

## ESHIA – Factsheet 1

# Understanding Environmental, Social, and Health Impact Assessment (ESHIA)

## Main objectives of an ESHIA: more than just a study

An Environmental, Social, and Health Impact Assessment (ESHIA) is a comprehensive study conducted before starting a project – including releasing genetically modified mosquitoes – to understand potential effects on the environment, local communities, and stakeholders. ESHIA may be voluntary on the part of a project or mandated by governments. More than a mere report, an ESHIA delivers a framework to embed environmental, social, and health considerations into project design, decisions and implementation. The scope of an ESHIA can also extend beyond government requirements if a project wishes to understand specific elements in more detail.

Specifically, an ESHIA aims to:

- **Identify impacts:** Determine what changes the project might bring about, both positive and negative;
- **Assess impact scale and importance:** Evaluate how significant these changes will be, analysing their geographic extent, severity, duration and reversibility (whether effects are temporary or permanent), and importance to affected communities;
- **Develop management measures:** Establish actions that a project and its partners commit to in order to avoid, reduce or compensate for negative effects, while optimising positive ones;
- **Inform decision-making:** Provide evidence-based information to guide decisions;



- **Enable participation:** Create opportunities for affected communities to influence project design and decisions that affect their lives.

## ESHIA and risk assessment: complementary perspectives

ESHIA and Environmental Risk Assessment (ERA) are distinct processes that provide different but complementary insights for decision-makers, stakeholders and affected communities.

**A risk** is an uncertain event or scenario that might happen and could cause harm.<sup>1</sup> Risk assessment asks: "What could go wrong and how can we prevent it?". Examples include questions such as:

- "Could the gene drive spread to non-target species and cause damage to their populations?"
- "What are the chances that reducing mosquito numbers might negatively affect birds or insects that feed on them?"
- "What is the probability of unintended effects on human health?"

In countries like Burkina Faso, the National Biosafety Agency (ANB) uses risk assessment focused on safety and potential harms as the basis for regulation.

➔ [See the Environmental Risk Assessment \(ERA\) factsheet](#)

<sup>1</sup> <https://opentextbc.ca/projectmanagement/chapter/chapter-16-risk-management-planning-project-management/>

**An impact** is a change expected to result from the project. Impact assessment asks: "What will change?" This includes questions like:

- "How will mosquito population dynamics change?"
- "What effects might occur regarding practices and perceptions related to malaria prevention?"
- "What changes may affect community structures and social cohesion?"
- "How can we manage these changes?"

In Burkina Faso, the National Agency for Environmental Assessments (ANEVE) and in Uganda, the National Environment Management Authority (NEMA) require impact assessments for projects that may significantly affect the environment or communities.

## From national requirements to international standards

ESHIA may be required by regulatory authorities or mandated by funders, especially for projects and activities with potentially significant environmental, socio-economic, and health impacts. National laws and regulations vary between countries.

Most countries only require Environmental Impact Assessment (EIA), such as Ghana, while some have expanded to Environmental and Social Impact Assessment (ESIA), such as Burkina Faso and Uganda. While integrated assessment of environmental, social and health impacts is increasingly recognised as good practice internationally, the explicit integration of health as a component with the same level of assessment rigor is relatively rare in regulatory frameworks.

While national regulations establish minimum compliance requirements, international standards often set higher benchmarks for good practice. Target Malaria's ESHIA practices are guided by international standards and guidelines that provide repositories of good practice, proven methodologies and benchmarks, including:

- **International Finance Corporation (IFC) Performance Standards:** While not specifically developed for genetically modified organisms or gene drive technologies, these widely recognised standards establish broadly applicable principles that can be adapted to Target Malaria's work. IFC standards are particularly valuable for their structured approach to identifying impacts, engaging stakeholders, and developing management plans in contexts where established ESHIA sector-specific guidance may be limited including innovative research.

→ <https://www.ifc.org/content/dam/ifc/doc/2010/2012-ifc-performance-standards-en.pdf>

- **World Health Organisation (WHO) Guidance Framework** offers specific guidance for testing genetically modified mosquitoes, with particular attention to health considerations

→ <https://iris.who.int/bitstream/handle/10665/341370/9789240025233-eng.pdf>

- **International Association for Impact Assessment (IAIA)** provides principles for environmental and social impact assessment best practices, along with detailed methodologies.

→ <https://www.iaia.org/uploads/pdf/Principles%20of%20IA%2019.pdf>

→ <https://www.iaia.org/uploads/pdf/IAIA-SIA-International-Principles.pdf>

- **Convention on Biological Diversity (CBD) and Cartagena Protocol** provide guidelines for biosafety, but also specifically address socio-economic considerations, particularly relevant for genetically modified organisms

→ <https://www.cbd.int/doc/c/0215/0803/cb8d71c24d40c683e6dafb0a/cp-mop-09-10-en.pdf>

Target Malaria is pioneering ESHIA approaches for genetically modified mosquitoes and will provide valuable reference examples to further inform future development and application of key international standards and guidelines.



## When to conduct an ESHIA

An ESHIA can be conducted at various stages of research development. For Target Malaria, this typically involves multiple assessments or updates throughout the research pathway rather than a single evaluation. In practice, this means Target Malaria may conduct several ESHIAs or update existing assessments multiple times for the same research program within a country as work advances through its phased development approach (such as moving from non-gene drive to gene drive mosquito releases). Target Malaria may conduct focused “scoping studies” prior to an ESHIA in order to identify key issues that need to be assessed across environmental, social, economic, and health domains.

## Multidisciplinary expertise behind ESHIA

Conducting an ESHIA is a multidisciplinary process that requires a diverse range of expertise. External consultants provide impartial analysis based on scientific data and established methodologies. ESHIA teams typically include experts from fields such as sociology, geography and Geographic Information Systems (GIS), economics, human rights, environmental studies, biology, entomology, public health, and data management.

