

ANNEX

Table 1: Indicator selection of each compound risk dimension: How underlying vulnerability is reflected in the CRM

Quality of indicators (Q)	GOOD
	ACCEPTABLE
	POOR

INDICATOR NAME	INDICATOR DESCRIPTION	NORM. BOUNDS AND THRESHOLDS	SOURCE INDICATORS	AGGREGATION	Q
FOOD SECURITY RISK					
<i>F_Proteus_Score_norm</i>	WFP Proteus composite index, measuring multidimensional aspects of food security	Normalised using a min/max procedure with an upper bound of 90 th pct and lower bound of 10 th pct	Multidimensional index made up of grouped indicators for: Availability; Access; Utilization; and Stability	N/A Single Index	
NOTES: Index only runs till 2017. The CRM may want to consider updating WFP's methodology using data gathered through 2020, as well as assigning thresholds on the basis of expert derived values (rather than percentiles). Alternatives include the Global Food Security Index, as well as metrics on the prevalence of undernourishment and food consumption					
CONFLICT FRAGILITY AND INSTITUTIONAL RISK					
<i>Fr_FCV_normalised</i>	World Bank's Fragile and Conflict-affected Situations list	Assigned values in consultation with FCV. 10 = If on FCS list 0 = If not on FCS list (based on FCS thresholds)	Multidimensional index including information on the following: Country Policy and Institutional Assessment (CPIA) scores, whether a UN peacekeeping operation is present, the severity of border flight, and conflict-related deaths.	MAX(<i>Fr_FCV_normalised</i> , <i>FR_FSI_norm</i>)	

<i>Fr_FSI_norm</i>	Fund for Peace's Fragile States Index	<i>Normalised using a min/max procedure with an upper bound of 98th pct and lower bound of 40th pct</i>			
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NOTES. CRM team will continue to liaise with FCV's ongoing conflict risk monitoring initiative to ensure consistency in indicator selection and thresholds.

MACRO-FISCAL

<i>M_EIU_Score_12m_norm</i>	<p>Economist Intelligence Unit's Country-level Operational Risk Score: a multi-dimension index tracking macro-fiscal conditions updated on a monthly basis</p> <p>Values are derived as an average of EIU scores in macroeconomic risk, financial risk, and foreign trade & payments risk for the previous 12 months (in order to be compatible with other risk dimensions)</p>	<i>Normalised using a min/max procedure with an upper bound of 95 and lower bound of 10.</i>	A multidimensional index comprised of grouped indicators relating to: financial risk, foreign trade & payments risk, infrastructure risk, labour market risk, legal & regulatory risk, macroeconomic risk, and tax policy risk.	<i>N/A Single Index</i>	
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Alternatives: An alternative index is currently under development together with MTI, FCI, CROCR and the Prospects Group

HEALTH-SYSTEMS, DISEASE OUTBREAKS AND RESPONSE

<i>H_HIS_Score_norm</i>	Global Health Score Index, a composite index made up of a variety of health-related indicators	<i>Normalised using a min/max procedure with an upper bound of 20 and lower bound of 70</i>	GHS is made up of six categories (comprised of 34 indicators, 85 sub-indicators). The categories include: prevention; detection and reporting; rapid response; health system; compliance with international norms; and risk environment. For more details see link.	<i>N/A Single Index</i>	
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NATURAL HAZARD RISK

<i>NH_Hazard_Score_norm</i>	Natural multi-hazard rating (INFORM) – 2022 data	<i>Normalised using a min/max procedure with an upper bound of 7 and lower bound of 1</i>	Historical rates of exposure and sensitivity to earthquake, tsunami, flood, cyclone, storm surge and drought risk. For more details see link.	<i>N/A Single Index</i>	
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NOTES: The CRM team will continue to consult with sector experts to assign designated thresholds rather than percentiles

SOCIOECONOMIC VULNERABILITY RISK

<i>S_INFORM_vul_norm</i>	<i>Composite index comprised of a range of socio-economic variables compiled by INFORM</i>	<i>Normalised using a min/max procedure with an upper bound of 7 and lower bound 0</i>	Comprised of grouped indicators relating to: development and deprivation (50%); inequality (25%) and economic dependence (25%).	<i>N/A Single Index</i>	
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Table 2: How forward-looking risk is reflected in the CRM

Quality of indicators (Q)	GOOD
	ACCEPTABLE
	POOR

INDICATOR NAME	INDICATOR DESCRIPTION	NORMALISED BOUNDS	AGGREGTION	Q
FOOD SECURITY RISK				
<i>F_fews_crm_norm</i>	<p>FEWSNET IPC classification (near term) adjusted.</p> <p>Thresholds chosen to align with CRW ERF trigger.</p>	<p><i>Assigned values based on CRW threshold:</i></p> <p><i>10 = CRW threshold</i></p> <p><i>9 = Below CRW & IPC5</i></p> <p><i>8 = Below CRW & IPC4</i></p> <p><i>7 = Below CRW & IPC3</i></p> <p><i>5 = Below CRW & IPC2</i></p> <p><i>3 = Below CRW & IPC1</i></p> <p><i>0 = Below CRW & no IPC</i></p>	<i>Max of three indicators</i>	
<i>F_fao_wfp_warning</i>	<p>Food security early warning released jointly by FAO and WFP.</p> <p>Thresholds chosen to align with FAO/WFP classification.</p>	<p><i>10 = on FAO/WFP list of early warning countries</i></p> <p><i>0 = if not on FAO/WFP list</i></p>		
<i>F_fpv_rating</i>	<p>Food price inflation from WB microdata for monthly food prices</p> <p>Thresholds chosen to align with FRM classification.</p>	<p><i>Assigned values based on IPA threshold:</i></p> <p><i>7 = FPV above 30%</i></p> <p><i>5 = FPV between 5-30%</i></p> <p><i>3 = FPV between 2-5%</i></p> <p><i>1 = FPV below 2%</i></p>		
<i>NOTES Primary challenge in finding robust information for non FEWSNET covered countries. CRM team will seek to draw food price data and additional FS indicators from the WB’s Food Security Monitoring Hub. Alternatives: NDVI / GIEWS / WB Food Security Monitoring Hub</i>				

MACRO-FISCAL

<i>M_EIU_12m_change_norm</i>	<p>Point change in the average of Economist Intelligence Unit's Country-level Operational Risk scores for macroeconomic risk, financial risk, and foreign trade & payments risk. The EIU Operational Risk is a multi-dimension index tracking macro-fiscal conditions updated on a monthly basis.</p> <p>Values are based on the difference between the latest EIU monthly score and an average of scores over the past 12 months.</p>	<p><i>Normalised using a min/max procedure with an upper bound of 95th pct and lower bound of 10th pct</i></p>	<p><i>Max of two indicators</i></p>
<i>M_MFR</i>	<p>Aggregate of Macro Fiscal Review's macroeconomic risk, monetary and financial conditions and risk appetite</p>	<p><i>10 = Marked red (high risk)</i> <i>7 = Marked yellow (medium risk)</i> <i>0 = Marked green (low risk)</i></p>	
<p><i>NOTES: An alternative index is currently under development together with MTI, FCI, CROCR and the Prospects Group</i></p>			

FRAGILITY AND CONFLICT RISK

<i>Fr_BRD_Normalised</i>	Fatalities related to violent events, demonstrations or non-violent actions (ACLED) . Indicator is calculated as 3-month running Z-scores using 3-month means and standard deviations for the past three years. Thresholds assigned by FCV	<i>Normalised using a min/max procedure with an upper bound of 1 and lower bound of 0; if there are fewer than 26 deaths in 3-month period, indicator is set to 0</i>	<i>Max of four indicators</i>	
<i>Fr_REIGN_Normalised</i>	Political disturbance (REIGN) Indicator is formed by summing results from 4 REIGN binary variables, including: successful coup; attempted coup; delayed election; and irregular election. Inputs from election variables are only considered in FCS countries.	<i>10 = at least one event across the REIGN indicators 0 = no events across the REIGN indicators</i>		

	<p>*REIGN is currently inactive; it is currently replicated using election data from the International Foundation for Electoral Systems, and coup data from the Global Instances of Coups dataset.</p> <p>Thresholds assigned by FCV</p>		
ACAPS Risk List	Events related to conflict and fragility recorded by ACAPS	<p>10 = High risk 7 = Medium risk 3 = Low risk</p>	
EIU Security Risk	<p>Point change in Economist Intelligence Unit's Country-level Operational Risk scores for Security Risk, excluding hostility to foreign. The EIU Operational Risk is a multi-dimension index tracking macro-fiscal conditions updated on a monthly basis.</p> <p>Values are based on the difference between the latest EIU monthly score and an average of scores over the past 12 months.</p>	<p><i>Normalised using a min/max procedure with an upper bound of 95th pct and lower bound</i></p>	
NOTES: To be updated based on coordination with FCV's Conflict Risk Monitoring Initiative.			

SOCIOECONOMIC VULNERABILITY

<i>S_change_unemp_norm</i>	Percentage point change in proportion of people unemployed between 2022-2021 and 2021-2020 ¹ (IMF forecast)	<p><i>Normalised using a min/max procedure with an upper bound of 1 percentage point and lower bound of 0</i></p>	Max of four indicators
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¹ Percentage point differences for both 2020 and 2021 are used in the current iteration, recognising that the knock-on implications of increased unemployment (and poverty) on household-level vulnerability can persist for long periods of time. Continued use of 2020-2019 figures will be actively considered in consultation with Poverty GP and the

<i>S_pov_comb_norm</i>	Percentage point change in the proportion of people below \$2.05 poverty line 2023-2022 and 2020-2019 ² (WB/MPO)	<i>Normalised using a min/max procedure with an upper bound of 0.5 percentage points and lower bound of 0</i>	
<i>S_Household.risks</i>	Measure of household debt-to-GDP ratios and unemployment rates during the previous quarter	<i>10 = Marked red (high risk) 7 = Marked yellow (medium risk) 0 = Marked green (low risk)</i>	
<i>ACAPS Risk List</i>	Events related to socioeconomic vulnerability recorded by ACAPS	<i>10 = High risk 7 = Medium risk 3 = Low risk</i>	

NATURAL HAZARD RISK

<i>NH_seasonal_risk_norm</i>	Measure of the proportion of a country projected to experience above or below average rainfall (with 60+ likelihood and above) using Columbia IRI's seasonal forecast. To be updated based on ongoing research and collaboration with IRI	<i>10 = if a critical proportion of the country is wet or if a critical proportion is dry. Critical proportion is determined by country size.</i>	<i>MAX(NH_seasonal_risk_norm, NH_GDAC_Hazard_Score_Norm, NH_INFORM_Crisis_Norm, NH_locust_norm)</i>
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Development Data Group (and likely to drop in the later quarters of 2021). Thresholds in percentage point differences are different for the periods 2021-2020 and 2020-2019 owing to the differential impacts of the COVID crisis on socio-economic vulnerability. While large increases in unemployment (and poverty) are expected during the latter period, the former is characterised by lower growth rates as most countries are assumed to experience a relative rebound in conditions.

² Ibid.

<i>NH_natural_acaps</i>	INFORM Crisis monitor with live tracking of natural hazard events	<i>Normalised using a min/max procedure with an upper bound of 7 and a lower bound of 1</i>		
<i>NH_GDAC_Hazard_Score_Norm</i>	GDACS live natural hazard tracker	<i>Assigned value: 10 = if ongoing Natural Hazard 0 = no ongoing Natural Hazard</i>		
<i>NH_locust_norm</i>	FAO desert locust outbreak risk	<i>Assigned value: 10 = High risk based on FAO thresholds 7 = Medium risk based on FAO thresholds 0 = Low risk based on FAO thresholds</i>		
<i>ACAPS Risk List</i>	Events related to conflict and fragility recorded by ACAPS	<i>10 = High risk 7 = Medium risk 3 = Low risk</i>		

NOTES: Thresholds for seasonal precipitation are temporary and will be updated based on ongoing research together with IRI. Alternatives: Flood outlook (GLOFAS) – 4 month seasonal outlook + 10-day forecast. Drought monitor/outlook (IRI Global SPI Index / SPEI / CHIRPS / EDO). Live cyclone tracks (Cyclocane) – 1-10 day. Live natural hazard trackers –USGS / RSOE / GDACS / Reliefweb / Copernicus / PDC

HEALTH-SYSTEMS, DISEASE OUTBREAKS AND RESPONSE

<i>H_ifrc_epidemics</i>	Epidemics announced by IFRC	<i>10: On list NA: Not on list</i>	<i>Max of two indicators</i>	
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<i>H_who_don_alert</i>	WHO Disease Outbreak News (DON) Alert	Assigned value: 10 = if country if on WMO DON list 0 = if county not on WMO DON list	
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NOTES May benefit from clustering indicators into different aspects of risk rather than max value across all. Use of USC projections done on the basis of comparison amongst a number of COVID projections. Will require careful consideration of thresholds

TABLE 3: Methods for aggregating Overall Compound Risk

AGGREGATION METHOD	DESCRIPTION	METHOD
Max score	Count of the total number of compound risk dimensions flagged as high-risk flag (i.e. score of 10)	<i>COUNT(IF Risk Dimension = 10)</i>
Max + medium scores	Count of the total number of compound risk dimensions flagged are high-risk (i.e. score of 10), as well as medium-risks (i.e. score 7-10)	<i>COUNT(IF Risk Dimension = 10) * 1 + COUNT(IF Risk Dimension > 7) * 0.5</i>
Geometric scores	Count of the total number of compound risk dimensions flagged high risk flags a geometric average (i.e. score 7-10)	<i>COUNT(IF Geometric Risk Dimension > 7)</i>

NOTES Geometric method can use either the max score or max+medium approaches as source inputs for Emerging Threat. Threshold values may also vary depending on whether indicators are aggregated using a max value or geometric method (in which case high risk is likely to be <7 rather than =10).