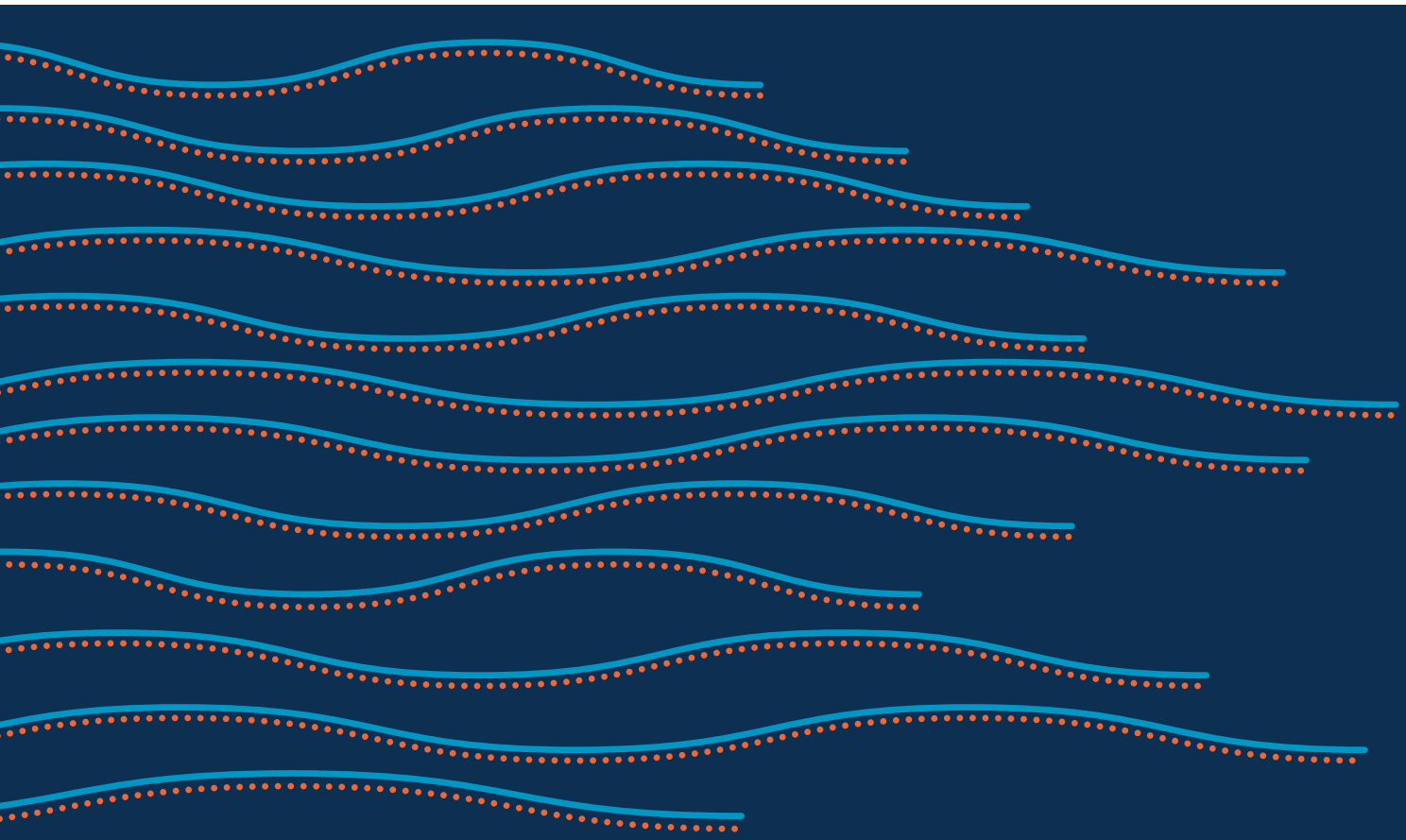
INNOVATION CHALLENGE HANDBOOK

FAECAL SLUDGE TREATMENT FOR DISEASE OUTBREAKS IN HUMANITARIAN SETTINGS

Funding to support innovative faecal sludge treatment solutions for disease outbreaks in densely populated humanitarian settings



HIF Humanitarian innovation fund | elrha

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ACKNOWLEDGEMENTS

We wish to thank all those who contributed to the development of this Innovation Challenge, including the Global WASH Cluster FSM Technical Working Group and members of our WASH Technical Working Group.

This Challenge was designed in collaboration with our Challenge support partners, Science Practice.

ABOUT THIS CHALLENGE

We are Elrha. A global organisation that finds solutions to complex humanitarian problems through research and innovation. Our Humanitarian Innovation Fund (HIF) aims to improve outcomes for people affected by humanitarian crises by identifying, nurturing and sharing more effective and scalable solutions. To achieve this, we fund innovations that aim to improve the effectiveness of humanitarian response.

Our HIF Water, Sanitation and Hygiene (WASH) area of focus aims to explore and grow the potential for innovation to improve the effectiveness of humanitarian WASH.

Our WASH work is entirely problem-led. Since 2013, we have invested in a rich body of research around problems, been advised by sector experts on which problems to focus on, and designed Innovation Challenges specifically to address them. In addition, our Research for Health in Humanitarian Crises (R2HC) programme supports collaborative research to improve health outcomes by strengthening the evidence base for public health interventions in humanitarian crises; funding a number of studies on WASH interventions.

One area that has been highlighted as a complex and neglected problem in humanitarian settings is faecal sludge management (FSM) and, in particular, sludge treatment and disposal. Although there is a range of technologies tailored to development settings, there has been little research and innovation in this area for humanitarian settings. This gap is increasingly recognised at a global level, as shown by the development of an FSM Technical Working Group by the Global WASH Cluster.

The gap in FSM solutions is accentuated when disease outbreaks occur in humanitarian settings, especially in densely populated areas where FSM is essential for reducing the onward transmission of disease. The 2010 cholera outbreak in Haiti and the recent outbreak in Yemen[1], and the Ebola outbreaks in West Africa and the Democratic Republic of Congo have demonstrated the importance of effective FSM.

This Innovation Challenge will provide funding and support to innovators to develop locally-embedded solutions for safe on-site treatment of faecal sludge during disease outbreaks in humanitarian settings. Solutions should be low-tech, low-cost, compact, easily transportable and rapidly deployable to facilitate a fast and effective outbreak response. The solutions can either be new or adapt existing technologies or approaches to disease outbreaks in humanitarian settings. For this Challenge, we are interested in settings that have a high population density in either urban or non-urban areas, in particular health clinics, and the Challenge aims to generate solutions that will improve the effectiveness of humanitarian WASH responses to outbreaks worldwide.

1 WHO (2020) "The Cholera Situation in Yemen: January 2020" Cairo: WHO

This handbook provides information about the Faecal Sludge Management Challenge, the types of solutions we are looking to fund, available funding and timelines, as well as assessment criteria and details about the application and evaluation process.

To apply for the Challenge, please complete and submit an Expression of Interest (EoI) via our Common Grant Application platform.

- Already have an account? Login to start an application.
- Don't have an account? Sign up to open an account and start an application.

THE PROBLEM

Epidemics are occurring more often and spreading further than ever before.[2] Many disease outbreaks in recent years have required a humanitarian response. These include local or global outbreaks of cholera, Ebola, Hepatitis E and COVID-19. While some diseases, like Ebola, tend to have one-off outbreaks, other diseases like cholera, can have periodic outbreaks. It is estimated that there are 40 outbreaks of cholera a year, totalling between 3–5 million cases.[3]

With these, and other diseases spread by oral-faecal transmission, ensuring an effective WASH response is essential to prevent their spread. Treatment of faecal sludge represents an opportunity to prevent onward transmission in outbreak settings, with on-site treatment, in particular, presenting the greatest opportunity to reduce this risk.

Despite this, there is a lack of clarity over what constitutes safe and effective treatment of infectious sludge for many pathogens, in particular in densely populated settings. The only guidance available in the Sphere Guidelines for humanitarian outbreak situations relates to ratios of toilets to patients and instructions for disinfecting clinics. Although some resources exist,[4] these are few and give little recent or detailed guidance regarding sludge treatment, and even less guidance on the treatment of sludge infected with outbreak disease pathogens.

However, there is a range of sludge treatments currently in use in humanitarian outbreak settings, including additives such as chlorine, lime and lactic acid. There is a growing body of research available on the effectiveness of additives, but to date the studies have been small scale, tending to only trial solutions in one location.[5] There is no go-to tried and tested pathogen-specific guidance for on-site treatment of sludge containing the pathogens posing the biggest risks, such as cholera, Ebola and Hepatitis E. Currently, there are no known cases of faecal-oral transmission of COVID-19 and there is also little evidence

2 World Health Organisation (WHO). (2018) "Managing epidemics: key facts about major deadly diseases" Geneva: World Health Organization

3 World Health Organisation (WHO). (2012) "The global burden of cholera" Geneva: Bulletin of the World Health Organization; World Health Organisation (WHO). (2018) "Managing epidemics: key facts about major deadly diseases" Geneva: World Health Organization

4 Franceys, R, Pickford, J., Reed, R & World Health Organization. (1992). "A guide to the development of on-site sanitation" Geneva: World Health Organization, p.18

5 Sozzi, E. et al. (2015) "Minimizing the Risk of Disease Transmission in Emergency Settings: Novel In Situ Physico-Chemical Disinfection of Pathogen-Laden Hospital Wastewaters" PLoS Neglected Tropical Diseases 9 (6); Anderson et al. (2015) "Lactic Acid Fermentation, Urea and Lime Addition: Promising Faecal Sludge Sanitizing Methods for Emergency Sanitation" International Journal of Environmental Research and Public Health 12(11); Gomes da Silva et al. (2019) "Assessment of Recommendation for the Containment and Disinfection of Human Excreta in Cholera Treatment Centers" Water 11(2); Elrha. (2019) "Water, sanitation and hygiene innovation catalogue" London: Elrha; Grange, C. (2016) "WASH in emergencies exploration report: Faecal sludge" London: Elrha

on its survival in water or sewage.[6] However, all necessary COVID-19 related precautions should be taken for any WASH activities, for example, to prevent person-to-person transmission for sanitation workers. Another problem is that estimates for pathogen survival times vary across studies and different mediums (such as sludge, soil, wastewater).[7] Research also suggests that survival times are influenced by temperature and moisture,[8] meaning that solutions that have been effective in one setting may need to be trialled in another before being rolled out.

Disease outbreak situations in humanitarian settings add another layer of complexity, as they can be rapid onset and often occur in areas with few resources and limited health infrastructure. There is a growing range of decentralised wastewater treatment systems available for sludge treatment and being trialled in humanitarian settings.[9] However, these require time and resources to set up, which may render them impractical for humanitarian outbreak settings.

To ensure adoption and sustainability, solutions must be implemented with the direct engagement of local actors. Often, on-site treatment solutions are implemented by external actors for the duration of the outbreak but not sustained after the outbreak is over as local staff are not supported with training or the resources to manage them. In the case of periodic outbreaks, having embedded, sustainable solutions is crucial to ensuring a fast and effective response to the next outbreak.

An additional layer of complexity is the need to consider sludge treatment as part of a longer process of FSM. Any treatment solutions need to be integrated with the methods used for sludge capture and containment on the one hand and disposal on the other. For example, treating sludge infected with cholera with chlorine can render the sludge inadmissible to some septic tanks, posing a question over how to dispose of it. In outbreak settings, in locations such as temporary clinics or isolation centres, there are often no existing treatment facilities and practitioners need to know that the sludge is safe to dispose of in the surrounding environment after treatment.

6 Knee, J. (2020) "Summary report on COVID-19 transmission via faecal-oral routes" Hygiene Hub

7 Bibby et al. (2015) "Ebola virus can survive in wastewater" Science Daily; Fischer et al. (2015) "Ebola Virus Stability on Surfaces and in Fluids in Simulated Outbreak Environments" Emerging Infectious Diseases 21(7); Von Sperling et al. (2017) "Sludge Treatment and Disposal" Biological Wastewater Treatment Series (Volume 6); FAO (1993) "Chapter 2 – Health risks associated with wastewater use"

8 Fischer et al. (2015) "Ebola Virus Stability on Surfaces and in Fluids in Simulated Outbreak Environments" Emerging Infectious Diseases 21(7)

9 Tull, K. (2017) "Wastewater Treatment Plants in rapid mass displacement situations" K4D Helpdesk Report 230. Brighton, UK: Institute of Development Studies.

THE CHALLENGE

We are looking for innovative faecal sludge treatment solutions for disease outbreaks in densely populated humanitarian settings.[10]

Your innovation should focus on treating at least one specific pathogen that can cause disease outbreaks. We encourage solutions effective at treating multiple pathogens.

Your innovation can be an adaptation of an existing treatment solution or a new low-cost technology or approach. One particular gap we believe innovation can address is treatment solutions for health clinics or treatment centres (urban or rural) during outbreaks.

Examples of suitable projects could include (but are not limited to) one of, or a combination of, the following:

- Adapting and improving current faecal sludge treatment solutions in new disease outbreak environments in humanitarian settings.
- Designing and testing new effective sludge treatment solutions for one or more specific pathogens.
- Trialling new ways of testing if a new or existing faecal sludge treatment solution has been effective. For example, burying sludge in a pit on-site is a method often employed in rural settings, but there is little evidence available on its effectiveness.
- We are especially interested in projects that combine the development or adaptation of treatment solutions with complementary research, such as exploring the survival times of specific pathogens in faecal sludge.

10 Please ensure you refer to the Glossary for key definitions.

FUNDING AVAILABLE

We have a total budget of **500,000 GBP** available for this Innovation Challenge.

From this, we envisage funding a selection of projects with varying budgets, generally **between 50,000 and 250,000 GBP per project**. Please consider the range provided as suggestive, and align proposed budgets and timelines with your project's ambition. We encourage projects to consider how they can offer the best value for money, and would expect applications to be exceptional to justify going to the upper end of the indicated scale.

Each project is expected to last between 12 and 19 months; all project-related activities must complete by 31 October 2022. Please see the Challenge timeline section for further details.

The total duration of your project should cover all deliverables including problem recognition, adaptation/development, implementation, monitoring and evaluation, as well as sharing learning and uptake. We are unable to offer any project extensions, so you should be conservative in your planning and leave space to allow for flexibility should changes or delays occur, where possible.

Please note that the funding amount requested at EoI stage can be indicative. Detailed budget plans will be requested at the Full Proposal stage. Please see the Application and evaluation process section in this handbook for details on the two assessment stages. The proposed budgets and timelines should align with the level of ambition of each project.

ELIGIBILITY CRITERIA

This Challenge is open to all who meet the following eligibility criteria:

- The lead applicant organisation must be a **legally registered entity** (ie, academic/research institution, government, international non-governmental organisation, national non-governmental organisation, private company, Red Cross/Red Crescent movement, United Nations agency or programme, or civil society organisation). Applicants are expected to provide relevant evidence (eg, registration document) at the EoI stage.
- Your application must consist of a partnership between *at least* one **operational humanitarian organisation** *and* one **academic/research institution** (this includes the lead applicants; ie, if the lead applicant is a humanitarian organisation, they will not be required to apply with another humanitarian organisation to be eligible, but they will be required to partner with an academic/research institution). **At least one project partner must be from the country(s) or region(s) where your project will take place.**[11] This could be either the operational humanitarian partner, the academic partner or an additional partner. Applicants are not expected to have confirmed partnerships in place for the Expression of Interest stage, but will be expected to provide evidence to demonstrate partnerships by the Full Proposal stage.
- You must propose an **innovative solution** for treating faecal sludge on-site during disease outbreaks in densely populated humanitarian settings and have access to relevant test sites. Please note that it is up to the applicant to explain how the solution is innovative and why the setting is **humanitarian** (see definition below) and **densely populated**. Projects may include a research component but this must complement the development of your treatment solution and contribute to addressing the problem area.
- You should clearly state the outbreak pathogen(s) with a faecal-oral transmission route that your solution will target.
- Projects must **include a Problem Recognition stage** in which the specific treatment problem is clearly defined for the chosen setting(s), existing evidence is presented, and the proposed solution is clearly explained.
- You must demonstrate an understanding of **ethical** and **other risks** relating to the implementation of your project, including how to mitigate and monitor such risks throughout its duration.
- The proposed duration of and the requested funding for the project must be within the parameters set out for the Challenge: projects should last between 12 and 19 months (no extensions permitted) and require between 50,000 and 250,000 GBP in funding, and all project activities should complete by 31 October 2022. Please see the Challenge timeline for further details.

11 This means that at least one organisation is a registered entity in the country of implementation, *and* with its organisational leadership team from the country of implementation.

ASSESSMENT CRITERIA

Eligible applications will be evaluated based on the more detailed assessment criteria described below.

1. GOOD UNDERSTANDING OF THE FAECAL SLUDGE TREATMENT PROBLEM

You will be expected to demonstrate a good understanding of the faecal sludge treatment problem that will be addressed by your proposed solution. Applications should explain what pathogen(s) the treatment will aim to eradicate, what relevant research exists to evidence the problem, how the problem manifests in the chosen setting(s) and how the proposed solution will address the problem.

You are also expected to highlight any gaps in your knowledge of the problem and how you plan to address these. All projects are expected to include a Problem Recognition[12] stage. This will be used to refine your understanding of the problem and fill in any gaps by formulating hypotheses that your project will test.

2. INNOVATIVE SOLUTION

We are looking to fund projects that propose new and/or improved ways of addressing the treatment problem they identify. This means that your proposed on-site treatment solution should either be an **adaptation** of an existing solution to densely populated disease outbreak setting(s), a **new** technology or research to inform approaches that could address the treatment problem effectively and in a cost-efficient manner, or a **pilot** of an existing innovation in outbreak setting(s).[13]

3. SUITABILITY FOR DENSELY POPULATED DISEASE OUTBREAK SETTINGS

Your proposed solution should be **cost-effective** for your chosen disease outbreak setting(s). This will likely differ on a case-by-case basis, depending on local resources, supply chains and available skills. You should provide an estimate of the cost of implementing and maintaining your solution.

Your proposed solution should also be **rapidly deployable** and use materials that are easy to acquire in the chosen outbreak setting(s) to aid the speed of response. A solution that is **reusable or easily transportable** from one outbreak area to another would be a plus as outbreaks can migrate or be cyclical. Because we are particularly interested in densely populated disease outbreak settings, we expect the design of your proposed solution to take into account any **space constraints** within the chosen setting(s).

12 See the RECOGNITION stage in the HIF's Humanitarian Innovation Guide.

13 See ADAPTATION, INVENTION and PILOT stages in the HIF's Humanitarian Innovation Guide.

4. EVIDENCE OF EFFECTIVENESS

You should provide any evidence you currently have on the effectiveness of your proposed solution and demonstrate how the solution represents an improvement on currently existing treatment options. Your application should identify the main hypotheses you have about your proposed solution with a clear vision of what you intend to learn or prove by the end of your grant period.

You should also specify how you, in collaboration with academic/research partners, will assess the effectiveness of your solution throughout the project in your chosen outbreak setting(s). The resulting evidence should be robust and independent to facilitate the adoption of the solution in other settings and by other humanitarian agencies. We will accept applications from early-stage projects with little/no evidence of effectiveness yet. In this case, a greater emphasis will be placed on assessing the proposed approach to evaluate the effectiveness of the solution in the chosen outbreak setting(s). If the application is a research project, please explain what relevant research has been done to date and what the key findings were.

5. LOCALLY-EMBEDDED SOLUTIONS

You should demonstrate strong connections with relevant local actors in your chosen outbreak setting(s), including and in addition to the organisations that make up your project team. Strong applications will propose novel ways for local actors to lead and be involved in the development/adaptation, implementation/testing, and maintenance of the solution. This will likely include an element of user-centred design to ensure that any solutions are appropriate, accessible and safe for local staff to use. You should also articulate how your proposed solution will be sustainable and take into account locally relevant cultural, geographical, political and legal factors.

Our portfolio of funded innovations reflects the wider bias in the humanitarian sector where funding is mainly allocated to larger, international organisations, likely to be based in places not usually affected by emergencies. To address this imbalance, we are working to better localise our funding and support, and to increase the number of grants we award to organisations with headquarters in regions affected by crisis. With this in mind, we are requiring at least one of the partners to be from the country(s) or region(s) where the solution is being implemented. This could be either the operational humanitarian partner, the academic partner or an additional partner. Please clearly explain how you meet this criterion.

6. HOLISTIC CONSIDERATION OF THE FSM CHAIN

Although this Challenge focuses on on-site treatment, it is important for individual solutions to consider how they link with other technologies and processes in the FSM chain, and how they would function together. The implications of your proposed treatment solution on the preceding and succeeding steps in the FSM chain must be considered and communicated. We are interested in funding solutions that will have a minimum negative impact on other steps of the FSM chain.

7. ADAPTABILITY AND SCALABILITY

You should assess how adaptable and scalable your solution will be to other disease outbreaks in humanitarian settings. The minimum requirement for adaptability is to establish under what conditions your solution is proven to be effective and what factors could affect its effectiveness in different settings (eg, temperature, moisture, resource availability). Your assessment of the solution's scalability should include the cost of replicating the treatment solution at scale and the availability of component materials and human resources.

8. ETHICS AND RISKS

You must consider the range of ethical implications of your proposed project and solution and how you will continuously monitor and mitigate risks throughout the lifecycle of your project. You will be expected to explain the ethical issues that may arise during all phases of the project, including during project design, implementation, and dissemination activities as well as during considerations for adoption, replication and scale. This criterion will be carefully assessed given the high risk of the projects involved and the outbreak settings considered.

Please outline how you will ensure that the project can be carried out in a safe and responsible way in the context of the global Covid-19 outbreak. Please refer to relevant, recent resources on this for guidance.[14]

For information on how to ensure the ethical viability of research studies as well as sample ethics reflection questions, please consult Elrha's R2HC Research Ethics Framework and Tool and the Principles and Ethics section in our Humanitarian Innovation Guide.

Successful applicants will be expected to secure required ethical approval for their research from their organisation, institution or other approved ethical review body. Where relevant, they will also be expected to receive approval from ethical review boards, government committees or equivalent mechanisms in each country that they will be conducting research.

9. EFFECTIVE SHARING AND UPTAKE PLAN

As noted above, there is a lack of guidance around on-site faecal sludge treatment in humanitarian or disease outbreak settings, especially in densely populated areas such as health clinics or treatment centres. You should consider innovative approaches for capturing details about your project as well as lessons learned and sharing them widely in a format that is accessible to practitioners (eg, via platforms such as OCTOPUS). Where relevant, outputs should include short and concise technical briefs. You should clearly communicate your plans for driving the uptake of your proposed solution. All dissemination and uptake plans should identify both local and global actors, and ensure alignment with existing initiatives and coordination bodies on FSM or WASH guidance where appropriate.

14 For an example, see Watson, J. (2020). "Summary report on ethics, consent, protection and risk". HygieneHub

ACTIVITIES & DELIVERABLES

Funded projects will be expected to complete the following activities and deliverables:

PROBLEM RECOGNITION STAGE

The Problem Recognition stage will explain the faecal sludge treatment problem in the chosen outbreak setting(s), why it's a problem and who is affected. This stage should reference existing evidence, which may come from a range of sources and reference different stakeholders. Overall, this stage should present a solid rationale for your proposed solution and clearly present any gaps in knowledge and hypotheses that will be tested during the project.

ADAPTATION/DEVELOPMENT OF THE TREATMENT SOLUTION FOR THE CHOSEN OUTBREAK SETTING

In the second stage of work, you will either adapt or develop a new relevant and effective treatment solution to address the identified problems in your chosen outbreak setting(s). This will likely require engagement with users and local stakeholders to ensure that the solution is appropriate, accessible and safe for use.

IMPLEMENTATION OF THE SOLUTION

In the third stage, you will implement your solution in your chosen outbreak setting(s). Successful teams will collaborate with local actors (eg, sanitation workers, health workers, community members – as relevant) to adjust, implement and maintain the treatment solution. If testing in a densely populated outbreak setting is not possible, you must set out a strong rationale as to why, and propose an alternative testing location that simulates these conditions.

MONITORING AND EVALUATION OF EFFECTIVENESS

As part of the implementation stage, you will assess the effectiveness of your treatment solution in your chosen setting(s). The methods used should generate robust and independent evidence.

SHARING LEARNING

On an ongoing basis, you will capture learning from your project and share them widely with the humanitarian community, as well as with relevant groups interested in WASH and FSM in outbreak settings. At the latter stages of the project, your team will drive the uptake of the innovative solution (if successful) and share your research findings. Where relevant, outputs should include short and concise technical briefs directed at humanitarian practitioners.

CHALLENGE TIMELINE

8 Sep 2020
Challenge launch

The Challenge launches on 8 September 2020. There will be a pre-recorded guidance video on the Challenge webpage for those interested in applying.

12 October 2020
EoIs deadline

The deadline for expressions of interest (EoIs) is 12 October 2020 at 23:59 BST (check what this is in your timezone). Apply via the Common Grant Application platform.

w/c 26 October 2020
EoIs shortlisted

EoIs will be reviewed against the eligibility criteria outlined in this handbook. Shortlisted projects will be notified in the week commencing 26 October 2020.

29 October 2020
Full Proposals open

All shortlisted projects will be invited to submit Full Proposals from 29 October 2020.

4 November 2020
Mandatory webinar

Shortlisted projects will receive general feedback via a group webinar on 4 November 2020. There will be two webinars (AM/PM UK time) to suit different time zones. Attending the webinar is mandatory for qualifying for the Full Proposal stage. **Please hold this date in your diary**.

27 November 2020
Full Proposals deadline

The deadline for Full Proposals is 27 November 2020 at 23:59 GMT. Full Proposals will be reviewed by independent technical reviewers in December and early January. The final project selection will be made by an independent Funding Committee.

February 2021
Project(s) selected

Successful projects will be informed in February 2021.

February–March 2021
Due diligence

Due diligence and contracting are expected to last six to eight weeks over February and March 2021. Please see the FAQs on our website for more information.

PROJECT PHASE (12–19 MONTHS)

Apr 2021	Apr 2021–Oct 2022	31 Oct 2022
Projects start	Projects ongoing	Grants close

April 2021
Projects start

The projects are expected to start in April 2021, with a group kick-off workshop organised by the HIF either the week commencing 3 May 2021 or agreed individually with grantees.

April 2021–October 2022
Projects ongoing

Grantees will have between 12 and 19 months to carry out the activities described in their projects (including any dissemination activities).

31 October 2022
Projects complete

All projects must be completed by 31 October 2022 without the possibility of extension. We are unable to offer any project extensions, so applicants should be conservative in their planning and leave space to allow for flexibility should changes or delays occur, where possible.

APPLICATION & EVALUATION PROCESS

To apply for this Challenge, register via our Common Grant Application platform. For more information and guidance on our grant application process see our Application Guidance page.

We know that the global COVID-19 pandemic has impacted 'business as usual' operations in many humanitarian settings, and for many humanitarian organisations and responders. We're confident that the problems set out in this Innovation Challenge are still relevant, solutions are still needed and that progress towards developing them can still be made. We encourage you to share any specific considerations or potential adaptations to your approach in response to the current global context in your application.

The application and evaluation process for this Challenge will include the two stages – **Expression of Interest (EoI) stage** and **Full Proposal stage**.

At the EoI stage, you will be asked to submit details about your project and explain how it meets a selection of the criteria outlined in this handbook. Our ambition is to keep the EoI application stage as succinct as possible while still ensuring we have sufficient information about your project and proposed innovation and the extent to which it aligns with the Challenge criteria. EoI appraisal will include a review against the eligibility criteria outlined in this handbook (see Eligibility criteria section). To help you assess whether this funding opportunity is suitable for you, there will be a guidance video and a FAQ section available on our Challenge webpage. We also invite applicants to get in touch with our team (hif@elrha.org) if they have a question not covered by this Handbook, the FAQs or the Application Guidance page.

If your application is eligible, you will be invited to submit a **Full Proposal**. This will request additional information about the adaptability and scalability of the proposed solution, confirmed partners, and dissemination and uptake plans. You will also be invited to attend a **mandatory webinar on 4 November 2020** that will give general feedback on the EoI stage and more information on the requirements for the Full Proposal (at least one member from each selected project must attend). There will be two webinars (AM/PM UK time) to suit different time zones.

Full Proposals will first be reviewed by our HIF team to ensure they remain within the parameters of the Challenge. Full Proposals that are within the Challenge parameters will then be evaluated by at least two independent technical reviewers based on the assessment criteria (see Assessment criteria section).

Our HIF team will shortlist the strongest ranked applications following the independent technical reviews. Guided by these technical reviews, our independent Funding Committee will assess the shortlist and make the final funding decisions.

GLOSSARY

ADAPTATION

A stage of the humanitarian innovation process that involves identifying the changes that are required to adapt an existing solution to a new setting. Adaptation of a solution entails a significant rethinking of certain elements. For more information see the Humanitarian Innovation Guide.

DENSELY POPULATED HUMANITARIAN SETTING

Judged on a case by case basis, this is a humanitarian setting (either urban or rural) where there is high population density, limited space and large volumes of sludge requiring treatment. In these settings, traditional on-site treatment methods are difficult to implement and to scale up quickly to respond to large volumes of contaminated faecal sludge in the case of a disease outbreak. For this Challenge, we are particularly interested in innovations targeting health clinics or treatment centres, but we are open to other densely populated settings as well. *Please note this is a working definition used for the purposes of this Challenge.*

EFFECTIVENESS

The extent to which an activity achieves its purpose, or whether this can be expected to happen on the basis of the outputs.[15]

FAECAL SLUDGE

All liquid and semi-liquid contents of pits and vaults accumulating in unsewered sanitation installations, such as latrines, toilets or septic tanks. Compared to wastewater, faecal sludge is normally several times more concentrated with solids.

FAECAL SLUDGE MANAGEMENT (FSM)

The safe capture, containment, treatment, collection and disposal of human excreta.

HEALTH CLINIC

Any facility providing in-patient health care, temporary or permanent.

HUMANITARIAN SETTING

Refers to different phases of humanitarian response (eg, rapid response, protracted emergencies, acute emergencies), site (eg, camp, urban), geography, environmental conditions, type of humanitarian crisis (including natural hazard-related disasters, conflicts, or complex emergencies, either at the regional, national or sub-national levels, within lower- or middle-income countries). Also considers social norms, religion, demographics and political situation in that setting.

15 ALNAP (2016) "Evaluation of Humanitarian Action Guide"

HYPOTHESIS

A hypothesis is a statement to be tested, which helps the project team to better understand the assumptions made about a given innovation. Innovations are almost always based on assumptions as there is an inherent level of uncertainty associated with trying something novel or different to achieve better results. Knowing this, hypotheses should be set in order to test the assumptions for an innovation and generate evidence on how and whether it achieves the desired result.

INNOVATION

Humanitarian innovation can be defined as an iterative process that identifies, adjusts and diffuses ideas for improving humanitarian action. See more in our Humanitarian Innovation Guide.

OUTBREAK

A disease outbreak is the occurrence of disease cases in excess of normal expectancy. The number of cases varies according to the disease-causing agent, and the size and type of previous and existing exposure to the agent.[16]

PATHOGEN

Any small organism, such as a virus or a bacterium that can cause disease.

PILOT

Testing a potential solution to learn whether and how it works in a complex real-world environment. This innovation stage consists of three workstreams: implementing your innovation, developing learning and evidence, and providing support and logistics. For more information see the Humanitarian Innovation Guide.

PROBLEM RECOGNITION

A stage of the humanitarian innovation process that focuses on the recognition of a specific problem or opportunity. It involves identifying a problem or opportunity to respond to, collecting and assessing readily available knowledge on the issue and context, diagnosing root causes and properly framing the challenge. For more information see the Humanitarian Innovation Guide.

16 World Health Organisation (WHO). (2019) "Environmental health in emergencies: Disease outbreaks"

WE LOOK FORWARD TO RECEIVING YOUR APPLICATIONS!

Apply to the Challenge via our Common Grant Application platform by 12 October 2020 at 23:59 BST.

For any questions that are not covered in this handbook, on the Challenge webpage or our Application Guidance page, please email us at hif@elrha.org, referencing 'Faecal Sludge Management Challenge' in the subject line. We will publish any frequently asked questions on the Challenge webpage on an ongoing basis.