

Atmospheric testing might be detected by remote means but the use of remote detection systems by international agencies against a specific nation would be tantamount to an accusation. It would also be very expensive. These activities may be routinely monitored and reported by national agencies, but the only international activities which seem feasible would be in response to challenge mechanisms.

6. Construction or conversion of new agent or weapon (means of delivery) production facilities. The construction of new chemical plants or the conversion of existing plants to new functions will occur continuously in most nations. Similar activities will occur with munitions plants. The intent to use new or converted plants for chemical warfare purposes cannot possibly be verified even with on-site inspections. These activities may be monitored nationally, but routine international verification for this activity does not appear to be feasible under a treaty. However, it would be necessary in response to challenge mechanisms.

7. Production of chemical agents. The banning of this activity is a key problem for chemical arms control verification and a technical solution is very complex due to the wide variety of chemicals which may be involved. Proposals over the past 15 years include analysis of economic and production data and a variety of remote, near-site and on-site observations involving sampling and analysis. A number of visits to industrial sites, carried out to determine if clandestine agent manufacture could be carried out in existing plants, have lead to the conclusion that the highly toxic single purpose agents would require special containment not normally available. Inspection, if it includes some sampling, would readily demonstrate the production or non-production of banned chemicals and would not result in compromise of commercial information. Water sampling downstream from a chemical facility should reveal nerve agent production, even from a high containment plant, but may not be suitable for all other agents. It is unlikely that remote air sampling downwind from a high containment plant would be successful. Routine monitoring of chemical plants in all nations including inspections might be feasible for national control agencies, but would be beyond the capabilities of an international agency without a large number of inspectors. In addition, it would be nearly impossible to verify intent for production of dual purpose materials even when it appears there were greater amounts being produced than needed for peaceful purposes.

It is concluded that it would be very difficult to provide verification of the non-production of banned materials on a routine basis by an international agency and that a satisfactory minimum international assurance might be provided by a structured information exchange and response to challenge mechanisms. On-site challenge inspections will require experts and the sampling and analysis of waste water and air effluents as well as process products. Routine inspections and reporting of accurate data on chemical manufacturing within a nation should be carried out by national agencies.