

Peacekeepers in the Sky: The Use of Unmanned Unarmed Aerial Vehicles for Peacekeeping

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Introduction

As recently noted by Hervé Ladsous, the Under-Secretary-General for Peacekeeping Operations, the United Nations “cannot continue just using tools of 50 or 100 years ago.”¹ The United Nations Department for Peacekeeping Operations (DPKO) is thus on course to create a “force for the future” by adopting and making increasing use of new technologies like Unarmed Unmanned Aerial Vehicles, also referred to as Unmanned Unarmed Aerial Vehicles (UUAVs). These remotely piloted aircraft systems, which are becoming increasingly cheaper, smarter and more robust, aim to provide peacekeeping missions with greater surveillance capabilities and thus more timely and enhanced situational awareness. This is expected to render peacekeeping missions more effective and cost-efficient in terms of keeping the peace and protecting civilians. According to DPKO’s vision, UUAVs “represent a new way of ‘seeing and knowing’ in peacekeeping and can dramatically improve peacekeepers’ access to information.”² One strong proponent of UUAVs claims that they are a “major step forward towards much more discriminating use of violence in war and self-defense – a step forward in humanitarian technology.”³

Yet the use of UUAVs is complicated by a number of issues related to perceptions, politics, ethics and empowerment. The use of surveillance technologies by the UN may at times be politically unpopular among those UN Member States that fear technologies like UUAVs will inevitably compromise their territorial and political sovereignty.⁴ In fact, arguments against the

¹ “New challenges spur UN peacekeeping to become ‘a force for the future’.” UN News Centre, 29 May 2014, <http://www.un.org/apps/news/story.asp?NewsID=47916>

² Karlsrud, J. and Rosén, F. 2013. In the Eye of the Beholder? UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security and Development* 2(2):27, DOI: <http://dx.doi.org/10.5334/sta.bo>

³ Anderson, K. ‘Written Testimony Submitted to Subcommittee on National Security and Foreign Affairs: Rise of the Drones: Unmanned Systems and the Future of War’, 23 March 2010. http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1002&context=pub_disc_cong

⁴ Charbonneau, Louise. 2015. UN panel urges increased use of drones in peacekeeping missions. *Nation*, BDN Maine, February 24, 2015. <https://bangordailynews.com/2015/02/24/news/nation/u-n-panel-urges-increased-use-of-drones-in-peacekeeping-missions/?ref=latest>

use of UUAVs sometimes resemble arguments against the “Responsibility to Protect” norm adopted by the UN General Assembly in 2005 as a framework for justifying military intervention as a last resort to protect civilians from mass atrocities. This admittedly narrow set of concerns is not always an issue; they can vary greatly based on the context of a given peacekeeping operation.

But the perceived threat to sovereignty is not the only issue raised by the use of UUAVs in conflict zones. Questions around the data privacy of civilians (non-combatants) and the keystone humanitarian principle of informed consent have so far largely been ignored.⁵ UUAVs pose a similar ethical problem to other surveillance technologies. Namely: do actors who are recorded by surveillance have any control over the information they are portrayed in? Even if the UN guarantees a Do No Harm framework for information collected by its UUAVs during the time a mission is operational, this guarantee may not survive the lifetime of the information and ensure that there is never a harmful use of this information against civilians. Furthermore, the perception of UUAVs as instruments with the capacity to control – and, if armed, physically harm civilian populations – complicates the power dynamics between peacekeeping missions, humanitarian agencies and local communities.

The purpose of our paper is thus to assess the ethics regarding the use of UUAVs in peacekeeping missions by offering insights from the use of UUAVs in broader humanitarian settings. As such, we don’t simply seek to problematize the issues. Instead, we hope to offer potential solutions to some of the challenges of UUAV-use in peacekeeping operations. We thus approach this assessment from two specific perspectives. First, we wish to highlight the difference between the ethical uses of UUAVs for humanitarian purposes versus peacekeeping efforts. Although we draw on lessons that can be learned about UUAVs used by humanitarians in the context of natural hazards, we do not suggest that peacekeeping missions and humanitarian missions are the same. In fact, many of the issues we explore revolve around the need to retain this important distinction while at the same time recognizing that both humanitarian and peacekeeping actors may share a common operating area. To this end, ignoring best practices and lessons learned in the humanitarian context is not advisable.

Second, there are also differences in the applications of UUAVs *across* peacekeeping operations. DPKO’s Force Intervention Brigade (FIB) in the DRC, whose job is to contain militants using force wherever necessary, is very different to other peacekeeping operations that focus solely on monitoring borders or truce lines. Clear distinctions also need to be made between integrated and non-integrated missions, and between civilian functions (staffed by internationals) and military functions (composed of national military units). In addition, many

⁵ The principle of informed consent is simply not recognized within the context of peacekeeping. As Walter Dorn noted in an email exchange in March 2015, “The peacekeeping trinity of principles are: consent (of the main/legitimate parties to the conflict, including the host state), impartiality (not neutrality) and defensive use of force (not offensive, except in case of Force Intervention Brigades (FIB) in MONUSCO).” Dorn is referring to the three key principles outlined in the UN Peacekeeping Operations Principles and Guidelines.

missions have a policing function, which raises questions around civil liberties.⁶ As such, the varied uses of UUAVs across peacekeeping missions need to be unpacked.

Third, we are *not* peacekeeping or military experts, so our assessment of the use of UUAVs to a military operation will inevitably fall short of other experts. While we certainly benefited from feedback from DPKO experts, much of it was confidential and off the record. Given these limitations, what we hope to bring to this discussion is simply an ethical exploration based on an understanding of grassroots action and how the introduction of new technologies can alter the balance of power. In the case of UUAVs and given the multidimensional nature of peacekeeping operations, we believe it is important to assess their use from this perspective too, and not only focus on military utility.

This paper is thus structured as follows. First, we provide a quick introduction to UUAVs along with a brief history of their use by the United Nations, both in humanitarian and peacekeeping settings. Second, we highlight – through a literature review – the main value added of this new technology for peacekeeping in particular. Third, we turn to the core challenges posed by UUAVs for peacekeeping, and then propose a set of practical solutions to overcome these challenges. Finally, as a conclusion, we outline some ways to continue this conversation to vet, veto or expand the proposed solutions.

Working definitions

Drones, UAVs or UUAVs?

The terminology for Unmanned Aerial Vehicles is somewhat contested. UAVs are often referred to as “drones”, but the word drone carries a different weight and a different set of fears in some theatre of operations. Drones are almost immediately associated with Predators—that is, with military assets and uses. The conflation between force operations and kinetic operations is problematic, particularly for the humanitarian community. In this paper, we deliberately use the term “Unarmed Unmanned Aerial Vehicle” to denote the kind of UAV deployed by humanitarians for kinetic operations only. We use UAV when referring to both armed and unarmed vehicles, and use the word drone only when referring to an armed UAV.

Peacekeeping and humanitarian missions: differences and overlaps

UN peacekeeping missions often comprise civilian, police and military personnel. Peacekeeping missions are established following a resolution of the UN Security Council (UNSC), which will establish the mission mandate under either Chapter VI or Chapter VII of the UN Charter.⁷ With mandates tailored to each context, their chief objective is to guarantee safety and security, and protect civilians. All missions are managed by the Department of Peacekeeping Operations

⁶ Taken from email communication with UN/OCHA staff member, February 2015.

⁷ Chapter VI deals with the “Pacific Settlement of Disputes”; Chapter VII deals with “Action with Respect to the Peace, Breaches of the Peace and Acts of Aggression”.

(DPKO) and the Department of Field Support (DFS), and guided by the UN Peacekeeping Operations Principles and Guidelines. The three key principles of peacekeeping missions are: (i) obtaining consent of disputing parties; (ii) observing non-use of force except in self-defense and defense of the mission mandate (this can include protection of civilians), and (iii) impartially implementing the mission mandate. Missions are further governed by rules of engagement, negotiated with the Government of the state where they are deployed and Troup Contributing Countries (TCCs). It is important to also note that – unlike missions led by NATO or other military alliances – peacekeeping missions led by DPKO are headed by a civilian (the Special Representative of the Secretary General) to whom the Force Commander reports. Thus, UUAVs utilized by a DPKO mission are *not* military assets but rather an asset of the Special Representative to the Secretary General (SRSG).

Several UN agencies deploy humanitarian operations in response to natural and man-made disasters and emergencies. UN agencies and other organizations engaged in humanitarian activities are critically guided by humanitarian principles of neutrality and impartiality. Humanitarian operations in most emergency contexts are coordinated by the Office for the Coordination of Humanitarian Affairs (OCHA).

A clear definition distinction between peacekeeping missions and humanitarian operations is critical to this paper. First, the humanitarian field has experimented with UUAVs, and has done some preliminary assessment and reflection work that we believe is relevant to peacekeepers considering the ethical implications of deploying UUAVs. Second, there are a host of challenges that come with peacekeepers being involved in humanitarian work regardless of whether UUAVs are used or not. Humanitarian organizations must uphold the humanitarian principles of neutrality and impartiality. This enables them to negotiate critical access in conflict zones. In contrast, peacekeeping operations are not necessarily neutral, and may not always be perceived as impartial even though impartiality is a bedrock principle of peacekeeping.⁸

When peacekeeping missions use their assets for surveillance purposes but subsequently share this information with humanitarian organizations, this may risk implicating the latter as actors in the peacekeeping space. These lines have been blurred in the past, long before the use of UUAVs entered the picture. As such, the issue is not necessarily about the asset but rather the mandate. That said, some would argue that humanitarian actors *are* actors in the peacekeeping space insofar as they operate in the same area. To this end, the peacekeeping mission facilitates humanitarian access, assists humanitarian actors with information, logistics, etc. Rather, it is the association with the mission—the blue/black divide—that in some cases can lead to a very delicate negotiation of the humanitarian space and the need for distance⁹.

⁸ Kennedy, Caroline and James Rogers. 2015. Virtuous Drones? *The International Journal of Human Rights*, 19:2, 211-227.

⁹ Indeed, the substantive overlap between peacekeeping and humanitarian missions is also organizational, since the DSRSG is at the same time deputy in the peacekeeping mission, head of UNDP and Resident Coordinator, and Humanitarian Coordinator.

The UN and UUAVs

The United Nations is not new to UUAVs, which have been used for both humanitarian and peacekeeping purposes since 2006. A Belgian contingent in the peacekeeping mission in the Democratic Republic of the Congo (known at the time as MONUC) made use of four Belgian UUAVs for surveillance purposes in 2006. This first UN-mandated use of UUAVs in the Congo was short lived, however, as one was shot down and another crashed due to mechanical failure, killing one person and injuring several others.¹⁰ Later that year, UUAVs were used by DPKO contingents in neighboring countries “to monitor transborder activities of armed groups along the Sudanese borders with Chad and the Central African Republic (CAR) in particular through regular ground and aerial reconnaissance activities” (UN Security Resolution 1706). Also in 2006, UUAVs were used by the UN Mission to Timor-Leste to capture aerial imagery for the reintegration of Internally Displaced Peoples (IDPs).¹¹ The “Australian Army was also using the technology [in Timor-Leste] but didn’t share it with anyone, much to the dismay of a few NGOs and agencies.”¹²

In 2007, the World Food Program (WFP) partnered with the University of Torino in Italy to manufacture UUAVs.¹³ A year later, EUFOR troops supporting the UN civilian mission in Chad and CAR (MINURCAT) used a surveillance drone to monitor the movement of troops across the border between Chad and Sudan. At the time, domestic opposition forces were operating from Darfur (Sudan), moving into Chad to attack government forces. MINURCAT claims the drone enhanced the protection of displaced people and humanitarian actors.¹⁴

The International Organization for Migration (IOM) in Haiti has been actively using UUAVs for disaster preparedness and response since 2012. That following year, the UN Security Council gave DPKO the green light to re-introduce surveillance UUAVs as part of the new peacekeeping operation MONUSCO in the DRC. This was the first time that the UN got UUAVs as mission-controlled assets. In 2014, the United Nations and the World Bank collaborated with the European Commission’s Joint Research Center (JRC) in assessing the extensive damage caused by the massive floods in the Balkans during May/June. The JRC used a UUAV to carry out this mission while the European Commission deployed another UUAV team to identify the location of landmines displaced by the floods and resulting landslides.¹⁵

¹⁰ Ibid. | See also: Sandvik K.B. and Lohne K. 2014. The Rise of the Humanitarian Drone: Giving Content to an Emerging Concept *Millennium: Journal of International Studies*, 43 (1), pp. 145-164. <http://mil.sagepub.com/content/early/2014/06/02/0305829814529470.abstract>

¹¹ Email communication in February 2015 with humanitarian professional who was on the ground in Timor-Leste at the time.

¹² Email communication in February 2015 with humanitarian professional who was on the ground in Timor-Leste at the time.

¹³ Meier, P. “UN World Food Program to use UAVs.” *iRevolution*, April 9, 2008, <http://iRevolution.net/2008/04/09/un-world-food-program-to-use-uavs>

¹⁴ Karlsrud, J and Rosén, F 2013. In the Eye of the Beholder? UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security and Development* 2(2):27, DOI: <http://dx.doi.org/10.5334/sta.bo>

¹⁵ Meier, P. “Humanitarian UAV Missions During Balkan Floods.” *iRevolution*, July 7, 2014, <http://iRevolution.net/2014/07/07/humanitarian-uav-missions-during-balkan-floods>

Later in 2014, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) acquired small quadrotor-UUAVs for trial purposes at their regional hub in Thailand. OCHA also published a Policy Brief on the use of UUAVs in humanitarian settings¹⁶ and subsequently co-organized with the Humanitarian UAV Network (UAViators) the first ever UN Experts Meeting on Humanitarian UAVs held at the United Nations Secretariat in New York.¹⁷ This meeting included all of the UN's largest agencies and offices and DPKO. This meeting coupled with OCHA's Policy Brief led to OCHA establishing a focal point for the deployment of UUAVs following Typhoon Ruby in the Philippines in early December 2014.¹⁸

In early 2015, the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) used UUAVs for surveillance purposes. Troop contributing countries brought their own short-range UUAVs. In addition, drawing from experience in the DRC where UUAVs were found to be too short range, MINUSMA requested the deployment of long-range UUAVs. As UUAVs become more commonplace, it is likely that increasingly member states will bring short-range, tactical UUAVs as part of their equipment, and UN missions will request members states to provide long-range UUAVs as part of their troop contributions.

In March and April 2015, the World Bank spearheaded a UUAV response to Cyclone Pam in close collaboration with the Government of Vanuatu.¹⁹ The purpose of this challenging UUAV mission was to capture very high resolution aerial imagery in order to accelerate and improve targeted damage and needs assessments. The World Bank activated UAViators and contracted two teams on the UAViators Pilot Roster to carry out the aerial surveys. A third UUAV team from the Secretariat of the Pacific Community (SPC) joined the efforts. This mission represented the most extensive use of aerial assets by the World Bank to date. The UUAV teams collaborated very closely with the Australian Defense Force (ADF) and Air Traffic Control (ATC) in Port Vila to ensure the safe use of UUAVs in what was a complex airspace.

While DPKO has only employed UUAVs for surveillance (data collection), UN agencies are actively exploring additional use cases such as payload transportation and the provision of communication services. The World Health Organization (WHO), for example, has already piloted the use of small rotary-wing UUAVs for the transportation of medical supplies while the United Nations International Children's Fund (UNICEF) is taking steps to do the same.²⁰ The Emergency Telecommunications Cluster (ETC) has also begun a conversation on the use of

¹⁶ Gilman, D. 2014. Unmanned Aerial Vehicles in Humanitarian Response. *OCHA Policy and Studies Series*. <https://iRevolution.files.wordpress.com/2014/07/unmanned-aerial-vehicles-in-humanitarian-response-ocha-july-2014.pdf>

¹⁷ See <http://www.UAViators.org>; Meier, P. "UN Experts Meeting on Humanitarian UAVs." iRevolution, October 9, 2014, <http://iRevolution.net/2014/10/09/un-experts-meeting-on-humanitarian-uavs>

¹⁸ Direct collaboration between the Humanitarian UAV Network and OCHA in December 2014. See the Humanitarian UAV Network deployment page for Typhoon Ruby: <http://uaviators.org/ops/philippines-typhoon-hagupit-dec-2014>

¹⁹ Co-author Patrick Meier was named by the Bank as lead coordinator for this UUAV mission.

²⁰ Meier, P. "WHO Using UAVs to Transport Medical Supplies." iRevolution, August 27, 2014, <http://iRevolution.net/2014/08/27/who-using-uavs>

UUAVs to provide 3G/4G and WiFi coverage in the immediate aftermath of a disaster.²¹ Given that multibillion-dollar companies like Google, Amazon, Facebook and DHL are each allocating significant resources in the use of UUAVs for payload transportation and communication services, it may only be a matter of time until other UN agencies and DPKO begin to explore these operationally. Finally, the final report of DPKO's Expert Panel on Technology and Innovation in UN Peacekeeping strongly recommends the expansion of UUAV use and the incorporation of miniature UUAVs as standard requirements.²² Indeed, the Expert Panel calls for the enhanced use of tactical or mini-UAVs for *multiple aims*, rather than simply the MONUSCO-style deployment of UUAVs. This is a very important distinction.

Peacekeeping UUAVs: The Upside

There seems to be a growing consensus among the UN community that UUAV-use in peacekeeping settings can have important benefits. Member states participating in the Special Committee on Peacekeeping Operations – where UUAVs are discussed – are increasingly accepting of UUAV presence in DPKO-led missions. A review of recent assessments of UUAV deployments for peacekeeping reveals several key benefits: better situational awareness, safety and security of peacekeepers, stronger internal accountability and monitoring, and more effective deterrence. In addition, some may consider greater precautionary obligations as an added benefit.

First, evidence suggests that UUAVs do improve the situational awareness of missions, and could do so at a lower cost than wider troop deployment.²³ A recent study on the use of UUAVs for peacekeeping purposes found that “surveillance drones can help missions acquire better information and improve the situational awareness of its troops, as well as inform decision-making by leadership, police, and civilian components of the mission.”²⁴ The study also noted that “the use of drones can dramatically improve information-gathering capacities in proximity to populations at risk, thereby strengthening the ability of peacekeepers to monitor and respond to human rights abuses as well as violations of international humanitarian law (IHL). Drones may also enable peacekeepers to maintain stealth surveillance of potential spoilers, including arms

²¹ Co-author Patrick Meier briefed the ETC on this use case during the ETC's 2020 strategy session, held in Rome in September 2014.

²² “Performance Peacekeeping: Final Report of the Expert Panel on Technology and Innovation in Peacekeeping.” 22 December, 2014. Specifically, the panel recommends: “As an immediate measure, the UN could make better use of lighter, night-time-capable platforms, such as UAVs, aerostats or other raised platforms with mounted electro-optical infrared or radar radial-surveillance technology.” See also: Dorn, Walter. 2011. *Keeping Watch: Monitoring Technology and Innovation in UN Peace Operations*. United University Press. <http://www.keepingwatch.net>; Dorn, Walter, Ed. 2014. *Air Power in UN Operations*. Ashgate Publishing. <http://www.walterdorn.net/pub/202>

²³ Sun, Jessica. 2014. Equipping a UN Peacekeeping Force for the Future. Spotlight, Stimson Center. Available online at: <http://www.stimson.org/spotlight/equipping-a-un-peacekeeping-force-for-the-future/>

²⁴ Karlsrud, J and Rosén, F 2013. In the Eye of the Beholder? UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security and Development* 2(2):27, DOI: <http://dx.doi.org/10.5334/sta.bo>

smugglers and embargo breakers.”²⁵ Another report adds that by providing remote surveillance, UUAVs positively contribute to peacekeeping missions because “avoiding troop deployments may be good for both the purse and the security of civilians and soldiers.”²⁶ Speaking about DPKO’s mission in the Central African Republic, MINUSCA, Leanne Smith notes a further potential benefit of UUAVs: in a country context like CAR, where the UN can only have a limited presence outside the capital, there is a need to balance the location and movements of vulnerable populations that need protection with logistical and security factors when deciding where to set up mission sub-offices. Given the limitations in this context, UUAVs in CAR would allow peacekeepers in the mission to have a more flexible capability to identify threats and with the provision of other enabling assets, respond rapidly to populations under threat.²⁷

Second, greater situational awareness enables peacekeepers to deploy faster response for protection of civilians. Peacekeeping operations are already woefully overstretched.²⁸ As a result, shortcomings in “providing security and protection in response to conflict” is becoming increasingly common.²⁹ The lack of vital equipment, like military helicopters, has already made protection work less effective.³⁰ In at least one instance in the DRC, peacekeepers were not able to intervene and stop rebels from attacking Goma “because of shortages in equipment and personnel.”³¹ The local community has come to refer to peacekeepers as “*Les Touristes*” after the M23 Goma takeover in 2012.

Hence the interest in the use of UUAVs is that they are considerably cheaper than helicopters. Indeed, the use of UUAVs in the DRC “would have enhanced the capability ... to protect civilians by preventing violence and displacements,” according to the Under-Secretary-General for Peacekeeping Operations.³² Enhanced situational awareness via UUAVs would make peacekeepers more aware of emerging threats and would enable them to respond accordingly—to deter, mitigate or prevent violence against civilians, regardless of where this would occur. Some (outside DPKO) also argue that greater situational awareness could make it harder for missions to neglect to protect hard to reach areas or populations. It would also allow peacekeeping missions to make more informed decisions about where and how to deploy, and enhance their own safety and security. On average, about 22% of peacekeepers fatalities are due to what DPKO classifies as malicious acts. UUAVs could reduce this figure “by providing

²⁵ Ibid.

²⁶ Sandvik K.B. and Lohne K. 2014. The Rise of the Humanitarian Drone: Giving Content to an Emerging Concept *Millennium: Journal of International Studies*, 43 (1), pp. 145-164.

<http://mil.sagepub.com/content/early/2014/06/02/0305829814529470.abstract>

²⁷ Conversation with Leanne Smith (Chief, Policy and Best Practice Service, DPKO) on March 31, 2015.

²⁸ Kennedy, Caroline and James Rogers. 2015. Virtuous Drones? *The International Journal of Human Rights*, 19:2, 211-227.

²⁹ Kennedy, Caroline and James Rogers. 2015. Virtuous Drones? *The International Journal of Human Rights*, 19:2, 211-227.

³⁰ Kennedy, Caroline and James Rogers. 2015. Virtuous Drones? *The International Journal of Human Rights*, 19:2, 211-227.

³¹ Kennedy, Caroline and James Rogers. 2015. Virtuous Drones? *The International Journal of Human Rights*, 19:2, 211-227.

³² UN News Centre, ‘Senior UN Officials Highlight Diversity and Challenges of Peacekeeping’, 21 February 2012. <http://www.un.org/apps/news/story.asp?NewsID=41321#.VBsRefmwln5>

surveillance evidence and therefore criminal attribution, thus making these acts more costly for the perpetrator and indeed may act as a deterrent.”³³ As a result, the use of UUAVs in peacekeeping missions may also increase the safety and security of humanitarians in the field.

Third, the use of UUAVs in peacekeeping missions can serve as an accountability mechanism to monitor and record the mission’s own actions. To be sure, the expanded use of UUAVs in these contexts would mean additional oversight and scrutiny of how peacekeepers use force; whether that use of force is proportional and whether all due precautions to avoid civilian casualties were actually taken.³⁴ In fact, some proponents argue that the use of UUAVs can “significantly increase peacekeepers’ precautionary obligations under International Humanitarian Law (IHL) in targeting situations: the availability of UUAVs triggers the obligation to use them to gather information in order to avoid civilian casualties or other violations of IHL or international human rights law.”³⁵ In other words, if very high-resolution aerial imagery and video clearly show that civilians are at risk (whether from action or inaction), the responsibilities of peacekeeping missions may grow in response. This argument is an extension of the greater precautionary responsibilities of military operators towards collateral damage that Rosén argues drones introduce.³⁶ However, the above presupposes that the protection of civilians is tantamount to the use of force, which is deeply misconceived. Offensive mandates are absolutely *not* the norm for peacekeeping missions. Critics also argue that the above reference to IHL is a very narrow legal argument, which would only apply in cases where DPKO is party to a conflict. In any event, the main point here is in the action implications: if peacekeepers are more aware of emerging threats to civilians, they no longer have an excuse not to act. So this is ultimately an argument about accountability to the peacekeeping mandate. The issue is less about proportionality and more about the failure to respond.

Fourth, DPKO has highlighted that deterrence is a direct aim of their use of UUAVs. “To improve the protection of civilians in North and South Kivu provinces [in the DRC],” the head of DKPO noted that the “UN for the first time has been using unarmed aerial vehicles to collect information for the force commander and promote deterrence to those who ‘move around with bad intentions’ in the area.”³⁷ This point was reiterated during the UN Experts Meeting on Humanitarian UAVs held at the UN Secretariat in New York in November 2014. DPKO reportedly takes the “mufflers” off their UUAVs in order to make more noise and thus deter

³³ Kennedy, Caroline and James Rogers. 2015. Virtuous Drones? *The International Journal of Human Rights*, 19:2, 211-227.

³⁴ Karlsrud, J and Rosén, F 2013. In the Eye of the Beholder? UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security and Development* 2(2):27, DOI: <http://dx.doi.org/10.5334/sta.bo>

³⁵ Karlsrud, J and Rosén, F 2013. In the Eye of the Beholder? UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security and Development* 2(2):27, DOI: <http://dx.doi.org/10.5334/sta.bo>

³⁶ Rosen, F. Extremely Stealthy and Incredibly Close: Drones, Control and Legal Responsibility. *The Journal of Conflict and Security Law* 2014 19(1), DOI: 10.1093/jcsl/krt024

³⁷ UN News Center. 2013. “UN peacekeeping mission in Mali increasingly possible, says top official.” Available online at: <http://www.un.org/apps/news/story.asp?NewsID=44087>

would-be perpetrators of violence in the Kivu provinces.³⁸ Further on deterrence, educating the public about peacekeeping UUAVs and the fact that these can document illegal actions may also serve as a deterrent.

Finally, there are some unintended albeit beneficial side-effects of deploying UUAVs. Ameerah Haq, the Under-Secretary-General for the United Nations Department of Field Support (DFS), recently noted that DPKO's UUAVs had saved the lives of dozens in North Kivu during one of their exercises.³⁹ Goma is on the shores of Lake Kivu, and the most common mode of transport between Goma and Bukavu are unsafe, overcrowded boats across the lake. On their test flight, the UN drones sent back real-time imagery of a boat that was sinking in the middle of the lake. In response, the peacekeepers quickly deployed a few UN boats and saved many passengers from drowning. Thus, although drones deployed by DPKO do not have a humanitarian mission, they may sometimes achieve humanitarian aims as well as provide/deliver logistical support. In Goma, for example, the World Food Program (WFP) tasked a DPKO UUAV to provide road reconnaissance. The peacekeeping mission has also made the UUAVs available to the UN Resident and Humanitarian Coordinator (RC/HC) side.⁴⁰

Peacekeeping UUAVs: The Perceived Downside

The risks and challenges we describe below are significant but many if not all can be managed. We propose our own solutions in the following section entitled "Moving Forward." At the same time, one should not shy away from detailing the fears (often justified) that many harbor regarding the use of UUAVs in conflict zones. This is particularly true in situations where peacekeeping and humanitarian mandates intersect. To this end, the Humanitarian UAV Network's Research Team thus compiled and published a list of fears and concerns expressed by humanitarians, researchers and other practitioners on the use of UUAVs in humanitarian settings, paying particular attention to conflict zones.⁴¹

³⁸ This may explain reports of locals calling the UUAVs "lawnmowers" (according to a UN official in Goma).

³⁹ Puig Larrauri, H. "Drones, ethics and conflict." Let Them Talk, September 6, 2014, <http://letthemtalk.org/2014/09/06/drones-ethics-conflict>

⁴⁰ Worth noting that this is the Head of the UN Country Team in integrated UN environments Head of UNDP as well as one of mission's DSRSGs.

⁴¹ Meier, P. "Humanitarian UAV/Drones in Conflict Zones: Fears, Concerns and Opportunities." iRevolution, November 3, 2014, <http://iRevolution.net/2014/11/03/humanitarian-uavs-conflict-zones>

Privacy/ Data Collection/Surveillance	10
Transparency and Consent	8
Fear/Confusion /Pyshcological Terror	6
Response Expectations	3
Innefective Deterrence	1
Laws and Regulations	5
Military Association / Stigma	11
Technological Weakness	3
Inapropriate Use	2

Table 1: Desk-based research on UAV perceptions.

To do this, the team closely reviewed more than 50 different documents, think tank reports, academic articles, etc., on humanitarian UUAVs published between 2012 and 2014. The motivation behind this research was to better understand the different and overlapping concerns that humanitarian organizations have over the use of UUAVs in crises, particularly crises mired by violent conflict.

The results of this research are summarized in the table above. The Research Team identified a total of 9 different categories of concerns and tallied the unique instances in which these appear in the official humanitarian reports, articles, papers, studies, etc., that they reviewed. The top 3 concerns are: Military Association, Data Privacy and Consent. It is important to understand that whilst most conversations about consent for UUAVs at the United Nations turn on whether a State consents to the use of UUAVs by a DPKO mission in its territory,⁴² the review above is referring to consent by the population under surveillance.

Note that most of the documents reviewed for this research discussed humanitarian UUAVs, not peacekeeping UUAVs. Thus, many of the concerns that are raised here also apply to the broader challenge of peacekeepers undertaking humanitarian work, whether or not UUAVs are involved. Nonetheless, we believe that the concerns identified in this research serve as a good starting point to discuss concerns about peacekeeping UUAVs, to which we now turn.

Consent and Do No Harm

Consent is critical to any data collection and dissemination in conflict settings, whether acquired via UUAVs or otherwise. It is often difficult to meet Do No Harm principles because the unintended consequences of data collection in complex conflict environments are hard to predict. Furthermore, the collection of certain types of information (such as ethnic make-up of the population in an area) can result in targeting by conflict actors. This is an even greater risk where data is collected in real-time. Even where the data collected is uncontroversial, merely being part of a data collection exercise can make conflict actors suspicious and put individuals at risk.

⁴² Conversation with Leanne Smith (Chief, Policy and Best Practice Service, DPKO) on March 31, 2015.

It may seem odd to speak about the “Do No Harm” principle in a peacekeeping context when— for military actors such as peacekeeping troops—the requirement would center on respect for International Humanitarian Law (IHL), which in fact allows for the projection of harm as long as it is proportional and justified. This issue does get blurry depending on the particular mission’s mandate and depends mainly on whether the mandate includes pro-active military engagement.⁴³ Since MONUSCO is the only mission with such a mandate at this time, our focus here lies in the more common peacekeeping mandates. This explains why we continue addressing the issue of do no harm below.

An important way to mitigate the risk of harm is to obtain consent. Humanitarian actors working in conflict settings carry out their own Do No Harm assessments on data collection, but are also guided by the judgment of those being surveyed, who are often most likely to understand these unintended consequences. Most humanitarian agencies have their own protocols for obtaining informed consent in conflict settings. As a general standard, the ICRC’s “Professional Standards for Protection Work” provides guidelines for Do No Harm assessments and obtaining informed consent.⁴⁴

Leaving aside for a moment the operational challenges to obtaining consent for UUAV-collected data (more on that below), the key difference between (most) data collected by humanitarian actors and data collected by peacekeeping UUAVs is that the latter has tactical, military value that may ultimately lead to the deliberate use of force.⁴⁵ With adequate clearance protocols in place, collecting sensitive information is not necessarily a problem. However, UN peacekeeping missions do not always have such strong protocols. Ensuring the security of data so that it does not fall into the hands of conflict actors can thus be very difficult. The acquisition of this kind of UUAV imagery may make a peacekeeping mission more susceptible to intrusion attempts by actors keen to get the imagery. Even if the UN guarantees a Do No Harm framework for information collected by its UUAVs at the time a mission is operational, this guarantee may not survive the lifetime of the information to ensure that there is never a harmful use of this information against civilians.

Writing about UUAVs in peacebuilding, Hattotuwa takes this argument further and states: “I am unconvinced that informed consent, which is in turn usually based on assurances over the use and reuse of information voluntarily disclosed, means whatever it meant even just a few years ago. What was once largely paper based and subsequently digitally stored in institutional silos is increasingly digitally captured and widely shared between various actors responding to the same emergency and crisis. There is simply no way any single actor in a coordinated, unified response can assure an individual or community that information they give out will only be used

⁴³ Taken from email communication with UN/OCHA staff member, February 2015.

⁴⁴ ICRC 2013. Professional Standards for Protection Work Carried Out by Humanitarian and Human Rights Actors in Armed Conflict and Other Situations of Violence. Available online at: <https://www.icrc.org/eng/assets/files/other/icrc-002-0999.pdf>

⁴⁵ Worth noting that this noting that this could be unilaterally by national security forces or joint UN forces/National army operations.

for the purposes they are sharing it for.”⁴⁶ Even if a mission obtains consent from a population on a specific subset of the imagery acquired by UUAVs to be used for a particular task, the rest of the information may have no systemic expiration date and could be saved for perpetuity. It is our understanding that DPKO is still grappling with standards for managing data collected by UUAVs. At any rate, there is an important risk of information gathered to be re-used or leaked to other actors, for very different purposes. As Hattotuwa goes on to explain, it’s not just an issue of whether data gatherers can find the people who would give consent, but also whether they can realistically guarantee the security of the data they gather. In his words: “informed consent based on assurances over the restricted use and sharing of data today are essentially misleading, and thus, ethically questionable.”

Consent and Privacy

The issues of Do No Harm and informed consent turn on whether information collection via UUAVs puts people at risk. Yet even if we assess that there is no such risk, consent is still required to avoid violating rights of privacy.

There is an operational challenge to requiring consent for data collected by peacekeeping UUAVs. The Expert Panel on Technology and Innovation in Peacekeeping recommends that “Clear policies should be emplaced, and leadership accountability be established, to help ensure that information is properly and lawfully obtained, stored, used, processed, and shared, and that prevailing privacy laws are respected.”⁴⁷ But there is no clear guidance yet on how such policies could be operationalized. One of the possible functions of peacekeeping UUAVs is to enhance situational awareness by collecting data on civilian protection. If the purpose of the MONUSCO UUAVs, for example, is to allow peacekeepers to monitor a broader area than they can cover by land, then how operationally viable is it to obtain consent for UUAV-collected data? Humanitarian actors at times argue that the imperative to save lives trumps the right to privacy in certain situations and/or at certain levels of data aggregation. Alas, it is much harder to draw the line on what is life-threatening when it comes to peacekeeping operations in a conflict or post-conflict context. UUAVs cannot detect intent, so how are imagery analysts to determine if a situation is likely to result in loss of life? Interestingly, the chair of the high-level panel that delivered the above report likens the use of UUAVs for peacekeeping with driving a car: “You want basic information when you go out for a drive. Does that make you an intelligence gathering entity? No. You just want to know the environment you’re walking into.”⁴⁸ This would suggest that consent is immaterial.

We do not agree that consent is immaterial. Nonetheless, perhaps consent is not the right way to approach privacy issues related to UUAVs. As Karlsud and Rosén argue, the problem of

⁴⁶ Hattotuwa, S. “UAVs and Peacebuilding: Some Thoughts.” ICT for Peacebuilding, June 11, 2014, <http://ict4peace.wordpress.com/2014/11/06/uavs-and-peacebuilding-some-thoughts>

⁴⁷ “Performance Peacekeeping: Final Report of the Expert Panel on Technology and Innovation in Peacekeeping.” 22 December, 2014.

⁴⁸ Charbonneau, Louise. 2015. UN panel urges increased use of drones in peacekeeping missions. *Nation*, BDN Maine, February 24, 2015. <https://bangordailynews.com/2015/02/24/news/nation/u-n-panel-urges-increased-use-of-drones-in-peacekeeping-missions/?ref=latest>

operationalizing some of the data privacy issues surrounding UUAVs is not dissimilar to privacy issues in the use of CCTV to deter or prosecute crime.⁴⁹ Most conflict-affected populations are unlikely to have a problem with UUAVs filming conflict actors; it may be personal identifying information about themselves that UUAVs capture that might concern them. UUAVs can capture imagery at 2cm-10cm resolution if need be. So how much of the information captured by UUAVs could violate personal privacy? Interestingly, we don't ask these questions about satellite imagery since satellites are (mistakenly) perceived as far less intrusive. DigitalGlobe's latest and most sophisticated satellite, WorldView-3, captures images at an astounding 31-centimeter resolution and can even see wildfires beneath the smoke. What happens when commercial satellites are able to capture imagery at 20 or 10-centimeter resolutions? Will DigitalGlobe ask the planet's population for their consent? We are not aware of any studies that have analyzed just how much—and also what kind—of personal identifying information can be captured via satellite and UUAV imagery across various resolutions, especially when linked to other datasets.

Fear and Confusion

Most UUAVs used by the UN or by NGOs in non-conflict contexts are often perceived by local communities as toys, not as threatening military equipment. However, in some conflict contexts like Somalia, Afghanistan and Pakistan, there is significant trauma among local populations who have witnessed drone strikes that appeared to come from nowhere.⁵⁰ This fear may continue to grow as more militaries around the world start employing lethal drones. There may also be greater suspicion of anything that looks like an instrument to spy, to relay information to places of power far away, and that might (even unintentionally) make them a target for military action. This is further problematic because military drone operators are increasingly embracing UAVs designed for non-lethal purposes and weaponising them. A UAV from the ground is indistinguishable in terms of intent, and it is becoming increasingly difficult to distinguish them. In fact, this is a critical difference between UUAVs and satellites: satellites operate beyond sight; UUAVs may at times be visible and thus can have direct psycho-social impact on the populations it flies over.

A recent blog post by the International Rescue Committee (IRC) raises similar concerns about the difficulty that local populations may have in distinguishing drones-for-good in conflict

⁴⁹ “The sensitive aspects of information collected by drones in humanitarian and peacekeeping operations concern not only the targets of the surveillance drones - such as the Lord's Resistance Army (LRA), the M-23, or the *Forces Démocratiques de Libération du Rwanda* (FDLR) - but also the large amounts of extra-data which are collected and stored. The sensitivity of drone technology in peacekeeping missions thus looks a lot like the CCTV dilemma: most people have no problem with the filming of perpetrators in public spaces - the problem is all the other private data also captured by CCTV technology.” Karlsrud, J and Rosén, F 2013. In the Eye of the Beholder? UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security and Development* 2(2):27, DOI: <http://dx.doi.org/10.5334/sta.bo>

⁵⁰ Living Under Drones, for example, documents trauma among Pakistanis living in areas targeted by US drone strikes. See: <http://www.livingunderdrones.org>. See also Masters, John. 'Targeted Killings', 23 May 2013. <http://www.cfr.org/counterterrorism/targeted-killings/p9627>

settings.⁵¹ When the MONUSCO drones first started to operate, a consortium of NGOs working in the Kivus warned that they might (at least in the eyes of local beneficiaries) appear to blur the lines between military and humanitarian actors. A particular concern of humanitarian actors was a DPKO proposal to share information gathered by DPKO drones with humanitarians. They explained that DPKO's use of surveillance drones in the country could "blur the lines between military and humanitarian actors"⁵² and thus using information collected by them would compromise the core principles of impartiality and neutrality that humanitarian response is built on. Some NGOs and commentators go further and claim that the potential dual-use of UUAVs (i.e. the fact that they could be weaponised) makes them unsuitable for humanitarian work, regardless of their technical benefits.⁵³ It is worth noting, however, that cars and mobile phones also have dual-use applications. They can be used to arm and detonate explosive devices. Furthermore, information sharing between DPKO and humanitarian organizations still happens in practice for pragmatic and obvious reasons. The issue in the DRC is unique and is not representative of all peacekeeping missions. The above only relates the only mission (for now at least) with an offensive mandate and the need to safeguard humanitarian access.

According to Daniel Gilman from the UN Office for the Coordination of Humanitarian Affairs (OCHA), who also authored OCHA's Policy Brief on Humanitarian UAVs, "The DRC NGO position piece has to be understood in the context of the Oslo Guidelines on the use of Military and Civil Defense Assets in Disaster Relief – from conversations with some people engaged on the ground, the issue was less the technology itself [i.e., the UUAVs] than the fact that the mission was talking about using this [technology] both for military interventions and 'humanitarian' needs, particularly since [DPKO's] Mission doesn't have a humanitarian mandate."⁵⁴ The latter is not entirely accurate. MONUSCO has a mandate to support humanitarian activity. It also has a triple-hatted Deputy Special Representative to the Security-General / Resident Coordinator / Humanitarian Coordinator.⁵⁵

Gilman is however correct to frame the concerns around MONUSCO UUAVs in the context of concerns about integrated missions (that have both peacekeeping and humanitarian aims). Even where there are no integrated missions, humanitarians have in recent years expressed growing concern about the blurring military-civilian lines in complex emergencies.⁵⁶ The question then is whether the operation of UUAVs makes this concern worse. Distinguishing between UAVs operated by the military versus those used by humanitarian organizations for non-military purposes is no easy task—assuming it is even possible. Mali is a case in point for

⁵¹ D'Onofrio, A. "Drones R Us? Reflections on the use of UAVs in humanitarian interventions." IRC blog, September 4, 2014, <http://www.rescue.org/blog/drones-r-us-reflections-use-uavs-humanitarian-interventions>

⁵² "NGOs Against MONUSCO Drones for Humanitarian Work." IRIN News, 23 July 2014, <http://www.irinnews.org/report/100391/ngos-against-monusco-drones-for-humanitarian-work>

⁵³ Currian, P. "Game of Drones." IRIN blog, 24 February 2015, <http://www.irinnews.org/report/101156/game-of-drones>

⁵⁴ Email exchange on Sept. 8, 2014, permission to publish this excerpt granted in writing.

⁵⁵ See Operational Paragraph 4 (a) of S/RES/2147 (2014) and Operational Paragraph (a) of S/RES/2111 (2015).

⁵⁶ Ferriero, Marcos. 2012. Blurring the Lines in Complex Emergencies. *The Journal of Humanitarian Assistance*, December 24, 2012. Available online at: <http://sites.tufts.edu/jha/archives/1625>

this type of confusion. Dutch troops with MINUSMA use their own short-range, unarmed UAVs (which are not painted white) in contrast to other long-range UUAVs contracted by the UN, which will presumably be painted white, with the UN logo). Alongside these UUAVs, the French *Opération Barkhane* has two Reaper (armed) drones that are frequently used. The OCHA Policy Brief echoes these concerns, arguing that painting and signaling humanitarian UUAVs to distinguish them from military drones works well in natural disasters, but is unlikely to be sufficient to overcome the fears of local populations in conflict settings.

Response and Deterrence

A key issue with any system that gathers data in a conflict or post-conflict setting, whether collected by UUAVs, via SMS-enabled crowdsourcing or by other methods, is that it may raise expectations for a response. Is it ethical for peacekeeping missions to deploy UUAVs if they do not have the capacity to respond to increased information on threats?⁵⁷ This risk is especially concerning for UN peacekeeping operations (such as those in the DRC) that have in the past been criticized for inadequate responses to known threats against civilians. One possible counter-argument might be that the presence of UUAVs is in itself a deterrent (just as the presence of UN peacekeepers is meant to be a deterrent). In fact, the head of DPKO has suggested that deterrence is a direct aim of UN drones. Other initiatives using satellite imagery to monitor violence, such as the Satellite Sentinel Project, have similarly argued that surveillance of conflict areas acts as a tactical and/or political deterrent.

Gregory summarizes this view point in a recent article: “Having drones in the air over particularly volatile areas would allow peacekeepers to register suspicious behavior, even at night, and monitor movements of groups and individuals, checking for weapons and other items that would indicate hostile intentions. Drones could also be used for detecting arms smuggling and breaches of embargos. There is thus reason to believe that the presence of drones could have a deterrent effect on adversaries.”⁵⁸

By drawing parallels with other (earlier) technologies, Gregory goes on to explain that the key to deterrence is proximity and visibility. As we point out in the earlier section, UN peacekeeping missions make their drones deliberately loud to ensure their presence is heard by conflict actors. Despite these arguments, what makes problematic the notion that UUAVs can deter violent acts is that even when conflict actors are aware that they are being watched, they may feel they are immune to the consequences of UUAV surveillance - that is, they may think it is a remote enough threat because peacekeepers are unlikely to act upon the information they

⁵⁷ UUAV experts in the conservation space have made similar arguments. Tom Snitch at the University of Maryland is one of the leading experts in the use of UUAVs for anti-poaching. He makes it clear that using a UUAV to spot a poacher about to kill an elephant does not in itself prevent the impending poaching. Only if rangers are close enough can they potentially intercept the poacher before the elephant is killed.

⁵⁸ Karlsrud, J and Rosén, F 2013. In the Eye of the Beholder? UN and the Use of Drones to Protect Civilians. *Stability: International Journal of Security and Development* 2(2):27, DOI: <http://dx.doi.org/10.5334/sta.bo>

receive from UUAV surveillance.⁵⁹ In fact, DPKO conceives of UUAVs as part of a package for better, faster response by peacekeepers,⁶⁰ and acknowledges that having a more flexible, efficient surveillance capacity without increased flexibility for on-the-ground deployment would not make sense.

This leads to the following question: how should UN peacekeepers respond to data collected by UUAVs? Many peacekeeping actions do not involve the use of force: sending out a patrol or aircraft, make enquiries of military liaison officers, etc. What if UUAV-collected imagery is followed with force projection? Could this lead to an escalation of violent confrontation in peacekeeping missions. If conflict actors realize that they're being watched by UUAVs that can trigger military action from peacekeepers, won't they simply adapt and evolve strategies to evade or shoot down UUAVs? This would then force peacekeeping missions to change their own strategy, perhaps adopting more stealthy UUAVs. For deterrence to be credible, response must be forthcoming – therefore the deployment of UUAVs either puts peacekeeping on a more aggressive trajectory or increases the gap between expectations and inaction on the ground.

In this context, it is worth noting that the two missions that have to date used UUAVs (MONUSCO and MINUSMA) both have particularly robust engagement mandates.⁶¹ MONUSCO's controversial Force Intervention Brigades (FIB) are mandated to "take all necessary measures" towards groups that pose a threat to the civilian population⁶²; MINUSMA has a mandate to "take active steps to prevent the return of armed elements" to the north of Mali⁶³. The other mission where UUAVs are being considered (MINUSCA) also has a strong mandate.⁶⁴ UUAV surveillance can thus trigger a more robust response. Yet the more robust mandates have also been criticized for putting missions on an aggressive trajectory that can feed perceptions that the UN (and by extension humanitarian actors and civilian populations they protect) is taking sides. Peacekeeping UUAVs may thus be contributing to a loss in the (perception of) impartiality of peacekeeping missions.

Technological Weaknesses

There are at least two technological weaknesses of UUAVs that currently present a challenge, but are likely to be resolved as the technology improves. First, accidents and crashes do happen, and can lead to injury or death. This is evidenced not only by crashes that have

⁵⁹ While deterrence via UUAV may work at the outset, it will not remain credible unless the sighting of UUAVs by perpetrators of violence is almost always and immediately followed by some direct or indirect show of force.

⁶⁰ Conversation with Leanne Smith (Chief, Policy and Best Practice Service, DPKO) on March 31, 2015.

⁶¹ Karlsrud, John & Frederik Rosén (forthcoming 2015) 'Lifting the Fog of War? Opportunities and Challenges of Drones in UN Peace Operations', in Jumbert, M.G. & Sandvik, K.B. (eds.), *The Rise of the Good Drone*. Surrey: Ashgate.

⁶² UNSC (2013) *S/RES/2098*. 28 March 2013. New York: United Nations.

⁶³ UNSC (2013) *S/RES/2100*, 25 April 2013. New York: United Nations.

⁶⁴ UNSC (2014) *S/RES/2149*, 10 April 2014. New York: United Nations.

happened under DPKO's watch in the DRC⁶⁵ but also the 47 (documented) US military drone accidents that have occurred in the United States alone.⁶⁶ Of course, just like commercial aviation, the track-record of UAAVs is expected to increase significantly in coming years as on-board computing power increases and collision detection becomes more powerful, thus minimizing this risk.

Second, UUAVs have the capacity to collect vast amounts of information, and thus present a "Big Data" analysis challenge. This is not a "weakness" of the UUAV hardware per se, but rather the ability to turn the imagery captured by UUAVs into actionable intelligence. The trend, however, is increasingly towards having onboard computers carry out some or all of the analysis automatically. In the meantime, as more and more real-time information from UUAVs is live-streamed to peacekeeping operation centers, there may be a growing need for automatic or semi-automatic categorization and detection of features. Failure to manage this Big Data challenge may prevent peacekeeping operations from analyzing all the imagery they capture; they may also overlook important features in said imagery.

Examples of advanced computing work in this area (focused on humanitarian applications) include the research carried out by the University of Maryland and the Qatar Computing Research Institute (QCRI). The former has developed models to automatically detect poachers and the weapons they carry, a model that could be extended to peacekeeping.⁶⁷ Meanwhile, QCRI is collaborating with the Humanitarian UAV Network (UAViators) and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) to combine human computing (crowdsourcing) with machine computing (artificial intelligence) in order to automate feature detection in aerial imagery of disaster areas.⁶⁸ Of course, exposing sensitive imagery to the public (for crowdsourcing purposes) is not an option in peacekeeping. But QCRI's solution can also be used with "bounded crowdsourcing"—that is limiting the crowdsourcing to trusted and vetted members of the "crowd" only.⁶⁹ To this end, if QCRI's experimental solution does work for humanitarian deployments, then one could envisage DPKO using the same methodology to automatically detect features of interest to peacekeeping operations.

Laws and Regulations

While the technology is getting easier to use and more sophisticated, UUAV regulations and legislations are still lagging behind. When they do legislate, many countries react for fear of accidents with manned aircraft and/or loss of sovereignty if non-state actors are permitted to fly

⁶⁵ Sandvik K.B. and Lohne K. 2014. The Rise of the Humanitarian Drone: Giving Content to an Emerging Concept *Millennium: Journal of International Studies*, 43(1), pp. 145-164.

<http://mil.sagepub.com/content/early/2014/06/02/0305829814529470.abstract>

⁶⁶ Whitlock, Craig. 2014. Crashes Mount as Military Flies More Drones in US. Washington Post, June 22, 2014. Available online at: <http://www.washingtonpost.com/sf/investigative/2014/06/22/crashes-mount-as-military-flies-more-drones-in-u-s/>

⁶⁷ In person interview with Professor Tom Snitch from the University of Maryland, February 11, 2014.

⁶⁸ Meier, P. "Using MicroMappers to Make Sense of Aerial Imagery During Disasters." *iRevolution*, May 29, 2014, <http://iRevolution.net/2014/05/29/micromappers-aerial-imagery-disasters>

⁶⁹ Meier, P. "Why Bounded Crowdsourcing is Important for CrisisMapping and Beyond." December 7, 2011, <http://iRevolution.net/2011/12/07/why-bounded-crowdsourcing>

UUAVs. More specifically, the sovereignty issue has to do with the acquisition, use and storage of data, which some fear could come back to “bite them” later, or that the imagery capture goes beyond the geographical area covered by the mandate (i.e. into neighboring states). There is in this sense a critical difference here between UUAVs and satellites. Although satellite imagery results in a similar loss of sovereignty to UUAVs (essentially, the ability to capture detailed imagery), satellite imagery acquisition remains both technically and economically unviable for most. Only private sector companies, large humanitarian organizations and Governments can afford detailed satellite imagery. Access to UUAVs, on the other hand, is being democratized extremely fast, both in terms of cost and easy of use. Thus, UUAVs can be flown by many more and smaller actors, which poses an entirely different challenge in terms of creating a legal framework that guarantees oversight and binding measures for a multitude of actors. Hattotuwa suggests that satellites cost to build, launch and operate and are by extension regulated by a market that companies cannot afford to disrupt. In other words, if a company’s imagery is proven to have been used by terrorists to target civilians, the company itself could be liable for negligence. These market forces do not yet apply to UUAVs.

Another pressing concern is safety. Although an increasing number of safety measures are being implemented to manage the risks of flying UUAVs in complex airspaces, many worry that these measures are not being operationalized quickly enough. The biggest concern has to do with the potential collision between manned aircraft and small UUAVs, which could result in the deaths of hundreds. While Civil Aviation Authorities (CAAs) should absolutely be risk averse, some argue that the risks of UUAVs crashing other aircraft are in fact considerably smaller than the probability of a flock of birds colliding with a passenger aircraft. This sentiment is further supported by recent empirical research.⁷⁰

A more provocative take might on this issue might be the following question: if it is so easy to crash an airliner with a \$500 quadcopter, then why have terrorists still not downed any planes with UUAVs? Critics argue that deliberately flying a UUAV into the turbine engine of a passenger jet traveling at 200-to-1,000 kilometer per hour is near impossible. And even if it were, just like one bird alone is unlikely to down a passenger jet, one UUAV alone is unlikely to critically cripple an airliner (although actual tests have yet to be carried out). In any event, if terrorists were to use a swarm of UUAVs to try and down an aircraft, said swarm would have to number in the several dozens to increase the chances of one or more being sucked into the jet’s turbine. That said, a swarm of UUAVs is far more noticeable at a distance than a single UUAV, which could give airline pilots the time they need to change course and avoid collision.

In any event, the vast majority of CAAs around the world limit the use of UUAVs to 3-5 miles from commercial and military airports. In addition, a growing number of UUAV manufacturers are programming no-fly zones in their software to prevent the use of their UUAVs near airports and other critical infrastructure. Finally, manufacturers are also developing more sophisticated sense-and-avoid systems that enable their UUAVs to automatically avoid collisions with manned aircraft and other objects.

⁷⁰ Atherton, Kelsey. 2015. “Could Drones Pose a Threat to Airplanes?” *Popular Science*, March 13, 2015.

As far as national and international regulations go, the question for CAAs is how to establish a common binding framework that applies to all actors and still permits the positive uses of UUAVs. In cases where countries are legislating from fear (or laziness),⁷¹ they are often over-compensating by imposing blanket legislation that severely hampers the use of UUAVs—even for humanitarian purposes. Recent changes made by the Filipino Civil Aviation Authority meant it took well over a week before professional, certified UAV groups were given permission to assess the damaged following Typhoon Ruby in December 2014. This was not the case the year before when Typhoon Haiyan struck the Philippines. The lack of UUAV regulations at the time meant that UUAVs were flying within days of the Cyclone making landfall. In Kenya, the Kenya Civil Aviation Authority has made all unlicensed UAV use illegal, even though no Kenyan policies exist for licensing. The lack of regulation has already affected use of UUAVs for wildlife protection: Ol Pejeta Conservancy was prevented from using UUAVs to monitor poaching.

While DPKO may get priority in peacekeeping settings, this is not always the case and it remains to be seen whether such permissions are granted everywhere and without restriction. Furthermore, permission to operate UUAVs is not always granted to DPKO; the process often requires a lot of negotiation with the host government and the aviation authorities in any event. Under current policy, DPKO must consult with the Security Council and obtain the host Government's consent prior to deploying UUAVs. In fact, the strongest resistance expressed by UN member states with regard to UUAV-use by DPKO concern the legal framework through which consent will be obtained from States to (i) fly UUAVs and (ii) regulate the storage and use of information during and after a mission. A further concern expressed by member states (that came up specifically around the MONUSCO UUAVs) concerns the legal framework for neighboring countries to contest / consent to surveillance close to their borders. UAV manufacturers already codify no-fly zones into their software,⁷² so one could expect such in-built restrictions to become part of the negotiated rules of engagement for DPKO UUAVs. Further questions may also arise with regards to data ownership: under current policy, all data and imagery collected by UUAVs becomes UN property and is subject to the same rights, protections and confidentiality regimes as other UN property.

Note that Status of Forces Agreement (SOFA) and Status of Mission Agreement (SOMA) may also be relevant in the discussion on laws and regulation. These agreements are “bilateral or multilateral treaties that define the legal position of military and civilian personnel deployed by one or more states or by an international organization in the territory of another state with the latter's consent.”⁷³ These agreements typically deal with issues related to the entry and departure of foreign staff and “the modalities for the exercise of civil and criminal jurisdiction

⁷¹ It is far easier for a CAA to simply outlaw the use of any and all UUAVs regardless of what they are being used for. It takes a lot more work, time, and money to create a more flexible approach to UUAVs; one that carefully weighs risks versus expected benefits.

⁷² Curron, P. “Game of Drones.” IRIN blog, 24 February 2015, <http://www.irinnews.org/report/101156/game-of-drones>

⁷³ Sari, Aurel. 2008. Status of Forces and Status of Mission Agreements under the ESDP: The EU's Evolving Practice. *European Journal of International Law*, 19(1):67-100. <http://ejil.oxfordjournals.org/content/19/1/67.full>

over members of the visiting force or mission.”⁷⁴ In sum, these agreements can be consulted to determine what is permissible and how the UN handles the dilemma of UN rights, immunities and privileges versus national laws. A detailed review of SOFA/SOMA is, however, beyond the scope of this paper.

Moving Forward with Peacekeeping UUAVs

A critical awareness of the issues that UUAVs present for humanitarian operations in conflict settings together with the above discussion on the potential upsides and downsides of UUAV use for peacekeeping suggests to us two key lessons learned that may help facilitate the effective and ethical use of UUAVs for peacekeeping.

First, existing data protection guidelines based on informed consent do not apply well to peacekeeping UUAVs. There is a need to develop a tailored set of guidelines for data protection. Second, listening and responding to local needs is important if peacekeeping UUAVs are to avoid negative perceptions and fear among the local population. Peacekeeping UUAV operators should find ways to engage local populations in understanding the deployment and management of UUAVs by empowering them to question uses and state priorities⁷⁵.

1. Data Protection

In order to handle data protection issues, a set of best practices specific to peacekeeping UUAV operators should be developed, building on existing regulations that are already in place during peacekeeping operations (including host government laws, International Human Rights Law (IHRL, etc) and on the International Committee of the Red Cross guidelines for data protection⁷⁶ and the Principles of Consent developed by The Engine Room, for example.⁷⁷

The ICRC guidelines set standards for the protection of individually identifiable data that are relevant to peacekeeping UUAVs. Namely, the state: “When such consent cannot be realistically obtained, information allowing the identification of victims or witnesses, should only be relayed in the public domain if the expected protection outcome clearly outweighs the risks. In case of doubt, displaying only aggregated data, with no individual markers, is strongly recommended.” This principle should guide peacekeeping UUAV operators. Recent

⁷⁴ Sari, Aurel. 2008. Status of Forces and Status of Mission Agreements under the ESDP: The EU’s Evolving Practice. *European Journal of International Law*, 19(1):67-100.
<http://ejil.oxfordjournals.org/content/19/1/67.full>

⁷⁵ Our suggested way forward on these two lessons focus on local community-engagement and process transparency. We recognize that the complexity of the questions we raise in the previous section requires a broader range of solutions, which are beyond the scope of this paper (and our particular expertise).

⁷⁶ ICRC. 2013. Professional Standards for Protection Work: Carried out by humanitarian and human rights actors in armed conflict and other situations of violence. 2013 Edition.
<https://www.icrc.org/eng/assets/files/other/icrc-002-0999.pdf>

⁷⁷ Wilson, C. “Modeling Consent Policies for Civil Society Data.” the engine room blog, September 23, 2014, <https://www.theengineroom.org/modeling-consent-policies-for-civil-society-data/>

breakthroughs in computer vision mean that personal identifying information captured in high-resolution aerial images and videos could be automatically blurred.⁷⁸

That said, asking military actors to adopt ICRC standards designed for protection workers is perhaps a stretch. Those standards were never intended for that type of audience, nor do they make any claims for universal applicability and the core ideas of humanitarian principles not particularly applicable. That being said, ignoring these standards outright is at best irresponsible.⁷⁹ Indeed, while most data captured by UUAVs is likely to be aggregated, showing population flows, livelihoods activities, location of structures, the difficulty is that in a conflict context this aggregate information can be a determinant of identity that can lead to violent or discriminatory actions. Even without personally identifiable information, information in the aggregate can put some communities at greater risk (assuming it is made public). At the same time, obtaining informed consent from these communities is operationally impracticable and ethically problematic, as explained above.

The Engine Room has proposed a taxonomy of consent that helps to frame guidelines where data subjects are not able to make informed decisions to consent to data collection⁸⁰. This taxonomy acknowledges that informed consent is an ideal, but that simple consent (consenting with limited information) and coerced consent (no real choice to not consent) are understandable in certain operational contexts. They then propose six key components for a consent policy:

1. Review by some kind of expert or informed body
2. Time restriction (data can only be kept/used for a certain amount of time)
3. Use restriction (data can only be kept/used for specific purposes)
4. Transparency & explication (nature of data use must be explained and available to the public)
5. Enforcement of the consent policy and penalties in the case of breaches
6. Risk assessments to inform consent policies

The key point of the Engine Room principles is that the lower consent (i.e. coerced), the more stringent each of these policy points ought to be. In other words, where consent is not possible, radical transparency, external review and stringent controls for how data is used and stored are all the more important.

As explained in previous sections, the added difficulty with UUAVs is that enforcing points 2 and 3 may be practically impossible, particularly as UUAVs become increasingly available to a very large number of actors. This puts all the more pressure on the other three components, and we believe point 4 (transparency and explication) is particularly important. Legislation regulating peacekeeping UUAVs should thus require operators to establish a transparency policy,

⁷⁸ The British company Wirewax.com has already developed algorithms that can automatically detect guns, celebrities and pornographic content in pictures and videos, for examples.

⁷⁹ Taken from email communication with UN/OCHA staff member, February 2015.

⁸⁰ Wilson, C. "Modeling Consent Policies for Civil Society Data." the engine room blog, September 23, 2014, <https://www.theengineroom.org/modeling-consent-policies-for-civil-society-data/>

including making flights visible, making data processing transparent, listening to community concerns, and running a sensitization campaign to inform people.

Whether transparency is compatible with DPKO's vision is unclear. The recent high-level report on the use of new technologies for peacekeeping operations suggests that UUAVs are no less transparent than the peacekeeping mission itself. The same report stresses that the use of UUAVs, "and the systems that underpin their use, must be fully transparent from the start."⁸¹

We now turn to specific suggestions based on the Engine Room's principles.

1a. Make Flights Visible

The issue of trauma among civilian populations related to lethal drones is not to be taken lightly. Peacekeeping missions are constantly aware that choices made on when, how and where to patrol to keep the peace are critical to civilian perceptions. Some hardware is more threatening or suspicious - depending on the context. The same discretion should apply to UUAVs. The only evident alternative for aerial surveillance available to DPKO is their helicopters, planes and other aerial assets. In some instances, for some civilians, helicopters may look somewhat more intimidating than DPKO's UUAVs. For one, manned helicopters are significantly louder, which may add to the fear. However, they are also easier to distinguish when clearly marked, which may in some instances lessen fear.

Some argue that flying UUAVs in such a way that they are not seen or heard may not be appropriate in peacekeeping operations. Not only could such flights arguably lessen the deterrence factor,⁸² they could potentially increase fear among communities as well; the supposition being that local communities would eventually find out that the UN had the capacity and mandate to carry out stealth flights, which would make them more fearful. Arguably, visible flights are an easier target for armed actors. In contrast, flying UUAVs high enough so they are neither visible nor audible enables DPKO to observe illegal armed groups preparing to attack. However, one could argue that in a context where the objective of UUAV flights is not military surveillance for tactical advantage, but rather peacekeeping surveillance for evidence of crimes against humanity, the act of shooting down a peacekeeping UUAV is in itself an indication that a response from peacekeepers may be needed.

1b. Make data processing transparent

Data sharing controls are needed for the usual protection of sources and methods, as well as the content of the data itself. Some data captured by UUAVs "could be used by a party to help mount an attack, as has been done in the past with UN radioed data."⁸³ That being said, most of the information captured by UUAVs is likely to be mostly harmless. To this end, DPKO should

⁸¹ Colm, Gory. 2015. UN wants to use drones to engage in peacekeeping operations. *SiliconRepublic*, February 24, 2015. <http://www.siliconrepublic.com/innovation/item/40848-un-wants-to-use-drones-to/>

⁸² That said, just knowing that someone could be watching can serve a deterrent.

⁸³ Email communication with Walter Dorn in March 2015.

seek to be more transparent vis-à-vis how the process gets handled from end to end. In addition, since most of the data may actually not have any intelligence value, DPKO should seriously consider releasing some of this imagery along with the meta-data. To be sure, this imagery could be used to support urban planning projects, disaster-risk reduction efforts and even local agriculture. Creating a transparent process whereby the resulting imagery and maps can be shared with local stakeholders may help change the local perception of peacekeepers as being “*les tourists*” as is currently the case. At the very least, transparent processes should be put in place to make imagery available when it is no longer of tactical use to DPKO or the perpetrators. As such, DPKO should take steps to work with civil society groups and universities to craft and implement a transparent and accessible process for data sharing and analysis.

1c. Listen to Community Concerns Over UUAVs

Where UUAVs are put into operation in a conflict context, a mechanism must be developed that allows communities to hold UUAV operators to account. One practical option would be to establish an SMS system that allows community members to voice concerns about UUAV operations in their area. This system could also serve as the main way to communicate public findings from UUAV data collection. The system would need to have transparent protocols for handling concerns, especially in contested geographies where data collected might speak to pre-existing conflict dynamics.

If the objective of peacekeeping UUAVs is deterrence, then making the community aware there are eyes in the sky through some form of push notification system may in fact help conflict prevention and mitigation. There will of course be trade-offs between operational security and public engagement, which will have to be guided by the operational context.

1d. Run a Sensitization Campaign

Educating communities where peacekeeping UUAVs are deployed is critical to handling the ethical questions around consent in conflict contexts. OCHA’s policy brief indicates that it is important to increase “the degree of transparency, acceptance and community engagement of the UAV program.” An open conversation with communities can include considerations about the potential risks of UUAV-enabled data collection and whether communities believe these risks are worth taking.⁸⁴ This can make way for critical engagement from communities, which can offer grounded advice to UUAV operators.

It is important to note that a sensitization campaign cannot be limited to dropping leaflets or running radio advertisements. Depending on the operational context and the level of trauma, engaging a population may require significant resources. To our knowledge, the required investment (both human and financial) for the adequate communication of UUAV operations is not currently budgeted for by peacekeeping missions.

⁸⁴ According to Walter Dorn, DPKO UUAVs have been outfitted with other sensors for Electronics Intelligence (ELINT) in the past and present. So imagery is not the only data being collected.

2. Participation

A critical ethical question about UUAVs and peacekeeping is how they shift the balance of power. As with other data-driven, tech-enabled tools, UUAVs operated by a large international organization are arguably more extractive than they are empowering to local communities - even if their aim is to protect them. Thus, it becomes important to not only consider consent and find ways to hold UUAV operators to account, but also for local communities to be given the chance to implement community-driven UUAV programs.⁸⁵ DPKO's UUAVs are not military assets – they are controlled by the SRSG – and thus we believe should be considered civic technologies. As Graeff and Matias explain, participatory processes are what make technologies civic by ensuring that individuals are empowered towards institutions, especially where institutions are perceived as an abstraction of people⁸⁶ (as is often the case with peacekeeping missions).

2a. Explore community-centered approaches to UUAV deployment

Lessons could be learned from Haiti, where community-led, UAV-enabled disaster risk reduction has already been taking place for several years. It is certainly a more challenging undertaking in conflict settings where, as Hattotuwa argues, it is unclear “what exactly is community-ownership or community-driven implementation of UAV operations in a context where the ‘community’ itself is deeply divided, within itself and with other communities.” But this challenge of ownership of community processes is not unique to UUAVs. Peacekeeping missions in very fragmented contexts⁸⁷ find ways to work with communities, often partnering with peacebuilding programs that have established ways to foster dialogue across group divides.

What we suggest is that peacekeepers should engage these same peace infrastructures in their UUAV programs - using the UUAVs as an opportunity for dialogue and collaboration rather than fear and further division. This could inform the priorities for UUAV surveillance by peacekeeping missions towards issues and places of concern identified by local communities. This type of consultation would have to be designed with Do No Harm principles in mind, paying particular attention to any potential adverse effects if participants become associated with operational decisions about UUAVs that lead to a military response. In other words, engagement with peace infrastructures might not be adequate in missions (such as MONUSCO) that have robust, offensive mandates. That said, if the consultations are well-designed, joint priority identification can be a useful starting point for dialogue in fragmented societies. Furthermore, involving a community in telling their story through interpretation of data offers an opportunity for “frame changes” – observing issues from a different, collective stand-point that makes collective

⁸⁵ Puig Larrauri, H. “Drones, ethics and conflict.” Let Them Talk, September 6, 2014, <http://letthemtalk.org/2014/09/06/drones-ethics-conflict>

⁸⁶ Graeff, E. and Matias, N. “Making Drones Civic.” Paper presented during the "Unmanned Rights: Drone Use By Civil Society" panel at the International Studies Association's 56th Annual Convention, New Orleans, Louisiana, 20 February 2015.

⁸⁷ That is, violent conflicts that involve very large numbers of people fight; where there is no trust.

organizing more accessible.⁸⁸ This policy of pro-active engagement is also promoted by Bond and Meier in “Peacekeeping Intelligence for Stakeholders: an underutilized open resource.”⁸⁹

It may be that the recent sensitization efforts in DRC were intended to do some of the above.⁹⁰ In addition, we have not heard of any detractors saying that some of the above ideas wouldn’t/couldn’t/or shouldn’t be done if smaller assets were to be deployed in peacekeeping areas of operations. This should be tied to DPKO’s mandate and would potentially facilitate humanitarian access.

2b. Work with Communities to Explore Other Use cases Beyond Imagery

While the use of UUAVs for the collection of imagery (visible light, thermal imaging, etc.) is compelling given the long-time use of satellite imagery for the same purpose, other sensors can be used with UUAVs that may be relevant to peacekeeping operations. IED (Improvised Explosive Device) detection by UUAVs was developed in Afghanistan and would be very relevant to MINUSMA’s operations, for example. A start-up in India is also developing a sensor for UAVs to detect unique cell phone signals.⁹¹ If successful, this sensor would allow peacekeeping operations to quickly estimate population numbers in areas with relatively high cell phone use. The sensor could also be used for search and rescue as well as the inspection of cell phone towers.

Humanitarian organizations like UNICEF and WHO are actively exploring the use of UUAVs beyond the data collection use-case. As noted earlier, both are piloting UUAVs for payload transportation in the context of public health projects. Last Mile Health (LMH), an NGO responding to the Ebola crisis in Liberia, is also exploring the use of UUAVs in the southwestern part of the country to distribute cold chain vaccines.⁹² Meanwhile, a new initiative by the name of the Syria Airlift Project seeks to use UAAs to fly supplies from Turkey to crisis-affected communities in Syria.⁹³ The team behind this project has thus far received a positive nod from the US State Department and plan to meet with Turkish government officials in 2015 to carry out initial pilots along the Turkish-Syrian border.⁹⁴ This use-case for UUAVs is only going to become more prevalent as multi-billion dollar companies like Google, Amazon and DHL continue investing in and prototyping UUAVs for payload transportation.

Another use-case for UUAVs in humanitarian contexts is the provision of communication services. The American Red Cross is actively exploring this specific application of UUAVs as

⁸⁸ Ibid.

⁸⁹ Bond, Doug and Patrick Meier. 2006. “Peacekeeping Intelligence for Stakeholders: an underutilized open resource,” in *Peacekeeping Intelligence: New Players, Extended Boundaries*, eds. Carment, David and Martin Rudner. Taylor and Francis Group.

⁹⁰ We have not been able to get 100% clarity on this despite our best efforts.

⁹¹ Patrick Meier email communication with start-up on December 18, 2014.

⁹² Email communication with Patrick Meier between December 9th-15th, 2014

⁹³ <http://syriaairlift.org>

⁹⁴ Patrick Meier meeting with Syria Airlift team on December 6, 2014.

part of their strategic discussions on emerging technologies.⁹⁵ The UN's Emergency Telecommunications Cluster (ETC) explored this use-case as well during a recent strategy meeting on the future of the ETC.⁹⁶ Meanwhile, both Google and Facebook are pouring in millions of dollars into the use of UAAVs to provide disconnected areas with wireless communication services. DPKO is also currently investigating how to use UUAVs to enhance communications.

Although it is an open question whether corporate America will extend the capabilities and capacities of these systems to non-commercial purposes, it stands to reason that peacekeeping missions may eventually take advantage of UUAVs for more than surveillance purposes. In the spirit of civic technology, these greater use possibilities also offer peacekeeping missions the opportunity to discuss with communities what they think UUAVs should be used for, further aligning their actions to the priorities of the local population.

Conclusion

The wider use of UUAVs in peacekeeping operations is inevitable. A recent high-level UN panel assessing the future technological needs of peacekeeping operations makes a “very strong recommendation that drones, or the capacity for aerial visualization, is a capacity every mission should have with very few exceptions.”⁹⁷ As UUAV technologies develop and become more affordable, their widespread use in conflict settings by peacekeepers and other humanitarian actors (formal and informal) - is inevitable.⁹⁸ Based on the arguments and evidence presented above, it should be obvious and clear that UUAVs are neither a panacea nor a threat. As with all new technological innovations entering the humanitarian and peacekeeping space, UUAVs are merely another tool that can be used to provide better data, and potentially payload transportation solutions as well as communication services. That said, how that data is collected, processed, analyzed and put to action is what will determine their effectiveness. And as any intervention in a conflict setting, UUAVs become part of the conflict dynamic, with the potential to increase divides or build on connections.

As the use of UUAVs expands to conflict settings, we believe there is a great need for a grounded conversation that involves conflict-affected communities and problematizes their use while seeking collaborative solutions that empower communities and further the aim of peace. There is indeed a need to find practical solutions that balance the upside and downside. We hope the ones above provide helpful starting points. At the Humanitarian UAV Experts Meeting held at the UN Secretariat in New York in 2014, there was discussion around setting up a sub-

⁹⁵ Patrick Meier meeting with American Red Cross on December 3, 2014.

⁹⁶ Patrick Meier presented at this ETC 2010 Visioning meeting on September 12, 2014.

⁹⁷ Charbonneau, Louise. 2015. UN panel urges increased use of drones in peacekeeping missions. *Nation*, BDN Maine, February 24, 2015. <https://bangordailynews.com/2015/02/24/news/nation/u-n-panel-urges-increased-use-of-drones-in-peacekeeping-missions/?ref=latest>

⁹⁸ Frost, Jules. 2014. Eyes in the Sky are Inevitable: UAVs and Humanitarian Response. PHAP, October 13, 2014. Available online at: <https://phap.org/thematic-notes/2014/october/eyes-sky-are-inevitable-uavs-and-humanitarian-response>

working group on the use of UUAVs for peacebuilding, which reflected the concerns around the ethical uses of UUAVs in peacekeeping domains. This sub-working group will be meeting again in 2015. With support from the Rockefeller Foundation, the Humanitarian UAV Network and OCHA are co-organizing a high-level policy meeting in July 2015 to address and fill the policy gaps that exist in the humanitarian and peacekeeping UUAV space. DPKO will be attending the meeting to discuss the use of UUAVs by DPKO, which we hope will address in greater detail the tentative solutions suggested above.