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Verification in the Middle East

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Briefing Paper

Monitoring and Verification for a Middle East Weapons of Mass Destruction Free Zone

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Summary

The safeguards and disarmament principles set forth in this report for the first time constitute a sound basis for a reliable Co-operative Integrated Monitoring and Verification System (CIMVS) in connection with a MEWMDZFZ. The elements of the system design were discussed in the framework of those principles. The main components of the system are: data and information centre, co-operative integrated monitoring and verification centre, qualified manpower and a regional-global linkage. It is essential to emphasise the importance of promotion of scientific - technical - economic co-operation in peaceful applications of dual use technologies and the dissemination of peace and disarmament culture to institutionalise the partnership imperative, and communal responsibility in security and peace and to enhance confidence building.

Introduction

It is essential to emphasise that the cornerstone of establishing a MEWMDZFZ is the political commitment and will of the Regional Parties to enter into this solemn and moral undertaking in the context of a ME regional security regime, and to achieve a legally binding and sound MEWMDZFZ Treaty. For this to happen, peace negotiations in the ME must be pur-

sued until peace agreements¹ with the countries neighbouring Israel (similar to those signed with Egypt in 1979 and Jordan in 1995) are achieved as a first step in a long process. The Treaty shall prohibit the development, production, stockpiling and use of WMD and relevant ballistic missiles as well as the destruction of existing ones. It shall also assure their continued absence through a Co-operative Integrated Monitoring and Verification System (CIMVS) to deal with biological, chemical, nuclear and missile activities in order to verify compliance with treaty obligations. Verification is the core of disarmament and non-proliferation measures. A treaty without a solid verification system (such as BWC) is just a declaration of intent and contributes little to arms control. A regional monitoring and verification organisation to undertake such responsibilities shall also be established. This paper deals mainly with the main functions of the CIMVS, newly formulated safeguards and disarmament principles, elements of the system design and proposed structure of the regional verification organisation.

Main function of the CIMVS

The main functions of the CIMVS should include, but should not be limited to, the following:

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1. Monitoring and verification of the dismantling and destruction (DD) of existing stockpiles of WMD and missiles.
2. Dismantling of the relevant infrastructure, and production facilities or their conversion to peaceful uses.
3. Safeguarding chemical, biological, nuclear and missile activities in order to detect, at a very early stage, any deviation to initiate or resume development, production and stockpiling of proscribed activities. Safeguarding should be extended to relevant facilities and items capable of being modified to WMD and long range missiles.
4. Monitoring and verification of relevant R&D activities, particularly in biological technology due to the ease with which civilian facilities can be converted for biological weapons (BW) purposes. BW capability does not require large laboratories, large inventories of BW agents or large production of such agents.
5. Undertaking R&D work to improve WMD verification technologies.
6. Establishing an export-import (EXIM) control mechanism for relevant dual use technologies.
7. Establishing an information and data base related to WMD proliferation and illicit trafficking.
8. Undertaking physical protection measures, as well other measures to combat illegal nuclear material trafficking and activities of terrorist groups utilising chemical, radiological and biological weapons

Safeguards and disarmament principles

A set of principles governing disarmament and safeguards of chemical, nuclear, biological and missile activities has been formulated in the light of existing experience and post-cold-war disarmament developments. Their use in the design, operation and development of CIMVS in the ME is essential in order to ensure with the highest possible level of confidence that the probability of WMD proliferation is the lowest possible. These principles have been formulated in analogy to the IAEA Safety Fundamentals. The following principles have been formulated to address the situation in the ME. However, they, can be of general use for global safeguards and disarmament purposes.

Principle 1: The transparency, openness and intrusiveness embodied in the CWC, the protocol on Strengthening the Effec-

tiveness of and Improving the Efficiency of the IAEA Safeguards system (IAEA, GOV./2914, April 1997), as well as relevant experiences shall be applied, as appropriate, in an integrated manner to all WMD and missile activities.

Principle 2: The design of the CIMVS shall be based, as appropriate, on the concepts of the defence in depth, (which include redundancy and diversity.) This will allow the use of several layers of monitoring and verification, as well as various, monitoring and verification methodologies and technologies to maximise the confidence level.

Principle 3: Dismantling and destruction of existing WMD and missiles (with a range above 150 km) as well as the infrastructure and facilities used for their development and production (if not converted to peaceful uses) shall be undertaken multilaterally, according to approved procedures, in order to ensure verification on the regional and global levels.

Principle 4: The highest standards of security and effective physical protection of nuclear and related materials, facilities and equipment to prevent theft or unauthorised use and handling shall be maintained.

Principle 5: The availability of technological facilities, technical means and infrastructure required for establishing an efficient and effective verification system shall be ensured. Engineering and technical support with competence in disciplines important for monitoring and verification shall be available.

Principle 6: Sufficient numbers of adequately trained and authorised inspectors and staff working in accordance with approved and validated procedures shall be ensured. Appropriate training and retraining programmes shall be established.

Principle 7: Appropriate quality assurance programmes shall be established and implemented in all disarmament and safeguards activities.

Principle 8: The timely application and analysis of the monitoring and verification results is essential to maximise the effectiveness of the system. Further a comprehensive periodic evaluation, analysis and correlation of data and information gathered from various sources including surveillance, monitoring and inspection as well as intelligence information shall be carried out to identify future plans. Lessons learnt from operating experience shall be used to enhance the effectiveness and efficiency of the system.

Principle 9: Promotion of scientific, technical and economic co-operation in peaceful uses of dual use technologies is essential to achieve significant socio-techno-economic benefits and impacts to end-users. The co-operation shall include R&D to improve verification technologies. Further, it may include activities in safety, environmental protection, transboundary releases, waste management and peaceful dual technologies. Such undertakings will enhance confidence building and institutionalise the partnership imperative in development and security. Voluntary confidence building measures to be taken by countries in the zone should be promoted by Parties in the region.

Principle 10: Peace, disarmament and non proliferation culture shall be established and disseminated in verification organisations, educational systems, and to the public through training, education and public information. This will promote communal responsibility towards disarmament, and regional security and enhance societal verification.

Principle 11: Each contracting Party shall establish a legislative and statutory framework for prohibition of the development, production, stockpiling and use of WMD and designation of a competent body to undertake the needed regulatory functions and act as a counterpart for the ME verification organisation. Strong and competent national organisations are the fundamental units of the regional system. The CIMVS should complement national systems and does not replace them. The network of national organisations will further strengthen the co-operative security imperative.

Principle 12: The MECIMVS shall be linked to global verification systems to enhance the strength and effectiveness of both systems and to assure the international community that the commitment to WMD, disarmament and non proliferation in the region is maintained. The experiences available in regional - global linkages in connection with the NPT, with emphasis on experience gained in the IAEA - ABACC and the IAEA - EURATOM arrangements.

Elements of design of the CIMVS

The design of the CIMVS is based on information available or made available on all WMD and related activities in the region. The extent of information available is an important measure of the degree of

transparency required by Principle 1. The sources of information include:

1. Full declaration and complete disclosure by the States Parties of devices, materials, equipment, facilities of WMD and related activities. It is important to emphasise that uncertainties related to the completeness of the disclosure will consequently lead to uncertainties in verification. In this context, unilateral destruction of WMD and missiles, can lead to mistrust and concealment of prohibited activities, materials or devices which will impair the design of the system and make verification a very difficult task, if not impossible.
2. Information on EXIM activities related to proscribed activities is an important component of the CIMVS. It warrants timely monitoring and verification to detect, at very early stages, attempts to circumvent EXIM control measures.
3. Information gathering of related data is an important element of the system to search for indicators of possible undeclared proscribed facilities and activities.
4. Information Analysis.

A Data Information Analysis Centre (DIAC) in connection with all WMD and missile activities important to the region is essential. The capability of the centre to record, process, search and retrieve data is essential for a timely and periodic comprehensive analysis and correlation of information on continuing basis according to Principles 2 and 8.

Export-import mechanism

Relevant information from exporting and importing countries in the region constitute the basis of a regional EXIM mechanism. An EXIM office should be established to serve as a clearing house to receive relevant information from exporting and importing countries, undertake information analysis and decide upon the required monitoring and verification plan.

The international EXIM control measures and experience should be utilised. These measures are voluntary activities that are pursued by groups of countries. Export guidelines have been developed and are continuously evolving. This international experience can be utilised through a regional global linkage with the Nuclear Supplier Groups (27 members, started by 7 in 1971), the Missile Technology Control Regime, MTCR (25 members, started by 7 in 1987), and the Chemical Weapons Convention. The experience of the Aus-

tralia group in chemical weapons should also be useful. The group established in 1984, used a list of chemical weapons agents and related precursor chemicals. In 1992 the group (now 22 members) added to the control a list of organisms used to make biological weapons. The main function of this group is sharing intelligence information. It is important to point out that the comprehensive list on materials, equipment and technology related to WMD recently compiled by UNSCOM based on the experience in Iraq should also be useful.

Monitoring and verification

A rigorous monitoring and verification system with the highest possible degree of confidence, reliability and intrusiveness is an essential requirement for establishing a MEWMDZF. The CIMVS shall be designed, built and operated in accordance with the safeguards principles, particularly Principles 1 and 2.

Technological monitoring plays a major role in confidence building and transparency and a significant role in verification, while on-site inspections play a major role in verification and a significant role in confidence building and transparency. The confidence level is increased by using multi-layer system of monitoring and verification and increasing redundancy, diversity and timeliness (Principle 2).

Technological monitoring involves environmental sampling and monitoring, remote or sensor monitoring, aerial surveillance and imagery, and others. It is important to measure the observables and determine the signatures of various laboratories and facilities. In accordance with Principles 5 and 6, adequate facilities, equipment and means as well as qualified manpower should be made available in the framework of appropriate quality assurance programmes (Principle 7).

Advanced technological means should be used for monitoring and verification. Examples are given:

- Wide range of sensor types: acoustic, optical intrusion, radiation, environment, seismic, camera, ground vibration, etc.
- Networking technology, communications, hardware and software capabilities.
- Aerial and satellite imaging, image analysis, remote monitoring on-site monitoring with tags, seals.
- Data security.
- Data acquisition, processing, analysis and sharing large quantities of data.

On-site inspection methodology

An appropriate balanced mixture of multi-layer on-site inspection methods including baseline, routine (scheduled), on-challenge or no-notice, and cross-disciplinary inspection should be designed. Joint inspections are novel; they enable better understanding and increase the capability of verification. Open invitation (anytime-anywhere) inspection may be considered. As mentioned earlier, each of Algeria, Iran and South Africa has invited the IAEA to undertake anytime-anywhere inspections. It is worthwhile to explore using this highly intrusive on-site inspection in connection with the potential MEWMDZF. A risk based approach should be used to determine the frequency and intensity of inspections. The risk is related to the ease of using safeguarded materials for weapons purposes.

The CIMVS allows stronger verification through better understanding and linkage of all WMD activities since they are strongly related. It allows joint inspections such as chemical and biological weapons as well as unclear weapons and missiles etc. The system allows also group assessment of inspections in various disciplines through periodic and timely group meetings to assess inspection findings, exchange information from all available sources and plan future activities including joint inspections.

Monitoring and verification of existing WMD, missiles and related facilities (or their conversion for peaceful uses) is a crucial item to peace and security in the region. Dismantling and destruction (DD) is a one time activity that should not be undertaken unilaterally. In case of Iraq, unilateral destruction was used to conceal elements of its proscribed programme, which makes verification, in spite of the UNSC authority under chapter 7 of the UN charter, extremely difficult. According to Principle 3, DD should be undertaken multilaterally to ensure co-operative monitoring and verification regionally and globally. In this connection article 6 of the African - Nuclear-Weapons - Free - Zone (ANWFZ) Treaty sets a precedent which is suitable for the ME. It requires Parties to destroy and dismantle nuclear explosive devices that have been manufactured prior entry into force of the ANWFZ Treaty. Verification of DD of weapons and the destruction or conversion of production facilities shall be undertaken by the IAEA

and the African Commission of Nuclear Energy. This regional - global linkage in verification of DD is essential to assure verification with a high level of confidence to the region and the world.

The ME region set a precedent for successful co-operative monitoring between Egypt, Israel and the USA in Sinai in the period February 1976, to January 1980. The US, as a third party, established a field mission to monitor access to Giddi and Mitla passes in Sinai with sensors and performed over flights. The various sensors employed were seismic, acoustics, magnetic, strain, infrared and video camera sensors as well as watch stations. The system successfully distinguished between significant and inconsequential sensor activities. All violations were relatively minor and resolved by a joint commission. The system was closed after conclusion of the 1979 Camp David Peace Accord. The success of this co-operative monitoring system in confidence building should encourage building a wider regional system to monitor and verify all WMD and missile activities in connection with a MEWMDFZ.

Manpower

In accordance with Principle 6, sufficient numbers of adequately trained inspectors and staff is a must for building and managing a credible CIMVS. The technical capabilities and skills of inspectors and inspection teams, the leadership and managerial capabilities of team leaders are vital to the system. The inspectors and staff will be selected primarily from the region and mainly form national verification organisations to be established according to Principle 11. The strength of national organisations and availability of competent staff is crucial to the establishment of a credible regional CIMVS.

Proper manpower development programmes in the relevant fields take a long time to implement. Therefore, it is of prime importance to consider the development of national and regional, short and long range, manpower development programmes which can be implemented in the region and, in advanced countries and in global verification organisations.

Regional-global verification linkage

Due to the high importance of linking regional to global verification systems, (Principle 12) some elaboration is required. Regional verification ensures the regional

responsibility and co-operation in designing, building, and operating the CIMVS, sharing inspectors, technology and techniques, information, results as well as assessing the situation periodically and handling abnormalities. Through these co-operative measures Contract Parties are mutually convincing themselves of the compliance of their obligations. However, as in all NWFZ treaties, linkage with global verification systems (e.g. the IAEA) is extremely important to assure the international community that the commitment to disarmament and non-proliferation is maintained. Technological developments in verification technology in global systems will be available to the regional system which can also cooperate in such efforts. Linkage will also allow exchange of experience and lessons learned as well as relevant intelligence information. The regional system can gain access to global information data bases on WMD and related activities and the international EXIM mechanism and databases as mentioned earlier. Regional-global verification of DD of WMD and production facilities is also essential to ensure regional and global verification as emphasised earlier (Paragraph 46).

Further, through linkage, the region as a whole can benefit from global technical co-operation, R&D and training programmes especially for qualifying inspectors. It will also allow the region to participate effectively in the ongoing, global developments to increase the strength and effectiveness of verification, particularly with regard to the 1972 BWC. The region will also gain additional access to global organisations and hence the UNSC in case of non-compliance.

To reach these benefits states in the region should accede to the NPT, CWC, BWC, CTBT, as well as forthcoming treaties. This will end the varying attitudes in the region, while the NPT is universally applied in the region except Israel, the CWC is signed by Israel and several countries in the region. Other countries will not sign the CWC unless Israel accedes to the NPT. Strong regional-global linkage will strengthen both systems and in particular the regional one.

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