Keeping watch: Monitoring, technology and innovation in UN peace operations

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United Nations University Press

TOKYO • NEW YORK • PARIS

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Introduction: Technology for peace

Rapid technological advancement has impacted military affairs in extraordinary ways. New technologies have led to more explosive, powerful and precise weapons. They have steadily increased the ability to monitor an enemy or opponent. Technology changed the way wars are fought. Has it also changed the way peace is kept?

Unfortunately, the technological revolution has barely touched the peace operations of the United Nations. In particular, the surveillance equipment ("soldier's kit") of UN peacekeepers has changed little since the inception of peacekeeping. There remains a compelling need to modernize UN operations, especially given the ambitious new mandates assigned to the United Nations. These tasks go far beyond traditional UN operations. Peacekeepers today are not merely positioned between two opposing armies but are now often deployed across entire countries. Their tasks include protecting civilians from ethnic violence, providing security for entire populations, preventing civil wars and massacres, combating criminality and building nations from the ashes of war. To do these many tasks, UN peacekeepers must locate and intercept clandestine arms shipments, monitor potential spoilers of peace processes, uncover evidence of atrocities for courts and tribunals, and even govern large territories during transitional periods. The extensive list of UN mandates and peace operations, past and present, is provided in Appendix 1, showing the expansion over time.

The new and difficult tasks in modern multidimensional missions require substantial technological resources for monitoring and observing,

Keeping watch: Monitoring, technology and innovation in UN peace operations, Dorn, United Nations University Press, 2011, ISBN 978-92-808-1198-8

yet UN member states have been reluctant to invest the United Nations with modern observation means. Peacekeepers continue to rely on old-generation tools, mostly binoculars. For this and other reasons, UN peacekeepers have been overwhelmed in such places as Angola, Bosnia, Cambodia, Darfur, Somalia, Southern Sudan and Rwanda.

Meanwhile, the technological "revolution" in the world has given birth to tremendous scientific and commercial progress, having many potential applications for peacekeeping. Most easily discernible are the advances in information technology (IT) and communications. Global telecommunications, the Internet, personal computing, hand-held devices and wireless and digital networks, especially social media such as email, blogs, wikis and popular sharing interfaces (Facebook and Twitter), have changed the way people live, move and work in the "information age". The United Nations has not left itself out completely. The UN system for communications is the one area that has evolved alongside the commercial sector. Yet for monitoring and surveillance there has not been parallel progress in UN operations, despite a commercial revolution in sensor technology. Inexpensive products such as high-zoom digital cameras, web cameras (webcams) and camcorders have become common household items. Closed-circuit television (CCTV) and digital video networks are making shops and streets safer in cities around the world. But the concept of video monitoring of strategic locations in war-torn cities is a novelty in peacekeeping. Motion detectors are in widespread use in home alarm systems and in driveways, for instance in night illumination systems to alert householders to visitors and potential intruders, but they are not yet the tools of peacekeepers in the world's hottest conflict zones. High-resolution satellite imagery, which 20 years ago was the sole preserve of military and intelligence agencies, is now available free on personal desktops worldwide through services such as Google Earth, but the United Nations has yet to use near-real-time satellite imagery in its operations. Model airplane enthusiasts can fly small-scale airplanes equipped with miniature video cameras, but the United Nations has yet to purchase professional-level unmanned aerial vehicles (UAVs). Other organizations such as the North Atlantic Treaty Organization (NATO) and the European Union have readily adopted a wide range of advanced technologies in their peace support operations, but the United Nations has not seized the opportunity.[1] Given that monitoring is a central element of every UN peacekeeping mandate, it is strange that monitoring technologies are missing from the organization's standard toolkit. It is also tragic that they are not used by the United Nations in the world's conflict zones, where detection of dangerous movements of arms and fighters could help prevent truce violations, large-scale atrocities or clandestine smuggling of weapons or humans.

In the communications field, as mentioned, the United Nations has successfully harnessed some new technologies. The United Nations' Department of Field Support (DFS) maintains a communications system that is world-class, rapidly deployable anywhere on the globe and capable of voice, video and data transmission at the operational level. Purposely redundant and complementary systems such as UHF, HF, cell and satellite phone networks are deployed in most missions. New York also maintains high-quality video teleconference links with many peacekeeping operations. The Department of Peacekeeping Operations (DPKO) has an advanced information technology architecture, providing crypto-fax, email, Internet and, since 2006, intranet access to all field missions and most field personnel.[2] Many UN databases contain excellent, up-to-date information resources and are easily accessible from remote locations. For example, the Contingent-Owned Equipment (COE) database is available to personnel at headquarters and in the field.[3] Moreover, the United Nations' Official Document System database has been available free of charge to the general public since 2004.[4] Tens of thousands of UN documents are added annually.

The driving processes of globalization, digitization, miniaturization and the convergence of technologies (e.g. multifunctional phones) have greatly helped the communications/IT functions of the United Nations. Surprisingly, there has not been a direct impact on the United Nations' capacity for observation. Satellites are routinely used by the United Nations for intercontinental communications but they are not used for timely reconnaissance. Similarly, the use of aircraft for UN transportation is impressive. The United Nations' mission in the Democratic Republic of the Congo (DRC) – Mission de l'Organisation des Nations Unies en République démocratique du Congo (MONUC) – runs the largest carrier (transport) fleet in Africa,[5] but the potential for aerial reconnaissance in peacekeeping has only just begun to be explored in a systematic fashion. The United Nations' "Contingent-Owned Equipment Manual" sets the standards for equipment brought to the field by national contingents (United Nations 2008). It lists 34 types of communications technology but only 6 monitoring technologies, and even those 6 are not adequately defined or described (see Chapter 8).[6]

Fortunately, commercial off-the-shelf technology for monitoring is becoming cheaper, lighter and better in virtually all categories and is increasingly easier to procure and deploy. The microprocessor revolution, which experienced an unprecedented improvement of 10 orders of magnitude (a factor of 10 billion) in price-to-performance ratio over four decades,[7] has led to a proliferation of "intelligent" sensors and surveillance systems. Data can now be conveniently added to geographic information systems (GIS) that are readily available on the commercial

marketplace at a fraction of the previous price or even free on some cell phones. However, the United Nations continues to distribute only cartography products and paper maps and has yet to make the jump to shared GIS databases, which would allow direct input anytime from users such as UN police and military observers in the field. Fortunately, this capability is likely to come soon, given the considerable progress that has been made in the DPKO's cartography units in the missions.

Modern militaries around the world have a keen awareness of technological evolution, especially the enormous impact on operations from increased intelligence, speed and precision. The terms "revolution in military affairs" and "network-enabled operations" or "network-centric warfare", based on GIS, are now common in military circles, especially in the Western world. Such systems convey the reality that new technologies combined with new strategies have substantially changed military operations, especially through advanced electronic networks. Many militaries have been quick to take advantage of the sensor revolution, deploying ruggedized night-vision equipment (now in the fourth generation) and ground-based radars for air/ground surveillance and making use of aerospace reconnaissance. The military concept of C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance),[8] with its strong emphasis on information collection and sharing, has long been viewed as an essential field of military study and operations.

Notwithstanding this rapid evolution of sensor technologies in modern militaries and across modern societies, the United Nations has been slow to apply sensors to the military and civilian domains of its peacekeeping operations. The world organization is subjecting its personnel to unnecessary risks by not utilizing modern technologies that can monitor the most dangerous areas from a safe distance and help gain a broader awareness of safety and security threats.

Technological deficiencies in monitoring and a lack of "situational awareness" have already led to tragedy. In Rwanda in 1994, Force Commander Roméo Dallaire complained of being "deaf and blind in the field". Not being able to corroborate reports of a planned genocide or to monitor radio conversations of genocidal militiamen or to track arms flows, he lacked the detailed intelligence to secure UN headquarters support for preventive action (Dorn and Matloff 2000). Moreover, after the genocide began, he also lacked the fighting forces needed for an effective response. This led to a loss of UN credibility in Rwanda and a UN failure in the eyes of the world, though the fault lay more with the nations in the Security Council that delayed and obfuscated instead of providing desperately needed support.

In the neighbouring DRC, an estimated 3–4 million people have perished since 1996 in widespread strife, including two civil wars, the second

of which could be termed a "continental war" given the presence of opposing fighting forces from many African nations. At the beginning of the Congo/Zaire crisis, the United Nations proved unable even to provide accurate and consistent counts of moving refugees (Dorn 2005). Large shipments of illegal armaments are routinely imported into the DRC as vast quantities of minerals are illegally shipped out, without United Nations detection or interdiction (UN Security Council 2004). Rogue militias routinely carry out illegal "tax" collecting, looting, smuggling, kidnapping and killing in areas of the country with no real-time watch from the United Nations. Furthermore, on average one peacekeeper dies each month while serving in the Congo.[9] Although military leaders in MONUC clearly expressed the operational requirements for surveillance technologies (see the case study in Chapter 7), the UN planning and procurement process has proven too slow in response.

The harrowing consequences of the technological deficiencies in UN missions are illustrated by the November 2008 headline on the front page of the *New York Times*: "A Massacre in Congo, Despite Nearby Support." As hundreds were killed in Kiwanja and the village burned, over 100 UN peacekeepers were merely a kilometre away, "struggling to understand what was happening outside the gates of [their] base". The commanding officer had to "grope his way through a fog of rumour, speculation and misinformation". The officer complained: "During this whole time, there was an informational vacuum" (Polgreen 2008). The rebel militias of Laurent Nkunda held Kiwanja and Rutshuru and advanced towards Goma. Fortunately, the United Nations deployed some advanced technologies to counteract this advance, showing what a tremendous difference technology can make. As the rebel forces approached Goma, the United Nations deployed its Mi-35 attack helicopters equipped with state-of-the-art day- and night-viewing cameras. The high-zoom features enabled the helicopters to identify advancing targets, to confirm ground reports that there were no civilians or UN or government forces nearby, and to aim precise fire. With this help, UN forces prevented an attack on Goma, something the United Nations had failed to do in Bukavu four years earlier. The lack of intelligence in 2004 was similar to the famous inadequacies of previous missions, such as in Rwanda.

A *few* UN missions have used a *few* technologies to great advantage, as described in detail later in this book. The United Nations Interim Force in Lebanon has deployed several sophisticated radars for both air and ground surveillance. The United Nations Peacekeeping Force in Cyprus has become the first UN force to install CCTV cameras to monitor areas in a conflict zone. They are located in sensitive hotspots along the "Green Line" that winds its way through Nicosia separating two armies. The United Nations Stabilization Mission in Haiti has used heliborne cameras that transmit imagery in real time to mission headquarters. Moreover, the

United Nations in Haiti used sophisticated means to procure "intelligence" about the gang leaders who literally ruled Cité Soleil and its impoverished inhabitants. In 2007 the UN force was finally able to wrest control from the criminal elements, stop countless murders, incarcerate the wrongdoers and restore a semblance of the rule of law.

These cases, examined in detail later, indicate how technology has helped the United Nations to gain better general awareness and specific knowledge (intelligence) about hostile elements. It has also enabled the United Nations to protect its personnel and the local populace and better fulfil mission mandates. Sadly, cases where technology was used to its potential are the exception rather than the rule.

Fortunately, the United Nations has in recent years gained greater awareness of the need to harness technological tools and is slowly working on solutions. In 2008, DPKO launched a short-term project to enhance the deployment of low-and-medium-cost technologies in selected missions (Guéhenno 2008). The United Nations' "New Horizon" report, produced by DPKO and the DFS, outlined a "new field support strategy" that included "a better use of technology to support lighter, more agile deployment" (DPKO and DFS 2009: vi). The two departments recognized that robust peacekeeping "requires enhanced situational awareness" (2009: 21) and pledged "to enhance information-gathering, analysis and security-risk assessment capacity" (2009: 25). Their strategy "calls for the introduction of modern technology" (2009: 21) while identifying "critical shortages" in "observation/surveillance, including high resolution; night operations capability; data management and analysis" (2009: 27).

The UN Special Committee on Peacekeeping Operations (aka the C-34, which stands for the Committee of 34, reflecting the original number of members, but which today is composed of more than 120 nations which are contributing to UN operations) requested "the Secretariat to develop appropriate modalities for the use of advanced monitoring and surveillance technologies" (UN Special Committee on Peacekeeping 2008: para. 50). In 2009, it noted "progress made towards a wider and systemic use of technology in peacekeeping operations" (UN Special Committee on Peacekeeping 2009: para. 42). In 2010, however, the Special Committee requested "further effort in this direction" (UN Special Committee on Peacekeeping 2010: para. 43). A full list of Special Committee statements on this subject is provided in Appendix 2.

This book was written to help promote progress in peacekeeping. As outlined in the Preface, the work analyses the expanding UN monitoring functions in conflict zones. It seeks to identify the information requirements in missions and the extent to which they are met. It identifies lessons to be learned and mistakes not to be repeated. Cases of specific technology use in particular missions were researched and described.

All of this must be founded on a broad understanding of UN missions as they have evolved over time.

Notes

1. In several peacekeeping missions, other organizations or governments flew UAVs but not under the UN chain of command. In Bosnia, the United States flew Predator drones in areas where the United Nations Protection Force was stationed. Later, the NATO-led Implementation Force and Stabilization Force missions used drones. Various nations deployed drones in the NATO-led Kosovo Implementation Force. In the Democratic Republic of the Congo, the European Union flew Belgian B-Hunter UAVs, in part to support the UN Mission in the Congo (MONUC).
2. The United Nations has not yet brought data transmission to the tactical level (i.e. the individual soldier in the field), largely because communications within a contingent remain the responsibility of the contingent. Also, UN personnel often complain of blackout periods, when email cannot be used, and of delays in the transmission of messages across the UN networks in the field and to UN headquarters.
3. The COE database is not available to the general public, but information on the COE system can be found at <http://www.un.org/en/peacekeeping/sites/coe/about.shtml> (accessed 5 January 2011).
4. The United Nations' Official Document System is available at <http://documents.un.org/> (accessed 5 January 2011).
5. MONUC's many air assets consist of 24 fixed-wing aircraft and 62 helicopters. Military helicopters: Mi-17 (16); Mi-35 (4); Mi-25 (4); Lama/Alouette (4). Civilian air assets (Contractors): Mi-8 (30), Mi-26 (4), Hercules (6), An-24 (3); An-26 (2); An-72 (1); Il-76 (3), Beechcraft-200s (3), Boeing 727 (2), HS-125 (2), Dash turbo props (2), as of 10 January 2006, available at <http://www.monuc.org/news.aspx?newsID=9576> (accessed 2008). MONUC's fleet of over 86 aircraft is greater in number than South African Airways' 49 aircraft, though the latter are mostly considerably larger (see <http://www.flysaa.com/Utility_Navigation/About/index.html>, accessed 2008). Of MONUC's annual $1.1 billion budget, almost a quarter is spent on aircraft and fuel (US$ are used throughout this book).
6. The 34 types of "major" communications equipment are listed under 6 categories: VHF/UHF-FM transceivers (8 types); HF equipment (4); satellite equipment (10); telephone equipment (5); airfield communications (4); and miscellaneous (3, including underwater). The monitoring technologies fall under 2 categories ("observation" and "identification") and list only 6 types. The deficiencies of the COE Manual are described in Chapter 8. The Standard Cost Manual 2005 (DPKO 2005a) lists 4 types of observation technology and 175 types of communications equipment.
7. In the early 1960s, the "state-of-the-art computer" had 1 kilobyte (1,000 bytes) of "core storage" and cost over $10,000, whereas today a laptop with 1 terabyte (1,000 billion bytes) of hard disk space can be purchased for under $1,000. This is a 10-billion-fold improvement in the price-to-performance ratio over 50 years.
8. In the 1980s, the term C3ISR was used because computers had not yet made such a high level of impact as to warrant adding the extra "C".
9. The most dangerous current peacekeeping operations, based on fatalities per year (given in parentheses) over the length of the mission until 2009, are: United Nations Mission in Liberia (28.3), United Nations Mission in the Sudan (15), United Nations Mission in the DRC (14), United Nations Operation in Côte d'Ivoire (13), United Nations Operation in Burundi (11.5) and United Nations Stabilization Mission in Haiti (10).