# PREVENTING BIOTERRORISM: INSTITUTIONAL COOPERATION AS A *NOVUM REMEDIUM*

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# Abstract

With the advent of globalization along with scientific and technological developments, the changing forms of governance are ascertained. In the modern form of governance, security challenges have become a source of growing concern that leads to acceptance of promising realities on one hand and to effectively face critical challenges on the other. The paper is intended to analyze the way global governance adapts and responds to new security challenges. Taking into account Biological terrorism as an emerging threat this study is an attempt to examine the role of global institutions in adopting new ways of threat prevention.

Within the available international instruments, Chemical Weapons Convention is chosen as a comparative case wherein an organisation for monitoring is already in place. The absence of such an institution to monitor biological weapons convention constitutes a pragmatic challenge to the security and at the same time creates new opportunities to evolve and modify global governance framework.

The paper asserts that modern form of governance has to give up traditional approaches and incorporate innovative methods of international cooperation with the inclusion of 'new actors' like research group at the universities to efficiently address the threats of global security through enforcement level initiatives. In the premise of global governance framework, the paper examines various forms and processes which are playing major role in redressing the security challenge of Weapons of mass destruction.

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## List of Abbreviations:

| | |
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| **BIDS** | Biological Integrated Detection System |
| **BTWC** | Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction |
| **CWC** | Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction |
| **EU** | European Union |
| **HS** | Harmonised System |
| **IAEA** | International Atomic Energy Agency |
| **NGO** | Non Government Organisation |
| **OPBW** | Organisation for Prohibition of Biological Weapons |
| **OPCW** | Organisation for the Prohibition of Chemical Weapons |
| **PSI** | Proliferation Security Initiative |
| **UN** | United Nations |
| **UNSC** | United Nations Security Council |
| **UNMOVIC** | United Nations Monitoring, Verification, and Inspection Commission |
| **USA** | United States of America |
| **USD** | United States Dollar |
| **WCO** | World Customs Union |
| **WHO** | World Health Organisation |
| **WMD** | Weapons of Mass Destruction |
| **WMDC** | Weapons of Mass Destruction Commission |

# CHAPTER 1: Introduction

## *1.1 Background*

The end of cold war scoured the bipolar model of international relations. This model stressed on the extremes of national security paradigm. The traditional model of international relations is based on the need for states to survive and it evokes states to increase their power. The end of the cold war and post cold –war period challenged state-centric and power-based concept of international security and created an opportunity to address global problems in the context of globalization. The deterioration of national economic boundaries and overall deregulation and marketization of state economies has a huge impact upon governance and security in the context of network of international rules and standards. The international rules and standards are being codified, upheld and enforced by regional and global institutions through international agreements by building networks of authority and regulation (Newman, 2000).

## *1.2 Statement of Problem*

In today's complex and mutually interdependent globalized world, the principle of national sovereignty is being replaced with global interdependence. The important task is to achieve stability through persistent institutional innovations which accommodate the norms and behaviour of all countries. Changes are vital and they offer new opportunities to move beyond. With the help of innovating changes there is a need to create and implement better security arrangements to deal with the threats of Weapons of Mass Destruction (Thakur, 2000).

The biological and chemical weapons are designed to terrify and cause destruction on a vastly greater scale with long-lasting impact as compared to any conventional weapons. These weapons have the potential to kill thousands of people and cause societal disruption. The possession of such weapons by one state will always provoke others with an ambitious desire of ownership for these weapons. States might seek WMDs as a safeguard against perceived future security threat. Another motivation can be the enhancement of prestige and response to domestic political pressures by state specialized weapons labs. The proper arrangement of compliance, verification and enforcement rules can lead to successful elimination or at least prohibition of these inhumane weapons. Biological and Chemical weapons have been outlawed through specific conventions but there is a need of universal acceptance and implementation. The 11 September 2001 terrorist attacks have demonstrated that the possibility of terrorists using WMDs cannot be denied. The states are able to produce large numbers of biological agents and pathogens along with effective delivery systems considering scientific and industrial advancements (WMDC, 2006).

Biological terrorism is one of the important issues emerged after the terrorist attacks of September 11, 2001 and subsequent Anthrax related threats in the United States of America. United Nations has addressed the problem of proliferation of biological weapons through the relevant conventions. The USA and EU have come up with various policy initiatives to answer the problem of Bioterrorism. The objectives of the policies to prevent bioterrorism are well stated but the problem emerges at the implementation and enforcement stage. In the absence of one single supranational institution to monitor the compliance of BWC Convention, it is difficult to curb and

detect the illicit and illegal activities which can contribute to the future bioterror attacks. It is crucial for individual states to play a major role in prevention but considering the nature and dynamics of the bioterrorism issue the question arises as to whether the current arrangements are effective? Taking into account the existing International framework to curb the menace of biological terrorism and the policy adopted by USA and EU, the paper attempts to scrutinize the role of international institutions in addressing the critical issue. The aim of this paper is to discuss the challenge related to security and governance in a policy-oriented and forward-looking manner to determine and demonstrate how the security and governance can be integrated. Whether the growing multiplicity of actors can be brought together in synergetic partnerships?

## *1.3 Research Objective and Research Questions*

The main objective of this paper is to identify and analyse whether institutional cooperation can address the problem pertaining to WMDs and specifically biological terrorism. With this objective it advances the main research question as

Whether the International Institutions play a role in strengthening cooperation and law enforcement in the case of emerging global security problems pertinent to Weapons of Mass Destructions?

With the specific reference to the objective and the main research question, a few sub-questions emerge:

- What is the nature of threats associated with Weapons of Mass destruction?
- Which institutions and policies are working to prevent the problem of WMDs?

- Are the present arrangements effective at addressing the problem?

## *1.4 Relevance of the research and sub-research questions*

The research questions address contemporary issues related to the overall global governance framework through international institutions, their role in security and WMDs. The research questions also envisage the way in which international institutions and major countries play a role in prevention and non-proliferation activities of WMDs. The paper explains various constraints that stand for institutions seeking to address the problem of WMDs due to unavailability of resources, legal impediments; external pressures which might lead to a relatively low success in preventing the production and proliferation of WMDs. The paper will examine various actors and stakeholders. Finally it reflects on whether cooperation can lead to the effective policy implementation and enforcement.

## *1.5 Literature Review*

The research paper is aptly relevant to the present academic and international policy literature. The process of global governance is multi-faceted which can be explained through various interpretations within a theoretical framework. I have resorted to the pluralist approach as employed by Makinda (Makinda, 2000). The existing literature on Global Governance significantly denies the exclusive power of individual states with insights into the inclusion of new actors. The present study attempts to review various meanings of global governance (Rosenau, 1995, Weiss, 2000, The commission on Global Governance, 1995). It contemplates on how global governance applies to the security through international institutions (Young, 1999, Thakur and Newman, 2000, and

also limits of the process (Jim Whitman, 2005). Considering the importance of international institutions in the contemporary Global Governance literature, this paper stands to contribute on the role of emerging actors and validates how the range of new actors can establish enforcement alternatives in the international security regime. Furthermore, the present study also reviews the existing law and policy measures related to WMDs. The findings of the study are likely to strengthen the need of novel actors in the global governance and the means through which various actors can play a significant role in prevention and proliferation of WMDs. Accordingly, the study is beneficial not only from the academic literature point of view but also to the practitioners in the international policy sector.

## *1.6 Theoretical and Analytical Framework*

The paper concentrates on the contemporary security threats in the era of globalisation and the role of International institutions and organisations. Global governance literature with its emphasis on multilateralism is considered as the analytical framework. For this purpose, the paper has adopted a framework that examines the international law and policy regime against the prevention of arms proliferation and WMDs threats. Considering the wide expanse of literature on Global governance and the issues involved, it is also necessary to reflect on compliance in international law along with the relevance of International institutions and their role in strengthening law enforcement measures to achieve compliance. The research hinges on global level of analysis considering the nature of WMDs problem. First the role of international Organisations at the global level i.e. United Nations, Interpol, and World Customs Organisation (WCO) is explained. The study proceeds with regional and national level

actors i.e. EU and USA. To support the phenomenon of new actors and their role, local level analysis is also employed focussing on the initiative of Hamburg Research Group, Germany. As the role of already established international Organisations like UN cannot be compared with the small emerging organisations like Hamburg Research Group, the emphasis is given on global level analysis with its inter-connected logics.

Scientists take into consideration complexity of problems and subtlety to evade simplistic solutions. The academic writers give more emphasis on explanations and jargons whereas policymakers always ask for immediate remedies taking into account factual, time and insufficient information constraints (Thakur, 2000). This study attempts to integrate theoretical and policy perspectives to reflect on the issue of WMDs and evaluates the effective way of counter-proliferation.

## *1.7 Methodology and limitations*

The research is comprised of different stages. At first stage, to assess the need of institutional cooperation a comparative case study approach is preferred. Later on, the current international law and policy regime is evaluated to suggest options that could strengthen the implementation and enforcement against proliferation and prevention of WMDs.

### *1.7.1 Selection of the comparative case study*

The nuclear, chemical and biological weapons comprise the group of WMDs. The paper has selected Chemical Weapons Convention as a comparative case against Biological Weapons Convention since chemical weapons construe one of the types of WMDs and have extensive similarities in terms of its production, deployment and

delivery. Additionally, the characteristics of chemical weapons and the international regime along with the measures adopted so far, depict many similarities w.r.t. biological weapons which corroborate the effort of comparison. Nuclear weapons are deliberately not taken into account considering the structural limitations of the paper but the study contemplates on the overall security issues pertaining to WMDs.

In the cases of bio-chemical weapons, the true relevant information is rarely revealed. The newspapers and media along with the literature in an attempt to increase awareness against non proliferation of WMDs may exaggerate the relevant risks. The methodology adopted is the analysis of secondary literature and materials. The analysis is based on the international policy documents and related conventions. The analysis also incorporates the opinions expressed by officials relevant to the case studies. The paper reviews international journals, books and policy papers that are easily available at the national and international level.

# CHAPTER 2- Theoretical Explication And Interpretation Of Global Governance Through Institutional Cooperation

Global Governance is a multi-faceted process which can be explained through various interpretations within a theoretical framework (Makinda, 2000). There is no single model on which global governance can be rested. In fact it is a continuing and dynamic process where decisions are taken through interactions and by responding to changing circumstances. The need to incorporate skills and resources of diversity of people and institutions is of utmost importance as the challenges are seemingly different in the era of globalization where advanced technologies, and easy access to information have created abundant opportunities which can be used in both positive and negative ways. The creation of governance mechanism is a complicated process which involves reforming and strengthening the existing system of institutions and means of collaboration with private and independent groups (Wilkinson, 2005).

## *2.1 Defining Global Governance*

In the world of governance, today there are many actors and their patterns of interaction are complex. International peace-keeper, financier and NGOs are also taking active part in the international diplomacy. International Organizations influence our lives in multitudinous ways and now conceived as a fundamental necessity of managing world affairs satisfactorily (Thakur, 2000). The concept of governance describes the modalities, values and institutions which help in organizing human life at all levels i.e. within and between societies. It is a tool to optimize goods of peace, prosperity and health by strengthening the capacity to respond various challenges. Governance at all levels is

being conditioned and transformed by transnational forces and hence governance within states is of direct relevance to peace and security between states (Newman, 2000). Wilkinson describes governance as the process where diverse interests are accumulated to achieve a common goal and pillars on formal institutions and regimes as well as informal arrangements (Wilkinson, 2005).

Makinda suggest that global governance engages both formal and informal arrangement within the global body politics (Makinda, 2000). The concept emphasises on the role of international governmental organizations (IGOs), Non governmental Organisations (NGOs), and multinational corporations (MNCs). It refers to transnational networks, institution building, regime creation and the management of global change. The role of power cannot be denied in this process and power determines as to whose interests, rules and standard prevail (Makinda, 2000).

## *2.2 Theoretical Perspectives*

Realists resort to the state power as an explanatory tool to describe the process of global governance. Realism explains the role of power and self interest in global governance and puts institutions, ideas, norms and culture as only the secondary instruments. Realists also observe states as functionally similar units. Realists don't give much importance to the globalization process. Liberalism delves into the interactions of states, civil society, Multinational corporations and International governmental Organisations and their role in global governance. Liberalism puts states as different units on the basis of the way they relate to individual human rights. It also argues that transnational forces and NGOs have a legitimate role in world politics. Liberals are market oriented and supportive to the economic interdependence. Constructivism is

concerned with the role of shared ideas and culture. According to constructivists the identities and interests are created by the interactions between various actors through the institutions, norms and rules and the process lead to the identities and state interests (Makinda, 2000).

## *2.3 Conceptual elucidation*

Edward Newman (2000) views the process of global governance as complex interdependence[1]. This has led to the internationalization of political morality and governance where one can aptly see the influence of international law, regimes and political norms encroaching upon national norms and laws (Newman, 2000).

Makinda (2000) adopts an 'interpretive community' terminology to explain the way in which members of different professional backgrounds from different countries who constantly advocate and are committed to provide justifications for institutions and various practices that strengthen the process of global governance. This community consists of scholars, journalists, international civil servants and NGO workers. The interpretive community is interested in arguing for changes in the way sovereignty of states is practiced. The members try to incorporate and accommodate changes that suit the global governance process (Makinda, 2000).

### 2.3.1 Global Governance and International Organisation

International Organization theory is about the states which create them. According to the theories propounded by traditional realists and institutionalists, International

[1] The concept of 'Complex Interdependence' refers to a complicated environment where paradoxical forces operate in a mixed culture of localization and globalization. In this situation various issues and processes have wider influence which raises contradictions wherein societies may revert back to narrow identities to reassert their own culture and religion. This process might lead to a potential conflict. ( Newman, 2000)

Organization is the reflection of state power and state interests which conceives as a forum to resolve collective action problem through interstate bargaining. Early Constructivist however examines the impact of International Organizations in promotion of norms that effectively configure the behavior of state in the international context.

On the contrary, sociological organization theory rests on the preposition that internal bureaucratic culture and political dynamics shapes the operational behavior of International Organization.

Weaver (2007) however suggests that the model of principal-agent can be applied in understanding the interaction between member states and International Organization. The difference between Principal's interests and their ability to collectively engage in the objectives proposed by the organization within the premise of available mechanisms determines the performance of International Organization. (Weaver, 2007).

While explaining the case of World Bank (WB), Susan Park talks about promotion and diffusion of norms of International Organizations by redefining their operations. International Organizations diffuse norms among states through the processes of agenda formation, discourse, rule enforcement and mediation. The practice of cooperation and coordination facilitates in spreading these norms (Park, 2007). Frohlich explains the World Organization as an influential instrument to establish new ways of executive action (Frohlich, 2007).

### 2.3.2 Global Governance and Security

Security is the public good which helps in flourishing all other individual and societal values and goods. With the change in basic human needs, the conceptualization

of security has also changed along with approaches to achieve and maintain it (Newman, 2000).

Brian Job (2000) explains the security arrangement in two ways. Cooperative security is an arrangement which is a mutually determined phenomenon. In this type of security arrangement no single actor can achieve security through unilateral means. Communication, transparency and dialogue are the most important ingredients to enhance this type of security. In cooperative security there must be the presence of the notion of mutual security, accepted norms about the value and process of dialogue, and Inclusion of potential adversaries. Collective Security arrangement is a commitment by members to respond collectively and automatically to assist a threatened or attacked member. In this arrangement the states in the group perceive the possibility of threat, but not from the immediately identifiable source. Thus the member states formulate a strategy through consultation and engagement which gives birth to regional collective security arrangements (Job, 2000).

Security network is a web of interconnected agents empowered to provide security in the interest of community as a whole. These networks are a construct of institutions which can be described as the structural networks having close links with hierarchies and markets which determine their effectiveness and the efficiency. Gerspacher and Dupont (2007) have identified four groups of actors as International actors, national policymaking actors, sub national police actors and private security companies. Due to the conflict between stated and specific interests of the actors working towards the international police cooperation, the cooperation and compliance gap exists. Moreover, tendency of states to maintain sovereignty in the matters of law and order creates

difficulties for international organizations to achieve their objectives (Gerspacher and Dupont, 2007).

Mahbub ul-Haq (1999) incorporates new concept of Security with emphasis on security of people through development and not through arms. He recognizes the severity of human security concerns and evokes that without some global understanding and agreements it is impossible for an individual nation to protect the security of its people. The concept of new security according to him should not be reflected in the weapons of any country. He advocates moving away from arms security to human security and use of peace dividend so that social issues can be placed on the agenda. To employ the Human security concept effectively, he emphasizes the need of global institutions to set new rules; thus to strengthen and reform global institutional cooperation in the era of increasing global interdependence (Mahbub-ul-Haq, 1999).

### 2.3.3 Global Governance and International Relations

The international regimes are seen as mechanisms to solve global governance problems. Two major perspectives can be employed in understanding international regimes. In case of Contractarian perspective, the actors are motivated to create institutional arrangements since they are agreed over the fact that it is impossible to deal with few problems individually and hence regimes are indispensable devices for these self-interested actors to solve or at least mitigate the collective-action problems. Constitutive perspective emphasises on the role of institutions in defining the interests of participants to come up with co-operative arrangements. Regimes are defined as

> "set of rules, decision making procedures, and/or programs that give rise to social practices, assign roles to the participants in these practices, and govern their interactions" (Young,1999:5).

Regimes hinges on formation of rules or behavioural prescriptions, through provision of mechanisms to reach at collective choices that leads to joint or collaborative projects prescribing new ways or solutions to the problems. Regimes can be differentiated on the basis of strength and size[2]. The regimes can be operated with or without any standing administrative apparatus i.e. which depends on how much organizational capacity do they need.

Oran Young (1999) states two pure types of regimes. "International regimes" with its basis in new institutionalism focuses on the institutional arrangements where states act as members and its operations are related to the issues with respect to international society[3]. "Transnational regimes" are institutional arrangements where non-state actors are the members and its operations are related to the issues with respect to global civil society.

But Young (1999) further states that real world regimes are normally characterized as a mix of international and transnational regimes where state and non-state actors have important roles to play. And this combined collaborative effort of international and transnational regimes leads to the effective global governance[4].Regime is formed through

[2] Example of regimes is: The Antarctic Treaty System, 1959 is the complex of arrangements made for the purpose of regulating relations among states in the Antarctic. There is no any standing apparatus to regulate Antarctic Treaty System ( http://www.scar.org/treaty/)

[3] Arms Control Regime for the control of Nuclear Proliferation i.e. International Atomic Energy Agency (http://www.iaea.org/About/index.html)

[4] Considering the structural limitations of the paper, I don't want to discuss with various problem structure approaches in detail. Two approaches i.e. Tubingen approach and The OSLO/Seattle approach are prominent in the literature that talks about indexing and ranking the problems with different methods.

institutional bargaining and needs consensus on the nature of problem and the ways to solve it. It also depends on the willingness of the actors. There is also a need to achieve balance between integrative and distributive bargaining where the mutual gains can be accomplished. Here, powerful actors can make conjunctive effort to overcome any obstacle. The successful operation of regime depends on the implementation process which is complex and critical.

The successful operation thus depends on the conditions which may influence the behaviour of regime members while responding to the regulatory measures initiated under the terms of the regime. It depends upon where exactly the behavioural change is needed and whether it needs an alteration of specific practice. It also depends on the facts if the changes can be employed without undue costs and delay. The successful implementation of regime provisions within the domestic systems of regime members is also an important task as this process can be posed with many hurdles like inadequacy of material resources, required legal framework, proper policy instruments and political complications. A compliance problem is another basic hurdle as some regimes can tolerate higher level of violations compared to others. When there is a substantial awareness and a sense of ownership regarding the arrangement, it is easier to achieve compliance (Young, 1999).



## *2.4* Limitations of Global Governance*:*

Jim Whitman (2005) discusses emerging limitations of global governance and predicts that the combinations of different technologies like computers, IT, robotics, genomics and nanotechnology has a potential to challenge the basic assumptions of being

human along with ethical and moral responsibilities which are required for the social order and governance. But points out political limitations which is characterised through national interests as difficult to establishing effective global governance. This is visible through global disparities between developed and developing world (Whitman, 2005).

In contrast, Brian Job (2000) profoundly mentions the concept of Concert as an arrangement exclusively for great powers. The mutual interest of these powerful states helps to maintain the status quo and influences other lesser states policies towards their common goal. For instance, in the field of collective security arrangement, an exclusive concert of powers is required to check the proliferation of WMDs. The nesting of institutions is however an essential element in achieving effective prevention, management, and resolution of conflict on regional basis. This research work will apply this concept of concert in the form of US and Powerful EU member states.

# CHAPTER 3- Bio-Chemical Weapons: Security Dynamics and Underlying Threat

During Mid-1990s, the security professionals identified terrorism with biological and chemical weapons as an eminent threat (Kelle, 2007). This Chapter explains in brief, the ontology of Bio-chemical weapons i.e. its design and structure along with the possibility of use and securitization process.

## *3.1 Chemical Weapons*

Krieken (2002) identifies liquid and gaseous chemical weapons into four categories namely:

- Blister agents e.g. mustard gas
- Blood agents e.g. hydrogen cyanide
- Choking agents e.g. phosgene and chlorine
- Nerve agents e.g. siren, tabun, soman
  (Krieken, 2002).

The last category i.e. nerve agents are the most dangerous since they are capable of blocking the enzyme cholinesterase which paralyses the neuromuscular system and leads to the immediate death of victim. Hence it is also of interest to those intending to target mass killing. The technical capability of the negative use of chemical weapons can be divided into two main areas i.e. production and delivery. Despite of ready availability of all the ingredients and equipments that are needed to produce chemical weapons, there are many obstacles in the actual production of chemical weapons. The estimated cost of establishing a functioning nerve agent production plant ranges from USD 20000 TO USD 20 million. Various devices like bombs, sprayers, punctured plastic bags can be used to

disseminate nerve agents. Aerosolization is the most effective way which needs technical skill and which can be easily disturbed by environmental conditions (Krieken, 2002).

## *3.2 Biological Weapons*

Biological weapons have a great potential to cause mass devastation as compared to chemical weapons but it is difficult to produce and deliver these weapons. Biological weapons can be differentiated into four categories:

- Bacteria: Anthrax, Plague
- Viruses: Yellow fever, Ebola, Venezuelan equine encephalitis
- Rickettsiae: Q fever
- Toxins: richin, botulinum toxin

(WMDC, 2006)

Biological weapons would comprise of weapons based on tularaemia, anthrax, epidemic typhus, smallpox, brucellosis, botulinum toxin, dengue fever, Russian spring-summer encephalitis, Lassa fever, Marburg, Ebola, Bolivian hemorrhagic fever also known as Machupo, and Argentinean hemorrhagic fever called Junin. The weapons can be also extended to neurological agents that are based on chemical substances produced naturally in the human body (Alibek and Handleman, 1999). Toxins are poisons which are produced by biological organisms and some of them (For e.g. botulinum toxin) have lethal impacts even if they are used in small quantity. The pathogens are used to attack cells and organs in human bodies. They can also be used to target crops and livestock on a massive scale. Some of the pathogens are contagious and can rapidly spread in a population while few infect and kill only those who are directly exposed (WMDC, 2006).

The most important hurdle is acquisition of seed cultures. Until now it was possible to legally order the seed cultures from international collections but with the strict

enforcement of export controls (which is one of the effective methods as described in the paper) it is not the same. The estimated cost of constructing a small biological weapons production facility ranges from USD 200,000 to USD 2 million. There are many technical variations in production. It is easier to produce wet agents but their effect is far less as compared to dry agents. Pure form of an agent is less stable. Moreover the biological agents are highly sensitive to environmental conditions. A small variation in sunlight, temperature and humidity can make it extremely problematic to deliver the biological agents in large quantities (Krieken, 2000). The biological agents also exist in nature and in early stages of outbreak it is difficult to investigate whether a disease has been naturally occurred or induced deliberately (WMDC, 2006).

Anthrax spores are tough enough to withstand bomb detonation. Moreover; anthrax spores are small enough to be used as aerosols. Hence these spores are preferred as perfect agents by the countries aiming to develop and produce biological weapons. The biological weapons have been experimented but never deployed due to the restraints put by international norms. The anthrax can cause devastating effects not only in terms of animal deaths but also humans. It spreads to humans by human contact with infected animals. In humans its infection can begin in three ways i.e. through skin which is the most common and obvious form that results in the formation of an ulcer which leads to 'anthracis'. Gastrointestinal anthrax is acquired by eating tainted meat whereas inhalation anthrax which is the most dangerous form is acquired by just breathing in the deadly spores (Guillemin, 2001).

In case of biological attack, any number of symptoms can be present and casualties can occur in minutes, hours, days and even weeks after an incident. This time frame to be

required before symptoms is dependent upon the actual agent used for carrying out an attack. It is hard to realize until too late that such an attack is carried out. Scientists have created antibiotic resistant strains of anthrax, plague, tularaemia and glanders. The research has also proved that viruses and toxins can be altered genetically to increase infectiousness levels which lead to the development of pathogens that are capable of overcoming the effect of vaccines. Gas- masks were devised as the most preventive countermeasure against vapours or aerosols. But considering the efficiency of gas masks, the chemicals that could attack on or through skin were developed like mustard gas. Agents can be delivered by mass artillery or aerial bombardment. (Alibek and (Handleman, 1999).

## *3.3 Security Dynamics*

Kelle (2007), identifies three elements of a securitization process

- Securitizing actor,
- An object to be securitized, and
- An audience that acknowledges or rejects the securitizing initiative.

Speech acts and modalities[5] are the two important operations in the process of securitization. In case of Speech acts, a securitizing actor identifies an existential threat which needs extraordinary means to defend and those means are accepted by the audience (Kelle, 2007).

With the increased knowledge of microbiology, the idea of weaponsing microbial pathogens came up. The technological improvements in the biological and chemical

[5] Kelle also used another term to describe speech acts and modalities which he calls as uttering security and threat defence consequences (Kelle, 2007)

warfare are driven by the competition between weapons and protection against it. Advanced knowledge in life sciences has made possible the accessibility to biological and chemical weapons. Due to the dual use aspect in new science especially biotechnology, genetic engineering and recombinant technology; this threat is much larger (Alibek and Handleman, 1999).

### *3.4. Possibilities of use*

It is very important to assess the possibility of such attacks and whether any group can use these weapons. The possibility of WMDs use cannot be denied if one considers 'increasing lethality' aspect where the groups intending to cause mass destructions become familiar with the deadly capacities of these weapons and thus choose WMD's instead of traditional trends and means of terrorism which is aptly called as catastrophic, super terrorism or post-modern terrorism( Krieken,2002).

The world's first experience of WMDs can be stated to happen near Ypres in Belgium on 22 April 1915. Germany, one of the belligerent states was equipped with an industrial capacity for the large-scale liquefaction of chlorine gas. Subsequently, considering shortage of explosives and other military necessities, the German legal doctrine of Kriegsraison[6] prevailed and 180 tonnes of liquid chlorine contained in 5730 pressure cylinders were released into the breeze which carried a cloud of asphyxiating vapour towards enemy. According to the evidence around one third of 15000 French, Algerian and Canadian soldiers were dead (Alibek and Handleman, 1999).

[6] Kriegsraison is a 19th century German legal doctrine which asserts that war could justify any measures including the violation of Law of Armed Conflict (Major Brent Beardsley, 1999 http://www.army.forces.gc.ca/caj/documents/vol_02/iss_2/CAJ_vol2.2_09_e.pdf )

The potential of Anthrax as a biological weapon called for international attention after World War II. During and after World War II, British, American and Canadian laboratories have made a lot of progress in developing and producing biological weapons but later during the Nixon era, it was limited to defensive purposes only i.e. for techniques of immunization, safety measures and control and prevention of the spread of disease. The use of biological weapons was found when Japanese Imperial Army deployed these weapons against Chinese troops and civilians in Manchuria in the late 1930s and early 1940s. Prior to this attack Japanese army undertook covert experiments including vivisection on humans although, information regarding this use was revealed much later (Guillemin, 2001).

The example of Aum Shirikyo cult in Japan gives potential picture of how terrorists can use chemical weapons. Two effective nerve agent attacks were carried out by Aum. 27 June 1994: Sarin attack in Matsumoto, Japan led to seven deaths and 144 persons being injured. A large fan and a heating element were used to carry out this attack.

20 March 1995: Sarin attack on the Tokyo subway, led to twelve deaths and thousands injured. During this attack a punctured plastic bag was used as disseminating equipment.

If we look at the logistics of Aum we can see that he had around 40000 members worldwide and his assets were ranging from USD 10 millions to USD 1.4 billion. Moreover his membership people were mostly young scientists and technicians. This network was established to obtain chemicals and equipment. Despite of this logistical arrangement, infrastructure, skills and ostensible vision to achieve mass casualties, the

result was not on the scale generally predicted by WMD terrorism forecasts. But this result was due to poor and crude delivery methods (Krieken, 2000).

Considering all the above structural elements of Bio-chemical weapons production, deployment and delivery along with the earlier incidences where such deployment is made possible, the further attacks cannot be denied.

# CHAPTER 4 – International Law, International Institutional Measures and Strategies Adopted by EU and US

> 'I believe that the biggest problems to our security in the twenty-first century and to this whole modern form of governance will probably come not from rogue states or people with competing views of the world in governments but from the enemies of the nation-state, from terrorists and drug runners, and organized criminals who, I predict, will increasingly work together and increasingly use the same things that are fuelling our prosperity: open borders, the internet, the miniaturization of sophisticated technology, which will manifest itself in smaller and more dangerous weapons. And we have to find a way to cooperate, to deal with enemies of the nation-states, if we expect progressive governments to succeed.' (President Bill Clinton, 21 November 1999 as quoted in Paul Stares, 2000)

The logistical and financial support is the most essential requirement to carry out any attack. The counterterrorism mandate must concentrate on these two aspects of logistics and finance. The assessment of threats and understanding the structure of operation is a prerequisite of biodefence preparation (Gardner, 2007). The Chapter reviews the basic International law treaties, United Nations measures and strategies cum policies adopted by EU and USA.

## *4.1 International Law: The Current Praxis*

International legal order plays an important role and needs to be constantly updated and elaborated upon as a practical tool to act against terrorism. Law and Justice provide the legal basis for various military, economic and diplomatic activities and reactions. On the legal front one of the effects of 11 September 2001 is the reaffirmation of the relevance of international law and cooperation (Krieken, 2002).

Vienna Convention on the Law of Treaties, 1969 creates an obligation on state parties to respect and follow the treaty obligations. This measure is prescribed aiming to achieve reductions in a collectively dysfunctional behaviour[7].

## *4.2 Security Measures by International Institutions*

### 4.2.1 United Nations

The United Nation Security Council (UNSC) has established various countermeasures through fairly effective and clearly worded resolutions along with the establishment of Counter Terrorism Committee.

- UN Security Council Resolution 1373, 2001[8]**:**

The Resolution 1373 highlights a close connection between terrorism and the illegal movement of nuclear, chemical, biological and other potentially deadly materials. The Resolution expressed the need to enhance the coordination of efforts on national, sub regional, regional and international levels to strengthen a global response to the serious threat to international security. With this resolution, the Security Council urged states to prevent and suppress terrorist acts through increased cooperation and the full implementation of the relevant international conventions relating terrorism. For early warning, prevention and exchange of information, states are obliged to find ways to intensify and accelerate the exchange of operational information related to actions or



[7] Vienna Convention On The Law Of Treaties Signed At Vienna, 23 May , 1969 and entered into force on 27 January, 1980 http://fletcher.tufts.edu/multi/texts/BH538.txt

[8] UNSC Resolution 1373 (2001) adopted at 4385th meeting on 28 September 2001 http://daccessdds.un.org/doc/UNDOC/GEN/N01/557/43/PDF/N0155743.pdf?OpenElement

movements of terrorist persons or networks, forged or falsified travel documents, traffic in arms, explosives or sensitive materials, use of communications technologies by terrorist groups and the threat posed by the possession of weapons of mass destruction by terrorist groups. The need for cooperation is laid down in Security Council Resolution 1373 of 2001, by which Security Council reiterates earlier Resolution 1269(1999)[9], and urge states to extend cooperation on administrative and judicial matters through exchange of information, bilateral and multilateral arrangements and agreements to prevent the commission of terrorist acts (Krieken, 2002).

UN Security Council Resolution 1540: This is the most important resolution to prevent proliferation of mass destruction weapons[10]. The resolution urges states 'to renew and fulfil their commitment to multilateral cooperation' and establishes a mandatory requirement for all states to refrain from providing any form of support to non-state actors in obtaining WMD. It advocates the adoption of domestic legislation to implement this obligation. The resolution also requires states to establish national controls to prevent the proliferation of WMD and their means of delivery. This resolution helps in strengthening the basics of cooperation (WMDC, 2006).

Referring to the cooperation issue, Treaty on Cooperation among States Members of the Commonwealth of Independent States in Combating Terrorism mentions technological terrorism[11].



[9] UN Security Council Resolution 1269 is related to 'Combating Terrorism' adopted at 4053rd meeting http://www.mythsandfacts.org/Conflict/18a/1269.htm

[10] UNSC Resolution 1540 (2004) with a major focus on WMDs and non-state actors http://www.un.org/News/Press/docs/2004/sc8076.doc.htm

[11] Technological Terrorism is defined as the use or threat of the use of WMDs which can pose technological and environmental danger or undermine public safety. The term is adopted from the Treaty

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (CWC):

The CWC entered into force in 1997 which bans the development, production, stockpiling, transfer and use of chemical weapons. CWC is the disarmament agreement to require the elimination to an entire category of weapons of mass destruction under universally applied international control. CWC has 188[12] state parties who are required to declare any chemical weapons-related activities, to secure and destroy any stockpiles of chemical weapons within stipulated deadlines, as well as to inactivate and eliminate any chemical-weapons production capacity within their jurisdiction. The operative functions of CWC are carried out by the OPCW (Organisation for the Prohibition of Chemical Weapons). With The help of OPCW the process of verified destruction of chemical weapons is carried out thus to reduce the threats from remaining stockpiles. The concern of dual-use nature of commodities and technology which can be used in manufacturing chemical weapons is one of the major concerns (WMDC, 2006). On the ground that Israel possesses nuclear weapons; most of the Arab states have earlier declined to become parties of the CWC. Although there are some problems regarding implementation of CWC in case of Russia and US (steps by United States to unilaterally modify its legal obligations under the convention are few of the concerns) there is no any deliberate violation of CWC. The next challenge is to bring in the states that are not under the purview of CWC. An incentive cited in this connection is to put trade restrictions in



on Cooperation among State Members of the Commonwealth of Independent States in Combating Terrorism on 4 June 1999, at Minsk. http://www.inm-lex.ro/fisiere/pag_34/det_352/1029.doc

[12] Number of state parties as on 27 May 2009 http://www.opcw.org/about-opcw/member-states/status-of-participation-in-the-cwc/

certain chemicals with non-CWC parties. The OPCW is globally networked and its operations have been enhanced (Findlay, 2000).

Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BTWC):

The BTWC is the multilateral disarmament treaty which bans the acquisition and retention of an entire category of weapons of mass destruction. The treaty was entered into force in 1975 with its basis in the 1925 Geneva Protocol[13]. The BTWC has 155 state parties[14] and no agreement has been reached so far on a verification regime to monitor compliance with the convention. In the present scenario, no state acknowledges the possession of biological weapons. However in BTWC, a right to retain biological agents and toxins for prophylactic, protective or other peaceful purposes is affirmed. As there is no any verification system in place, it is difficult to determine if a country does have an offensive military purpose under the garb of its defensive programmes. Moreover it is very difficult to detect the facilities that undertake research on producing biological agents. According to the studies, biowarfare agents and the ways to weaponize biochemical compounds can be developed through genetic engineering. (WMDC, 2006)

In case of Biological Weapons, the need for verification regime was demonstrated by the case of Iraq and former Soviet Union. The pressures from lucrative biotechnological industry are leading to a less authoritative verification regime as



[13] The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare entered into force in 1928. This protocol bans the use but allows production, stockpiling and deployment of such weapons http://www.icrc.org/ihl.nsf/52d68d14de6160e0c12563da005fdb1b/626de49e3227d36dc125641e003a172a

[14] Number of Signatories to the BTWC are 171 state parties http://www.opbw.org/

compared to CWC. A new multilateral verification agency which was proposed earlier i.e. OPBW is not yet established (Findlay, 2000).

### 4.2.2 Interpol

Interpol is the International Police Organization in operation since 1923. It has 187 member countries. Interpol has launched a Bio criminalization Project in September 2006. This project aims to create a country-specific database of laws preventing and prohibiting the misuse of biological agents and toxins. Moreover Interpol also runs a Bioterrorism Prevention Resource Centre (Interpol, 2009).

### 4.2.3 World Customs Organization

World Customs Organization is the intergovernmental Organization that deals with the Custom matters. The relevant function of WCO to be discussed here is the maintenance of International Harmonized System (HS) of goods nomenclature. It also administers the customs valuation and rules of orgin. HS is a multipurpose international product nomenclature developed by WCO and governed by "The International Convention on the Harmonised Commodity Description and Coding System" which harmonizes customs and trade procedures. 136 Countries including EU and USA are the contracting parties to HS (WCO, 2009). This HS of goods helps in identifying specific goods and can be very well utilized in tracking the illegal transportation of harmful substances or equipments.

## *4.3 Policies and Strategies of EU and USA*

### 4.3.1 European Union

European Union describes the Union as an area of freedom, security and justice. After September 11 attacks, the public opinion has admitted the interdependency of freedom security and justice thus allowing executive and legislature to exchange elements of freedom to provide increased levels of security. The process of free movement of goods and services led to analyze border control as an issue of the utmost relevance. European Council in its 27 December 2001 Common Position[15] directs member states to use cooperation against terrorism. (Krieken, 2002). European policy addressing the problem of the proliferation of weapons of mass destruction emphasised the need for a cooperative approach to collective security with the role of international verification and multilateralism. The punitive measures stated under Chapter VII of the UN Charter are also suggested as a last resort. European Union adopted a strategy against the Proliferation of Weapons of Mass Destruction, 2003. The strategy put fourths that countries should be convinced about redundancy of WMD and efficient export controls through effective multilateralism is the best measure (WMDC, 2006).

### 4.3.2 United States of America

America has come up with a plan to stockpile and develop vaccines against known agents but vaccination cannot be carried out on the large scale. Moreover repeated

[15] European Council Common Position on the application of specific measures to combat Terrorism http://www.nasledie.ru/terror/25_1/1_1/article.php?art=10

vaccination leads to trigger or aggravate various side effects and allergies. Although vaccination may provide protection against specific diseases, but the same characteristics which make it as an effective tool also forms the source of their limitations. The use of vaccines is effective when one knows about the agent that is likely to be used but one can't predict as to which agent will be used for carrying out any attack. Even the system is very expensive (Alibek and Handleman, 1999).

Scientists have created antibiotic resistant strains of anthrax, plague, tularaemia and glanders. The research has also proved that viruses and toxins can be altered genetically to increase infectiousness levels which lead to the development of pathogens that are capable of overcoming the effect of vaccines. Biological weapons would comprise of weapons based on tularaemia, anthrax, epidemic typhus, smallpox, brucellosis, botulinum toxin, dengue fever, Russian spring-summer encephalitis, Lassa fever, Marburg, Ebola, Bolivian hemorrhagic fever also known as Machupo, and Argentinean hemorrhagic fever called Junin. The weapons can be also extended to neurological agents that are based on chemical substances produced naturally in the human body.

It is hard to come up with an effective system of biological defence than to make a biological weapon. As per the current research in the field, around seventy different types of bacteria, viruses, rickettsiae, and fungi can be used to prepare biological weapons. The Executive Order 12938 issued by President Clinton asserts the potential use of nuclear, biological, and chemical weapons by terrorist groups or rogue states as the unusual and extraordinary threat to the national security. Penalties for Trafficking in equipment which

could indirectly contribute to a foreign germ warfare program are also included in this order in 1998.

There are various techniques by which the attack can be detected. The exposure of vials or Petri dishes which contain laboratory grown cultures to air samples from a suspected target area. A field monitoring device can be used between thirteen and twenty four hours to make a positive identification. The biological Integrated Detection System (BIDS) cut the time to thirty minutes but it cannot determine all of the agents. Countries should open their biological facilities for international inspections. There should be methods of blocking the transfer of sensitive technology.

Biotechnology is one of the major commercial industries with multi-million- dollar business. Commercial biotechnology companies are against the open-ended inspections of laboratories and production facilities. But on the contrary such inspections are really important since most of the medical, industrial, and agricultural research is done with the help of same pathogens that are used in the development of weapons. But on these lines a proposal on 'managed access' is already in work which will allow the countries to negotiate with the commercial labs in terms of the manner in which to conduct inspection visits. As per the 'managed access' negotiations, the commercial laboratories will be notified in advance so that they can partially reconfigure computers and production equipments thus to save from being prone to industrial espionage (Alibek and Handleman, 1999).

The 2003 Proliferation Security Initiative (PSI): This approach was launched by the United States which operates through coalition of states. The states have agreed to use their national resources and force to seize international shipments of goods which are believed to be used illegally in WMD programmes (WMDC, 2006).

## *4.4* Export Control as a Measure

Export Controls help in generating information to determine relevant purchases. This assists states in assessing risks associated with specific exports. Through this mechanism governments can prevent the export of items that facilitate WMD or their delivery systems. Export licences are processed before the shipment of goods, there is a need to initiate other controls which can be implemented after exports. Various groups have initiated joint efforts to develop uniform export control standards especially for dual-use goods –items. These items can be used for either military or civilian purposes. These multilateral arrangements are supported by major states with capabilities to export WMD-related commodities. These groups are: Australia Group: 39 states and European Commission, The Missile Technology Regime: 34 States, Zangger Committee: 35 States, Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies: 40 States (WMDC, 2006).

Hamburg Research Group, Germany: Research Group for Biological Arms Control at the University of Hamburg is working on the project with a fundamental concept of a 'global trade monitoring for certain biotechnology items'. Through this project, the accumulations or combinations of biotechnology items can be detected easily. This can

be achieved by certain amendments in the existing Harmonized System of nomenclature. The International Organizations and non-state organizations use the data generated through Harmonized System to monitor trade with dangerous and illegal goods. National export controls is the most important instrument to check the flow of biological weapons. The export controls are exclusive controls for limited number of states which requires licences or notifications.

In the biotechnological area, it is hard to tackle the difference between a dual use item and the items to be controlled. To increase the transparency of the biotechnology market is one of the options which can be achieved through tracking biotechnology items and thus to prohibit transfer of suspicious commodities. To facilitate this process, Hamburg Research Group has already started its work on amendment of approximately 40 items or biotechnology equipments for their better identification in the Harmonized System. This trade data can be made available to public and market analysts. Trade monitoring can be effectively done through regular analysis as the data provides information related to time, volume and value of exports and imports. If the item can be individually identified in the Harmonised System, the resulting trade data allows the visualisation of very specific trade flows. The work of research group will facilitate to identify the individual biotechnology equipment through HS system which will eventually lead to increase in the monitoring capacities. Hamburg group is dividing biological dual use items into more specific smaller groups of items to facilitate easier identification.

In the current HS nomenclature system of WCO, biological dual use-items are not properly described. As the large numbers of various items are covered under one code number, the identification is not specific. This leads to various difficulties for exporters, importers and custom officials. Moreover it also hampers the process of implementation of UNSC Resolution 1540.

The research group is consulting three existing lists of biological dual use items (UNMOVIC export-import monitoring system, Australia Group, List of equipment developed for use with the verification protocol to the BWC convention) to come up with a specific data set which will be an online database for UN Comtrade (UN Statistics division database for trade) or Eurostats (European statistics division). This project will allow a coordinated view on global trade flows of dual-use items in Biotechnology; it will also significantly provide indications of countries' capabilities in the bio-related field and facilitate the trade-monitoring[16].



[16] The information is compiled from the documents related to the 'Biological Arms Control related Project' available at: http://www.biological-arms-control.org/Projects.htm and http://www.biological-arms-control.org/download/Bxl%20workshop/WorkshopBrussels-Report.pdf (Research Group for Biological Arms Control at the University of Hamburg, Germany).

# CHAPTER 5 – Analyzing Bioterrorism and Biodefence: Renewed Co-operation to streamline enforcement

This chapter analyzes the threat of bio-chemical weapons and potential security challenges in light of theoretical perspectives of global governance as discussed in Chapter two.

## *5.1 Modern Global Governance*

Arms proliferation, climate change, disease control are various situations which needs to be tackled with the help of effective Global Governance mechanism. The existing mechanisms are the formal and informal institutions which are often criticized on the basis of insufficient dynamism, inadequate representation and support by the member states (Global Governance, 2007).

Referring to the discussion in chapter 2, we can see that in the emerging global governance framework, we can not differentiate between governance within the states and between the states. Partnerships between various actors i.e. intergovernmental organizations, states, non Governmental Organizations and commercial entities is considered as an indispensable approach to problem-solving. The need is to translate progressive theoretical frameworks into punctilious policies. The cooperation between various institutions will help bridging the gaps between new ways of thinking thus to create political will and consensus to address global problems by collective action (Newman, 2000).

Various concepts like “soft power”, “new diplomacy” and “complex multilateralism” are in use to describe the role of civil society or transnational actors in

the international policy. The modes of international development have changed. The 'post Washington consensus' emphasises on the strong social and institutional infrastructure as crucial pre-condition for growth and development. More pluralistic forms of governance are in operation where international institutions need stronger public and political constituencies to strengthen their legitimacy. Due to the advancement of economic globalization, the monopoly of states is challenged by the influence of private actors (Edwards, 2000).

UN Security Council through its decisions and resolutions has worn away the rudimentary conceptions of state sovereignty and thus modified the relationship between state and citizen. The Security Council has skilfully played its role so far and no alternative international institution is brought up to take over its function. Stronger and responsive leadership of USA will help in strengthening a multilateral structure to promote collective security (Malone, 2000).

There is need to articulate regional and UN mechanisms. The contemporary state-centric order, its regional and international institutions are not sufficient for answering the security dilemma. States generally opt for protecting their own sovereignty and expect non-interference on the part of civilian populations. The solution to this challenge points out in altering the character of global and regional security institutions where state should not be regarded as the sole responsible actor. Incorporating other actors like non-governmental organisations directly into the security architectures will pave the ways (Brian Jon, 2000). The need is to incorporate liberal ideology to facilitate the collective management of global public goods. UN is the best international forum for international cooperation and management (Makinda, 2000).

Modern society has adopted the principle of trias politica i.e. the executive organ has a monopoly of power, arms and enforcement and the judiciary takes decisions regarding culpability and penalty on the basis of laws adopted by the legislature. Here the important contextual change is the shift of crime and justice from offender-victim level to the level of offender-society. This shift is very important considering the wide scale impact of violent acts on the modern society (Krieken, 2002).

## *5.2 'Transnational Control Mechanisms'[17] to control WMDs*

The characteristic of Today's terrorism threat is its global outreach which indicates that the counterterrorism strategy should be directed towards compliance and the capacity of the states which is possible through an integrated approach. States play a fundamental role in the process of compliance. Although the compliance depends on the ability of states to invest in resources i.e. effective institutions, the rational actors prefer to comply with a counterterrorism regime (Gradner, 2007). The weapons of mass destruction programmes are secretive and it is difficult to assess the truth. Majority of states are members of various treaties and are thus committed not to acquire any weapons of mass destruction. Although the compliance for the majority of these states will be axiomatic, their compliance is subject to verification by sophisticated multilateral verification systems. The successful implementation of arms control strategies has showed reduction in the proliferation of weapons of mass destruction especially through institutes like IAEA and OPCW (Findlay, 2000). But in the case of BWC, such an institution is not

[17] Rosenau (2005) explains global governance through various terms like ' Transnational Control Mechanisms', 'State sponsored mechanisms', 'jointly sponsored mechanisms', 'sub-national institutionalized mechanisms' (Rosenau, 2005)

available which creates a need of alternative mechanism to deal with the problem of biological weapons or bioterrorism.

The United States, as a dominant world power has the greatest responsibility to be creative in playing leadership role. There is a need for effective and efficient verification regimes to ensure compliance with total bans on WMDs. The efforts to control future arms are continued through new multilateral disarmament verification organisations. The innovative verification techniques and technologies can make contributions to verifications regimes. United Nations has played a pivotal role in acting as an information resource for the global community on disarmament problems but still UNs' role on many occasions is hampered due to lack of resources and creativity. The UN Institute for Disarmament Research can't conduct sustainable and long term research due to inadequate funding. State centred ideology still dominates in the field of non-proliferation and disarmament due to the involvement of high politics considering state security as a key issue of concern and hence non-governmental organisations, academics, research institutes are always kept away in negotiating on such issues. But these new partnerships are an indispensable way to address global security concerns. The International Campaign to Ban Landmines (ICBL) is the best example as to how negotiations and implementation can be done through an NGO consortium[18] (Findlay, 2000).

One of the problems of treaty-based armed control and disarmament points out to the US policy which is also called as 'selective multilateralism' which is a combination of efforts directing towards the effectiveness of international institutions and instruments,

[18] International Campaign to Ban Landmines was involved in negotiation of the Landmine Convention and was instrumental in advocating the treaty negotiations and to monitor its implementation through an NGO consortium i.e. Landmine Monitor http://www.icbl.org/index.php, http://www.lm.icbl.org/index.php

coupled with a drive for freedom of action to maintain an absolute global superiority in weaponry and means of their delivery. The US policy of 'counter-proliferation' resorting to the unilateral use of force to deal with perceived WMD threats is another impediment. (WMDC, 2006)

The logic of international cooperation and collective action is the apparent solution since individual states cannot tackle these new emerging challenges alone but they can only reduce the vulnerability with independent measures. There is a growing interdependence of security where broad cooperation covering regional boundaries is a necessity. The measures need to be employed to deny access of weapons and other resources to transnational non-state actors through international cooperation (Stares, 2000).

The Law enforcement efforts involve not only immobilization of criminals but also identification, seizure, and forfeiture of the criminal's assets. The intricacies of Law enforcement involve two jurisdictions: Within a country and between countries. Thus law enforcement has to deal with domestic and international challenges which evoke the need for sovereign states to interact and cooperate. The problem of international law enforcement is sovereign states and their exclusive power within their own territory which makes it difficult for another state to apply and enforce laws beyond a state border. Considering the problem of state sovereignty, the law enforcement requires bilateral and cooperative agreements to facilitate extraterritorial operations. In the wake of transnational criminal activities, the inadequacy of unilateral and multilateral law enforcement measures has prompted multilateral and even global arrangements. There are numerous advantages and incentives of multilateral cooperation in coordinating law

enforcement interplay between politically hostile governments, governments with less common concerns. (Nadelmann, 1993)).

Paul Martin has proposed an idea of L-20[19] to deal with the current issues of globalization through international coordination. This idea does not erase the concept of formal institutions but looks for new initiatives to reconstruct them. Every major power wishes to be technologically upgraded and it is impossible to delegitimize the improvements in biotechnology area (Martin, 2007).

One of the challenges is to foster the international agreements on arms control and disarmament because it creates a restraint. There is an urgent need to develop new forms of arms control measures. The traditional arms control measures were designed to manage arms competition among antagonistic states but today's need is to have arms control measures in the context of internal armed conflicts by sub-state or non-state actors (Skons, 2000).

The private and public non-state actors are playing an important role in setting and implementing the agenda and shoving alongside national governments. In this way, international civil society is found to be composed of new actors, their varied roles and activities. The agreed upon international goals are being achieved with the help of ad hoc 'coalitions of the willing'. The new actors like NGO's, research groups, University specialised centres are the marketplace of ideas which lead to the constructive interaction between ideas, international organizations and international public policy (Thakur, 2000).



[19] L-20 is the name of a group which is a concept initialized by Paul Martin. It is an experimental project to solve the global issues through the meeting of group of global leaders. http://www.l20.org/

## *5.3 Co-operative Model of Export Control as an Antidote*

The globalization of markets and finance makes it impossible to completely prevent the export of illicit goods and services for e.g. Trade in drugs and endangered species which blur the distinction between civilian and military items. Critical technologies like biotechnology have WMD and military applications but at the same time these technologies are required for development of industrial economy (WMDC, 2006). To achieve a balance between its useful applications and to prevent its illegal use, export controls forms an important measure with creation of Regime that support the adherence of all states. In the current situation, this model should be implemented with the help of UN with the application of UNSC resolution 1540, the cooperative efforts of Interpol, WCO as international organisations with the states of EU and USA.

The duty of all states is to prevent their territory from being used as a base for production of biological or chemical weapons. The traditional export controls are being challenged due to the creation of international market place and new ways of technology transfer which necessitates end-use controls of dual-use technologies. Hence there is a need to have an efficient system based on cooperation for export control which addresses all matters relevant to potential ownership and circulation of WMD- related goods without impending legitimate trade and economic development. The advanced options for such system can be generated with the cooperation between government, international organizations and industry. (WMDC, 2006).

To address the key security issues like arms control and limiting WMD's, several global regimes have been put in place. States have also shown greater willingness to ensure compliance and to support this effort international organizations are established to

monitor and manage global cooperative arrangements. The new phase of global governance emphasises on the greater involvement of non-governmental organizations in rule making and implementation process. The role of the private sector is Paul Stares aptly describes the role of UN in addressing security challenges through Leadership, legitimacy, labour and logistics. UN can act as a primary force to mobilize the necessary political will for collective action thus to serve as an early warning system of international community. Almost all the nations are members of the United Nations which imparts legitimacy to the decisions and actions taken by it. The networks and global outreach of UN is an important source to address new security problems. (Stares, 2000).

# CHAPTER 6- Conclusion

The deliberate use of biological or chemical agents is one of the emergencies to which public health authorities have to respond. New weapons technology is generating threats to humanity which calls for improved forms of protection. The threat to public health of disease caused in any country by biological or chemical warfare presents the immediate danger and an additional burden on the public health infrastructure which has to deal with natural health hazards.

But this situation anticipates us to look forward and contemplate on novel ideas of cooperation. Every major power wishes to be technologically upgraded and it is impossible to delegitimize the improvements in the area of biotechnology. The new technology creates crime of multinational nature. Scientific and technological revolution has created a modern global village. Mankind needs new ideas, thinking and institutions to deal with modern global plagues which are arising in the form of various crimes (Swami Tathagatananda, 2009)

Bioindustry needs to cooperate in preventing abuse of biotechnology and US commitment is required towards international approaches and instruments. The international community also needs to check available option if non-compliance with the disarmament agreements is proven. One of the lacunas in multilateral agreements is the absence of penalties which is of utmost importance. The establishment of International Criminal Court with its objectives make it easier to prosecute and punish the violators of any treaty or disarmament agreement obligations. The future need also will also be the

incorporation of international law relating to future arms control treaties into domestic laws (Findlay, 2000).

There is a need of an effective system of better identification, consolidation and supervision of dangerous biomaterials and international cooperation to destroy leftover or unwanted stocks. World Health Organization (WHO) has adopted new International Health Regulations in May 2005. All states should implement these regulations which consist of legally binding provisions for member states on sharing epidemiological information about health emergencies. The scientists have to play a major role to enhance the knowledge for peaceful developments. (WMDC, 2006).

It is essential to involve an ongoing consultative process. This process involves analysts and practitioners who work together to point out the major features of the problem to be solved and to carve out solutions for institutional bargaining which can reduce behavioural complexities. Thus the construed regime should be an evolving arrangement to devise accurate strategies (Young, 1999)

Early detection and immediate and effective response is the key to prevent biological terrorism. The establishment of International standards for the Dual Use items is a process to start with. The persistent implementation of these standards by the member states is the next deadlock. The need is to apply these standards with homogeneity.

Considering Security Council as the only institution with legal authority to examine, harmonize, supplement and enforce the counter-WMD related efforts, the step should be taken by Security Council to provide institutional resources and assistance for monitoring and implementation of the 1540 resolution. In the words of Kaul this process can be called as ‘Participatory Policy making with UN (Kaul, 2000). Considering the

changing face of global governance, this study suggests a modified enforcement measure that can be applied with the help of UNSC resolution 1540.

This cooperative effort will be implemented through various actors and with the inclusion of novel actor i.e. Hamburg Research Group. The Hamburg research group has already started its work on the amendment of HS. This renewed list should be incorporated by WCO to upgrade its HS system. Interpol has a legal database through its Biocriminalization project. Interpol using its competence and effective cooperation on enforcement level can support WCO's efforts to effectively label and track pathogen shipments. EU and USA are the major actors who have initiated policies against bioterrorism. With the effective participation and support of EU member states and USA, the cooperation efforts can strengthen law enforcement to control Bioterrorism.

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