

PROPOSAL FOR INFORM WARNING

An open system to aggregate and present
quantified, multi-hazard information to support
crisis preparedness and anticipatory action.

Introduction

This paper presents a proposal for INFORM Warning - an open system to aggregate and present quantified information to support crisis preparedness and anticipatory action. The proposal is the result of a one year scoping phase carried out by INFORM Partners and other interested organisations and funded by the UK Foreign, Commonwealth and Development Office. The objective of this proposal is to mobilise resources and build a coalition of implementing partners to fully develop INFORM Warning in 2022-2023.

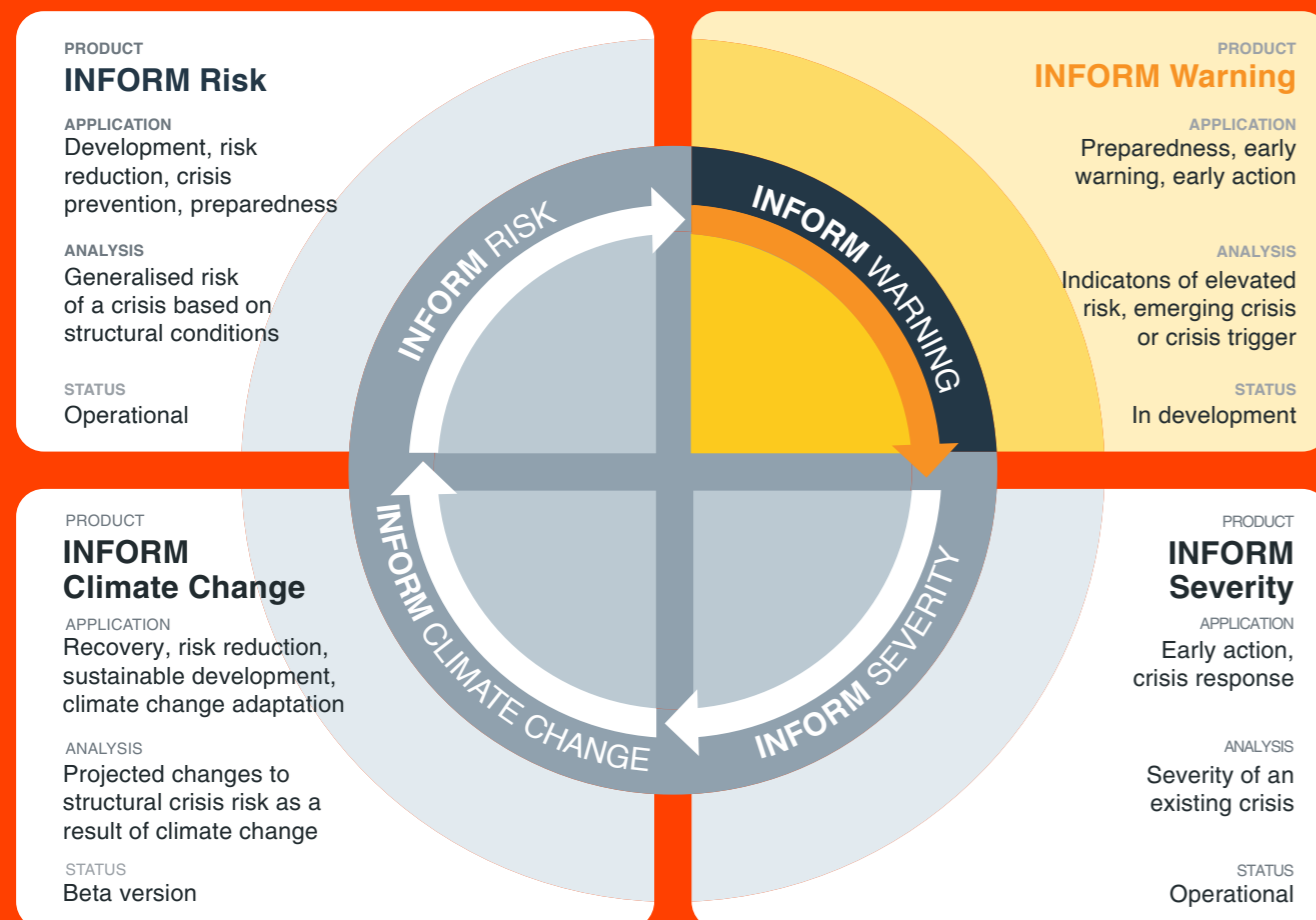
About INFORM

INFORM is a multi-stakeholder forum for developing shared, quantitative analysis relevant to humanitarian crises and disasters. INFORM includes organisations from across the multilateral system, including the humanitarian and development sector, donors, and technical partners. The Joint Research Center of European Commission is the scientific and technical lead for INFORM.

INFORM is developing a suite of quantitative, analytical products to support decision-making on humanitarian crises and disasters. The INFORM Risk Index and INFORM Severity Index are in place and providing value to partners.

INFORM uses a collaborative process to develop products that are open and free to use. The objective of INFORM is to improve the quality and accessibility of information available to decision-makers. INFORM partners believe that the availability of shared analysis of crises and disasters can lead to better coordination of actors and better outcomes for at-risk and affected people. By working together, we can reduce the investments required by individual organisations, assure the quality of our analysis and make it available for the common good.

INFORM products



Why we need INFORM Warning

An extensive literature review and consultations with INFORM Partners indicate there is a clear need for open, aggregated, multi-hazard early warning information that is easy to use for decision making. In recent years, the multilateral system has become more aware and focused on the importance of anticipatory and early action. The volume and speed of available information sources to support humanitarian early warning is increasing exponentially. However, there are still a number of challenges that prevent us from turning this information into better decisions that can reduce the occurrence and severity of crises.

Specifically:

- Existing systems for crisis early warning are generally not open, not global in coverage and do not cover all relevant risk drivers (i.e not 'multi-hazard' or 'multi-sector').
- They are cost and time intensive for organisations to collect and analyse information from different sources.
- Organisations find it difficult to identify the best and most timely, reliable information and sources.
- Organisations find it challenging to incorporate information into decision-making processes, partly because it is not quantified, or comparable.

Objectives and scope of INFORM Warning

INFORM Warning will present reliable, quantified, multi-hazard information that warns about risk trends, forecasts, scenarios and events that could lead to crisis impacts in the next 12 months and can be easily used to support decisions on preparedness and anticipatory action.

The system will collect, analyse, aggregate and present existing information from a wide range of sources, including all major, known drivers of humanitarian crises. It will provide objective, transparent information that can be used in risk monitoring and early warning processes of INFORM partners and multilateral processes. INFORM Warning is not a replacement for these processes, but is intended to provide high quality, quantified inputs to them. The ultimate result will be improved decision-making around early warning information.

INFORM Warning will bridge the existing gap between the INFORM Risk Index, which measures structural crisis risk and the INFORM Severity Index, which measures the severity of crises once they occur. INFORM Warning attempts to help understand how risks change over the short to medium term (1-12 months) to help anticipate emerging crisis impacts.

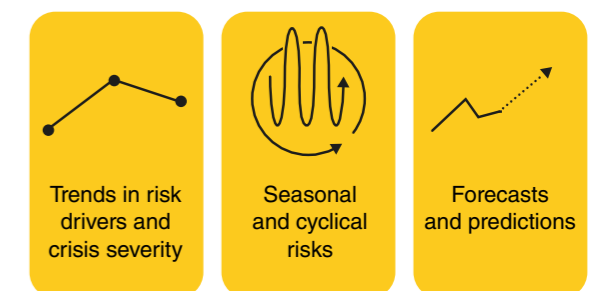
INFORM Warning will have global coverage, with more comprehensive coverage of high risk countries. Where possible, the system will provide information at the subnational level.

INFORM Warning will focus on anticipatory analysis covering a time period of 1 to 12 months into the future. INFORM Warning will not include information or issue alerts about short-term, forecasted events (e.g. tsunami, tropical storms etc.). Other systems already exist for this purpose.

INFORM Warning concept

INFORM Warning will collect, aggregate and present quantified information that can tell us how risks are changing and how, where and when a crisis could occur. The purpose of this information is to support decision-making around anticipatory actions that can prevent and mitigate crises.

The types of information that will be included in INFORM Warning include:



INFORM Warning will aggregate this information to create an additional level of analysis that describes the changes of risk at country level over time, as well as elements of specific scenarios that could lead to crises and basic information about them - like the main drivers of risk and the timing, level and type of impacts.

The outputs of the system will be curated and prioritised by human analysis. A web platform will allow users to explore the data, as well as provide feedback on the results.

INFORM Warning will not generate complete early warning scenarios of impact analysis. The system will provide organised, accessible, quality assured, and quantified inputs into broader early warning processes, such as the IASC EWEA process or the IFRC's Risk Watch. It will be up to the owners of these processes to combine the outputs of INFORM Warning with additional analysis, such as intelligence from field networks.

See https://drive.google.com/file/d/1HQyYZ3mW1u1rg-pR_20hD4DC49Oqd032/view?usp=sharing

The INFORM Warning System

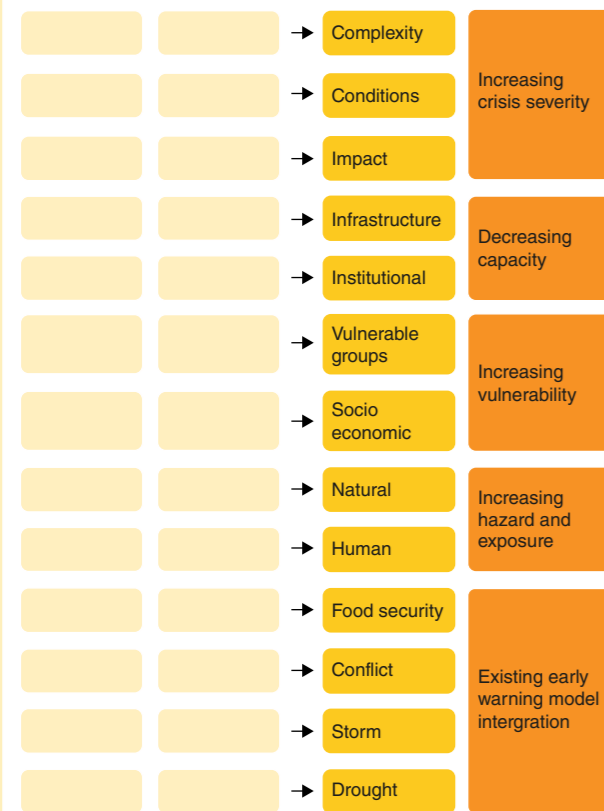
This graphic shows more detail of the main elements of the proposed INFORM Warning system. During the scoping phase, INFORM Partners have agreed the overall approach and how these elements will contribute to the objectives of

INFORM Warning. A number of proof of concept exercises have been carried out to validate the approach. However, the details of the methodology, terminology etc. will be finalised during the development phase.

Risk Monitor

The Risk Monitor brings together a wide range of dynamic indicators, forecasts and predictions that can tell us how crisis risk is changing and presents them in an organised way. The system cleans, normalises and categorises these indicators, as well as the outputs of existing early warning models.

Dynamic risk indicators



Inputs

The inputs to the Risk Monitor are indicators from trusted sources that are updated frequently (e.g. daily, weekly, monthly), or tell us about cyclical (e.g. seasonal) changes. The outputs of existing crisis early warning models and other relevant forecasts and predictions also will be included. The scope of inputs will be derived from existing INFORM Risk and Severity analytical frameworks. A data pipeline, which will be automated as far as possible - brings together the data in database.

Outputs

The Risk Monitor generates a downloadable spreadsheet and API distribution channel for the database of organised, quality assured early warning indicators at the national level. This database is accessible for direct use by users and for further analysis in the INFORM Warning System.

Analysis

The analysis function of INFORM Warning aggregates information from the risk monitor to provide more refined inputs into early warning processes in the form of warnings and alerts.

WARNING LEVEL

Country A	Low
Country B	Medium
Country C	Very High
Country D	High
Country E	Low

ALERT

Location	Country C, Provinces A, B
Timing	3-6 months
Impact level	Very High
Drivers	Drought season, conflict
Impact type	Food security, displacement

Inputs

The inputs come directly from the Risk Monitor.

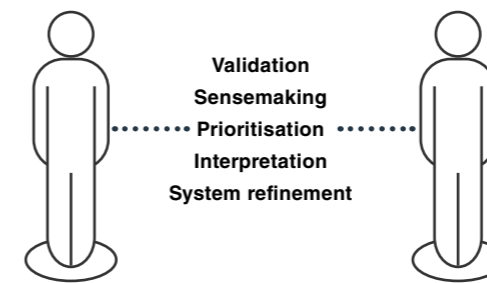
Outputs

The outputs of the analysis element are:

- A warning level for each country that is based on a simple aggregation of all the risk information for each country to give a general indication of the dynamic risk landscape.
- A series of alerts, which are a more focused piece of analysis that indicate where a specific scenario could lead to increased crisis impacts. The information provided will include some basic elements of the scenario, including the location, drivers, timing and scale of impacts. This information will need to be supplemented by more detailed analysis by users.

Human Curation

The complexity of the information contained in INFORM Warning requires human curation to ensure the system outputs are validated, contextualised and prioritised. These inputs will also be needed to continually refine and improve the system.



PRIORITY ALERTS

Alert 1	Country C	3-6 mths	Very High
Alert 2	Country F	9-12 mths	Very High
Alert 3	Country K	1-3 mths	Very High
Alert 4	Country R	3-6 mths	High
Alert 5	Country Z	6-9 mths	High

Inputs

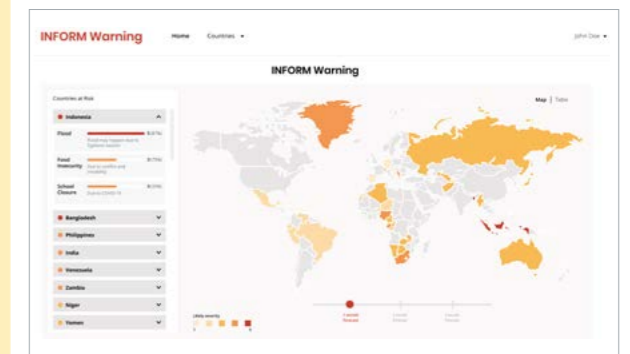
Analysis will use the outputs of the Risk Monitor and Analysis elements of the system, as well as limited contextual information. This is a process of curation of the system outputs, rather than additional analysis.

Outputs

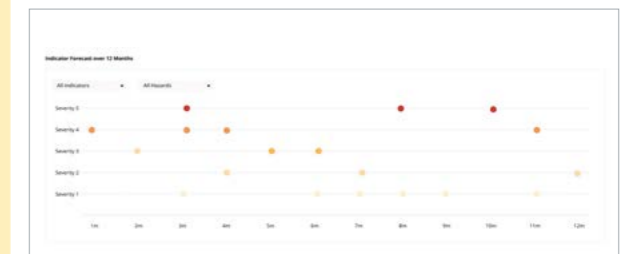
The outputs of the human curation element will be a prioritised list of alerts. This will help users identify the most important early warning scenarios that require further analysis. Depending on capacity, analysts may work with partners to promote more detailed analysis of INFORM Warning outputs.

Web platform

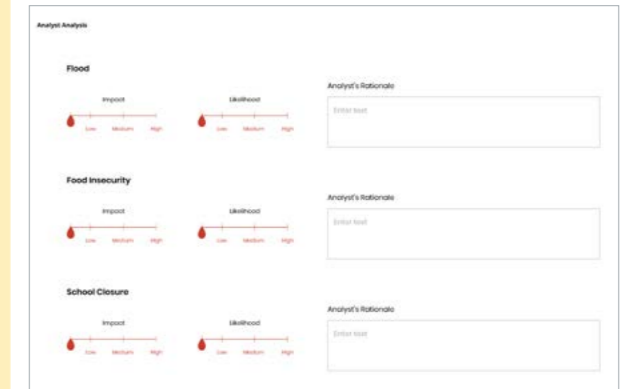
An INFORM Warning web platform will make all the results and underlying data available to users. The website will allow for data exploration, additional analysis and also provide a mechanism to gather user feedback on the outputs of INFORM Warning. This will ultimately be part of a more sophisticated system of user validation.



Indicator forecast over 12 months



Analyst analysis



Implementing INFORM Warning

The scoping phase for INFORM Warning has resulted in this proposal and supporting documents, which define the objectives and scope of INFORM Warning and - in broad terms - its technical approach, elements and outputs. INFORM Partners now plan to fully implement the INFORM Warning system.

Implementation consists of a 1-2 year development phase followed by an ongoing phase of continuous improvement and maintenance.

Approach

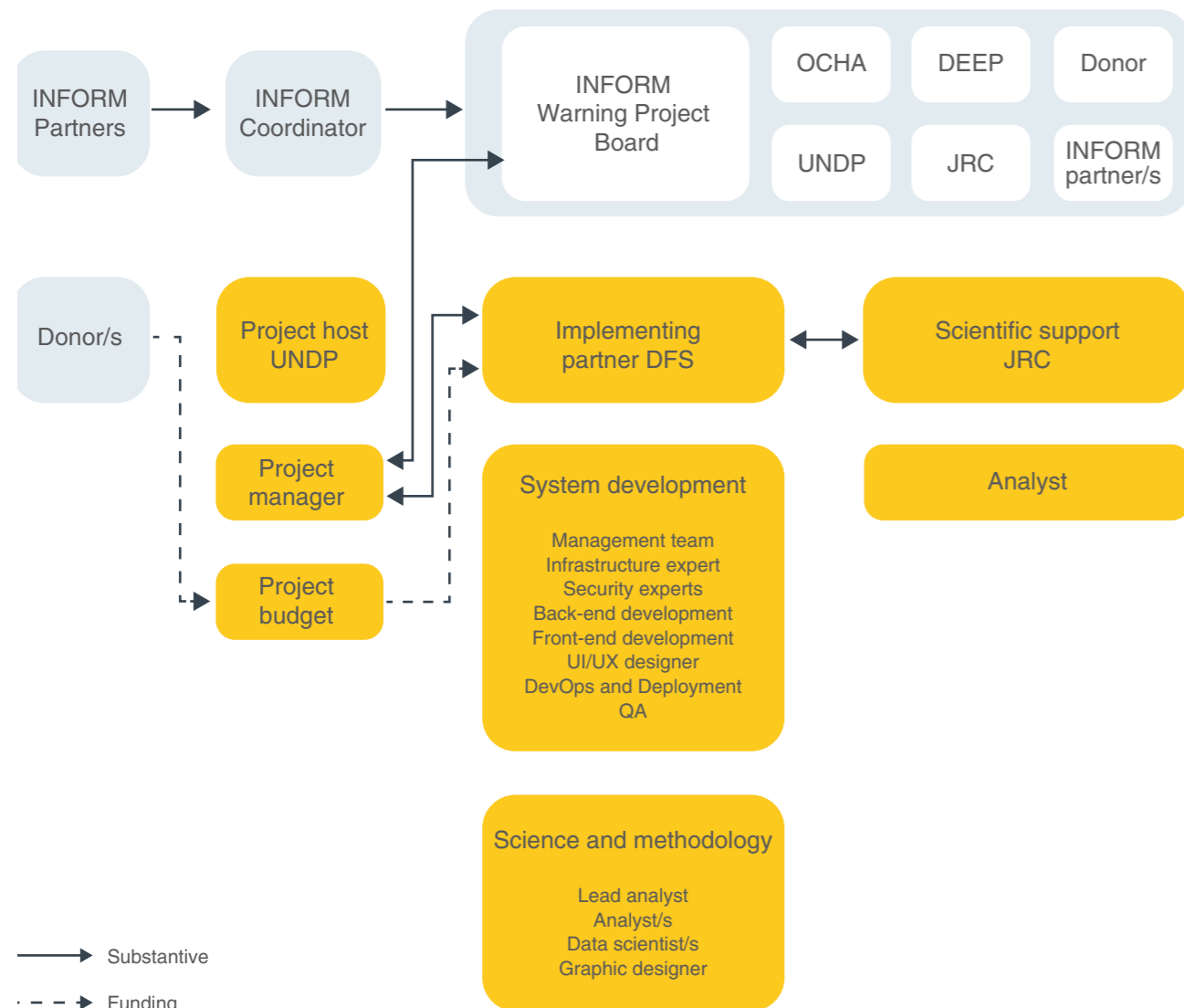
INFORM Warning is an ambitious initiative, which needs to integrate system development and scientific/methodological aspects. This will be done by building a team of experts across the required competencies from project management, through science and methodology development, to software development.

Although the main elements of INFORM Warning have been defined and agreed in the scoping phase, much work will need to be done to further refine the proposed methodology and integrate these refinements with the development of the product.

Essentially, this project puts in place the required resources for a coalition of organisations to develop INFORM Warning, in collaboration with all INFORM Partners and building on the elements defined during the scoping phase. These resources will be deployed as required during the development phase, using an AGILE-hybrid methodology, consisting of phases of requirements analysis, design, development, testing and deployment.

Science and methodology experts will be fully integrated into the system development.

INFORM Warning Implementing Partners



Partnership

Like other INFORM products, the development of INFORM Warning will be built on the knowledge and needs of INFORM partners. A coalition of INFORM partner organisations will lead the development. This coalition includes UNDP as the project host, Data Friendly Space as the main implementing partner, with scientific support provided by the European Commission Joint Research Centre, the scientific and technical lead for INFORM.

The project will be overseen by a project board consisting of donors and INFORM Partners with a role in the development, or strong substantive interest in INFORM Warning.

Further information

Read the full INFORM Warning System Requirements and INFORM Warning Development & Implementation Plan.

For further information, or if you are interested in funding or participating in the development of INFORM Warning please write to contact@inform-index.org.

INFORM Warning Development Budget

	Units	Monthly cost (USD)	Duration	Total
Leadership and project management				
Project lead	1	12,000.00	12	144,000.00
Travel and administrative costs				25,000.00
Total USD				169,000.00

Science and methodology					
1. Conceptual framework	Lead analyst	1	11,000.00	4	44,000.00
	Analyst	1	5,000.00	3	15,000.00
2. Index building	Composite measure expert	1	11,000.00	6	66,000.00
3. Warning and alerts thresholds and products	Senior Analyst	1	8,000.00	12	96,000.00
4. Causal relationships models	Senior quantitative analyst	1	11,000.00	6	66,000.00
	Analyst/data scientist	1	7,000.00	12	84,000.00
5. Methodology and documentation	Graphic designer	1	5,000.00	1	5,000.00
Total USD					376,000.00

	Units	Daily cost (USD)	Duration	Total
System development				
Management team		Included below		
Infrastructure expert		Included below		
Security experts		500	30	15,000.00
Back-end development		500	370	185,000.00
Front-end development		500	200	100,000.00
UI/UX designer		500	50	25,000.00
DevOps and Deployment		500	50	25,000.00
QA		500	100	50,000.00
Total USD				400,000.00
Total USD				945,000.00

INFORM

INFORM is a collaboration of the Inter-Agency Standing Committee and the European Commission. The Joint Research Centre of the European Commission is the scientific and technical lead of INFORM. This report is based on the data available at

<https://drmkc.jrc.ec.europa.eu/inform-index>.

This report is produced by the United Nations Office for the Coordination of Humanitarian Affairs on behalf of all INFORM Partners.

INFORM Steering Group



INFORM Partners



For more information, go to <https://drmkc.jrc.ec.europa.eu/inform-index>