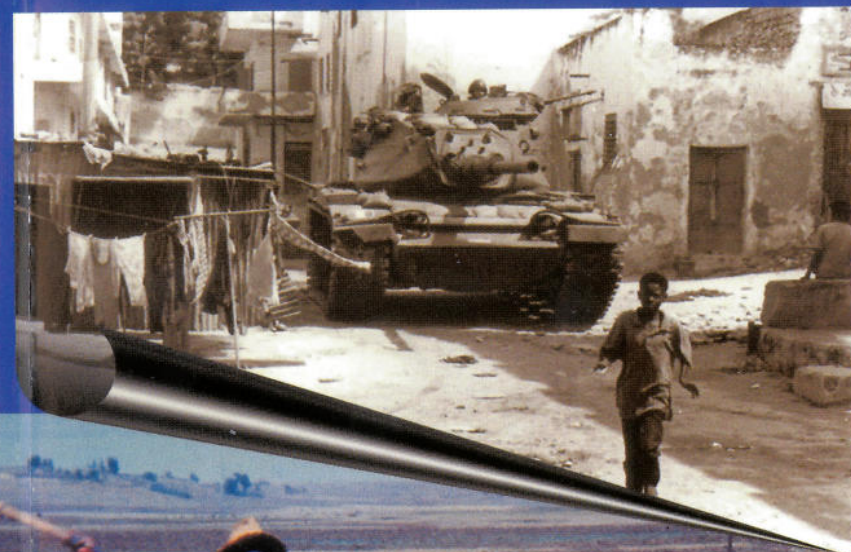
To Cultivate Peace – Agriculture in a World of Conflict

Indra de Soysa & Nils Petter Gleditsch

with Michael Gibson,
Margareta Sollenberg & Arthur H. Westing



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Cover pictures: *Above*: A boy runs away from an Italian tank in Somalia. Photo credit: Associated Press Photos/Hansi Krauss. *Below*: A young farmer prepares for planting in Ethiopia. Photo credit: International Livestock Research Institute, Nairobi.

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Foreword

This study was commissioned in the Spring of 1998 by Future Harvest, an organization that builds public understanding of the role of agriculture in international issues on behalf of the sixteen centers of the Consultative Group on International Agricultural Research (CGIAR). We are grateful to Barbara Alison Rose, Director of Operations of Future Harvest, who initiated the contact and drafted the terms of reference, as well as to Hubert Zandstra, Director-General of the International Potato Center in Lima, Peru. We received valuable insight from both of them at various stages of the project. We are also grateful for the thoughtful comments and suggestions provided by Alain de Janvry and Raymond F. Hopkins.

This study is a collaborative effort. Gleditsch first wrote a brief outline in consultation with Future Harvest and Indra de Soysa. Michael Gibson drafted the case study of India, Arthur Westing the section on the consequences of war on food production, and Margareta Sollenberg the appendix on agricultural issues in current armed conflicts. De Soysa and Gleditsch drafted everything else and edited the entire manuscript. They accept full responsibility for the report. PRIO does not take policy positions, and the views expressed here are solely those of the authors.

We have received intellectual inputs from many who know a great deal more than we do about agricultural development. We do hope that we know something about the causes and cures of violent conflict. We are particularly indebted to Stein Bie and his enthusiastic staff at the International Service for National Agricultural Research (ISNAR) in The Hague, especially to N'Guetta Bosso, Rudolph Contant, Helen Hambly Odame, and Carlos Valverde. In addition, we have received advice, help, and comments from Geoffrey D. Dabelko, Graham Dyson, Asbjørn Eide, Kathinka Frøystad, Scott Gates, Sverre Grepperud, Ruth Haug, Wenche Hauge, Håvard Hegre, Terrence Lyons, and Catherine Marquette. We gratefully ac-

knowledge the help of Thomas Rolén for assistance with the map of conflicts. Håvard Hegre and Oddny Wiggen provided excellent technical assistance with the formatting of the report and Susan Høivik checked the language. Of course, we are responsible for all errors and shortcomings.

Finally, we wish to express our gratitude for a grant from the Global Affairs Division of the Norwegian Ministry of Foreign Affairs and for the personal support of its Director-General, Kjell Halvorsen, which permitted us to widen the scope of this study.

Hunger anywhere threatens peace everywhere.
Swaminathan (1994: 104)

Introduction

The end of the Cold War has spawned a sharp debate on the future of global security. For over forty years, world politics had been dominated by the all-encompassing conflict between two systems with claims to world hegemony. Each system was headed by a superpower; the military stand-off between them was sometimes referred to as 'the Long Peace' because of the absence of direct armed confrontation (Gaddis, 1987). In global terms, however, this was not a particularly peaceful period: there were 120 wars during the Cold War.[1] Five of these involved more than one million casualties each, and a further six claimed more than 200,000 lives. About half of these wars – Korea (1950–53), Vietnam (1960–75), Afghanistan (1978–), Angola (1975–94), and Mozambique (1979–92), along with a host of smaller confrontations in Ethiopia, Nicaragua, and elsewhere – were directly or indirectly related to the East–West confrontation. Indeed, it can plausibly be argued that the superpowers were fighting by proxy in the Third World (Gleditsch, 1995: 544–546). The level of casualties in these wars lies somewhere between the total casualties from World Wars I and II.

Despite early expectations of a 'New World Order', armed conflict has not been abolished in the post–Cold War world, although it follows a different pattern. Some have seen emerging a 'Clash of Civilizations', (Huntington, 1996), where differences between worldviews, religion, and culture form the main battle-lines. Others have linked violence, particularly in the developing world, to environ-

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[1] This paragraph builds on Gleditsch (1998: ch. 1) and on data from the Correlates of War (COW) project (Singer & Small, 1994). We follow COW in requiring that an armed conflict involve at least 1,000 battle-deaths to be counted as a war.

mental degradation and resource scarcity (Bächler et al., 1996; Homer-Dixon & Blitt, 1998). Yet others have seen violence as intimately connected to the failure of development, where violent conflict can destroy in a year what development assistance and local efforts have built up over decades, and where poverty and deprivation in turn generate new conflict (Collier & Hoeffler, 1998, 1999; Snow, 1996). Some have attributed armed conflict mainly to dysfunctional political processes (Rummel, 1995). And others have seen all of these processes at work in mutually reinforcing ways. These factors add up to create a vicious cycle of poverty, poor governance, environmental degradation, and violence in a 'zone of turmoil', particularly in parts of the Third World, as well as a virtuous cycle of prosperity, democracy, and peace in a 'zone of peace' in the North Atlantic area, with smaller pockets elsewhere (Singer & Wildavsky, 1993).

In this report we examine the post–Cold War pattern of conflict with a focus on the role of agriculture. In developing countries, the primary sector of the economy is dominant. Closely linked to basic human needs, it is directly affected by environmental degradation and by violence. The agricultural sector is subject to strong governmental intervention in most countries, and can easily suffer from capricious politics. The conditions of food production and distribution is a good arena for observing the interaction of politics, economics, and environmental issues as they influence violent conflict – how it is generated, how it is escalated, how it is contained, and how it is resolved.

We conclude that the rehabilitation of agriculture is a central condition for development, reducing poverty, preventing environmental destruction – and for reducing violence. Poor conditions for agriculture hold grave implications for socio-economic development and sustainable peace. We also see good governance as crucial in building healthy conditions for agriculture, and thus in breaking the vicious cycle of poverty, scarcity, and violence. The central issues are not

merely technical: they relate directly to the way human beings organize their affairs and how they cope with natural and man-made crises.

In the following sections, we pay particular attention to the changed nature of internal armed conflict in the post-Cold War era. We examine the ways in which new conflicts are generated by subsistence crises. Conditions affecting the livelihood of the majority of people in poor countries are at the heart of the internal violence. The inability to meet food requirements and other basic needs drives people to adopt alternative survival strategies, one of which is to join rebellions and criminal insurgencies. In such situations, the use of violence is primarily for economic goals, rather than for the political ends that drove many of the revolutionary movements during the Cold War.

Even though the 'zone of turmoil' is largely located in the poorest regions of the developing world, the industrialized north is not entirely insulated. Internal war leads to the displacement of enormous numbers of non-combatants, whose only option is to escape from violence and find refuge in more peaceful settings (Zolberg, Suhrke & Aguayo, 1989). In most cases, people flee across immediate borders, sometimes destabilizing entire regions, leading to more conflict and more refugees. Such humanitarian crises threaten to drag Western states into conflict. The US intervention in Haiti in 1992 was largely precipitated by the influx of refugees fleeing repression and violence. The war in former Yugoslavia required the intervention of the North Atlantic Treaty Organization (NATO) to prevent a wider war and a massive refugee crisis in Europe. Moreover, huge influxes of refugees from the push factor of war and the pull factor of a better life in the prosperous North threaten to destabilize the internal politics of the industrialized countries where extreme political groups

have garnered more electoral support[2]. Economic, environmental, and political factors are all part of the vicious cycle of refugee crises and humanitarian disasters. The crucial question for the world community is not 'why should we worry?', but 'what can be done?'

In fact, there is much that states and their citizens in the zones of peace can do. Above all, by assisting agricultural production within poor countries, they may alleviate the subsistence crises that are driving internal conflicts. The large majority of farmers in the developing world do not have the technology and inputs to produce adequately, nor efficiently. Sub-Saharan Africa, especially the Sahelian region, exemplifies the vicious cycle of poor technology use, worsening environmental conditions, and refugee crises. Under such conditions, farmers choose to open new lands for subsistence farming rather than use new technology for improving yields and minimizing environmental damage (Leisinger & Schmitt, 1995). A worsening environment leads to the abandonment of agriculture, which in turn causes rural refugees to flock to overcrowded cities. These factors exacerbate food shortages, which ultimately lead to upheaval and violence. Most experts in agricultural research agree that poor productivity among farmers in the poorest regions of the world is largely a function of not having the necessary technological skills and inputs (Tweeten & McClelland, 1997). Generating and transferring technical knowledge to improve the livelihood of the majority of people in the poorest countries is an important path to internal peace.

[2] The politics of immigration dominates the political agenda of most industrialized states, and it has also emerged recently as a prominent issue in previously 'half open doors' such as the USA and Australia (Weiner, 1992).

The Post–Cold War Security Environment

The end of the East–West conflict has inspired two conflicting sets of expectations regarding the future of human security. An optimistic view saw the withering of totalitarian ideology and the death of Mutual Assured Destruction as the basis of international security, as a window of opportunity for liberal values (Kegley, 1993). Freed from the burden of the arms race, states would be able to spend the peace dividend on the fight against poverty and environmental degradation (Gleditsch et al., 1996). The third wave of democratization (Huntington, 1991) would usher in an era of good governance. Like slavery and the duel, war would increasingly be seen as an outmoded institution (Mueller, 1989). Both states and sub-national actors would realize that war does not pay and would shift to nonviolent ways of solving their differences. To the extent that the conflicting parties themselves did not accomplish this, the United Nations and the great powers would work together to contain armed conflicts, instead of competing for support among the warring factions.

Pessimists argued that the end of bloc politics and mutual deterrence would open up for a variety of old and new conflicts, which could no longer be contained by the fear of escalation to major power confrontation. Mearsheimer (1990) likened Europe to a pressure cooker with the lid taken off. Old conflicts, temporarily suppressed by the superpower confrontation, would once again come to the surface. Ethnic and religious tension would stoke the fires in many divided nations – and, indeed, most nations are divided along such lines. The gap between the rich and the poor would widen. Environmental degradation would increase, and resource scarcity would be exacerbated (Homer-Dixon & Blitt, 1998). The economic, cultural, and environmental dividing lines might coalesce and promote ever-sharper conflict (Kaplan, 1994). Water scarcities would lead to 'water wars' (Starr, 1991).

Even before the end of the Cold War, there had been much talk of a wider concept of security (Westing, 1989b). In part this was motivated by a concern for environmental disasters which might prove as devastating as war or natural catastrophes. The concept of 'environmental security' lifted such extended security concerns to the level of 'high politics' (Lodgaard, 1992: 116). Organizations that had been concerned with traditional military security rose to the challenge. By the 1990s the Pentagon had created a position for a Deputy Under Secretary of Defense for Environmental Security, and NATO's Science Division and its Committee for the Challenges of Modern Society were sponsoring major studies in this area. Old bureaucracies saw new roles for themselves, more consistent with the new perception of threats to human security.

Taking a broad overview of the patterns of conflict in the post–Cold War world, we can see both of these processes at work. Global military spending has declined by one-third since the end of the Cold War (SIPRI, 1998: 192). Peace processes were started in Central America, the Middle East, Northern Ireland, and elsewhere. Oppressive regimes gave way to democratic rule in upheavals that on the whole were remarkably nonviolent. On the other hand, the breakup of federal states such as Yugoslavia and the Soviet Union led to wars in Croatia and Bosnia, and in several places in the Caucasus. Terms such as 'ethnic cleansing' and 'failed states'[3] began to permeate security studies. In Rwanda in 1993, several hundred thousand people were killed in just a few months. Indeed, the report of the Carnegie Commission on Preventing Deadly Conflict (1997) characterizes the post–Cold War period as a 'deadly peace' and claims that over four million violent deaths have oc-

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[3] In the USA, the concern about state failure led to the appointment of a task force which has conducted a major study on its economic, political, cultural, and environmental roots (Esty et al., 1995, 1998).

curred since the collapse of the Berlin Wall, mostly civilian[4]. The world's zones of turmoil saw an increasing number of persons who were displaced internally or had fled to refugee camps in neighboring countries. The assumed major role that environmental degradation played in generating these movements led to the creation of the term 'environmental refugee' (Gleditsch, 1997, chs. 16–18). The promise of a more prosperous life in the North led refugees far afield, threatening to destabilize the internal politics of industrialized countries where ultra-nationalist movements began to move beyond nonviolent political action.

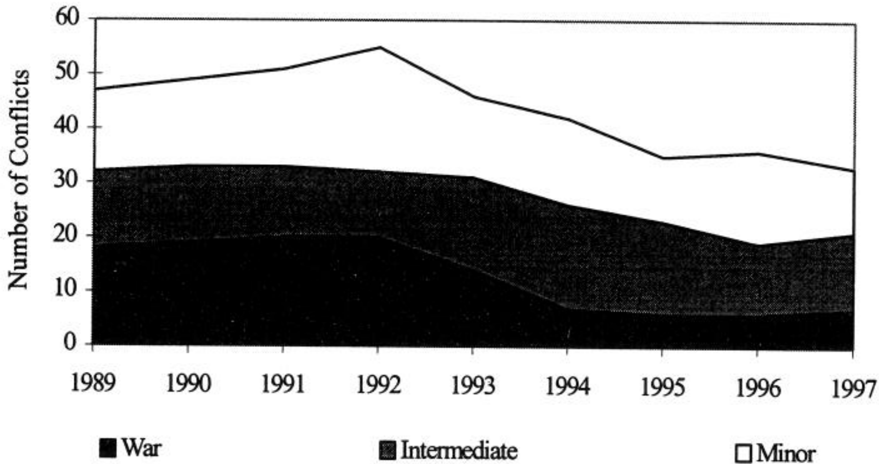
A one-sided focus on a particular class of events may easily reinforce either an optimistic or a pessimistic paradigm. A more balanced perspective may be gained by looking at the data on post–Cold War armed conflicts from the Uppsala University Conflict Project (Wallensteen & Sollenberg, 1998: 621–623). For the period 1989–97 this dataset includes a total of 103 armed conflicts with at least 25 battle-deaths in a single year. Forty-two of these conflicts exceeded the level of 1,000 deaths per year to qualify as 'wars'. Figure 1 (on next page) shows the development of armed conflict over the eight-year period. We note a slight increase in violent conflict immediately after the end of the Cold War, peaking in 1992. Since then the incidence of armed conflict has declined steadily; it is presently at a much lower level than at the end of the Cold War.

The initial increase in armed conflict is largely due to the violence that followed the dissolution of Yugoslavia and the Soviet Union. To some extent, these conflicts ostensibly supported the pessimistic predictions of Mearsheimer and Huntington. By 1993, the decline in the Cold War-related conflicts in the Third World had already compensated for the revival of armed conflict in

[4] Such figures are, however, difficult to evaluate, and certainly include government-instigated massacres in addition to armed conflict between organized parties. They cannot reliably be compared over time.

Europe, and by 1994 the number of conflicts in Europe had started to decline. While it is still too early to proclaim all of Europe a zone of peace, it is noteworthy that in 1997, no conflict in Europe exceeded 25 dead. The bulk of the armed conflicts are once again found in the Middle East, Africa, and Asia, while the Americas seem more peaceful than during the Cold War.

Figure 1. Armed Conflicts by Severity and Year, 1989–97



War is defined as an armed conflict with over 1,000 battle-deaths in a single year. Intermediate conflicts are those with over 1,000 battle-deaths in the course of the entire conflict, and minor conflicts are those that have reached at least 25 battle-deaths in a single year, but less than 1,000. Both interstate and domestic conflicts are included (Wallensteen & Sollenberg, 1998).

During 1989–97, intrastate conflicts accounted for the bulk of violence, with 88 of the 103 conflicts being purely domestic and another nine classified as 'intrastate with foreign intervention'. The number of interstate armed conflicts varied between four and none

per year during this period. Most interstate conflicts have been at relatively low levels of violence, while many of the intrastate conflicts have been quite bloody, affecting the civilian population most severely. UNDP (1998) and World Bank (1998) claim that as much as 90% of the casualties in recent conflicts have been civilian, mainly women and children.

Given the main locations of armed conflict in the post-Cold War period, it is not surprising that we find a strong link between agricultural dependence and conflict. This is depicted graphically in Figure 2 (see insert in the back of this report), with the armed conflicts of the post-Cold War years plotted on a background of the value of agricultural production as a share of GDP.

Most of the armed conflict, whether domestic or international, is concentrated in regions heavily dependent on agriculture - South Asia, Central Africa, and parts of Latin America. In countries that have a low dependence on agriculture (white on the map), we find only a handful of conflicts. Indeed, only 5 out of 63 states which exhibit a low dependence on agriculture have suffered armed conflict after the Cold War. Of these five, none have exceeded 1,000 battle-deaths in any single year, and only the conflict in Northern Ireland has a cumulative death toll exceeding 1,000.

In some cases, examination of the individual conflicts reveal clear links between issues relating to agriculture and the origin of the armed conflict. In the Appendix we examine this question in some detail. In several conflicts in South Asia and South and Central America, a call for the redistribution of land is an important part of the ideological demands of the opposition movement. In Israel, Bangladesh, and elsewhere, settlers in agricultural areas provoke violence. In the Sahel and the Middle East, environmental change, man-made environmental destruction, or wasteful resource practice have exacerbated conflict over freshwater for irrigation, agricultural land, and other scarce resources. Food riots - a recurring phenomenon in many poor countries, although hardly ever large enough to

be recognized as a full-scale war – also result in the loss of life and destruction of property.

Neither the statistical association presented in Figure 2 nor the impression gained from the cases described in the Appendix should lead us to conclude that there is an overall *causal* link between the heavy economic dependence on agriculture and the incidence of armed conflict. Heavy dependence on agriculture is usually associated with a 'backward' economy.[5] In the following sections, we shall argue strongly that the missing link here is *poverty*, which we understand as the lack of physical, human, and social capital. The lack of these factors generates conditions which are unfavorable for development, and hence for peace. The conflicts emanating from agricultural and rural issues, such as land tenure conflicts, are manifestations of the incapacity of social and political systems. Capricious policy is likely not only to create conditions of underdevelopment, but also the extreme grievances that drive individuals and groups to take up arms.

Several systematic analyses show that poverty predicts the risk of civil war most strongly (Collier & Hoeffler, 1998, 1999; Hegre et al., 1998). The interconnected nature of the dependence on agriculture, socio-economic deprivation, and conflict can be seen from Table I (on next page). Africa and South Asia in particular exhibit low per capita income, low levels of human development, high dependence on agriculture and agricultural labor, and slow mobility of per capita income given the low level of wealth – and they have also experienced a number of severe armed conflicts since 1989.

[5] High dependence on agriculture (measured in terms of its share in GDP and agricultural labor as a share of the total labor force) are very strongly correlated with per capita income (–.84 and –.79 respectively). High correlations are also found between these measures and human development variables such as literacy, child mortality, and life expectancy.

Table I. Agriculture, Poverty, and Armed Conflict in the Post–Cold War Period, 1989–97 (Regional Averages)

Variable	Africa	Latin America	Middle East	South Asia	SE & E Asia	OECD	East Bloc
Agriculture/ GDP 1994	28.9	15.4	6.6	36.7	15.3	3.8	23.5
Agricultural Labor % 1994	73.3	36.1	32.1	70.6	31.0	9.8	29.9
GDP per cap. $ PPP 1994	2,207	5,498	10,778	1,723	11,047	19,204	3,862
Human Dev. Index 1994	0.427	0.757	0.799	0.467	0.756	0.924	0.725
Growth of GDP per cap. 1980–93	0.04	–.04	–1.2	2.6	5.3	1.9	NA
Wars 1989–97	14	3	5	8	2	0	8
All Conflicts 1997	14	2	3	12	2	0	0

All economic data are obtained from the UNDP (1997). Agricultural labor data are from World Bank (1997). Conflict data are from Wallensteen & Sollenberg (1998). Wars are conflicts with over 1,000 battle deaths in a single year. The 'all conflicts' category covers those conflicts that contained at least 25 battle-related deaths.

Of course, regional averages cannot capture the enormous variance within the respective regions. For example, Mauritius, Gabon, and Botswana have comparatively high per capita incomes and growth rates within Africa, and they have been relatively peaceful. Cambodia, Myanmar, and Laos, on the other hand, are low-income countries within the East and Southeast Asian region, and these states have been conflict-ridden. Latin America contains some of the poorest (Bolivia, Nicaragua) and richest states (Chile, Argentina) among the developing countries, with Brazil suffering one of the highest levels of income inequality in the world.

How Problems in Agriculture Lead to Conflict

Nation-Building, Mobility, and Conflict Vulnerability

A steady and ample supply of food is crucial for human existence. It is not surprising, therefore, that violent struggle over the food supply is a recurrent theme of long standing (Drèze & Sen, 1989; Hobsbawm, 1959). Charles Tilly's (1975: 396) oft-cited work boldly suggested that 'men fight for food', arguing that 'state-making, the maintenance of public order, and the control of food depended on each other intimately.' Shortages of food have always been a major threat to public order:

> Along with peace and land, bread often stood for a political program of survival for the little man in movements far broader than any bread riot; the Russian Revolution of 1917 is only the best-known case (Tilly, 1975: 392).

The recent rioting in Indonesia over food prices is yet another instance of a long history of such events.

While food is taken for granted in the developed world, many parts of the developing world suffer serious shortages. The International Food Policy Research Institute (IFPRI) estimates that as many as 800 million people do not have access to an adequate supply of food.[6] The problem seems most acute in Sub-Saharan Africa and large parts of Asia, where population growth has outpaced the capac-

[6] There is much disagreement about whether the world is able to produce enough food (Bongaarts, 1996). Neo-Malthusians such as Ehrlich & Ehrlich (1990) are challenged by arguments which suggest that population and land pressures lead to technological improvement and better methods of farming (Boserup, 1965; see also Marquette, 1997). In any case, regardless of the level of production, the *distribution* of food is highly uneven in most of the developing world. Most modern-day famines have occurred in the midst of plenty (Drèze & Sen, 1989; Ravallion, 1997).

ity to produce enough food. The size of the population has stabilized and even stagnated in the developed world where food is overproduced. But in the developing world (Pinstrup-Andersen et al., 1997) the 'food gap' is expected to double in the next 25 years. This trend would seem ominous, if indeed armed conflict continues to disrupt agricultural production (Messer et al., 1998), and if more conflict is generated by food insecurity and rural vulnerability.[7] In this report we examine the links between poverty, deprivation, and rural vulnerability as an important facet of 'new internal wars' (Keen, 1998; Snow, 1996). First, however, we look at four prominent theoretical explanations of armed conflict during the postwar decades and outline some important changes in the post–Cold War patterns of conflict in the Third World.

Modernization Theory

Following decolonization, it was widely anticipated that the new states would proceed in stages of development, becoming progressively mature, democratic, and more peaceful (Lipset, 1960; Rostow, 1960). This view of internal stability in post-colonial countries was appealing to many who sought to hasten economic and political development, not only for its own sake, but also so as to thwart 'communist subversion' by helping the process of nation-building. The dominant mode of thinking was that all good things, such as development, democracy, and social harmony, would go together. The export of modernity from developed to underdeveloped areas was to bring peace and prosperity in its train.

The persistence of instability, however, suggested that the development process itself may be conflict-producing; political instability

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[7] The World Food Program (WFP) of the United Nations reports that its expenditure on emergency relief alone reached $1,054 million in 1997 from $90 million in 1978. The percentage of its budget devoted solely to emergencies since 1993 is double (58%) that devoted to rural development (25%). These statistics are found on the WFP website, http://www.wfp.org/reports/wfpstats/97/.

occurred when states progressed from being traditional societies to becoming more modern ones (Huntington, 1968; Olson, 1963). Such analyses saw social and political progress occurring synchronously with conflict and violence. The ideological revolutionary movements of the 1950s and 1960s that elicited heavy participation by ordinary peasants were generally explained as stemming from the transformation of rural life. The transformation of rural society, especially the commercialization of agriculture with the spread of the capitalist mode of production, created anomie and unrest and led to political movements that sought to overthrow the existing order.[8] Modernization induced class consciousness, and the spread of capitalism exacerbated class tension. Rural unrest was seen in socio-psychological terms where peasant grievances were based on the transformation of the traditional way of life.

According to modernization theory, conflict follows an inverted U-curve pattern. States at the lowest levels of development, with a heavy dependence on a traditional economy, are peaceful because of little disruption and low demands on the system. Then, as modernization progresses with industrialization, conflict becomes more likely as demands exceed the capacity of the system to satisfy them, and societal disruption creates anomie and dissatisfaction as a result of the uprooting of tradition and the heightened sensibilities created by rising literacy and improved means of communication. Only when development stabilizes at a higher level will conflict abate. This framework provided the backdrop for arguments that explained conflict in terms of relative deprivation and as a revolution of rising expectations (Gurr, 1970; Rostow, 1960).

The inverted U-pattern converged neatly with the logic of the Kuznets Curve that predicted income inequality to rise initially with economic growth and decrease at later stages of development

[8] See Desai & Eckstein (1990), Weller & Guggenheim (1982), and Wolf (1969).

(Kuznets, 1955). At higher stages of development, state capacity increases, demands are met, inequality is lowered, democracy enhanced, and social stability returns. From this perspective, many argued that democracy failed to materialize in the developing world because threatened elites thwarted democratization to safeguard their patrimony by resorting to repression (O'Donnell, 1973), and democracy itself was viewed as too weak to maintain stability and insure continued development (Huntington & Nelson, 1976). These theorists did not believe that all good things necessarily went together; modernization was inherently prone to conflict. In general, conflict and instability were seen as being part and parcel of mobility.

Recent analyses of the relative risk of civil war have found support for a curvilinear relationship between the level of development and armed conflict. Figure 3 (on next page) demonstrates this relationship for the 1946–92 period (Hegre et al., 1998). The risk of conflict does indeed increase at moderate levels of development and decreases dramatically as the level of development moves higher.

Dependency Theory

By the 1970s, dependency theory challenged the modernization perspective. While modernization viewed violent conflict purely as a process internal to states, especially as a result of weak political capacity, dependency theory blamed the world capitalist system for the problems of development, and indirectly the problem of violence within the Third World. According to this perspective, the world capitalist system followed its own logic, where an industrialized core had formed to perpetuate its dominance over a periphery through control and exploitation (Amin, 1974; Galtung, 1971; Wallerstein, 1974). The periphery was constructed by the core – initially by the direct control of formal colonialism, later through such indirect means as international markets, multinational corporations, and a transnationalized domestic elite.

Figure 3. Relative Risk of Civil War as a Function of Development, 1946–92

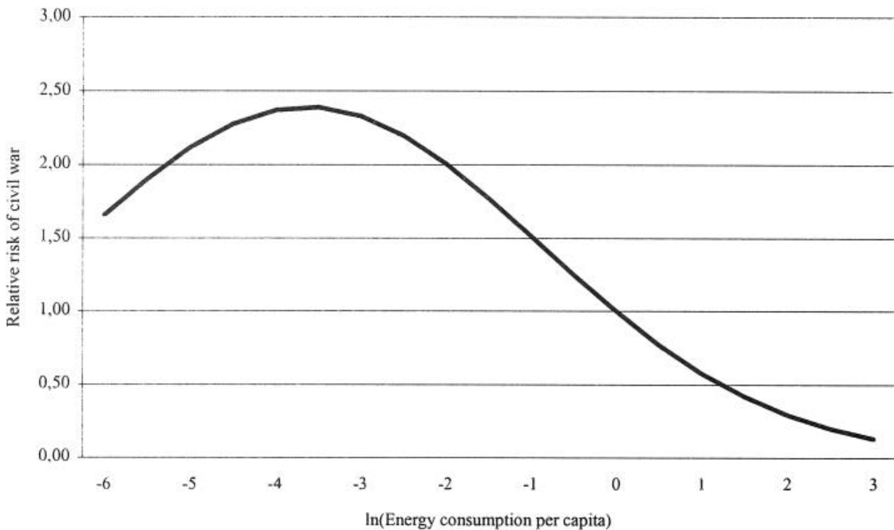

Figure taken from Hegre et al. (1998: 30)

This argument suggested that developing countries would not be able to traverse the path to prosperity and peace, given the exploitative nature of the world capitalist system, which exacerbated class and ethnic cleavages and incited rebellion (Boswell & Dixon, 1990). Rather than mobility from one stage to a better one, the developing world experiences distorted development. This process is manifested in inequality, growing poverty, exploitation, and conflict. Violence within the periphery is seen as an export of the core. The inverted U-shaped relationship between development and armed conflict ostensibly proved that those states that were connected to the capitalist system suffered most because their development was dependent and distorted, while those on the extreme periphery managed to avoid the worst consequences.

Resource Mobilization Theory

Both perspectives discussed above have been criticized for being overly deterministic.[9] Others, such as Tilly (1975), offered explanations that can account for a synchronic relationship between the mobilization of disaffected groups and the responses of states to this challenge. The mobilization perspective suggests that disaffected groups organize to challenge the state, and violence and rebellion are dependent on the state's response to this challenge. Highly repressive and exclusionary states have little legitimacy and are more likely to resort to repression when faced with rebellion. Rational actors are seen as less likely to challenge a highly repressive state. This may result in a 'negative peace' where armed conflict does not erupt despite enormous grievance. Communal mobilization against incorporation into larger nation-building efforts in Sri Lanka, India, Malaysia, and many African countries have resulted in ethnic conflict, despite the existence of some degree of democracy (Gurr & Harff, 1994).

While democracies rarely if ever fight each other in interstate wars (Gleditsch & Hegre, 1997), the relationship between democracy and domestic conflict is more complicated. Since highly repressive states usually clamp a lid on all unrest, a slight increase in democracy may actually provoke violence before the norms of democratic bargaining and consensus building are fully institutionalized. Thus, violence is more prevalent among semi-democracies and less so among strong authoritarian regimes and mature democracies alike (Hegre et al., 1998; Muller & Seligson, 1987).

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[9] For an examination of the various micro and macro perspectives based on the two theoretical traditions discussed here, their possible synthesis, and a discussion of the empirical evidence, see Jenkins & Shock (1992). Gissinger & Gleditsch (1998) examine domestic armed conflict in light of liberal and dependency perspectives; they tentatively conclude that while economic dependency does promote inequality, the conflict-producing element is outweighed by the peace-promoting effects of greater wealth.

Theories of Peasant Revolution

The study of rural society became especially germane during the early years of the Cold War since the success of many of the red uprisings, the Chinese revolution in particular, was based on rural movements. Insurgency manifested itself almost exclusively in rural settings because guerrilla warfare depended on irregular terrain to avoid the superior forces of an organized state (Desai & Eckstein, 1990). Thus, in many respects, the battlegrounds of these conflicts are in the countryside, and involve the peasantry.

Academic theories of agrarian conflict differ as to whether the sources of conflict are located *within* the structures of agrarian society itself, or whether conflict results from contact with forces *external* to rural society, such as the state, colonial powers, or market forces. And if conflict is primarily internal, what types of agrarian structures are most conducive to violent conflict? Such concerns permeate the set of theories usually grouped under the heading of the 'moral economy' school of thought.[10] Moral-economy theories are mainly concerned with the disruptive impact that essentially external forces such as market capitalism and imperialism have had upon non-Western agrarian societies (Scott, 1976: 3–11). In this view, agrarian violence and radical mobilizations are the *ultimate* consequences of social change wrought by the intrusion of state forces. Emphasis is put on the commercialization of agriculture and increased pressures on traditional social relations, especially the arrangement of political

[10] The phrase 'moral economy' coined by Scott (1976) refers to pre-capitalist and pre-colonial arrangements between patrons and clients within rural society. These relationships assured all members of the social group, such as a village or set of villages, certain rights to subsistence. These arrangements offered security and well-being as opposed to the competitive structures of market capitalism. Some political economists, such as Popkin (1979), dispute this view of pre-capitalist social relations, arguing that moral-economy theorists rely upon a simplified and overly romantic understanding of rural life.

forces in the wider society and the presence or absence of radical political organizers.

In his studies of peasant rebellion in Burma and Vietnam and in his work on the everyday aspects of agrarian resistance in Malaysia, Scott (1976, 1985) has drawn attention to the role of the state in undermining social relations in rural societies. Scott argues that both colonial and nationalist states are responsible for stimulating the conditions for agrarian violence and resistance. The dominant agrarian economic order is disrupted by transforming land and labor into saleable commodities and by the imposition of a market economy, which extracts wealth from agrarian income through taxation. In a similar vein, Migdal (1974: 15, 95–105) claims that peasant radicalism, while primarily the result of intrusions from the market economy, is mainly concerned with ensuring individual material and social gains. These movements become more ideological only in the presence of organized leadership from revolutionary political movements from outside. Eric Wolf (1969: 276) has argued that peasant wars may be attributed to the 'world-wide spread and diffusion of a particular cultural system, that of North Atlantic capitalism.' He notes (1969: 290–291) that the main source of peasant and agrarian rebellion lies with the relatively comfortable and secure 'middle peasant' classes, who, as a class, lie between the rural elite and the poor peasants and landless laborers.[11] Middle peasants are particularly well placed to lead violent rebellion. They possess enough material resources to withstand the social disruption often associated with wars of revolution, even as they stand to gain substantial power. While most of the other moral-economy theorists see violence as the result of forces which are external to rural society, Wolf shows how

[11] Wolf (1969) lists the 20th century revolutionary wars in Mexico, China, Algeria, Vietnam, Russia, and Cuba as important instances of violent revolt led by agrarian-based movements in pursuit of essentially rural issues.

violent conflict may be the result of both external structures and internal agents.

The work of Barrington Moore is a particularly influential example of the 'internal factors' school. In his classic study of the evolution of different systems of governance across time, Moore (1966: 460-474) presents the roots of agrarian conflict as related to questions of the legitimacy of local rural elites. Much rural violence can be explained by the failure of landed elites to introduce modern social institutions to improve the conditions of rural life. The potential for radical or violent agrarian action depends on the strength of traditional bonds between local landed elites and their clients. Such *vertical solidarities* between patrons and clients weaken the potential for radical action based on the development of *horizontal loyalties* engendered by shared feelings of oppression within peasant groups, or among agricultural laborers.

Most of these positions explain aspects of social transformation as the dominant explanation for violent collective action in the rural milieu. The deep disaffection of segments of society (urban and rural) that ultimately challenge the state is the main reason for violence. Conflict has also been predicted on grounds of how the state responds to challenges. Modernization theory in particular has been fundamentally geared to explain the problems of nation-building where politics lag behind social and economic changes. According to Huntington (1968: 5), 'the primary problem [...] is the lag in the development of political institutions behind social and economic change.' Another question is why peasants participate in dangerous rebel activities. Some argue that the collective action problem of organizing rational peasants to participate in revolution is overcome through rural-urban linkages, strategies of political entrepreneurs, side payments, and other inducements (see Taylor, 1988).

The New Internal Wars

Much of the post-Cold War violence, however, is not found in societies experiencing development along the inverted U-curve. Most

conflicts that reach a threshold of 25 battle-related deaths involve countries on the bottom rungs of the development ladder. Many of them experienced downward mobility during the 'lost decade' of the 1980s.[12] Conflict in the states of former Yugoslavia and the former Soviet Union are exceptional because of these countries' relative wealth, but they can be explained as resulting from the end of the Soviet empire and the collapse of Communism. Such 'end-of-empire' conflicts have proved to be transitory rather than endemic. In any case, the long period of economic stagnation in the USSR is frequently cited as the major reason for its ultimate collapse (Snow, 1996). Similarly, the recent violent protest in at least one moderately developed state, Indonesia, might be attributed to an economic crisis leading to hardship. The case of Indonesia is especially salient because it shows how civil violence and protest can indeed be induced by a short-term scarcity of food and other immediate vulnerabilities.

Most of the chronic violence is found in Africa and parts of Asia. Africans consume 20% less in absolute terms today than they did in the 1950s (Stedman, 1996; UNDP, 1998). In recent years, many parts of Africa have suffered famine, and much of the population, especially in Sub-Saharan regions, faces severe food shortages and suffers a high incidence of child malnutrition.[13] The states facing endemic conflict are neither the most dependent economically, nor those attached meaningfully to the world capitalist system where class consciousness

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[12] The per capita annual economic growth rate 1985–95 for Africa was –0.9%, as opposed to 2.9% for all developing countries. Africa's growth rates would be even more highly negative if the average had not included two of the world's fastest growing countries, Mauritius and Botswana, which have grown at 5.8% and 6.6% respectively (UNICEF, 1997: 96–97).

[13] Child mortality is generally a reasonable proxy for household food access. In 1995, Sub- Saharan Africa's mortality rate for children under five years of age was 175 deaths per 1,000 annually, as opposed to 99 for all developing countries and 8 within the industrialized world (UNICEF, 1997: 98).

is a primary factor. In sharp contrast to the African tragedies in Angola, Rwanda, Sudan, and Mozambique stands the dependent development of such newly industrializing countries (NICs) as Taiwan, Singapore, and South Korea, which have undergone relatively peaceful transformations from backwardness to economic prominence in the space of three decades. The phenomenon of 'new internal war,' therefore, cannot be wholly explained by the framework offered by the various modernization theories, nor by dependency explanations. We turn to the theme of stagnation as an explanation for the new internal violence.

Stagnation, State Collapse, and Conflict Vulnerability

Such oft-cited studies as the Brundtland Commission (1987) report on sustainable development and former UN Secretary-General Boutros Boutros-Ghali's *An Agenda for Development* (1995) have presented poverty and deprivation as the primary underlying causes of endemic conflict and civil violence. This theme is reinforced in recent scholarly studies of conflict (Brown, 1996; Collier & Hoeffler, 1998, 1999). Violence has also accompanied the collapse of state authority in such places as Somalia, Rwanda, Sierra Leone, Liberia, and the Republic of Congo. The collapse of states in turn is attributed mainly to the failure of existing state institutions to ensure socio-economic development and alleviate deprivation. This is especially true of states that were in the hands of dictators, who ran them with little regard for the well-being of citizens, tenuously maintaining power with the financial and political support of outsiders. In the post-Vietnam era, the Cold War functioned according to the Nixon and Brezhnev doctrines that committed the two superpowers actively to fight their battles by proxy. These doctrines ensured heavy support for the various states and groups that the superpowers favored ideologically. Armed conflicts in such places as Ethiopia, Angola, Mozambique, and Afghanistan escalated far beyond what could have

been sustained by indigenous resources – with tragic consequences for the local populations.

The end of the Cold War left many states powerless, with no tax base, little legitimacy, and no longer with a monopoly over the use of force. Such states have faced an anarchical struggle for the control of power and resources along ethnic and tribal lines (Zartman, 1995). However, not all such conflicts are due solely to the lack of central authority, nor are they fought simply as tribal wars. The wars in Liberia and Sierra Leone, for example, can be viewed as emanating from subsistence crises. Indeed, many of the state failures have come from the inability of these weak states to provide for the basic needs of their people. Large numbers of unemployed youth are ready combatants within the criminal insurgency groups that battle over control of resources and over whatever state power may remain.

During the Cold War, internal war was usually discussed in terms of rebellion and insurgency, and as highly orchestrated politico-military action against the superior power of a state. Ordinary peasants became the foot soldiers of collective movements that brought together disparate, disaffected elements by the promise of a revolution of the existing political and economic order. The tactics of the insurgents were designed to capture the seat of government according to the principles of guerrilla war. As Mao's famous dictum illustrates, the people are to guerrillas what water is to fish. In military terms, the center of gravity of guerrilla movements was located in the people, whose support – passive and active – constituted the lifeblood of these movements. Similarly, counter-insurgency strategies of governments were based on winning the hearts and minds of the populace in order to counter such threats. For these reasons, the old insurgencies were relatively moderate in terms of the level of violence against non-combatants, and the level of criminality. Of course, internal war during the Cold War was also often brutal. But both insurgents and counter-insurgent forces generally sought to present themselves to the society at large as the most desirable side to sup-

port, and this disciplined much of their behavior. In many instances, the violence that was perpetrated was explicitly designed to win political support at home and abroad. One main way in which political entrepreneurs persuaded peasants to risk their lives for the movement was by providing selective incentives which included various acts of benevolence and justice within rural communities (see Popkin, 1979). Such wars were classically fought according to the Clausewitzian maxim of 'politics by other means.'

The new internal wars are quite different. Restraint in the use of violence has now given way to utter brutality, often committed on the most vulnerable of non-combatants (Carnegie Commission on Preventing Deadly Conflict, 1997; Project Ploughshares, 1997). Consider the long and bloody conflict between *Sendero Luminoso* (the Shining Path) and the Peruvian government. Although clothed in Marxist jargon, with promises of economic and social emancipation for the Indian peasants of the Upper Hualaga valley, the Shining Path seems to have been motivated mainly by the desire to profit from supplying cocaine to drug cartels in Colombia and Peru. A similar pattern of apolitical violence occurs in Colombia between various guerrilla groups and military and paramilitary forces. Ethnic cleansing in the former Yugoslavia and Rwanda claimed thousands of lives, many of them women and children; the killing had only the remotest political purpose, such as the preservation of a greater Serbia or the elimination of ethnic opponents in Rwanda. Willful famine that kills en masse has proven a potent weapon in Liberia, Mozambique, Somalia, and Sudan, where segments of the population were deliberately starved. The violence in Sierra Leone and Liberia resembled gangland warfare where youths armed with automatic weapons terrorized civilian populations and each other.

In the old insurgencies, the means and methods of violence served explicit politico-military aims. Today's internal wars are to a large extent simple apolitical brutality. Many of these conflicts are the debris of the Cold War, where the surrogates of the superpowers have

vanished to create a vacuum which former beneficiaries from shadow economies and underground activity are now vying to fill. The fighting is also intensified by the ready availability of sophisticated weaponry (Project Ploughshares, 1997: 4; Urquhart, 1996: 6). Some have even argued that the high level of violence in the new conflicts has exclusively an economic purpose, despite all the writings that cite ethnicity, tribalism, and primordial hatreds (Keen, 1998).

Many of the new conflicts persist through pillage, extortion, illicit trade, labor exploitation, land grabbing, and other criminal activities. The mafia-style criminal activities common in most states of the former Soviet Union fit this pattern, as do narco-terrorism, gun-running, and terrorism for hire by various organizations. While the underlying reasons for peasant dissatisfaction, such as the availability of land and threats to livelihood, may have carried over from the Cold War years, these new conflicts are integrally linked to conditions affecting the rural sectors.

The new conflicts may be traced to the loss of livelihood, the hopelessness of surviving at the margins, and the alternative life of crime and banditry. The bulk of the rural population are non-participant victims rather than the supporters of utopian revolution. Consider, for example, the hapless situation of the Indian peasants of the Upper Hualaga Valley in Peru. Sandwiched in-between the Shining Path guerrillas and the state, they were forced to eke out a living supplying coca to the guerrillas, or risk the consequences of non-compliance. If they actively supported the guerrillas, they faced retribution at the hands of the state's military and paramilitary forces (Snow, 1996). Ironically, the foot soldiers of many of the current armed conflicts may just be trying to stay alive.

In the next chapter, we discuss the negative effect of armed conflict on agriculture. Thus, conditions affecting agriculture are linked to armed violence in a positive feedback loop. Messer et al. (1998: 21) suggest this two-way causality, but they do not find a direct statistical link between indicators of food security and conflict. Nafziger &

Auvinen (1997) do find a positive link between low food production per capita and complex humanitarian emergencies. Their strongest result, however, is for tradition of violent conflict. A history of conflict would have in turn affected food production and overall economic activity. In our view, the links between hunger and violence emanating from the denial or loss of entitlement are both a result of and a cause of armed conflict in the poorest countries (Drèze & Sen, 1989; Keen, 1994). While Sen (1981) focuses on government intervention as a corrective to entitlement loss, we direct our attention to urban bias and dysfunctional political processes. This framework can explain why the fundamental grievances that motivate violent collective action arise from the same political processes that generate food shortages, underdevelopment, and conflict.

Agriculture and Conflict: A Theoretical Assessment

While ideology is not a salient factor in the internal wars of the post–Cold War world, the underlying causes of anomie and deprivation remain. The new internal violence that affects the rural population is linked directly to the loss of livelihood. In other words, the impetus for violent action emanates from the same source as that which determines the conditions affecting agricultural growth and economic development in general. Agriculture has been plundered by capricious political processes and policies (Schiff & Valdés, 1992). In this section we employ the larger framework offered by theories of rent seeking and urban bias to discuss armed violence emanating from the conditions affecting agriculture.[14] We then go on to examine the South Asian region with special emphasis on India. Unlike countries like Somalia and Zaire, where state failure has led to mass violence, India has a functioning democratic state, which has generally prevented large-scale violence and complex humanitarian emergencies.

[14] See Bates (1981, 1988), Binswanger, Deininger, & Feder (1995), Lipton (1976), Lipton & Ravallion (1995), and Weede (1986, 1987).

In contrast to the modernization and dependency explanations of the causes of poverty in the developing world, the political-economy perspective offers the theory of rent seeking that puts the blame on distorted markets and dysfunctional political processes. While dependency theory views exploitation as emanating from the outside, the rent-seeking perspective sees exploitation as a result of internal processes. Rent-seeking activity of well-organized farmers in rich countries may also harm the agricultural prospects of poor countries.[15] This factor is especially salient to the rural poor in developing states for whose labor and products the rich markets of industrialized countries are often closed. Thus, agriculture in poor countries is 'milked' because of distorted markets at home and the lack of richer markets abroad.

According to this perspective, underdevelopment occurs because of the rent-seeking activities of well-organized interests who seek excessive profits through control of the market. The governments of developing countries acquiesce in this behavior and coalesce with special interests because of mutual benefits in the political, economic, and social spheres of life. In the distributional struggles within the market, the powerful tend to win because of the control of resources, greater organizational capabilities, and access to the organs of government. The rural poor are systematically exploited by urban interests because they command few resources, are often illiterate, and are poorly suited for collective action.

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[15] UNDP (1998: 93) cites a figure of $335 billion in annual subsidies to agriculture in the OECD countries while all developing countries spent $10 billion. However, developing countries spent $150-200 billion annually for energy subsidies, more than twice the absolute spending of the OECD countries for the same purpose. Thus, poor economies highly dependent on agriculture spend vast amounts to subsidize an industrial sector which benefits only a small fraction of the population. Agricultural subsidies in the rich countries are similarly distorted.

According to Bates (1988), the primary motive of any government is to retain power. Governments, therefore, pander to bases of support among well-organized private interests such as urbanites and the rural elite. This is especially true when it comes to the control of food prices in developing countries. Urban dwellers, a major portion of whose incomes is spent on food, want low food prices. However, urban industries lobby for protection against imported goods by way of high tariffs on imports and exchange controls. Food prices are set artificially by parastatal marketing boards, and imported food becomes cheaper as a result of artificially inflating the value of the local currency. These measures hurt the rural sectors, squeezing the smallholder producer of food crops.

The large export-crop producers benefit from the artificially inflated local currency, which provides incentives for people to produce cash crops rather than food. This arrangement benefits the rural elite and the urban industrialists. This arrangement is also advantageous to some segments of urban dwellers, such as those formally employed by the state, but not for the mass of poor, whose ranks grow rapidly as impoverished small farmers and landless peasants move to the city in search of alternative occupations.[16] The policy of artificially lowering food prices does not translate into food security for the urban poor because lower economic growth reduces the opportunity of formal employment. At the same time, the influx of rural poor to the cities lowers the overall wage rate (Krueger, Schiff & Valdés, 1991). Thus, the artificially lowered food prices may still command a large percentage of the earnings of the masses of poor that flock to the cities.

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[16] This perspective is generally neglected by many of those who cite environmental pressures as the sole cause of rapid urbanization and landlessness. Policy does matter. For more sophisticated links between environmental pressures and policy outcomes, see Kahl (1997: 11), who notes that in the 1990s unemployment in Sub-Saharan Africa is 50–100% higher than it was in the 1970s. High population growth and stagnant economies have created burgeoning labor forces with no jobs.

The rural poor who are pushed out into the cities contribute to the urban bias. This lowers the incentives for food production, land reform, and the alleviation of rural poverty.[17] Such a policy environment leads to clientelistic politics and corruption, with governments providing side-payments to supporters. In general, the distortion of markets and of the political process lowers overall economic growth and perpetuates underdevelopment (Weede, 1987). This accounts for the widespread dissatisfaction that cuts across the rural/urban divide, and explains the incentive structure for rebellion and banditry.

Under such conditions, it is not surprising that historically the foot soldiers of rebellions against states have been landless peasants and their poor cousins recently moved to the urban slums. Rent seeking and urban bias also have implications for violence through the creation of patrimonial politics, patronage, and the destruction of social capital. Clientelism creates vertical ties of dependency between patron and clients at the expense of horizontal ties of association, which are the foundations of the effectiveness of government and of satisfaction with government performance (Knack & Keefer, 1997; Putnam, 1993; World Bank, 1997). The role of social capital in the political and economic development process is generally neglected by those who study conflict, even in studies which stress the notion of good governance as a precondition for peace and prosperity (Carnegie Commission on Preventing and Deadly Conflict, 1997).

Just how do poverty and rural vulnerability translate into violent collective action? Underdevelopment, the loss of livelihood, and food shortages lead to the loss of a major component of a poor person's entitlement set. For many landless peasants, food entitlement depends upon their ability to exchange labor for wages, which in turn

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[17] Out of the current global labor force of 2.8 billion, a 120 million are unemployed and another 700 million are underemployed. The International Labor Organization has estimated that 1 billion more people will be added to the labor force in the next two decades; see Kahl (1997: 11–13).

is highly dependent upon the conditions affecting agriculture. When biases emanating from natural conditions or political factors adversely affect agricultural production, entitlement failure is highly likely to hit the rural and urban poor.

In the 'bottom–up' violence that we are witnessing in many parts of Africa, armed bands defy authority and live off the land through violent expropriation. The ready availability of automatic weapons fuels the appalling nature and level of violence. Thus, the problems associated with the rural sectors can have severe repercussions, with large segments of the rural youth becoming the perpetrators and victims of mass violence. As Keen (1998: 45) puts it, for many of the unemployed youth, 'it may ... be more dangerous to stay out of an armed band than to join one.' The perpetuation of violence in impoverished areas is intimately related to the problem of ensuring food.

In states which have collapsed or are teetering on the edge, such conflicts resemble the form of collective violence most common in pre-industrial times – rational responses to subsistence crises. Subsistence crises gave rise to mass violence when natural or political processes created food shortages. Social banditry or criminal rebellion, what Hobsbawm (1959) refers to as 'robinhoodism', occurred as rational responses to extreme and prolonged hardship and other shocks affecting the supply of food. Such conditions provide a set of limited options for those affected, as shown in a study of collective violence during the Ming dynasty in Imperial China (Tong, 1988). Individuals facing extreme hardship had few options: migration, joining religious orders if accepted, becoming eunuchs, pawning family members, prostitution, resorting to cannibalism, or becoming bandits and rebels (Tong, 1988: 110–117).

Faced with deprivation and even starvation, people resorted to extreme coping strategies. The decision to take up banditry and criminal rebellion depended on the severity of sanctions – usually death by quartering or decapitation, or even the decapitation of the entire

family or the entire village – and the uncertainty of these sanctions. In China, banditry was most pronounced in areas where the likelihood of surviving hardship was at a minimum and the probability of finding refuge from sanctions at a maximum.

Collier & Hoeffler (1998, 1999) have delineated some ways in which poverty is responsible for rebellious action. At the individual level, the opportunity cost of rebellion is a function of grievance and employment and the spoils of war (measured as taxable income) if the rebellion succeeds. Thus, the expected utility of war is a function both of the level of per capita income, where low income reduces the opportunity cost of rebellion and the government's capacity to effectively defend itself. Collier & Hoeffler show that economic variables have far greater predictive capability than social variables measuring ethnic and religious fractionalization and measures of inequality. These results do not support relative deprivation arguments, although they do find some backing for the 'grievance hypothesis' whereby democracy defuses the conflict proneness of ethnically fragmented societies.

Violence may also be generated by the logic of pre-emption and spiraling. Awareness of imminent hardship, especially severe food shortfalls can provoke violence when one party seizes the limited supplies of others. If this takes place along ethnic lines, the space for negotiation is highly circumscribed – witness the recent ethnic riots in Indonesia and in Lesotho, where ethnically distinct groups disproportionately represented in the commercial sector were targeted by the 'leveling crowd' (Tambiah, 1996). Given the insecurities faced by the poorest sections of the population, even a chance event can trigger rioting. Crowds will often target public as well as private wealth with little regard for the ethnic composition of ownership. The logic of pre-emption was also at work in the ethnic slaughter that rapidly spread from urban to rural areas in Rwanda in 1994.

The degree of cooperation and trust among individuals and groups – the social capital – are functions of self-interested pursuit of objec-

tives and as repeated games of reciprocity, as seen clearly in a stable marriage. Shirking and defection are less likely if people are involved in such games of reciprocity. Memories of earlier instances of the breakdown of cooperation that may have resulted in mass suffering through genocide or willful famine, are likely to trigger similar desperate actions in the future. Collective memory reinforces collective action problems (Kahl, 1997). The logic is that 'if I don't do it, the other side will do it to me.' Societal tension spirals, and violence becomes endemic – as borne out by events in Rwanda in 1994 and in Sudan since the late 1980s.

The Indian Example

In the typical failed state, such as Somalia, poverty and deprivation regularly lead to mass violence. In India, many parts of which are ripe for conflict, the mobilization of disaffected groups has generally been accommodated by a functioning democratic process. This section asks how certain conditions, specific to rural society and agricultural production, may serve as potential ignition points for radical action and violent conflict.[18] Various historical, social, and political realities combine to make contemporary Indian society an excellent case for examining the links between the rural socio-economic milieu, political processes, and the ignition of violent conflict.

The size of the region and the complexity of the developmental challenges facing its constituent states make South Asia an important area for rural development and social conflict. South Asia is home to 22% of the world's population and 47% of the world's poor (Lele & Bumb, 1994: 3). India alone accounts for about 15% of the world's

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[18] Bouton (1985: 8–9) defines radicalism as an orientation to political action which is 'extreme with respect to either means or ends' and which includes 'extra-legal actions such as strikes, agitation, or land-grabs that are violent *or pose a direct threat of violence* (our emphasis).

population and about one-quarter of the total population of the developing world.

Approximately 65% of Indians earn their living within the rural sector of the economy. Rural poverty is widespread, with 53% of Indians living on less than $1 per day (World Bank, 1997: 214, 220). Bangladesh, Pakistan, and Sri Lanka are in similarly difficult developmental situations (UNDP, 1997; World Bank, 1997). Rural poverty is potentially more severe than urban poverty.[19] The rural poor in India have ample *reason* to protest their conditions (Rudolph & Rudolph, 1984: 287). In many instances the grievances have indeed boiled over into armed insurrection and violence. On the whole, however, India has escaped the problem of endemic violence. We discuss below some reasons why this might be so.

India has served as a critical laboratory for the testing of a whole assortment of concentrated technical and policy innovations in agricultural production. It is the test case *par excellence* for the Green Revolution. One persistent argument has suggested that the Green Revolution might lead to a Red Revolution by sowing the seeds of social discontent and violence among the rural poor through the disruption of traditional social bonds and by exacerbating rural inequalities.[20] However, the Green Revolution has *not* created the type of polarized class hostilities and increased immiseration predicted by its most severe critics (see Rudolph & Rudolph 1987: 346–354). Evidence from the success of the Green Revolution in India suggests that severe violence may instead have been thwarted by the scarcity-reducing effects of improved production. India and Sub-Saharan Africa each produced 50 million tons of food in 1960, but by 1988 India

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[19] See Drèze, Sen & Hussain (1995), Harriss, Guhan & Cassen (1992), and Lipton & Longhurst (1989).

[20] See Bouton (1985), Chambers (1984), Frankel (1971), and Shiva (1991) for competing views on the radicalizing effects of the Green Revolution.

was producing 150 million while food production in Sub-Saharan Africa had remained at the same level (Nafziger & Auvinen, 1997: 56). This phenomenal achievement is attributed largely to the farm improvements made by the technological inputs of the Green Revolution. The food policies of the central government and the various states were designed to ensure better distribution while at the same time increasing the productive output of certain agricultural products, especially wheat (Lele & Bumb, 1994).

India may be a stable society ruled by an ostensibly legitimate and representative state (Basu & Kohli, 1997; Kohli, 1991), but it has long-established patterns of violent internal conflict as well as a vibrant rural revolutionary tradition. Gough (1974) cites over 77 incidences of violent peasant revolt in India during the 19th and 20th centuries. India's numerous violent and radical internal struggles have involved more and less organized groups from all regions and strata of society, including labor agitation in the industrial sector (Chandavarkar, 1994), ideological, revolutionary, and secessionist movements of various kinds (Omvedt, 1993), and, more recently, sporadic but intense communal and ethnic riots (Tambiah, 1990). Figure 2 shows no less than nine conflicts in India after the end of the Cold War, including three that reached the threshold of 1,000 battle-deaths.

Rural Poverty and Social Conflict

The vast majority of rural conflicts in India are local and limited in scope. They can mostly be thought of as small-arms fire in the rural class war – they often claim some casualties, but usually without posing any serious threat to state power or to the agrarian order (Scott, 1985). In studies of different groups of migratory and landless low-caste laborers in Gujarat, Breman (1985) presents a generally bleak picture of life among the rural poor. The life of poor laborers struggling with each other for scarce low-wage work and limited subsistence resources, is marked by small but constantly recurring incidents of violence. There is also violence between the poor and

gangs of thugs or labor contractors employed by large local landholders to maintain order among an agitated and perhaps desperate laboring class. In rural Gujarat and elsewhere, everyday life is dotted with beatings, acts of intimidation, numerous spontaneous local protests, and armed clashes and killings (Breman 1985: 410–411).

In the absence of organized political leadership or a major crisis in production, these 'everyday' events – though clearly conflictual and occasionally violent – go largely unreported or unnoticed by India's state and local-level policymakers.[21] Such small-scale incidents have been reported by anthropologists working in the Northern state of Uttar Pradesh and the Southern state of Tamil Nadu. In separate villages in Western and Eastern Uttar Pradesh, Lerche (1995: 405) tells of beatings and murder in labor conflicts and caste or class struggles between middle- and high-status large land-owners and their poorer tenants and landless laborers. Violent repression and physical abuses by powerful castes, including incidents of rape and extended periods of protest and labor unrest also occur (503–504). While Lerche (1995: 496) does acknowledge that agrarian relations within Uttar Pradesh fluctuate, violence is linked to daily life as an extreme, but not altogether infrequent, expression of the relations of dominance which permeate the countryside.

Studies of female rural laborers in Tamil Nadu (Kapadia, 1996: 181–197) show that India-wide land reforms and increased rates of agricultural production have done little to improve the conditions of the poor and landless, who remain oppressed by the dominant agrarian castes and classes. Rural poverty is increasingly affecting women, as male workers change occupations or migrate to urban centers in search of work (Agarwal, 1998). This 'feminization of poverty' creates downward pressures on agricultural wages (Kapadia 1996: 213–

[21] An exception is the so-called Kilvenmanai incident in 1968, when clashes between land-owners and groups of local and migrant laborers in Tamil Nadu led to the killing of 43 low-caste laborers (Bouton, 1985: 275–285).

216), intensifies agricultural poverty, and exacerbates an already tense rural social order.

Not all instances of agrarian social strife have been as diffuse or limited in their impact. Tensions arising from the oppressive nature of the agrarian social order, resulted in one of the most infamous and extended periods of violence and civil unrest in the history of post-Independence India. In its 'Decade of Chaos' from 1967 to 1977, West Bengal suffered severe political instabilities, scores of violent riots, thousands of illegal detentions, and hundreds of deaths by assassination, terrorism, and state-sponsored repression (Kohli, 1997b; Omvedt, 1993: 40–44). The main combatants were the Indian state, local groups of peasants attempting to 'grab land' from larger landowners, and Marxist-inspired revolutionaries of the Naxalbari movement. But among the root causes of violence within this period were many issues directly relevant to agricultural production and the agrarian class structure.

Prior to the reformist political changes which were partly the result of these violent clashes, West Bengal was marked by a highly inegalitarian rural hierarchy in which nearly half the population owned either no land or less than one acre. Moreover, nearly one-third of the state's population was listed as belonging to Scheduled Castes and Tribes, while the land-owning upper castes represented less than 7% of the population (Kohli, 1997b: 338–339). Another triggering factor was the substantial influx of refugees from the war in East Pakistan, which gave rise to food shortages caused by an overall decline in food production (Kohli, 1997b: 343–344). The Naxalite revolutionaries, though proclaiming radical Marxist goals, were often motivated by pro-peasant sentiments, seeing their own struggle as a fight against the injustices of traditional rural society (Gadgil & Guha, 1995: 65; Omvedt, 1993: 41).

Even today, smaller Naxalite revolutionary movements are active in West Bengal and in the Jharkhand regions of Bihar (Gadgil & Guha, 1995: 95–97), though the reformist (nominally Marxist) Com-

munist Party government which has ruled West Bengal since 1977 has effectively implemented many far-reaching land and social reforms. Such policies have brought many potential Naxalite sympathizers into the political mainstream (Kohli, 1997b: 353–365). The achievements of these and other redistributive policies have led to a growth in legitimacy for the Communist state government as well as a major reversal from the disorder of the late 1960s and early 1970s. Today, West Bengal is widely recognized as one of the most stable and well-governed states in all of India. This example highlights the possibilities of effective state action to mitigate the causes of rural grievance and decrease scarcity by redistributing land and providing a climate for productive agriculture and meaningful livelihood.

State Policies and the Green Revolution

Indian government policies toward the agricultural sector of the population include land reforms and related measures to encourage social justice in the countryside, innovations in technical production (the Green Revolution), and agricultural pricing to balance the interests of rural producers and urban consumers (Brass, 1990: 305).

Land Reforms and Social Justice

In a detailed survey of Indian land reform, Herring (1983) divides the national land reform policy into three general categories: *tenure reforms, ceiling-redistributive reforms,* and *land-to-the-tiller reforms.* Tenure reforms attempted to alter the terms of ownership and production arrangements between land-owners and their tenants without fundamentally restructuring the social relations of production that existed between the two groups. Such measures were designed to eliminate the traditional *zamidari* system of landlordism which permitted rural elites to own vast concentrations of land and maintain traditional patron–client relations with smaller tenant farmers and landless laborers (Gadgil & Guha 1995: 64). These measures were passed in all Indian states, with varying degrees of success. Ceiling-redistributive reforms sought to place an upper limit on the amount

of land holdings which any one owner could possess and were usually accompanied by state-sponsored seizure and redistribution of lands that exceeded the set ceiling.

While such policies successfully reduced the power of the landed elites of the old regime, they did not lead to their main rhetorical goal – the mass enfranchisement of the rural poor (mainly small subsistence farmers and landless laborers). Rather they increased the power of the middle-status rural castes that had previously been subordinate to the large country landlords but now were able to expand their own holdings (Herring, 1991: 181–183). From the 1980s, many of these 'bullock capitalists' formed the main base of support for political parties representing the new agricultural politics, a multi-group movement which has gained impressive political power (Varshney, 1995: 88–90). The movement itself has been described as being mainly composed of middle-caste, mid-sized land-owners in pursuit of more favorable terms of trade for rural society and agriculture vis-à-vis urban society and industry.[22]

The third kind of reform, *land to the tiller*, was intended to be far more radical. These policies executed mainly by the Marxist-led, state governments of Kerala and West Bengal, which abolished rents and granted land to the former tenants that cultivated it. Such policies were meant to be genuinely redistributive in nature, but were applied only in limited ways. These governments used such policies to solidify their political power against the central government then dominated by the Congress Party (Gadgil & Guha, 1995: 63–68).

In most states, land reform was employed to combat potential revolutionary discontent in the countryside and the economic stagnation of the old system (Herring, 1991: 169–171). Herring (1983: 2–3) concludes that the most radical redistributive land reform proposals

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[22] Chattopadhyay & Spitz (1987: 155–186), Gupta (1997), Gill (1994), and Varshney (1995).

floundered in an administrative and bureaucratic quagmire and were in fact never intended to accomplish their stated objectives. Major land reform failed to meet its promises because of the powerful relationships of influence between urban government bureaucrats, local and state level politicians, the modernizing segments of the landed elites, and the leaders of newly powerful middle castes (Herring, 1983: 38–42).

Social movements among the rural poor and tribal peoples engaged in violent struggles for better access to land or a greater share of local resources can be found all over India. Some of the more noteworthy include the Tebhaga movement of the 1940s in Northern Bengal, the Telangana movement (from 1946 and into the 1970s) around the district of Hyderabad in Andhra Pradesh, the Marxist- and Naxalite-inspired Srikakulam groups operating in Andhra Pradesh during the late 1960s and early 1970s and the Maoist Andhra Pradesh Revolutionary Co-ordination Committee (Brass, 1990: 320–325). Most of these radical groups were violently repressed by Indian security forces, and many of their complaints concerning the inadequacy of land reforms were lost amidst the violent campaigns. Land reform and state action to reduce disparities in ownership have clearly mitigated what would otherwise have manifested itself as full-scale violent armed insurrection.

The Green Revolution

Green Revolution technology inputs and policy innovations were first implemented in the mid-1960s in response to major food-production crises that were forcing India to import massive amounts of food (Chattopadhyay & Spitz, 1987: 133–154; Lele & Bumb, 1994: 7–12). The introduction of Green Revolution techniques provided improved, high-yielding seed varieties, chemical fertilizers, modernized irrigation systems, and training and extension programs that supplied additional practical knowledge. The immediate goal was to enable farmers to increase their agricultural output by expanding the

areas under cultivation and utilizing multiple cropping techniques on a large scale.

Besides these economic goals, the Indian government saw the Green Revolution as a means to reduce levels of rural unemployment and improve the overall welfare of the rural population (Roy, 1994: 190–191). Viewed as an integrated approach to increasing agricultural output, the Green Revolution was highly successful. Total land area under foodgrain cultivation in India rose from 115.6 million hectares in 1960–61 to over 126.5 million hectares in 1989–90, and the overall production of foodgrains rose from approximately 50 million tons in 1960–61 to 170.6 million tons in 1989–90. There were also substantial increases in the production of wheat, cereals, and oil seeds (Roy, 1994: 189–191). Even as we note the steady increase in population over the same period, it is evident that India was able to break its dependence on foreign food aid and maintain a considerable stored surplus for public use and occasional export. These were truly remarkable achievements, given the food shortages and the poor rural conditions in post-Independence India.

The general trends towards higher farm productivity and agricultural growth helped the rural poor by increasing labor demand, raising agricultural wages, and lowering the price of food (Datt & Ravallion, 1998). Some have argued, however, that the gains have been unevenly distributed, and that the poorer sections of rural society have experienced increases in landlessness, declining or stagnating rural wages, a displacement of small producers, and a steady reduction in the size of their landholdings (Dev, Suryanarayana & Parikh, 1990; Patnaik, 1990; Sharma, 1997). In this view, the Green Revolution is merely a policy tool by which the Indian government attempted to meet its goal of self-sufficiency in food production without disturbing the prerogatives of dominant rural elites or greatly improving the lives of the rural poor (Brass, 1990: 279–280). This could be interpreted as an argument suggesting that social peace had been bought at the expense of eliminating social injustice. However,

most radical critics of the Green Revolution tend to argue that the Green Revolution served to *increase* the incidence of rural violence and agrarian radicalism.

This line of argument frequently refers to the northern state of Punjab, a success story in terms of agricultural production, yet marred by tragic and persistent violence. Some writers have suggested that the violence in Punjab, which raged throughout the 1980s and 1990s, has been exacerbated by the economic and political effects of the Green Revolution, or by the serious ecological problems caused by intensive use of pesticide and fertilizers (Patnaik, 1990; Shiva, 1991). Others see the situation as an ethnic and communal conflict between Sikh separatist groups, Hindu nationalists, and the security forces of the Central Government (Kohli, 1997a: 335–338).

The violence in Punjab has been related to three interconnected social changes brought about by the Green Revolution (Shiva, 1991: 173–175). First, the modernization and mechanization of agricultural production has led to increasing impoverishment and loss of employment opportunities for the smaller peasants and the landless agricultural laborers. Secondly, the increasingly prevalent market-oriented ethos in rural social life contributed to the rise of militant Sikh revivalist movements that promised to restore traditional social relations. Thirdly, the question of whether the Punjabi state or the central government would control access to Punjab's productive resources encouraged further polarization along ethnic and communal lines.[23]

This is not to say that the violence in the Punjab was a *direct result* of Green Revolution production advances. Of course, social changes brought about by the Green Revolution may have exacerbated a

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[23] Sikh separatists saw the Indian government's attempts to appropriate the vast agricultural resources of Punjab as an example of an exploitative relationship imposed upon them by the majority Hindus (Kohli, 1997a: 336). Such arguments were used in support of militant action and calls for the creation of a Sikh homeland.

tense and divided political situation. Diffuse and impressionistic arguments, while emphasizing the influence of the 'commercialization of social relations', fail to clarify how separatism and the central government's politico-military response to it was a result of the Green Revolution. If violence was a result of the transformation of social relations, then the fighting should have occurred primarily among Punjabis – between those who gained from the Green Revolution production advances and those who lost out – rather than between the Indian government and Sikh separatists. The economic power of Punjabi farmers may have been used to encourage arguments for regional autonomy and to offer support for militant Sikh groups who sought a separate homeland (Patnaik 1990: 87–90), but we find little evidence that the impetus for violent separatism was a result of improved production. As our earlier theoretical discussion has indicated, violence is not an inevitable result of an increase in the pile of food, or the transformation of rural life, but results from scarcity. The chief culprit for the violence was the failure of political processes during the Indira Gandhi regime (Kohli, 1997a). If the demands for separation and the political failures of the Gandhi regime had coincided with low agricultural productivity and rural stagnation, the Punjabi conflict would probably have been even worse.

Agricultural Pricing and Food Security

It has been widely argued that the central Indian government's pricing, procurement, and distribution policies were primarily designed to avoid the potential for rural class conflict and ensure low prices for food grains for the cities (Brass, 1990: 306–307; Varshney, 1995). Whatever the intentions (and they have differed widely at different times and under alternative regimes), these policies have had two noteworthy effects: First, while there have been several serious food shortages in India since Independence, the catastrophic effects usually associated with famine have been largely avoided (Drèze & Sen, 1989). Secondly, while many countries in the developing world have witnessed widespread food riots due to sharp rises in food prices, the

social security system responsible for the public storage and distribution of food in India has been able to counter these tendencies (Radhakrishna & Subbarao, 1997). These successes are a tribute to the government's continuing action in the area of food security, not to mention the increased production possibilities created by the Green Revolution. Nevertheless, the existing system does exhibit some flaws.

The Indian government's multi-faceted approach to food security integrates various institutions and policies (Brass, 1990: 306). The *price supports* provided to farmers are intended to give incentives to produce selected foodgrains – rather than cash crops for export – while keeping inflation low. A countrywide system of *ration and fair price shops* provides consumers with access to subsidized foods. *Procurement policies* target the cities and vulnerable rural areas. *Food flow across individual state borders* is controlled to prevent high price fluctuations during crises. Finally, a *flexible import policy* makes allowance for major food imports when this is necessary.

India has been successful in preventing mass starvation, even in Bihar between 1966–67 and the Maharashtra drought of 1970–73, where levels of food production fell dangerously low. But the country is still fighting an uphill battle against chronic malnutrition and poverty, which kill silently each day and can be fully tackled only as part of an overall strategy of poverty alleviation and development (Drèze, 1995). The existence of an independent and critical press, as well as effective national and international pressure groups, has been important in prompting effective and decisive government action (Drèze & Sen 1989: 211–215; Ram, 1995). A free press, political opposition parties, and a functional civil society – in short, democratic norms of governance – serve to enhance food security and prevent famine. The Indian situation has been contrasted with China's 'Great Leap Forward' in 1958, which resulted in the deaths of tens of millions, and with similar situations in parts of Africa today.

The centerpiece of India's day-to-day food security policy is its Public Distribution System (PDS), designed to ensure that subsidized foodgrains are available to any Indian citizen who might need them. The stocks of this program are sold well below market prices at government-owned ration shops, but several serious shortcomings hinder the primary mission of eliminating hunger among the poorest. Studies of the PDS by academics (Howes & Jha, 1994) and by the World Bank (Radhakrishna & Subbarao, 1997) have concluded that the PDS suffers from a considerable urban bias. The PDS also represents a serious drain on government finances, as it takes almost 4.27 Indian rupees to transfer 1 rupee of income value to the poor. The PDS has been ineffective at serving the poor directly and actually subsidizes less than 3% of their per capita monthly expenses in rural areas. There are serious benefit leakages to rent-seeking bureaucrats and administrators, and the PDS does not efficiently target poor consumers and the most needy. Despite these problems and others, such as the high cost of storing foodgrains, the PDS has played an important role in preventing famine in India. A more efficient system, however, would offer greater value to the most needy and alleviate some of the financial burden on the government (Radhakrishna & Subbarao, 1997).

Environmental Degradation and Conflict

Environmental degradation is one of the most serious public policy issues facing South Asia today, and it is particularly pressing in India. Recent studies (Gadgil & Guha 1995; Khator, 1991) indicate that the environmental situation in India poses a serious threat to both human health and agrarian social stability. Such problems affect the rural poor most seriously, especially the women, children, and tribal peoples (Roy, 1995: 195–198).

According to scientists at the National Engineering and Research Institute, almost 70% of the available water in India is polluted and only slightly more than 3% of the total Indian population has access to a functioning sewage treatment system. Furthermore, only 57% of

the wastewater produced in the major metropolitan areas is treated (Khator, 1991: 33–38). The contamination of underground water from the excessive use of chemical pesticides and fertilizers for agricultural purposes ranks third, behind the discharge of industrial wastes and the widespread lack of effective sewage treatment, as the most serious cause of water pollution in all of India today (Khator, 1991: 34). Access to clean water is not only important for sustaining life and good health: it is also crucial for irrigation schemes which contribute to agricultural growth and aid in land saving and land reclamation efforts (Rao, 1995: 175–179).

Independent groups and state authorities have reported similarly grave findings on issues of land degradation and soil erosion. The Delhi-based Society for the Promotion of Wastelands Development has claimed that almost one third of India's land area is polluted in one way or another. Over 8,000 hectares of productive agricultural lands are lost annually to 'excessive cropping, extended cultivation and the reckless tilling of the land' (Khator, 1991: 40–41). The misuse of water can also cause serious environmental damage; stresses on agricultural land due to poorly planned or unevenly implemented irrigation schemes (including dam projects), high levels of salinity, and water logging are exacerbating the land-loss problem. Throughout the Indian countryside, anti-dam protest groups are active, citing environmental concerns as an important reason for opposing major government public works projects (Gadgil & Guha, 1995: 68–81).

Besides water pollution and land loss, India faces massive deforestation. According to satellite data presented by the National Remote Sensing Agency, India loses approximately 1.3 million hectares of forest to logging and felling operations each year (Khator, 1991: 42–43). The disappearance of India's forests has caused particular discontent among many tribal and forest-dwelling communities, who have launched repeated large-scale protests against the Indian state forestry authorities and private contractors (Gadgil & Guha, 1995: 148–175; Guha, 1989). The direct-action style tactics of such protests (the 'tree-

hugging' of the Chipko movements of the 1970s and 1980s is a well-known example) have been overwhelmingly peaceful. Nevertheless, it is difficult to regard this type of discontent with optimism, especially since India's export needs coupled with increasing population pressure will require continued exploitation of existing natural resources (Roy, 1994: 189).

Land hunger and an increasing demand for food drive communities to expand cropland. Forest decline is most severe in extremely poor regions where people have little alternative but to exploit the resources of local forests for subsistence agriculture and cattle grazing (Rao, 1995: 186–188). Marginal new lands may become productive if existing yields and production technologies are improved. Plans for the conservation of forest lands become quixotic if divorced from an integrated strategy of local agricultural development.

Despite alarming expectations of environmental degradation, few studies convincingly demonstrate a *direct* link between environmental problems and the causes of social conflict. One well-documented example concerns the transborder immigration between Bangladesh and the Northeastern Indian hill states of Assam and Tripura. The entrenched multi-party conflict in Assam and Tripura seems driven largely by the massive influx of migrants from Bangladesh and other regions of India.[24] This immigration has caused numerous tribal groups (especially the Bodos and the Lalung in Assam) and native-born Hindu Indians to feel both culturally and politically threatened. Such mass migrations are partly motivated by the need to escape poverty and destitution in Bangladesh – an enduring situation related to environmental factors such as heavy floods, cyclones, and spells of droughts (Homer Dixon & Percival, 1996; Suhrke, 1997).

Other important contributing factors include the mismanagement of water resources, poor agricultural and irrigation planning, and

[24] Baruah (1997: 498–502), Darnell & Parikh (1988: 271–273), Dasgupta (1997: 350).

land-scarcity pressures exacerbated by unchecked population growth in Bangladesh. Over 10 million migrants from Bangladesh settled illegally within India's Northeastern hill states during the 1970s and 1980s, creating a virtual subnation of Bengalis in the area.[25] This disrupted the balance of political and economic power in Assam and Tripura and led to over 4,000 casualties in the fighting in Assam in the early 1980s and hundreds of deaths from violent clashes in Tripura (Homer-Dixon & Percival, 1996: 14–16).[26] The most serious fighting and unrest appear to have declined after an agreement in 1988 which assured land rights and cultural autonomy for the major parties. But some sporadic fighting continues to this day, and several splinter groups remain active. Comparable, but less dramatic, instances of environment-related conflict have been reported in neighboring Pakistan and in the Jharkhand region in Bihar.

In Jharkhand, poor tribal groups have been waging a longstanding campaign of agitation and militant action, including assassinations, against state development programs and the industrial interests that have come to the tribal areas to extract mineral resources (Omvedt, 1993: 127–129). The tribals have specifically complained about the uncontrolled influx of outsiders who monopolize jobs and positions of power in the very projects that impoverish them, and about the devastation that such projects have caused to the local environment.

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[25] This number leaps to almost 20 million when their families and descendants are included (Homer-Dixon & Percival, 1996: 14). This mass in-migration is particularly serious in relatively small states such as Assam and Tripura, which recorded 22 million and 2.7 million people respectively in the 1991 census. Both states also contain large numbers of tribals: 31% and 13% of the total populations, respectively. The problems are exacerbated by the fact that the tribals only reluctantly recognize the legitimacy of the central government (Dasgupta, 1997: 347–350).

[26] These figures do not include the approximately 7,000 deaths in Assam recorded between 1973–78, when refugees from the war in East Pakistan were met with violence (Darnell & Parikh, 1988: 263).

An agreement in 1994 between the government and tribal representatives guarantees the tribal groups some degree of autonomy and a share of the region's resources, but sporadic acts of violence continue.

Indian Lessons

In contrast to the endemic violence in Africa and in parts of Latin America that stem largely from subsistence crises, India can serve as an example of how effective state action and a functioning participatory political system can mitigate serious armed confrontation. India also provides rich data on the sources of peasant grievance and the forms of resistance and repression in the countryside. The success of the Green Revolution and the elimination of scarcity testify to the importance of legitimacy for state institutions and the success of democracy. 'Grub first, then ethics', as Sen (1987: 1) cites Bertolt Brecht. This applies equally to conditions that foster peace. Despite the sheer level and scope of poverty in the country, the relative lack of endemic conflict in terms of criminal insurgencies and serious apolitical violence suggests that India has been able to withstand the pressures of scarcity and prevent acute subsistence crises.

Violence may nevertheless become endemic – as in Punjab, West Bengal, and Assam and Tripura during certain periods – but only in conditions where other balancing institutions such as a functional and legitimate state or a democratic civil society have been rendered marginal or ineffective (Basu & Kohli, 1997; Kohli, 1997a). The increasingly prominent role of rural politics on the national political scene in India shows that civil society *is* engaged with the problems of rural producers (Varshney 1995: 191–202), and this seems to have helped to diffuse situations that might well have led to violence. However, the primary beneficiaries of the new rural politics have been middle-level producers, and not the most destitute classes of the rural poor. A lasting peace and security can only be accomplished by creating meaningful livelihood for the mass of people in India and South Asia who depend on agricultural production and related industry. Indeed, the latest edition of *Human Development Report*

(UNDP, 1998: 9) argues that only a second Green Revolution in the poorest countries will reduce scarcity and enhance the prospects of a more peaceful future.

The Consequences of Warfare for Agriculture

In warfare, each belligerent tries to prevail over the adversary by a combination of actions which by their very nature are deadly, destructive, and often environmentally disruptive. It should come as no surprise that the impact of warfare on food production and distribution is deleterious, whether this is intended or not. War is one of the major shocks that lead to the loss of people's food entitlement and often results in famine. In this section, we review how warfare has affected food production and outline possible preventive measures. We conclude with a brief examination of the legal norms relevant to wartime disruption of food production and distribution.

A Historical Survey

The destruction of an adversary's food supply for hostile purposes is as old as war itself. In a war between Israel and Philistia in the 12th century BC, the Israelite forces destroyed Philistine crops, including corn (maize), grapes, and olives (*Old Testament*, Judges 15:3–5). In the Persian–Scythian War of 512 BC, faced with the advance of the Persian army of Darius the Great, the Scythians withdrew 'choking up the wells and springs as they retreated, and leaving the whole country bare of forage ... destroying all that grew on the ground ... the land being [left] waste and barren' (Herodotus, ca. 430 BC, Book IV: 120–123). In the protracted Peloponnesian Wars of 431–404 BC, the Spartans repeatedly attacked the Athenians just before harvest time so as to gain the added advantage of destroying the annual grain crop before it could be reaped. Such 'ravaging' and 'laying waste' were repeatedly chronicled by Thucydides (Book III: 1, 26, Book IV: 2, Book VII: 19). In a particularly punitive postwar act, the victorious Romans are said to have symbolically sown salt in the ground of defeated Carthage, so as to signify Rome's eternal supremacy over the vanquished (Harrison & Sullivan, 1966: 110).

In the battles for the conquest of Western Asia and Eastern and Central Europe by the Huns, under Attila in particular, the countryside was ravaged routinely. This resulted in great waves of refugees. During the Mongolian incursions of ca. 1213–24 into Northern China, Genghis Khan embarked on a particularly destructive campaign where 'everything in the open country was annihilated or driven-off, crops trampled and burned, [and] herds taken up' (Lamb, 1927: 92–93). Later, in what is now Afghanistan, Genghis and his soldiers 'trampled and burned whatever crops might be left standing so that those who escaped their swords would starve to death' (Lamb, 1927: 159). And as part of his subjugation of Mesopotamia, Genghis deliberately set out to destroy the irrigation works of the Tigris River (Carter & Dale, 1974: 49).

In a more modern era, 17th century colonists in British Virginia acted punitively against the indigenous population, according to a contemporary, 'by our continual incursions upon ... them, by yearly cutting downe, and spoiling their corne [maize]' (quoted in Jennings, 1975: 153). Subsequently, in what has been considered the most carefully planned campaign of the US War of Independence, George Washington directed one of his armies to mount an elaborate search-and-destroy operation against the Six Nations of Iroquois, a primary aim of which was crop destruction (Graymont, 1972, ch. 7). The mission was accomplished in the late summer and early autumn of 1779. Among the Iroquois, it earned Washington the lasting epithet of 'Destroyer'.

The subjugation of the native Americans during the 19th century consistently involved destruction of natural resources (Josephy, 1968). Food or crop and game destruction was undertaken by the US armed forces during the so-called Indian Wars. In the Navaho Wars of 1860–64, the USA finally eliminated the Navahos as a viable enemy – indeed, as a functional society – by the systematic destruction of all their sheep and other livestock and of all their orchards and fields (Jett, 1974; Josephy, 1968: 333).

During the Napoleonic Wars, as the French forces advanced eastward through Russia during the summer of 1812, the Russians practiced a policy of denying the enemy indispensable goods by removing or destroying them as they retreated (Chandler, 1966).[27] During the unsuccessful Tai Ping Rebellion of 1850–64 against the Manchu Dynasty, the government employed a large-scale policy of removing or destroying items necessary for human survival in rebel-controlled territory in order to starve the rebels into submission (Fraser, 1986; Ho, 1959: 236–247).

In the US Civil War of 1861–65, one of the government's major strategies was to starve the Confederate States into submission. This policy was implemented through blockade, interdiction of land transportation, and the destruction of crops, food stores, and farm machinery (Gates, 1965: 92–94 & passim). Such policies were carried out with special vehemence in Virginia, where the agriculturally rich Shenandoah Valley was systematically devastated during September/-October 1864 (Kellogg, 1903, chs. 11–12; Stackpole, 1961) and in Georgia, the granary of the Confederacy, where as much as 4 million hectares were destroyed during November/December 1864 (Liddell-Hart, 1929, ch. 20; Walters, 1973, ch. 8).

One of the main tactics of the USA in putting down the Philippine insurrection of 1899–1903 was the systematic destruction of food stores, crops, and livestock throughout the rebellious provinces.[28] During the Second Anglo–Boer War of 1899–1902, the Boers destroyed large areas of their own veldt (grassland) in South Africa so as to deny the British forces a source of forage for their livestock (Wet, 1902: 181).

27 A policy of removing or destroying items indispensable to human survival has been referred to as a 'scorched-earth' policy, a term not recognized in the laws of war.

28 Caterini (1977), Cook (1975: 11–15), Francisco (1973: 7–8), and Miller (1969/70).

The enormous intentional and incidental destruction of crop (and forest) lands during World War I was to have severe consequences for agriculture in France and Belgium. Only a decade later, during the Second Sino–Japanese War of 1937–45, the Chinese forces (under Chiang Kai-shek) in June 1938 dynamited the Huayuankow dike of the Yellow River near Chengchow in order to stop the advance of the Japanese invaders. The ensuing floodwaters ravaged major portions of Honan, Anhwei, and Kiangsu provinces with enormous loss of life and property. The crops and topsoil of several million hectares of land were destroyed as a result of the floods, and the river was not brought under control until 1947 (Ho, 1959: 250–252; Westing, 1977: 54).

In World War II, considerable energy was devoted to trying to deny the enemy food and other supplies. Blockading was one of the major strategies, but more direct approaches were also used (Mudge, 1969–70). For example, Allied forces made substantial attempts to destroy German grain fields employing incendiary bombs (Björnerstedt et al., 1973: 46; Lumsden, 1975: 82). For their part, the Axis forces besieged Leningrad in a devastating, though eventually unsuccessful, campaign to starve the city into submission (Salisbury, 1969).

In 1944, during their occupation of the Netherlands, the Nazis destroyed some 200,000 hectares (approximately 17%) of that country's farmland by saltwater inundation (Aartsen, 1946; Dorsman, 1947). During their withdrawal of forces from Northern Norway, the Nazi German occupying authorities destroyed homes, barns, schools, hospitals, municipal buildings (though not churches), power stations, power-transmission poles, fences, pipelines, bridges, piers, quays, lighthouses, vehicles, boats, livestock (though not reindeer), potatoes, hay, and other food and feed stores within an area of some 1.2 million hectares, laying approximately 800,000 land mines. All of this was for the purpose of impeding the advance of Soviet troops. These measures had severe repercussions on the productive capacity of agri-

culture in the following years (Johnson, 1948, ch. 14; Petrow, 1974, ch. 18; Vorren, 1960; Westing, 1980: 123–124).

During the Korean War, the USA directed what it considered to be one of its most successful air attacks of that war against major irrigation dams for the purpose of disrupting the production of rice (*AUQR*, 1953–54; Futrell et al., 1961: 627–628). In its attempt to suppress an insurgency in Malaya during the 1950s, the United Kingdom carried out attacks on crops which were presumably being grown by or for the insurgents, using both air- and ground-delivered chemical anti-plant agents, or herbicides (Henniker, 1955: 180–181; Kutger, 1960–61). During the Angolan War of Independence of 1961–75, the Portuguese used herbicides to destroy the crops of people not under metropolitan control (Robinson, 1971: 210–211).

This same tactic was subsequently adopted, on a far greater scale, by the USA during the Second Indochina War of 1961–75 (Westing, 1976, 1989a). In its strategy to deny food to the Revolutionary Government of South Vietnam and its presumed sympathizers, the USA sprayed chemical anti-plant agents against crop lands and orchards from the air, employed massive interdiction bombing campaigns, and scattered anti-personnel mines in rural areas on a vast scale. These mines continue to kill and maim to this day. US forces also used heavy blade-equipped tractors ('Rome plows') to destroy the livelihood of entire farming communities, plowing over hundreds of hectares of associated agricultural lands.[29] The many years of intense bombing of rural areas and the destruction of enormous tracts of forest by chemical anti-plant agents has resulted in long-term consequences for agriculture in Vietnam (Westing, 1976).

The Nigerian Civil War of 1967–70 was precipitated as a result of the unsuccessful attempt at secession by the Southeastern region of Nigeria – then known as Biafra and populated primarily by Ibos. A

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[29] Draper (1971), Mirsky (1967), Peterson (1971), and Schell (1967).

major strategy employed by Nigeria to suppress that revolt was to blockade food-poor Biafra from receiving supplies in order to starve it into submission. According to an on-site assessment by the International Committee of the Red Cross, by the autumn of 1968 about 6,000 Biafrans were dying of starvation each day (Thompson, 1994: 78). The total cost of life, although very difficult to determine with any degree of accuracy, was approximately 1.5 million Biafrans (18% of the population), who starved to death (Gans, 1969; Mayer, 1969; Mayer et al., 1969). Since the suffering of the Biafrans, the world has witnessed mass starvation and war in Cambodia and Ethiopia, and more recently, in Mozambique, Angola, Somalia, and Sudan. The Iraqi attempt to drain the marshes of Southern Iraq as a military response to the Shiia Muslim uprising in that area in 1991 is a blatant example of a nonmilitary means of denying an entire population a means of sustenance.

These brief examples spanning three millennia of human history illustrate the detrimental effects of war on food production and distribution. Destruction of the enemy's food supply is very much a part of wartime military strategy. Devastating famine often occurs as a direct or indirect result of military action. Blockade and siege warfare have been consistent wartime tactics of preventing the enemy from gaining access to life-sustaining food supplies. Apart from these direct disruptions resulting from warfare, the indirect effects on the long-term prospects for agricultural development can also be devastating (Sen, 1992).

Even in peacetime, excessive military spending redirects human and materiel resources for destructive and non-productive purposes. In wartime, enormous resources are expended for the sole purpose of destroying assets valuable to society. Since modern warfare is often protracted, the intricate infrastructure needed for irrigation and marketing of goods breaks down, leading to the neglect of productive agriculture. War acts as a disincentive to capital formation and investment in productive enterprises, and agriculture is affected as the

economy contracts. Moreover, states use wartime exigencies to appropriate property and surplus, thereby creating disincentives for rural populations to invest time and energy in agricultural production. War usually leads to censorship, and the breakdown of the flow of information needed to address societal needs among the most vulnerable may result in famine (Sen, 1992). Under these conditions, becoming a refugee is a rational option for many (Allen, 1996). In terms of food access, war may benefit armed personnel in the short term, but civilians suffer, in both the short and long terms. It is hardly surprising that Lenin's slogan of 'Peace, Land, and Bread' reverberated so powerfully among the hungry Russian masses in 1917.

In addition to the direct and indirect disruptive effects on agriculture, longer-term environmental effects may linger from mining, deliberate flooding, and the degradation of soil from chemical warfare (Westing, 1984, 1985). Biodiversity and seed systems are also affected (Sperling, 1997). The low availability of seed once the fighting has stopped can have lasting consequences on the biodiversity of affected areas. Desperation for food may even lead people to deplete their seed stock by consuming it. Experts disagree as to whether the social mores of farmers in such situations permit them to consume the seed stock.[30] But even if they do not, seed stocks may simply be expropriated for military requirements, or be captured and destroyed. Understanding these dynamics can help in dealing with the environmental impact of warfare and stemming its long-term effects on food production. Finally, human capital is affected by the loss of parents and grandparents who might have transmitted indigenous knowledge down to children. In Angola, Mozambique, Liberia, Rwanda, and Sierra Leone, masses of young children are growing up without the support of elders and with little inclination to take up farming.

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[30] Personal communication from Stein Bie, 8 July 1998.

Legal Norms

Although the aim of warfare is to bring about the capitulation of an enemy by a host of deadly means, one of the basic premises of the laws of war (including international humanitarian law and arms control law) is that the means of war are not unlimited. An equally important premise of this body of law is that any hostile military action not precisely regulated is to be controlled by the principles of humanity and the dictates of the public conscience. These fundamental principles of restraint are imbedded in various major treaties (Westing, 1997: 539). A more recently enunciated rule of warfare is that belligerents must distinguish between the civilian population and civilian objects on the one hand and combatants on the other, directing hostile operations only against the latter. However, disrupting the enemy's food supply has been an integral part of military strategy from time immemorial. Moreover, few attempts have been made to distinguish enemy combatants from civilians.

Legal norms represent the codification of social values or cultural norms, and such norms evolve over the years (Westing, 1996a). As the legal norms are developed and ever more widely adopted by sovereign states, they in turn help to solidify and advance the underlying cultural norms. The most important legal instruments immediately relevant to the concerns of this study are the 1977 Protocol I, which relates to international armed conflicts, and the 1977 Protocol II, on non-international armed conflicts. These protocols are now widely adopted, albeit not universally so (see box on next page).

The 1977 Protocol I spells out the need for belligerents engaged in international warfare to distinguish between combatants and civilians (Article 48), and it specifically provides for the protection of civilians as well as objects indispensable to their survival. This is extended to cover periods of combat (Articles 54 & 56) and military occupation

Legal Instruments Governing Warfare

Protocol [I] Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts:

Opened for signature, Bern, 12 December 1977; in force, 7 December 1978; depository, Switzerland (Bern); secretariat, International Committee of the Red Cross (Geneva); UNTS #17512; states parties as of 17 July 1998, 150 (78%) of 192.

Protocol [II] Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-international Armed Conflicts:

Opened for signature, Bern, 12 December 1977; in force, 7 December 1978; depositary, Switzerland (Bern); secretariat, International Committee of the Red Cross (Geneva); UNTS #17513; states parties as of 17 July 1998, 142 (74%) of 192.

Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on their Destruction:

Opened for signature, Ottawa, 3 December 1997; not in force (requires 40 states parties); depository, United Nations (New York); no UNTS #; states parties as of 17 July 1998, 23 (12%) of 192.

As of 30 July 1998, there were 192 sovereign states in the world: the 185 members of the United Nations plus Kiribati, Nauru, Switzerland, Taiwan, Tonga, Tuvalu, and Vatican City.

(Article 69). Under this protocol, states have also agreed to prohibit the use of willful starvation as a tactic during warfare (Article 54.1); not to deprive civilians of food, agricultural areas, crops, livestock, drinking water installations, or irrigation works (Article 54.2); and to prohibit the willful destruction of dams and nuclear power stations containing so-called 'dangerous forces' (Article 56). On the other hand, a state may follow a strategy of self-inflicted removal or destruction of objects indispensable to human survival for defensive purposes, such as impeding the advance of an invading force (Article 54.5).

Similarly, the 1977 Protocol II requires the parties engaged in internal warfare also to protect civilians (Article 13) and objects indispensable to survival (Article 14). It contains an explicit statement banning the use of willful starvation as a legitimate use of strategy.

More recently, the Anti-personnel Mine Convention enacted in 1997 goes a long way towards preventing the long-term disruption of agricultural production. This instrument applies equally to wartime (whether the war is international or internal) and peacetime. Adoption of the treaty commits states to reject the use of these weapons (Article 1) and to restore any areas under their jurisdiction that have been mined (Article 5).

Thus, the negative impact of war on food production and distribution and the consequent effects on civilian populations have spawned a body of law which seeks to lessen the impact of warfare on agriculture by prohibiting specific acts of war. These conventions may decrease the likelihood that parties in war will embark on strategic action that will drastically affect food production and endanger masses of civilian lives. Unfortunately, such bodies of law are ratified by state actors, who can only be held responsible at the nation-state level. They are likely to have only a negligible effect on the most prevalent form of warfare, civil war.

Conclusions and Policy Recommendations

We have examined the links between the conditions affecting agriculture and violent armed conflict. We have critically discussed some important theories of conflict, suggesting that internal conflicts after the end of the Cold War are devoid of the ideological overlay of the old revolutionary insurgencies. The new internal wars, extremely bloody in terms of civilian casualties, reflect subsistence crises and are largely apolitical. These crises stem from the failure of development, the loss of livelihood, and the collapse of states. These factors add up to a vicious cycle. Our analysis has placed agriculture and the role of the rural sector at the center of the development failure of states, and thus of the socio-economic and political crises that lead to violent conflict. Agriculture is especially important in this process, as it supplies the bulk of livelihood for people in poor developing countries. As McClelland (1997: 28) succinctly puts it, 'it is difficult, if not impossible, to stimulate sustained economic growth ... without first moving the largest sector, agriculture'.

The negative impact of warfare on food production is hardly controversial. Indeed, the food dividend from peace can be formidable, especially for societies that suffer severe shortages and display vulnerability to conflict (Messer et al., 1998). Building peace and prosperity will require greater attention to the role of agriculture in creating livelihood, resurrecting development, alleviating poverty, and breaking the vicious cycle of violent conflict and scarcity.

The causes of armed conflict are perpetuated by conflict itself. People fight over vital necessities such as food, to protect a livelihood, for economic and political injustice, and to obtain safety from violence and want. States that can provide such necessities also create conditions conducive to peace and prosperity; they gain legitimacy, and they strengthen the societal bonds crucial for socio-economic and political stability. These factors create conditions amenable for

democratic governance, space for civil society, and development of a civic culture – or what UNESCO (1996) has termed a 'culture of peace'. Western Europe has evolved into an elaborate security community (Adler & Barnett, 1998) despite its long history of warfare, including two 'world wars' in this century. The rapid recovery of much of East and Southeast Asia from postwar destitution to economic prominence demonstrates that building prosperity and peace is possible in other areas as well. Developing agriculture and satisfying the need for food were crucial elements in this process.

European recovery and East Asian growth were supported by massive financial, technological, and moral aid in agriculture, as well as in industry and in the political sphere. With the collapse of the Soviet model and of the ideological appeal of autarky, the necessary cooperation between North and South is now likely to emerge more easily. But the response from those in privileged positions has been lukewarm at best. Since the end of the Cold War, the wealthy states have cut back on aid (UNDP, 1998); they have taken protectionist measures against imports from poor countries (Burtless et al., 1998), and they have failed to provide adequate relief to war-torn societies. This lack of interest in the developing world is reflected in the failure of the USA and other states to live up to their financial obligations to the United Nations. Resurrecting development from the 'lost decade' of the 1980s is now an imperative for building peace (UNDP, 1998).

Improving conditions facing the agricultural sector on a global scale is vital for peace and prosperity, and for achieving sustainable development. Peace and development must be built from the ground up. Addressing the problems facing agriculture and the rural communities should be foremost within strategies that seek to bring about prosperity and peace. A particularly important issue of contention within rural society is the distribution of land. History suggests that the social cost of not implementing land reforms in a fair and equitable way leads to costly long-term conflict (Binswanger, Dein-

inger & Feder, 1995). Closely linked to such issues is the larger political-economy setting where states should minimize taxing agriculture and rural society and eliminate the distortions that harm overall economic performance and agricultural growth. These issues are highly salient to what the World Bank and other donor agencies refer to as good governance. Part of the process of eliminating distortions would be for politicians in both the North and the South to come to equitable terms about access to markets, control of capital, and other relevant financial and trading issues through such organs as the World Trade Organization.

Changes in the overall policy environment and the provision of land for small farmers are crucial steps in the campaign to improve productivity. However, systematic analyses of settlements of new land in West Africa show that the productivity and incomes of these farmers improved only marginally in the absence of good technologies and inputs for intensive production suitable to their specific production conditions (McMillan et al., 1998). While increasing the productivity of farming to fill the burgeoning demand for food, one must also be mindful of the environmental consequences. Deforestation to satisfy land hunger and the demand for food, for example, could have repercussions in terms of climate change and soil degradation (Tweeten & McClelland, 1997). The development of high-yield crops and better methods of farming is crucial for increasing production without negative environmental consequences. Research to develop high-yield crops that require fewer pesticides and are more environmentally appropriate and better farming methods that conserve water and make production more sustainable, can ensure that productivity increases go hand in hand with the protection of the natural resource base (Pinstrup-Andersen & Pandya-Lorch, 1998).

It may be problematic for donor agencies to bring about sufficiently effective changes in the overall policy environment of a developing country to affect changes in the structure of agricultural production through land reform. However, developing and diffusing

new technology through collaborative research activities offers tremendous possibilities. The adoption of new technologies by poor farmers has proved to be effective in increasing production across continents, countries, and commodities (Oehmke, 1997). Typically, the rate of return on the development of new technology is very high, and there are few political considerations for donor agencies and little public-sector influence on the decision to adopt new technologies. Given the opportunity, farmers simply adopt what works (McClelland, 1997). Collaborative agricultural research and extension across continents, regions, and countries promises large dividends.

The world's war zones have seen an increasing number of persons who have been displaced internally and externally, as well as an increase in peacekeeping activities to which the industrialized countries commit funding and personnel. Local conflict potentially affects the entire world community, not just the developing world. The international community has interests beyond those grounded in humanitarian reasons, in improving agricultural production and eliminating scarcity in the developing world, in preserving the environment, and ultimately in preventing armed conflict. Such goals can be achieved only if the quest for more efficient ways of producing food, sustaining livelihood, and managing the environment is actively pursued in developing countries.

Most of the knowhow for efficient production of food is generated in the North. This research is conducted under conditions very different from those within most developing countries and much of this knowledge bypasses the farmers of the South. Research has an important role to play in lowering the costs of production while sustainably increasing output in Asia, Africa, and Latin America.

If the prices of food are lowered, people will resort less to subsistence production and extensive grazing which are highly detrimental to the environment. Efficient water management and the resolution of water conflicts is essential (see box on the next page). Rural societies all over the world stand to gain from technologies and from

learning how to improve the quality of food and preserve the environment. The elimination of scarcity will ultimately promote peace and development and improve the quality of rural life.

The necessary infrastructure already exists. The Food and Agriculture Organization, the United Nations, and the World Bank are all devoted to improving the conditions facing agriculture. Some 20 international centers are engaged in the research to improve farming and raise the livelihoods of rural smallholder farmers. The Consultative Group on International Agricultural Research (CGIAR) supports 16 of these centers that, with national partners, undertake research on food crops, forestry, livestock, irrigation management, aquatic resources, and policy. Working closely with the affected people and governments, these research, technical assistance, and policy groups are centrally located to evaluate the problems and prospects of agriculture in developing countries. However, in a report to the Carnegie Commission on Preventing Deadly Conflict, Kennedy et al. (1998:29) argue that 'the research effort is under some threat from the reduction in funding of the centers of the ... CGIAR that have been the source of so much past progress'. This report also deplores the widespread hostility to the use of bio-technology, which may lead to the deployment of valuable methods to improve agricultural production.

Donor agencies and foreign investors are also in a key position to influence national and international decisionmakers. Such participatory action is likely also to activate the local civil society and thus enhance and preserve democracy. In the longer term, this will have positive consequences in terms of less corruption and less conflict, thereby safeguarding higher returns on these investments. Peace and prosperity in the developing world will also have a positive impact on the well-being of the industrialized societies by helping to create and sustain jobs and stemming problems arising from mass immigration and refugeeism.

Water Conflicts?

'The previous war in the Middle East was about oil, the next war will be about water.' Statements of this nature have been proliferating since Starr (1991) first used the term 'water wars'. Indeed, the world's freshwater resources are extremely unevenly distributed, and many countries face severe shortages. Some countries are highly dependent on water originating outside their boundaries – over 90% in the case of Egypt and Mauritania (Gleick, 1993: 100ff). Dam projects in upstream countries may restrict the water supply in downstream countries. If wars were to break out over such issues, they could be extremely destructive, and they would weaken even further many of the countries which we have identified as being threatened by a cycle of poverty, violence, and environmental degradation. Food production would be an early victim in this type of war.

On the other hand, water is extremely abundant in global terms, and freshwater is not really consumed – rather, it circulates in a never-ending hydrological cycle. Water shortages are local, rather than worldwide. The water needed for essential human purposes like drinking and sanitation is very limited, even by the standards of highly arid countries (Beaumont, 1997). Water is required in larger quantities for industrial and urban purposes, and these uses are often quite wasteful. However, in many poor countries, irrigation for agricultural purposes places the heaviest demands on strained water supplies. In Egypt, for example, about 3,000 tons of water are used to produce one ton of wheat. Most of this water is lost through evaporation. If food production were seen as a truly global project, freshwater might be conserved where scarcity threatens. It is questionable whether so far *any* war has been fought mainly over water, but there are numerous international agreements regulating the use of rivers. To sum up, there is no rational reason for having a water war. Unfortunately, the lack of a good reason to fight is not always a deterrent to war. However, with sound water management it should be possible to avoid water wars in the future as well. Developing new technologies, such as cheaper methods of desalinization and purification and more efficient ways of irrigation, can alleviate shortages. These factors will prevent the scarcity of water that hampers agricultural development in many areas of the world and that carries a potential for violent conflict.

Without cultivating development – a process highly dependent on favorable conditions for agricultural production and rural livelihood – there can be no sustainable peace. Enhanced productivity will provide the burgeoning food needs of a rapidly urbanizing world, especially the urban poor, who are easy conscripts of armed violence. The fight against hunger, scarcity, environmental pollution, and poverty can also convert hapless soldiers of violence into productive members of the global community. If prosperity for all is to be harvested in the 21st century, then the conditions fostering peace will have to be cultivated.

Appendix

Agricultural Issues in Recent Armed Conflicts

This appendix identifies armed conflicts during 1989–97 that were clearly related to agriculture, directly and indirectly. The main sources are listed in Wallensteen & Sollenberg (1998). A survey of current conflicts can be found in Smith (1997).

Types of Conflict

Conflicts with links to agricultural issues are divided into categories: *Land distribution*, *Environmental change*, *Water*, and *Food*. These categories are tentative, and any one conflict may also involve a host of other issues.

Land Distribution Conflicts

Calls for the redistribution of land or land reforms are sometimes made on an ideological basis as part of efforts to change society at large. They may also result from settlership on indigenous land. Land ownership issues have led groups to the brink of armed conflict. For instance, in Zimbabwe there is tension over black peasants seeking to repossess land held by whites, and the government has confiscated land without compensation to white landowners. In Brazil, tensions have flared between state forces and the MST (Movimento dos Sem-Terra), a movement of landless peasants who have forcibly occupied land.

A Direct Link

The territorial conflict between Mauritania and Senegal resulted in a series of clashes in 1989-90. The two countries are separated by the Senegal River, and the tensions involve the land claims of Senegalese farmers and Mauritanian herdsmen. Dams and irrigation works had created new fertile land along the river. In an otherwise very arid region, the creation of this land became a matter of contention. Mauritania was undergoing a general Arabization and discriminated against blacks, who are in majority in Senegal. Riots broke out in both capitals, targeting the minority population of the other country. Mauritania expelled Senegalese and Mauritanian blacks, and diplomatic rela-

tions were broken off. Senegal took the border dispute and the ethnic issue to the United Nations.

Ideological Claims

In some of the conflicts in Latin America, especially the Chiapas rebellion in Mexico, the issue of land distribution has been ideologically defined to involve indigenous peoples or the economically disadvantaged masses. The movements seek to change society by redistributing wealth, drawing most of their support from rural areas. The same is true of the armed conflict in India between the government and the Naxalites, and, to a lesser extent, in the armed conflict in the Philippines between the government and the New People's Army.

The political aim of the *Chiapas* rebellion in Mexico (Government of Mexico vs. the Zapatista National Liberation Army) has been to shift the balance of forces in favor of popular and democratic movements and to achieve effective representation for all Mexicans, particularly the indigenous population. In Chiapas, indigenous peoples constitute about 95% of the population, most of whom are farmers. Specific demands concerned autonomy for the indigenous population, redistribution of land, economic support for improving the social situation, and democratization as a superordinate goal. Indigenous Mexicans (Indians) are at the bottom of the socio-economic order, and the land reform instituted after the Mexican Revolution did not improve their lot. Despite being the main coffee- and maize-producing state in Mexico, Chiapas has had a feudal socio-economic system. A handful of landowners own most of the land, and the farmers and small producers suffered badly from economic crisis in the late 1980s. Governmental macroeconomic reforms only made matters worse. The Chiapas rebellion was timed to coincide with the NAFTA accords, as a protest against free trade. It took the form of a peasant revolt against rural reform (decided without the participation of representative *campesino* organizations), a call for the protection of Mexican agriculture, and eventually a call for political representation (Neil, 1995).

In *Guatemala* (Government of Guatemala vs. Guatemalan National Revolutionary Unity), the rebellion took root among the poor Indian peasants struggling to maintain their land rights and cultural identity. From the 1940s,

wealthy land-owners had been using more and more land, often simply seizing it from peasants. During the two decades leading up to 1975, the size of the average plot for an Indian family was halved. Guerilla armies had risen in the 1960s; as they were targeted during the 1970s, so were others sympathetic to the plight of the Indians. As the army occupied increasing portions of the countryside, peasant and labor organizations were drawn closer to each other. Many of the foot soldiers of the guerrilla organizations were landless peasants.

In *El Salvador* (Government of El Salvador vs. Farabundo Marti Front for National Liberation and Gerado Barrios Civic Front), oligarchies controlled the economy and became increasingly wealthy at the expense of rural workers and farmers. Rural unions were banned and farm-workers had no bargaining power. As in Guatemala, the amount of land available to rural families diminished, while the landless portion of the rural population increased – from about 10% in 1961 to 40% by 1975.

The conflict in *Colombia* (Government of Colombia vs. Revolutionary Armed Forces of Colombia, National Liberation Army, Popular Liberation Army, Workers' Self-Defense Movement, and Quintin Lame) is based on peasant organizations that seek to redistribute land, but in recent years the conflict has come to include criminal activities, such as drug trafficking. The rural population has suffered greatly in the fighting between the army and the various guerrilla factions.

The *Naxalite* rebellion in India (Government of India vs. Naxalites and Maoist Communist Centre) also started as a Communist peasant revolt in the 1960s. The goal was to liberate rural areas through revolutionary armed agrarian revolution, to encircle the cities, and finally to liberate the cities by overthrowing the government. The power of local land-owners was to be destroyed and peasants would become the sole authority in settling local affairs. In Bihar, the fighting involved landless laborers who agitated for higher wages.

In the Communist-inspired conflict in *the Philippines* (Government of the Philippines vs. New People's Army), the opposition has been opposing land-owners and capitalists since the 1960s. The party has polarized into two camps: One wants a Maoist rural-based protracted people's war; the other wants an urban struggle.

In the conflict over *Eritrea* (Government of Ethiopia vs. Eritrean People's Liberation Front), largely inspired by Marxist ideology, the EPLF gave clear priority to the redistribution of land and dismantling feudal patterns of land ownership. The background to all Ethiopian conflicts until 1991 was the disproportional power of the government in Amhara. In 1975 the government declared that all rural land belonged to the state; this was followed by collectivization and forced resettlement. The EPLF as well as the TPLF (Tigray People's Liberation Front) focused on change for the most underprivileged, the landless poor peasantry.

Settler Conflicts

In several countries, conflict over land rights has been prompted by governments that have allowed or actively promoted the settlement of tribal land. This form of conflict is prevalent in Bangladesh and India and to a lesser extent in the Philippines. There is some potential for conflict over tribal lands in Sri Lanka.

The conflict in *Chittagong Hill Tracts* (CHT) in Bangladesh (Government of Bangladesh vs. Chittagong Hill Tracts People's Coordination Association and Shanti Bahini [Peace Force]) began in 1989 as natives reclaimed land given to Moslem Bengali settlers from the plains of Bangladesh. The special status of CHT, which provided protection for tribal land, was abolished in 1964. After the breakup of Pakistan in 1971, tribals who had been siding with Pakistan were targeted by Bangladesh. Many fled to India, and their land was given to Bengalis. The CHT Coordination Committee and Shanti Bahini began an uprising against the government, targeting Bengali settlers.

In *Tripura* (Government of India vs. All Tripura Tiger Force and National Liberation Front of Tripura), tribals demand the restoration of tribal lands. After the partitioning of India in 1947, Bengali Hindus began to move to Tripura in the Northeast, where there was fertile land. Tripura has no major industries and is largely rural. By the 1970s, Bengalis had become the majority group, controlling much of the farm land, jobs, and businesses. The government tried to stem the problems by developing rubber plantations for the tribals and by getting the tribal population to give up slash-and-burn cultivation. However, this was not successful. Tripura tribals began an armed strug-

gle targeting Bengalis because of their loss of land and because of grievances based on the perceived cultural hegemony of the majority.

A similar problem exists in *Assam* (Government of India vs. All Bodo Students Union, Bodo People's Action Committee, United Liberation Front of Assam, Bodo Security Force, and Bodo Liberation Tigers Force), although not as pronounced as in Tripura. The conflict in Assam involves complex and intertwined relationships between Bodos, Assamese, and Bengali settlers. The ULFA, avowedly Marxist, strives for a type of scientific socialism where natural resources are exploited by the people. Prominent among the many ULFA tribes are those which had once inhabited and farmed fertile lands which were taken without compensation by the British for tea production. These tribes feel that they have been dispossessed of their land for 100 years. The Bodos are fighting for a separate Bodoland. Culturally distinct from the Assamese, the Bodos are mostly farmers of the Assam plains, and are treated as second-class citizens. As in Tripura, many Bengalis came to Assam in search of work, including jobs in agriculture. Non-Bengali families found themselves ousted from their lands, a situation that created hostility towards the Bengalis. Bodo groups as well as the ULFA have been targeting Bengali settlers.

In *Mindanao* (Government of the Philippines vs. Abu Sayyaf and Moro Islamic Liberation Front), the original population of Muslims (Moros) have been evicted from their land by Christians. As early as the 19th century, legislation made it impossible for the indigenous people to own sacred land which also served as the basis for food production and other needs. Early in this century, various governmental settlement programs were implemented, leading to the influx of non-indigenous settlers to Mindanao, and forcing the Moro from the plains to forest areas. Land was also taken for plantations, logging, mining, and development projects such as dams and roads. The Moro began their armed struggle in early 1970s. The MILF, which is still fighting the government, is a faction of the MNLF, which signed a peace agreement in 1996.

In *Sri Lanka* (Government of Sri Lanka vs. Liberation Tigers of Tamil Eelam), sections of the Tamil population began the secessionist struggle against discrimination by a government largely dominated by the Sinhalese majority. Much of the ethnic tension has resulted from the resettlement of

Sinhalese farmers in the Eastern provinces, which Northern Tamils claim as being part of a Tamil homeland (Eelam).

Environmental Conflict

Environmental change can lead to conflict through exacerbated resource scarcity as in the Sahel, or through man-made environmental destruction, as in Papua New Guinea.

Environmental Change

Throughout the Sahel region of Africa, environmental change - desertification in particular - has disrupted the people's traditional livelihood. These problems have been exacerbated by government policies that have promoted economic growth without concern for ecology. Moreover, traditional ways of life are being disrupted by state intrusion.

The *Tuareg* conflicts (Government of Mali vs. Azawad People's Movement and Islamic Arab Front of Azawad; Government of Niger vs. Aïr and Azawad Liberation Front, Coordination of the Armed Resistance, and Union of Forces of the Armed Resistance), involve the Tuareg nomads who depend on large grazing lands for their camels and cattle. Droughts and desertification have diminished the land available, and the situation has been exacerbated by the exploitation of the uranium-rich land for mining. As resources have become scarcer, the clash between the needs of nomads and of those based on permanent housing and livelihood has intensified. Droughts in the 1970s and 1980s forced Tuaregs to flee to Libya. On returning in the mid-1980s, they found themselves economically discriminated against. Once the masters of the region, the Tuaregs were now facing abject poverty. In addition to the struggle with the government, the area has seen clashes between stockbreeders (nomads) and farmers.

A similar situation exists for the *Toubou* territorial conflict (Government of Niger vs. Democratic Front for Renewal, Revolutionary Armed Forces of the Sahara), where the Toubou nomads, based in the Northeastern Kawar and Manga regions on the border with Libya and Chad, are faced with diminishing land due to desertification. They have also been excluded from more fertile land by a government dominated by blacks. The Toubou are close to Arab and Kanouri groups of the same region.

It could be argued that also the conflicts in the *Western Sahara* and in *Chad* are connected to diminishing fertile land due to desertification and the struggle over increasingly scarce resources and loss of livelihood.

Man-made Environmental Destruction

There is only one clear instance of armed conflict directly caused by environmental destruction. The conflict over *Bougainville* (Government of Papua New Guinea vs. Bougainville Revolutionary Army) was triggered by environmental damage caused by the Panguna copper mine, with large-scale land destruction and pollution. The Bougainvilleans had received very little of the profits from the Australian-owned mine, nor were they to receive payment for destroyed land. On the other hand, secessionist sentiments already existed when the rebellion began, and there had been a dispute over mining royalties and land ownership since the 1960s. Bougainvilleans had considered themselves as having a separate ethnic identity and felt they were discriminated against even during the colonial period. A movement for secession had existed since the time of independence. Thus, environmental issues triggered the secessionist struggle, but they were by no means the only factors.

Water Conflict

Armed conflict relating to water issues is found in the Sahel, Latin America, South Asia, the Middle East, and to a minor extent in Southeast Asia and the Horn of Africa.

Several of the conflicts in the Middle East may be related to water, especially those surrounding the Jordan River, which is shared by Israel, Lebanon, Syria, and Jordan. The main antagonism is between *Palestinians* and *Israelis*. In the case of *Lebanon*, access to rivers has been a central issue, with states opposed to Israel trying to divert water away from Israel. Israel has also tried to divert water for its own benefit.

There are disputes over other rivers as well, notably over the Ganges and the Nile, but none have a direct connection to the armed conflicts listed by the Uppsala project and included in Figure 2 in the back of this report.

Food Conflict

Food riots have taken place in various places. The riots in Indonesia and Lesotho in 1998 stemmed from the sudden rise in the prices of food. These ri-

ots, while highly destructive of property, usually do not exceed the minimum threshold of battle-related deaths to be counted as wars. Moreover, urban riots do not always contain distinct antagonists, although they are usually directed against state policies and often target minorities who may control a disproportionate share of commercial enterprises.

Other Relevant Cases

Many conflicts about territory where an ethnic group is striving for secession or autonomy are connected to land rights or to agriculture, simply because the majority of the population live in rural areas and earn their living from agriculture. Rural organizations also serve as the basis for militant organizations because such groups depend on irregular terrain to avoid sanctions. A few examples:

There are three *Kurdish* conflicts – in Iran, Iraq, and Turkey. Much of the Kurdish area is rural and Kurds have had their land taken away by non-Kurds. This is their main reason for seeking autonomy. In Iran, Kurds of the Kurdish Democratic Party of Iran and farmers have worked together to take possession of land from land-owners armed by the government. Peasants often back the Kurdish Peshmerga guerrillas. In Iraq, major displacements of Kurds have taken place, particularly during the Iran–Iraq war. Kurds have been forced to abandon leave fertile land, destroying their livelihood in the process. In Turkey, the PKK, which was formed on socialist ideals, operates in the countryside and draws support from rural areas conscious of the gap in living standards between the Southeastern Kurdish regions and the rest of Turkey.

In the various *Ethiopian* conflicts (except perhaps the conflict with the al-Ittahad al-Islami, who strive for a Greater Somalia) involving Oromos, Ogadenis, Afars, Tigrays, Eritreans, and others, the issue of land rights and general rights for non-Amhara groups provided the trigger. These groups lacked proper representation in the government; they were also dispossessed of large land areas due to the land reform in 1975, when rural land was declared state-owned. Many groups were forced to resettle. These actions particularly affected the Oromo, the largest ethnic group in Ethiopia. It provided many of the recruits for the EPLF and the TPLF, whose main aims were to change the conditions for the landless.

In *Sudan* the Christian and animist South and the Islamic North have held grievances against each other for decades. The South has consistently claimed that the natural resources of the South – timber, grain, water, and minerals – have been stolen by a ruling elite dominated by the North. The displacement of huge numbers of people originally involved in agriculture and the destruction of land due to the war have had drastic effects on the largely rural areas of the South.

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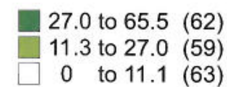
Figure 2. Dependence on Agriculture and Armed Conflict 1989-97

Agriculture to GDP Ratio 1989 Countries/Territories



Sources: The list of conflicts is from Wallensteen & Sollenberg (1998). The agriculture to GDP ratios are from *World Resources* (WRI, 1997). Additional data are obtained from *World Fact Book* (CIA, 1997) and two data points were estimated as regional averages. Conflicts classified by Wallensteen & Sollenberg as concerning government were located at the capital, whereas territorial conflicts have been placed in the approximate area where they occurred. A red star indicates a major conflict where battle deaths reached a threshold of 1,000 in at least one of the years 1989-97. A red flag indicates a minor conflict where battle deaths did not reach 1,000 in any year during the 1989-97 period. All the conflicts listed here claimed more than 25 lives in a single year. The map includes interstate as well as internal armed conflicts. The vast majority of the conflicts during this period were internal.

In the post-Cold War era, armed conflicts are overwhelmingly located in poverty-stricken countries. Many of these conflicts claim alarming numbers of civilian casualties and spill over into neighboring territories, involving the international community in costly relief operations, often under hostile conditions. This study views development failure and the vulnerability to armed conflict within a framework that focuses on the conditions of the rural sector. Agriculture is the dominant sector in most poor countries and is crucial for generating income. Strengthening agriculture is likely to pay great dividends in terms of prosperity and peace.

The Cold War generated ideological conflicts which pitted against each other rival factions backed by the two superpowers or their allies. Today's internal violence largely resembles subsistence crises, the predominant form of violence during pre-industrial times. This study examines how conditions negatively affecting agriculture generate grievances and ultimately result in endemic armed conflict. This report discusses the agricultural policies and food distribution strategies employed in India, which has managed to mitigate many of the conflict-producing effects of poverty. The Indian case contrasts dramatically with the numerous failed states in Sub-Saharan Africa. The path to development and peace is dependent on increased production as well as a favorable policy environment. The development and dissemination of improved agricultural technology is crucial for increasing production. Good governance helps to ensure that the increased production benefits the general population by securing an adequate food supply for all, while promoting environmentally sound production practices.

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