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USE OF UNCONVENTIONAL WEAPONS IN CONFLICT SITUATIONS: A DISCOURSE ON THE PERCEIVED RELATIVE ADVANTAGES OF BIOCHEMICAL INDUCED DISEASES IN SOCIETY

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ABSTRACT

The increase in usage of disease agents in conflict situations has posed concern as its relative method of production often escalates into a national or global crisis affecting countless numbers of lives in society. The habit and procedure of diffusingideasof disease agents are often escalated from unresolved disagreement between few persons either on the local or international basis and its consequences are fatal in human environment. Therefore, the adoption of disease agents has first been perceived as a relative advantage for mass destruction against oppositions.

Descriptiveapproach is adopted in explaining disease agents with secondary source of data collection. The study examines the perceived adoption of biochemical weapons in today's social currents and proposes deliberate planning to adequately understand disease agents as necessary precursor to prepare for and manage mass destruction in society.

Keywords: *Biochemical induced diseases, conflict situations, Unconventional weapon*

Introduction

The increase in usage of disease agents in conflict situations has posed concern as relativelyemerging strategiesto produce it from readily precursor compounds, naturally occurring or genetically modified microorganisms often escalates into a national or global crisis affecting countless numbers of lives in society. Employing bio-chemical weapons in conflict situation start from an unresolved disagreement between few persons either on the local or international basis.

Relative advantage is the degree to which an innovation is perceived as being better than an idea it supersedes in terms of economic profitability, social prestige, compatibility, or other benefits and consistent with the existing values, past experiences, and needs of potential adopters. Perceived relative advantage may change with circumstances or conditions not permanently fixed, but having a meaning, gain, benefit or value that can be established in relation to something or someone else and will change according to that circumstance or conditions encountered (Spacey, 2017; Rogers, 1995; Mairura, 2016; Microsoft Encarta, 2009).

It is no news that the perception of biochemical agents as having a relative advantage has many linked prevailinghistorical attempts. This illustrates the difficulty of differentiating between a naturally occurring epidemic and an alleged or attempted biological warfare attack, a problem that has continued into present times. The perceived relative advantage of employing unconventional weapons in conflict situation poses difficulty in controlling the proliferation of biological weapons in society. What may look like an ordinary outbreak of diarrheal disease early in deployment could be, instead, a case of sabotage of food or water supplies with an infectious agent. This type of operation might even be carried out by enemy special force against citizens of other countries in garrison at home or deep behind friendly lines (Riedel, 2004; Eitzen, 1997).

From article one of the biological weapon convention, biological weapons are equipment's (microbial, toxin or other agents) or means of delivery whose method of production is designed to be used for hostile purposes or in armed conflict situations, except where intended for

purposes not prohibited under the believe of being consistent with that purposes. And also, from article two of the chemical weapon convention, chemical weapons are munitions and devices, specifically designed to cause death or other harm temporarily, permanently or incapacitation to humans or animals through the toxic (chemicals) properties and their precursors, except where intended for the purposes not prohibited under the belief of being consistent with such purposes. The ubiquitous threat of bioterrorism is real and significantly potent. It is neither in the realm of science fiction nor confined to our nations (Beeching, Dance, Miller, & Spencer, 2002; Organization for the Prohibition of Chemical Weapons, 2002).

With advances in modern technology, the delivery and usage of biological warfare agents have spread through various carriers and mediums. These are well suited for use in bioterrorism or for attack by poorer (or rich) nations against the rich (or poorer) (so called "asymmetric methods" of attack) as they are believed by the adopters to be cheap and easy to obtain and disperse, despite the cost and danger. Spite of this, suicide attacks would be extremely effective for disseminating replica diseases such as smallpox: Ebola, Zikka virus, Lasser fever, and so on where food, water, soil, and air are most suitable vehicles for local delivery of pathogens (Beeching, Dance, Miller, & Spencer, 2002; Organization for the Prohibition of Chemical Weapons, 2002; Committee on Toxicology, 1985; Sokolow, Mauvais et al., 1997; Riedel, 2004).

Moreover, there have been several occasions when it has been reported that biochemical weapons have been used in a conflict situation when in fact they were not. Such reports may disseminate misperception, intention to deceive, cause conflict, hinder development, or other errors. Notwithstanding, there has been prevalence on the usage of biochemical weapons before recent times. For instance, the Rajneeshee cult caused over 750 cases of food-borne diseases like salmonellosis bacteria diseases that affect the intestinal tract of both animals and human by contamination of salads in Oregon in 1984 that destroyed countless number of lives. Sverdlovsk suffered the single largest epidemic of inhalation anthrax in history (Committee on Toxicology, 1985; Sokolow, Mauvais et al., 1997; Riedel, 2004; Newman, 2000; Török, Tauxe, Wise, &Livengood, 1997; Block, 2001).

This study attempts to achieve the following objectives:

i. To investigate the prevalence of biochemical induced weapons in warfare

ii. To examine the epidemiological effects of induced biochemical weapons in conflict situations.

iii. To discuss the global problem of induced biochemical weapons on the Third World countries.

iv. To discuss the impacts of biological weapon on plants

v. To identify the key factors influencing the method of dissemination of biochemical weapons.

vi. To examine the consequences of dissemination of induced biochemical agents.

vii. To discuss the ways to control the use unconventional weapons in conflict situations.

The prevalence of biochemical induced weapons in warfare

In the last 46 years, there have been documented increases in the number of States-sponsored programs that have progressed in biotechnology, biochemistry development and production of weapons for both offensive and defensive purposes (Riedel, 2004; Carter, 2000; Miller, &Engleberg, 2001; Alibeck& Handelman, 1998).

The adoption of unconventional weapons in conflict situations became sophisticated during the 19 and 20 centuries. Since the documented controversies over yellow rain incident remain unresolved, health risk posed by various microorganisms needs to be evaluated, both its historical and biological development better understood. The 1925 and 1975 Geneva Protocol (treaties) were ineffective in controlling the proliferation of biological weapons, many countries in Eurasia have engaged in large-scale production of offensive and defensive weapons. As a result of these, more than 500 million people died of infectious diseases. Several tens of thousands of these deaths were due to deliberate releases of pathogens or toxins (Riedel, 2004; Frischknecht, 2003).

Over the years, the desire for consistency in protection, development, advancement and dominance, shows that certain rationality behind such consistency are influenced by the

perceived believe of its relative advantage against opposition or threats, but to convey the usage of unconventional weapons as a result of the believe that it is popularly employed because it can be easily produced from readily precursor compounds or from naturally occurring or manipulated microorganisms can be misleading affirmation (Fulco, Liverman, & Sox, 2000; Khan, Morse, &Lillibridge, 2000).The evaluations we have made in the past predispose us to behave in consistent ways in terms of goal formation, behavior and responses to others (Bargh& Chartrand, 1999; Riedel, 2004; Cialdini, 1993).

The poorly protected use of radioactive and biochemical agents has in no small measure given rise to local and international production of biochemical weapons and terrorists networks. Many countries in Euroasia are known to have active research programs in the production of nuclear and biochemical weapons. The potential of these weapons are deadly with incapacitating effects on susceptible population. Some literatures show that the continuous proliferation on the affected population and surroundings is as a result of the perceived relative low cost of producing biological weapons, and an insidious onset of symptoms that can mimic endemic diseases (Hashmi & Lee, 2004; Girincione, et al., 2002; Eitzen, 1997).

The above proposition is not far from the incidence of Black Death plague. For instance, the rationality of certain military leaders in the middle ages recognized that victims of infectious diseases could become weapons themselves. And in 1346, during the siege of Feodosia, Ukraine (the then Caffa), an attacking Tartar force converted their misfortune of epidemic plague into an opportunity by hurling the cadavers of their deceased into the city; thus, initiating an epidemic plague in the city. The outbreak of the plague followed, forcing a retreat of the Genoese forces. The plague pandemic, also known as the Black Death, swept through Europe, the Near East, and North Africa in the 14th century and this was probably the most devastating public health disaster history recorded (Eitzen&Takafuji, 1997; Wheelis, 2002; Riedel, 2004).

The epidemiological effects of induced biochemical weapons in conflict situations

The hidden and high-level undetectable potentials of most biochemical agents may cause more psychological disruption than conventional weapons, especially to unprepared civilians and military units in Africa and other developing countries. The prospects of dying from an incurable, painful and highly communicable disease can cause panic, anxiety and fear among unprotected civilians, and soldiers trained to fight against conventional weapons only (Eitzen, 1997).

In an attempt to avoid ontological biases in applying the concept of perceived relative advantages of disease and disease outbreaks by those who both suggested and used it, it is believed that Pizarro is said to have presented South American natives with variola-contaminated clothing in the 15th century and during the French-Indian War (1754–1767), Sir Jeffrey Amherst, the commander of the British forces in North America, suggested the deliberate use of smallpox to diminish the native Indian population hostile to the British. Also, an outbreak of smallpox in Fort Pitt led to a significant generation of fomites and provided Amherst with the means to execute his plan.

In addition, under the direction of Shiro Ishii (1932–1942) and Kitano Misaji (1942–1945), Substantial records shows that after the 1346 pandemic plague, there had been several utilization of disease agents and poisons in war fronts, by research bodies from 600 BC till this present day, as claimed by Reidel (2004) the military personnel's catapulted the bodies of its dead soldiers into the camp of their enemies. In fact, since the past 2000 years, the use of biological agents has increased in both its usage and consequences within anthropogenic environments (Riedel, 2004; Henderson, et al., 1999; Christopher, Cieslak, Pavlin, &Eitzen, 1997).

One of the Asian countries conducted biological weapons research known as Unit731 in Manchuria from approximately 1932 until the end of World War II. As a result of this knowledge, more than 10,000 prisoners of war are believed to have died due to experimental infection containing inoculation of agents causing gas gangrene, anthrax, meningococcal

infection, cholera, dysentery, or plague and other extremely poisonous fungal toxins during the program. (Eitzen&Takafuji, 1997; Robertson & Robertson, 1995; Derbes, 1996; Christopher, Cieslak, Pavlin, &Eitzen, 1997; Kadlec, Zelicoff, &Vrtis, 1997).

Based on its perceived benefits and adoption, biochemical weapons, its innovation, style of production, and broad availability through secret channels have led to a further spread and increased desire among developed and developing countries to have them as alternative plans to pilot offensive and defensive approach against oppositions (Tornatzky& Klein, 2012; Riedel, 2004).

Thanks largely to modern science and technology; many of us today enjoy far richer, healthier and longer lives than our grandparents or great grandparents, or those who came before. Nevertheless, the modern world is confronted by grave global problems. The lethal character of modern war, the spread and threat of armaments, conventional, chemical, biological and nuclear, severe poverty and death of millions in Africa, Asia and elsewhere, destruction of tropical rainforests and other natural habitats; rapid extinction of species; annihilation of languages and cultures. And over everything hangs the menace of climate change, threatening to intensify all the other problems (Maxwell, 2017).

The global problem of induced biochemical weapons and the Third World countries

All these grave global problems are almost inevitable outcome of the successful exploitation of science and technology plus the failure to build aim- oriented rationality into the fabric of our personal, social and institutional lives. Technological and biosciences seem inherently desirable and, in many ways, are highly desirable. But our successes in achieving these ends also bring about global warming, war, vast inequalities across the globe, destruction of habitats and extinction of species. For instance, it is recorded that a country legally and illegally, attempted to obtain yellow fever virus from Rockefeller institute in New York (Maxwell, 2017; Harris, 2002).

But there have also been other (salient) successful attempts and usage of biochemical weapons by other countries against their oppositions. For instance, on international grounds, countries in Europe and Asia have accused each of using Germ warfare, Toxin weapon and Yellow rain (Chevrier& Stern, 1991).

These insights close response to reasons behind the trends of countries exploring nuclear weapons, increased terrorist networks and a threating possibility of more production of biochemical weapons that cannot be ignored in recent times.

The questions (when is war a legitimate option, who are the legitimate targets, what weapons may be used to attack and possibly kill the targets?) posed by Hashmi and Lee (2004), reveals that those who utilize the use of unconventional weapons in conflict situations have potential targets to attack, possibly kill and the consequences of these abounds

In the so called "post war" period since 1945, at least 20 million people have died in over 100 conflict situations of which nine out of ten casualties in modern warfare conflict situations are civilians, and over 60 million people have been wounded, imprisoned, separated from their families and forced to flee their homes or countries under the darkness of conflict situations, (National Geographic Society, 1994, Vol. 186, No.2).

Every confirmed use of biochemical weapons since World War 1 has occurred in the developing world but they are unproven allegations as the cause for diverse outbreaks in the Third World countries. Hence, the use unconventional weapons in conflict situations are a major obstacle to sustainable development as tremendous efforts to spur economic growth come to naught (Chevrier& Stern, 1991; Yukie, 2015).

Below are some examples (Table 1 and 2) showing how biochemical weapons have been used in a wide variety of ways from Documents and material held in the Sussex Harvard Information Bank at SPRU- Science and Technology Policy Research University of Sussex, United Kingdom.

Table 1: Example of historical attempts on the usage of induced Biological and Chemical agents in warfare during the past 2000 years

Time	Events
600 BC	Solon used the purgative herb Hellebore during the siege of Krissa
1155	Emperor Barbarossa poisoned water wells with human bodies in Tottona, Italy
1346	Tarfar forces catapulted dead bodies of plague victims over the city walls of caffa, Crimean Peninsula (now Feodosia, Ukraine)
1495	Spanish mix wine with blood of leprosy patients to their French foes in Naples, Italy
1675	German and French forces agree to not use “poisonous bullets”
1710	Russian troops catapulted human bodies to plague victims into Swedish cities
1763	British distributed blankets from smallpox patients to Native Americans
1797	Napoleon flooded the plains around Mantua, Italy, to enhance the spread of malaria
1863	Confederates sold clothing from yellow fever and smallpox patients to Union troops during the US Civil war
1914-1918	During World war 1 Germany and France agents used Glanders and anthrax against their opponents
1939-1943	World war 2 Japan and several other countries used plague, anthrax, and developed biological weapons programs
1980-1988	Persian Gulf war, Iraqi used mustard gas and tabun against Iran and other ethnic groups inside Iraq
1995	Aum Shinrikyo used sarin gas in the Tokyo subway system

Riedel, 2004

Table 2: Some of the antipersonnel toxic and infective agents whose hostile use since 1918-2001 has been verified

Period	Agents	Location of use
1919	Adamsitediphenylchloroarsine (a sensory irritant) mustard gas	Russia
1923-1926	Bromomethyl ethyl ketone (a tear gas) chloropicrin mustard gas	Morocco
1935-1940	Chlorine (a choking agent) chloroacetophenone diphenylchlorarsine mustard gas phenyldichlorarsine phosgene	Abyssinia
1937-1945	Chloroacetophenone, diphenylchloroarsine (a sensory irritant) hydrogyn cyanide, lewisite, mustard gas, phosgene, yerssinia pestis	Manchuria
1963-1967	Chloroacetophenone, mustard gas, phosgene	Yemen
1965-1975	2-chlorobenzalmalononitrile	Viet Nam
1982-1988	2-chlorobenzalmalononitrile, mustard gas, sarin, tabun	Iraq
1984	Salmonella enteritidis serotype typhimurium	United State
1994-1995	Nerve gas sarin	Japan
2001	Bacillus anthracis	United State

WHO, 2004

Table 2: Examples of recent attempts on the usage of bioweapon

Time	Event
1996	An Ohio man attempt to obtain bubonic plague cultures through the mail
2001	An anthrax was developed by mail to US media and government offices. Four deaths
2002	Six terrorist suspects, their apartment was serving as a labouratory for ricin used in producing toxin
2003	Traces of ricin which led to the investigation of Chechen separatist plan to attack the Russian embassy with toxin
2004	The US senate building was closed after toxin, ricin, was found in mailroom that serves senate majority leader

Dire *et al*., 2011

The more advanced technology become, the more it seems to have control over our lives. Today, the use of technology is widely available and instantly promoted throughout our society. While technology makes life easier, it also creates some problems for our society: increased life threats, health risks and criminal attempts. Today it is easy to find information's of how to make bomb online and other violent information. And individuals who access this information use it for different reasons(Al Aga, 2009; Harris, 1992, 1999, 2002; Frischknecht, 2003).

Impacts of biological weapon on plants

Biological weapon, also called germ weapon, are any of a number of disease-producing agents such as bacteria, viruses, rickettsia, fungi, toxin, or any other biological agents that may be utilized as weapon against humans, animals, or plants. Biological weapons, like chemical weapons, radiological weapons or nuclear weapons, are commonly referred to as weapon of mass destruction (Schineider, 2017).

Deliberate misuse of biological agents poses threat not only public health, but also to the agricultural sector (agroterrorism) and food chain, which need to be considered in term of preparedness against bioterrorist incidents (Knuttsson, *et al.*, 2011). Most of the world's population gets its caloric requirements from plant-based food such maize, rice, potato, wheat and cassava, but many nations lack the capacity to feed their timid population.to bridge this gap, they depend on international aid and trade in plants and plant products (Stack, *et al.*, 2010). This dependency on other nation food is the gap perpetrators or past perpetrators have used to gain ground on their target nation. And truth be told, most governments of the world can't feed their citizen without any form of dependency on international trade. Hence, it is important to understudy and have an in-depth understanding on the motivation behind the use of biological and chemical weapon and itsimpact on plants and food chain.

A massive outbreak of plant disease could have a severe economic consequence globally. The most substantial impact would be loss of international markets for plant materials. Countries would as a matter of necessity impose sanitary or phytosanitary restrictions on trade with other

countries in which that disease breaks out. This can result in billions of dollars of lost trade. In US, Karnal bunt of wheat, caused by the fungus *Tilletiaindica*, had a severe economic consequence caused by agricultural disease. About 80 countries ban wheat imports from regions with karnal bunt infections, even though the diseases do not have a large direct effect on crop yield. The disease pose threat to the overall $6 billion per year. Animal and Plant Health Inspection Service (APHIS) spent over $60 million on the effort eradicate the disease, and growers lost over $100 million from loss of sales and increase in cost of production costs (Bandyopadhyay and Frederiksen, 1999).

Diseases are one of the main drivers of extinction in endangered species. It is therefore, expedient to control disease and conserve biodiversity. Although there are vaccine for most bioweapons, they may not be readily available or adequate quantities to cope with epidemiological disease outbreaks (Nura, 2018). Also, because the bioweapons are targeted at times when the countries are not prepared, the impacts would have damaged a lot before arsenals are provided for control and eradication. One of the silent but catastrophic impacts of the use of bioweapons to attack plants is that, it leads to destruction of plants and genetic changes in plants, whose effects we cannot quantify in human, animal and the ecosystem.

Consequences of Biochemical Weapons on Animals

One of the anticipated outcomes of biochemical warfare is the destruction of the opposition's economic stability and growth. Livestock production constitutes a reasonable percentage of a nation's economy, therefore, destroying farm animals is therefore perceived as part of warfare strategy. Animals are commonly targeted directly or indirectly in biochemical warfare and post warfare, as biological and chemical agents persists in their body system with continuous danger in the animal population The ecosystem both land and Marine suffer from biochemical deposits from biochemical war and may lead to post war tragedy in habitats inhabited not by humans but to a larger extent, the animal population.

Bioterrorists have perceived relevance in the uptake of livestock or poultry as biological agents against oppositions because they are more readily available and difficult to monitor than other

substantial biological agents. In addition, an attack on animal husbandry can have enormous economic consequences, even without human casualties (Yeh et al. 2013). In the past 100 years, there has been three common out of approximately 12 events on the use of microbial agents into livestock and animal population worldwide. One of which include, World War I event in the United States, while in other case,individuals who employ these agents perceive relevance inattacking animals and agriculture products which is seenas more common (Wilson et al. 2001).

The marine habitat is heavily threatened as chemical ammunition from biochemical warfare are dumped in ocean bodies.

Scientists were at a loss on figuring in the destruction of the non-biodegradable leftovers and chemical wastes of the chemical weapons. Amongst others considered what seemed the safest and cheapest method of disposal at the time: Dumping chemical weapons directly into the ocean. Numbers of ships were loaded with tons of chemical munitions and shoved overboard or scuttled in vessels at sea, without clean records of amounts and places dumped. Over 1million metric tons of chemical weapons have been estimated by oceanographers and marine scientist to be at the bottom of the ocean. From the Eastern coast of the United States, where for the past 12 years sulfur mustard have been seen three times in Delaware to Italy's Bari harbor, where, since 1946, about 230 sulfur mustard exposure cases have been taken into account, these chemical ammunition have been recorded to have been likely brought in with loads of shellfish. As Terrance Long, chair of the International Dialogue on Underwater Munitions (IDUM), a Dutch foundation based in the Hague, Netherlands, rightly mused, It’s a global problem. It’s not regional, and it’s not isolated (Curry 2016). Affected directly by bioweapons are the biodiversity of genetically indigenous species, plants and animal communities. Bioweapons pose serious threats and danger to both living organisms in their respective habitats and humanity alike, discussions on its control is receiving global attention. Failure of preservation of communities will lead to the deterioration of genetic diversity in animals and plants, endangered species face extinction, and human livelihoods, traditional cultures and the physical environment could all be destroyed (Abboud, 2018).

Research Methodology

This paper adopts a descriptive approach which accurately describe the use of unconventional weapons in conflict situation literature. A descriptive research design can use a wide variety of quantitative and qualitative methods to investigate one or more variables. The investigation into the use of biological and chemical weapon has become common resolution as nations are seriously and cheaply looking for undue advantage over another. The approach is to understudy past cases where bioterrorism has been exploited and the consequences on humans, animals and plants; and,it's devastating impacts on economics.

Data services

Literature search strategy adopts the Google Scholar. The Google Scholar is shown to yield better result over some other search tools for studies that adopt qualitative and mixed method technique. Descriptive reviews are very useful in understudying occurrences using secondary data. However, research was not limited to this search tool. The tools employed allowed the gathering of large volume of data that can be used for frequencies, averages and patterns. This research design was carefully adopted in order to ensure the results or information are valid and reliable. The initial search took into consideration descriptive studies that focus on the impact of biological and chemical weapon globally.Although studies on the impact of biological and chemical weapon were not limited to this database, they host top peer-reviewed journals with high impact factors in the field of sustainability transitions. The selection of highly informative journals is informed by an interest in descriptive studies that have gone through a rigorous research process to establish findings and conclusions. Selecting credible studies is necessary in order to examine patterns from research findings informed by the impacts of bioterrorism on economics, human, animals and plants during conflict situation, and its role in short changing the strength and efforts of countries The selection of peer-reviewed journal articles that are published in English is due to their use of an international academic language which enhances their visibility and reach (Shittu, 2019).

Selection of research materials

The literature search focuses on descriptive studies conducted, which spans from 1964 to 2020 on historical records of the use of bioweapons, its use in conflict situation and impacts on the economy of countries, human, animals and plants. It also gives an account of the common route exposure of biological and chemical weaponand consequences of dissemination of the use of induced biochemical agents.

The study covers for a discourse on diseases agents and a group of persons that have both developed research institutes on it and employed such disease agents as weapons. The major concern is on the progressive dangers of these bio-chemical weapons in human environment and how consistent employing of disease agents can disrupt any form of national development. The descriptive research design was adopted for this study. Data for the study were derived from secondary source materials.

Key factors influencing the method of dissemination of biochemical weapons

Biochemical weapons in conflict situations pose what has been described as a major obstacle to sustainable development as tremendous efforts to spur economic growth come to naught in the end (Yukie, 2015). The key factors that make a biochemical pathogen or toxin suitable for a large-scale warfare attack include:

(i) The availability or use of production in enough quantity. (ii) The dependence on other country for production of goods and rendering of services of any kind. (iii) The ability to cause lethal or incapacitating effects in humans at doses that are achievable and deliverable. (iv) Appropriate particle sizes in aerosol. (v) Ease of dissemination. (vi) Stability (while maintaining virulence) after production in storage, weapon and the environment. (vii) Susceptibility of an intended victim with no susceptibility of friendly forced. This method of dissemination or delivery of biochemical agents may be simple and inconspicuous as attaching off- the-shelf spray device, to

a car, truck, boat, or airplane which appears harmless and normal to all who might observe the delivery methods (Eitzen, 1997).

Common routes of exposure

●Respiratory system: the respiratory system responsible for the intake of oxygen and expiration of carbon dioxide is one of the most principal hazards from aerosol and agents vapor which can damage certain respiratory tissues at the site of absorption. The severity depends on the total amount of particles inhaled and the period space to which the exposure lasted

●Digestive system: through contaminated food or drinking water, by hand- mouth contact after touching contaminated surfaces (fomites). This has a delayed onset of symptoms compared to respiratory exposure.

●Others include the Oronasal mucus and conjunctiva and their mechanisms of transmission.

Consequences of dissemination of induced biochemical agents

The empirical adequacy and experiential relevance found from the usage of biochemical weapons in previous studies shows that any release of biochemical agents and hazards will depend on a multitude of factors, including the agent and the amount released, the method by which the agents disseminated, factors that influenced its toxicity, infectivity or virulence both during and after the release, its movement and dilution in the atmosphere, and the state of protection and susceptibility of those exposed.

Two different hazards, especially when they reach the narrow aerodynamic size range, where particles are small enough to penetrate to alveoli or any other penetrable part of the body, distinguished, namely:

inhalation hazard (as vapor, liquid, spray particles that evaporates and then condense as a suspension in the air of in healable particles, creating principally a respiratory or conjunctiva hazard) and contact hazard (drinking water, food and arthropod vectors) to unprotected persons.

At most, all metamorphose within the movement or passing of the atmosphere, caused to disseminate both vertically and horizontally by eddy currents as particulate or vapor clouds (a colloidal suspension of material in the air):

Wind (down-cross winds) and other mechanical disturbances also re-suspends deposited particles, but the amount re-suspended is likely to be small and bound to the soil, or other part of larger diameter depending on the atmosphere, nature and quantity of the agent released, may influence the level of hazards that will occur (Heyder, et al., 1986; Emad, & Rezaian, 1997; Papirmeister, et al., 1991; Committee on Toxicology, 1985).

For instance, In Edwards (1994) discourse on lethal legacy, posited that the former Soviet Union leaders in their drive to exploit and industrialize their nations, gave little thoughts to the health of the people or to the land that they ruled. This resulted to countless health diseases from the skin to the genes. A bitter dilemma confronts the 15 nations that once formed the former Soviet Union, and no country including our own is free from pollution (National geographic society, 1994, p.70-89).

The long and short-term consequences of the use of biochemical agents, including delayed, prolonged and environmentally mediated health effects long enough to cause physical (lung, eyes, skin diseases) or mental illnesses that either remain, or only become clear, months or years after the weapons have been deployed and more uncertain and less well understood. Such as, the pulmonary diseases in victims of exposure to mustard gas were reported after the First World War.

There is a possibility of mediated effect by ecological change as a new focid of disease might become established because of biochemical agents infective for human and animals or anti-plant agents via the reduction in the quantity and quality of food supply (Papirmeister, et al., 1991; Committee on Toxicology, 1985; Emad, & Rezaian, 1997; Lohs, 1975; Fulco, Liverman, & Sox, 2000).

The Asia Pacific's geographical conditions contributes largely to the disaster situations experienced and the severity of the damage they inflict on humanity, a situation likely to aggravate by environmental disruption and climatic change and some other developed states undertook some research that influenced various substance onhuman genes (Sahashi, 2015; Cohen, 1997; Davis, 1998).

This shows that there are ethnic specific weapons that target specific race of man that is largely biologically self-perpetuating; shares fundamental cultural values, realized in overt unity in cultural forms, makes up a field of communication and interaction distinguishable from other categories of the similar order (Narroll, 1964). Today, the release of biochemical weapons affects not only a targeted ethnic group, since the world has become a growing global village.

Ways to control the use of unconventional weapons in conflict situations

Knowing that a biochemical weapons may be capable of overcoming a military force and its citizens at even greater risk for incubating exotic endemic disease agents before the presence of the agents is suspected, defending against the use of unconventional weapons (biochemical induced agents) in conflicts situation requires us to understand how an adversary might use them (Eitzen, 1997)

●Detection of disease in animals may be essential in predicting a bioterrorism event since most threats of bioterrorism are microbes causing zoonotic diseases. Veterinarians and veterinary diagnosis laboratories should become a part of nationwide active surveillance team (Eitzen, 1997)

●Knowing some biochemical weapons can cause mass destruction, we have good reason to develop practical policies that should avoids their development and use. Such policies may become effective when the use of biochemical weapons is ban rather than seek to draw complicated distinctions among different types of them. As we know simple rule in social life is easier to understand and enforce than when it is complicated (Hashmi and Lee, 2004)

The immediate policy response in many countries has been geared towards countering the threats and dangers of bioterrorism established by biological agendas. For instance, placing further restrictions on access to dangerous pathogens (Epistein, 2001: Home Office, 2002).

Theoretical underpinning

A theory is a set of interrelated constructs (concepts) definition, propositions that present a system view of phenomena by specifying relations among variables with the purpose of explaining and predicting the phenomena. The theoretical discussion will help account for and create synergy for the occurrence of use of unconventional weapons in conflict situations by organizing concepts, constructs, and proposition in a logical understanding and applicable ways.

Conflict theory

This theory originated from the writings of Karl Marx. This perspective posits that society will experience constant class struggle and conflict situations influenced by scarce resources and inequalities, resulting to marginalization and exploitation by the "Haves against the Have not". Revolution will emerge when "there Have not" gains collective class consciousness. Here, the focus is on the ever-changing use of unconventional weapons in conflict situations in society. The major concept harbingers on the perceived relative advantages of disease in society. The conflict theorists believe grieved persons from either the advantaged or disadvantaged social backgrounds are more likely to resist social order against national or international development.

They stress that the privileged few or power persons force social order on the subordinates that in turn results to relative consequences. Therefore, the use of unconventional weapons in conflict situations is imminent when one group perceives moral, social, political, economic injustice or feels their interests are not put into proper considerations.

It is with these that, the conflict theorists challenge the status quo. According to them, unequal groupings of persons in society have also attracted conflicting values and aspirations which bring about competition in society. These unhealthy competitions have made one group in order to win

or take control of the conflicting situations, perceive the use of unconventional weapons as a relative advantage against their opponent or enemies in battle line. Rules and regulations are not a hundred percent followed in local and international treaties as it relates to the use of unconventional weapons. For instance, the launching of nuclear weapons by the first and second world countries and the incidence of reemerging disease agents in the third world countries are at alarming rates.

Conflict theorist maintains that countries that have global economic and political power are at better standpoint to redefine what is harmful or not in societies and they will be concerned about protecting their positional values, wealth, power and prestige. They believe these countries are, on the other hand the reason why the use of unconventional weapons in conflict situations will not be contained, especially when it is perceived that biochemical weapons have a relative advantage in warfare.They, therefore, agree that disease outbreaks are a direct outcome of the capitalist economic (profit oriented) pursuit at the expense of the human safety. What this postulate is what people suffer from in society is not as a result of genetic make-up, but as a result of people perception on what is harmful or not, management strategies, and so on. It is good to note that, disease are not natural calamities but are injuries inflicted on people by the nature of their daily occupations and their customary mode of life.

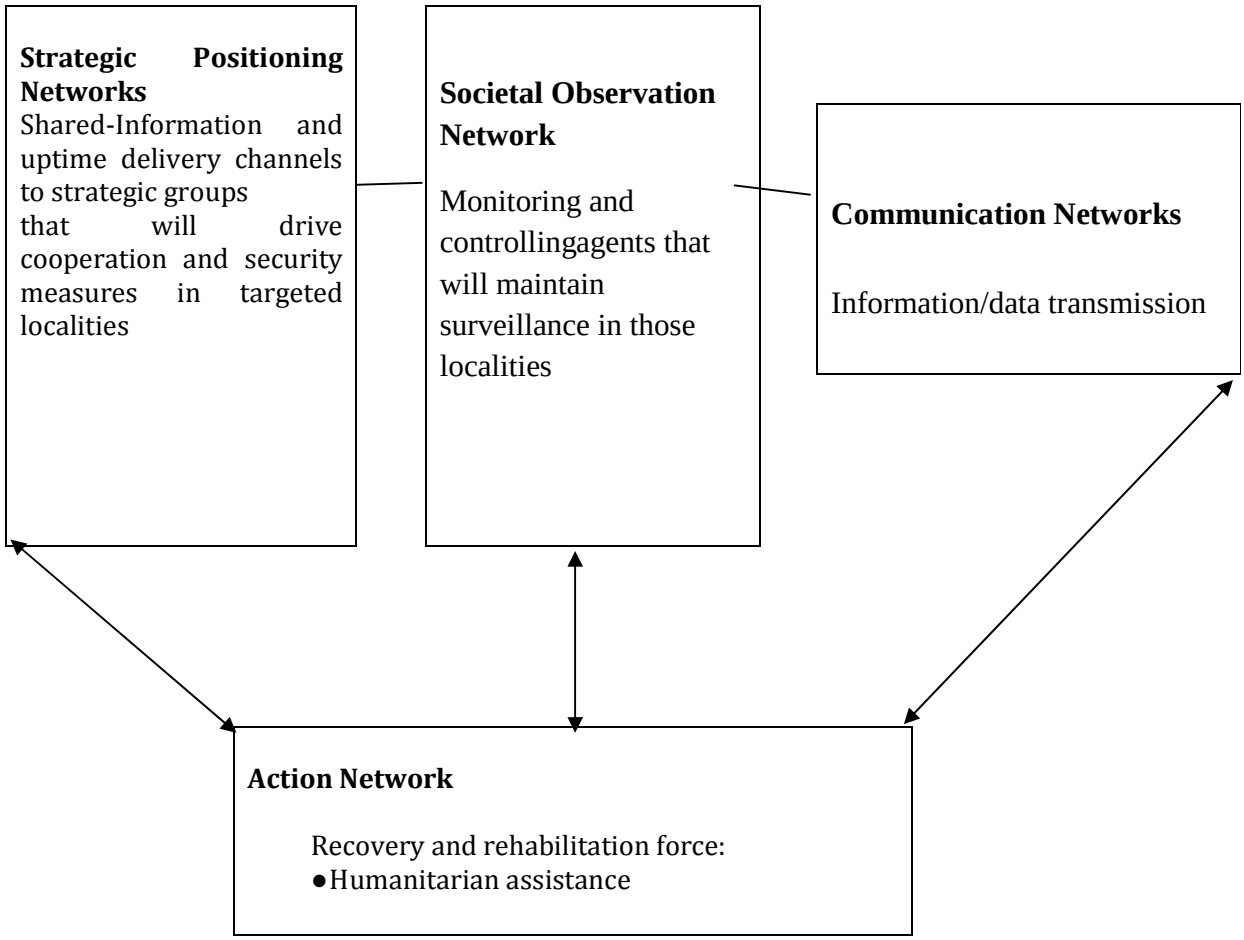
Social action theory

Unlike structural theorists, social action theorists argue that people's actions and life-chances are determine their social background, roles and the interactions between people that shapes their personal identity and the wider society. To understand human actions in conflict situations, there is a need to understand their very motives for taking that action. Weber stressed that there are four main motives for human action- instrumental rational, value rational, traditional rational and effectual action.

The social action theory therefore provides a coherent and correspondent reality regarding the usage of biochemical induced agents in conflict situations. The social action theorist believes

that, to perceive an act as a relative advantage it must have a logically consistent, socio-political and economically adequacy and experientially linked with relevance. They also believe that individual motives to use unconventional weapons in conflict situations is based on the perceived threats, economic benefits, political dominance, socio-cultural advantage or any other attached interpretation and symbolic understanding. These motives can be rationally or irrationally motivated, based on the value, affection, belief and structures that work in favor or disfavor to their movement.

Table 3: Sentinel of preparedness againstthe use biochemical induced agents in conflict situations



Source: Ogbu, 2018

Conclusion

When is war a legitimate option? Who are the legitimate targets? What weapons may be used to attack and possibly kill them? This question posed by Hashmi and Lee (2004) reveals that those who utilize biochemical weapons have potential targets to attack and possibly kill, and the consequences of these actions abounds.

From the perspective of the above assertion, arguably, perceptions of the importance of biochemical weapons have altered significantly for social scientists and funding agencies with the terrorists events of 2001: on the United States demonstrated quite clearly the vulnerability of even the most powerful states to large-scale death and destruction perpetrated by a group of committed insurgents (Rappert, 2003: Hashmi and Lee, 2004)

Preparedness can be built essentially against many biochemical inducedagents through the use of respiratory protective equipment, protective clothing for the skin and means of predicting the potential spread of the airborneagent can allow timely protective measures to be taken in the areas that may be affected.The task facing public health authorities in identifying a representative group of agents against warfare for peaceful purposes might therefore be thought relatively straightforward.

However, the deliberate biochemical agents release against which public health authorities would need to prepare, might include attacks by non-state entities whose agent-selection principles could differ from the military ones.

Just like in 2011, Japan earthquake demonstrated that social resilience at the community level is a key to effective response and recovery from disasters. In many cases the magnitude and frequency of disaster overwhelms government capacities and therefore many actors, including foreign government and militaries, international organizations and nongovernmental organization (NGOs) working on humanitarian assistance, and various donors, must join the government to manage numerous external actors is very high. Although, nobody can escape the

threats posed by biochemical weapons, conflicts, and natural disasters, but it is possible before its occurrence to prepare for and manage responses effectively (Khan, Morse, andLillibridge, 2000:Osa, and Yukie, 2015).

Recommendation

The use of biological and chemical weapons should be discouraged for a lot of reasons, they are difficult to control, potentially devastating on global scale, affect plants animals which leads to food shortage, reduction in trade between countries of which billions of dollars are lost and also frightening is its impact on the genome of organisms. This change in genetic architecture of organisms could be a potential bioweapon which could lead to new strains of diseases and loss of biodiversity.

So, we recommend that strong international laws and treaties be put in place which would be signed by all government of the world. There should be transparency in the sharing of data between countries and international bodies. Since perpetrators of bioterrorism in conflict situation are unpredictable and used trade of commodities as route to send these bioweapons, therefore, countries should enhance their disease control agencies in so much that they could diffuse any attempt economically cripple them with bioweapon. Also, countries should enhance their production capacity in order to reduce their dependency on other countries.

There should be scrutiny and inspection of biotechnological institutes and biological laboratories globally by the world's 'superpower' or a transparent international body. And biologists and chemists globally should be made to an oath in their practice against the manufacturing and proliferation of biological and chemical weapons. We shouldn't wait to loose lives and have a devastating economy before we react. None of the excuses we give when a bioweapon is released is sufficient, we should take proactive measures, not wait until the next pandemic or 'economic earthquake before we rally defenses.

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