Journal of Conflict Studies

Willie 14:5: Commercial Satellite Imagery and UN Peacekeeping

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Volume 23, numéro 1, winter 2003

URI : https://id.erudit.org/iderudit/jcs23_1art04

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Éditeur(s)

The University of New Brunswick

ISSN

1198-8614 (imprimé)
1715-5673 (numérique)

Découvrir la revue

Citer cet article

Keeley, J. F. (2003). Willie 14:5: Commercial Satellite Imagery and UN Peacekeeping. *Journal of Conflict Studies*, *23*(1), 86–105.

Willie 14:5: Commercial Satellite Imagery and UN Peacekeeping

by
James F. Keeley

INTRODUCTION

"[T]he UN would rather appear inept than politically incorrect." This was the assessment of Canada's Ambassador to the United Nations, Robert Fowler, in his keynote address to the March 2001 meeting of the United Nations Geographic Information Working Group (UNGIWG).[1] The August 2000 *Brahimi Report* on UN peacekeeping noted that:

> Peace operations could benefit greatly from more extensive use of geographic information systems (GIS) technology, which quickly integrates operational information with electronic maps of the mission area, for applications as diverse as demobilization, civilian policing, voter registration, human rights monitoring and reconstruction.[2]

While commercial satellite imagery (CSI)[3] was not directly mentioned in the *Brahimi Report*, it follows naturally from the reference to GIS technology, which can make use of data from both aerial and satellite surveillance.[4] Yet, at UNGIWG's meeting, Fowler told those present that although, "you are capable of producing magnificent products . . . you must be more forceful in forcing them down the throats of would be users, who, for all kinds of complex reasons, do not want to have anything to do with your product."[5] This reluctance would likely extend as well to the use of CSI, much less to the development of a significant in-house UN CSI analysis and interpretation capability for peacekeeping purposes. While the possibility of depending on supplier states will be noted briefly below, as well as alternative UN-centred modes of supply and analysis, the benchmark case assumed here will be a capability effectively lodged within the Department of Peacekeeping Operations (DPKO).

> In *The Boomer Bible*, the Book of Willie, chapter 14, verse 5, we are told that there is always a good and virtuous reason for being opposed to doing what you don't want to do.[6]

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There is a developing use of CSI by various UN agencies. Some of these uses are in areas not particularly associated with security issues but some are in sensitive areas. Even within the realm of peacekeeping operations there has been some previous use of satellite imagery. What is missing, however, is as yet the sustained, routine, and especially in-house acquisition and use of such imagery by the UN in support of peacekeeping operations. This article will briefly explore five general categories of "good and virtuous" reasons which states might offer to account for reluctance with respect to a DPKO-centred CSI acquisition and analysis capability: legal, financial, technical, organizational, and political. Some of these substantive issue areas – the first three – raise serious but not inherently unmanageable problems, while the last two, and especially the political category, are more likely to be both serious and potentially fatal in terms of "unmentionables." Given these organizational and political difficulties, while the UN may indeed make increased use of CSI in its peacekeeping operations, it will be more difficult to do so as part of an increased, inherent information capacity rather than simply relying on imagery-capable states unless there is a significant shift in the attitudes of member states to the development of independent in-house capabilities.

Legal Issues

Various legal issues arise concerning the acquisition and use of CSI. States without a satellite imagery capacity have long been sensitive to the prospect of overhead surveillance. On the other hand, states with such a capacity have recognized that knowledge is power, and have sought to control the dispersal of that knowledge. Some of the results have found their way into elements of both international and national law which would affect the use of CSI by the UN. Other legal questions might arise in terms of contracts between a UN user and a CSI imagery or service provider. In no case, however, does there appear to be an absolute legal bar to the acquisition and use of CSI by an international organization; on the contrary, there are several examples of its use. National and contractual issues, which could be subject to agreement, are more likely to present significant, though not insurmountable, legal obstacles.

In international law, there appears to be no inherent bar on the ability of an international organization to acquire and use CSI. Such a conclusion was reached in the 1983 study of the implications of establishing an International Satellite Monitoring Agency (ISMA),[7] and there is no reason to believe that the legal situation has changed since then. Quite to the contrary, we find that the International Atomic Energy Agency (IAEA) has moved, in the last few years, steadily towards the acquisition of such a capacity,[8] and that the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC), the successor to UNSCOM, is drawing on overhead surveillance, including from UNSCOM's archives, as a tool.[9] Other UN agencies, such as the Food and Agricultural Organization, have also drawn on overhead imagery for their work.[10]

What we are more likely to find in an international organization are policy guidances putting conditions and limits on how imagery can be used. Without these, regardless of the legal possibilities, states would likely be very reluctant to grant an agency the necessary resources or political support. One might anticipate, for example, limits on use linked to the purposes of the agency: if the agency served a specific function, the imagery it obtained could not be used for some other purpose. Thus, imagery obtained for crop information would not be used, for example, to monitor troop deployments, even if such use would be technically feasible. This could limit "image trading" among separate agencies, and could be a factor working against any proposal for a single, multipurpose, UN imagery agency. There could also be limits within an agency on who could use the image, and who could have access to information derived from that image. In the case of the IAEA, imagery and derived information will likely be handled at the same level of security as other safeguards information. What could be imaged – and thus both where and when imagery could be taken – might also be subject to limitations, to prevent this capability from being used too freely. This could, for example, limit the ability of the UN to use such imagery as an early warning tool rather than as a tool for initiating and carrying out peacekeeping operations.

Laws and regulations of states with a satellite imagery capability would also have an impact. The most obvious area is in "shutter control," through which an imagery-capable state might seek to deny that imagery to others for reasons of national security. India limits access to imagery of its territory from its satellite. The US has placed limits on access to imagery over Israel from American CSI. Efforts were made to deny CSI to Iraq after its invasion of Kuwait in 1990. Thus, the willingness of imagery-capable states to permit the supply of CSI to the UN, including in crisis periods or in issues where they might have differences with the UN, could be a factor. Against this, there are a number of states with at least some CSI capability, so that an objection by one need not result in the UN being totally cut off, though its access to the full range of satellite capabilities would be affected. Other control mechanisms might exist, however. Some states might extend their regulatory grasp through the network of satellite-related services which they provide to other states. Canada, for example, draws to a considerable degree on the US for the Canadian RADARSAT system. The US might make use of such connections to claim some right of shutter control. Even without such an extra-territorial extension of regulatory control, political pressures and convergences of political interests could still have a limiting effect. To state the obvious, then, it is crucial that those with regulatory authority over CSI providers be willing to see the UN have access to CSI.[11] A third mechanism could be pre-emptive purchasing of imagery, as occurred at the opening of US operations in Afghanistan in October 2001.[12] This blocking mechanism, however, is theoretically open to all imagery purchasers, depending on contracts signed with imagery providers. Whether the UN could negotiate – with both

imagery and service providers and with relevant states – contracts and agreements avoiding this sort of practice might be a question worth additional examination.

It is also useful to note, however, that UN access to CSI (although not necessarily through an in-house mechanism of acquisition, analysis, and interpretation) may present advantages to imagery-capable states. Commercial imagery can provide a publicly-usable way of providing information without compromising more sensitive sources and capabilities. Rather than providing NTM (National Technical Means)-based imagery, whether or not in degraded form, areas and items of interest discovered or confirmed through such means could then be presented through appropriate CSI imagery of the same location. In that way, CSI becomes a way of "sanitizing" national information. This can be done either by providing CSI directly to the UN, or by suggesting that the UN might want to acquire imagery of a specific area. This latter, however, clearly would run into limits placed on the UN's ability to acquire CSI.

A move by the UN into the direct acquisition of CSI would, of course, require contracts with the CSI providers. These would have to cover such areas as the nature of the services to be supplied, copyright, etc. Contracts would also need to be negotiated to handle costs, as will be noted in the next section. A supportive attitude on the part of the regulatory state of a CSI provider might be beneficial here, if only indirectly. This sort of problem would also have to be worked out if the UN was to be able to draw on imagery when needed. Here, again, a beneficial attitude on the part of the regulatory state would be useful.

While there seems to be no inherently fatal legal obstacle to the UN acquiring and using CSI on a legal basis, a consideration of some of these issues points us, inevitably, to the attitude of states – to political considerations – as significant factors, including the resolution of legal difficulties. This is the same pattern we shall find in assessing the financial and technical issues.

Financial Issues

The cost of a CSI capability might also be raised against its use by the UN. Such costs need to be estimated carefully, but a little thought and study suggest that the costs need not be excessive. However, cost issues for an imagery capability are more complex than a simple quote on cost per image suggests. As well, the rhetorical uses of a language of "cost-effectiveness" must be recognized.

The cost per image of CSI is hopelessly inadequate as an approach to estimating the full cost of a CSI capability. Different imagery providers might charge different rates. In addition, archived imagery, which might be usable for some purposes, will be less expensive than new imagery. New imagery needed on a time-urgent basis might carry a surcharge, and there might be additional costs to obtain a priority over other users, to permit queue-jumping. High-resolution

imagery will be more expensive than low-resolution imagery, yet the latter could also be usable for certain purposes. High-volume and regular users might be able to negotiate better rates than occasional and small-volume users, and so on. It may also be possible to contract with providers for other, related services.[13] No single cost per image quote will capture these complexities, which require instead the integration of cost issues with considerations of usage volumes and patterns.

Cost estimates exist for other possible CSI purposes which suggest, however hypothetically, that the financial burden of acquiring and using CSI need not be excessive. Laurence Nardon and F.R. Cleminson,[14] in independent estimates of the costs of a CSI capability to monitor a comprehensive test ban treaty, suggest volumes of 860 and 600 images per year respectively. With only slight variation in cost/image estimates (US$3,300/image for Nardon and US$3,200/image for Cleminson), imagery acquisition costs come to US$2,838,000 annually for Nardon and US$1,920,000 for Cleminson. Christer Andersson's study of possible IAEA costs, based on estimates ranging from 121 to 297 images per year, suggests a range of US$445,000-1,030,000 per year for imagery.[15] A next step would be to develop estimates of imagery volumes and types for peacekeeping applications. The varying nature and occurrence of peacekeeping operations would make such estimates somewhat notional, of course, but they might at least indicate some more detailed and reasonable expectations.

Even if US$3,300/image (at one time, at least, the standard SPOT rate, and used as a convenient benchmark) seems like a lot by itself, it leaves out the array of hardware, software, and personnel costs needed to create and run an in-house analytical and interpretive capability, if this is the sort of UN capability in question. The scale of such a capacity would be sensitive to considerations of volume, obviously, but also might reflect additional and specific demands. For example, if the UN were to acquire a purely New York-based capability, with information feeds to units in the field, that might be a lower-cost enterprise than being able to set up field units with their own capabilities (e.g., drawing on transportable ground stations to download imagery directly). Such considerations would affect the technical requirements of a CSI capability, as well.

The full cost per year of an imagery unit would seem roughly to double costs in the cases of the Nardon and Cleminson studies, to US$6,500,000 and US$4,400,000 respectively. Depending on which scenario is used, Andersson estimates total yearly costs to the IAEA to range between US$840,000 and US$1,700,000 per year.[16] The ISMA study, in contrast, gave very much higher estimates even for the early phases of a satellite capability (that is, excluding a satellite development or a satellite purchasing requirement). This, however, was premised on a very high volume of images (e.g., about 850 images/month) and a correspondingly large analysis establishment in the first phase (US$8 million for acquisition and US$25 million/year running costs), not to mention the second

phase costs of acquiring (US$60-80 million) and running (US$20 million/year) dedicated ground stations.[17] A great attraction of CSI, however, is that the costs of dedicated ground stations could be avoided (unless, for example, mobile ground stations for field use), as would the much greater costs of dedicated satellites. Without the major investments foreseen for later phases of the ISMA proposal, even a capacity to acquire and examine relatively large volumes of imagery might not be very great relative to overall peacekeeping expenditures. Generally, it would seem reasonable to suspect, at least as a starting-point, both that the volume of imagery required would be potentially quite variable (depending on the number and nature of UN operations on-going) from one year to the next, and that the likely volume of imagery and related size and cost of an imagery unit would be closer to the Nardon/Cleminson estimates than to Andersson's, though not as great as the ISMA estimate.

Poor estimation of capability costs and the possible low costs of such a capability have implications for the use of cost-effectiveness arguments as a line of resistance. Cost-effectiveness as an issue may serve rhetorical purposes and/or be a real, if at times misleading, consideration. Rhetorically, responsible people are concerned about cost-effectiveness, so people who wish to be perceived as responsible may also talk about it, even if (or indeed especially because) cost information is poor. Or the argument may be a disguise for other concerns. Particularly where both costs and effectiveness are ambiguous, cost-effectiveness may be a very attractive, if ironic, rhetorical device for a body such as the UN, periodically excoriated for its apparent rampant wastefulness yet also kept on a fairly tight budget. More generally, of course, one must note that cost-effectiveness arguments seem very seldom to be presented in the sense that increasing expenditures marginally may lead to an even greater increase in marginal effectiveness. Quite often, the real meaning of "cost-effectiveness" is "cost-cutting."

Given the potentially modest cost of a UN CSI capability, estimations of its impact on organizational effectiveness would also seem called for. This raises other issues, best noted in the organization section below. Here, however, a variant on the cost-effectiveness argument can be noted: that any cost incurred in acquiring a CSI capability be offset by reduced costs elsewhere, with overall cost neutrality the explicit or implicit ideal. While this might appeal to states anxious to keep expenditures down, it depends on a simple relationship between a new or enhanced capacity on one hand, and existing capacities on the other. It implies that an increase in the first can and ought to be matched by a corresponding reduction in the second, with no net decrease (and presumably a possible net increase) in effectiveness overall. Any more complex relationship is implicitly ignored. For example, there might be positive synergistic effects between capabilities not captured by treating them as substitutes for each other. There is also the possibility that they might be at best imperfect substitutes at that. So, for example, the possibility that a CSI capability might lead to reduced troop costs

might be worth exploring, but so, too, is the possibility that the same level of troops might be made even more effective if mated with a CSI capability. At the same time, it must be recognized that troops on the ground perform various desirable functions, not all of which can be handled through (though some might be enhanced by) CSI. Reducing the numbers of troops on the ground could thus reduce the ability to handle these other functions.[18]

As with the legal issues, cost as such does not necessarily rule against the acquisition of a CSI capability by the UN. What is suggested, however, is the need to develop better estimates of cost-related factors, such as volume, imagery type, equipment, software, personnel, etc. As well, unless they adequately address issues of both costs and effectiveness, arguments based on appeals to cost-effectiveness should be treated with some degree of suspicion.

Technical Issues

Two broad classes of issues might arise here. One concerns the information available from satellite imagery and its usefulness in a peacekeeping role. The other concerns technical questions in acquiring, analyzing, and delivering that information.

Vipin Gupta, among others, outlines the ground resolution requirements for detecting, identifying, and characterizing various structures or other features for imagery. The range of resolutions is from as large as 60 m for basic detection of urban areas to as fine as .015 m for nuclear weaponry components.[19] While much of the precise description and technical analysis requirements could not be met using commercially available imagery, it is clear that imagery in the 1-4 m ground resolution range would none the less have a number of applications.[20] If we expand our range of imagery to include low-resolution, thermal, and radar imagery, there are also substantial possibilities there; this is further expanded if the possibilities of merging imagery from different sources is considered. While military-grade imagery might have considerable advantages over commercial imagery, it is important not only to avoid letting the best be enemy of the good, but also to recognize that substantial national security benefit has long been derived from imagery of lower resolution than that now available commercially.

The interest being demonstrated on the part of humanitarian organizations in the possible use of CSI suggests that this grade of imagery could be readily applicable to peacekeeping functions, particularly where there are significant overlaps between peacekeeping and humanitarian activities. One would expect differing patterns of requirements, including both for resolution and timely delivery of information, for different classes and phases of missions. Mission planning, for example, would likely require estimations of transportation and other infrastructure, data for refugee-management and other population-management concerns, damage assessments, drawing of ceasefire lines and buffer or disarmament zones, stationing of observation posts, and the like. Some of these needs

would continue during a mission, for example, for the monitoring of activity in buffer zones or of disarmament agreements. In some cases, low resolution imagery, and archived imagery, might be usable; in some cases, rapid delivery might not be essential.[21]

Some of the possibilities for use may be suggested in a superficially (at least) different application: fighting forest fires. The REMSAT system field-tested by the British Columbia Forest Service in the summer of 2000 combines imagery (potentially from various sources, including satellites), navigational, and telecommunications satellites, together with mobile communications equipment, to permit the coordinating of fire-fighting assets by field units.[22] Some technical problems could possibly be mitigated by the development and deployment of transportable receiving stations capable of handling data feeds from multiple satellites. This could cut the delivery-time problem by essentially providing for direct downloading from satellites as they pass overhead.[23] Other possibilities for acquisition and delivery of CSI for assistance in humanitarian emergencies are suggested by the creation of the International Charter on Space and Major Disasters, a consortium of national space agencies developing coordinated means to supply such imagery to users.[24]

The obvious parallels between such humanitarian and other civilian applications and potential peacekeeping applications, and the apparent forward movement on the humanitarian aspects of CSI use, point to the possibility of learning from these developments in these non-peacekeeping realms; they also suggest both the potential for integration CSI applications in "complex operations" combining humanitarian and peacekeeping aspects[25] and raise the peculiar possibility that essentially civilian agencies and actors could end up being better equipped to use CSI for their purposes than the UN for peacekeeping.

It is notable in ENVIREF (Environmental Monitoring of Refugee Camps using High-Resolution Satellite Images) discussions that the basic usefulness of the imagery as such seems not so much in dispute as the cost of imagery for relatively poorly-endowed users and other technical problems.[26] In this respect, however, these problems can be seen as mirroring the difficulties experienced, albeit on a much more sophisticated level, in the military use of satellite imagery. Criticism of the system for acquiring and distributing imagery intelligence to the US Marines in the Gulf War is enlightening in this regard.[27] The technical problems of obtaining imagery in a timely form, analyzing it, and distributing the resulting information to users should not be underestimated, and the means adopted to overcome these difficulties will have significant implications for the usefulness of CSI. Nonetheless, this does not inherently and in its own right rule out the use of CSI.

Problems in organizing the system for acquiring and analyzing CSI, and then delivering the information product to users, even for relatively sophisticated organizations, suggest the wisdom of perhaps starting modestly and thus with

less-demanding uses for less mature and capable entities. They also point to interoperability problems that would arise if a situation of multiple users arose, presenting both differing requirements and differing technical capabilities and equipment. Nonetheless, even limited and less than cutting-edge use of CSI, though still presenting challenges, would seem neither ruled out technically or without value.

Organizational Issues

Several issues might be raised here, including the role of state suppliers versus a UN-based capability, the possibility of a multi-agency versus single agency capability, and a field capability versus a centre-only capability.

Peacekeeping and similar forces in the field have used satellite imagery in the past. The US 10th Mountain Division used LANDSAT imagery in Somalia, and it was used in Bosnia, including by UNPROFOR, as well as elsewhere.[28] Dependence on voluntary supply of imagery and services from states would certainly reduce organizational difficulties and costs. The supply of imagery and other forms of intelligence from national sources presents, however, a variety of difficulties. On the other hand, certain aspects of UN peacekeeping operations also present obstacles to the effective gathering and use of intelligence, including imagery and derived information. There are considerable organizational hurdles that would have to be overcome before the UN could routinely employ a significant volume of CSI in its peacekeeping operations through an in-house ability to gather, analyze, interpret, and distribute it. This issue is so tied up in larger questions of the organization and management of UN peacekeeping operations that these larger questions, though not directly raised and addressed here, need to be kept in mind; otherwise, the argument here would be the equivalent of calling for a four-cylinder engine to be strapped onto a muscle-powered lawn mower.

In the Somalia operation (UNOSOM II), the US regularly supplied intelligence to UN and US forces in the field. The broad architecture of the intelligence effort is sketched in Joint Doctrine for Intelligence Support to Operations.[29] There were flows both to UN headquarters in New York and to the UN command in Mogadishu, via the US Intelligence Support Element in Somalia. In both cases, however, a distinction was maintained between intelligence that was to remain only within US channels and that cleared for release.[30] Certain results follow from this sort of attempt to supply intelligence from national sources yet simultaneously to protect at least some of it. First, it leads to a situation in which the "intelligence-leader" state's forces may have better information than the UN force commander.[31] Second, it inhibits the timely distribution (because of the need to sanitize) or even the distribution at all of intelligence.[32] Third, are the problems that could arise if the state playing the "leading role" in intelligence is not also the coalition leader, but conversely the potential resentment if it is.[33]

There have been efforts on the part of the US to identify and address at

least some of the problems arising in intelligence sharing to try to make the process more efficient and somewhat less grating politically.[34] Even if many of these problems were addressed, however, the fundamental drawback of UN dependence on the goodwill of imagery-capable states would remain.

One mode of organization within the UN would see various participating agencies drawing on CSI and possibly certain services from a central entity. This would have advantages from a volume-purchasing perspective, both financially and in terms of the UN negotiating leverage in contracting with imagery and service providers; for example, in copyright as well as cost matters. On the other hand, concerns could rise about access to sensitive information, including information about what images were being purchased. Compartmentalized handling of CSI for peacekeeping, reflected, for example, in guidelines on acquisition and use, might be more acceptable politically. An issue could also be the insertion of an additional layer of bureaucracy between the imagery and service providers and the ultimate users. Problems of standardizing requirements across a large range of different agencies, with vastly varied purposes, could also arise as a concern.

If we assume, as is done here, a basic model of a peacekeeping-specific capability, would this involve a capability in the field as well as at the UN centre? The development of transportable downloading stations potentially capable of drawing from a variety of different satellites would seem to present opportunities to develop field-deployable capabilities, perhaps even bypassing the DPKO in New York for certain purposes. Unfortunately, limitations arising in UN field operations also suggest problems with such an in-theatre capability.

First, the size of a UN field operation may not be sufficient to justify such a deployed capability, in terms of either the number of personnel or the volume of imagery needed. As a reference point, the SHIRBRIG (Standing High-Readiness Brigade) organization lists only 8 personnel in its G2 (Military Information) section.[35] How large would a minimal section for imagery analysis be, and what volume of imagery would be needed to justify its in-theatre deployment? How large an overall force would be needed to justify it, and for what uses would it be most appropriate? Second, there could be problems in the field organization of intelligence, about which there have been some stinging complaints: that it is a last-minute concern, that the staffing is problematic, and so on.[36] As Hugh Smith has observed, the need to improve intelligence capabilities is part of a larger need to professionalize peacekeeping – that is, to bring it closer to the norms of sound military practice.[37] It might be possible to address some of these concerns by drawing on specific, competent states for appropriate personnel. However, this would leave a force vulnerable to rotations of personnel and units, or even the withdrawal of a state's forces from a mission. If the alternative, a multinational unit, is turned to, problems of varying levels of technical sophistication and of technical compatibility of equipment might arise.

An alternative to depending on units and personnel directly from state contributions to a field force might be to draw from a central pool of personnel and equipment at UN headquarters. This could possibly relieve the technical compatibility, personnel competence and personnel rotation problems. Reliance on a centrally-supplied pool of personnel could also address another, more political set of consequences arising from the deployment of more technically-sophisticated UN forces. As S.B. Flemming has noted, many states which contribute forces to UN missions might not have troops capable of handling technically-sophisticated equipment. Establishing a CSI-capable field unit based on national contributions would thus simultaneously increase the demand for technically-sophisticated troops from developed states (which might be reluctant to provide the troops), while creating fears among Third World contributors (on whom the UN significantly depends) that they are being marginalized or reduced to "grunt" work.[38] Such a centrally-supplied unit, however, would need to be formed and equipped – potentially expensive undertakings – and it would have to be maintained with a surge capacity in times of slack demand.

For these reasons, and depending on the availability of both adequate communications means and a quick bureaucratic pipeline, a better choice might be to lodge a CSI analysis and interpretation capability with the central organization of the UN, with at best only occasionally fielding a deployable unit, if at all. The smaller the size of the unit (depending on the volume of imagery), the more this alternative would make sense. This could also make sense in terms of the usefulness of CSI in pre-deployment planning, and in the overall direction of a force: the same unit, with appropriate communications and procedures, could serve both central and field demands. This would require, of course, a reversal of the apparent tendency for information in the UN to flow up rather than down, away from the field and towards the center – to be, in Thomas Quiggan's terms, "all suck and no blow."[39]

Such a unit would build on the slow movement already present within UN headquarters toward improving its planning and management capabilities with respect to peace operations. This movement has, however, been at best only partial, tentative and potentially reversible. In 1987, an Office for Research and the Collection of Information was established within the UN Secretariat, but it was eliminated as a separate entity in 1992.[40] The 1993 creation of the UN Situation Centre was intended to provide the Organization with a 24/7 management and response capability of at least some degree. This Centre collects and processes some information for reports to the Secretary General, and has a research and information cell.[41] However, the Centre's staffing, including that of its Information and Research Unit, is heavily dominated by Western personnel, which could be a source of political unease.[42] The Centre has a Joint Deployable Intelligence Support System (JDISS), supplied by the US, which permits some database connections to US and other sources, but such connections may not always be available.[43]

The development of a UN Centre for Information, Training and Analysis, as suggested by Patricia McFate et al.[44] could possibly address some issues regarding both the geographic representation of personnel and the availability of a competent analysis unit. This could attend to at least some aspects of unease with the personnel composition of the Situation Centre, and the problem of the impact of personnel rotation and secondment. This, however, is a study paper only, not an official project. More generally and more importantly, the proposal from the UN's peacekeeping report for an Information and Strategic Analysis Secretariat, formed to serve the Executive Committee on Peace and Security, itself a guiding body for peacekeeping management, could provide an institutional framework for an improved intelligence capability.[45] The future of this proposal, however, remains to be seen. William Durch reports that some UN members have particularly objected to an early warning role for the Information and Strategic Analysis Secretariat, apparently fearing that this could become a basis for anticipatory or preventive moves along the lines of "humanitarian intervention." As a consequence, proposals for such a staff have been trimmed, and while it would support ongoing operations (the use of concern here), it would not be linked to an anticipatory or preventive role.[46]

How many personnel might be involved in such a DPKO-based unit? Nardon, Cleminson, Andersson and the ISMA study all suggest various numbers, linked to the volume of imagery to be processed. The ISMA study, based on 850 images per month, estimated 205-285 persons of all types for its first phase. Cleminson suggested 44 persons on a basis of 600 images per year; Nardon suggested a roughly comparable number for 860 images per year. Andersson, for his part, suggests 3-5 analysts for his range of 121-297 images per year.[47] By way of contrast, the DPKO's Situation Centre is currently staffed at a level of 21 persons.[48] Even a relatively modest capability, then, could have staffing and funding implications which pinch-penny states might find difficult to accept.

A central unit developed to acquire, analyze, interpret, and distribute information, whether to UN headquarters units alone or to field units as well, would face a variety of technical challenges, to be sure. However, the primary difficulties it would likely face, and indeed the primary difficulties for the entire proposition of a UN CSI capability, would probably reside above all in political concerns and objections. It is to these that we now turn.

Political Issues

The fundamental argument of this article is that, underlying a variety of more specific concerns which need to be addressed by any scheme for a UN in-house CSI capability, are a set of basically political concerns. This does not deny the reality of other, more "technical" issues, but rather argues that these may on occasion be surrogates for essentially political matters. It follows that successfully addressing "technical" issues will not necessarily address these underlying

political concerns. However, both dealing with "technical" issues and explicitly raising some political issues may at least permit the latter to be identified and addressed directly.

Various possible political concerns include:

1. The UN's habitual "allergy" to "intelligence;"
2. For technologically-advantaged states, a possible fear of losing an information advantage, including through the diffusion of capabilities to deal with satellite imagery;
3. For technologically less-advantaged states, fear of being "spied on," and the psychological link between CSI and National Technical Means – aided by media reference to commercial "spy satellites;"
4. Concern for information security, leakage, and loss of control over information (the problem of giving the UN independent access to an information source);
5. An unwillingness to improve UN peacekeeping performance, or a lack of interest in this.[49]

Some of these concerns may be addressed, albeit with perhaps only middling success, through administrative means. Other concerns are at least potentially undercut through the diffusion of CSI technology and of access to it (assuming that "shutter control" is not complete). The ultimate question is precisely the problem of developing a UN with stronger, apparently independent, information capabilities. This political concern, however, may be partially answered through other political mechanisms.

States may fear that information held independently in the hands of the UN Secretariat will be put to potentially embarrassing uses, whether by allowing a revelation of events within a state or by demonstrating the activities of other states with respect to an event. The efforts by the Clinton administration to avoid the term "genocide" with respect to Rwanda comes to mind. Certain information, readily available outside of official channels, might force states' hands, or otherwise embarrass them. Along similar lines, there may be fears that information ostensibly gathered for one purpose may become used for another. Then there is the likely leakage of information even if it is gathered with every intention of limited and careful use: a secret in the hands of the UN may be no secret at all.

To a point, the very diffusion of CSI technology and access to CSI – to more states, and to more non-state actors – undercuts this concern. The horse may be leaving the stable, so that the prospect of less controlled or even embarrassing uses is becoming steadily more real regardless of the information resources afforded the UN. All that may be lacking is an adequately-funded consortium of NGOs able to avail themselves of imagery from a variety of satellites, so that they might at least push the limits of "shutter control." Efforts to retain a

previous "information advantage" may be at best of limited utility for the currently advantaged states. For the less-advantaged, blocking UN access to such imagery is not only unlikely now (since imagery-capable states may provide and have provided the imagery anyway), but is also rendered less useful as non-state actors increase their access. What purpose, other than hobbling the UN almost out of force of habit, would be served by refusing to enhance its information capabilities?

Administrative measures within the UN might have some possibilities, however imperfectly, of addressing some of these various concerns as well. Clear policy understandings as to how information will be treated and where the necessary units will be lodged may have some effect. In particular, it might be possible to lodge a central CSI unit fairly close to the Secretary General, to give him clear and direct control over the flow and use of information from it. This might stand in the way of a more technically-rational placement of such a unit, but could be a politically-rational solution. Some precedent for this might exist in the close handling of imagery and other sensitive Action Team information by the IAEA's Director General in regard to disarmament inspections of Iraq. Such a unit would require a much stronger and more serious approach to information confidentiality, at least to the level of the IAEA (itself admittedly imperfect but apparently still within the tolerance levels of states). Staffing of the unit would have to be far less influenced by geographic and related political concerns than elsewhere in the UN Secretariat, and probably the unit's positions would have to be filled on a career, rather than a rotational or secondment, basis. The fear of a UN "intelligence" capability has had undesirable effects on peacekeeping, even without considering the possibility of using CSI. This has not, however, prevented "information-gathering," however euphemized, from going on. It has merely hobbled peacekeepers. "No intelligence in peacekeeping" (the double-entendre is intended) scarcely seems, however, a defensible position. This broader phobia, however, must be addressed realistically – assuming, of course, that states are willing to consider the actual requirements of effective peacekeeping operations.

Even where states might fear the actions of a more information-independent UN, those that are vulnerable to this are as well vulnerable to other actors with independent information – whether technically-capable states or non-state actors. With the UN, at least, they retain some possibility of the political control of the consequences, with the added possibility that this organization, already relatively amenable to their purposes, will be more effective as well.

CONCLUSION

We have briefly reviewed here a number of "good and virtuous" reasons why some might be reluctant to give the UN an inherent CSI acquisition and analysis capability for its peacekeeping operations. In many cases there are sig-

nificant and legitimate concerns, problems that would have to be squarely addressed for the development of a workable UN capability. These do not, however, seem to be inherently fatal: they can be approached and resolved on a relatively "technical" level. The more deadly issues, at times clearly evident and at times lurking under the cover of these others, would seem to be political. This article is not offered in the naïve hope that political concerns might be overridden by good reasons, but rather in a spirit of brush clearing. Identifying and squarely addressing well-founded, or at least sincerely held, concerns is necessary both for the development of a functional CSI capability and to deal with underlying, including legitimate, political concerns.

The basic model assumed here is of a DPKO-based capability – thus one specific to peacekeeping rather than drawing from a larger UN central acquisition and/or analysis entity. Such a DPKO capability offers an alternative not only to dependence on supplier states but also to a mode of organization which would see significant capabilities deployed in the field. To briefly recapitulate some of the relevant arguments for this focus: first, specific peacekeeping needs and information confidentiality concerns might trump the potential financial and information sharing advantages of a centralized supplier; second, a DPKO capability would reduce, though at some cost, dependence on the willingness of a relatively small number of supplier states to provide imagery and related services themselves; and third, many field operations might not have the size or the need for deployable capabilities, but some uses would as well be readily lodged in the centre.

In order to move the debate forward – onto "real" as opposed to "good and virtuous" ground, so to speak – a number of possible steps for further work might be derived from the arguments above. From all appearances, this work is indeed going on now. These would include the following:

1. Examining more closely the legal issues on the national and contractual levels, to resolve volume, price, copyright and other questions, and noting in particular where a supportive attitude by national regulatory and political authorities may have a positive effect.
2. Exploring in greater detail, if only through hypothetical scenarios, the various needs and requirements of peacekeeping operations of differing kinds and in differing phases for CSI of differing characteristics (volume, resolution, sensor type, timeliness, etc.), and the implications for costs and other characteristics of differing structures of imagery and imagery services supply and use (e.g., supply by states, by a centralized UN entity, by the DPKO).
3. Identifying and addressing various equipment, network, and software issues important for the supply of imagery, services, and information.
4. Addressing the reforms in the development, organization, command

and control of peacekeeping missions, both in the field and at the centre, necessary for the more effective use, if not also the routinized and in-house acquisition and analysis, of CSI.

5. Identifying specific political concerns that might hamper the development of UN CSI capabilities, to assess how these might be addressed in politically-acceptable ways as well as in terms of criteria of efficiency and effectiveness.

Giving a new and substantial independent information capacity to an international organization is not something which states will do lightly, though it appears that they will do it if the need and their interests coincide.[50] It might be possible that, while not granting the UN such a capacity, states might be willing nonetheless to take steps to fill the gap, for example, by the more routine and organized provision of imagery, and by addressing at least some problems in the command and management of UN field operations. Some US efforts might point in that direction. William Doll and Stephen Metz noted in 1993 that proposals to overcome the UN's intelligence problems

> may not require developing an organic intelligence-gathering capability for the U.N., but rather greater intelligence sharing among the permanent members of the Security Council. In any case, it will remain politically infeasible to collect strategic intelligence at U.N. headquarters. This means the U.N. must continue to rely on national suppliers for intelligence.[51]

It may be the case that a more or less workable scheme for enhancing UN access to imagery information can be devised without investing in an in-house UN capability. The ready availability of CSI, by allowing an alternative to the public presentation, even in degraded form, of at least some imagery intelligence, may contribute to such a solution. At the same time, the availability of CSI also permits its direct acquisition and use by the UN, and there seems to be growing precedent for such acquisition and use even in fairly delicate contexts. The case for an in-house UN capability to acquire, analyze, and interpret CSI is certainly not a sure thing, yet it seems to have increasingly objective respectability, if not necessarily adequate political weight.

In response to state resistance, we might therefore reasonably suggest the following: if it is the considered opinion of member states of the United Nations that the organization should have, for the performance of its mandate, capabilities inferior to those of, say, the British Columbia Forest Service for the performance of its functions, they are free to take such a position; however, they might reasonably be asked to clearly argue their case on its true basis, and to present viable alternative means to meet what seems to be a clear need. Given the growing challenges to the UN's very existence, much less its adequate functioning, perhaps the time to accept a comfortable ineptness on the part of the organization has passed.

Endnotes

This article originated as a paper presented at the conference, "From Front Line to Home Front: The Impact of the New Peacekeeping," at the University of New Brunswick, Fredericton, New Brunswick, Canada, 19-20 October 2001. The author wishes to thank the conference organizers and attendees, and also the reviewers of the manuscript, for their suggestions.

1. Partial transcript, keynote address of His Excellency Ambassador Fowler, Report on the 2nd *Meeting of the United Nations Geographic Information Working Group*, Rome 2001, p. 19, http://ungiwg.unep.org.
2. United Nations, *Report of the Panel on United Nations Peace Operations*, A/55/305-S/2000/809, 21 August 2000, para. 251 (b).
3. For the purposes of this article, CSI is defined as unclassified satellite imagery publicly offered for a fee on a routine basis, whether by a public agency or a private firm.
4. The possibilities for GIS applications are noted briefly in Lt.Col. Donna G. Boltz, "Information Technology and Peace Support Operations: Relationship for the New Millenium," United States Institute of Peace, 22 July 2002, pp. 11-12, http://www.usip.org/vdi/vdr/13.html. See also Kevin O'Connell and Beth E. Lachman, "From Space Imaging to Information: Commercial Remote Sensing Market Factors and Trends," in John C. Baker, Kevin M. O'Connell and Ray A. Williamson, eds., *Commercial Observation Satellites: At the Leading Edge of Global Transparency* (Santa Monica, CA.: RAND, 2001), pp. 63-67.
5. Fowler, *Report*.
6. R.F. Laird, *The Boomer Bible: A Testament for Our Times* (New York: Workman Publishing, 1991), p. 388.
7. United Nations, *Report of the Secretary General: The Implications of Establishing an International Satellite Monitoring Agency*, A/AC.206/14, para. 303, concludes as follows:

   > To sum up, there are no provisions in general international law, including space law, that would entail a prohibition for an international governmental organization such as ISMA to carry out monitoring activities by satellite.

8. International Atomic Energy Agency, *Annual Report for 2000* (Vienna: IAEA, 2001), p. 98.
9. *Sixth Quarterly report of the Executive Chairman of the United Nations Monitoring, Verification and Inspection Commission under paragraph 12 of Security Council resolution 1284* (1999), S/2001/833, 30 August 2001, para. 3, 5, 10.
10. For example, Jelle U. Heilkema, "FAO Spatial Information Applications for Early Warning for Food Security: The ARTEMIS System," paper presented at EURISY Conference on the Use of Satellites and Integrated Technologies for Humanitarian Purposes, Varese, Italy, 19-20 September 2000. http://demining.jrc.it/aris/events/eurisy/index.htm. See also Einar Bjorgo, "Space Aid: Current and Potential Uses of Satellite Imagery in UN Humanitarian Organizations," United States Institute of Peace, 30 April 2002, http://www.usip.org/vdi/vdr/12.html, for a survey of the experience of various agencies. The FAO seems to have the greatest experience, including imagery processing and analysis.
11. The new Canadian regulations may be found in Government of Canada, *News Release*, no. 134, 9 June 1999.
12. A CNN banner headline on 16 October 2001, reported that the US military had purchased exclusive rights to CSI from a Colorado-based company. This was Space Imaging, whose IKONOS system can produce 1 meter imagery. See also Robert Remington, "U.S. locks up rights to spy satellite images," *National Post*, 20 October 2001, p. A7.
13. Christer Andersson, *IAEA Safeguards: Implementation Blueprint of Commercial Satellite Imagery, Ph 2 Final Report,* SKI Report 00:11, (Stockholm: Swedish Nuclear Power Inspectorate, January 2000), pp. 81-82.

14. Laurence Nardon, *Test Ban Verification Matters: Satellite Detection* (London: Verification Technology Information Centre, November 1994), pp. 30-34. F.R. Cleminson, "The Application and Cost-Effectiveness of Overhead Imagery in Support of the Verification of a Comprehensive Test Ban Treaty," in Steven Mataija, ed., *Non-Proliferation and Multilateral Verification: The Comprehensive Nuclear Test Ban Treaty* (CTBT) (Toronto: Centre for International and Strategic Studies, York University, 1994), pp. 102-3.
15. Andersson, *IAEA Safeguards*, pp. 75-87.
16. Nardon, *Test Ban*; Cleminson, "Application;" Andersson, *IAEA Safeguards*.
17. *Implications of Establishing an International Satellite Monitoring Agency*, A/AC.206/14, paras. 232-74 (esp. paras. 245-46, and 254); paras. 441-50.
18. This concern was noted in S.B. Flemming, *Organizational and Military Impacts of High-Tech Surveillance and Detection Systems,* ORAE Project Report 535 (Ottawa: Operational Research and Analysis Establishment, Directorate of Social and Economic Analysis, Department of National Defence, December 1992), pp. 11-12, 13-14. It should be noted in particular that HUMINT is still crucial.
19. Vipin Gupta, "New Satellite Images for Sale," *International Security* 20, no. 1 (Summer 1995), p. 109.
20. Lt. Col. L.K.Grundhauser, "Sentinels Rising: Commercial High-Resolution Satellite Imagery and Its Implications for US National Security," *Airpower Journal* (Winter 1998) (available at http://www.usafa.mil/inss).
21. ENVIREF: Environmental Monitoring of Refugee Camps using High-Resolution Satellite Images. See, for example, ENVIREF, *Project Report 1: Customer requirements*, 23 July 1999, http://www.enviref.org/main.htm.
22. See, for example, Brad Foster, "REMSAT Revolutionizes Emergency Management," *Earth Observation Magazine*, www.eomonline.com/Common/Archives/Jan00/foster.htm; "Space technology fights forest fires in Canada this summer," http://subs.esa.int:8330/pressows/documents/news/1/2000/press34.html.
23. For example, see Yves Lafeuillade, "A Multisatellite Transportable Station: An Invaluable Tool for Crisis Management," paper presented at EURISY Conference on the Use of Satellites and Integrated Technologies for Humanitarian Purposes, Varese, Italy, 19-20 September 2000.
24. See, for example, the presentations at the First International Charter Space and Major Disasters Information Session, 11 September 2001, St-Hubert, Quebec, available at: ftp:/ftp.space.gc.ca/pub/radarsat/Charter/ (go to chartersession1.pdf).
25. There are, of course, difficulties in linking humanitarian and peacekeeping actors. See, for example, William E. DeMars, "Hazardous Partnership: NGOs and United States Intelligence in Small Wars," *International Journal of Intelligence and Counterintelligence* 14, no. 2 (Summer 2001), pp. 193-222; Daniel L. Byman, "Uncertain Partners: NGOs and the Military," *Survival* 43, no. 2 (Summer 2001), pp. 97-114. See also the United States Institute of Peace, Virtual Diplomacy Project for their recent work on information-sharing and other forms of cooperation among civilian and military actors in "complex emergencies," http://www.usip.org.
26. ENVIREF, *Project Report 1: Customer requirements*, indicates some of the relevant requirements for humanitarian assistance operations.
27. See, for example, Raymond E. Coia, "A Critical Analysis of the I MEF Intelligence Performance in the 1991 Persian Gulf War," May 22, 1995. (Written in fulfillment of a requirement for the Marine Corps Command and Staff College.) http://www.fas.org/irp/eprint/coia.htm.
28. See, for example, Hugh Smith, "Intelligence and UN Peacekeeping," *Survival* 36, no. 3 (Autumn 1994), p. 185; Walter Dorn, "The Cloak and the Blue Beret: Limitations on Intelligence in UN Peacekeeping," *International Journal of Intelligence and Counterintelligence* 12, no. 4 (Winter 1999), pp. 427, 428; Mats R. Berdal, "Whither UN

Peacekeeping?" *Adelphi Papers*, no. 281 (October 1993), p. 66.

29. US Joint Chiefs of Staff, *Joint Doctrine for Intelligence Support to Operations*, JP 2-0, 5 May 1995, Chapter VIII 1-2.

30. One objective in creating the Intelligence Support Element structure was apparently precisely to improve interaction with other forces in multinational operations, including UN operations. Ironically, although the ISE was by one account "the single most important part of the intelligence support to UNOSOM," US doctrine forbade the assignment of US military intelligence units to UN or other non-US commands, and therefore its information was filtered through the US commander. Col. Ronald Davidson, *UN Reform – Can It Be the Answer to Intelligence Support to UN Peace Operations?* (Carlisle Barracks, PA: US Army War College, 22 April 1998), p. 8; David S. Alberts and Richard E. Hayes, *Command Arrangements for Peace Operations* (Washington, DC: National Defense University Press, May 1995), available at http://www.ndu.edu/inss/books/capo/capohome.html; Kenneth Allard, *Somalia Operations: Lessons Learned* (Washington, DC: National Defense University Press, January 1995), available at http://www.ndu.edu/inss/books/allardcont.html.

31. William J. Doll and Stephen Metz, "The Army and Multinational Force Operations: Problems and Solutions," Report of a Roundtable Sponsored by the Strategic Studies Institute, US Army War College and the US Army Peacekeeping Institute, Carlisle Barracks, Pennsylvania, 29 November 1993, pp. 16-17.

32. See, for example, Dorn, "Cloak," p. 428. By the time of Bosnia, however, the US had tried to address the imagery sharing problem, and reported at one point that the time to process a request from a coalition partner had been reduced to an hour and a half. US Department of Defense, Background Briefing, "Intelligence Support to Operation JOINT ENDEAVOR," 18 January 1996.

33. Smith, "Intelligence," p. 178; Doll and Metz, "Multinational Force Operations," pp. 11-12.

34. For example, see "Intelligence Support to Operation JOINT ENDEAVOR," *Joint Doctrine for Intelligence Support to Operations;* US Joint Warfighting Center, *Joint Task Force Commander's Handbook for Peace Operations* (Virginia: Ft. Monroe, 16 June 1997), esp. Chapter VII. For a further critique of command and control problems, including intelligence, in UN missions, see, for example, Maj. Harold E. Bullock, *Peace by Committee: Command and Control Issues in Multinational Peace Enforcement Operations,* (thesis, School of Advanced Airpower Studies, Maxwell Air Force Base, Alabama, June 1994).

35. See the SHIRBRIG website, http://www.shirbrig.dk/.

36. For example, Paul Johnston, "No Cloak and Dagger Required: Intelligence Support to UN Peacekeeping," *Intelligence and National Security* 12, no. 4 (October 1997), p. 109. See also the comments in Maj. Raymond J. Leach, "'Information' Support to U.N. Forces," *Marine Corps Gazette*, September 1994, p. 49.

37. Smith, "Intelligence," p. 178.

38. Flemming, *Organizational*, pp. 7-10, 15; Robert E. Rehbein, "Informing the Blue Helmets: The United States, UN Peacekeeping Operations, and the Role of Intelligence," *Martello Papers*, no. 16 (Kingston, ON: Centre for International Relations, Queen's University, 1996); United Nations, *Report of the Panel on United Nations Peace Operations*, 21 August 2000, A/55/305-S/2000/809, para. 103.

39. Thomas Quiggan, "Response to 'No Cloak and Dagger Required': Intelligence Support to UN Peacekeeping Missions," *Intelligence and National Security* 13, no. 4 (Winter 1998), p. 203-04.

40. Berdal, "Whither UN Peacekeeping," p. 66, fn. 50; Dorn, "Cloak," p. 433.

41. Smith, "Inelligence," pp. 178-79. Immaculée Uwanyiligira, "Situation Centre needs." Presentation at "Meeting on Cartography and Geographic Information Science," United Nations, New York, 28-30 March 2000, available at http://www.un.org/Depts/Cartographic/english.ungis/meeting/. Rehbein, pp. 30-32.

42. Smith, "Intelligence," p. 189; Dorn, "Cloak," pp. 433-34.
43. Rehbein, "Blue Helmets," pp. 30-32; Smith, "Intelligence," p. 184.
44. Patricia Bliss McFate, et al., "Verification in a Global Context: The Establishment and Operation of a United Nations Centre for Information, Training and Analysis (CITA)," *Arms Control Verification Studies* no. 7 (Ottawa, ON: Department of Foreign Affairs and International Trade, 1996).
45. *Report of the Panel on United Nations Peace Operations*, paras. 65-75.
46. William J. Durch, *UN Peace Operations and the "Brahimi Report,"* (October 2001 version), Henry L. Stimson Centre, p. 20.
47. *Implications of Establishing an International Satellite Monitoring Agency*, para. 254; Cleminson, "Application," p. 103; Nardon, *Test Ban*, pp. 31-32; Andersson, *IAEA Safeguards*, p. 80.
48. http://www.un.org/Depts/dpko/dpko/sitcen/sitcentre.html.
49. Some of these are found in Ulric Shannon, "Blue Eyes: Surveillance Satellites and UN Peacekeeping," presentation at "The Need to Know: The Use of Commercial Satellite Imagery and Canadian Security Needs," Calgary, Alberta, 17-18 November 2000.
50. For example, the cases of the IAEA, UNSCOM and UNMOVIC.
51. Doll and Metz, "Multinational Force Operations," p. 17.