

## Appendix 6

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### Unattended ground sensors: Summary of a survey

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A pioneering opinion survey on the potential use of unattended ground sensors (UGS) in UN peacekeeping was conducted in 1995 by European researchers (Altmann et al. 1998) and published by the United Nations Institute for Disarmament Research. Such UGS can be left in the field to send signals to peacekeepers. A questionnaire was sent out to peacekeepers and to officials at defence headquarters in various countries, gaining 114 responses out of 185 questionnaires sent. A full 90 per cent considered ground sensors useful in principle, across the range of possible activities considered (cease-fire lines, buffer/demilitarized zones, enclosed areas, safe havens and using portable sensors). Only 27 per cent had actual experience with ground sensors, mostly from other military activities, as would be expected because of the very limited application in current UN operations.

A majority (68 per cent) believed that the efficiency of a peacekeeping operation could be increased by using ground sensors, while 29 per cent disagreed. Some 40 per cent wanted to deploy sensors in a covert fashion, 36 per cent in a purely overt fashion, and 16 per cent wanted the capability for both modes of operation. Encrypted signals were preferred by 54 per cent, while open communication was chosen by 34 per cent, with only 7 per cent desiring both. The respondents expected that the unattended sensors should operate for weeks (46 per cent), as opposed to days (31 per cent) or months (22 per cent), before human intervention was required. The optimal detection range was 100–1,000 metres for most respondents (49 per cent), although some (25 per cent) wanted a longer

distance and the rest (9 per cent) could settle for less. The main objects of detection were considered to be: people (84 per cent), trucks (75 per cent), tanks (45 per cent), helicopters (28 per cent) and aircraft (28 per cent). Most respondents desired detection within a few seconds (not minutes or hours) and were willing to accept a false-alarm rate of one per day, but not five per day. A slim majority considered that an acceptable training time would be one week (51 per cent), while some wanted only one day (35 per cent) and others a full month (7 per cent).

A few of the many desirable features cited for UGS were: theft-proof installation; remote on/off switching (for example, to activate sensors at the beginning of a curfew); the capability to differentiate between animals and humans, as well as between armed and unarmed persons; and compatibility with existing computer and communications systems. In addition to those inferred from the above, the listed concerns were: the possibility of increased complexity in the operation; the potential need for more troops to guard or periodically check the sensors and respond to the alerts; the need for technical expertise for operation and maintenance; the degradation of sensor capabilities owing to weather, terrain and other factors; increased UN involvement necessitated as a result of increased information.

Practical suggestions included: including the use of unattended sensors in the mission's mandate (or the Status-of-Forces Agreement) to lessen any fears the parties might have of unwarranted observation, and including backup systems and methods in case the sensors fail. In considering how peacekeeping expertise with sensors should in the future be increased, most felt that cooperation among nations is the best means to develop the technologies (41 per cent). Others preferred UN ownership (30 per cent), while the remainder preferred other means (29 per cent).

The respondents were almost exclusively from the military component of peacekeeping missions; the civilian members of the peacekeeping community were under-represented (only 5 per cent of the respondents). The survey covered a much more limited set of tools than the present work.