

**AD HOC GROUP OF THE STATES PARTIES
TO THE CONVENTION ON THE PROHIBITION
OF THE DEVELOPMENT, PRODUCTION AND
STOCKPILING OF BACTERIOLOGICAL
(BIOLOGICAL) AND TOXIN WEAPONS
AND ON THEIR DESTRUCTION**

BWC/AD HOC GROUP/WP.322
6 October 1998

Original: ENGLISH

Twelfth session
Geneva, 14 September - 9 October 1998

Working paper submitted by the Islamic Republic of Iran

VECTORS AND PESTS

INTRODUCTION

During Ad Hoc Group sessions, lists of human, animal and plant pathogens were discussed. It is known that a considerable number of these pathogens are transmitted by intermediate vectors (e.g. mosquitos, ticks, lice, fleas, etc.). These vectors could be used as a delivery system or as biological weapons in hostile activities (e.g. *Aedes aegypti* and *Haemogogus* species transmitting yellow fever, *aedes group* transmitting dengue fever).

There are substantial allegations of use, or attempt to use vectors against human or animal population (e.g. dissemination of plague-infected fleas in 1941, attempting to introduce yellow fever by mosquitos during World War II). It is also known that experiments were conducted on the feasibility of using insects on crops in enemy countries (e.g. reports suggesting that in World War II, Colorado beetles were used to destroy plants. This agent was also allegedly used in 1943 and in 1950). Epidemiological studies suggest that unusual outbreaks of some non-endemic diseases in some regions might be related to abundance of vectors.¹ The same unusual appearance of pests (e.g. *Chilo supersalis*) could vastly destroy plants.

During the VEREX and Ad Hoc Group, some delegations expressed the need to address pests and vectors and it was finally suggested that for vectors and pests to be considered, an appropriate listing should be presented. In this line, the following list, which focuses on invertebrates such as insects and arthropods with potential military use, is presented.

¹ See: Biological Warfare in the 21st Century, by Malcolm Dando, ed. Brassey's, United Kingdom, 1994, pp. 59-60.

Also: Strengthening the Biological Weapons Convention by the Confidence-Building Measures, SIPRI series, No. 12, by S.J. Landin, 1991, pp. 66-69; Health Aspect of Chemical and Biological Weapons, WHO, Geneva, 1970, pp. 60-78; The Problem of Chemical and Biological Warfare, Vol. 1, The Rise of Chemical and Biological Weapons, SIPRI, ed. ALMQVIST and WIKSELL, Stockholm, Humanitarian Press, New York, 1970, pp. 214-224.

As for the placement of the list, it could be added to the subsection on “Lists and Criteria” of Annex A, section II, as part of “**D. Vectors**” and “**E. Pests**”. The present list is neither exhaustive nor exclusive and is to prepare for further deliberation on the subject matter.

D. VECTORS

CRITERIA FOR VECTORS:

The following criteria were presented to the group and may be used in combination for selection of vectors to be included in an appropriate list:

1. Vectors known to have been produced, used or alleged to be used as weapons.
2. Vectors which cause significant impact on human health or animal resources. To be evaluated against a combination of the following criteria:
3. Short life cycle
4. Ease of production
5. Resistance to insecticides or biocontrol agents
6. Ease of dissemination

E. PESTS

CRITERIA FOR PESTS:

The following criteria may be used in combination for selection of pests to be included in an appropriate list:

1. Pests known to have been produced, used or alleged to be used as anti-plant weapons.
2. Pests which cause severe socio-economic and/or significant adverse effect on plants.
3. Ease of production
4. Short life cycle
5. Resistance to pesticides
6. High reproducibility
7. Ease of dissemination

LIST OF THE VECTORS

No.	Order	Class	Vector	Agent	Disease
1	Siphonoptera	Insecta	Xenopsylla. SPP Ctenocephalis.SPP Leptopsylla. SPP	Yersinia Pestis	<u>Plague</u>
2	Acari	Arachnida	Ixodides Hyalomma marginatum Hyalomma Anatolicum Anatolicum	Arbovirus	Crimiean - Congo Haemorrhagic Fever (CHF)
3	Acari	Arachnida	Dermacentor Andersoni	Coxiella burnetti	Q Fever
4	Acari	Arachnida	Dermacentor andersoni D. Varabilis Amblyomma Cajennese Rhipicephalus- sanguineus	Rickettsia rickettsii	Rocky Mountain Spoted Fever
5	Diptera	Insecta	Mansonia.SPP Culex.SPP Culiseta.SPP	Arbovirus	Eastern Equine Encephali-tis
6	Anopluraa	Insect	Pediculus humanus	Rickettsia prowazekii	Typhus
7	Acari	Arachida	Ixodides Dermacentor.SPP Rhipicephalus.SPP Amblyomma.SPP	Francisella tularensis	Tularemia

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LIST OF THE PESTS

Order	Common Names	Pest	Host
Orthoptera	Grasshoppers, crickets, cockroaches, etc.	Dociostaurus maroccanus	Plants
Thysanoptera	Thrips	Haplothrips Tritici Thrips Tabaci	Wheat,mais tabacco,tomato
Hemiptera	Bugs	Eurygaster integriceps lygus Lineolaris Acrosternum millieri	Wheat, pistachio pistachio
Lepidoptera	Butterflies moths, skippers	chilo suppressalis cirphis unipunctata earias insulana	Rice Rice, mais Cotton
Coleoptera	Beetles Weevils	Leptinotarsa Decemlineata (Colorado potato beetle)	Potatoes
Hymenoptera	Ants, bees, wasps etc	Harmolita Tritici	Wheat
Diptera	flies	phytophaya destructor	Wheat/Barley/

			oats
Tetranychidae	Mites	terranychus takestani	Plants
Errophyoidae	Mites	Cenopalpus spp.	Fruit trees