

register should be simple, allow easy access by electronic, hard copy or facsimile data and use a commercially based, readily available software program as the basis for its calculations.

Whether or not there is a compliance assessment mechanism, and what type it will be, will also have a bearing upon the costs to be borne, either by a centralized agency or by nations in direct proportion to their participation. Other items which will affect costs are the exact functions of a central agency and the frequency of meetings decided upon by participants. In the case of the United Nations Register of Conventional Arms, an existing centralized agency acts as a repository and accountant for the information supplied by nations. On the other hand, for CFE Treaty data, because of the nature of the umbrella instrument, NATO has developed an implementation and co-ordinating staff which now is the recognized clearinghouse for information dealing with that Treaty. (Interestingly, this role for NATO is not mentioned in the CFE Treaty proper. Rather, it has evolved in an *ad hoc* fashion to fill an obvious requirement.) In the latter case, the drafters of the Treaty began work in an adversarial environment and clearly foresaw a monitoring and verification function while, in the case of the United Nations Register of Conventional Arms, the mechanism for compiling and checking information supplied is very much looser. In fact, there is no on-site monitoring provision in the latter arrangement and a centralized staff — much smaller than that used in NATO Headquarters — provides mainly a simple clearinghouse and publication facility.

In terms of actual costs, a look at the United Nations Register of Conventional Arms may be illuminating. Costs (in US dollars) were estimated in the planning stages to be:

- hardware, software and system development and training \$50,000 (non-recurring)
- development, establishment and training of the system \$75,000 (non-recurring)
- three posts for personnel to manage the system \$228,000/year

For this, the architects of the plan expected to be able to collect and collate the data from 185 countries, publish it and distribute it in hard copy on wide distribution. In actual fact, annual costs have been well below \$250,000 and it has taken less than two person-years of time to amass and disseminate the data. Of course, these figures only relate to central costs. Each participating country's national data compilation activities are much harder to gauge..

The size of the register, as noted, may vary these numbers considerably. In fact, the above figures rely on some special programming of software designed specifically for the task. The use of readily-modified commercial software or the use of existing data bases and server space should allow costs to be cut further in this area. There is also the possibility of adaption of existing software used by OSCE, NATO or the UN, as well as taking advantage of their respective organizational experience to help reduce costs, especially in the critical start-up phase.⁴⁶ As well, if the primary mode of distribution is electronic transmission of data, the resultant minimization of hard paper copy for the data should also lead to other cost savings.