

GICHD Insights

LEVERAGING INNOVATION TO STRENGTHEN IMPLEMENTATION OF THE APMBC

INTRODUCTION

Innovation is a compelling, yet often misunderstood concept. This issue brief explores the role of innovation in enhancing implementation of the Anti-Personnel Mine Ban Convention (APMBC).¹ It provides a concise explanation of the concept of innovation, discusses how the Convention and successive action plans have incorporated and promoted it, and identifies existing gaps. Finally, the brief offers actionable recommendations for the upcoming Fifth Review Conference, specifically on ways to embed innovation more effectively in the Siem Reap-Angkor Action Plan, with a view to strengthening the Convention's impact and effectiveness.

UNDERSTANDING INNOVATION

The term 'innovation' is often used with varying meanings, both to describe the outcomes of new ideas and to refer to the activities that lead to their creation, dissemination, and adoption – the process of innovating.² While innovation in mine action shares similarities with other sectors, particularly in the broader humanitarian innovation space,³ it is important to define the term in the context of mine action, to clarify its specific role in this field.

Innovation in mine action can be defined as the *creation or adoption of a new or improved product or process which is novel to mine action, addresses evidence-based problems, and contributes to safer, more efficient, and more effective management of the threats posed by explosive ordnance*.⁴ It can take the form of a policy, method, service, or tool – technological or otherwise. Innovation often manifests in multiple forms simultaneously, such as when the introduction of new tools requires changes in working processes, or when evolving processes create the need for new tools.

Innovation can also vary in its degree of novelty, ranging from continuous improvement (or incremental innovation – *improving how we currently do things*) to breakthrough or disruptive innovation (*changing the way we do things*). Continuous improvement, an intrinsic part of organizational dynamics, has always been part of mine action. Prominent examples include the adoption of new methods and tools in land release and explosive ordnance risk education (EORE), the revision of national mine action strategies as well as of national and international mine

action standards. The structures and mechanisms created within the Convention and their evolution over time also reflect practical concerns with capturing good practices and continuously improving its implementation.

The mine action sector has also seen examples of breakthrough innovation, both in methodologies and technologies. Notable examples include the broad implementation of land release, the standardization of requirements for the use of clearance assets and for operator competencies, the implementation of quality management practices, and the development of digital EORE applications. The decision to adopt a five-year action plan during the first APMBC Review Conference, with the goal of providing States Parties with concrete guidance for implementation, also represents an instance of innovation that has become established practice in the context of this regime.

These successes were the result of the iterative processes of conceptualizing, piloting, and scaling innovative practices, which also entailed setbacks that were necessary for innovation to take place. Stated otherwise, the willingness to accept the risk of failure and the ability to learn from it were, and are, crucial for innovation to be able to advance.

INNOVATION IN THE CONVENTION

The above overview of the key elements of innovation helps to better understand the latter's role in the Convention.

The term 'innovation' has appeared as such only recently, in the Oslo Action Plan (OAP). Yet, references to science and technology, which are strongly connected to the concept of innovation (albeit limited to the aspect of technology), are present in both the text of the Convention⁵ and in all previous action plans.⁶ Art. 6.2 of the Convention on international cooperation and assistance and Action 26 of the Nairobi Action Plan are worth analysing in more detail:

- ▶ **Art. 6.2:** "Each State Party undertakes to facilitate and shall have the right to participate in the fullest possible *exchange* of equipment, material and *scientific and technological information* concerning the implementation of this Convention. The States Parties shall not impose undue restrictions on the provision of mine clearance equipment and related *technological information for humanitarian purposes*."

► **Action 26:** “All States Parties will (...) Share information on – and further develop and advance – mine clearance *techniques, technologies and procedures*, and, while work proceeds on *developing new technologies*, seek to ensure an adequate supply and most efficient use of existing technologies, particularly mechanical clearance assets and biosensors, including mine detection dogs.”

Art. 6.2. is relevant to the concept of innovation in three ways. Firstly, it is at the origin of an element of continuity throughout all action plans. The Nairobi,⁷ Cartagena,⁸ Maputo⁹ and Oslo¹⁰ Action Plans all emphasize the importance of the exchange of scientific and technological information concerning Convention implementation. This can be read as an acknowledgment of the role of innovation, even if only partially framed through science and technology.

Secondly, by placing the exchange of scientific and technological information under international cooperation, the Convention seems to point to the importance of coordination and collaboration in the innovation space.

Thirdly, the scope of exchange of scientific and technological information is not limited to specific areas of work but encompasses all aspects of Convention implementation, whether it is EORE, clearance, victim assistance or stockpile destruction.

Action 26 of the Nairobi Action Plan adds a fourth relevant component: by placing techniques, technologies and procedures together, it makes a clear approximation to the concept of innovation as defined above, even if its scope is limited to clearance.

INNOVATION IN THE OSLO ACTION PLAN

The OAP explicitly refers to innovation on two counts. In Action 27, States committed to taking “appropriate steps to improve the effectiveness and efficiency of survey and clearance, including by promoting the research, application and sharing of *innovative technological* means to this effect.” In Action 42 on international cooperation and assistance, States agreed to “do their utmost to commit the resources needed to meet Convention obligations as soon as possible and explore all possible alternative and/or *innovative sources of funding*.”

While the OAP is the first action plan to explicitly refer to the term innovation, the scope of such references is both limited to technological advancements and to the areas of survey and clearance. Even if the inclusion of innovative finance introduces an aspect of non-technological innovation, such narrow scope does not sufficiently recognize the role of processes and methodologies alongside technologies.

Additionally, although innovation in mine action should encompass all activities related to managing explosive

ordnance threats, the OAP’s references to innovation are limited to just two areas. By concentrating solely on survey and clearance and financing, the OAP fails to incentivize innovation in other crucial fields, such as EORE, gender and diversity, and victim assistance.

Action 47¹¹ contains an additional, indirect reference to innovation through international cooperation on the exchange of scientific and technological information, in line with Art. 6.2 of the Convention. Once again, by referring to technologies alone such mention remains short of acknowledging the broader concept of innovation. However, emphasis on the importance of international collaboration within the scientific and technological communities to leverage the potential of innovation is of the utmost relevance, particularly when the lack of effective collaboration and coordination is perceived by the mine action sector as a significant challenge hindering meaningful outcomes, despite the wide array of innovation efforts.¹²

INNOVATION IN PRACTICE

Although the concept of innovation is just partially embraced in the Convention and OAP, since 2019 it has gained attention in Convention meetings,¹³ as well as in other relevant forums such as the International Meeting of Mine Action National Directors and UN Advisors (NDM-UN).¹⁴

Notably, the OAP itself embraces some elements of methodological innovation, for example, by including a monitoring framework with specific indicators to measure progress, which represents a new approach compared to previous action plans, enhancing the monitoring and evaluation of the progress of its execution.

Additionally, we have witnessed significant attempts to pilot and integrate innovation within mine action, encompassing both technological advancements and new methodologies.¹⁵ For example, unmanned aerial systems have continuously evolved and are now frequently used to support mapping and recording of hazardous areas during surveys. This has further provided the basis for the development of reliable applications capable of assisting human operators in the classification of hazards, based on artificial intelligence computational methods. Data analytics and information management systems have been transforming mine action operations as well, allowing faster and more efficient integration of multiple data sources and enabling more efficient monitoring and evaluation and allocation of resources.¹⁶ Digital platforms for EORE and content developed using social and behaviour change have gained widespread adoption.¹⁷

While these examples highlight the commitment to innovation within the sector, it is important to consider the deeper aspects of such efforts beyond the well-crafted presentations, to be able to understand the real challenges of pursuing innovative practices. Key challenges impeding successful

and meaningful innovation in the mine action sector include the pursuit of 'silver bullet' solutions, lack of needs-based approaches and appropriate legal and regulatory frameworks, limited funding, and resistance to change.¹⁸

Moreover, the lack of collaboration and coordination remains a key challenge to innovation in mine action.¹⁹ Despite the long-time commitment under the provisions of Art. 6.2 of the APMBC and the emphasis provided under all previous action plans, the level of coordination among stakeholders, including governments, international organizations, non-governmental organizations, academia, research and technology organizations, and local communities, is considered insufficient. This shortfall results in redundant efforts, fragmented strategies, and an inefficient allocation of resources.

These inefficiencies, which come at the cost of the already limited resources available to the sector, mirror similar challenges observed in the broader context of humanitarian innovation.²⁰ The sector can greatly benefit from the extensive experience available, provided these challenges are recognized and addressed.

CONSIDERATIONS FOR THE FIFTH REVIEW CONFERENCE

The Fifth Review Conference, and specifically the Siem Reap-Angkor Action Plan, present the opportunity to promote a broader understanding of innovation, and commit States to creating the necessary conditions for such innovation to take place. Three main aspects are particularly relevant for consideration:

- ▶ Widening the scope of innovation to encompass the research, analysis and adoption of innovative approaches, methods and technological means to improve survey and clearance effectiveness and efficiency. This will pave the way for greater investment in the continuous improvement of processes and procedures within the sector, while also encouraging the introduction of new technologies based on a thorough evaluation of existing practices.
- ▶ Expanding incentives for innovation beyond survey, clearance, and financing, to extend across all Convention obligations. This will enhance the understanding of the complex challenges faced in mine action, directing research and innovation efforts towards areas that are less frequently associated with the threat of landmines by the broader scientific and academic community.
- ▶ Clarifying and enhancing the understanding of how international, regional, and bilateral cooperation, as envisaged under Art. 6.2 of the Convention, can enable meaningful innovation. This could be supported by the establishment of an integrated forum systematically addressing the challenges to innovation within the sector

– such as an Innovation Hub.²¹ Such a forum would support needs analysis, facilitate knowledge exchange, and prioritize efforts to identify new capabilities, resources, and partnerships. This proactive approach to innovation, based on good practice adopted in other humanitarian fields, has the potential to tackle one of the sector's most pressing challenges regarding collaboration and coordination, as well as provide a framework for mitigating other related issues.

CONCLUSION

Despite the frequent overemphasis on the term 'innovation' within the humanitarian sector, its essence remains vital and relevant. Innovation is not merely a trend but an ongoing commitment to discovering and implementing new approaches to tackle persistent and evolving challenges. Innovation is as much about methodologies as about technologies. It's about failing and learning. It is also about solving needs-based problems to improve efficiency and effectiveness of the mine action sector pursuant to the implementation of the APMBC.

The OAP outlined important aspects of innovation within mine action but has not fully addressed the broader challenges and opportunities for the sector. The analysis above points us in the direction of the original text of the Convention, underlining its originality and relevance still today, in particular regarding the role of the exchange of scientific and technological information as the cornerstone of the collaboration and coordination underpinning innovation efforts. The Siem Reap-Angkor Action Plan offers a crucial opportunity to build on these foundations by including a more comprehensive understanding of innovation, integrating it more broadly across all pillars of mine action and further emphasizing the role of international, regional and bilateral cooperation.

The adoption of such an approach will further enable meaningful innovation to address some of the pressing challenges more effectively and further support the full implementation of the Convention.

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Endnotes

- 1 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction (also known as the Ottawa Convention or Mine Ban Treaty).
- 2 Humanitarian Innovation Fund / Elrha. The Humanitarian Innovation Guide, <https://higuide.elrha.org/toolkits/get-started/innovation-process/>
- 3 M. Bruder, and T. Baar, "Innovation in humanitarian assistance—a systematic literature review," *Journal of International Humanitarian Action*, 9, 2 (2024), <https://doi.org/10.1186/s41018-023-00144-3>
- 4 This is the definition adopted by the Geneva International Centre for Humanitarian Demining (GICHD) based on ISO 56000 Innovation Management series nomenclature and terminology.
- 5 APMBC, Art. 6.2; Art. 6.7(b) and Art. 11.1(d).
- 6 Nairobi Action Plan (2004), Actions #25, #26, #49; Cartagena Action Plan (2009), Actions #13, #16, #44, #45; Maputo Action Plan (2014), para. 23.
- 7 Nairobi Action Plan (2004), Action #25.
- 8 Cartagena Action Plan (2009), Actions #44, #45 with a specific focus on regional and bilateral cooperation in stockpile destruction and mine clearance, as well as in victim assistance.
- 9 Maputo Action Plan (2014), para. 23.
- 10 Oslo Action Plan (2019), Action #47.
- 11 Oslo Action Plan (2019), Action #47, "... Cooperation of this kind may include [...], in line with Article 6, exchanging equipment, material and *scientific and technological information* (or donating them after one State Party reaches completion) in order to promote the implementation of the Convention".
- 12 GICHD (2023), Innovation Conference Report.
- 13 18th Meeting of the States Parties (MSP18) side events: *Alternative Finance for Mine Action & Development; Enabling Best Practice Through National Standards* (release of the innovative mineaction.net tool), *18MSP_Brochure.pdf* (apminebanconvention.org); MSP19 side events: *Innovation in Mine Action; Innovative Finance – progress made on Action 42 of the OAP; Humanitarian demining: challenges, innovative solutions and international cooperation*, *19MSP-Brochure.pdf* (apminebanconvention.org); MSP20 side events: *Challenges of humanitarian demining – partnerships and integrated solutions*, *2022-20MSP-Brochure.pdf* (apminebanconvention.org); Intersessional Meetings (IM) 2021: *Innovation in Mine Risk Education; Innovative Finance for Mine Action: Feasibility Study Outcomes; Digital Innovation: Promoting Improvement, Sustainability and Ownership through databasing National Mine Action Standards – launching the Afghanistan mineaction.net application*, *IM21-Side-Events.pdf* (apminebanconvention.org); IM 2022 side events: *Utilising innovative financing models to further the goal of a landmine free world*, *IM22-Side-Events.pdf* (apminebanconvention.org).
- 14 23rd International Meeting of Mine Action National Directors and United Nations Advisors (NDM-UN23) *Plenary Session 4 - Thinking Safety and Acting Safely in the Digital Age*. Side events: *A Mine-Free World by 2025: The Need for Innovation; Launch of the SMART IED Threat Mitigation Technology Roadmap (SMITMiTR)*, *ndm-un23_agenda.pdf* (mineaction.org); NDM-UN24 *Plenary Session 2 - Novel Approaches in Mine Action*. Side events: *Doing it Right, Doing it Better: EORE Voices from the Field; Long Term Impacts of Explosive Weapons in Populated Areas – Implications for the Mine Action Sector*, *20210514_draft_of_programme.pdf* (mineaction.org); NDM-UN25 *Plenary IV: Small Innovations, Big Wins in EORE*, *full_english.pdf* (mineaction.org); NDM-UN26 *Plenary Session 5 - Innovation in Mine Action Cannot Wait*. Side events: *Seeing is Believing – The Power of Small Drone Mapping for Land Release*, *Agenda for NDM-26 2023* (mineaction.org); NDM-UN27 *Plenary Session 5: Innovation in Mine Action: Building a Collaborative Way Forward*. Side events: *Innovation in Mine Action: Ukraine; Expanding the AI Toolkit for NTS Processes; EORE Digital Development and Application*, *NDMUN27_Programme_A4.pdf*
- 15 GICHD (2023), Innovation Conference Report.
- 16 As discussed at the NDM-UN27 side event *Performance Management and Monitoring – How to Assess Your Performance to Improve?* held on 29 April 2024, as presented at the Technical Requirements Workshop of the Humanitarian Demining Research and Development (HD R&D) Program of the US Department of Defense, held on 20–21 May 2024, in Phnom Penh, Cambodia, and discussed at the recent GICHD Innovation Session: Artificial Intelligence for Mine Action, held on 1–3 October 2024, in Geneva.
- 17 GICHD (2020), Review of New Technologies and Methodologies for Explosive Ordnance Risk Education (EORE) in Challenging Contexts.
- 18 GICHD (2023), Innovation Conference Report.
- 19 GICHD (2023), Innovation Conference Report.
- 20 Elrha (2018), *Too Tough to Scale? Challenges to Scaling Innovation in the Humanitarian Sector*.
- 21 Building on the successes of the past Mine Action Technology Workshops (co-hosted by the GICHD and UNMAS) and the GICHD Innovation Conference 2023, the GICHD is piloting the implementation of an EORR (explosive ordnance risk reduction) Innovation Hub defined as a collaborative space and a set of initiatives that foster evidence-based problem-solving and inclusive partnerships to enable innovation within the field of mine action and ammunition management.

The GICHD works to reduce risks to communities stemming from explosive ordnance, with a focus on landmines, cluster munitions, explosive remnants of war, and unsafely and insecurely managed conventional ammunition. As an internationally recognized centre of expertise and knowledge, the GICHD helps national authorities, international and regional organizations, NGOs and operators in around 40 affected countries and territories to develop and professionalize mine action and ammunition management.

Through its work, the GICHD strives for the fulfilment of international obligations, for national targets to be reached, and communities' protection from and resilience to explosive harm to be enhanced. These efforts support sustainable livelihoods, gender equality and inclusion. They save lives, facilitate the safe return of displaced populations, and promote peace and sustainable development.

