiento sistémico". La conclusión presenta las posibilidades que representa la certificación de la madera y sus futuros impactos sobre la seguridad y el desarrollo sustentable.

Palabras clave: sustentabilidad, seguridad, certificación.

Abstract: The expansion of sustainable development initiatives since the 1990's reflected an emphasis on integrated solutions to economic development, socio-political stability and environmental health in the global community. In the same

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context the traditional concept of security needed to be open in two directions. First, the notion of security should no longer be applied only to the military realm, but also to the economic, the societal, the environmental, and the political fields. Second, the referent object of the "security" should not be conceptualized solely in terms of the state, but should embrace the individual below the state, and the international system above it. The forests industry timber certification in Asia-Pacific region has been selected as a case study because it is an excellent example to illustrate the links between the sustainable development and the environmental security, including also certain elements of economic security. This article is presenting a critical overview of the forest industry and the status of timber certification globally, with an emphasis on Asia – Pacific countries applying the Systemic Thinking approach. In conclusion, an outlook is presented concerning the future of timber certification and possible impacts on security and sustainable development.

Key Words: Sustainability, security, certification.

I. Introduction: sustainable development and environmental security

The expansion of sustainable development initiatives in the 1990's reflected an emphasis on integrated solutions to economic development, socio-political stability and environmental health in the global community. The Brundtland Commission (WCED, 1987) and the 1992 Earth Summit in Rio de Janeiro, Brazil, formed the springboards for many of today's initiatives. Despite the intrinsic ambiguity in the concept of sustainability, it is now perceived as an irreducible holistic concept where economic, social and environmental issues are interdependent dimensions that must be approached within a unified framework. A growing body of concepts and models, which explore reality from different angles and in a variety of contexts, has emerged in recent years in response to the inability of normal disciplinary approach to deal with the complexity and systems. The outlines of this new framework, known under the term of Systemic Thinking, is by its nature transdisciplinary and synthetic (Gunderson and Holling, 2002).[1]

In the same context of complexity is necessary to open the traditional concept of security in two directions. First, the notion of security should no longer be limited to the military domain. Rather, it should have a more general meaning that could be

applied not only to the military realm, but also to the economic, the societal, the environmental, and the political fields. (Sheehan, 2005, p. 44). Second, the referent object of "security", the thing that must be secured, should not be conceptualized solely in terms of the state, but should embrace the individual below the state, and the international system above it.

Investigating the most general meaning of the security, Abbot *et al.* (2006) offer an overview of four groups of factors identified as the root causes of conflict and insecurity in today's world and the likely determinants of future conflict: a) climate change; b) competition over resources; c) marginalization of the majority world; and d) global militarization. Current responses to these threats can be characterized as a *control paradigm* –as an attempt to maintain the status quo through military means and control insecurity without addressing the root causes. The authors argue that current security policies are self–defeating in the long-term, and propose a new approach named *sustainable security,* that rather aims to cooperatively resolve the root causes of those threats using the most effective means available (p.3).[2]

Especially with reference to the natural resources there are two causes of conflict: 1) the resource scarcities, and 2) the resource abundance (also known as *resource curse*). The research group "Toronto School", associated with Thomas Homer-Dixon:[3] focuses on the links between renewable resource scarcities and violent conflict (issues such as scarcities of cropland, forest, fish stocks, water). These conflicts recently can be seen often as intrastate wars. For many states and populations there are obvious environmental threats that outweight any traditional military threats. Many developing countries, for example, are more immediately threatened by issues such as deforestation or desertification than they are by the threat of external military forces. Rogers (2002:88) argues that the disruption to clean air, water, and the waste-absorbing capacities of natural ecosystems produce effects that need not relate directly to military security, but can trigger economic decline, societal disruption, and therefore conflict. Two examples of this are deforestation, which contributes to global climate change, and the abuse of the "global commons" such as overuse of shared waters, creation of transborder pollution and degradation of the atmosphere.

The *resource curse* is other cause of conflict based on na-tural resources. It refers to the paradox that countries with an abundance of natural resources have less economic growth than

countries without these natural resources. This may happen for many different reasons, including a decline in the competitiveness of other economic sectors, underinvestment in education and mismanagement of revenues from the natural resource sector.[4] The term 'resource curse thesis' was first used by Richard Auty in 1993 to describe how countries rich in natural resources were not able to use that wealth to boost their economies and how, counter-intuitively, these countries had lower economic growth than countries without an abundance of natural resources.[5] And often are subject to violent conflicts. Even if conflicts are started for other reasons, access to natural resource financing can sustain those (Humphreys, 2005).

The natural resource curse represents an enormous impediment to development. Yet it is important to realize that it is not natural resources per se that are the problem; rather, it is lack of good governance.[6] Remedying this institutional failure requires changes of law and practice but does not require huge resource investments (Palley, 2003). It is important to stress in this context that the neoliberal model –with its emphasis on 'small government', reduced public resources, and the privatization of state-owned assets– weakens already fragile states and diminishes their ability to win the loyalty of their citizens as well as their ability to govern (Cooper, 2003; Turner, 2006).

Recent development and security research has included studies on the role of institutions as a critical component in an economy's capacity to use resources optimally (Peet and Hartwick, 1999). Only in the context of good governance and avoiding the conflict can be achieved the development goals like health, education and energy, food and water access. That's why Humphreys (2005) suggests the necessity to integrate the development planning and the conflict resolution.[7]

Since the end of the 1990s, the UN Security Council has been forced to grapple with the economic dimensions of intrastate wars, including the evasion of UN sanctions regimes, the trade in so called conflict commodities such as diamonds and timber, the illicit exploitation of natural resources by combatant groups and their foreign sponsors, and terrorist financing. At the same time, the rise in fair trade certification regimes, a series of advocacy campaigns against child labor, corruption, and other economic issues at the intersection of development and human rights, and an increasing number of lawsuits against companies for their alleged complicity in human rights violation have forced

companies and industry associations to deal with increased demands to improve the ethical value of their products and services (Lunde and Taylor, 2005). This gives the impression that there is a huge array of ethical activity. However the majority of the initiatives are not successful for a number of reasons, one of the most important being the largely voluntary nature of the compliance, and the lack of monitoring and sanctions against those who contravene them. A lot of these initiatives can be best understood as an attempt to undercut more strident demands to regulate business in the interests of society and the environment (Cooper, 2005; Turner, 2006).

The forestry sector in Asia-Pacific has been selected as a case study because it is an excellent example to illustrate the links between the sustainable development and the environmental security, including also certain elements of economic security. The forests have a substantial impact on the Earth climate, through their role in the global carbon cycle and surface hydrology (IPCC, 2004), the loss of primary forests is especially devastating to biodiversity and the timber has been used as financial support for combats.

In the forestry sector, a myriad of efforts to achieve sustainable management of forest resources have emerged. It is perhaps a subjective and debatable endeavour to assign a level of quality to any type of resource management system. Although sustainability has many definitions, in most cases it reflects a development paradigm to balance the temporal and spatial existence of resources and the needs of a society to use those resources. In recent years discussion has also focused on the problem of illegal logging and trade. Countries have been urged to improve law enforcement in the forest sector and to control illegal trade in forest products. As much as 15% of the global timber trade has been estimated to involve illegalities and corruption practices (Contreras-Hermosilla, 2002). And as Winer (2005) argues illicit trade in natural resources has become a principal source of revenue for armed conflict and terrorism.

The initiative of timber certification has been put forth as a viable alternative to existing regulations, codes and practices. The potential impact of timber certification on the illegal trade and the sustainability of forest resources is difficult to predict; however, the emergence of timber certification into the forest policy and forest management arenas around the world is indisputable and requires examination. Timber certification involves

the evaluation, monitoring and labelling of wood production from stump to end use. First, the management of a forest area must be certified according to a set of standards or principles of sustainable forestry for a particular forest region. This process is known as forest certification. The production and distribution of products from the stump to the final consumer must be confirmed through the chain-of-custody (CoC) associated with the final product. Finally, the label attached to the product must reflect the degree or scope of the certification proclaimed. Given that worldwide forest products trade has increased by 50% between 1993 and 2003 and was valued at more than USD 150 bill. in 2003 (FAO, 2005; Unasylva, 2004), the potential impacts of certification on markets cannot be ignored.

The following discussion will present an overview of the forest industry and the status of timber certification globally and in Asia-Pacific region. First, the forest industry in the world is presented with its links to sustainability and security issues. Second, a brief summary of the development of the certification movement is presented and the specificities of Asian forest industry are discussed, followed by an evaluation of certified forest areas and the implications of specific issues on certification trends such as the forest management in post-war economies.

II. Forests and sustainability

a) Forest industry in the world

Global wood removals are about 3 billion m³ and have been rather stable during the last 15 years. Undoubtedly the actual amount of wood removals is higher, as illegally removed wood is not recorded. About 60% of removals are industrial roundwood, the rest being wood fuel. The majority of the removals in Africa and substantial portions in Asia and South America are wood fuels.

Although accounting for only 5% of global forest cover, forest plantations were estimated in 2000 to supply already about 35% of global roundwood. Thus there is a trend towards concentrating the harvest on a smaller forest area. Meeting society's needs for timber through intensive management of a smaller forest area creates opportunities for enhanced forest protection and conservation in other areas.

Forest resources directly contribute to the livelihoods of 90 percent of the 1.2 billion people living in extreme poverty and

indirectly support the natural environment that nourishes agriculture and the food supplies of nearly half the population of the developing world (World Bank, 2003).

Only a very few developing countries are among the major producers and consumers of forest products except in the case of wood fuel production (FAO, 2005). Wood energy accounts for 7 to 9% of global energy consumed, but up to 80-95% in some developing countries. More than 2 billion people are dependent on wood fuel for cooking and heating. Some of these people will start to use other sources of energy, but the fast population growth in developing countries will compensate for this, and more people than today will likely depend on wood fuel in the future.

As mentioned before, the increase in the global production of forest products has resulted in an raise in the value of international trade of forest products from 100 to 150 billion USD between 1993 and 2003 (Unasylva, 2004). It should be noted that most of the roundwood and non-wood forest products are traded domestically (Mersmann, 2004). Total employment in the (formal) forestry sector increased by about 4% over the last decade, from 12.4 million in 1990 to 12.9 million in 2000 (Lebedys, 2004). In 2000, total gross value-added in the forestry sector amounted to 354 billion USD (1.2% of global GDP), the pulp and paper industry accounted for about half of the total gross value-added in the forestry sector (Lebedys, 2004). Increasing production of forest products have also positive carbon implications if raw material is coming from sustainably managed forests.

The global picture of trade in wood and wood based products has changed substantially in recent years with the emergence of new big players such as China and the Russian Federation, and with the change of traditional exporters of primary timber products in Southeast Asia into exporters of secondary processed products due to development of processing industries and resource constraints (Hashimoto and Moriguchi, 2004). China has become the world's largest importer of industrial logs (FAO, 2005). Market-based development of environmental services from forests, such as biodiversity conservation, carbon sequestration, watershed protection and nature-based tourism, is receiving attention as a tool for promoting sustainable forest management. Expansion of these markets may remain slow and depends on government intervention (Katila and Puustjärvi, 2004).

b) Forests, climate change, biodiversity

Sustainable forest management can be regarded also as sustainable carbon management, and thus instruments supporting sustainable forest management also support mitigation[8] of climate change. Unlike many other sectors, forestry can contribute both to reducing emission sources and to increasing sinks. Due to the direct link between land-use decisions and sustainable development, forestry plays a key role when addressing the climate change problem in the broader context of global change and sustainable development. As a major form of land cover globally, hundreds of millions of households depend on the goods, services and financial values provided by forests. Land-use changes can negatively affect those that most closely depend on forest resources for their livelihoods. Deforestation continues at an alarming rate; a gross loss of 13 million ha/yr is reported, due mainly to conversion of forests to agricultural land and is the major contributor 5 to the greenhouse gas emissions from the land use sector. Net forest area[9] continues to decrease, but at a lower rate than before 2000, at an average rate of 7.3 million ha/yr in 2000-2005 (UNECE/FAO; 2006a). Forest planting, landscape restoration and natural expansion of forests have reduced the net loss of forest area.

There is a lack of integrated assessments of carbon mitigation potential in the literature. Based on regional modelling assessments a gradually increasing mitigation impact of forestry measures is projected globally. By 2030 the economic potential of a combination of measures in afforestation, avoided deforestation, forest management, agroforestry, and bioenergy,[10] could yield on average an additional sink of around 3150 MtCO2/yr. About 50% of this can be achieved at costs under 20\$/tCO[2.] This emission avoidance will be located in the tropics for 65%, be found mainly in above ground biomass, and for 10% achieved through bioenergy. In the short term this potential is much smaller, with 1180 MtCO2/yr in 2010. Top-down global models generally give higher global economic potentials with an average of 12800 MtCO2/yr in 2030. The economic potential does not take these into account yet. Most likely costs will be 20-50% higher (and maybe more) in reality, because of the institutional barriers (IPCC, 2004).

Policies have been generally most successful in making forestry activities more sustainable where they help forestry to be more profitable than alternative uses of land, and there is sufficient political will and regulatory and institutional capacity

for effective enforcement. Available evidence suggests that policies that seek to alter forestry activities where these conditions are not met have had limited effectiveness.

There is now more evidence that climate change impacts can also constrain the forest potential, as shown, for example in the 2003 drought in Europe (Ciais *et al.,* 2005). That's why full attention is paid to substitution and bioenergy (Lindner *et al.,* 2005). Fully integrated multiple land-use studies that assess larger scale economic potentials in the forestry sector are, however, rare in the literature, although some studies are moving in that direction (e.g. in Brown *et al.,* 2004). On the other hand, the IPCC members[11] are improving their forest carbon balance estimates through the design and implementation of a National System for forest inventories and forest carbon accounting (Richards and Brack, 2004; Kurz and Apps, 2006, Nabuurs *et al.,* 2005). These systems have, amongst others, been facilitated by the release of the Good Practice Guidance for Land Use, Land-use Change and Forestry (IPCC, 2002).

Carbon mitigation in forests has been reported to be more cost-effective than mitigation options in other sectors (Kauppi *et al,* 2001). The activities aimed at conservation and enhancement of forest sinks and reservoirs are generally also consistent with the goals of sustainable management of forests. Where forests are managed sustainably providing an annual yield of fiber and timber, the wood products derived from the forest can substitute other materials and energy whose production would otherwise generate emissions. The forest mitigation options include reducing emissions from deforestation and forest degradation, enhancing the sequestration rate in existing or new forests, and by providing products as a substitute for fossil fuels and for more energy-intensive materials. Properly designed and implemented, forestry mitigation options may have substantial co-benefits in terms of employment and income generation opportunities, biodiversity and watershed conservation, provision of timber and fiber, as well as aesthetic and recreational services, and probably adaptation[12] to climate change as well.

In addition to the decreasing forest area globally, forests are also severely affected by disturbances like forest fires, pests (insects and diseases) or climatic events such as drought, wind, snow, ice and floods, having also carbon balance implications. FAO (2006) has estimated that such disturbances affect roughly 100 million ha of forests annually.

The loss of primary forests is especially devastating for biodiversity. Although tropical rain forests cover less than 10 per cent of the earth's surface, half of the world's plant and animal species populations are sheltered by them (Teck and Valencia, 1990: 16). These forests are massive reservoirs of thousands of yet-undiscovered species. Roughly 10-20% of current global forestland is projected to be converted to other uses by 2050 with obvious large consequences for the global climate change. The primary cause lies in the expansion of agriculture; secondary causes are the expansion of cities and infrastructure (the latter partly due to forestry operations) (MEA, 2005). Temperate mixed forests, tropical forests and open woodlands are among those biomes that are projected to loose habitat and species at the fastest rate;[13] these are often the habitats richest in biodiversity.

III. Forests and security

a) Timber as conflict commodity

There are two problems: conflict timber and illegal timber. Conflict timber is defined by the NGO Global Witness as "traded in a way that drives violent armed conflict and threatens national or regional security" (Global Witness, 2004). Illegal timber has been logged in contravention of national or international laws. In both cases, funds are siphoned from national budgets, mostly unnoticed by the international community. The globalization as well as facilitating the global trade of licit goods, the reduction in trade barriers and border controls has also allowed the movement of illicit goods (Turner, 2006). Due to growing facilities for commodities circulation and in many cases lack of transparency, legislation needs to be targeted against the strong ties between conflict timber and the arms trade, and against the shipping industry.

The term conflict timber was first coined in 2001 by a UN panel of experts investigating the illegal exploitation of natural resources in the DRC. Since 1998 timber there has helped fund a conflict that has killed 3.3-4.7 million people-the greatest loss of life since the Second World War.

According to Thomson and Kanaan (2004) specific links between timber and violent conflict include:

1. The conflict timber trade which is closely linked to the broader problem of illegal logging and often involves the same companies, trade networks, and entrepreneurial methods. A large

proportion of logging in tropical countries is illegal. For example, about 80 percent of Brazil's timber is logged illegally. Lost revenues associated with illegal logging total approximately US$10 billion per year worldwide, in addition to US$5 billion per year in uncollected taxes and fees from legal logging (World Bank 2003).

2. Timber revenues have financed national and regional conflicts in Cambodia, Burma, the Democratic Republic of Congo (DRC), Ivory Coast, and Liberia. Conflict timber often heightens or prolongs existing crises, because a conflict's duration depends partly on the financial viability of armed groups. Combatants can quickly accumulate a significant amount of capital for war from conflict timber (Price-Smith, 2002). For example, estimated revenues from the trade of conflict timber in Liberia, Cambodia, and Burma exceed US$100 million per year.

Forests are comparatively attractive as a conflict commodity for a number of reasons:

1. The many buyers and sellers of timber make it difficult to track extraction activities.

2. Timber trade does not require a large amount of capital and, compared to oil, produces high returns on investment.

3. Timber does not require processing.

4. Timber is more accessible than subterranean minerals (Thomson and Kanaan 2004).

b) Forests and local conflict

Timber, as an easily exploitable, valuable commodity, has become a resource of choice for warring factions, criminal networks and arms-dealers, providing finances and logistics. Host governments or rebel groups sometimes allocate timber concessions to reward supporters. This has gone relatively unchecked and timber fuels conflicts in countries as Cambodia, Sierra Leone, Ivory Coast, Democratic Republic of Congo (DRC), Burma and Liberia.

Box 1: **Some tropical countries with armed conflicts in forested regions in the past 20 years**

Angola, Bangladesh, Cambodia, Colombia, Democratic Republic of Congo, Cote D'Ivoire, Guatemala, Guinea, Honduras, India, Indonesia, Liberia, Mozambique, Mexico, Myanmar, Nepal, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Peru, Philippines, Republic of Congo, Rwanda, Senegal, Sierra Leone, Solomon Islands, Sudan, Surinam, and Uganda.

Source: Security, Development and Forest Conflict: A Forum for Action (2006)
http://www.etfrn.org/ETFRN/sdfc/background/overviewdk.htm

Some estimates suggest that the illegal timber trade may comprise over a tenth of a global business worth about US$100bn. The World Bank has estimated that, in the tropical forests alone, 5000 km² of forests -an area the size of the island of Bali- were being illegally logged each year during the early 1990s. Virtually all logging for export which has recently taken place in India, Laos, Cambodia, Thailand and the Philippines has been illegal. Unscrupulous companies and individuals have been able to shop around for their environmental standards, relying on competitive bidding to pull both their costs and international standards down to the lowest common denominator. Cut-throat competition for much-needed domestic revenue has persistently undermined enforcement and certification schemes and ironically, served to deprive countries of income because of extensive tax evasion (Brack and Hayman, 2002).

Cross-border timber sales in the 1990s provided the Khmer Rouge in Cambodia with a monthly $10-20m during the dry season to fund its fighting (Renner, 2002). The trade not only sustained the Khmer Rouge's activities, but control of timber resources became a cause for conflict.[14]

In Indonesia disputes between the state, and private companies over forest resources and revenues have resulted in lower-level violent conflicts in the country (Schroeder-Wildberg and Carius, 2003). Such lower level conflicts may affect a large number of people over a wide area and "may prove larger, longer and, in the end, more serious" than the effects of 'conflict timber' (Jarvie et al. 2003: 14). Lower-level conflicts may also trigger large-scale violence and adversely affect local living conditions ment, blocking timber barges, and burning down and livelihood security.

This plunder is highly lucrative-but not for the locals actually cutting down the trees. As in Papua New Guinea and the Solomon

Islands, local workers, or labour brought in from distant communities, are paid a pittance and work in dangerous conditions.

In Indonesia, environmental groups assert that the money goes to organised crime syndicates which are in direct collusion with the military and police. Disputes are violent, deaths have occurred. The local communities rarely see any benefits from logging. In Papua New Guinea, landowners have been tricked into cutting down their forests for little economic gain to counter the enormous cultural and environmental loss.

The Kiunga Aiambak logging project is a typical example. There, Malaysian logging company, Concord Pacific, has illegally logged a huge area under the guise of building a road. Ten kilometres wide at some points, the road has brought few, if any benefits to the people of the area, and is already impassable at many points. And for this false road, the people have endured the destruction of the forest that provides food and medicines (Farley, 2002).

The Solomon Islands has also seen its share of illegal and destructive logging, and is facing immense pressure to sell off large forest areas as it tries to recover from the conflict that has devastated its economy over the last two years.

While all governments have the sovereign right to use natural resources within their borders, they must follow their own laws and international regulations, extracting resources sustainably and for the benefit of all. Often, where timber has been used to fund conflict, governments, rebel groups or individuals have used war to loot natural resources, financing political goals or personal fortunes. Funds are taken from an already impoverished population and given to a small elite.

The timber trade is often abused by unscrupulous logging companies, governments and rebel groups to facilitate weapons imports and fuel conflict. It is estimated that 40-50% of world trade in small arms is illegal, but the figure is probably much higher as a significant number of legally traded arms end up in the illegal arena. Without proper controls, this trade will remain attractive and lucrative, and international agreements that have made unregulated cross-border trade easier will continue to be exploited.

Each logging company's circumstances are different, where they assist government forces and government-supported rebels,

and their engagement varies in degree: some may have been directly complicit, while others might have been coerced. But either way the results for local people - abuses, corruption and destabilisation - are the same (Blondel, 2004). Some importing companies have launched extensive public relations campaigns: they proclaim their concern for human rights and the environment but are directly linked with environmental destruction.[15]

While companies along the chain of custody (CoC) deny responsibility, the effects of the conflict timber industry on civilians are immediate. The people that governments, logging companies and importers claim to be concerned about rarely see the revenue improve their lives; the industry worsens conditions by facilitating arms imports, and there are human rights abuses committed by government and logging company militias, long-term destruction of forests and an infrastructure of violence and plunder. People who live in or near logging concessions have their way of life destroyed and lose access to forests (Global Witness, 2006:14). Because of deforestation and because they are often forcibly removed from their land, locals' non-timber resources such as medicines and vegetables become scarce. Changes to local ecologies often lead to floods and droughts. The argument that the timber industry betters lives is wrong and usually only made by those who have a vested interest in the trade (Ibid.).

The effects of conflict timber are long-term, since it destroys what could be a sustainable source of revenue for impoverished people; much of the revenue in the short term goes directly to an elite. The uncontrolled exploitation of the resource funds further conflict; the conflict creates a demand for timber, which worsens the conflict, and which then creates further demand for timber.

The criminalisation of the timber trade has not been checked much by the international community. Shipping laws have not changed significantly and lack of transparency continues. The international community has also not taken proper action over trade laws, especially those covering the arms trade and conflict commodities, so trade in conflict timber appeals to corrupt governments, rebels, international criminal networks, small arms traders and unscrupulous companies.

As Humphreys (2005) argues to date sanctions have proved to be a blunt weapon of policy, with most attempts at coercion through sanctions ending in failure. If armed groups finance their activity through trading in illegal commodities such as drugs or

smuggling arms illegally, the existence of sanctions is likely to be irrelevant. There are several political economy reasons that sanctions may fail (Kopp, 2005). The ability to transship through neighboring states can severely reduce the impact of sanctions. Leaders can also turn sanctions to their advantage, both economically and politically, by maintaining control over increasingly scarce commodities (the best example is Saddam Hussein in Iraq). Hence, even when sanctions have real impacts, it is not just the intended targets suffer. Sanction policies have become more sophisticated, with the development of targeted commodity sanctions and with the freezing of assets or blocking particular individuals "freedom of movement" (Fearon and Laitin, 2003). However, because of their lack of comprehensiveness, targeted sanctions may lead to the exemption of particular commodities through successful lobbying by industries with economic interests in those commodities. Needed, then, is reexamination of ways to improve the use of sanctions, taking account of these political economy aspects.

The creation of UN expert panels and monitoring mechanisms by the Security Council was largely in response to poor state performance in monitoring and reporting back on the relative progress of sanctions implementation and of continuing sanctions violations. They have improved the understanding of sanctions-busting networks and practices and have identified sanctions violators and others who have benefited from the illicit exploitation of natural resources in conflict zones (Ballentine, 2005:453).

IV. Forest management and Timber Certification: A tool for sustainability and security

a) International certification schemes

The idea of timber certification can be traced to the mid-eighties. The United Kingdom delegation to the 285 International Tropical Timber Organization (ITTO) presented a proposal to require that the forest management practices of the producer countries, primarily tropical forest areas in developing economies, be evaluated as sustainably or unsustainable managed sources of wood (Crossley 1996). The producer countries followed immediately with the assertion that the evaluation be applied to all of the ITTO countries and that temperate forest countries should also beheld to high standards of sustainability and global environmental responsibility. Concurrent attempts to reduce the

logging of tropical forests through import bans and public disapproval campaigns in Europe were gradually replaced with the current system of independent, third-party certification by internationally recognized auditing agencies. First-party (internal assessment) and second-party (client assessment) certification activities were also developed which offer alternative, less transparent assessments of forest management performance.

Two alternative international schemes have been put forward as options for timber certification: The Forest Stewardship Council (FSC) Principles and Criteria of Sustainable Forestry and The International Organization of Standardization (ISO) 14000 series for environmental management systems. The FSC's certification scheme measures the state of the forests and the quality of management according to pre-described performance standards. Products which originate from FSC-certified forest areas and are distributed through FSC-certified chain-of-custody channels can be marketed as ecologically sensitive products (sometimes referred to as ecolabels) under the FSC logo. Label recognition and trust by consumers are essential characteristics of products in certified markets. The FSC has certification readiness developed especially for large tracts of forest. Representatives of economic and environmental interests are on the FSC Board of Directors, although environmental non-governmental organizations (NGOs) form the primary active component of the FSC (Oliver 1996). The FSC standards are international and are meant to apply to all forest regions and types. FSC leaves it to national FSC endorsed initiatives to address specific regional issues.

The ISO is a worldwide organization which provides standards for consumer products and services based on international agreements. The ISO 14000 series[16] evaluate the existence of and commitment to the achievement of internal goals under an environmental management system in a business. This type of evaluation is not an actual performance assessment and does not carry an environmental labelling claim, although independent, third-party auditing of an EMS (the environmental management system) for internal use is an option (Bass 1998). Currently, applications for EMS certification under the ISO 14001 are beginning to emerge, although they are not widely documented.

There are significant differences between the ISO and FSC processes. The environmental management system standard from ISO (ISO 14000-series) is a process standard. It specifies how a

company's management system must be organised to address environmental aspects and impacts of its operations. ISO certification does not result in a product label. ISO requires no environmental performance beyond commitment to applicable regulations and legislation and commitment to continual improvement. In other words, two timber companies with different environmental records could both receive ISO certification. Also the timber companies from two different countries with very different environmental laws could all receive ISO certification.

FSC's scheme is based on specified performance standards that need to be met by the forest operation before a certificate is issued. The FSC accreditation system is based upon the relevant ISO-guides. The FSC encourages stakeholder input - for example, FSC recommends that in the consultative process for developing regional standards, "Special efforts should be made to include stakeholder groups which are often excluded from decision-making processes. These groups may include; under-represented social and ethnic groups, women, youth, rural communities, land owners, loggers and foresters. The FSC places particular importance on those people whose livelihoods depend on the forest." (FSC, 2002).

The majority of both trade and industrial concerns prefer the ISO system to the FSC system. Forest owners consider the FSC system to be inappropriate for small forest owners, and the dialogue between these owners and promotions has been different. On the other hand, NGOs regard the ISO system as ineffective in that performance is not specifically evaluated (Linden and Uusivuori, 2002). Nevertheless, these two systems are not necessarily mutually exclusive. FSC and ISO are fully compatible and can be complementary. ISO standards can provide the framework and control mechanisms for the management system, within which the FSC standard serves as the target performance level.

As certification continues to evolve, it will include experiments in combining the FSC and ISO approaches, as well as other sustainable forestry initiatives, to monitor and evaluate forest management practices. Other efforts offer a diverse set of options for national and regional assessments of forestry practices that are not certification systems per se, but do offer some system of evaluation and monitoring. International intergovernmental bodies address broader policy issues through negotiated protocols of criteria and indicators of sustainable forestry.

Examples of these include the Montreal Process for temperate and boreal forests, the Helsinki Process for European forests, and the Tarapoto Proposal for the Amazon (Upton and Bass 1995). NGOs and independent working groups have tended to support local sustainable forestry and forest certification efforts including The Rogue Institute for Ecology and Economy, the Sigurd Olson Environmental Institute, and the Good Wood Alliance (formerly known as Woodworkers Alliance for Rainforest Protection-WARP) in the U. S., the Indonesian Ecolabelling Foundation, the Imported Tropical Timber Group of New Zealand and the Bolivian Council for Voluntary Forest Certification (Crossley 1996). Source of origin claims, which allow the consumer to identify with the geographical origin of a minimum proportion of the raw material input of a product, include the Brazilian System for Certification of Origin of Forest Raw Material (CERFLOR) in Brazil, Swiss Wood in Switzerland and Woodmark of the Forest Industry Council of Great Britain (Upton and Bass 1995). These latter claims do not constitute timber certification, but they are additional examples of marketing attempts to capitalize on the worldwide call for sustainable forest management.

Environmental and sustainable management programs have been instituted in the United States, Europe and other regions through forest industry associations and partnerships such as the American Forest and Paper Association, the Netherlands Timber Trade Association, the United Kingdom Timber Trade Federation, the Mexican Council for Sustainable Forestry, the Imported Tropical Timber Group of New Zealand, and the Malaysian Timber Industry Board (Ingram, 1998).

b) ITTO and the forest management

The ITTO is an intergovernmental organisation promoting the conservation and sustainable management, use and trade of tropical forest resources. Its 59 members represent about 80 percent of the world's tropical forests and 90 percent of the global tropical timber trade. The ITTO was established by the International Tropical Timber Agreement (ITTA), which was adopted in 1983 and entered into force in 1985. The ITTA is a commodity agreement set up in response to growing concerns over the future of tropical forests, explicitly recognises the need to balance conservation and sustainable use of tropical forests. The ITTA was revised in 1994 to include broader provisions for information sharing, including non-tropical timber trade data, and greater consideration of non-tropical timber issues as they

relate to tropical timber and is currently being renegotiated.[17] In 1998 ITTO adopted the criteria and indicators for sustainable management of natural tropical forests. The recently renewed ITTA, 2006, is expected to come into force in 2008 and will operate for ten years, with the possibility of extensions of up to eight years. ITTO will continue to function under the ITTA, 1994, until the new agreement is ratified.

Participants at the ITTO workshop on phased approaches to certification, held from 19-21 April 2005 in Bern, Switzerland, were divided over the relative importance of ensuring the legality of certified timber. In order to encourage producers to move towards more comprehensive and effective forestry management, they considered a so-called 'phased approach' in which full certification would remain the goal but companies and other forest owners would be able to achieve market recognition and benefits as they improve their forest management practices and move towards full certification (ITTO, 2005). For example, the first stage could include a baseline requirement for basic certification, and successive stages could involve increased implementation of SFM practices that would in turn be verified and recognised by the certifier.

Although all participants agreed that the verification of legal origin could constitute part of the first stage of a phased approach, some participants emphasised the need for a more extensive verification of legal compliance. This would require that certified producers be subject to an extensive in-depth audit of their adherence to domestic laws relating to forestry and sustainable development. Other participants said that this approach might, in fact, hinder efforts to ensure SFM because it would increase the costs and procedural burden on producers wanting to get certification. According to ITTO's Amha bin Buang, such a specific criterion of compliance risks shifting the certification focus away from a "holistic" conception of SFM and towards assurances of legality (ITTO, 2005).

ITTO continued to participate actively in the work of the UN Forum on Forests (UNFF) in 2005 and the Collaborative Partnership on Forests (CPF) established to facilitate its work. The organization undertook missions to several member countries to promote sustainable forest management in 2005. ITTO also continued to strengthen its collaboration with the various processes aimed at establishing criteria and indicators for ascertaining the status of forest management (Montreal, Tarapoto,

ATO etc.) ITTO convened a further four national level field training workshops to encourage forest management unit level reporting based on its Criteria and Indicators for the Measurement of Sustainable Management of Tropical Forests in 2005. These were attended by over 150 forest concessionaires and related forest managers.

ITTO also continued work on forest law enforcement (FLE) in 2005, collaborating with FAO to publish "best practices" for forest law enforcement. Full reports on all these activities are contained in separate reports to the Council or available from the Secretariat. Partly due to concerns over FLE and legality of timber supplies, timber certification remained a topical issue in 2005. Forestry operations in many countries were seeking some form of certification, either through the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification Schemes (PEFC), or via other avenues (e.g. ISO 14000, national standards authorities, etc.). Tropical countries are increasingly developing national schemes, led by Malaysia's National Timber Certification Council (MTCC) and Indonesia's ITTO-supported Ecolabelling Institute (LEI), both of which marketed certified tropical forest products under their own labels in 2005. Several other tropical countries are seeking support from ITTO and others for the development of national certification schemes. The proliferation of national schemes has led to numerous calls for a framework for mutual recognition between schemes and ITTO has been active in attempting to facilitate agreement on such a framework, as well as promoting phased approaches to certification that recognize progress towards mee-ting certification goals in countries still in transition to SFM (ITTO, 2006).

c) Outlook of forest management and certification in the world

Wood production is the primary function for about one third of the forests. However, forests are more and more managed for various uses and values. Nearly 90% of forests in industrialized countries are being managed "according to a formal or informal management plan" (FAO, 2001). National statistics on forest management plans are not available for many developing countries, but preliminary estimates show that at least 123 million ha, or about 6 percent of the total forest area of developing countries, are covered by a "formal, nationally approved forest management plan covering a period of at least five years" (FAO, 2001). Proper management plans are seen as prerequisites for

the development of management strategies that include carbon-related objectives.

Forest certification was initiated as a market-driven instrument to confirm that certain predefined minimum standards of forest management in a given forest area at a given point in time have been achieved.

The initial rush of timber certification began soon after the introduction of the FSC[18] program in the early 1990's. By July 1998, a total of 10.3 mill. ha of forests were certified by the FSC process, of which 1.5 mill. Ha were certified in the United States and more than 6 mill. ha were certified in Europe (approximately 4.2% of the forest area in Europe). The forest areas of the U.S. plus more than 3 mill. ha certified in Sweden, accounted for 45% of the total FSC certified forests by the middle of 1998 (Ingram and Enroth, 1999).

In less than ten years, the average annual area of forests certified by the FSC has been approximately 0.5 mill. ha. The total area of FSC-certified forests has increased by approximately 12% each year (FSC, 1998). The area of forests certified under the FSC almost doubled in the first half of 1998, while at the end of 2000 about 80 million ha were certified (FAO, 2001). As of January 2006, FSC has certified more than 166 million acres (67.2 million ha)[19] of forest in 57 countries (See Figure 1). It can be seen that more than 80 % of the certified area corresponds to the developed countries in Europe and North America (FSC, 2006). The countries of Asia-Pacific region and Africa, where the greatest sustainability and conflict problems exist, represent only 7% together (4 % corresponding to Asia-Pacific).

Figure 1. **FSC Certification**
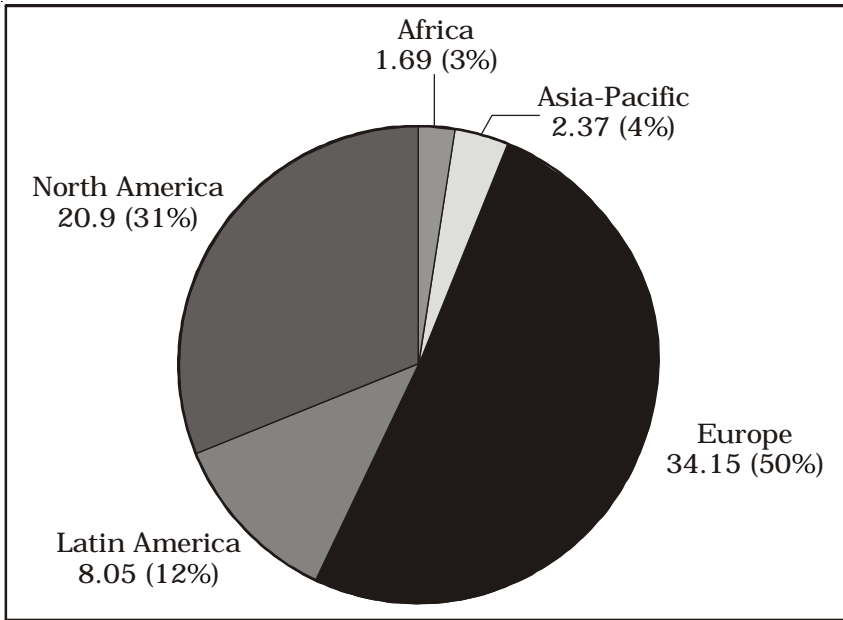
Source: FSC (2006). FSC-certified forests at the close of 2005

Countries have been urged to improve law enforcement in the forest sector and to control illegal trade in forest products. Forest Law Enforcement and Governance (FLEGT) at the East Asia Ministerial Conference and the EU Action Plan for FLEGT are the most comprehensive plans to fight illegal logging and associated trade. The world's richest nations (G8) have also agreed to implement measures to tackle illegal logging (G8 Gleneagles 2005). As much as 15% of the global timber trade has been estimated to involve illegalities and corruption practices, equal to US$10 billion losses in assets and revenues every year (Contreras-Hermosilla 2002).

About 50% of the forests in Western Europe and North America are now certified for sustainable forest management according to independent, internationally recognized certification programmes. Certified forests in North America and Europe account for over 96% of the world's certified forests (UNECE&FAO, 2006). Demand for certified forest products is growing, driven by concern for the sustainability of supply, either by companies up and down the wood chain, or by purchasers of wood and paper

products, especially business-to-business and governments. Considerably less tropical forests are certified (approximately 1% of certified forests). It is now difficult to export products from uncertified tropical forests to environmentally sensitive markets in the UNECE region, for example to the Netherlands and United Kingdom. Conversely, tropical timber from certified forests in some tropical countries, e.g. Malaysia, is finding improved export opportunities and strong market growth. Many tropical countries are not able to achieve certification in the short term and are advocating a phased approach towards certification of sustainable forest management, to enable market access during the necessary transition period and to maintain revenues to pay certification development costs. In Russia, certification of sustainable forest management is starting, and according to forecasts it will be further developed.

V. Forest Management in Asia-Pacific Region

a) Main topics at regional level

Figure 2. **Asia-Pacific Forests**

Source: ITTO (2006)

The diverse tropical forests of Indonesia, Papua New Guinea and the nearby archipelagos, like other rainforests, provide a reservoir of biodiversity. These predominantly evergreen rainforests include a wide range of conditions, from mangroves

to mountains. They support well over 500 species of mammals and more than 1,600 species of birds, not to mention around 30,000 species of higher plants.

These include biological treasures like Indonesia's giant rafflesia flower that can grow up to one metre in diameter, and more than 2,000 species of orchids. Of 43 known species of the bird of paradise, 38 occur in Papua New Guinea alone (Hernandez and Dewitt, 2003). Indonesia's remaining ancient forest is a refuge for the last populations of man's fourth closest relative, the orang-utan, and for the Sumatran and Javan rhinoceros that once roamed across much of Southeast Asia.

The cultural diversity of these forests is as astounding as their natural wonders. In New Guinea alone there are more than 800 languages, one third of all the languages spoken on Earth. Many of these cultures depend on these forests for their livelihood, and have done so for generations. Their future and the future of the forest are intimately linked.

Indonesia and Papua New Guinea have already lost around 65 percent of their ancient forests. The region as a whole has seen a 25 percent increase in timber production in 1996 to 1998 compared to the previous decade (Farley, 2002). Here, illegal logging and corruption within the logging industry remain widespread. A 2003 World Bank report warns that some of the richest areas of forest in this region could disappear within three to 10 years unless government action is taken to halt the rampant illegal logging and habitat destruction.

Table 1. **Management of the Production PFE in Asia&Pacific Region**

(Million Hectarea)

Country	Natural				Planted		
	Total area plan	with management	certified	sustainable managed	Total area	with management plan	certified
Cambodia	3,460	150	0	0	17	7	0
Fiji	0	N.A.	N.A.	N.A.	113	90	0
India	13,500	9,720	0	4,800	32,600	8,150	0
Indonesia	46,000	18,400	275	2,790	2,500	2,500	0.152
Malaysia	11,200	11,200	4,620	4,780	183	183	183
Myanmar	9,700	9,700	0	291	710	0	0
PNG	8,700	4,980	19	1,500	80	N.A.	0
Philippines	4,700	910	0	76	274	274	0
Thailand	0	N.A.	N.A.	N.A.	1,870	250	1
Vanuatu	117	0	0	0	2.1	2.1	0
Total	**97,377**	**55,060**	**4,914**	**14,397l**	**38,349**	**11,456**	**184**

Source: ITTO (2006)

As it can be observed in Table 1, only 14.7% of the natural PFE area in Asia-Pacific is sustainably managed, and only 5 % is certified. Malaysia is the only country that has a considerable amount of it's forests certified (41%). Indonesia and Papua New Guinea have a very insignificant amoiunt of their forests certified and the rest of the countries do not have any certified natural PFE. The certification of the planted PFE is incipient.

b) Key points of the timber industry in producing countries[20]

Cambodia

Deforestation is expanding rapidly in Cambodia. Nevertheless, the country has a large forest resource with the potential to sustain a robust timber industry and contribute enormously to national development. But the recent history of

Cambodian forestry has been turbulent, and the timber sector is in disarray. The concession system has been suspended, yet unauthorized timber production apparently continues. The implementation of recent reforms, and increased law enforcement, are urgently required.

Cambodia's significant reserves of high-value production forests present an important economic resource, the sustainable use of which would be of considerable benefit to the country. Cambodia has an estimated 8.10 million hectares of PFE, comprising 3.46 million hectares of natural production forest, 4.62 million hectares of protection forest and 17,000 hectares of industrial timber plantations. No part of the production PFE is considered to be under sustainable management; insufficient information was available to estimate the area of protection PFE so managed. A significant but unestimated area of forest has been degraded by shifting cultivation, encroachment, the development of agro-industries, illegal logging, overharvesting and forest fire, as well as by the use of chemicals during war.

The Forestry Administration was created in 2003, replacing the Department of Forestry and Wildlife; it has responsibility for managing the forest estate, although there may be some overlap in roles with the Ministry of Environment for forests in national parks and related reserves. Forest-sector reforms have been developed but are yet to be implemented effectively; the enforcement of existing policies, laws and regulations is weak. The management of forest concessions has been poor; the government cancelled some licences and, in 2002, suspended all remaining forest concessions until they fully complied with requirements. One apparent effect of this ban has been to stimulate a significant illegal timber industry.

India

In India, state forest departments are custodians of the public forest resource and act as the forest authorities. Timber production is shifting from natural forests, stimulating the development of community-based approaches. All forest states have set up forest development corporations, which are responsible for production within the public forest estate. Increasingly, some responsibilities for and benefits from the forests are being shared with local communities. For example, joint forest management, which usually involves an agreement between the forest department and a village to jointly protect and manage forest land,

has become widespread. Moreover, farmers are becoming more involved in tree-growing, the private sector is participating more in forest management, and partnerships between forest-product manufacturing companies and local farmers are developing. However, several components of SFM are still missing, including an achúrate inventory of resources, the classification of land by capability and function, efficient utilization and sustained investment.

The estimated 39.1 million hectares of India's natural-forest PFE comprises 13.5 million hectares of production forest and 25.6 million hectares of protection forest. Not all of this PFE is tropical. There are also 32.6 million hectares of planted forest in the PFE. While there was a net positive change in the area of forest during the 1990s, natural forest continues to be lost or degraded. In production forests, India follows a system of preparation and periodic revision of working plans. Information on the extent and management of forests is fragmentary at best, and often unreliable.

Nevertheless, it is estimated that at least 4.80 million hectares of natural-forest production PFE (tropical and non-tropical) are being managed sustainably; insufficient information was available to estimate the area of protection PFE so managed. The condition of several of the protected areas is poor because of fire, grazing and inadequate management. Forest management is becoming increasingly decentralized and community-based approaches are becoming more common. A national afforestation program was initiated in 2000 and operates at the level of forest divisions within status through forest development agencies and village forest committees.

India's wood-based industries face a serious scarcity of raw materials and, increasingly, they depend on non-forest and external sources. The country has become a major importer of tropical timber, particularly logs.

Fiji

Timber is Fiji's third-largest export commodity and the sector still has considerable growth potential. However, land-use conflicts arising from the pattern of ownership have contributed to the degradation of the forest resource, particularly in natural forest, and have often been viewed as a major constraint to SFM. Other constraints include a lack of convincing evidence for the financial potential of the natural resource (and therefore the

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continued conversion of forests to various types of non-forest use), an inability to control the standards of logging in natural forests, and inadequate product supply and market research. Fiji's substantial mahogany plantation estate, if well manager and marketed, will be a significant driver of development.

Because of the special conditions of land ownership there is no formal PFE, but some forests have equivalent status; an estimated 354,000 hectares may be regarded as a nominal PFE. None of the natural production forest (none of which is considered part of the PFE) is considered to be sustainably managed. Generally, the standard of logging is low. At least 55,000 hectares of PFE are estimated to be managed sustainably.

Fiji has 55,000 hectares of plantation of the high-value species *Swietenia macrophylla* (mahogany) and there are plans to continue to expand this estate. Harvesting began in 2003; how the mahogany resource is managed and marketed will have a large bearing on the future success of the Fijian timber industry. Fiji also has a significant softwood plantation resource, which currently supplies about two-thirds of industrial timber.

With some additions, Fiji continues to use its forest policy developed in 1950 as the basis of forestry, but implementation is guided by the priority now given to forest development based on exports. A review of the policy was completed recently. Apart from the conservation and expansion of forest cover, the forest policy focuses mainly on the efficient processing and manufacture of value-added products and training in forest industries.

Fiji is a net exporter of wood products, including pine chips, sawnwood and wood-based panels. There is a small export trade of high-value finished products. The expansion of the export of these could make a significant contribution to the economy, particularly when mahogany timber is put on the international market.

Indonesia

Indonesia's forest resource base is still vast, but it faces many threats that put its long-term sustainability in jeopardy. These incluye illegal logging; forest fires; deforestation through land encroachment; wasteful logging and processing; structural deficiencias and inefficiencies in forest industries; the indebtedness of forestry enterprises; unsettled land claims; inefficiencies in public forest administration, in particular in the process of decentralization; an inadequate base of human resources;

inadequate monitoring and evaluation; and a lack of effective governance. On the other hand, significant progress has been made in the establishment of certification systems and information on the management of concessions is becoming increasingly available.

The estimated 68.5 million hectares of Indonesia's natural forest PFE comprises 46.0 million hectares of production forest and 22.5 million hectares of protection forest. There are also about 2.50 million hectares of productive timber plantations. The security and integrity of the PFE are affected by several factors, of which forest fire and encroachment are among the most important. Illegal logging in the PFE (both production and protection) is widely held to be a major problem.

The Ministry of Forestry is undertaking a review of concessions and their compliance with the Indonesian C&I. This process has shed light on the status of management in the production PFE. It is estimated that at least 2.94 million hectares of natural-forest production PFE and 1.36 million hectares of protection PFE are being managed sustainably. Some 12% of the land area of Indonesia has been designated as protected areas. However, information on the management of a large part of the protection PFE is scarce.

Forestry is undergoing a process of decentralization that has proven difficult partly because of a lack of capacity at the decentralized levels of administration and partly because of disharmony in the policies of central and local governments. C&I for SFM have been developed for the country and a certification regime designed. About 275,000 hectares have so far been certified.

Malaysia

Malaysia's forests are generally well managed, although there are differences between Peninsular Malaysia, which has the strongest approach, and Sabah and Sarawak; however, all regional forestry administrations are committed to achieving SFM. The forest sector plays an important role in the Malaysian economy and is a significant employer. Already a major producer of value-added, wood-based products in the world market, this part of the sector is likely to continue to grow. A large part of its furniture manufacturing is based on rubberwood, which is grown in plantations, while much of the harvest from natural forests is still exported as plywood, sawnwood and logs. Well-organized and

resourced forestry administrations at both federal and state levels have the capacity to ensure that concessionaires adhere to prescribed practices and to oversee the long-term management of the resource.

Malaysia's PFE comprises 11.2 million hectares of natural production forest, 183,000 hectares of plantations and 3.21 million hectares of protection forest. At least 4.79 million hectares of natural-forest production PFE are estimated to be under SFM; the estimated area of protection PFE so managed is 3.21 million hectares.

Deforestation within the PFE is insignificant, but there is degradation in some forest areas. Malaysia is a federation and forestry is under the jurisdiction of the states. Thus, the implementation of the national forest policy requires a cooperative approach by the state and federal authorities, which is done primarily through the National Forestry Council. At the federal level, the division of responsibilities between the Ministry of Natural Resources and Environment and the Ministry of Plantation Industries and Commodities poses a coordination challenge. Managing relations between indigenous communities and concession companies needs further attention.

All timber harvesting and related management operations are carried out by contractors operating on the basis of either a long-term logging agreement (concession) or a short-term licence. In Sabah, FMUs of 100,000 hectares each have been established and 100-year forest management agreements offered to forestry companies.

Certification of forest management is well advanced in Peninsular Malaysia and is expected to increase in Sabah and Sarawak. There is a well-established protected-area system in place covering 16.3% of the total land area. Nevertheless, there is a need to establish better coordination between the federal government and the states in wildlife management and environmental conservation.

Myanmar

Myanmar once boasted an exemplary system of forest management, particularly in its large area of teak forests, but in recent decades there has been significant deforestation and forest degradation. Timber production almost doubled in the ten years to 2003, and the Forest Department lacks sufficient resources to

fully implement the silvicultural system or enforce regulations, particularly in remote border areas. Community forestry also faces a number of challenges, such as the lack of decentralization in forestry administration. Nevertheless, about half the country is still forested and SFM remains within reach, given the surmounting of political, administrative and economic obstacles.

Myanmar has an estimated 13.0 million hectares of natural tropical forest in its PFE, of which 9.70 million are designated for production and 3.30 million for protection. Myanmar also has about 710,000 hectares of planted forests, 35% of which are teak. Many of Myanmar's forests are becoming degraded, exacerbated by a lack of law enforcement, particularly in remote regions.

At least 290,000 hectares of semi-natural teak forest in the production PFE are being managed sustainably, but insufficient information was available to assess the management of the bulk of the production PFE. Nor could an estimate be made of the extent to which the protection PFE is so managed. A well-tested silvicultural system exists for Myanmar's teak forests, but the extent to which it is being implemented is unclear. The Ministry of Forestry has primary responsibility for implementing the national forest policy, which was instituted in 1995. Some of the most significant obstacles in the way of implementing SFM are institutional. These include chronic budget shortages affecting the Forest Department, very limited private-sector involvement, insufficient well-trained personnel, and a lack of effective participatory processes.

Myanmar has established protected areas and prepared plans for expanding the protected area system and for improving biodiversity conservation, but no information was available on implementation.

Papua New Guinea

Two-thirds of PNG is under forest cover and the oficial timber harvest is well below the estimated nacional sustainable timber yield. On average, each citizen has rights over about 6.4 hectares of forest. However, the majority of people still live in extreme poverty. The challenges are substancial if SFM is to be achieved. Key among them would appear to be: reducing the social and cultural disruption of logging; increasing the benefits to local development of forest management; and increasing the allocation of resources to the monitoring of logging activities and the implementation of forest policies at the national level.

Customary land ownership is guaranteed by the PNG constitution and is the key factor influencing the use of the forests; 97% of the land is held as communal or clan commons. The determination of a PFE is difficult in PNG given its land-tenure system. Nevertheless, ITTO estimates that the country has about 10.5 million hectares of forest that might be considered permanent; these include 8.7 million hectares of forest over which timber rights have been acquired (production PFE), 1.7 million hectares allocated for protection and about 80,000 hectares of timber plantations.

At least 1.5 million hectares of natural-forest production PFE are estimated to be managed sustainably. The PNG Forest Authority was established in 1991 by the Forestry Act as a statutory corporation with regulatory and administrative responsibility for the management of the country's forests. A 'landowner company' concept was developed as part of the 1979 national forest policy in order to increase nacional participation in forestry. However, this has not been wholly successful.

PNG is a major exporter of tropical logs, shipping out an estimated 2.02 million m3 in 2003 to China, Japan and other mostly Asian destinations. The government collects revenues from a log export tax and a reforestation levy, while resource owners receive a royalty on timber harvested (10 kina per m3) and other levies and premiums.

Philippines

The Philippines has lost a substantial part of its natural forest, and timber production has declined dramatically over the last three decades. Many of the problems associated with the large-scale destruction of the forest resource can be linked to a combination of land and concession tenure issues, and the lack of ability or will to enforce the conditions of the concessions. Moreover, many of the rural poor did not have land tenure and often settled illegally on forest land. Considerable efforts have recently been put into the development of community forestry, but the success of this approach in restoring the country's degraded landscapes, particularly on steep slopes, and in increasing rural incomes, remains to be proven.

An area of 15.9 million hectares has been defined legally as forest land (land with greater than 18% slope), but the estimated natural-forest PFE under actual forest cover is only about 6.24 million hectares, comprising 4.70 million hectares of production

forest and 1.54 million hectares of protection forest. There are also an estimated 274,000 hectares of plantation. At least 76,000 hectares of natural-forest production PFE are estimated to be sustainably managed. No estimate could be made of the extent to which the protection PFE is so managed. While commercial-scale concessions (using what are called 'timber licence agreements'-TLAs) have been the main mechanism for allocating logging rights in the past, forest management is now being conducted largely under community-based approaches; TLAs will be completely phased out by 2006. An estimated 18-20 million people are dependent on forest lands (not necessarily forested) for subsistence uses and traditional and customary lifestyles.

The Department of Environment and Natural Resources is the government agency responsible for forest management and protected areas; a degree of administrative decentralization has been pursued in recent years. The Philippines has a large number of endangered species. In its protected-area network of 6.85 million hectares, the estimated extent of forests is 1.54 million hectares.

Thailand

Forestry in Thailand is constrained by several factors. Coincident with Thailand's rapid economic growth in the 1980s and 1990s, its forest resources became severely depleted. Logging in natural forests has been banned, but the forests remain under pressure from encroachment, illegal logging, fire and other agents. The Royal Forest Department, the government agency responsible for forests, has a long history of forest management and remains reasonably well resourced. Plantations, especially of rubberwood, and imports are now supplying the country's thriving downstreamprocessing timber industry. The huge importance of tourism to the Thai economy provides an excellent incentive for strong measures to improve forest protection.

The PFE is estimated to be 10.1 million hectares, of which 1.87 million is production PFE (all plantations) and 8.26 million protection PFE. An estimated 50% of the reported PFE in 1991 has been converted to agriculture, settlements and other uses.

A logging ban has been in place in natural forests since 1989, after disastrous flash floods; however, it has not been sufficient to stop forest loss and degradation. Illegal tree-cutting in natural forests remains a problem.

At least 522,000 hectares of protection PFE are being managed sustainably, but generally little information is available on the status of management in forested protected areas.

Forests are owned by the state. There is an ongoing debate in Thailand about the rights of traditional and local communities to use and manage forests, including in protected areas. A draft Community Forestry bill has been under development and debate in Thailand for more than a decade.

VI. Forest management and Timber Certification in post-conflict economies

Conflict increases insecurity in two senses, both of which have economic consequences. It increases micro-insecurity of violence against the person and against the property. It also increases the macro-insecurity by which means that those state-level institutions which provide the framework for economic activity, such as non-arbitrary taxation, the rule of law, and sanctity of contract are destroyed (Collier and Pradhen, 1998:19).

The post-conflict reconstruction, defined as obtaining external and internal balance and high per capita growth, is surprisingly difficult to obtain even under favourable political and economic conditions. The legacy of war is a key constraint on post-war growth, especially through the damaged commercial network, the loss of trust, and the weakening of market institutions. In addition, political uncertainty in the post-war period inhibits private sector investment and significantly reduces the peace dividend. This is worsened by inappropriate stabilisation policies (Sala-i-Martin and Subramanian, 2003:6). Aid policies should be modified for war and post-war economies to accelerate the reduction in foreign debt and to support small scale private producers, including those in the countryside. Military spending does not fall and social spending does not rise as quickly as is generally expected thus delaying a noticeable reduction in poverty. The clear sequencing but gradual implementation of government reforms, especially in the social sectors, is important in maintaining entitlements. Key victims of war, and especially of internal war, are civil and economic institutions. Their importance in post-war reconstruction has been underestimated and they should receive priority funding by donors and governments to accelerate post-war growth and poverty reduction.

Conflict commodities are now a focus of international action; gem stones, timber and drugs have all funded war (Collier 2003;

Malone and Nitzschke 2004). Over the last years, international recognition of the problem of armed conflict in forested regions has grown rapidly. Workshops on the topic have been held in Colombia, Japan, the Netherlands, and the United States, among others. A number of global studies and comparative research projects have focused on different aspects of this phenomenon (UNECE/FAO, 2006a). There has been a lot of interest in *best practices for conservation and forest management in contexts of conflict or potential conflict*. This has been based largely, but not entirely, on the practical experiences of conservation and community forestry initiatives operating in conflict areas, and on efforts to reduce the environmental impacts of refugees. Some evidence suggests that community forestry efforts reduce the incidence of violent conflict. An increasing number of countries find themselves in *post-conflict situations*. These can pose particular risks to forests, as governments remain weak, there are often many armed people looking for ways to make a living, and economic activity recovers in the forested areas.

Recent research identifies resource abundance as an important cause of policy failure. This is because the primary sector remains large in relation to GDP so that differences in the scale of natural resource rents (and in their socio-economic linkages) condition macro policy in important ways. Most developing countries are resource-rich; a condition that engenders predatory political states that deploy resource rents in ways that cumulatively distort the economy so it falls into a staple trap, which undermines economic growth and environmentally sustainable policies.

Low-income conflict countries are overwhelmingly dependent on commodity exports. Consequently their economic management faces all the problems inherent in commodity dependence, including the volatility of world prices that often generates a boom-bust cycle for producers (UNCTAD, 2004). Producers of timber are presently benefiting from stronger growth in China and India as well as Japan's economic recovery, all of which have driven up prices after years of stagnation. But it is not sure that the revenues will be used for development or be laid at the door of national elites, but bribery has been all too common as well. Companies acting as agents pay the bribes, thereby enabling oil companies to deny any involvement. Financial globalization facilitates such secret payments, but recent legislation to combat money laundering by organized crime and terrorists has scooped up suspicious transfers by agents with

connections to some major companies. Secret bank accounts not only support terrorism, but also facilitate the corruption that undermines development. Similarly, transparency would be encouraged if only fully documented payments were tax deductible (Stiglitz, 2004:1).

Sound macroeconomic policy is critical to the success of microeconomic measures like much of environmental policy, a fact often neglected by environmental reformers. There are two implications of this. First, in the long term, improved governance will enhance environmentally sustainable management of: renewable resources (by taking account of the total economic value of resources); finite resources (guided by the need to maintain genuine saving). Second, until such improvements occur, environmental policies are likely to underperform unless they are adapted to take account of flawed macro policies. Environmental reformers therefore need to support efforts by the international institutions to improve macroeconomic management.

In this context the main objectives of the new International Tropical Timber Agreement (ITTA, 2006) are: "to promote the expansion and diversification of international trade in tropical timber from *sustainably managed* and *legally harvested forests* and to promote the sustainable management of tropical timber producing forests …"

The philosophy of using tropical forests in a sustainable way for economic development is stated explicitly in these two key objectives. The agreement acknowledges the role of ITTO in assisting countries to pursue sustainable development and alleviate poverty and encourages forest-dependent indigenous and local communities to achieve sustainable forest management.

ITTO will help its members (with special attention to the post-conflict economies):

1) To improve the competitiveness of wood products relative to other materials, boost the marketing of tropical timber from sustainably managed and legally harvested sources, and share information on certification and other aspects of the international timber market, and 2) To improve forest law enforcement and governance, address illegal logging and related trade in tropical timber, and undertake sustainable forest management and forest restoration. It will also strengthen the capacity of countries to gather and report data on the tropical timber trade and forest management (Forest Newswatch, 2006).

Heightened awareness of illegal logging and the trade of illegally derived wood products have led to an urgent need for better governance. Public procurement policies are increasingly being established as part of the solution to these problems (UNECE/FAO, 2006b). During the last three years, major efforts have been taken to establish "green purchase" regulations for public entities by Governments and also by environmental nongovernmental organizations (ENGOs) of European countries including Belgium, Denmark, France, Germany, Italy, Netherlands, Spain and Switzerland and the United Kingdom, as well as countries outside Europe, including the US and Japan. In many cases, public procurement officers satisfy the new requirements by purchasing only CFPs, which are seen by many procurement offices as guarantees of legally and sustainably sourced wood and paper products. This development of the public procurement process for promoting sustainable forest management and giving preference to certified timber is, on the one hand, seen as an opportunity and as one of the driving forces for enhanced worldwide forest and CoC certification.

It is necessary to incorporate, at some level and in some form the "economic dimension" in order to better understand the causes of the conflict (Berdal and Malone, 2000) and to avoid it in the future. Solving many of the future environmental problems of the post-conflict economies will require raising standards of living. One of the traditional paths to development involves opening up the economies to trade. The search for sustainable forestry practices that are also economically sustainable has led to a focus on rapidly growing tree species and plantation forestry, because the invested funds are tied up for a shorter period of time (Tietenberg, 2006:274).

It is important for the post conflict countries to have access to the Official Development Aid (ODA) funds and the Export Credits (EC). In this context are important the recent decisions of the World Bank (WB) and the Export Credit Agency (ECA) to put the principles of the legality and sustainability as a condition for the development credits access. The international financial institutions and the World Bank in particular, have come to recognise the need to tailor appropriate programs for each post war country, so that adjustment policies do not frustrate, but enhance peace efforts (Barnes, 2001). Other sources of financing for the sustainable management of the forests could be the Global Environmental Facility (GEF), the instrument used by the IPCC and the Convention of Biodiversity, or the Clean Development

Mechanism (CDM) introduced by the Kyoto Protocol (Duschke, 2002, Herzog *et al.* 2003).

It is important that the countries create some proper financing funds. That could be the trust funds, most of which are endowments, meaning that the trustees can spend the interest and dividends, but not the principal. This assures the continuity of funds. The funds can be created by tax revenues or by some kind of "conservation fees", charged to the business or to the foreign visitors to the country (Belize, Namibia and Papua, New Guinea have implemented conservation fees charge to the foreign tourists). To implement sound policies of forest management crucial role have the legislation and the institutional framework.

VII. Conclusions

The case of the certification of timber industry represents clearly the relation between sustainability and security, being that especially important for the post-conflict economies. As the conflict is a form of temporary "interruption" of an ongoing process of development (Duffield, 2000), a peaceful environment is a necessary prerequisite to achieve a sustainable development.

Forest certification if adopted on a much broader scale can do two things. Firstly, some of the certification schemes can clearly prove that timber was produced under and with consideration of social and environmental aspects in forest management and that timber comes from known sources, and secondly forest certification can add to the traceability of timber.

Sustainable management of renewable forest resources can prevent conflict. In general, large-scale clear cutting degrades the social and environmental conditions of local communities and can increase competition for remaining resources. To slow the process, economic incentives that promote large-scale clear cutting should be reduced, local communities should be encouraged to promote Sustainable Forest Management (SFM), and regulations and incentives should be employed to persuade large companies holding forest concessions to practice SFM. In turn, as a component of a sustainable system, SFM provides economic diversity and thus helps secure rural livelihoods. Promoting SFM in the context of community-based natural resource management, such as in the Congo Basin Forest Partnership, can also be a conflict management tool. By involving local communities and institutions, such approaches can mitigate conflict and reduce the potential for violence.

International forest certification schemes can also reduce the likelihood of conflict. For example, the Forest Stewardship Council (FSC) label, which is a globally-acknowledged timber certification label, requires certified companies to guarantee their products' legality, as well as to establish clear tenure, limit environmental impacts, and provide social and economic support for local communities. If its incentives were strengthened, the label could contribute to reducing conflict.

Perhaps the most pressing one is how to focus forest interventions effectively and efficiently on poverty reduction. To this end, the United Nations Forum on Forests (UNFF) views its mandate within the context of the broader discussions within the UN system as a whole, such as the policy decisions and targets manifested in the Plan of Implementation of the Johannesburg Summit and the Millennium Development Goals (MDGs).

While progress towards sustainable forest management can be seen in some parts of the world, many challenges still exist, particularly in developing countries. The success of the international arrangement on forests will ultimately depend on joint action to mobilize political, financial, scientific and technical support for sustainable forest management.

Governments, intergovernmental organizations, industry and civil society have critical roles to play, in order to ensure that deforestation and forest degradation are significantly reduced and that the products and services from forests benefit those people who depend on them the most.

Some 150 countries are members of one or more of the nine regional and international processes for SMF. These processes aim at developing, implementing and using certification to guide the monitoring, assessment and reporting on their forests and to improve forest policies and practices. There is considerable variability in the indicators identified by the various processes, but a notable convergence in their criteria.

Certification can greatly contribute to economically, socially and ecologically sustainable development also in the developing countries. Reported benefits of mutually reinforcing processes of certification and policy and institutional (e.g. Bolivia, Brazil, and South Africa) reforms: 1) Certification has an increased acceptance of community representatives in policy fora; 2) It has raised awareness of the potential of SFM; 3) Certification has advanced more participatory and decentralized forest policy

process; 4) Contributed to better policy definition, and 5) It can increase supply-chain transparency; and improve worker rights, income and safety standards.

But still there are challenges to meet: 1) Also the certification is rapidly becoming a standard requirement for timber suppliers in boreal and temperate conditions, only 10% of certified forests are located in the tropics, although demand exceed supply of some tropical timber products; 2) Still exists uncertainty about the recognition of different schemes; 3) There is uncertainty about the size of the markets; 4) The question of sharing the costs and benefits of certification; 5) Incompatibility or even conflict between national laws and certification standards can be a problem, and 6) Lack of recognition of other land use issues: certification often fails to take into account other land uses, such as agriculture, which may have significant impacts on forests. And certification does not addressing well the root causes of deforestation– certification is not aiming at that either.

Some topics for further discussion on certification are the following: 1) How to link policy reforms with certification standards and how to ensure that certification is not in conflict with e.g. community forestry, tenure of local communities; 2) How to make sure that performance requirements are relevant and achievable in specific country conditions. 3) The role of forest certification in tackling illegal logging, corruption and other governance and compliance problems and 4) How to meet certification standards in a constrained financial environment.

A big challenge is to create mechanisms for effectively verifying the legality of wood production and denying access to the markets of illegally sourced wood and wood products. Related concerns to be addressed include the financing of illegal operations and the laundering of proceeds from illicit extraction of forest resources and trade of forest products. Relevant concerns are also due diligence by financing institutions, public procurement and export credit agencies, as well as the promotion of the consumption of legally produced products.

In this regard, it is essential to have a series of pillars which will deal with legality verification, customs enforcement, public procurement standards, financing matters and development, and cooperation assistance. Further studies are necessary to gain better understanding of trade flows, links between illegal logging and investment and finance. However, steps to eradicate illegalities should always focus on those guilty of illegal activities

and not impede the activities of legitimate businesses. It should also be said, that illegal activities is not only a forest sector issue. They usually occur in situations where illegal activity, together with corruption, is rife in all branches of society.

It would be useful to identify key producer countries (especially in post conflict situation) with which more immediate UNFF&FSC&ITTO partnership activities could be implemented on a pilot basis, including such issues as log tracking and chain of custody verification schemes, associated training and capacity building. This should include stronger partnerships between public administration and forest industries and development of company-specific guidelines to prevent illicit extraction of forest resources (Patosaari, 2004). Also is needed effective implementation and enforcement of a functional legal system, weeding out corruption, increased transparency in business activities and the promotion of democracy. One of the basic prerequisites is the fair distribution of land ownership rights.

Forests and forest products should be used in support of economic growth in a sustainable manner, thus contributing to the overall development of the society as a whole. Also, policies that expand the capabilities of individuals and communities of forest dependent peoples to diversify their income base will be essential for long term sustainability. Strengthening institutional capacity for governance, and providing extensive opportunities for education, especially for girls, will be important factors in maintaining a healthy local and national economy.

Efficient and effective land tenure systems and access to forest resources are crucial for local and indigenous communities and provide an economic incentive for sustainable forest management. When people have control and ownership of forests, then they have greater opportunities to capitalize on forest assets, and even greater incentive to sustain the resources. Good management and clear principles of social responsibility are pre-requisites for sustainable forest management.

But none of these pieces can come together without the third basic tenet of sustainable forest management, that of good governance and strong law enforcement. A lack of economic opportunities combined with weak law enforcement often leads to illegal logging, which can destroy ecosystems and deprive the local forest-dependent community of the possibility of sustainable livelihood. It can also further push forest-dependent people into extreme poverty.

Finally, according to the Systemic Thinking approach, to achieve the security together with the three pillars of the sustainable development (economic, social and environmental) requires a new, more holistic thinking on the interaction and linkages between people and the natural resource base. Forests are deeply entwined with other sectors of the society and their management requires coordinated efforts and inter-sectoral approaches. There is a need for a broader, more inclusive vision to create mechanisms that would allow interaction between various stakeholder groups and sectors that influence forests and the forest-dependent poor.

The principle of sustainable forest management, as a policy concept in Asia Pacific region, and worldwide, should be an integral part of general policy instruments for social development, economic viability and environmental protection.

Notes

[1] The fundamental assumption, on which the systemic thinking concept is based, is that everything is systemic. In other words, everything interacts with (affects and is affected by) the things around it. If we want different outcomes from a situation, we have to change the system that underpins the situation in such a way that it delivers different outputs (Bartlett, 2001). The Systemic thinking concept has its primary origins in elements and abstracts of the following thinking techniques: Creativity and lateral thinking: Dr Edward de Bono (generating alternatives, thinking as a skill and "mechanism of mind"), TOC-The Theory of Constraints: Dr Eliyahu Goldratt (The "3-cloud" method and the single constraint), TRIZ-The Theory of Inventive Problem Solving: Dr Genrich Altshuller (patterns in problems and solutions), ST – Systems Thinking: Joseph O'Connor & Ian McDermott et al (system interactions), NLP-Neuro-Linguistic Programming: various (mental modelling).

[2] For example, the authors suggest resolving the *marginalisation of the majority world* by reform of global systems of trade, aid and debt relief; the *competition over resources* by comprehensive energy efficiency, recycling and resource conservation; the *climate change* by rapid replacement of carbon-based sources by diversified local renewable energy sources as the primary basis of future energy generation.

[3] See Homer-Dixon (1991 and 1994).

[4] More details can be consulted in Gylfason (2000) and Stijns (2006).

[5] However, the idea that natural resources might be more a curse than a blessing began to emerge in the 1980's. Numerous studies, including a notable one by Jeffrey Sachs and Andrew Warner (1995), have shown a link between natural resource abundance and poor economic growth. See also Sachs and Warner (2001).

[6] We assume that the good governance is one that: "includes formal institutions and regimes empowered to enforce compliance, as well as the informal arrangements that people or institutions have agreed to perceive to be in their interest." (Commission on Global Governance, 1995). Recent studies

critique the idea that a market economy and liberal democracy are the two preconditions for a stable peace. It is necessary to have "institutionalization before liberalization" in order to focus on strong institutions and the role of law (See Paris, 2004; Day and Freeman, 2005).

[7] The focus on institutions tends to go hand in hand with a concern of promoting good governance. Some authors interpret this rise of good governance as an issue can be seen as the latest manifestation of developed world conditionalities imposed on the developing world (See Chandler, 2006). In our opinion, support that receives the developing economies could not be completely unconditional, because the practice shows that it could be used by corrupt, antidemocratic and oppressive "sovereign" regimes and enrich only some elites without bringing any social and economic progress to the population.

[8] *Mitigation* of climate change means alleviation or softening of climate change through diminishing the carbon dioxide (CO_2) emissions.

[9] *Net forest area:* the difference between the new forests (afforestation) and loss of forests (deforestation).

[10] *Deforestation*: loss of forests; *afforestation*: planting of new forests; *forest management*: the stewardship and use of forests to provide a range of benefits over time; *agroforestry*: the growing of both trees and agricultural /horticultural crops on the same piece of land; *bioenergy:* the use of biomass as a thermal heat source: *biomass*: is a fuel from any recently living organism, the form most readily available is chipped wood.

[11] Parts to the IPCC are 194 countries, divided in 6 regions: Africa (53), Asia (33), South America (12), North and Central America (22), South-West Pacific (23), and Europe (51).

[12] Adaptation means to adjust to anew or changed situation produced by the climate change.

[13] For detailed research about the impacts of deforestation on the wild life consult Bass et al. (2003)

[14] Boyce (2005) presents an extensive analysis about the Cambodian case.

[15] WWW(2006) highlights the case of Asia Pulp and Paper (APP), that on August 7, 2006 falsely advertised itself in two major international newspapers as a company that protects forests and wildlife and is committed to "conservation beyond compliance". In fact APP is one of he most destructive forces behind forest loss on the Indonesian Island of Sumatra. These forests are known as "High Conservation Value Forests" (HCVF) due to their environmental, socio-economic, cultural, biodiversity and landscape values.

[16] Consult "List of ISO 14 000 Standarts" http://www.iso14000-iso14001-environmental –management.com

[17] See BRIDGES Trade Biores, 4 March 2005

[18] While the ISO 14001 standard has been adopted, it has not yet been widely applied in forestry sector

[19] http://www.pefc.org/internet/html/index.htm, http://www.fsc.org/en/whats_new/fsc_certificates

[20] This part is based on selected data from "Annual Review and Assessment of the World Timber Situation", ITTO (2005 and 2006)

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Acronyms

CDM: Clean Development Mechanism

CERFLOR: Brazilian System for Certification of Origin of Forest Raw Material

CoC: Certification Schemes Chain of Custody

CFP: Certified Forest Products

CPF: Collaborative Partnership on Forests

DRC: Democratic Republic of Congo

EC: Export Credit

ECA: Export Credit Agency

ETFRN: European Tropical Forest Research Network

FAO: Food and Agriculture Organization of the United Nations

FDA: Forestry Development Authority

FLE: Forest Law Enforcement

FLEGT: Forest Law Enforcement and Governance

FSC: Forest Stewardship Council

GEF: Global Environmental Facility

HCVF: High Conservation Value Forests

ICG: International Crisis Group

IPCC: Intergovernmental Panel on Climate Change

ISO: International Organization of Standardization

ITTA: International Tropical Timber Agreement

ITTO: International Tropical Timber Organization

IPCC: Intergovernmental Panel on Climate Change

LEI: Indonesia's Ecolabelling Institute

MDGs: Millennium Development Goals

MEA: Millennium Ecosystem Assessment

MTCC: Malaysia's National Timber Certification Council

NIPF: Non-industrial Private Forest

NTGL: National Transitional Government of Liberia

ODA: Official Development Aid

PEFC: Programme for the Endorsement of Forest Certification Schemes

PFE: Permanent Forest Estate

PNG: Papua New Guinea

SFM: Sustainable Forest Management

TAR: Third Assessment Report

UNFCCC: United Nations Frame Convention on Climate Change

UNFF: UN Forum on Forests

UNECE: United Nations Economic Commission on Europe

USAID: United States Agency for International Development

WARP: Woodworkers Alliance for Rainforest Protection

WB: World Bank

WWW: World Wildlife Fund