

# Compound Risk Monitor Guidance Note

This guidance note provides an overview of the Compound Risk Monitor and its two related products: i) a real-time global Early Warning System (including data repository and dashboard) and ii) regional Horizon Scan Exercises. In addition to describing these products, the note delivers step-by-step guidance on how to complete expert surveys as part of the CRM Horizons Scans as well as addressing frequently asked questions. For further information on the CRM and related materials please refer to links in the box below.

## The Compound Risk Monitor

The Compound Risk Monitor (CRM) is an early warning system and horizon scan exercise that provides a high-level overview of risk conditions. In particular, it flags countries where different sectoral threats have the potential to contribute to a compound crisis, with an outlook ranging up to 12 months ahead.

Six dimensions of risk are monitored in the CRM: food security, conflict and fragility, health, macro-fiscal risk, natural hazard, and socioeconomic vulnerability. For each dimension, the CRM assigns a low, medium, or high-risk classification for all countries. Levels of risk are determined by weighing the scale of any emerging threats against a country's underlying vulnerability.

## Two Risk Monitoring Products

Below we provide further detail on the CRM's two core products used to track global and regional compound risks and support WBG decision making.

### CRM Early Warning System (data repository & dashboard)

At the heart of the CRM process is an automated data-driven early warning system that gathers real-time information from internal WBG and external

## QUICK LINKS

[CRM Online Dashboard](#)

CRM Technical Note

Indicators and Thresholds

risk repositories. Indicators for each risk dimension are aggregated and used to generate country-level risk profiles based on the best available risk data. Countries experiencing deteriorating conditions across multiple risk dimensions are assumed to have high potential for the development of compound crises (whether they have already materialized or not).

Information in the CRM is made accessible via an online dashboard, as well as an accompanying data repository showcasing all variables and indicators used in assigning levels of risk. Data in the CRM is updated on a daily basis. While the CRM provides up-to-date assessments of changing risk conditions risk within a given region, the accuracy of risk assessments is entirely determined by the quality and availability of data that feeds into it. Information from the CRM Early Warning System should be complemented by in-depth knowledge of sectoral experts and wider risk monitoring efforts.

CRM EWS:  Updated: Daily  Coverage: Global  Inputs: Risk Data

### CRM Regional Horizons Scans (expert surveys and quarterly risk briefing)

The CRM also produces regional Horizon Scans that combine quantitative data from the Early Warning System with rich insights from the sectoral and country experts. Horizon Scans are carried out on a quarterly basis and provide a more holistic assessment of changing risk conditions that can inform regional decision-making processes. Inputs from experts are gathered through a series of short surveys used to validate and supplement real-time indicators used in the CRM's early warning system.

Information from the Horizon Scan is used to generate a quarterly regional risk report outlining recent trends and emerging threats for the MENA region (with an outlook of up to 12 months). Insights from the CRM Horizon Scan should be considered alongside dedicated sectoral and country-level risk monitoring exercises.

SCAN:  Updated: Quarterly  Coverage: Region  Input: Data+Survey



## Frequently Asked Questions about the CRM



### What aspects of risk does the Early Warning System measure?

The CRM draws on a wide range public and WBG datasets to understand country-level risk conditions for two related outlooks:

- **Underlying Vulnerability** is a measure of a country's capacity to respond to given sectoral threats. It is typically comprised of a static or annually updated composite index, that covers a wide range of elements related to vulnerability, drawn from a reputable source. Examples of underlying vulnerability indicators include the WBG's Fragile and Conflict-affected Situations list (for FCV), Johns Hopkin's Global Health Security Index (for Health) or the EU's INFORM Socio-economic Vulnerability Index (for Socio-economic Vulnerability).
- **Emerging Threats** is a real-time and/or forward-looking measure of existing or developing threats in a given country. It tracks the extent to which a country is experiencing worsening risk conditions or exposed to an ongoing/future threat (irrespective of whether the country is able to cope). Examples of emerging threat indicators include seasonal forecasts (for Natural Hazards), real-time monitoring of battle-related deaths (for FCV) or WHO Disease Outbreak News alerts (for Health).

Overall levels of risk are then calculated by combining scores for underlying vulnerability and emerging threats for each country.



### What is the timeframe for the CRM's risk outlook?

The CRM's is focused on monitoring current or near-term risks. In practice, this means that the CRM tracks existing crises and crises that may emerge up to 12 months ahead. Accordingly, the CRM does not address medium- to long-term challenges such as climate change or demographic transitions - though any immediate threats that are an indirect result of these drivers (such as ongoing weather extremes) will be flagged.

### How often does the CRM Early Warning System update?

The database underlying the CRM Early Warning System updates on a daily basis. Despite this, the CRM is only able to feed in new data whenever source datasets are themselves renewed or updated. This means that the rate of

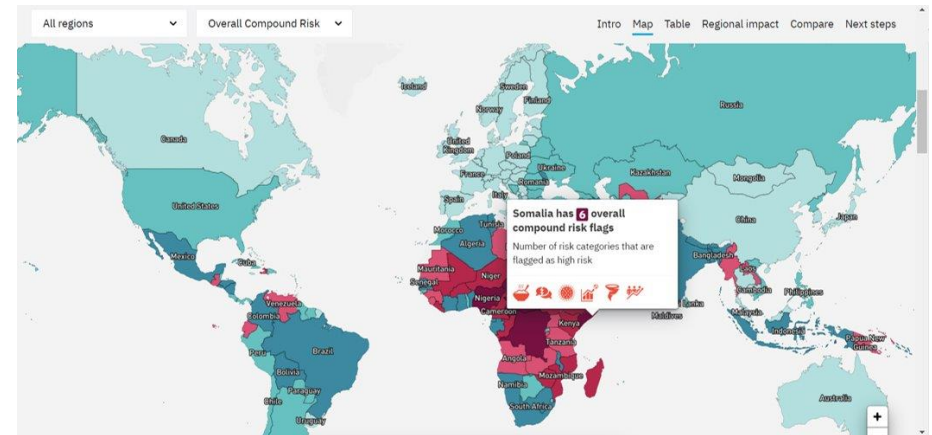


Figure 1 Screenshot of Compound Risk Monitor Dashboard

updates for individual indicators will differ. For example, some indicators are real-time in nature, like the WHO Disease Outbreak News or the GDACS disaster alerts which update on an hourly or daily basis. Other indicators update monthly (e.g., EIU Macro-financial Risk), quarterly (e.g., FAO/WFP Hunger Hotspots), or annually (e.g., Johns Hopkins Global Health Security Index). In general, data used to generate Emerging Threat scores update on a much higher-frequency basis (using daily or monthly data), while indicators for Underlying Vulnerability update more slowly (typically annually).



### Is the CRM Early Warning System entirely data-driven?

The CRM Early Warning System largely relies on quantitative risk data. This means that it draws on risk information that is produced by established risk repositories. In most cases, this data comes in the form of quantified variables (a score of 0-10), though in some instances we draw on qualitative risk information and assign scores based on systematic criteria (e.g. converting ACAPS social unrest alerts). Heavy reliance on quantitative data is one of the reasons why the Early Warning System is accompanied by the CRM Horizon Scan, where risk data is validated by regional experts and complemented with additional in-depth country-level risk analyses.



### How are risk scores assigned in the Early Warning System?

A number of steps are carried out to assign low, medium and high-risk scores in the CRM Early Warning System. To start with, relevant indicators are identified, are identified for each of the six risk dimensions and grouped into underlying vulnerability and emerging threat outlooks (see Indicator Table below). Each indicators is then normalized using an upper and lower threshold

ranging from 0 to 10 – meaning that any country with an indicator value below the lower threshold will receive a 0 while those with values above the upper threshold receive 10. The highest indicator in each risk dimension is then selected for both underlying vulnerability or emerging risk scores in each country (hence why the system is designed as a flagging tool).

**The final step in the process involves combining underlying vulnerability and emerging threat levels to determine an overall risk score for each dimension.** This is done by taking the geometric mean of the underlying vulnerability and emerging threats levels. Mean scores for overall risk are then assigned based on the following values: 0-4.9 is classified as low risk; 5-6.9 is classified as medium risk; and 7-10 is classified as high risk.

### How are indicators and thresholds determined?

**The indicators and thresholds used in the CRM Early Warning System are chosen in close consultation with GPs.** In most cases, the CRM uses indicators directly used by GPs to monitor sectoral threats. In cases where there is no internal risk monitoring system, indicators and thresholds are chosen in agreement with relevant GP experts. The indicators used for each dimension are listed in the Horizon Scan Survey Excel doc, under the risk classifications. For more detail on the indicators, see the CRM Technical Note.

**Please note that there are a number of limitations that went into indicator selection.** In particular, the CRM requires risk information that is up-to-date (i.e. reflected current or future conditions) and has good geographic coverage (preferably global). For more information of alternative indicators considered please see the CRM Technical Note.

### Is the CRM a forecast?

**The CRM is not a forecast nor a prediction.** It is a flagging tool that flags countries that have apparent potential for dimension-related crises, given their underlying vulnerability and emerging threats.

### Does the CRM include subnational risk?

**The CRM assesses risk at the national level.** Some of the included indicators consider subnational risks (such as disease outbreaks in a particular part of the country), but risk classifications are only available at the country level.

### Is the CRM a replacement for other sectoral and in-country risk assessments?

No. The CRM provides high-level insights on deteriorating risk conditions that can support region decision making. It is not a one-stop-shop for understanding all elements of cross-sectoral risk and should be used alongside more in-depth country risk assessments as well as knowledge from sectoral and regional experts.

### What are the main limitations of the CRM?

**Information in the CRM Early Warning System has several limitations.** Most importantly, as a data-driven tool, the CRM is only able to highlight threats in countries where regular and reliable risk information is collected and shared. This means that some risk dimensions (and regions) have better coverage than others. Many risks are also harder to identify and monitor (such as changes in socio-economic vulnerability) or have few agreed thresholds for classifying a country as high-risk (such as macro-economic risk). Finally, the CRM is not able to say how different sectoral risks will compound. Doing so is well beyond the technical capabilities of modern risk tracking tools. This is why the CRM is design using a transparent and easy-to-understand methodology that allows users to understand where overlapping threats have the potential to contribute to compounding crises. These limitations underscore the importance of interpreting information from the CRM alongside knowledge from sectoral and regional experts as well as more in-depth sectoral risk monitoring tools.

## Understanding the CRM Horizon Scan Survey

The CRM Horizon Scan combines quantitative information from the Early Warning System with qualitative insights from regional and sectoral experts to provide a more holistic snapshot of regional risks on a quarterly basis.

### How do I fill out the Survey?

The CRM Horizon Scan Survey takes the form of an Excel document. Upon opening the document you will see multiple Tabs. The first Tab is a 'Welcome' page that provides summary information on the CRM and guidance on filling out the survey.

Next is the 'Heatmap' tab that provides an overview of the default risk classifications assigned by the CRM Early Warning System for all six risk dimensions. Each heatmap shows levels assigned to underlying vulnerability (X-axis), emerging threat (y-Axis) and overall levels of risk (colored box groupings).

The next Tabs are devoted to survey collection for each of the six dimensions of risk. On each Tab you will see introductory text, followed by a table and a drop-down list of countries and agreement levels. The table simply shows you the default levels of risk assigned to each MENA country in the CRM Early Warning System (levels of risk are identical to those shown in the 'Heatmaps' Tab).

To complete the survey, you will use the drop-down list of countries on the right-hand side of the Tab. Simply click on the blue box that says "Unanswered" next to a country's name to reveal several options to choose from, including whether you agree, disagree, or have no opinion on the CRM's default risk assignment for a given country. If you select disagree, another blue box will appear to the right where you can provide further information on why you disagree with the CRM's default risk assignment. If you are uncertain how to answer, please describe your indecision in the "Comment" field for the country.

### How do I find out more information on why the CRM has flagged a country as medium or high-risk?

In the table of country risk classifications, countries with medium or high risk will have a red triangle to the right of their name. Hover over this triangle to see the CRM is observing that causes the country to be flagged. We will also have shared this context as a separate document.

Initial classifications based on quantitative CRM data (hover over country for more detail)

Low Risk Countries	Medium Risk Countries	High Risk Countries	Country	Agreement Level
Algeria	Iraq	Jordan	Jordan	Unanswered
Bahrain	Lebanon	Syria	Jordan Default: high	
Djibouti	Libya	Yemen	Syria	Unanswered
Egypt	Morocco		Syria Default: high	
Iran	Tunisia		Yemen	Unanswered
Israel			Yemen Default: high	
Kuwait			Iraq	Unanswered
Malta			Iraq Default: medium	
Qatar			Lebanon	Unanswered
Saudi Arabia			Lebanon Default: medium	
United Arab Emirates			Libya	Unanswered
			Libya Default: medium	
			Morocco	Unanswered
			Morocco Default: medium	
			Tunisia	Unanswered
			Tunisia Default: medium	

Figure 2 Screenshot from the CRM Horizon Scan Survey (Food Security)

### What should I consider when rating my (dis)agreement with the CRM's default risk score?

**When considering whether you agree or disagree with the CRM's default risk rating, there are a number of things to consider.** Firstly, look at the definitions of low, medium and high-risk categories as outlined in the Excel document. Do the assigned levels of risk broadly make sense to you, considering your knowledge and expertise of countries you are familiar with?

**It is important to remember that the CRM's Early Warning System is purely data driven, so that may be instances where you feel that a country's risk conditions should be considered as lower (or higher) based on the definitions of each risk category.** In doing so, you may want to draw on your familiarity with the sector and information from other detailed sectoral risk monitoring efforts (such as the various MNA Economic Monitors). Don't forget that the CRM tracks ongoing or near-term risk conditions – it does not reflect longer-term risks that are likely to materialize beyond the 12 month outlook.

**Finally, remember that this is meant as a high-level overview of risk conditions.** There will inevitably be some degree of subjectivity in reducing a country's risk conditions to a simple three-tier classification. Please use your own judgement of what you think makes sense to you based on conditions relative to other countries in the region.

 Do I need to provide responses for all risk dimensions and countries?

**No. We recognize that respondent will be familiar with given sectors and countries.** As such, there is no requirement for you to fill out survey responses for all countries across all six risk dimensions.

**We encourage you to provide responses for countries and risk dimensions that you feel comfortable with (even if limited to only one or two countries).** Please leave blank ('Unanswered') any countries or dimensions where this is not the case – or alternatively, leave countries as 'No Opinion'. Having said that, respondents are welcome to fill out as many responses as they like – though only if they feel comfortable doing so.



<https://compoundrisk.worldbank.org/>

What should I do if I have further questions on the CRM or the Survey?

**A series of drop-in clinic will be organized by the GCRP team to answer any questions or clarifications needed in filling out the survey.** Please feel free to join one of the sessions to find out more.

What Should I do when I've completed the Survey?

**When you have completed the Horizon Scan Survey, please share the file with Lindsey Jones ([ljones12@worldbank.org](mailto:ljones12@worldbank.org)), Ben Notkin ([bnotkin@worldbank.org](mailto:bnotkin@worldbank.org)) and Arthur Brochen ([abrochen@worldbank.org](mailto:abrochen@worldbank.org)).**

## Risk Classification Definitions and Example Scenarios

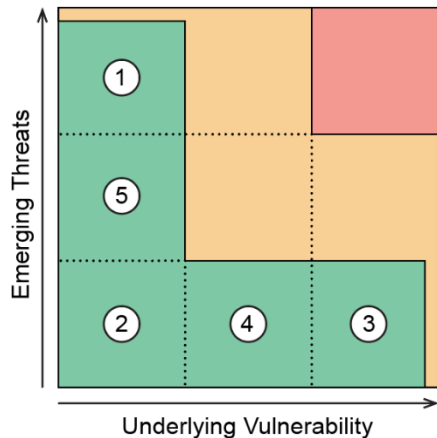
Based on the combination of underlying vulnerability and emerging threats, the CRM assigns a low, medium, or high risk classification to each country and dimension. The heatmaps, risk definitions and hypothetical examples below provide guidance on the types of conditions described for each risk category.





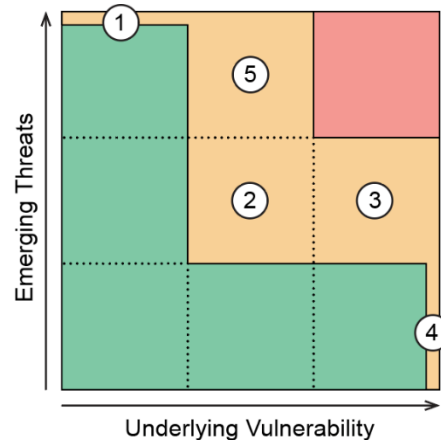
### Low Risk

**No or few clear signs** that deteriorating dimension-related conditions (recent or expected) have the potential to contribute to a crisis in the coming months, while factoring in the country's underlying vulnerability



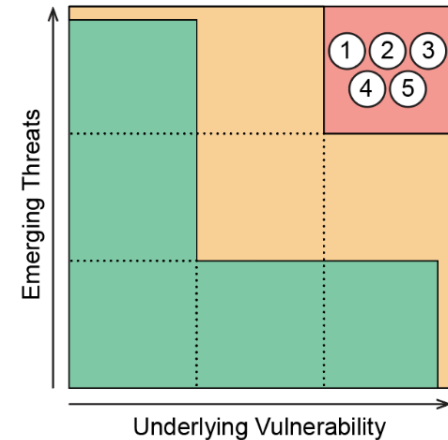
### Medium Risk

**Some or mixed signs** of recent (or expected) deteriorating conditions that have the potential to contribute to a crisis in coming months, while factoring in underlying vulnerability.



### High Risk

**Clear signs** of recent (or expected) deteriorating conditions that have the potential to contribute to a crisis in the coming months, while factoring in underlying vulnerability.



Hypothetic examples for each risk dimension (see Heatmaps above for corresponding numbers)

**1. Natural Hazard.** Large parts of the country have recently been affected by heavy flooding. Despite localized impacts, flooding has not led to wider impacts on the local economy, and the government have so far responded effectively.

**2. Food Security.** Food prices are forecasted to remain constant nationwide in the months ahead. The government has high levels of preparedness has shown that it is capable of safeguarding food security during crisis events.

**3. Health.** The country's health system's is heavily strained due to limited resources and over-stretched capacity. Conditions have not changed since last year, and there are no signs of increased incidence or new disease outbreaks of concern.

**4. Macro-Fiscal.** Development actors have long noted significant levels of corruption involving key political and

**1. Food Security.** Food prices are forecasted to rise to unprecedented levels in the months ahead. Despite this, the government has proven in the past that it can anticipate and respond to rising commodity prices and prevent it from translating into large increases in food insecurity levels.

**2. Natural Hazard.** Several regions of the country have been hit by sustained flooding in recent months. The government has provided some relief to areas worst affected areas. While the impacts will be felt for many months to come, impacts of the flooding will not spillover into other sectors.

**3. Health.** Mixed reports of new cases of Ebola have been reported. While a surge has the potential to overwhelm the government's response capacity, there are no clear signs yet that the virus uncontained.

**1. Health.** A recent surge in COVID-19 cases and deaths has overwhelmed the health system and forced the government to enforce a strict lock-down with severe implications for livelihoods.

**2. Natural Hazard.** Large areas of the country have been affected by heavy flooding in recent months. The government's response has been ineffective and slow. Vulnerable groups in affected areas require urgent relief and assistance with heavy reliance on humanitarian actors

**3. Food Security.** Food prices are expected to rise to a 5-yr high. Large numbers of people are likely to become food insecure in the coming months, and the government's response capacity is severely limited. Commodity price increases have led to social unrest.

economic actors for several years. Despite this serving to slow progress in achieving equitable growth, the government has continued to implement effective poverty reduction measures, with no evidence of escalating concerns over corruption in recent months.

**5. Socioeconomic Vulnerability.** A mild increase in the price of core commodities has made it harder for people to afford bread and fuel. Despite this, the government has the resources and capacity to protect vulnerability groups by rolling-out social safety nets and cash transfers, minimizing the impacts of the rise in cost of living on the poorer households.

**4. Macro-Fiscal.** The country is experiencing chronic or persistent challenges in collecting tax revenues and ensuring the stability of the state budget. These difficulties affect the national economy's growth prospects and severely limit its attractiveness to investors. These conditions have been present for a number of years, with no change in recent months.

**5. Socioeconomic Vulnerability.** Core government services have shut down for weeks meaning that people have not been able to access social safety nets. These conditions have accentuated livelihood conditions for the most vulnerable households, though has yet to affect middle and upper-classes.

**4. Macro-Fiscal.** The country's currency has devalued sharply with no prospect of stability in the coming months. GDP is expected to fall by more than 5% which will have severe consequences for government revenue and support for basic service provision.

**5. Socioeconomic Vulnerability.** Poverty levels have increased sharply owing to an unprecedented cost of living crisis. Vulnerable groups are especially hard-hit with lack of employment opportunities. Government is not able to provide support or safety nets.

## Indicators in Compound Risk Monitor

For full details on the indicators and the thresholds used for each risk dimension (including underlying and emerging outlooks)

Outlook	Dimension	Indicator	Frequency
Underlying Vulnerability	Conflict and Fragility	Fragile and Conflict-Affected Situations List (WB)	Annual
		Fragile States Index (Fund for Peace)	Annual
	Food Security	Global Food Security Index (Economist Intelligence Unit)	Annual
		Proteus Composite Index (WFP)	Ad hoc
	Health	Global Health Security Index (Johns Hopkins, Economist Intelligence Unit)	Annual
	Macro Fiscal	MFR Macro-Financial Risk, Risk Appetite (WB, EFI)	Quarterly
		Economist Intelligence Unit Operational Risk Score, Annual mean	Monthly
Emerging Threats	Natural Hazard	INFORM Natural Multi-hazard Rating	Annual
	Socioeconomic Vulnerability	INFORM Socio-economic Vulnerability Index	Annual
	Conflict and Fragility	ACLED Political Fatalities	Weekly
		IFES Elections & GIC Coups	Ad hoc
		ACAPS Risk List (Conflict)	Ad hoc
		EIU Security Risk, 1-month change	Monthly
		ACLED Protests, Demonstrations and Violent Events, 1-month change	Weekly

	Food Security	FAO WFP Warning	Ad hoc
		FEWS NET Score	Quarterly
		Food Price Inflation (WB)	Monthly
	Health	WHO Disease Outbreak News	Ad hoc
		IFRC Epidemics	Ad hoc
	Macro Fiscal	MFR Macro-Financial Risk, Risk Appetite (WB, EFI)	Quarterly
		Operational Risk Score, 1-month change (Economist Intelligence Unit)	Monthly
	Natural Hazard	GDACS Live Hazard Tracker	Daily
		Locust Threat Level (FAO)	Weekly
		INFORM Severity	Daily
		Seasonal Forecast Index (IRI, Columbia University)	Monthly
		ACAPS Risk List (Natural Hazard Risk)	Ad hoc
	Socioeconomic Vulnerability	Unemployment Rate, % Change (IMF)	Quarterly
		Macro-Financial Review Household Level Risk (WB, EFI)	Quarterly
		People Below \$1.90 Poverty Line, % Change (WB, MPO)	Quarterly
		ACAPS Risk List (Socioeconomic Risk)	Ad hoc