Forest-Related Conflict

Impacts, Links, and Measures to Mitigate

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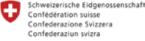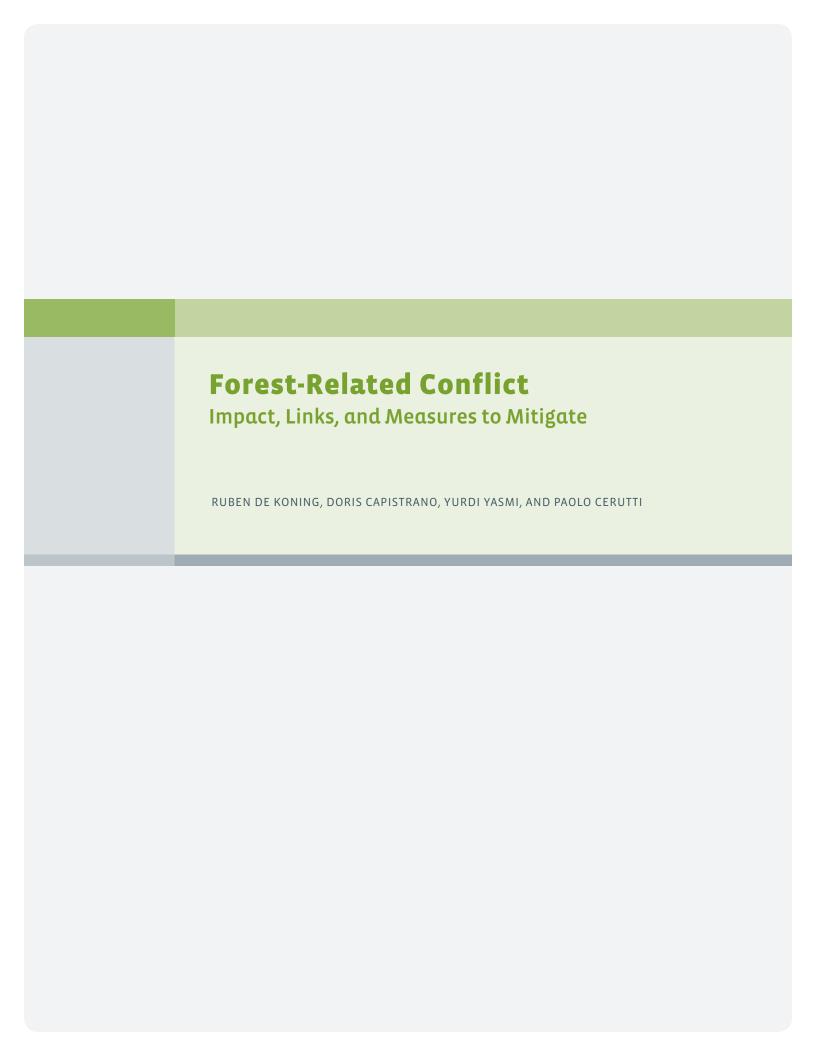
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Cover photo: Danau Sentarum National Park, West Kalimantan, Indonesia, by Yurdi Yasmi. Illegal hunters in Danau Sentarum National Park often hunt protected and endangered species, such as proboscis monkeys (Nasalis larvatus). The monkeys are consumed by some indigenous groups and are sold in illegal markets. Conflict between the national park guards and the hunters is one of the typical problems in the area.

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ABSTRACT

Forest-based conflict is one of the major global challenges for the international forestry agenda together with poverty, climate change, conservation, and biofuels. In this paper, we will estimate the scope of the problem for people and forests, identify the role of forest rights and tenure as part of the cause of and solution to conflict, and project future challenges. We will recommend a set of actions that donors, governments, and civil society organizations should embark on to fight corruption, to tackle power imbalances, to clarify rights, to improve corporate responsibility, and to engage communities in resource management.

Forest tenure and governance reform will not resolve the most violent conflicts that play out in forests around the world. However, forestry sectors can contribute to the creation of enabling environments for peace by preventing conflict escalation and by contributing to postconflict reconstruction. Engagements in structural forest-sector reform and forest-based investment are particularly needed in forest-rich and conflict-prone countries in the tropics. The ideas and projections included in this paper are preliminary and meant to stimulate reflection rather than to insist on particular conclusions.

1 INTRODUCTION

Forest-related conflict is pervasive and widespread, and it can be extremely destructive. But conflict is not unique to forests. No natural resource used and managed by humans is completely conflict-free. Some analysts maintain that conflict over natural resources, including forests, has become more prevalent and that this problem is not merely an illusion generated by more research. More people competing for fewer resources, rapid sociopolitical changes, decentralization, and expanding markets for land and forest products have heightened tensions and intensified conflicting needs and priorities for resources and their management.

Despite the perception to the contrary, the number of armed conflicts has actually decreased in recent years. Although the instances of armed conflicts rose sharply just after the end of the Cold War, their occurrence then stabilized and declined to a level corresponding to that at the end of the 1950s, which were fewer than at any later time during the Cold War.[1] In 1992, there were 50 armed conflicts in which a government was a party. The number of such conflicts dropped to 29 in 2003, which is more than a 40 percent decline.[2] This decline is often attributed to the termination of many proxy wars in the developing world that had been financed by either of the two Cold War superpowers. It has also been argued that the end of the Cold War unlocked many conflicts politically, allowing the United Nations (UN) and other international organizations to intervene more actively in ongoing conflicts and postconflict situations.

Although the worldwide decline of armed conflicts is good news, many reasons for deep concern remain. With regard to the geographic location of armed conflict, Central and South Asia and Africa do not seem to have gotten any safer. With regard to the nature of warfare, observers note a shift from a small number of high-intensity inter- and intrastate wars fought by well-defined armies to a large number of low-intensity civil wars engaging a plurality of ill-trained belligerent groups that avoid direct confrontations but often target civilians.[3] Those conflicts are particularly enduring in poorly developed countries, characterized by state failure and huge disparities in wealth and where natural resources and criminal opportunities form the principal stakes in conflict rather than ideology or territory. In this view, resource-rich and degraded environments are considered increasingly vulnerable to armed conflict. The forest is an environment that can represent both.

Indeed, during the past 20 years, armed conflicts have struck forest areas in more than 30 countries in the tropics. Notorious examples are Cambodia, Liberia, Myanmar, and Sierra Leone where rebel warfare largely played out in remote cross-border forest areas. Conflicts of lesser intensity include intercommunal struggles and forms of protests frequently observed along forest frontiers in countries such as Brazil, Indonesia, and Mexico. Although each of those conflicts has its own historical and political context, many reveal a distinctive role of the forest, its timber, and the rights to them.

The grievances that are mobilized in forest-based conflicts often, though not always, arise from continued poverty and subjugation of people's rights to natural resources together with other human and civil rights. When conflicts degenerate into violence and when governance structures break down, forests have, in many cases, been exploited by armed groups, including the military, to strengthen their fighting capacities.

Although some burning crises in forest areas have diminished in recent years, such as those in Liberia and Nepal, conflicts simmer on in countries such as Cambodia and Myanmar and new ones emerge. A most recent upsurge of forest-based conflict can be witnessed in central India, where Maoist rebels are calling for a peasant revolution in marginalized forest areas. Forest-based conflicts are not likely to go away any time soon. The global demand for natural resources in general and timber in particular is growing rapidly, pushing forest and agroforestry enterprises ever deeper into the forest. In addition, the increasing demand for arable land, for commercial or subsistence purposes, intensifies human pressure on forests and fuels the perception and reality of competition for resources in many tropical countries. Population growth and rapid economic development, particularly in countries such as Brazil, Russia, India, and China (commonly known as BRIC), are major driving forces. In countries and regions where governments cannot guarantee livelihood and tenure security and equal distribution of benefits—often located in the tropics—the pressures easily create the kind of grievances that can feed armed conflict.

Although violent conflicts in and about forests have received considerable attention in recent years, the most typical forest-related conflicts have been low-intensity conflicts that can sometimes turn violent. Common examples include disputes between forest communities over village boundaries or disputes between forest concession holders and local communities over access to forest products, decision making, and benefit sharing. Those conflicts tend to be localized and can persist for long periods. Unclear or differing interpretations

or violations of rights and tenure are invariably at the root of those conflicts. Such conflicts normally arise because particular user groups are excluded from participating or sharing in the benefits of forest management.[4] Conflicts occur if there are (a) contradictions between local and introduced management systems, (b) misunderstandings and lack of information about policy and program objectives, (c) contradictions or lack of clarity in laws and policies, (d) inequity in resource distribution, or (e) poor policy and program implementation.[5]

Conflict and competition generated or exacerbated by increasing forest transition and exploitation are not inevitable, although the potential for escalation to violence does exist. For example, in contrast to oil and diamonds, large populations rely on forest resources for their livelihoods. With significant levels of livelihood dependency, these forest-dependent populations are more likely to confront forest resource mismanagement and expropriation by outside actors. This situation can erupt into violence, but it also has the effect of expressing and releasing pent-up tensions and of preventing exorbitant forms of exclusion and wealth generation characteristic of mineral and other high-value resources. In addition, increased political freedom in many countries in the South and greater access to means of communication have enabled many disenfranchised groups in forest areas to voice their discontent and to seek ways to redress their grievances. A good example is the increased political bargaining power achieved by indigenous populations in Latin America through national and international alliance-building and media attention. International treaties and conventions, including some nonenvironmental treaties, have also provided progressive language and frameworks for forests and forest-dependent people to organize and advocate for their rights and interests.

In summary, there is a very real risk that sustained poverty and slow progress on the recognition and clarification of rights to resources and political access will mean continuing and new conflict in significant portions of the world—at

least over the near and medium term. At the same time, there are real opportunities for nonviolent conflict mitigation through increased connectivity of social and political issues playing out in geographically isolated forest localities. Given this provisional assessment, the global community faces the challenge to reduce risk of severe forest-based conflicts and to seize opportunities for conflict management. To date, there has not been a clear and simple articulation of (a) the forest governance and tenure dimensions to this challenge, (b) the scale and priority geographies of possible interventions and the effects of those interventions, (c) the lessons that can be learned from experience, and (d) the priority steps that must be undertaken by the global community.

1.1 DEFINITION OF KEY CONCEPTS AND TERMS

Scholars have long struggled to find an adequate definition of *conflict*. Conflict situations are often characterized on the basis of an analysis of the conflicting actors, differences or incompatibilities among conflict actors, and the process by which the conflict unfolds.[6] For this paper, two elements are important: the stakes and the intensity of conflict.

In this paper, we discuss natural resource conflict with particular focus on forest-related conflict. In most natural resource conflicts, resources are not the only stakes. Although resources form a central object of struggle, there are other, often intangible, interests tied up in the conflict. These interests often include *status* (the perception of people that they are treated with respect and dignity and that their traditions and social position are respected), *identity* and *values* (the cultural, social, and political communities to which people feel tied and the ideas of right and wrong that those entities generate), and *power* (the method of allocating control and participation in political decision making).[7]

But when do those interests conflict? Broad definitions usually stress one or a combination of the following elements: incompatibility of goals and objectives,[8] contradictory positions,[9] and asymmetrical and differential rights and powers.[10] Drawing on the work of Glasl (1999),[11] Yasmi and Schanz (forthcoming)[12] critique such broad understandings of conflict and argue that different perceptions, emotions, and interests are antecedent conditions and lead to conflict only when differences result in certain actions that "impair," i.e. are perceived as damaging another actor. We follow this definition here to narrow down the scope of this paper.

With regard to the intensity of conflicts, we generally distinguish between violent and nonviolent conflicts, which are both included in this paper. The threshold to violence is passed when parties go beyond seeking to attain their goals peacefully and try to dominate or destroy the opposing parties' ability to pursue their own interests. *War* is the most intense form of violent conflict. Usually a conflict is considered a war when there is a minimum of 1,000 battle-related casualties per year, of which at least 5 percent must be incurred on each side, and when there is some kind of regular army and central organization on one side of the conflict.[13]

Violent conflicts that do not fulfill those criteria are often referred to as *armed conflicts*. The definition of armed conflict usually has a lower threshold of 25 battle-related victims per year and includes a wider variety of conflict: (a) state-based conflicts, which are armed disputes in which control over government and territory is contested and in which at least one of the warring parties is a state; (b) nonstate conflicts between two groups, such as violent clashes between warlords or violent intercommunal strife; and (c) one-sided violence by

states or organized groups against civilians, such as massacres, terrorism, and genocide.[14]

In addition to war, armed conflict, genocide, and terrorism, *political violence* covers a wider range of state repression forms, encompassing torture; extrajudicial, arbitrary, and summary executions; the disappearance of dissidents; the use of death squads; and incarceration without trial.[15]

The term *forest governance* pertains to "how decisions related to forests and forest dependent people are made, who are responsible, how they wield their power, and how they are held accountable."[16] Good forest governance requires "inclusive decision-making processes that deliver—often re-negotiate—solid foundations of rights, market rules and institutional roles; practical policies and laws; instruments and incentives based on real motivations and capabilities; and systems for steering, financing, building skills, handling information, tracking and verifying progress on all of the above."[17]

The term *tenure*, as used in this paper, refers mostly to land tenure with respect to forests. The Food and Agriculture Organization (FAO) of the UN defines land tenure as follows:

Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land. (For convenience, "land" is used here to include other natural resources such as water and trees.) Land tenure is an institution, i.e., rules invented by societies to regulate behaviour. Rules of tenure define how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints. In simple terms, land tenure systems determine who can use what resources for how long, and under what conditions.[18]

Clearly, forest governance is a broader category than forest tenure. As defined, tenure is an institution, while governance refers to a process by which institutions are created. To understand tenure institutions, one must analyze the historical and political context under which they were shaped.

1.2 STRUCTURE OF THIS PAPER

This paper addresses the topic of forest tenure, forest governance, and conflict in two sections. In the next section, we first provide the scope of the problem in terms of the total forest area and number of forest dwellers possibly affected by forest-based conflict. Second, we review recent studies that have attempted to single out the economic, political, and geographical factors that increase the risk of armed conflict and, where possible, look at how adverse conditions converge in forested countries and environments. Third, we look at the specific role of forest rights and tenure in contemporary low- and high-intensity forest-based conflicts, and we consider patterns of conflict degeneration.

Fourth, we not only consider the factors that, in the near future, are likely to drive forest-related conflict, including climate change, deforestation, and state decline, but also those that may mitigate such conflicts, including governance reforms aimed at decentralized forest management and forest law enforcement. In the following section, we summarize a set of forest governance and tenure issues that deserve priority action, followed by a brief discussion of existing intervention strategies. The lessons learned from the considerations generate a number of concrete recommendations for high forest countries and for the global development community.

2 FORESTS DRAWING CONFLICTS

2.1 THE SCOPE OF THE PROBLEM FOR FORESTS AND PEOPLES

Forest-based conflict is widespread, manifest in varying degrees of intensity, and likely to persist in the near future. To quantify the scope of the problem of conflict for forests and people, we employ two sets of spatial data: one representing the geographic location of conflicts and armed conflicts and one representing the global forest cover. The congruence of the two sets of data can be a rough approximation of the extent of forest—and forest-dependent peoples—potentially affected by armed conflict or at risk of being affected.

OVERLAYING OF FOREST AND CONFLICT DATA

The following analysis is based on results from the application of ViewConflicts 3.0[19] software, which geographically represents areas of conflicts included in the armed conflict database established by the International Peace Research Institute in Oslo and the Department of Peace and Conflict Research at Uppsala University in Sweden. The threshold for inclusion of a conflict in this database is 25 battle-related deaths per year, and only state-based conflicts are included.[20] Each armed conflict in the database is represented by a polygon that covers part of the national territory of a country. The coverage of the polygon is circular in cases where violence occurred within a single location—as in a violent government takeover that takes place in a city—but is multidimensional in cases where violent interactions occur and affect large territories—as in territorial struggles for independence, autonomy, or regional control. Two conflict maps were generated: one representing post–Cold War armed conflicts between 1990 and 2004 and one representing the most recent armed conflicts between 2000 and 2004.

Global forest-cover data derive from the 2000 Global Forest Cover Map developed by the FAO.[21] This map is based on five categories of land cover: closed forest (greater than 40 percent canopy cover); open or fragmented forest (10–40 percent canopy cover); other wooded land (5–10 percent canopy cover or more than 10 percent shrub or bush cover); other land cover (including grassland, agricultural land, barren land, and urban areas); and inland water. The FAO map is also based on satellite images that assign one of five values for each grid cell of one square kilometer. To measure the total size of closed forest falling inside the armed conflict zones, the FAO grids were transformed into polygons using ArcView software and superimposed on the armed conflict map.

This exercise resulted in two forest-cover maps for the world's conflict zones: one for the period since 1990 and the other for the period since 2000. Consequently, we calculated the physical size of each polygon representing each land-cover type.

TABLE 1. ESTIMATES OF AREA (ROUNDED TO MILLION HECTARES) OF CLOSED FOREST IN CONFLICT ZONES
IN FOUR GEOGRAPHICAL REGIONS AND ESTIMATES OF POPULATIONS LIVING IN THOSE FORESTS
(ROUNDED TO MILLION), 1990–2004

Continent	Hectare of forest threatened (millions)	As percentage of total forest area threatened	Population threatened (millions)	As percentage of total population threatened
Africa	130	53	52	49
Latin America	50	21	13	10
South and Southeast Asia	52	22	63	41
Europe, Central Asia, and North America	10	4	—	—
Total	242	100	128	100

— data not available.

The sizes of the polygons representing closed forest were added up to calculate forest area affected globally and in each region. Similar calculations could be made for other types of land cover, but the following results concern closed forests and fragmented forests only.

FOREST SURFACE AND FOREST DWELLERS THREATENED BY ARMED CONFLICT

About 243 million hectares of the world's 2.89 billion hectares of closed forests are located in areas affected by conflicts since 1990. This area represents 8.4 percent of the world's closed forests—forests with more than 40 percent canopy cover. The larger share of this total is located in tropical countries in southern Asia, Africa, and South America: roughly 230 million hectares. This amount represents 20 percent of the joint closed-forest area of these tropical countries. In the same period of time, almost 180 million hectares of fragmented forests were located in armed conflict zones around the world, representing 11.5 percent of the global territory classified as fragmented forest. As opposed to closed forest, fragmented forests in tropical countries do not have a higher proportion of this type of forest in the armed

conflict zones. Roughly half of the forest surface threatened by conflict in the period 1990–2004 was threatened by the most recent conflicts, from 2000–2004.

Table 1 presents estimates of the forest area in conflict zones in each geographic region and the number of people in these forest conflict zones. It shows that Africa is home to most of the forest at risk, roughly half of the total closed-forest area in conflict zones. In terms of population, Asia has the highest number of forest dwellers at risk. This is attributable to much higher population densities in Asian closed forests, 120 people per square kilometer, compared with 40 people per square kilometer in Africa and 25 people per square kilometer in Latin American rain forests.[22]

The numbers in table 1 are rough indicators of the magnitude of forests and forest inhabitants located in conflict zones and potentially affected by conflict. However, conflicts do not necessarily affect forests in a negative way. Some areas may not be affected at all, and sometimes severe conflicts render forest areas inaccessible to exploiters, thus protecting them. Furthermore, the mere overlap between forest and conflict areas does not mean that the forest or forest rights have any role to play in motivating or perpetuating the conflict. There is
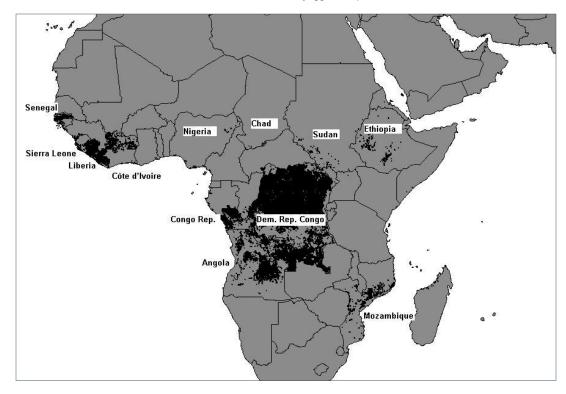
FIGURE 1. FOREST AND ARMED CONFLICT AREAS IN AFRICA, 1990–2004

a difference between forest-based conflict—those that occur in forests—and forest-related armed conflicts—those with causes linked to forests. For example, conflict areas in Ethiopia, Kashmir, the Republic of Congo, Senegal, Sri Lanka, and Yugoslavia play out in closed forests but are not exacerbated or caused by forest exploitation or forest management. A final critical point is that the armed conflict dataset uses a threshold of 25 battle-related deaths per year, thereby excluding violent forest-related conflicts of a lesser intensity and those where victims are more incidental and are not associated with a single conflict.

GEOGRAPHICAL REPRESENTATION OF FORESTS IN CONFLICT AREAS

Despite the limitations of those rough estimates, the method of overlaying forest and armed conflict zones provides a strong indication of where forest-related conflicts of various intensities are concentrated. Apart from signifi-

cant mountain and boreal forests in Central Asia, Nepal, and Yugoslavia, the overlap between forest and armed conflict is most apparent in less-developed tropical countries.

In Africa (see figure 1), the Democratic Republic of Congo is home to most forest and armed conflict areas, covering most of its national territory. The Upper Guinean forest of West Africa is the second most affected area, covering several countries. Conflicts in Angola, Mozambique, and Sierra Leone, all of which overlapped with significant forest areas, have come to an end. Conflicts in all other countries on the map are ongoing or have a high risk of re-igniting.

In Asia (see figure 2), forest-based armed conflicts were most intense in Cambodia, Myanmar, and the Philippines during the 1990s. Although those conflicts have not completely ended, they have diminished in intensity. In the meantime, the conflicts intensified in Nepal and later, India. Armed conflict in Indonesia, particularly Aceh, ended in 2005, while Timor-Leste still experiences sporadic
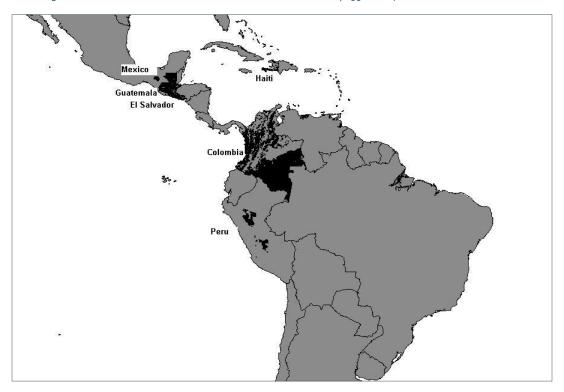
FIGURE 2. FOREST AND ARMED CONFLICTS IN ASIA, 1990–2004

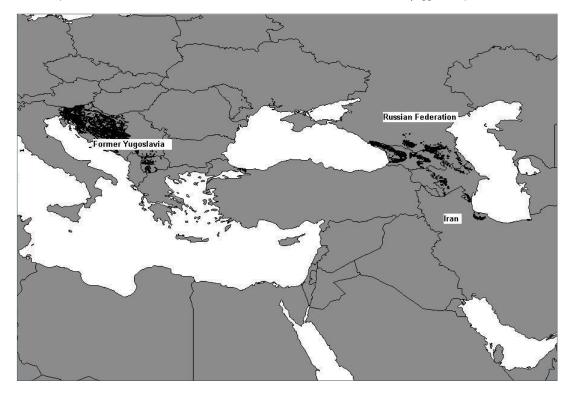FIGURE 3. FOREST AND ARMED CONFLICT AREAS IN LATIN AMERICA, 1990–2004

FIGURE 4. FOREST AND ARMED CONFLICT AREAS IN EUROPE AND THE CAUCASUS, 1990–2004

violence. Armed conflict situations in Sri Lanka and the Kashmir region are stagnant.

In Latin America (see figure 3), the largest forest and armed conflict area is in Colombia. Although peace negotiations with major rebel groups have been ongoing since the late 1990s, the major belligerent groups remain armed. Conflicts in other countries on the map have diminished or ended in recent years.

Conflicts in Europe and the Caucasus (see figure 4) also overlap with significant forest areas. Apart from the conflict in Chechnya, a republic within the Russian Federation, conflicts in other countries on the map have either ended or lost their territorial span.

Looking at figures 1–4, which highlight closed forest areas in armed conflict zones since 1990, we count 30 countries with visible overlap. In 25 of those countries, we can speak of forest-related armed conflict, in the sense that the forest, forest management, timber production, and other factors motivated or aggravated conflict.

WHAT THE FUTURE HOLDS

As mentioned in the introduction, state-based armed conflicts have declined by 40 percent since the end of the Cold War. Is the same trend observed for nonstate conflicts? According to the data of the Minorities at Risk Project at the University of Maryland, violent conflicts between communal groups declined by more than 50 percent between 1993 and 1998.[23] Gurr (2002) does, however, mention that the project's data examined only intercommunal conflicts among groups that were also involved in conflicts with a government. Recent data from the Human Security Centre at Uppsala University also show a decline from 34 armed nonstate conflicts in 2002 to 30 in 2003.[24] Despite the bias of the Minorities at Risk Project data and the short interval of the Uppsala University dataset, it can be safely said that nonstate conflicts have roughly followed the same downward trend in the post–Cold War period as did state-based conflicts. Because there is no indication that armed conflicts, whether state based or nonstate,

are increasingly large in scope or disproportionately drawn to forested areas in countries, less forest is likely to be threatened by armed conflict in the years to come. How much less is uncertain. Hopefully, the next 15 years will reveal a similar decline of 40 percent in armed conflict occurrences worldwide, resulting in a similar decline in the amount of forest areas being threatened by such conflicts.

It is critical to note, however, that despite the decline in armed conflict, data on human rights violations do not indicate a similar drop. Comparative data from the Political Terror Scale Project of the University of North Carolina reveal little change in human rights violations from 1980 to 2003.[25] Correspondingly, human rights abuses associated with extractive industries in the developing world are unlikely to decline in the near future.

2.2   CONFLICT CORRELATIONS AND THE SIGNIFICANCE OF FOREST RESOURCES

The mere overlap between forest and conflict areas does not say anything about the causes of the conflicts or the role of the forest and forest rights. Before we elaborate on the latter, we must highlight some of the recent global analyses on conflict correlations to contextualize our focus on forest rights and tenure.

Persisting episodes of violence after the Cold War made clear that the international security agenda could no longer be solely defined in narrow militarily strategic terms. To deal with *unconventional* security issues, such as international terrorism, criminal violence, and genocide, one must include other economic, social, political, and even environmental and geographic elements, as well as the many links between them. Recent analyses on *correlates of war* and violent conflict have improved our understanding of those links.

GROWTH, INEQUALITY, AND ETHNIC PLURALISM AS PREDICTORS OF CONFLICT

There is consistent evidence that low and negative growth rates increase the probability of unconstitutional political change, causing political instability.[26] To put it in figures, Collier calculated that any typical low-income country faces a 14 percent risk of experiencing civil war within five years. Each percentage point increase to the per capita growth rate of the gross domestic product

(GDP) reduces the risk of civil war by 1 percent, while each percentage point in reduction increases the risk by 1 percent.[27] Slow growth and economic decline are strong indicators of conflict. How do high forest countries (International Tropical Timber Organization producers) perform economically? The discrepancy in growth between high and low forest countries is most striking in Africa (see figure 5).

If high forest countries are more likely to experience low growth rates, are they also more vulnerable to conflict? Several statistical analyses make reference to the relationship between countries' forest cover and the emergence and duration of civil war. They yield little evidence to support the hypothesis of a positive correlation. In their 2001 study, Collier and Hoeffler conclude that countries experiencing civil war had slightly lower forest coverage (29 percent) than peaceful countries (31 percent).[28] In terms of the duration of conflict, Collier, Hoeffler, and Sönderbom find that extensive forest cover is not significantly associated with longer wars.[29] Lujala even finds that densely forested countries tend to have shorter conflicts.[30] In contrast, the analysis of civil war outcomes by DeRouen and Sobek shows that forest cover increases the likelihood of prolonged conflict.[31] The most recent country-based analyses by Rustad also find no evidence that forest resource abundance increases the risk or duration of internal armed conflicts.[32] Besides being mixed, the conclusions of
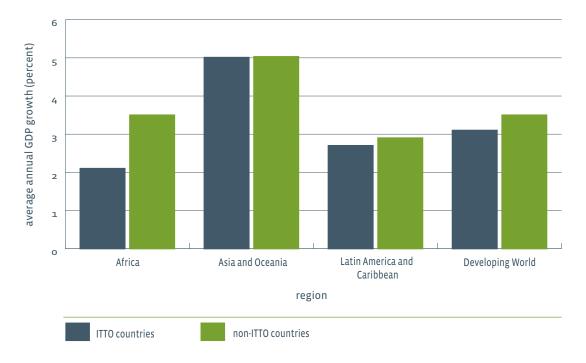
FIGURE 5. GROWTH IN HIGH AND LOW FOREST COUNTRIES, 1975–2004

Source: Statistical analysis conducted by Dieudonne Alemagi, Anne-Sophie Samjee, and Andrew Davis in 2007. Growth data procured from the Development Data Group of the World Bank.

GDP = gross domestic product; ITTO = International Tropical Timber Organization.

those studies are also highly disputable. The studies include the forest cover of a whole country, even though only a part of the country may be experiencing violence. The part undergoing conflict may not be located in the forest at all, but nevertheless may be used to support the correlation if the country has a high forest cover. Of course, the inverse is also possible.

A factor closely associated with a country's growth rate is the level of income inequality. Countries with high inequality in income and land tend to experience lower growth. This effect is often explained by the behavior of governments in unequal societies. Easterly holds that either poor majorities in highly unequal societies will sacrifice growth in favor of redistribution or the small ruling elite is inclined to suppress democracy and to refuse to invest in the poor.[33] In addition, inequality of land distribution is also correlated with insecurity of

property rights. Insecure property rights, in turn, reduce farmers' incentives to plan and invest in the future, thereby dampening economic growth. The statistically negative effect of inequality of land and income distribution on growth is slightly mirrored by a similar statistical relationship between inequality and conflict. Statistical studies demonstrate that inequality is only slightly higher before conflict episodes compared with that of the postconflict period.[34]

In the same way that class differentiation polarizes society, ethnic diversity potentially increases the risk of economic decline, mismanagement, and, ultimately, conflict. Politicians in ethnically diverse societies may try to derive political power by presenting incompatibilities between the interests of ethnic groups and then putting themselves forward as the protector of those interests. In turn, politicians are inclined to make policy

decisions that do not serve the interests of the country as a whole, but favor only the segment that forms their support base. Overall, this approach means that the more ethnically diverse countries and administrative units within countries invest less in public services provision.[35] As to whether ethnic diversity also increases the risk of civil war, conclusions are again mixed. Collier finds no general relationship between ethnic diversity and proneness to civil war, but he does find that "ethnic dominance"—characteristic of societies that have one majority group but where other groups are still significant—is positively correlated with the onset of civil war.[36] Easterly does find a general relationship. He notes that the risk of genocide in the most ethnically diverse countries is three times higher than in the least ethnically diverse countries, while the risk of civil war is two and one-half times higher.[37] Unfortunately, no cross-country studies explore the relationship between land and income inequality and ethnic diversity on the one hand and regional or country forest cover on the other hand.

ENVIRONMENTAL AND GEOGRAPHICAL FACTORS IN CONFLICT

Two major explanations are offered for the observed statistical association of environmental factors with conflict: scarcity and abundance. The scarcity argument holds that the likelihood of violence increases when the availability of renewable resources, such as cropland, fresh water, and forests, decreases. This scarcity invites elite capture and ecological marginalization of less powerful groups in society.[38] Scarcity also causes conflict through its destabilizing effect on political, social, and economic innovation. This effect is referred to as the ingenuity gap. As scarcity becomes worse, some poor societies will face a widening gap between their supply and demand of ingenuity. Ingenuity is defined as society's capacity to deal with scarcity, and it is embodied in human capital, institutions, and technologies. Scarcities can overwhelm efforts to produce constructive change and can reduce a country's ability to deliver

reform. In the face of scarcity, a weakened state loses its moral and coercive authority, leaving room for antistate grievances and the challenging of authority by rebel groups and elites, which boosts the probability of serious turmoil and violence.[39]

Hauge and Ellingsen confirm in a study involving a large sample that environmental scarcities—including measures of land degradation, deforestation, and water supplies—alone and in combination with high population density, increase the risk of low-level conflict.[40] However, in predicting high-intensity armed conflicts, poverty and nondemocratic rule are more important.

The abundance argument holds that the availability of high-value commodities increases the risk of violent conflict. Global regression analysis that is based on countries' dependence on primary commodity exports confirms this hypothesis.[41] Interpretations of this are again manifold. Collier and Hoeffler argue that the availability of primary commodities creates better opportunities to finance rebel groups.[42] Others argue that resource-dependent states are more vulnerable to boom and bust cycles and less likely to innovate, thereby dampening or reversing economic growth.[43] In addition, it is argued that resource-dependent states, which do not rely on taxpayers' money, are less responsive to constituencies and are, therefore, vulnerable to hosting undemocratic and corrupt regimes.[44]

What can we say about timber resources and revenues feeding those correlations? The use and abuse of forest resources by armed groups has been evidenced in some cases (see box 1), but usually more valuable and easily extractable and transportable minerals and gemstones serve as conflict commodities. Regarding the damaging effect of governments' dependence on natural resource rents, timber revenues in high forest countries usually constitute only a small fraction of such rents, making it difficult to see a determining effect on institutional quality. However, moving to country case analyses, the damaging effect can be evidenced. Unfortunately, few such studies have been carried out.

An exception is a study by Ross in 2001 of Indonesia, Malaysia (Sabah and Sawarak), and

BOX 1. THE INSTRUMENTAL ROLE OF THE FOREST IN CONFLICT

Since 1990, there have been 25 forest-related armed conflicts. In 15 of those conflicts, rebel parties used the forest to hide out, regroup, and organize themselves. In 7 of those 15 countries, conflict parties financed their war efforts by engaging in the trade and extraction of timber, nontimber forest products, and illicit crops. Well-known examples of forest-based rebellions are in Cambodia, Colombia, the Democratic Republic of Congo (DRC), Liberia, Mexico, Myanmar, Nepal, and Sierra Leone. But Angola, India, Indonesia, Peru, the Philippines, and Uganda should also be included in the list. Both the degree and the way in which the forest has been used to perpetuate warfare are extremely varied. Where rebel parties and government troops occupied large forest areas and controlled trading routes, such as in Cambodia, Liberia, and Myanmar, revenues from timber reached US$100–240 million per year.[45] In countries such as Indonesia, Nepal, and the Philippines, rebels were never able to infiltrate the entire industry and could only gain some revenues by putting up roadblocks and extorting small sums of money from timber companies and traders. In other countries, timber-trading opportunities are absent or were destroyed because of war. Alternatively, rebel groups have relied on mineral resources, as in Angola and the DRC, and illicit crops, as in Colombia. In some countries, the role of the forest in providing cover and sources of finance has been so evident that forest destruction has become part of counterinsurgency strategies. In Myanmar, the government has supported timber operations to open up deep forested areas where rebel forces sheltered themselves. In Sierra Leone and Liberia, villagers in some areas have cut away tracks of forest along roads and around villages to protect themselves against ambush and intrusion by rebels and criminals. In Colombia, under the multimillion dollar project Plan Colombia, the U.S. government funds and supports the Colombian government's fumigation of fields of illicit crops that rebel factions thrive on.[46]

the Philippines.[47] In those countries, the timber industry became a dominant source of government revenue because of a rapid increase in timber processing during the 1990s. However, in each country—although most strongly in Malaysia and the Philippines—the timber boom generated an institutional breakdown. Professional forest-management institutions were transformed to acquire the largest possible control over rents rather than guaranteeing long-term sustainable production levels. In turn, rents were used by political elites with power in forestry and financial departments to reward supporters and to silence opposition, which resulted in extensive networks of corruption and the concentration of economic and political power.

GEOGRAPHIES OF WAR

Literature on the geography of war moves away from country-based comparisons, but examines the locations or regions in which conflicts are likely to break out. A frequently tested hypothesis states that the element of rough terrain, such as mountains or forests, can make certain regions vulnerable to rebel mobilization. So far, however, no convincing statistical evidence supports that hypothesis.[48] To the contrary, Buhaug and Lujala find that "conflict zones are less mountainous and forested than the countries in which they occur."[49]

Another attempt to retrieve a positive correlation between forest and conflict was attempted by Rød and Rustad, who tested whether forest-based conflicts within African and Asian countries last longer than conflicts that were not located in the forest.[50] Again, forest resources did not seem to affect the duration of conflict. This result indicates that although forests and mountains may provide safe havens and conflict commodities for rebel groups, they are not more vulnerable to conflict than other areas.

Rather than rough terrain, the element of remoteness does tend to have a significant positive, endogenous effect on the occurrence, duration, and scope of civil conflict. Buhaug and Gates find that rebel groups tend to mobilize in border zones where government authorities are less present and from where they can retreat into the neighboring country if necessary.[51]

A CRITICAL ROLE OF GOVERNANCE AND INSTITUTIONS

Governance has been a key element in the previous analysis on conflict correlates. State resource dependence risks breeding authoritarian governance, while high levels of class inequality and ethnic diversity tend to produce self-protecting state systems that serve selective interests. But despite those associations, a linear effect of regime type—usually a measure that balances elements indicating either authoritarianism or democracy—on conflict has not been convincingly demonstrated in available regression studies. Highly autocratic governments can suppress violent and nonviolent challenges to the state, and in highly democratic countries, dissent is likely to be channeled through available civil society and governmental institutions. As a result, Regan and Norton find that middle-range countries are more likely to experience organized armed rebellion and civil war, as well as autocratic regimes that employ extreme levels of repression.[52] Fearon and Laitin come to a similar result in their analysis of more than 200 ethnic minorities in the world: those that are repressed the most are not more inclined to rebel.[53]

Rather than looking at political freedom and repression, one can approach the role of governance in terms of institutional quality, including measures of the rule of law, bureaucratic quality, corruption, and secure property rights. Robust institutions can mediate the negative effect of any of the demonstrated conflict-generating conditions, whether of an economic, cultural, environmental, or geographical nature. For example, Easterly points to the importance of independent financial

institutions and budget-setting authorities to avoid corruption and economic downturn, thereby reducing the risk of conflicts.[54] Institutional quality is also crucial to avoid the natural resource curse that is created through rent seeking, confiscation, and corruption.

Indicators of institutional quality are included, for example, in the World Bank's governance indicators, which are organized around six areas: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption.[55] Globally, there is no correlation between the area of forest cover and any of those indicators. However, at the regional level, some interesting patterns appear. Particularly in Latin America and Asia, high forest countries tend to perform worse than the regional average in terms of one or more of the indicators.

Governance indicators that have been used so far generally lack one indicator that is important to this study: the security of tenure and property rights, including ownership of forest land and resources. Comparative cross-country data on ownership and tenure security are not available. In the absence of comparative data on property rights, Bohn and Deacon derived an index for ownership security based on political variables believed to be correlated with ownership risk, such as where government is ineffective, unstable, or autocratic and where the rule of law is not well established.[56] With this index, Deacon and Mueller investigated the correlation between insecure property rights and the depletion of resources. Regressing deforestation on the index of ownership security for 62 countries, they find a large and significant effect: the less secure the ownership, the higher the rate of deforestation.[57] The effect of tenure insecurity on deforestation contrasts findings concerning extractive industries that require high capital input, such as oil, natural gas, and metallic minerals. Extraction of those natural resources diminishes as the ownership risk increases. The positive correlation between tenure risk and insecurity and deforestation is likely to be the result of a combination of the intense commercial logging in nonallocated or temporally

allocated forests and the noncommercial forest clearing by marginalized groups that try to solidify user rights that are not formally recognized.

Conclusions are again mixed on the correlation between deforestation and conflict. According to Haughe and Ellingsen, high deforestation correlates with small-scale conflicts and human rights violations, but not with war or civil war.[58] Rustad found that the average annual deforestation in the 1990s

was positively related to armed conflict, but that this relation was negative during the 1980s.[59] According to Rustad, the way in which deforestation related to conflict during the 1990s had much to do with the level of corruption. Under corrupt regimes, benefits from deforestation, through logging and the development of plantations, are not likely to flow to local groups whose livelihoods are affected, thereby causing local grievances.

2.3 CHARACTERIZATION OF THE ROLE OF FOREST TENURE AND RIGHTS IN CONFLICT

The forest factor comes incidentally to the fore in global analyses of conflict correlations (for example. in terms of deforestation, conflict timber, and shelter). These possible roles of the forest in conflict, however, have not proven to lead to an increased risk of armed conflict breaking out in forest areas. Unfortunately, the relationship between the security of property rights to natural resources, including forests, and conflict has not yet received much attention in studies investigating the correlates of war. The reason is that data on property rights institutions are not available for all independent states. This issue is rather unfortunate because, in contrast to ethnic factionalism and inequality, insecurity of property rights arguably has a direct growth-inhibiting effect through disincentives to productive and sustainable use of natural resources and could, therefore, be strongly linked with outbreaks of violent conflict.

For a further investigation on the link between property rights, particularly forest rights, and conflict, we rely on case study material on forest-related conflicts, which has been produced in recent years by several academic institutions, local nongovernmental organizations, and international donor agencies. In general, the literature can be divided into two sets of studies: those concerning local, low intensity conflicts and those analyzing armed conflict situations. In the first set of studies, forests and forest rights form the central object

of struggle. In the second set of studies, the forest and forest rights issues are less central but do feed into armed conflict or serve as a proxy for wider conflicts.

FORESTS RIGHTS AND TENURE IN LOCALIZED LOW-INTENSITY CONFLICTS

The typical forest-related conflicts are fairly localized, nonviolent, and site-specific events that engage not only local actors but also nonlocal actors, such as international businesses, conservation organizations, and national state authorities. The conflicts typically involve disputes such as those between two forest communities over a village boundary or a dispute between forest concession holders and local communities over access to forest products, decision making, and benefit sharing. In fact, conflict is almost an inherent aspect of natural resource and forest management, because the ownership and use of resources by one party usually implies a measure of exclusion by other parties. Fortunately, most localized resource-related conflicts are efficiently and timely mediated by customary legal institutions and authorities.

However, when livelihoods are threatened, inequality is severe, and rights are blurry, resource-related conflict situations may evolve into long-lasting struggles over actual access by and legal rights between stakeholder groups. Those strug-

TABLE 2. SUMMARY OF MULTIPLE CAUSES OF FOREST-RELATED CONFLICT

Observed sources of impairment	Category	Frequency	Occurrence as percentage of total cases
Overlapping boundary between state land and community forests, ambiguous or contested boundary between communal land and timber estate, lack of intervillage boundary, confusing boundary of fishing area, no boundary of agricultural area among forest dwellers	Unclear resource boundaries	29	25
Decreasing number of trees, declining fish stock, less agricultural land for small farmers, less harvestable nontimber forest products, limited amount of clean water, shortage of water, declining amount of arable land, unequal land distribution and ownership, decreasing spotted owl population, water shortage and drought, loss of rain forest, destruction of Amazon region, forest loss attributable to fire	Decreasing resource stock (scarcity)	22	19
Dominance of state law, contradictions between customary regulations and state law, unclear international conventions, denial of customary land rights of aboriginal people, overlapping land claims, conflicting fishing regulations in adjacent settlements	Legal pluralism	25	21
Strong ideological value (e.g., conservation ideology), religious imposition on conserving natural resources such as tropical forests, extractive management objectives, development agenda, higher priority of economic growth	Competing demands	43	36
Strong belief in endangered species protection, commitment to protect those who cannot speak for themselves, cultural importance of nature (as in rituals and sacred places)	Ecocentric concerns and cultural aspects	33	28
Difficulty in holding local leaders accountable, higher social status of local leaders, lack of democratic process to establish leadership	Nonaccountable representation/ leadership	6	5
Higher production costs, unclear environmental regulations, weak state control of the operation of private companies, bad law enforcement, government lack of knowledge of environmental issues, government lack of resources to control the operation of private companies in areas such as logging and mining	Unwillingness to fulfill environmental obligation	41	35

gles are often induced by the penetration of global economic forces to the local level and usually occur against the backdrop of incompatibility between the state and traditional laws and the failures of state laws to accommodate and respond to local realities. In many developing countries, all lands formally belong to the state, resulting in limited recognition of communal forest rights and communal forest lands. Insecure access and ownership may also be rooted within communal property arrangements (for example, when resource allocation is too firmly vested in the hands of local elders or other local elites), often to the detriment of women and youths.

The manifestations, sources, and intensities of forest-related conflicts can be very diverse. In a case study analysis of 118 localized forest-related conflict situations,[60] Yasmi and Schanz define four categories of impairment—actions that are perceived to damage interests of certain actors in forest lands—and seven sources of impairment. Categories of impairment include (a) access restrictions and reactions to these (physical removal and obstruction of access; imposed restriction; and blockades, squatting, and invasions); (b) conflicting management objectives, including imposition of conservation agendas; logging activities and distribution and allocation of accruing benefits; and public protests of, campaigns against, and critiques of corporate and state policies; (c) dishonesty, including corrupt and irresponsible leadership in communities and among forest administrators and companies; and (d) environmental destruction, including pollution, physical destruction of living spaces, degradation, and other disturbances.[61]

The sources of impairment are summarized in Table 2, in which different categories may be applicable in a single case. In 25 percent of the cases, unclear delineation of who has rights over a particular forest resulted in conflict. In 21 percent of the cases, land claims overlapped. Table 2 shows that such tenure-related issues usually operate in conjunction with one or more of the following: decreasing resource stocks, competing demands, incompatible values, and weak and bad enforcement of environmental and resource management regulations. The more of those adverse conditions that are at play, the higher the risk that the forest-related conflicts escalate into violence.

Localized forest-related conflicts hardly ever scale up to armed conflicts. However, the aggregate human cost of different forest- and tenure-related violent incidents in a country may very well reach the armed conflict threshold. The most serious attempts to measure human rights violations associated with forest- and land-related conflicts have been undertaken in Brazil and Indonesia. In Brazil, the Pastoral Land Commission is a national organization that works alongside rural workers and small-scale farmers to support rural communities. This commission documents conflicts over land between farmers and land speculators that often take place along the forest frontier. In 2004, the number of casualties attributable to such conflicts increased to 1,801—nearly twice the 925 recorded in 2002 before President Lula da Silva took office.[62] In Indonesia, a media review group carried out a press review on forest-related conflict and violence during a one-year publishing period before February 2003. The surveillance took place in parts of Java, Kalimantan (see Box 2[63]), and Sumatra.[64] Newspapers reported a total of 18 light injuries, 33 serious injuries, 8 deaths, and 110 arrests, mainly because of confrontations between local communities on the one side and state security agencies and logging and pulp mill enterprises on the other side.

FOREST RIGHTS AND TENURE IN ARMED CONFLICTS

Although conflicts over forest tenure and rights rarely scale up to the level of armed conflict, they are more likely to contribute to armed conflicts. To illustrate this variation, we can refer back to our forest-based armed conflict cases. In 9 of the 25 forest-related armed conflicts, people's motivation to engage in conflict was shaped by, among other factors, grievances over forest resource allocation and ambiguous tenure arrangements. In turn, when armed conflicts broke out, localized forest-related conflicts that otherwise would have been sustained and managed then were at risk of degenerating into violence because of general lawlessness, intensified ethnic polarization, and opportunistic economic practices such as the looting of forest resources. Forest-related micro conflicts and tenure-related issues can, thus, be both proxies for and contributing factors to armed conflicts.

Most well-known examples of forest tenure–induced armed conflicts are the so-called peasant rebellions that began in many countries in Latin

BOX 2. INTERCOMMUNAL ARMED CONFLICT IN KALIMANTAN[65]

During the late 1990s, indigenous Dayak attacks against Madurese immigrant communities on the island of Kalimantan claimed more than 1,000 victims. According to our definition, this case can be considered the only example in which a localized forest-related conflict degenerated into an armed conflict. The root of the conflict lies in Indonesia's transmigration policies, which resulted in people being moved from overpopulated islands to sparsely populated and largely forested islands. In Kalimantan, immigrants came to constitute half of the population. Immigrants were largely active in state-facilitated agro-oriented industries and in timber and mining activities. Indigenous Dayak populations lost considerable tracts of forest land and benefited meagerly from employment in new economic activities. The history of expropriation and forest degradation seems to have provided the reasons for Dayak grievances and consequent attacks. However, Johnston (2002) argues that if resource-related processes were the causes of violence, other immigrant groups that were equally, if not more, involved in extractive industries, such as the Malays, should have been the targets of attacks as well.[66] According to Johnston, the fact that other groups were not attacked has to do with a culture clash between Madurese and Dayak communities, instead of forest management. He argues that Madurese immigrants were the target of Dayak attacks because of their alleged dishonor for Dayak culture and identity and their lack of internal control of defiant behavior. In addition, commentators have stressed failure of state law-enforcement agencies to react quickly to prevent isolated clashes between individuals from degenerating into widespread intercommunal violence.[67] The Kalimantan case demonstrates that forest-related resentments on their own are usually not sufficient causes of violence. However, the intersection of such grievances with interethnic animosity in a context of limited administrative control can prove detrimental.

America during the 1960s and 1970s. Although those conflicts were principally about the highly skewed distribution of land, disputed access to forest resources underlies some of the more recent popular revolts. Since 1994, the Zapatista movement of Mexico's southern forests belt, Chiapas, has been involved in armed struggle against the central government.[68] A major source of discontent mobilized by the movement was state forest management in the region that allowed for massive exploitation initially and then later rigorously enclosed areas for conservation, both arguably to the detriment of local indigenous populations. Further south, in Guatemala, state violence against Maya communities and the colonization of land in forest areas, particularly in the forested Petén region, motivated an intense 10-year civil war from 1986 to 1996.

In Asia, armed opposition on the island of Mindanao provides a comparable case of forest-dependent ethnic minorities taking up arms against the national government. As in the case of Kalimantan, Mindanao had been confronted with massive government-sponsored settlement by predominantly Christian migrants. This situation translated into deforestation, economic disparity, and imbalances in ownership of natural resources, thereby marginalizing local Moro populations. Presently, the Moro–Muslim opposition groups on the island struggle for an independent Islamic state in western Mindanao and the southern Sulu archipelagos. Their struggles, however, are increasingly presented in religious terms, while the initial source of discontent is relegated to the background.

The most current forms of armed conflict in Asia's forests are the Maoist insurgencies in Nepal and India. Both movements initially gathered support in marginalized forest and mountain domains, drawing on the local population's resentment over

BOX 3. CIVIL WAR AND RESOURCE-BASED ETHNIC CONFLICT IN CÔTE D'IVOIRE

During colonial and postcolonial rule of Houphouët-Boingny's *Parti Démocratique de la Côte d'Ivoire* (Democratic Party of Côte d'Ivoire), coffee and cocoa farming were massively encouraged in the western part of the country. Laborers were brought from northern Côte d'Ivoire and Burkina Faso to work on plantations, and the politics of *mise en valeur*, or productive use, allowed immigrants to own forest lands that they transformed into farms. Resentment among indigenous populations in the west for not having been able to take their fair share of profits made during the 1970s and 1980s economic boom, as well as the economic decline, caused ethnic tensions that were exploited by rising stars in politics, such as Laurent Gbagbo. Gbagbo and his party, the *Front Populaire Ivoirien* (Ivorian Popular Front), recently entered the political scene, and they took over power from northern-based coalitions in 2000 while riding on the wave of xenophobia that spread through the country. In line with his anti-stranger rhetoric, Gbagbo quickly adopted a program of land reclamation, providing a sense of impunity to those who violently wished to chase immigrants off their land. Thousands of immigrant workers and farm owners, mainly Burkinabè and Dioula, came under attack and moved into refugee camps. The great majority of the displaced were long-term residents of Côte d'Ivoire. The anti-foreigner attacks sparked retaliation attacks and rebel alignment on the side of the groups under siege. The most intense intercommunal fighting has taken place between the Burkinabè and Wê villagers, occasionally aided respectively by rebel and patriotic troops within and south of the *zone de confiance* (demilitarized zone).

disparities of access to natural resources, lack of government services, and limited economic prospects. While affiliating with poor rural populations, both movements gradually lost much of their goodwill because of illegal tax levying and human rights abuses. Nepal's civil war came to an end in November 2006 with the signing of a peace deal between the Maoist groups and the Nepalese government. In India, Maoist insurgent groups, also called Naxalites,[69] continue to grow and are now present in 13 of India's 28 states. The most intense confrontations and assaults take place in the central-eastern part of the country and, most recently, along the Nepal border.

In Africa, there are no cases in which grievances related to deforestation and the marginalization of forest-dependent groups can be considered to have motivated armed conflict. However, the armed conflicts that erupted in Sierra Leone and Liberia during the 1990s can partly be explained by mounting youth grievances over the rigid customary land tenure system that prevailed in many rural forest areas in interior parts of both countries. According to Richards and his collaborators, young men chose to

align with rebel parties out of frustration with their lack of status and development perspective, which, in turn, could largely be attributed to the autocratic style of governance of local chiefs who often still hold absolute control over youth labor and the transfer of valued items, such as land and bride wealth.[70]

In a few armed conflict cases in Africa, interethnic competition over farm and forest land degenerated into violent struggles because of nationwide instability. In eastern DRC's Ituri province, civil war triggered bloodshed between the Hema and Lendu peoples. In brief, the collapse of administration and the subsequent loss of records, such as land titles, permitted Hema landowners to acquire additional land holdings from migrant Lendu communities. Unable to respond legally, the Lendu militias mobilized to defend tribal interests. In 2000, International Crisis Group estimated that more than 10,000 people had died in those conflicts over a period of 18 months.[71] A second clear example of an armed conflict triggering interethnic fighting over local resources is Côte d'Ivoire, described in more detail in Box 3.

The cases just presented demonstrate that forest- and tenure-related factors are important

material components that explain the emer-
gence of armed conflicts around the world. This
notion is an important one considering that such
conflicts are often represented as principally
inspired by cultural differences. It is certainly true
that, in the course of time, ethnicity and religion
can come to represent independent objects of
group strife and violent conflict. However, this
must not overshadow the grievances caused by
land degradation, deforestation, and inequities
in the distribution of natural resources and their
benefits.

OVERLAP IN FOREST-RELATED CONFLICTS

It is useful to distinguish between high- and
low-intensity conflict because the role of the forest
and forest rights tends to diminish as conflicts be-
come more violent and widespread. However, the
separation is arbitrary, and, in fact, the dynamics

and paths between the two conflict categories are
many.

Localized conflicts can degenerate into larger-
scale violence. This development may occur without
external influence, but it often happens with the
spread of insecurity and the sense of lawlessness
and impunity in a country or region as a whole.
Conflicts may also scale down. Depending on how
issues are resolved and how different stakeholders'
interests are dealt with, conflicts can de-escalate
and shift to more quiescent levels. When armed con-
flicts are over and resource exploitative practices
resume, smaller conflicts of low intensity regarding
access and benefits become the predominant mode
of conflict. After war, governments are inclined to
quickly allocate exploitation concessions in natural
resource sectors to revive the economy. In the
absence a clear legal framework and transparent
management institutions, exploitative practices can
easily lead to local dissent and conflict.

2.4   FACTORS DRIVING AND MITIGATING FOREST-RELATED CONFLICTS

Forest rights and governance have a definite
role in generating and fuelling conflicts, but what
can we expect in the future, taking into account
climate change and an ever increasing demand for
forest products and farm land? Although environ-
mental and economic pressures are great, their
outcome in terms of security depends much on the
ability of social and political institutions to reduce
pressures and to mediate competing interests.
What we have seen in many tropical countries,
however, is a gradual erosion of governance, par-
ticularly in remote forest areas.

CLIMATE CHANGE, ENVIRONMENTAL
SCARCITIES, AND CONFLICT

By generating environmental scarcities,
climate change may have serious security impli-
cations in the near and more distant future. The

projected environmental effects of climate change
include increased variability in rainfall and sea
level rises; more droughts, floods, and tropical
storms; and unpredictable outbreaks of pests and
diseases. Although there is still much discussion
about the exact locations where climate change–
induced scarcities and disasters will be most
severe, scientists agree that people in the develop-
ing world are likely to be the first to experience
negative consequences. This prediction is based
on the fact that developing countries are home to
most of the world's fragile ecosystems and that
their majority populations rely directly on those
ecosystems. Studies suggest that climate change
could, in combination with other factors, directly
contribute to violence in the following ways:[72]

■   Long-term environmental deterioration may
lead to scarcity—especially declining access to
water or land and the returns on use of land—to

increasing competition over those resources, and even possibly to violence.

■   Long-term environmental deterioration may lead to scarcity and contribute to massive migration (environmental refugees), potentially destabilizing neighboring areas.

■   Increased climate variability—intense droughts or floods or natural disasters—may cause short-term economic shocks, thereby reducing employment opportunities, which may possibly increase recruitment to armed groups, and leading to violence.

Those points apply to forest environments in the same way they do to arid and seaside areas. It is foreseen that climate change and climate variability will decrease timber production and the availability of other nontimber forest products because of extreme events, such as forest fires and flooding, as well as changes in ecosystems and increased pests.[73] In turn, scarcity of those goods will increase competition, potentially leading to conflict. Another likely effect of climate change is increased migration of people from arid areas where droughts and floods strike toward forests that better retain water and absorb heavy rainfall. For example, in Africa, nomadic and seminomadic populations of the Sahel are inclined to penetrate ever deeper into forest and agricultural zones when droughts, or floods, strike more severely and haphazardly because of climate change. Unprecedented migrations increase the risk of competition and social conflict.

Although there is considerable agreement and some case study evidence about the relationship between climate change and conflict, there is no one-to-one relationship. Effective institutions, aid, and appropriate technology can avert the negative consequences of climate change–induced scarcities and disasters. Under certain conditions, scarcities trigger cooperation and stimulate peace. Water is an example of how scarcity can trigger cooperation between countries that share an interest in the continuous flow and availability of that resource. In addition, the protection of forest ecosystems, which likewise straddle the borders of two or more countries, has generated initiatives to improve international relations through so-called transboundary protected ar-

eas, or Peace Parks. The increased recognition of the forests as a factor that mediates the negative effects of climate change can also add a degree of market value to the forest, from which impoverished forest-dependent people, as well as high forest countries as a whole, can benefit, for example, through carbon credits, increased marketing potential of rare forest products and medicinal plants, more investment in ecosystem protection, and tourism.

FOREST DECLINE, GLOBAL TRADE, AND INVESTMENT

During the 1990s, the total loss of natural forests (deforestation plus the conversion of natural forests to forest plantations) was 16.1 million hectares per year. Of that amount, 15.2 million hectares were in the tropics.[74] The larger part of that loss occurred in the form of conversion to agricultural land—13 million hectares per year between 1990 and 2005.[75] The net change in forest area, however, has declined during the past five years because of more forest planting, landscape restoration, and natural expansion of forests. Net forest-cover decline is estimated at 7.3 million hectares per year, compared with 8.9 million hectares from 1990 to 2000.[76] Forest conversion is largely driven by increasing global demands for foodstuffs as a result of population growth, ongoing consumerism in Western countries, and increased purchasing power in emerging economies such as Brazil, China, and India. Rising prices of food in combination with trade liberalization are strong incentives for producers in developing countries to convert forests into agricultural lands. In addition to rising global food demands, the growing demand for biofuels will enhance, if not intensify, the rate of forest conversion in the tropics. Logging is another significant source of deforestation. The volume of global wood removals has remained constant since 1990, about 3.1 billion cubic meters per year, representing a value of US$64 billion, which is also roughly constant considering the rate of inflation.[77]

Are these economic driving forces necessarily threats, or can they be regarded as opportunities

in terms of improving security? One can argue both ways. In the absence of manufacturing and service sectors, many developing countries rely on primary commodity exports to create economic surplus. Ordinary people in resource-dependent countries are more likely to benefit from export opportunities in timber industries and agricultural sectors than in, for example, mining sectors and oil industries. First, this circumstance occurs because timber processing is relatively simple and can happen in the source countries, creating jobs and adding value to the resource. Second, in most tropical developing countries, agricultural production usually happens on land owned by individual farmers rather than on land overseen by the state or large (sometimes multinational) operations. Economic stimuli in agricultural and timber sectors may enhance or improve development prospects in some of the poorest countries of the world.

However, in the context of imperfect domestic and international markets and unclear property rights, economic opportunities from forest exploitation, processing, and conversion may not benefit ordinary people as much as we would hope. Particularly in Asia, but also in Africa and Latin America, investments in pulp and paper capacities, timber extraction, oil palm, and mining activities have been booming in recent years. Because of the complexity and poor regulation of international capital markets, increasing amounts of funds (notably from China) are invested in extractive industries, including forestry, with minimal transparency or accountability. In countries with limited government oversight, such investments could drive land use change and result in expropriation of land and environmental damage. Skirmishes and human rights violations have risen in many forest areas where capital investment has flowed abundantly.

FAILING GOVERNANCE IN TROPICAL FOREST COUNTRIES

Social unrest, unequal distribution of land, and environmental destruction induced by economic demand and climate change are by no means recent phenomena in tropical counties' forestry sectors. They are ongoing characteristics that are rooted in history. It is easy to blame contemporary developmental and security problems in the tropics on the colonial past. Nevertheless, one must recognize that many of today's forest-related conflicts can be traced to colonial policies that have, unfortunately, proven to be remarkably resilient. A prime feature of colonial governance of tropical forest was the introduction of concessions, which made the military surges into interior parts of the colonies profitable. Concessions were granted on the basis that all lands were owned by the state, overruling preexisting tenure arrangements in the process. In addition to creating legal dualism, colonial modes of production were often extremely violent.

Postcolonial governments did very little to dismantle the central state control over resources in favor of private or community-based ownership. At the same time, many of the governments facilitated population movement toward sparsely populated forest zones. In some Asian countries, migration policies were enforced to relieve overpopulated areas and to promote ethnic mixing. Similarly, in West African countries, such as Ghana and Côte d'Ivoire, people were stimulated to move from northern savannah areas to work in plantations in the south. In Latin America, forest migrations happened much earlier and were driven by individual opportunity seekers of diverse ethnic backgrounds. Although many of the population movements into remote forest frontiers were facilitated by national governments, clear legislative and regulating principles defining the ownership process for properties were often lacking.[78] As a result, de facto ownership and appropriation of natural resources tended to rely not simply on statutory imposed law but on other elements of power, such as the financial and physical strength of a claiming party. Several explosions of interethnic violence in forest areas in Africa and Asia in recent years can be traced to postcolonial periods of state-supported transmigration. In Latin America, violent interactions usually have taken the form of class struggles of poor and landless

farmers against private landowners rather than ethnic groups being pitted against each other.

Whereas large rural and forest territories were, in a sense, left to their own devices, postcolonial states in most tropical countries nationalized profitable resource sectors, notably the mining, oil, and agroforestry industries. State kleptocracies took root in Haiti, Indonesia, Liberia, Nicaragua, the Philippines, Sierra Leone, and Zaire, for example. In those and other similar cases, the military establishment and the judicial and legal systems had been corrupted and used as instruments to serve the interests of the regimes. The regimes were supported by powerful states in exchange for their allegiance in the context of Cold War geopolitics. State repression perpetuated the regimes' continued control over valuable natural resources, including forests.

During the late 1980s and the 1990s, violent uprisings against those regimes were, in part, a revenge on the predatory state made possible by a combination of factors that severely weakened the coercive power of the state and its capacity to improve the lives of its citizens. Frequently mentioned in this regard are the drying up of foreign support after the Cold War and the worldwide drop of commodity prices during the 1980s, followed by the structural adjustment programs of the early 1990s. Some countries, such as Indonesia and the Philippines, experienced a round of violence in the process of removing their autocratic leadership, followed by a period of relative stability and democratization. Other countries, such as Cambodia, the DRC, Liberia, and Myanmar, have remained or continue to remain in a state of emergency for more than a decade. In this period, the so-called economies of war took root. In such economies, alliances of political elites, military factions, and business accomplices were engaged in continuous, and sometimes violent, competition to control national or regional power, as well as respective resource sectors—the modes of production of which are largely criminalized—while relying on parallel markets, tax evasion, transborder smuggling, and money laundering.[79] Regional resource-based economies of war appear particularly persistent in African and Southeast Asian cross-border forest zones.

The timeframes just presented show a continuum from colonial and postcolonial concessionary politics to state-failure and modern-day war economies. To varying degrees, those systems indicate a shift away from "centralized states exercising effective control over resource use and revenue use across their territorial purview."[80] In a system of concessionary politics, the state largely hands its governance functions over to commercial enterprises and conservation agencies. In the absence of a strong regulatory system that defines rights and obligations of concession holders, the actors can acquire legitimacy by engaging in networks of patronage—promising and delivering profit to separate sections of society, including state authorities and local populations. In war economies, effective control of a resource, such as a mine, forest, or drug production area, rests on the use of force and the delivery of benefits to people in militias, usually by completely bypassing state authorities and local communities.

In both situations, governments fail to provide physical security, to define social and economic development, and to arbitrate diverging interests in remote forest zones. To some extent, the lacuna has been filled by business enterprises, civil society organizations, traditional authorities, and even irregular armed groups. However, the redefinition of local systems of power and production is often incomplete and is accompanied by reoccurring upsurges of violence. A new fit in resource governance—able to provide security, predictability, transparency, and redistribution—still appears very remote in many tropical forest areas that, under such conditions, are cursed with high-value resources. In response to resource-induced conflict and general insecurity in remote forest areas, many governments have introduced governance reforms that redefine the rights and responsibilities of forest-dependent peoples, enterprises, conservation agencies, and state agencies with regard to forest management and exploitation.

DECENTRALIZATION AND DEVOLUTION OF RIGHTS

Combined pressure from local communities, civil society organizations, scholarly advocacy groups, and donors, coupled with the inability of central governments to exercise control, led many central governments to undertake, usually half-heartedly, decentralization measures. The trend toward decentralization in natural resource management has expanded opportunities for participation of different stakeholders, including communities and indigenous peoples, in forest policy making and management implementation. Presently, communities own or administer 25 percent of the forest in developing countries, as compared with about 12 percent 15 years ago.[81]

Decentralization processes can contribute to social stability through the clarification and devolution of rights. Formal recognition of traditions, customs, rules, laws, and policies dealing with issues of access to and use and management of forest resources can bring order and predictability to situations of competing interests.[82] Local forest-management institutions can also provide a platform by which community groups can address natural resource conflicts.[83] Besides the political benefits, community ownership and control over forest is believed to have a positive effect on local economic growth and investment, thereby possibly dampening conflicts born out of deprivation. Furthermore, empowered forest-dependent local communities may prove better able to control access to forest resources, deterring outside exploiters.[84]

In theory, decentralization is supposed to shift the balance of power and decision making from central and national levels to subnational and local levels. However, decentralization often remains incomplete, inadequately resourced and implemented, and limited in scope and benefits. We identify three important risks associated with decentralization.

First, decentralization policies raise high expectations but often fail to deliver real outcomes for local communities because of existing power configurations. This occurs, for example, when rights to terrestrial resources are decentralized but can easily be overruled by other state agencies that own or control subterrestrial resource rights to oil and mineral resources. In most countries, central governments have tended to decentralize management responsibilities over degraded or low value forests while maintaining commercially valuable forest resources under central control.[85] Another frequently observed problem is that devolution is not accompanied by technical assistance, planning and coordination, credit, extension services, and marketing systems, thereby precluding rights from being transformed into actual access and benefits. Such situations can result in frustration and increased resentments against state institutions.

Second, decentralization of management and devolution of resource rights can lead to inter- and intracommunity conflicts when newly created territorial boundaries are incongruent with the fluid nature of resource use and management. Many countries that experimented with decentralized forest management experienced conflicts between different territorial, ethnic, and family groups over the specific community level in which management should be vested. Again, within the local management unit, exclusion of particular members or subgroups may occur. Local forest-management systems and the customary laws by which they operate may exclude women, youths, and immigrants from decision making. For example, a development project aimed at reinstating customary resource tenure in Sierra Leone proved disastrous—by its own evaluations—because it "helped to recreate the conditions of injustice that contributed to the war in the first place."[86]

Third, there is a risk of elite capture, where community-based resource management schemes are initiated and monopolized by a few local elites that are well connected to political and bureaucratic networks and business interests. Elites at different levels often become interlocutors of local communities and less-powerful stakeholder groups. They strategically position themselves to capture rent; to facilitate or stall changes, depending on whether their interests are promoted or hurt; and

to serve as gatekeepers and arbiters among less powerful, competing interest groups. In Cameroon, for example, community forestry projects in many localities are really individual entrepreneurial projects of educated elites who have returned from the cities to the village.[87] As a result, the management groups of such *community forests* rarely represent the interests of the community as a whole.

Although it is relatively easy to establish that legal recognition of community-based rights to forest resources is growing, the question of whether it leads to more social tranquility is more difficult to answer. Particularly in the early stages of decentralization, when rights and authorities are unclear and overlapping, there is a high risk that patterns of corruption, inequality, and exclusion that defined centralized forms of management are reproduced at local levels, leading to local grievances. One must realize, however, that building and empowering locally responsive institutions for resource management and tenure security may take a long time. For example, in the case of Guatemala's Maya Biosphere Reserve, it took more than a decade—from 1990 to 2001—to negotiate community access to the reserve's buffer zones and to establish viable community organizations capable of managing exploitation and distributing benefits, despite Guatemala's long tradition of formal recognition of community property rights. In countries where resource management has historically been more state-centered, such as most countries in Asia and Africa, we cannot expect quick fixes in local management, certainly not within a 10-year time span.

In addition to time, political momentum is a decisive factor in the struggle for recognition of local rights. In many cases, this momentum is created only after intense conflict manifestations. In Mexico, for example, a peasant revolution in 1910 was needed before the government recognized community rights to land and resources in the form of *ejidos* (communal lands). Nicaragua presents a more contemporary case. In the 1990s, the government granted, for the first time, resource management rights to municipal councils. This move can

be interpreted as a strategy to avoid renewed civil uprisings after a civil war that lasted from 1960 to 1996. Surely, intense conflict experiences, such as peasant revolutions and civil wars, are not necessary prerequisites for forest tenure reforms. The path toward recognition of rights can be more gradual and less conflict-ridden, as other examples in more democratic tropical countries show. For example, in 2006, after a decade-long advocacy campaign by tribal and leftist groups, the Indian Parliament passed the Scheduled Tribes and Other Traditional Forest Dwellers Recognition of Rights Bill. Besides recognizing property rights for all forest dwellers, the bill seeks to transfer the crucial powers needed for implementing the legislation from the forest department to local communities.

FOREST LAW ENFORCEMENT

Together with decentralization, forest law enforcement is a popular term in the world of sustainable forest management. The issue has been incorporated in the work plans and policy statements of the Group of 8, the Convention on Biological Diversity, the United Nations Forum on Forests, and the International Tropical Timber Organization. In line with Forest Law Enforcement, Governance, and Trade (FLEGT) initiatives, the European Union is negotiating trade agreements with timber-producing countries on the condition that legality of the timber is guaranteed. Indonesia has signed memoranda of understanding on illegal logging with China, Norway, and the United Kingdom. In Cambodia, Cameroon, Costa Rica, and the Philippines, external agencies have been active in recent years in monitoring the legality of the timber trade and, on occasion, the performance of state forestry agencies.

The initiatives have largely been driven by international concerns about the environmental destruction associated with illegal logging. But timber producing countries also increasingly realize the need to recover the estimated US$10 to $15 billion in revenues they fail to receive because of illegal logging.[88] In recent years, several tropical

timber–exporting countries have made progress implementing more transparent and fairer systems of concession allocation and management and in tracking and verifying the legality of timber as it moves through the commodity chain. In a number of timber-producing countries, law enforcement initiatives are paying off in terms of increased legal revenues and provision of public services with the revenues.

Nonetheless, strict law enforcement in tropical countries that experience weak governance, such as those emerging from armed conflict, risks being biased against impoverished forest dwellers who use forest resources they do not legally own. The following are reasons for this possible bias:[89]

■   Forestry legislation often prohibits small-scale commercial timber extraction, fuel-wood collection, and hunting. Usually, such activities take place on state-owned forest land or in protected areas where encroachers have lived for generations.

■   Most local forest-dependent populations are ill equipped to obtain permission to legally engage in forestry activities or to obtain assistance in preparing required management plans.

■   In some countries, forestry and wildlife officials engage in illegal activities that harm the impoverished population. Measures that empower those officials could make it easier for them to act with impunity.

■   Forestry and wildlife departments generally enforce forestry and protected-areas legislation more vigorously and with less respect for due process and human rights when impoverished people are involved.

There is an additional risk related to the last reason when, under the guise of law enforcement, resource extractors and authorizing administrations, as well as forestry and wildlife officials, seek help from security forces or form their own militia to fence off extraction areas and to remove inhabitants. Examples of military alliances with logging firms and ensuing clashes with local populations are well documented for timber-producing countries in the Asia-Pacific region, including Cambodia, Indonesia, Myanmar, and Papua New Guinea.[90] Less well-documented, but gaining increasing attention, are cases where conservation policies are accompanied by repressive and violent actions by security personnel and armed forestry and wildlife officers. Drawing on cases from mainly Africa, Geisler and de Sousa have branded a new type of "conservation refugees"—those resulting from increasing forceful resettlements and softer forms of dissuasion.[91]

As in the case of decentralized forest management, it is difficult to establish the overall conflict-generating or conflict-reducing effect of improved or intensified law enforcement. There are many positive and negative examples, often occurring in the same regions or countries. Law enforcement is particularly conspicuous in countries facing or having faced resource-driven war economies. On the one hand, strict law enforcement is necessary to address criminal modes of production. On the other hand, in the absence of clear regulatory mechanisms and adequately functioning enforcement institutions, a push for intensified law enforcement risks damaging the forest-dependent livelihoods of many forest dwellers. Rather that focusing on rooting out all illegal practices, law enforcement should be occupied with finding ways in which illegal activities of small-scale artisanal forest operators can be brought within the rule of law without imposing unnecessarily burdensome conditions and transactions costs.

3 DEALING WITH FOREST-RELATED CONFLICT

3.1 WHERE'S THE LEVERAGE OF FORESTRY AND TENURE REFORM?

Forest-related conflicts have severe negative consequences for humans and nature, and they must be addressed. Yet, conflict can also have constructive aspects and can yield positive outcomes, especially for those seeking to change the status quo. If resolved and successfully managed, conflict can lead to a better relationship among previously conflicting actors, to improved trust, and to better and more equitable resource management, thereby avoiding further escalation. Therefore, the question is not only how conflicts can be prevented, but also how they can be managed to avoid destructive escalation.

To identify promising initiatives for conflict prevention and management, we need to consider the life cycle and dynamics of conflict. Pruitt and Rubin describe escalation as a process in which (a) tactics go from light to heavy, (b) issues proliferate, (c) the parties concerned become increasingly absorbed in the struggle, and (d) goals change from self-advancement to subversion of the adversary.[92] Conflict escalates as engagement becomes difficult and as actors gradually lose their flexibility toward their opponents. Stakeholders in an escalated conflict situation continuously exercise their power in relation to their adversaries. Those with ample power are most likely to exert control over resources in their favor and, therefore, may have little incentive to make concessions. Those with greater power are also less inclined to negotiate and less interested

in finding solutions to the conflict. Where power imbalance and inequities are severe, the powerless and disenfranchised population could consider engaging in conflict as their only recourse. To the extent that violence attracts attention and spurs those with power to action, violent conflict can be seen as a means for change in favor of that population.

Efforts to reduce conflict are likely to have the widest latitude for intervention and the greatest scope for success during the early stages of the conflict before issues are overlaid with emotive notions of identity and before positions of conflicting parties harden and violence breaks out. Beyond a certain point of escalation, significantly more resources and time are generally required for interventions to achieve results. Thus, timely engagement and intervention by external parties during the early stages of conflict could be critical to mitigating risks of more serious future conflicts. Mediation, alternative dispute resolution mechanisms, confidence-building measures, joint monitoring, and facilitated collaboration between conflicting parties are examples of approaches that have worked. Where violent conflict has become protracted, diplomacy, sanctions, and military intervention are more apt means to intervene. In the postconflict stage, efforts must be targeted to physical reconstruction and emotional reconciliation, such as peace building and consolidation.

3.2 MITIGATION MEASURES: PRIORITIES, LESSONS FROM EXPERIENCE, AND RECOMMENDED ACTIONS

Forest governance and tenure reforms have the most leverage in pre- and postconflict phases. During those phases, the reforms can be instrumental in addressing the basic conditions under which conflicts arise: persistent inequity and injustice, corruption, state weakness, and generalized institutional dysfunction. Dealing with forest-related conflict and the tendency toward violence will require concerted, multipronged action to deal with the following fundamental issues.

INCONSISTENCIES AND LACUNAS IN LAW AND POLICY—ESPECIALLY THOSE RELATING TO TENURE AND RIGHTS OVER FOREST RESOURCES

On a day-to-day basis, inconsistencies translate into selective, uneven, and biased law enforcement and legal processes that favor powerful actors while obstructing or criminalizing many of the livelihoods and activities of small-scale forest users and local communities. Inconsistencies between formal and customary law and official disregard for customary rights to forest lands and resources especially disadvantage indigenous peoples and traditional forest users. Overlapping claims to resources based on inconsistent laws breed resentment and conflict. Eliminating legal and policy inconsistencies and clarifying tenure and rights is the first necessary step in addressing this issue.

Rights clarification and recognition are political, rather than technical, processes. They are bound to meet opposition from a growing constellation of groups with vested or competing interests in land and forest resources. Those include, for example, landlord classes; ministries in charge of forest, conservation, and mining; conservationist organizations; and business operators. In many tropical forest countries, legal reformers veer between legitimate claims of local communities and smallholders and the exiting ownership status. In

such cases, the challenge is to find a workable legal compromise.

In several countries, such compromise has, in recent years, been crafted through different forms of negotiated access arrangements, which do not transfer ownership but legalize and secure existing livelihood activities. For example, India's new tribal rights bill prevents a policy of regular land redistribution, but it does recognize small-scale incursions into forest lands.[93] In Indonesia, an alternative to ownership transfer is the option of long-term leases in the State Forest Zone.[94] The community concession model of Guatemala is a legal innovation by which protected areas are not declassified but are opened up for community usage and management.

Unfortunately, countries that have recently emerged from civil war have made little progress in designing and implementing innovative and flexible access arrangements. For example, Cambodia, although having made significant progress in reducing illegal logging, has not replaced systems of patronage and resource allocation between government officials and forestry enterprises that would allow room for community-based forest management and enterprise development. In Liberia, the fear of renewed economies of war has stalled progress in legalizing communities' commercial use of forest resources on state lands. Thus, where the 2003 Act for the Creation of Protected Forest Area Network provides for the establishment of communal forests, it does not permit mining, settlement, farming, or commercial timber extraction in such forests. In the DRC, a progressive Forestry Code was adopted in 2002. It respects traditional user rights and provides for the establishment of community concessions or community forests on state forest lands. However, there is a wide gap between the code's elaborate set of principles and regulations and what would be required to actually implement them. Commentators warn that a real danger exists that more positive aspects will never get implemented.[95]

However, it is not just conflict and bad governance that forestall progress in the clarification of rights for forest dwellers. Despite the presence of institutional capacity and good intentions on the side of state authorities, fierce competition between opposite interest groups can put rights recognition on hold, generating tenure insecurity and the risk of local resentment and social conflict. For example, in Brazil, the present government, which is generally recognized to be pro-poor, has not found a legal solution to the many land occupations by landless groups across the country. While the constitution legally justifies squatters to occupy unproductive properties, the Civil Code allows title owners to request an eviction of squatters.[96] By trying to navigate between competing interests of landless and land-owning classes, the government has thus created a high degree of tenure insecurity. Another example is Thailand, where the introduction of a community forest bill has been put on hold for more than 10 years, arguably because of a powerful urban environmental lobby that fears environmental degradation from recognized community access.[97]

In the light of the empirical analysis, a few concrete recommendations can be made with regard to processes of rights clarification, particularly in the context of intense competition and in postconflict countries:

■ Governments should learn from positive experiences in other countries (preferable south-south) where recognition of ownership and user rights has not led to environmental destruction and misappropriation of resource revenues. International institutions and initiatives, such as the International Tropical Timber Organization, the United Nations Forum on Forests, and Forest Law Enforcement and Governance initiatives, could incorporate into their meetings opportunities and side events to facilitate sharing of lessons and proven approaches.

■ International assistance and donor support for legal reforms in postconflict countries should have as a key component the building of strong institutional foundations at all levels to adopt just laws, to enforce the rule of law, and to effectively implement legal reforms in the forestry sector. Particular attention should be given to institutional development and capacity building to deal with and manage conflict in reconstituted and newly settled communities.

■ International donors and development agencies should support the efforts of countries experiencing or emerging from conflict to establish clear laws and to design simple, cost-effective mechanisms to formally recognize the tenure, harvesting, and production rights of local communities (original population and new settlers) and individual smallholders.

■ Governments should provide ready and affordable access to justice for all. Reforms in the judicial system should include simplified procedures, ease of access to information, improved accessibility, and decentralization of judiciary institutions together with resource management processes.

■ Alternative conflict-resolution mechanisms, provided by churches and local nongovernmental organizations, can add to the formal justice system and provide solutions that complement customary and statutory law. Improved coordination among the various initiatives for conflict prevention, mitigation, and management could facilitate a timely response to emerging conflict issues. Continuous risk assessment, information sharing, and early warning mechanisms are essential for effective coordinated engagement in a timely manner.

IMBALANCES IN POWER AND VOICE AND ASYMMETRIES IN ACCESS TO RESOURCES AMONG FOREST STAKEHOLDER GROUPS

Significant disparities in power, wealth, access to resources, and channels of influence among forest stakeholder groups fuel, and also feed on, the political economy of inequity and conflict. Addressing this issue requires reforms and measures to promote more equal access and to create meaningful spaces for voiceless and marginalized forest stakeholders to represent their interests and to participate in decisions that affect them. At the minimum, this approach will require two types of

action: (a) opening up of restricted sociopolitical spaces and support of multistakeholder forums for meaningful dialogue at different levels and (b) targeted support to develop the capacity of disenfranchised stakeholders—especially indigenous peoples, impoverished forest-dependent communities, and women—to participate in the forums and to negotiate on their own behalf.

Organization building, alliance building, and networking among marginalized stakeholders are critical elements of this support. Complementary efforts to reduce information asymmetry among stakeholder groups are necessary. It is especially necessary to fill gaps in information relating to government policies—their implications and provisions relating to rights, entitlements, and responsibilities. To sustain long-term engagement of stakeholders, it will also be important to demonstrate tangible benefits and to minimize transaction costs associated with multistakeholder processes.

Several donor-led projects have been successful in putting conflict management on the agenda of national and local resource-management agencies. However, their time horizons have been rather short—five years at most—which constrained their ability to develop lasting institutions. To date, very few governments in tropical forest countries have begun to include conflict management in their forest policies. An exception and example to follow, however, is the Philippines. In 1992, the government formed a special office, the Office of the Presidential Adviser on the Peace Process, to manage and oversee peace-building components in government policies . In recent years, this office has helped the Department of Environment and Natural Resources to reduce conflicts accompanying the process of legal recognition of territories occupied by indigenous peoples.[98]

Apart from practical, operations issues, there are theoretical problems in participatory, multistakeholder processes and alternative dispute resolution in natural resource sectors. The narratives around those processes are usually framed very optimistically. Multistakeholder negotiation processes essentially draw on game theory and

operate with a firm belief in achieving win–win situations—"In the long run, compromise may be the best way to serve everyone's interests, especially when destructive conflict is replaced by the stability and predictability of a mutually agreeable solution."[99] In many cases, this assumption does not hold true, particularly in severe conflict cases. First, just as power relations pervade the institutional dynamics of every day resource use, so do they pervade social negotiation processes.[100] As such, participatory negotiation settings may expose disadvantaged groups to the rhetorical and coercive power of dominant parties, only to add to their vulnerability. Second, parties may not share an interest in resolving conflict because of the political and economic gains they currently derive from it. In such contexts, alternative dispute resolution may not yield expected results and may even prove counterproductive.

To enhance the effectiveness and to minimize the potential downside of those processes, the following measures may be recommended:

■   Governments in countries prone to conflict should adopt and implement within their national forest programs components and activities designed to recognize, defuse, and address cases and root causes of conflict in and about forests.

■   Donors should assure long-term financing and work toward developing local and national institutional capabilities to recognize, defuse, and address conflicts in forestry and land sectors before they turn violent.

■   In designing mechanisms and interventions, donors, churches, nongovernmental organizations, and other agencies involved in multistakeholder negotiations and conflict-resolution processes should recognize and address imbalances in power and access to resources among stakeholder groups.

■   In cases of significant imbalance, measures must be taken to equalize competition and to promote just outcomes. In most cases, this approach will entail providing assistance with networking and capacity-building support to disadvantaged parties to eliminate information asymmetries and to reduce power imbalances.

CORRUPTION IN THE MILITARY, FORESTRY AGENCIES, FOREST-RELATED BUREAUCRACIES, AND THE JUDICIARY

Addressing this issue will require effective systems of control and mechanisms for sanctioning, as well as rigorous standards for recruitment, performance monitoring, and rewards, especially for officials in key positions. Systems of rewards and incentives should be strongly linked to performance and values based on integrity and service. This method is not easy to achieve considering that many government officials depend economically on above- and under-the-table payments in exchange for protection or legal cover for forest crimes and illegal timber extraction and trade. To be effective, the measures to combat corruption in the ranks of front-line agencies must be supported by broader reforms to root out systemic corruption. This support would entail innovative use of available legal instruments, regulatory tools, and financial mechanisms. However, without the requisite political will behind those reforms, anticorruption efforts can end up targeting low-level, petty corruption while leaving large-scale, high-level corruption untouched.

The issue of corruption in the forestry sectors of tropical timber–producing countries is presently high on the agenda of several international mechanisms, schemes, and agreements that try to tackle trade in illegal timber. Where implemented, those mechanisms have the potential to reduce conflict by taking away local resentment associated with illegal logging operations, particularly those involving outsiders and criminal networks. However, to date, this possibility has not been convincingly demonstrated. In many cases, local livelihoods tend to be enmeshed in these illegal logging operations.[101] Initiatives, such as Forest Law Enforcement and Governance and the Asia Forest Partnership, are moving toward inclusion of broader stakeholder perspectives and actors, but they still have the tendency to concentrate on technical approaches to enforce laws and to define standards of legality. This focus has left too little room to consider issues of justice and equity in framing and implementing laws.[102]

Third party, or independent, monitoring initiatives have been used as mechanisms for tracking progress toward agreed norms and standards, but they have also looked into issues of justice and equity. There are several forms of monitoring. The most well-known example is the independent observer role that Global Witness fulfilled as part of donor aid conditionality in Cambodia and Cameroon. In both countries, the organization has raised international awareness about the issue of illegal logging and the consequences for local populations. However, its advocacy role and external imposition generated some bureaucratic resistance, limiting, in turn, the observers' ability to institutionalize their role and to bring about change within the forestry administrations.[103] In Indonesia, an alternative model of external monitoring has developed whereby forestry administrations solicit for information gathered by two national environmental NGOs. Without any formal agreement with the government, the NGOs have taken on the role of independent monitor. The sustainability of this model rests on the forestry administration's view that the NGO's role is a positive one and an asset in executing its own functions.

Apart from Cambodia, timber monitoring and trade initiatives are minimally implemented in countries in or emerging from armed conflict. This situation arises mainly because these instruments are state focused and are based on several assumptions that may not hold in states weakened by war—that is, governments control the trade occurring within their territory, are legitimate sovereign states, and operate in the best interests of their countries. More rigorous and less cooperative measures have proven to be necessary in such countries. Those measures often go beyond the scope of forest governance and could include measures such as international UN (smart) sanctions and bilateral trading bans.

This analysis demonstrates that forest and nonforest-related measures to fight corruption and halt the trade in illegally sourced forest products require improvement and additional international support. The following recommendations have been made and are echoed here:

■ In the fight against illegal logging and associated corruption, international donors should look beyond reforming state institutions and work toward the inclusion of broader stakeholder perspectives and actors, such as financial and regulatory institutions that operate outside forests but nevertheless affect what happens to forests.[104]

■ National law-enforcement agencies should empower communities to monitor and report on compliance of logging and other forest-based enterprises with forestry laws, with support from government authorities, and to work toward broad security-sector reforms and systems of independent monitoring of human rights violations.

■ Donors should also support efforts to develop independent, well-informed media and vigilant, well-organized, and strategically networked civil society organizations. Those groups should be enabled to independently monitor government agencies and forestry companies, to demand greater accountability and transparency from government and corporate entities, and to provide needed information and technical support to communities and smallholders confronted with conflict, forest crimes, and corruption.

■ Forest law enforcement should concentrate on the largest violators, especially those that provide limited employment. In some, but certainly not all, contexts, these groups are also responsible for the greatest amounts of forest destruction and most of the tax evasion.[105]

■ Donors can use their critical leverage in supporting forest sector reform to encourage the appointment of reform-minded and often younger and more idealistic forestry officials, the implementation of training programs on good governance, and the sanctioning of corrupt officials.[106]

TARGETING OF LOGGING AND PLANTATION COMPANIES, FOREST-BASED CONCESSIONS, AND CORPORATE ENTITIES EXPLOITING FORESTS AND PEOPLE WITH IMPUNITY

In addition to adopting and implementing clear, consistent, and appropriate regulatory standards, governments must put in place effective monitoring systems and effective structures of incentives and disincentives to exact compliance and to promote responsible corporate behavior. Often, reforms mean neutralizing or countering the influence of unaccountable political leaders and power brokers providing patronage and protection to the corporate entities. Significant investments and technical assistance will be required to assist conflict-prone countries to develop and enforce standards and norms of responsible corporate practice. Support will also be needed to harness and mobilize the energies and international networks of civil society, consumer groups, and financial and credit-rating institutions as a counterweight to the inevitable backlash from corporate interests and their patrons who stand to lose from the reforms. Addressing those issues is especially difficult for poor countries with weak state institutions and with environments in which powerful companies have operated virtually unchecked.

In such countries, several international mechanisms have been designed to support corporate social responsibility in extractive industries. Since 2003, some 45 lending institutions have endorsed the International Finance Cooperation's Equator Principles, which spell out social and environmental safeguards for project financing in all industrial sectors, including forestry. An older process is forestry certification under the Forest Stewardship Council label, which has been acquired by forestry companies in relation to their operations on 80 million hectares of forest land. The voluntary Global Reporting Initiative, sponsored by the UN Global Compact, is another significant initiative. It provides a framework for establishing an industry standard for corporate reporting on key operational variables. However, there has been little progress made in defining reporting standards for forestry or wood-processing companies so far.[107]

The voluntary nature of the initiatives focused on corporate social responsibility coupled with the relatively high costs of engagement has limited the inclusion of institutions and operators beyond Europe and the United States. For example, Forest

Stewardship Council certification of tropical forests accounts for only 13 percent of the total certified area, none of which covers small or medium-sized enterprises. Forest-related investors and operators from China and India as well as tropical timber-producing countries rarely take part in the previously mentioned international initiatives. International public scrutiny is exercised on very select groups of investors and producers. If, as a result, those enterprises are forced to abandon or limit their operations in tropical timber–producing countries, they are all too easily replaced by those that do not operate for Western consumers and are, therefore, less inclined to demonstrate high standards of corporate social responsibility. In many postconflict countries where governance standards are low, it is practically impossible to operate at the set international voluntary standards of investment and production. A real risk exists that relatively good companies shy away from investment in such countries because of selective international pressure.

The scope of voluntary mechanisms is rather limited when it comes to legally prosecuting natural resource abusers during armed conflict. National legislation on subjects of criminal activities and human rights abuses—often associated with the trade in conflict commodities—offer additional prospects, particularly in terms of addressing individual and corporate crimes committed by national actors overseas. For example, Indonesia's inclusion of forest crime as a predicate offense under anti-money laundering legislation opened up significant opportunity to prosecute financial transactions that are behind large-scale illegal timber operations. In a number of European countries, individuals have in recent years been faced with charges of criminal activities committed overseas, notably illegal diamond trading, money laundering, tax evasion, arms trafficking, and forgery. Some countries have adopted specific legislation to file extraterritorial lawsuits against multinational companies operating overseas. For example, in the United States, the Alien Tort Claims Act allows companies to be sued for acts committed overseas that violate the law of nations or a treaty of the United States.[108]

Recommendations include the following:

■ Civil society actors in middle-income tropical timber–consuming countries should be supported in their efforts to create consumer awareness about issues of equity and sustainability and to advocate for improvements in corporate practice of companies operating in forest-product source countries.

■ International donors should encourage and support governments in timber- and forest products–producing countries to develop and enforce standards and norms of responsible corporate practice in the agroforestry and forestry sectors.

■ In war-torn countries where it may take a long time before such standards and norms are developed and put into practice, models of mobilizing good forest-investment capital to crowd out bad investment capital are needed. Donor-funded insurance mechanisms can be created for agroforestry and forestry enterprises that demonstrate responsible cooperative practice and are willing to invest in high-risk countries.

■ Models to work toward corporate social responsibility must be designed to include small and medium-sized forestry enterprises. To avoid proliferation of labels, Forest Stewardship Council certification must be made attainable to smaller producers, possibly through associations.

■ Governments should work together to develop and enforce national legislation that applies to corporate crimes in natural resource extraction, including forestry.

EXCLUSIONARY MODELS OF CONSERVATION LEADING TO DISPLACEMENT AND VIOLATION OF RIGHTS OF INDIGENOUS COMMUNITIES AND LOCAL FOREST USERS

The model of fortress conservation based on the appropriation and delineation of large forest areas for strict biodiversity and environmental protection by state and international environmental NGOs needs serious rethinking. Quite apart from the conflicts and grievances that this approach to conservation has precipitated, especially in indig-

enous territories, there are questions about the long-term viability of protected areas without the support of local communities and key stakeholders. Conservation must be framed more broadly in the context of dynamic landscapes managed over time and space to provide multiple ecosystems goods and services, including biodiversity. Such reframing will make it possible to explicitly consider trade-offs and possible bundling across ecosystem services, such as with carbon sequestration services, and their implications for who gains and who loses under various options.

Promising initiatives that work toward public–private partnerships and integrated landscape management began in Central Africa under the Central African Regional Program for the Environment, a U.S. Agency for International Development initiative that paved the way for the European Union–funded Congo Basin Forest Partnership. By including a diverse set of partners and by applying approaches to multipurpose landscapes, those initiatives optimize trade-offs and make use of cross-sectional linkages. In both cases, however, better tools and methods are required to empirically test how different policies affect interdependent outcomes of livelihood improvement and conservation.

The following targeted recommended actions can help stakeholders to compromise between conservation and development and, thus, to avoid social conflict:

■   International conservation agencies, donors, and national governments should design within conservation and development frameworks features that support local livelihoods, provide adequate compensation and benefit sharing, employ participatory and inclusive processes for deciding resource-related options and trade-offs, and have mechanisms for negotiating and dealing with conflicts.

■   Research organizations in the countries where such frameworks are established should assist conservation planners to measure and understand the effect of their policies on trading off communities' livelihood needs and conservation objectives.

■   While operating in partnership, civil society actors, including conservation organizations and other NGOs, should continue to monitor corporate practices and state law-enforcement measures, with particular attention given to equity and human rights issues in protected and conflict-prone areas.

UNDERINVESTMENT AND UNDERDEVELOPMENT IN FOREST REGIONS

Frustration and anger about the lack of basic social services, infrastructure, and opportunities for economic development are among the most common grievances underlying violent conflicts in forest zones. Demands for a greater share of revenues and development benefits from local forest and other resources, and a greater role in how these are managed, are familiar themes in secessionist movements and struggles for autonomy. Indeed, sparsely populated and remote forest areas have not been priority locations for development investment, even when they contribute significant revenues to the national treasury. The costs and returns of developing and investing in those areas must be reassessed, with explicit attention given to long-term security, equity, and institution-building considerations.

In addition to ensuring the provision of basic infrastructure and social services, investments in programs such as reforestation, community forestry, and enterprise development can expand local livelihood options and enhance the value of the resource base. Complementary investments in institutional capacity building, appropriate technology and skills upgrading, and access to markets are essential accompaniments to realize potential security and development dividends. This approach will require a major shift in state policy and perspective from exploitation and forest revenue maximization to long-term investment in developing local capacities to maintain and enhance productive assets, to reinvest in their own development, and to equitably share in the benefits.

Public and private investment in activities other than blunt resource extraction has been generally minimal in forest areas that are remote,

sparsely populated, and politically unstable. In these contexts, the expected return on investment is low, both for enterprises and for governments. In addition, governments' high military expenditures in postconflict countries divert resources that could otherwise be spent on social services, infrastructure, and policy reform. External assistance is crucial to make up for the lack of investment in postconflict countries in general and in neglected forest regions in particular. However, donors too are inclined to put their money in countries and regions where governance and policies are at least established and of reasonable quality to demonstrate that donations and taxpayers' money are well spent. Thus, the countries and areas that are most at risk to underdevelopment and conflict are those that are likely to receive the least means to overcome their situation. This reality is a harsh one that should be countered in the following ways:

■ In areas where opposition groups have legitimate grievances over state natural-resource policies, such issues should be included in peace negotiations. Access arrangements to resources and derived revenues are crucial to defining viable options for regional autonomy, as in, for example, the cases of Aceh, Kachin, Mindanao, and West Papua.[109]

■ The international community should offer long-term and more generous development assistance in high-risk forested countries and regions to prevent the rapid and unsustainable exploitation of forest resources before regulatory frameworks are in place.

■ Development assistance in that context should optimize opportunities in forest-based activities that can deliver immediate benefits, such as in reforestation programs, individual-tree crop planting, and forest conservation and rehabilitation projects.

In addition, private investment is crucial in high-risk forested countries. Agroforestry can provide a good alternative to industrial logging. International conservation agencies, donors, and national governments should encourage or even subsidize agroforestry industries that wish to do business in postwar countries.

4 SUMMARY AND CONCLUSION

Violent conflicts are one of the strongest manifestations of governance failure. Poverty, ethnic tension, the abuse of human rights, competition for natural resources are factors that exacerbate tension and make conflict more likely. One recent estimate suggests that almost 9 percent of the world's dense forest, mainly tropical, is located in areas that experienced armed conflicts between 1990 and 2004. Those forests are spread over 30 countries and are home to almost 130 million people. Africa has the most forest at risk, while Asia counts the highest number of people living in forested conflict zones.

Forests frequently provide shelter for belligerent groups. For example, during the 1980s and 1990s, rebel groups, such as the Khmer Rouge in Cambodia and the Revolutionary United Front in Sierra Leone, used forests as hiding places. Forest lands have also provided natural resources, such as timber and diamonds, for groups conducting armed conflict. Grievances over the allocation of natural resources frequently lead to violent conflicts, many of which have their roots in the colonial and postcolonial appropriation of land from local communities. Deforestation and forest degradation—for example, by the conversion of land to agriculture by migrant groups or agribusinesses—increases the risk of both violent conflict and human rights violations.

There is a very real risk that sustained poverty, and a failure to recognize and clarify rights to resources and political access, will condemn a significant portion of the globe to open conflict and chaos during the next decades. However, at the same time, there are real opportunities to reduce conflict by improving governance in forest areas, by tackling corruption, and by clarifying the rights and obligations of local communities in forest areas.

Experience suggests that efforts to reduce violent conflict have the greatest chance of success during the early stages of conflict and in postconflict reconstruction. Dealing with conflict through the forest sector requires a multipronged approach. Clarifying tenure and rights is the first step. Corruption in the military, the forest bureaucracies, and the judiciary must be swiftly tackled. Governments further need to adopt consistent and appropriate regulatory standards. This approach implies putting in place effective monitoring systems and providing incentives to promote responsible corporate behavior. Multistakeholder processes should ensure that the marginalized and the poor are involved in dialogue at every level. Conflict often occurs in areas where there is deep frustration about the lack of basic social services and opportunities for economic development. Investing more in remote forests areas can help prevent conflict and contribute to postconflict reconstruction.

The required investments in forest areas are great, but they are small compared to the cost of armed conflict when it breaks out. This understanding is insufficiently incorporated in government policies and development assistance to countries affected by civil war and political turmoil. Govern-

ments may be too streamlined structurally or too preoccupied with their defenses to invest in policy reform and in socioeconomic services. At the same time, donors appear hesitant to engage for several years in countries where their return on investment is likely to be very low. New ways of deliver-

ing nonemergency aid, such as technical assistance to guide policy reform and the provision of basic services, are needed in high-risk countries that emerge from armed conflict. The restructuring of natural resource sectors along the lines previously identified should be at the top of this aid agenda.

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