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Strategic Foresight applied to Dual-Use Research at the One Health intersection

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Background

Advances in life sciences and technologies hold great promise for contributing to the sustainable development goals but they also come with risks, including those associated with dual-use research of concern (DURC), which is research with clear benefits but that could be misused to harm humans, animals, plants and the environment. Given that human, animal, plant and environmental health are interlinked, a coordinated and integrated approach is needed to better understand these risks in the One Health context.

Guidance on the governance of dual-use research has been published by the WOAH Guidelines for responsible conduct in veterinary research: identifying, assessing and managing dual-use (2019) and by WHO with the Global guidance framework on the responsible use of the life sciences: mitigating biorisks and governing dual-use research (2022). The importance of undertaking biorisk management in the context of One Health has been emphasized.

This project aims to identify areas of DURC with the view to proposing approaches to implement and strengthen relevant governance mechanisms, regulatory frameworks and legislations, while optimizing the use of available resources and avoiding unintended negative consequences on research which may be beneficial.

Methods

Through the UN Chief Scientists' network, under the purview of the Quadripartite organizations, FAO, UNEP, WHO and WOAH will use strategic foresight methodologies to proactively identify trends and emerging risks and opportunities in the life sciences research through a One Health lens.

As a first step, a landscape analysis on emerging areas of life sciences research with dual-use potential across One Health was conducted. The objective of the landscape analysis was to compile existing resources on emerging areas in the life sciences with dual use potential and identify instances of research with dual use potential or DURC in conjunction with One Health or its components. This landscape analysis is a preparatory step to the second step of the project.

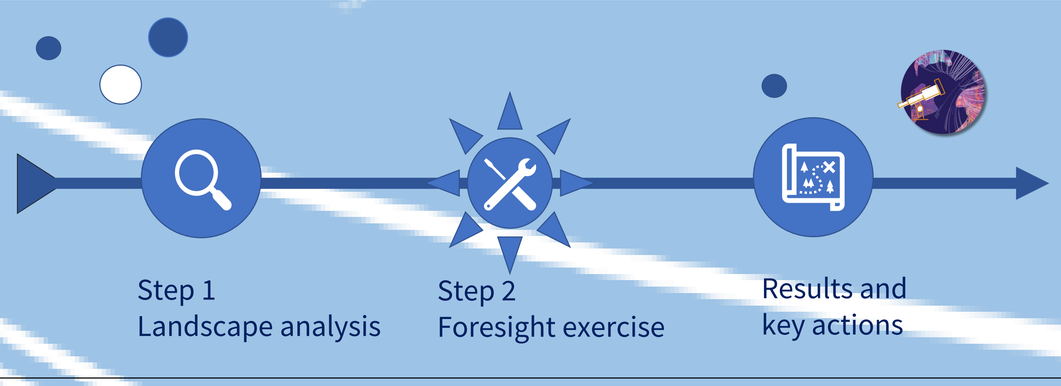
The second step will involve foresight scenario planning of possible futures to use in expert roundtables for improving communications and guidelines for the management of DURC. These scenarios will be used in experts' workshops and roundtable discussions to identify key messages and prioritize collaborative actions with the view to increasing awareness, preventing and mitigating the risks posed by dual-use research, and leveraging mechanisms to improve practices to support responsible use of life sciences and the management of DURC.

Results

As a first step in this project, the landscape analysis reinforces that advances in life sciences and technologies are taking place at a significant speed and that the convergence of the life sciences with artificial intelligence (AI) adds to the complexity, with important potential benefits for health but also with significant concerns.

The findings indicate that there is no literature that specifically discusses DURC and One Health together. In addition, regulatory regimes are falling behind the ability to govern activities that may have unintended consequences particularly for animal, human and ecological health.

Outline of activities



Conclusions

The rapid advances in life sciences and technologies, the increasing convergence of life sciences with AI and the current lack of a coherent One Health approach on the governance of dual-use research call for the need to increase awareness, prevent and mitigate risks posed by DURC in a One Health context. This project will contribute to identifying emerging DURC issues and their implications; to leveraging mechanisms to improve practices; and will recommend practical next steps to support the ethical and responsible use of outputs from life science research from a One Health perspective.

Food and Agriculture Organization of the United Nations

UN environment programme

World Health Organization

World Organisation for Animal Health