

Architecture for Early Warning at the U.N. Based on Human Security Indicators

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IPS 688
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Abstract

The end of Cold War led to the initiation of several attempts to re-orient the United Nations in the direction of Conflict Prevention. These attempts at U.N. reform continue to be severely constrained by the lack of an early warning system to predict the outbreak of conflicts. An early warning capability is a crucial part of efforts to engage in conflict prevention measures. This article is an attempt to develop a framework for an early warning system using a policy oriented approach. The author attempts to design a two-tiered architecture for the early warning system. The proposed system utilizes the indicators of human security as measures to predict the occurrence of armed conflicts. The author argues that deprivation of human security is a strong cause (not the only cause) that leads to the outbreak of conflicts. Based on research observations, the author proposes some recommendations for studying the issues of human security and early warning in further detail.

Introduction

Conflict Prevention refers to “any structural or intercessory means to keep intrastate or interstate tensions and disputes from escalating into significant violence and use of armed forces, to strengthen the capabilities of potential parties to violent conflicts for resolving such disputes peacefully and to progressively reduce the underlying problems that produce these issues and disputes.”¹ Conflict prevention as a strategy has been practiced between nations over the past century and has achieved a certain degree of success in the period following end of World War II. In the period from 1989-2000, there were ninety-five instances of intrastate wars and just seven instances of interstate wars.² An analysis of conflict data after World War II reveals the changing nature of wars as internal conflicts became increasingly prevalent. During the period from 1946 – 2001, the world witnessed 225 armed conflicts³ including 163 internal conflicts, 42 interstate conflicts and 21 extrastate conflicts⁴ at various levels of intensity.⁵

Preventing violent intrastate conflicts necessitates the creation of an effective early warning system at the United Nations. Despite numerous calls for the creation of such a system, little

¹ Michael S. Lund, “Preventing Violent Intrastate Conflicts: Learning Lessons from Experience,” in Paul van Tongeren, Hans van de Veen and Juliette Verhoeven, eds. *Searching for Peace in Europe and Eurasia: An Overview of Conflict Prevention and Peacebuilding Activities*, (Boulder, CO: Lynne Rienner, 2002), p. 99 – 119. Quoted in Alice Ackermann, “Idea and Practice of Conflict Prevention,” *Journal of Peace Research*, Vol. 40, No. 3 (May 2003), p. 339 - 347.

² Peter Wallensteen and Margareta Sollenberg, “Armed Conflict, 1989 – 2000,” *Journal of Peace Research*, Vol. 38, No. 5 (September 2001), p. 632.

³ According to the Uppsala Conflict Data Project *Armed Conflict* is defined as a contested incompatibility that concerns government or territory or both where the use of armed force between two parties results in at least 25 battle-related deaths. Quoted in Nils Petter Gleditsch et al, “Armed Conflict 1946 – 2001: A New Dataset,” *Journal of Peace Research*, Vol. 39, No. 5 (September 2002), p. 618.

⁴ According to the Uppsala Conflict Data Project, *Extrastate Armed Conflict* occurs between a state and a non-state group outside its own territory. Quoted in Nils Petter Gleditsch et al, “Armed Conflict 1946 – 2001: A New Dataset,” *Journal of Peace Research*, Vol. 39, No. 5 (September 2002), p. 619.

⁵ Nils Petter Gleditsch et al, “Armed Conflict 1946 – 2001: A New Dataset,” *Journal of Peace Research*, Vol. 39, No. 5 (September 2002), p. 615-37.

has been done to move the initiative beyond rhetorical stage.⁶ Timely warning of possible outbreak of armed conflicts will provide several opportunities for the international community to undertake immediate preventive action and develop a long-term strategy to address the structural causes of the conflict. Early warning, in its current form at the United Nations, is often undertaken on an ad-hoc basis by sending fact-finding missions. The paradigm shift in the United Nations from a “Culture of Reaction to a Culture of Prevention” can only be achieved by institutionalizing the concept of early warning and early response.

The prevention of conflicts through early warning is intricately linked to sustainable development since development cannot take place in an environment of violence. An outbreak of armed struggle also creates a severe setback to any ongoing development process, as evident from the impact of conflicts on the economies of Lebanon, Burundi, and Angola. In Lebanon, the GDP in the early 1990s remained fifty percent lower than it was prior to the initiation of conflict. The civil war in Angola is responsible for the abandonment of eighty percent of agricultural land. The food production in Burundi dropped seventeen percent during the conflict period.⁷

A paradigm shift that was taking place during the last decade of the twentieth century was re-defining of ‘Security.’ The concept of security, between the period following the signing of the Treaty of Westphalia and the end of the Cold War, was largely interpreted in terms of state security. This state centric view meant that a nation’s security lay in ensuring protection

⁶ Kofi A. Annan, *Prevention of Armed Conflict: Report of the Secretary-General*, (New York: United Nations Publications, 2002), p.1.

⁷ Carnegie Commission on Preventing Deadly Conflict, *Preventing Deadly Conflict: Final Report with Executive Summary*, (Washington DC: Carnegie Commission on Preventing Deadly Conflict, 1997), p. 11 – 12.

of its citizens from “external aggression.” In the 1990s, however, analysts and academics began to broaden the concept of security to include “Human Security.”

The first major conceptual definition of human security was provided in the United Nations Development Programme’s (UNDP) *1994 Human Development Report* which stated that, “Human Security can be said to have two main aspects. It means, first, safety from such chronic threats as hunger, disease and repression. And second, it means protection from sudden and hurtful disruptions in the patterns of daily life- whether in homes, in jobs or in communities.”⁸ Various governments have adapted different strands of the definition proffered in the UNDP 1994 report, but the underlying principle remains the same, i.e., providing security to individuals.

The broadening of the definition of security presents an opportunity to utilize the measure of human security as an indicator for early warning of armed internal conflicts. Armed conflicts do not occur in a vacuum. The existence of social, economic and political discrimination coupled with low human development is a major source of internal conflicts. In his report on the prevention of armed conflict, U.N. Secretary-General Kofi Annan correctly observes that “the root cause [of conflict] may be, for example, socio-economic inequities and inequalities, systematic ethnic discrimination, denial of human rights, disputes over political participation or long-standing grievances over land and other resource allocation.” In simple terms, deprivation of human security provides a strong reason for the

⁸ United Nations Development Programme, *Human Development Report, 1994* (New York: Oxford University Press, 1994), p. 23. Quoted in Roland Paris, “Human Security: Paradigm Shift or Hot Air?,” *International Security*, Vol. 26, Issue. 2 (Fall 2001).

initiation of armed conflicts. A survey of the UNDP Human Development Reports validates the aforementioned observation.

This research paper is divided into the following sections. The first section will provide a brief history and evolution of the concept of early warning and its relation to the broader theme of preventive diplomacy. The second section will examine the requirements of an early warning system and the challenges facing the creation of an early warning system at the United Nations. The third section will describe the architecture of an early warning system comprising of two-tiers. The first tier, comprising of ‘static indicators,’ will be applied to all nations to identify nations vulnerable to an outbreak of internal conflict. In the second tier, nations identified in the first tier will be monitored continuously using a set of ‘dynamic indicators.’ The fourth section will look at the possible means to collect information on the early warning indicators and examine the challenges facing information collection. The fifth and final section will recommend possible improvements that can be made to the proposed system and suggest areas of future research.

Early Warning – A Historical Context

Conflict Prevention is not a new concept in international relations. Even at the Congress of Vienna in 1815,⁹ nations framed a series of steps like mutual consultations, establishment of neutral states and demilitarized zones, and peaceful settlement of conflicts to avoid the

⁹ The Congress of Vienna was an international conference held in 1815 after the fall of Napoleon I. The main objective of the conference was to create a balance of power to ensure peace among European states.

occurrence of deadly wars.¹⁰ The League of Nations, despite its failure to prevent the outbreak of World War II, negotiated the settlement of several disputes.¹¹

The United Nations was formed with the specific objective “to save succeeding generations from the scourge of war.” Indeed, conflict prevention is a dominant theme in the U.N. Charter. Chapters VI and VII of the Charter provide a mandate for the Secretary-General, the Security Council, and the General Assembly to settle conflicts peacefully and prevent the outbreak of new conflicts.¹² Both Chapters VI and VII provide the authority to the Security Council to investigate a situation that is likely to cause friction and threaten world peace. According to Kofi Annan, the U.N. Charter underscores two salient features of the collective security system,

First, preventing armed conflict is a more desirable and cost-effective strategy to ensure lasting peace and security than trying to stop it or alleviate its symptoms; and second, armed international conflicts are best prevented by “peaceful means in such a manner that international peace and security are not endangered.”¹³

During Cold War, conflict prevention was largely seen through the prism of crisis prevention. The overarching objective was to confine any conflict within its regional context and prevent its escalation to the nuclear level. In fact in 1960, the then U.N. Secretary-General Dag Hammarskjöld referred to preventive diplomacy as a set of actions intended to keep regional conflicts localized in order to prevent their diffusion into the superpower

¹⁰ Alice Ackermann, “Idea and Practice of Conflict Prevention,” *Journal of Peace Research*, Vol. 40, No. 3 (May 2003), p. 340.

¹¹ Michael S. Lund, *Preventing Violent Conflicts: A Strategy for Preventive Diplomacy*, (Washington D.C.: United States Institute of Peace Press, 1996), p. 3.

¹² Ackermann, “Idea and Practice of Conflict Prevention,” p. 340.

¹³ Kofi A. Annan, *Prevention of Armed Conflict: Report of the Secretary-General*, (New York: United Nations Publications, 2002), p.11.

arena.¹⁴ The U.N. was greatly paralyzed by the ideological conflict during the Cold War to perform any effective role in conflict prevention. However, number of initiatives like the Marshall Plan, NATO, arms control treaties, global-nonproliferation treaties, and several other efforts served to prevent conflicts, even though in strictly Cold War terms.

In 1992, the then-U.N. Secretary-General, in his report *An Agenda for Peace*, reflected on the changing nature of violent conflicts and re-defined preventive diplomacy as “[an] action to prevent disputes from arising between parties, to prevent existing disputes from escalating into conflicts and to limit the spread of the latter when they occur.”¹⁵ Mr. Boutros-Ghali identified five actions to ensure effective preventive diplomacy: measures to build confidence, fact-finding, early warning, preventive deployment and demilitarized zones.¹⁶ Mr. Boutros-Ghali’s observations were largely based on the growing awareness that the definition of conflict prevention must be changed to reflect new geo-political realities and take advantage of it.

Mr. Boutros-Ghali’s concept for conflict prevention was well received by the international community and international leaders, regional organizations, and NGOs launched several initiatives to incorporate the new definition.¹⁷ The natural outgrowth of the new development was an increased focus on early warning information of conflicts since any preventive action can be contemplated only on the availability of reliable information. Indeed, beginning in the 1990s, early warning centers were setup in many places and

¹⁴ Ackermann, “Idea and Practice of Conflict Prevention,” p. 340.

¹⁵ Boutros Boutros-Ghali, *An Agenda for Peace*, (New York: United Nations Publications, 1995), p. 45.

¹⁶ Boutros-Ghali, *An Agenda for Peace*, p. 47 – 51.

¹⁷ Andreas Wenger and Daniel Möckli, *Conflict Prevention: The Untapped Potential of the Business Sector*, (Boulder, London: Lynne Rienner Publishers, 2003), p. 18.

collection of early warning information was no longer seen as a military activity.¹⁸ For instance, the European Union, as per the mandate provided by the Amsterdam Treaty,¹⁹ has established a Policy Planning and Early Warning Unit that includes a Situation Center operated on a 24-hour basis to monitor international developments and identify potential conflicts.²⁰ A number of projects to collect early warning information were launched at the global, regional and national level.

The growing number of U.N. resolutions and agreements on the need for creating an early warning capability at the U.N. stands testimony to the growing awareness to move in the direction of conflict prevention. Table 1 presents the efforts made at the U.N. to create early warning systems for conflict prevention and lists their current status. Another indication of the growing interest in the concept of early warning was the creation of a project titled “Early Warning and Preventive Measure: Building UN Capacity” in 1998. The project involves a training program for U.N. staffers at U.N. Staff College in Italy “to build institutional capacity by significantly improving professional and analytical skills and awareness of UN staff and its partners in the area of early warning and preventive measures”²¹

Table 1. Early Warning Systems for Conflict Prevention at the U.N.

Early Warning System	Year	Current Status	Remarks
Office of Research and the Collection of Information (ORCI)	1987	Dissolved	ORCI was formed to monitor threats to international peace and security and also to prevent new

¹⁸ Wenger and Möckli, *Conflict Prevention: The Untapped Potential of the Business Sector*, p. 55.

¹⁹ The full text of the treaty can be found at <http://www.europarl.eu.int/topics/treaty/pdf/amst-en.pdf>, p. 132.

²⁰ “EU Crisis Response Capability: Institutions and Processes for Conflict Prevention and Management,” *International Crisis Group Report No. 2*, 26 June 2001.

²¹ United Nations Systems Staff College, “About Early Warning and preventive Measures,” <http://www.unssc.org/unssc1/programme/earlywarning/about.asp>. Accessed 20 November, 2003.

			flow of refugees. ORCI failed to perform an effective role due to the lack of political will among member states and its participants were sent to different departments after it was dissolved.
Humanitarian Early Warning System (HEWS) at DHA (now OCHA)	1995	Abandoned	Deficits in staffing constrained the activities of HEWS. The OCHA currently focuses more on ad hoc measures to collect information and coordinate responses.

Early warning is an integral part of any conflict prevention strategy. In recent years, several international organizations, governments, and NGOs have moved forward formulating policies for conflict prevention. International organizations like the U.N. and its subsidiary organizations, regional organizations like the European Union, and the Organization for Security and Cooperation in Europe (OSCE) have undertaken several initiatives to move the concept of conflict prevention beyond its rhetorical stage. Among the states, Canada, Switzerland, and Britain have taken the lead in institutionalizing conflict prevention into their foreign policy activities.²² Many NGOs like International Alert and International Crisis Group are playing an increasing role in conflict prevention activities and some of the NGOs have made it their sole focus of activity.

Assessing the “norm life cycle” for conflict prevention provides a better understanding of the evolution of this concept in the international arena. The “norm life cycle” divides norms into three stages: norm emergence where entrepreneurs persuade actors to support new norms; norm acceptance, or norm cascade, where a large number of states begin to accept

²² Andreas Wenger and Daniel Möckli, *Conflict Prevention: The Untapped Potential of the Business Sector*, (Boulder, London: Lynne Rienner Publishers, 2003), p. 54..

the norms; and norm internalization where norms become ingrained into international policy.²³

Developments in the 1990s suggest that the notion of conflict prevention has moved from ‘norm emergence’ to the initial stages of the ‘norm cascade’ stage in the norm life cycle. The growing realization of the need to prevent violent conflicts from occurring and the proliferation of academic literature, policy statements, and official declarations on conflict prevention are indicators of the metamorphosis of this idea along the norm cycle. It is highly probable that vastly effective early warning systems will be developed in the norm internalization phase when all the actors begin to institutionalize the idea of conflict prevention. However, it must be emphasized that efficient early warning systems are not an automatic outcome of norm internalization, but involves an incremental developmental process that must proceed along with the norm of conflict prevention as it evolves in its norm cycle.

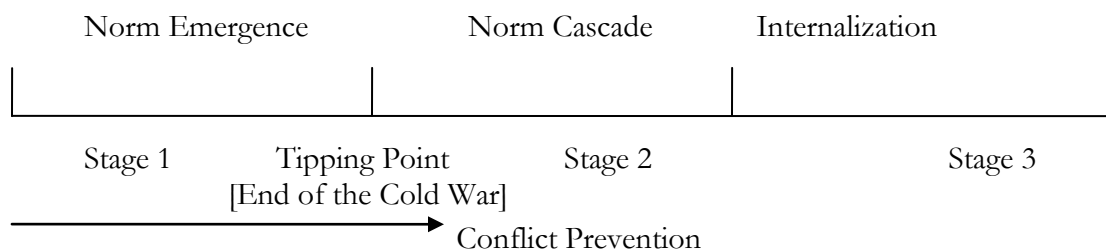


Figure 1. Current Position of Conflict Prevention along the Norm Cycle²⁴

²³ Martha Finnemore and Kathryn Sikkink, “International norm dynamics and political change.” *International Organization*, Vol. 52. No. 4 (Autumn 1998), p. 887 - 917.

²⁴ The schematic representation of the ‘Norm Cycle’ has been adapted from Martha Finnemore and Kathryn Sikkink, “International norm dynamics and political change.” *International Organization*, p. 897.

Requirements and Challenges

The Brahimi report, produced by a panel of experts with a mandate to evaluate shortcomings in U.N. Peace-Keeping Operations, advocated the creation of an early warning system that can “detect and recognize the threat or risk of conflict or genocide.”²⁵ Despite the need for such an early warning system, the international community has limited success in creating an early warning capability at the United Nations. The lack of an early warning system that is “empirically valid, simple enough to use in practice, and politically feasible”²⁶ is a major impediment in the international community’s efforts in conflict prevention.

Any early warning system should, at a minimum, be capable of issuing advance notification of a deteriorating security scenario and provide policy options for stabilizing the volatile situation. So an effective early warning system should gauge social reality and translate that information in to a form that can be used by policy makers. This means that:

- (1) The instruments of early warning systems have to be streamlined and contextualized according to relevant criteria; (2) the information produced by them must be user-friendly and tailored to specific decision needs; and (3) the main early warning messages must be continuous and consistent.²⁷

An early warning system should collect information continuously and should be involved in an *engaged monitoring* of potential conflict situations. An early warning center is an important component in the overall framework of conflict prevention and should provide ‘alerts’ on

²⁵ “Report of the Panel on United Nations Peace Keeping Operations,” A/55/305, S/2000/809, www.un.org. This report is popularly known as Brahmi Report.

²⁶ Janie Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises* (West Hartford, Connecticut: Kumarian Press, 1999), p. 28.

²⁷ Leatherman et al, p. 36.

impending conflicts to the policymakers that will give them sufficient time to undertake preventive action. The objective of early warning must not be to threaten a particular group or country but to create a tool for preparedness, prevention and mitigation with regard to disasters, emergencies, and short-term or long-term conflict situations.²⁸

According to Adelman and Schmeidl, two leading experts on early warning and conflict prevention, collecting and relaying early warning is a process involving:

- a) The gatherers of information
- b) The mode of collection of information
- c) The categories (shared or conflicting) for naming and classifying the collected information
- d) The standards for evaluation of reliability of the information
- e) The elements of confidentiality which can reconcile the issue of security for the gatherers and the ability to continue their efforts
- f) The mode for transmitting the information.²⁹

The outcome of this process should be an easily discernible alert that must instigate the policy making community to plan a strategy for stabilizing the emerging threat.

Despite such clear enunciations of the requirements of an early warning system, the progress from conceptualization to implementation has been excruciatingly slow. Quite often lack of 'political will' is cited as the reason for this failure, but a deeper analysis reveals that the failure must be attributed to several serious challenges to realizing an early warning system.

²⁸ Michiko Kuroda, "Early Warning Capacity of the UN System," in Kumar Rupesinghe and Michiko Kuroda (Eds), *Early Warning and Conflict Resolution* (New York: St. Martin's Press, 1992), p. 217.

²⁹ Howard Adelman and Sussane Schmeidl, 'Early Warning Models and Networking,' Paper presented at the International Studies Association, Chicago, February 1995.

An illustrative list of challenges includes: What information to collect? When to collect? How to collect? Whom to issue the alert? When to issue a warning? How to influence the decision-making authority to undertake preventive action? and the organizational changes needed at the U.N. to incorporate a culture of prevention.

First and foremost is the challenge of identifying “what to collect?” Early warning for intrastate conflicts is vastly different from that of inter-state conflicts. The multilevel and multidimensional aspects of intrastate conflicts pose challenges to efforts to identify early warning indicators. Indeed, several recent attempts to identify indicators of conflict have a “mechanical bias” that impedes the identification of vital indicators since the system is overwhelmed with numerous inconsequential data.³⁰ Inarguably statistical methods provide several advantages that make them attractive to use³¹ However, measuring political behavior (a human activity) entails that quantitative methods be used as a complement to traditional qualitative methods.³²

The second important challenge is that early warning alerts should be accompanied by information that assists decision-makers to choose the best course of action. The information might include: possibility of violent conflict occurring in a particular location at a specified period of time, nature of conflict, options for dealing with the conflict, and the risks associated with a policy of non-action.³³ Another crucial factor is the time frame for

³⁰ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 28.

³¹ Philip A. Schrodts and Deborah J. Gerner, “The Impact of Early Warning on Institutional Responses to Complex Humanitarian Crises,” Paper presented at the Third Pan-European International Relations Conference and Joint Meeting with the International Studies Association, Vienna, 16 – 19 September 1998, p. 27.

³² Schrodts and Gerner, p. 27.

³³ Peter Brecke, “An Agenda for Conflict Early Warning Research,” *International Studies Notes*, Vol. 23, No. 1, (Winter 1998), p. 19 – 23.

disseminating alert information. An alert sent out too early will not provoke the decision-making community to take action. Such alerts can be used to identify trends and “hot-spots” for further monitoring. On the other hand an alert sent too late will not be useful in preventing the outbreak of a conflict and is as good as providing no warning at all. An ideal time frame should be between three to twelve months.³⁴

The process of disseminating information provides further challenges. Apart from challenges posed by the organizational capabilities needed to disperse the information to a wide audience, the safety of personnel collecting information is a very important factor to be considered. Early warning reports like human rights abuses or violence against certain community are seen by conflict parties as subversive and might pose risks to personnel collecting information.³⁵

Early Warning Indicators

Selecting indicators for an early warning system is a complex process involving a number of tradeoffs. A comprehensive early warning system with the capacity to predict the occurrence of intra-state conflicts with a high degree of accuracy must have a large number of indicators to monitor, a fact that significantly increases its operational requirements. Parsimony has to be maintained in deciding on the number of indicators for an early warning system since ease of implementation and simplicity of operation are very important factors in designing an early warning system for the United Nations.

³⁴ Brecke, p. 20.

³⁵ Sally Chin et al, “Challenges and Lessons Learned in Setting up Early Warning Pilot Projects in the Caucasus and the Great Lakes,” Conference/Yearbook Draft of the Conflict Prevention Network, 1998, p. 5.

The problem of designing an early warning system with a parsimonious set of indicators is the nature of conflict.³⁶ The multilevel and multidimensional nature of conflict poses considerable challenges to the selection of indicators that can accurately predict outbreak of conflicts. With the idea of creating an effective early warning system based on a relatively few set of indicators, the author in this section attempts to identify a set of indicators that can be tested for their utility in predicting violent conflicts.

The causes of war have been extensively researched and have been classified as Structural and Proximate causes. Structural factors, referred to as root causes, include poverty, unemployment, underdevelopment etc. Proximate factors, referred to as accelerators and triggers, refer to the set of incidents that lead to escalation of conflicts. Structural factors provide the background situation for the occurrence of conflicts and proximate factors constitute the escalatory dynamics of conflicts.³⁷ An effective early warning system must be based on an analysis of generative connection between the background structures and the observed consequences.³⁸

Measuring structural factors provides an indication of a society's inclination for violence. An early warning system that attempts to measure the structure of a society must focus on its central characteristics that can explain the society's propensity for conflict.³⁹

³⁶ Alex P. Schmid, "Indicator Development: Issues in Forecasting Conflict Escalation," in John L. Davies and Ted Robert Gurr (Eds.) *Preventive Measures: Building Risk Assessment and Crisis Early Warning Systems* Oxford, New York: Rowman & Littlefield Publishers, 1998), p. 43. The author discusses the problems associated with identifying a parsimonious set of indicators for political conflict escalation scenarios. The challenges discussed are applicable to any early warning system.

³⁷ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 46.

³⁸ David Dessler, "Beyond Correlations: Toward a Causal Theory of War," *International Studies Quarterly*, Vol. 35, No. 3 (1991).

³⁹ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 52.

Edward Azar's Theory of Protracted Social Conflict (PSC) defined that the causes of war (either, inter-state or intra-state) lie within states. Azar identified four types of variables that are likely to induce an escalation of conflicts: communal content, *deprivation of human needs* [italics added], quality of state governance, and external factors or linkages.⁴⁰ Azar, on the basis of his research on conflicts, argues that a society's needs (comprising security needs, development needs, political needs, and identity needs) unlike interests are non-negotiable and a relative deprivation of those needs might lead to conflicts that are intense, vicious, and irrational.⁴¹

The propensity of a society for violence is determined to a certain extent on what Nobel Laureate Amartya Sen defines as the "acquirement problem."⁴² According to the theory, every individual in a society is legally entitled to a set of commodities. The failure of a society to provide such legal entitlements to its members constitutes discrimination that may be the result of violation of law.⁴³ Closer examination reveals a high degree of correlation between Sen's theory of entitlements and Azar's theory of PSC.

The concept of legal entitlements expounded by Amartya Sen has been broadened in recent years under the rubric of human security. Ever since the concept of human security was defined in the 1994 Human Development Report, the definition has been interpreted in various ways and countries like Canada and Japan have subsequently adopted the concept

⁴⁰ Edward Azar, *The Management of protracted Social Conflict: Theory and Cases* (Aldershot, UK: Dartmouth Publishing, 1990) quoted in Hugh Miall, Oliver Ramsbotham, and Tom Woodhouse, *Contemporary Conflict Resolution* (Cambridge, U.K.: Polity press, 1999) p. 72 – 74.

⁴¹ Miall and Ramsbotham, *Contemporary Conflict Resolution* p. 73.

⁴² Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 52.

⁴³ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 52.

and integrated it into their foreign policy.⁴⁴ Despite the changes in various definitions of human security, the underlying notion is the need to provide security to individual human beings.

Since the introduction of the concept several efforts have been made to measure human security.

- The Bratislava Regional Centre has conducted an extensive research on human security dimensions and has produced a comprehensive document identifying key indicators for each dimension.⁴⁵ The dimensions of human security included in the report are: economic, health & nutrition, political and institutional, personal & community, environment, education.⁴⁶
- Gary King and Christopher J. L. Murray utilize generalized poverty as representing human security.⁴⁷
- Kanti Bajpai, has proposed the creation of a Human Security Audit that can be used to estimate the level of threat to human security.⁴⁸
- The Program on Humanitarian Policy and Conflict Research is undertaking a project to publish an annual Human Security Report.⁴⁹

⁴⁴ For a comparison of the various definitions of Human Security see “Comparison of Human Security definitions,” at http://www.hsph.harvard.edu/hpctr/events/hsworkshop/comparison_definitions.pdf.

⁴⁵ “Human Security Measurements” Bratislava Regional Centre, <http://www.undp.sk/uploads/ACF1EEF1.doc>. The Bratislav Centre handled UNDP’s analytical, programmatic, policy advising, and administrative expertise for work in the countries of Central and Southeastern Europe.

⁴⁶ “Human Security Measurements” Bratislava Regional Centre.

⁴⁷ Gary King and Christopher J. L. Murray, “Rethinking Human Security,” *Political Science Quarterly*, Vol. 116, No. 4 (2001 – 02), p. 598.

⁴⁸ Kanti Bajpai, “Human Security: Concept and Measurement,” Kroc Institute Occasional Paper No. 19: OP: 1 (August 2000).

⁴⁹ Andrew Mack, “Report on the Feasibility of Creating an Annual *Human Security Report*” (February 2002), www.nch.gov/grants/guidelines/pdf/PubExhibitReport.pdf.

- The Harvard School of Public Health is researching on human security with specific focus on economic security and community security.⁵⁰
- David Carment at Carleton University has developed a nine-point Index of Human Security based on: number of resource/territorial disputes, armed forces per 1,000 individuals in the population, and military expenditures as a share of the GDP (<http://www.carleton.ca/~dcarment/presents/cifp/sld036.htm>).

Each measurement methodology uses its own definition of human security and has a different set of indicators. Some methodologies have a broader interpretation of human security whereas others follow a narrow interpretation. Formulating a broader measure of human security poses the problem of “data availability, integrity, and aggregation.”⁵¹ A broader framework, however, is more accurate. Thus, a balance has to be achieved between a broader but less feasible methodology and a concise but better practicable methodology.

The lack of definition on what really constitutes human security has been criticized by some scholars, who argue that such classification is needed for designing policies and conducting research.⁵² The broad and ambiguous nature of the concept of human security presents challenges to efforts aimed at quantifying human security.⁵³ Efforts, however, have been made to define human security. Operationalizing human security is still in its early stages and

⁵⁰ Harvard School of Public Health, <http://www.hsph.harvard.edu//index.html>.

⁵¹ Taylor Owen, “Measuring Human Security: Overcoming the Paradox,” *The Human Security Bulletin* (Internet Edition), http://www.humansecuritybulletin.info/November_2003/Human_Security_Initiatives/en/Measuring_Human_Security.php.

⁵² Roland Paris, “Human Security: Paradigm Shift or Hot Air?,” *International Security*, Vol. 26, No. 2 (Fall 2001), p. 87 – 103.

⁵³ Roland Paris, “Human Security: Paradigm Shift or Hot Air?,” p. 91.

significant research has to be done before a perfect definition for human security can be realized.

For the purpose of creating an early warning model based on human security, the author uses the indicators of human security developed by King and Murray. King and Murray's approach includes "*only those domains of well-being that have been important enough for human beings to fight over or to put their lives or property at great risk* [italics added]."⁵⁴ Based on their selection criteria King and Murray identify income, poverty, health, education, political freedom, and democracy as indicators of human security. The six indicators identified by King and Murray are useful for defining human security, however, attempting to utilize human security as an early warning indicator necessitates the addition of one other variable, income distribution, to the list. The final sets of indicators are income, poverty, health, education, political freedom, democracy, and income distribution, and unemployment.

Income

Societies in countries with higher per capita income have a lesser propensity to initiate violent conflicts. Paul Collier from the World Bank and Anke Hoeffler of the Centre for the Study of African Economies, who have extensively studied the economic causes of civil wars, state that the probability of civil war rises with a decrease in per capita income. Also, their research indicates that conflicts occurring in high income countries have shorter duration. According to Collier and Hoeffler, "civil war is overwhelmingly a phenomenon of low income countries."⁵⁵

⁵⁴ King and Murray, "Rethinking Human Security," p. 503.

⁵⁵ Paul Collier and Anke Hoeffler, "On Economic Causes of War," *Oxford Economic Papers* No. 50 (1998), p. 563 – 573. A more detailed and updated analysis on the economic causes of war can be found in Paul Collier and

Operationalization of Income : Purchasing Power Parity (PPP) adjusted per capita income.

Data Source : 1. 1960 – 1992: Penn World Tables 5.6⁵⁶
2. 1992 – 1998: World Bank's World Development Indicators.

Poverty

Poverty as a social condition occurs due to the deprivation of access to any basic capabilities. The inability of an individual to attain the basic needs of living provides a strong motivation to pursue other ways of achieving the capabilities denied to him. World Bank economists have conducted significant research on the causes of war in Africa that has proved the incidence of poverty as a key variable in war initiation.⁵⁷ The link between poverty and civil war extends both ways since wars disrupt the economic development process.

Operationalization of Poverty: According to the World Bank any individual living on less than \$365 per capita is said to be living in poverty. The World Bank/ UNDP Report provides information on the percentage of population living below poverty line.

Date Source : UNDP Human Development Report.

Anke Hoeffler, 'Greed and Grievance in Civil War,' The Centre for the Study of African Economies Working Paper Series, No. 160 (2002).

⁵⁶ R. Summers and A. Heston, "The Penn World Table (Mark 5): An Expanded Set of International Comparisons, 1950 – 1988," *The Quarterly Journal of Economics*, Vol. 99 (1991), p. 327 – 368.

⁵⁷ For a sample of research on causes of Civil War in Africa and the influence of poverty in causing civil wars see: Ibrahim Elbadawi and Nicholas Sambanis, "Why Are There So many Civil Wars in Africa? Understanding and preventing Violent Conflict," World Bank: Economics of Civil War, Crime, and Violence. <http://www.worldbank.org/research/conflict/papers/eca2000c.pdf>.

Level of Democracy

“Democracy is a system in which no one can choose himself, no one can invest himself with the power to rule and, therefore, no one can abrogate to himself unconditional and unlimited power.”⁵⁸ In simple terms democracy can also be described as the converse of autocracy. Existence of democracy is a crucial factor to provide human security. A democratic system provides transparent governance that has a feedback mechanism so that individuals threatened by ‘relative deprivation’ can channel their grievances. The lack of such avenues to address grievances forces individuals to seek violent means to attain the entitlements due to them. For example, regular conduct of free and fair elections provides a mechanism for the removal of governments that act against the wishes of its people.

It must be emphasized that existence of democracies is not a guarantee for non-occurrence of internal conflicts. Sri Lanka, which was called as a ‘model democracy’ when it became independent, is still plagued by internal strife. The institutionalization of democracy is a very important factor. In 1998 a study on the influence of power parity and democracy on internal violence concluded that democracies with poorly developed democratic institutions fare no better than autocracies.⁵⁹

Operationalization of democracy: Operationalization of democracy is a challenging process complicated by the task of choosing between combinations of social and political factors.⁶⁰

For the purpose of this study, level of democracy is based on the Polity IV Dataset project

⁵⁸ Giovanni Sartori, *Democratic Theory* (Detroit, MI: Wayne University Press, 1965) quoted in Keith Jagers and Ted Robert Gurr, “Tracking Democracy’s Third Wave with the Polity III Data,” *Journal of Peace Research*, Vol. 32, No. 4 (1995) p. 469.

⁵⁹ Michelle Benson and Jacek Kugler, “Power Parity, Democracy, and the Severity of Internal Violence,” *The Journal of Conflict Resolution*, Vol. 42, No. 2 (April 1998), p. 196.

⁶⁰ Keith Jagers and Ted Robert Gurr, “Tracking Democracy’s Third Wave with the Polity III Data,” *Journal of Peace Research*, Vol. 32, No. 4 (1995).

implemented by the Center for International Development and Conflict Management (CIDCM).⁶¹ The Polity IV Dataset uses a 11-point indicator for measuring both democracy and autocracy. The difference variable DEMDIF measured as a difference between democracy value (DEMOC) and autocracy value (AUTO) provides an estimate of democracy in a country. A DEMDIF value of ten indicates perfect democracy and a value of negative ten indicates perfect autocracy.

Data Source: CIDCM's Polity IV Dataset.

Political Freedom

Political freedom measures the extent to which individuals can mobilize themselves peacefully and participate in the political process. The extent of political freedom is related to the development of democracy since democracies provide more opportunities for people to participate actively in the policy making process. A separate measure is included here since a measure of democracy reflects the accountability of governments whereas political freedom is indicative of the extent to which individuals can participate in the political process.

Operationalization of political freedom: Political freedom can be measured by calculating the level of civil liberties and political rights in a country.

⁶¹ "Polity IV Dataset Project," Center for International Development and Conflict Management (CIDCM), <http://www.cidcm.umd.edu/inscr/polity/>

Data Source: The Freedom House survey on civil liberties and political rights gives a good measure of political freedom.⁶² The Freedom House survey measures civil liberties on a scale of one to seven (one representing highest degree of freedom) and political rights on a separate scale of one to seven with the same coding rules. For aggregation purposes, both the scores are added and the following measures are used.

A combined score of less than or equal to five – high degree of political freedom

A combined score between five and eleven – medium degree of political freedom

A combined score of greater than eleven and less than fourteen – little degree of political freedom

Education

Education is an undeniable right for individuals. Lack of access to primary education deprives an individual of an ability to support himself through a sustained source of income. Uneducated sections of the population can be easily manipulated by leaders seeking to incite violence and hatred. The presence of large sections of uneducated population provides a large pool of personnel for recruiters to select.

Operationalization of Education: The level of education in a country can be measured by the Adult Literacy Rate in a country.

Data Source: UNDP's Human Development Report can be used to measure the adult literacy level.

⁶² "Annual Freedom in the World Country Scores 1972 -73 to 2001-2002," Freedom House Survey, <http://www.freedomhouse.org>.

Unemployment

Widespread unemployment levels among populations provide ideal recruiting grounds for group mobilization activities. Unemployment might be caused by specific government policies or due to the failure of government to create sufficient job opportunities. Youth unemployment was selected as a conflict indicator for a Conflict Analysis Framework (CAF) developed by the Conflict Prevention and Reconstruction Unit at the World Bank.⁶³ The underlying assumption is that unemployed youth are frustrated by the lack of opportunities and hence provide an easy target for recruiters.

Operationalization of Unemployment: Unemployment can be measured from the Percentage of Unemployment in a country.

Data Source: UNDP's Human Development Report provides the values for percentage of unemployment in a country.

Income Inequality

Income inequality refers to the unequal distribution of a nation's wealth among its population. Huge differences in the distribution of income reveal the discriminatory nature of policies adopted by the government. Measured independently, income inequality does not represent the relative deprivation experienced by the population. However, income

⁶³ "The Conflict Analysis Framework (CAF): Identifying Conflict-related Obstacles to Development," Conflict Prevention and Reconstruction Unit, World Bank. *Dissemination Notes*, No. 5. [http://wbln0018.worldbank.org/Networks/ESSD/icdb.nsf/D4856F112E805DF4852566C9007C27A6/2EC2E7EBA4A2885485256CE9006795A5/\\$FILE/CPR+5+final+legal.pdf](http://wbln0018.worldbank.org/Networks/ESSD/icdb.nsf/D4856F112E805DF4852566C9007C27A6/2EC2E7EBA4A2885485256CE9006795A5/$FILE/CPR+5+final+legal.pdf).

inequality combined with lower levels of civil liberties and political rights represents a good measure of deprivation experienced by the population.⁶⁴

Operationalizing Income Inequality: Income inequality can be operationalized by calculating the Gini coefficient of a country. The gini coefficient has values between 0 and 100 with 0 representing perfect distribution of wealth and 100 representing perfect inequality of income.

Data Source: The World Bank Indicators of Development provides a measure of gini coefficient for every country in the world.

Health

Health care provided by the government is an indicator of the quality of life in the country. The quality of health care in a country has an inverse relation to stability within that country.⁶⁵ Governments that do not provide proper health care are at a greater risk of getting overthrown by the population.

Operationalization of Health: The infant mortality rate in a country provides a good measure of the quality of health care provided in a country.

Data Source: UNDP's Human Development Report provides country-wise data on Infant Mortality Rate.

⁶⁴ Ryan Dudley and Ross A. Miller, "'Group Rebellion in the 1980s,'" *The Journal of Conflict Resolution*, Vol. 42, No. 1 (February 1998), p. 77 – 97.

⁶⁵ Ted Robert Gurr et al, "The State Failure Project: Early Warning Research for U.S. Foreign Policy Planning," in Ted Robert Gurr and John L. Davies (Eds) *Preventive Measures: Building Risk Assessment and Crisis Early Warning Systems* (New York: Rowman & Littlefield Publishers Inc, 1998), p. 27 – 38.

Dynamic Factors

The factors outlined above provide measures of the structural or background factors that breed violent conflicts. An early warning system will be effective only if it engages in continuous monitoring of conflict prone regions. The factors presented in the previous section provide a good measure to identify countries that run a greater risk of conflict occurrence. The next step is to select a set of dynamic factors and undertake continuous monitoring of the selected indicators. Observing the dynamic indicators gives a better understanding of the escalation phase of violent conflicts.

Escalation can be defined as “consisting in the crossing of saliencies... As a war escalates, it moves upward and outward through a pattern of saliencies that are provided situationally.”⁶⁶

The saliencies, often called as accelerators, provide an indication of the quickening pace of conflicts. Conflict escalation occurs both horizontally and vertically. Vertical escalation refers to an increase in the intensity of conflict and horizontal escalation refers to an increase in the geographical coverage of the conflict.⁶⁷ The transformation of issues, referred as Issue Inflation, also occurs during the escalatory phase. During the beginning of the conflict, issues are defined narrowly. But as escalation occurs, the size of the issue (issue inflation) and the number of issues (issue proliferation) increases the complexity of the conflict.⁶⁸

Several models based on dynamic indicators have been designed and tested. Some of the existing models are:

⁶⁶ Richard Smoke, *War: Controlling Escalation* (Cambridge, MA: Harvard University Press, 1977) p. 34. Quoted in Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 74.

⁶⁷ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 75.

⁶⁸ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 76.

- The Global Event-Data System (GEDS) project provides a continuous monitoring of daily interactions within states. The GEDS project obtains its data from news sources, non-state communities and actors. The information collected includes all reported events, including nonviolent events scaled for conflictive or cooperative intensity. In an experiment, the GEDS model incorporated a set of accelerators developed by Barbara Harff (an expert on early warning and conflict prevention) and the model was tested successfully for conflict situations in Slovenia, Croatia, Kosovo, Bosnia, Macedonia, and Abkhazia.⁶⁹
- Peter Brecke has implemented an early warning model based on pattern recognition. The pattern recognition approach is based on the conjectural model of conflict analysis and it attempts to recognize harbinger configurations of early warning indicators. Harbinger configuration templates are created based on previous conflicts and current situations are pattern matched against the templates to predict the occurrence of conflicts. Brecke has identified a set of indicators for detecting patterns and has formed a procedure for coding these indicators into patterns.⁷⁰

Several other specialized models like the FUGI model for early warning of refugee crises and Swiss Foreign Ministry's FAST early warning system have been developed. Estimating the effectiveness of each of these models is beyond the scope of this paper. Future research in

⁶⁹ John L. Davies and Barbara Harff with Anne L. Speca, "Dynamic Data for Conflict Early Warning," in Ted Robert Gurr and John L. Davies (Eds) *Preventive Measures: Building Risk Assessment and Crisis Early Warning Systems* (New York: Rowman & Littlefield Publishers Inc, 1998), p. 79 – 94.

⁷⁰ Peter Brecke, "A Pattern Recognition Approach to Early Warning," in Ted Robert Gurr and John L. Davies (Eds) *Preventive Measures: Building Risk Assessment and Crisis Early Warning Systems* (New York: Rowman & Littlefield Publishers Inc, 1998), p. 121 – 130; Peter Brecke, "Finding Harbingers of Violent Conflict: Using Pattern Recognition to Anticipate Conflicts," *Conflict Management and Peace Science*, Vol. 16, No. 1 (Spring 1998), p. 31 – 56.

developing a dynamic early warning capability can study these systems and build on their capabilities.

Collecting Information for Early Warning

Information gathering constitutes a critical component of any early warning system. The reliability and validity of the collected information is crucial for the successful implementation of early warning systems. Any early warning system must possess the analytical and institutional capacity to process, assess and utilize incoming information. The end state of an early warning system is ultimately an evaluative process that results in a political judgment of taking or not taking an action.⁷¹

The actors involved in an early warning system include states, international organizations, business enterprises, religious leaders, scientific groups, and the media.⁷² Each of these actors possesses different capabilities to collect, process, and disseminate information. The seamless integration of the information gathered by each of these actors poses significant challenges.

Local presence is very important to collecting accurate information. Local news sources and NGOs serve as important nodes for collecting and disseminating local information. NGOs can play an important role in generating early warning data. NGOs possess the advantage of being familiar with the local situation and can access a large pool of information. The disruption of NGO activities can itself serve as an indicator for impending conflict.

⁷¹ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 39.

⁷² Carnegie Commission on Preventing Deadly Conflict, *Preventing Deadly Conflict: Final Report with Executive Summary*, p. xxi - xxii.

However, it must be emphasized that involving NGOs in information collection has several problems. First and foremost is the loss of impartiality. A NGO that collects information about impending conflicts is forced to take sides in the conflict and hence its impartiality is compromised.

Second, the safety of NGO personnel collecting early warning information is endangered. NGOs collecting early warning information are in effect acting as intelligence agents and are exposed to the same level of risk faced by such agents. Third, accuracy of information collected by NGOs cannot be guaranteed always. The occurrence of conflicts in remote parts of the world makes it difficult to ascertain the validity of information.⁷³ Involving NGOs for information collection remains a contentious issue for ethical and practical reasons.

Local news agencies and international news agencies are other useful tools for information collection. News reporters are not constrained by ethical considerations facing NGOs and can perform information collection activities without procedural constraints. Proposals have been made to train news reporters for early warning information collection activity.⁷⁴

Involving businesses in conflict prevention activities has been explored in recent years. The roles of businesses in alleviating socio-economic problems in poor countries are being discussed under conflict prevention strategies. The negative image associated with

⁷³ Carnegie Commission on Preventing Deadly Conflict, *Preventing Deadly Conflict: Final Report with Executive Summary*, p. xxi - xxii.

⁷⁴ Walter K. Ezell, "Newspaper Responses to Reports of Atrocities: Burundi, Mozambique, Iraq," in Helen Fein (Ed) *Genocide Watch* (New Haven, CT: Yale University Press, 1992). Ezell's work was quoted in Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 41.

Transnational Corporations (TNCs) as contributors to causes of conflicts is being replaced by an approach to involve businesses in addressing the root causes of conflicts.⁷⁵ For early warning purposes, businesses can help by sharing their risk factor analysis studies on various countries. Businesses conduct risk analyses before undertaking projects in conflict prone regions. Sharing such data will significantly augment the capacity of any early warning system.

Collection of information constitutes just one part of the overall mechanism of an early warning system. Analysis and proper dissemination of information is also a critical part of the overall framework. The seamless integration of all the functions performed by various actors in the early warning system presents a formidable challenge. Proposals have been made to integrate the early warning information provided by NGOs with formal regional and international systems for early warning. The Commission on Global Governance has proposed the creation of a global mechanism for linking early warning information collected by various actors around the globe.⁷⁶ Several issues need to be addressed before such proposals can be realized.

Conclusion

The author in this paper has explored the possibility of creating an early warning system using measures of human security as indicators of conflicts. The indicators by themselves do not forecast the occurrence of conflicts. Several other variables like group mobilization, external support, prevalence of small arms and light weapons, ethnic fractionalization etc interact in multiple ways to cause conflicts. The author has attempted to conceptualize

⁷⁵ Wenger and Möckli, *Conflict Prevention: The Untapped Potential of the Business Sector*, p. 85 – 86.

⁷⁶ Leatherman et al, *Breaking Cycles of Violence: Conflict Prevention in Intrastate Crises*, p. 41.

human security by using the existing literature to identify a key set of indicators. Conceptualizing and quantifying human security is in its infancy. This paper has taken a small step towards using the concept of human security for early warning of conflicts.

Significant developments have to be made before utilizing this concept in any early warning framework. The first step is to test the relationship between the selected indicators and the occurrence of conflicts. The changes in the values of the selected indicators must be tracked during the period leading up to the outbreak of conflicts. The conflicts for case studies can be selected from different geographical regions to incorporate a greater degree of diversity. Deprivation of human security over a long period of time does not lead to an eruption of conflict; rather it is the relative deprivation of human security assisted by several other factors that causes conflicts.

Second step is to create a human security index, similar to the human development index. Since the objective of this human security index will be to assist in predicting conflicts, emphasis can be placed during the selection process on those indicators that have a larger correlation on the occurrence of conflicts.

Third, a dynamic model has to be developed for the second tier of the proposed architecture. Several dynamic models have been developed during recent years. The proposed architecture can choose between using any of the existing models, enhancing the capabilities of existing models or even developing a new model.

Discussion of organizational changes to be made at the U.N. for implementing an early warning system is beyond the stated objective of the paper. At the least, a change in the political culture is needed to expedite the process of creating an early warning system. States need to provide information on their internal and external policies to the UN in order to assist information collection processes. Also, U.N. field offices of U.N.'s subsidiary organizations must participate as nodes in the early warning information collection network. U.N. field representatives are often hesitant to participate as information collectors due to the lack of a proper U.N. mandate.

The need for early warning has been recognized at the United Nations and every Secretary-General succeeding Dag Hammarskjold has provided active support towards this concept and early warning began considered as a discrete requirement of preventive diplomacy.⁷⁷ An early warning system at the United Nations must consist of three components: information, analysis and a communication channel. Sutterlin, a scholar with wide experience of working at the UN, states that “[the requirement for the three components] differentiates the UN and regional organizations having a similar mandate from functional agencies such as WHO and FAO, where information alone can trigger automatic responses.”⁷⁸ The collection of early warning information is just one step in the overall process of conflict prevention.

Early warning systems by themselves do not prevent conflicts. Early warning and conflict prevention are closely interlinked actions sharing some resources. The issuance of an early warning alert does not constitute preventive action, it represents a step in the direction

⁷⁷ James S. Sutterlin, “Early Warning and Conflict Prevention: The Role of the United Nations,” in, Klaas Van Walraven (Ed.) *Early Warning and Conflict Prevention: Limitations and Possibilities* (The Hague, Boston: Kluwer Law International, 1998), p. 121.

⁷⁸ James S. Sutterlin, “Early Warning and Conflict Prevention: The Role of the United Nations,” p. 122.

towards preventive action. The alert has to be followed by a set of actions aimed at preventing the occurrence of conflicts. As the U.N. orients itself towards a culture of prevention, creating an early warning capability should be a critical part of the re-orientation effort.

Early warning and conflict prevention are not substitutes for sustained peace. However, early warning systems assist in the prevention of conflicts and provide opportunities for addressing the root causes of conflicts. Collection of early warning information is useful peace building activities. The end of Cold War and the internalization of the norm of human rights present an opportunity to actively pursue and implement early warning capability at the United Nations. The UN and the international community should utilize this opportunity to create a functional early warning system.

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