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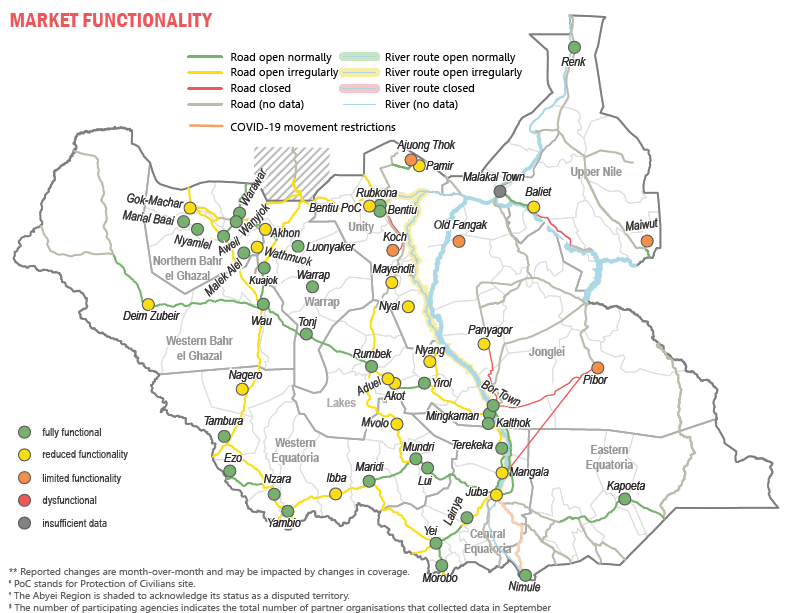
Guidance document: Market Functionality Score (MFS)

*(v2, November 2022)*

***DRAFT – To be finalised after initial pilots are complete***

### Introduction

This guidance document aims to help IMPACT’s cash and markets teams, specifically those working on Joint Market Monitoring Initiatives (JMMIs) and other vendor-focused market assessments, to integrate a **Market Functionality Score (MFS)** into their existing research cycles. The Market Functionality Score is a method being developed by REACH to classify markets based on their level of functionality, enabling comparisons across and among countries. This is a key task to help aid actors understand which markets function well enough to be good targets for cash and voucher assistance (CVA) and which require alternative forms of market-based programming (MBP) to help them become self-sufficient. The MFS is currently being piloted across several REACH missions and will be a required element of all REACH JMMIs by mid-2023.



A sample map from South Sudan that combines a Market Functionality Score with data on roads, rivers, & border crossings.

In its [Market Analysis Framework](https://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp243856.pdf), the World Food Programme (WFP) defines a market to be functioning well if “the features that influence the behaviour of buyers and sellers are stable and predictable; interactions among sellers, and between sellers and buyers, are transparent; and supplies are sufficient, regular, and predictable at affordable, stable, and predictable prices to meet the effective demand of households.”

With this in mind, an MFS consists of a collection of indicators, drawn from a single vendor-focused assessment for ease of analysis, that capture data on different dimensions of market functionality. These indicators span topics such as the marketplace’s level of physical, financial, and social **accessibility** to all groups (including its level of security), the **availability** and **affordability** of core market commodities, the **resilience** of key supply chains to disruption, issues with the marketplace’s **infrastructure** (including that surrounding the transportation of goods), and so on. Each dimension and indicator is assigned weights and thresholds depending on how strongly it influences the market’s overall ability to meet customer demand.

Generally, the MFS is calculated on the **market level,** which should correspond to the assessment’s main unit of analysis (e.g. the city, the district, etc.) If enough data is available to support calculating an MFS on the **level of individual marketplaces** (i.e. the physical locations within communities in which traders gather), this is also an option. The MFS is not designed to assess the functionality of individual market actors.

Assigning a market functionality score to each monitored area of analysis will result in a map like the one on the previous page, in which each area is assigned a single category representing local markets’ aggregated level of functionality. Such classifications and maps can be highly useful to diverse aid actors:

* Actors focusing on the provision of *cash and voucher assistance (CVA)* can target highly functional markets in which potential aid recipients can easily buy core market items. Those considering *local procurement* can also make their purchases through the most functional markets, taking advantage of pre-existing supply chains and networks of market actors.
* Actors considering *in-kind distributions* can further investigate less functional target markets to understand whether existing market actors in these areas are capable of supplying specific items of interest or whether they struggle to do so.
* Actors focusing on *market-based programming* or *market systems development* can target the least functional markets with the aim of removing bottlenecks to trade and improving local communities’ resilience to market shocks.

**The MFS is a highly useful extension of the Joint Market Monitoring Initiative (JMMI)**, and it has the potential to be integrated into other vendor-focused quantitative research cycles as well. In bringing together a variety of market indicators from throughout a single questionnaire or series of questionnaires, the MFS is a valuable summary indicator on par with the cost of the Minimum Expenditure Basket (MEB): an analysis of use not only to those distributing humanitarian aid, but also to those engaging in more market-focused interventions through either a humanitarian or a development lens.

In addition to its value as a standalone analysis, the MFS, where present, also enables REACH to ensure the presence of a core group of indicators and comparable analyses across all of its JMMIs, unlocking new avenues for cross-crisis market analysis. Given all this, REACH aims to incorporate a semi-standardised yet flexible market functionality module into each JMMI it runs. It also encourages cash and markets teams to consider integrating similar modules into other thematic market assessments that incorporate interviews with market vendors, such as Joint Rapid Assessments for Markets (JRAMs), supply chain assessments, and others.

### Dimensions of the MFS

REACH’s Market Functionality Score spans five key dimensions: **accessibility, availability, affordability, resilience,** and **infrastructure**.

* **Accessibility:** Do all market actors, including customers, have *physical access* to this market (meaning most people are able to reach and enter marketplaces and/or businesses from their shelters without major physical effort or expense, and customers are physically able to bring goods back to their shelters in large enough quantities)? Do all market actors, including customers, have *social access* to this market (meaning they are not prevented from accessing marketplaces and/or businesses or obtaining goods due to their gender, ethnicity, or other physical or social characteristics)? Are this marketplace and the roads leading to it *safe and secure* (meaning customers and other market actors can reach marketplaces and/or businesses without putting themselves at risk)?
* **Availability:** Can vendors in this market reliably provide all core items that local households need to purchase on a regular basis?
* **Affordability:** Do customers have *financial access* to this market (meaning core items are consistently sold at prices an average local household can afford)? Are the prices for core items *stable* in this market (meaning they change slowly enough to enable vendors and customers to plan future expenditures)?
* **Resilience:** Do *supply chains* for core items in this market function reliably? Are vendors in this market consistently able to *restock* the core items they carry before they run out? Do market actors in this market obtain their goods from *a variety of cities and/or supply routes*, or do most goods reach this market via a single supply route that may be vulnerable to disruption?
* **Infrastructure:** Is the *physical infrastructure* in and around this market (buildings, roads, etc.) in sufficiently good condition to support normal livelihood and trading activities? Do vendors in this market have access to *locked, secure storage facilities* where they can keep their stock? Does the *financial infrastructure* exist in this market to support alternative payment modalities beyond physical cash and informal credit?

Each of these dimensions contributes to a market’s ability to both supply customers with core food and non-food items and enable market vendors to conduct business freely. Below is a non-exhaustive list of key indicators that fall under each dimension. These key indicators are tailored for JMMI vendor questionnaires, although an MFS can be implemented in other types of assessments as well.

|  |  |
| --- | --- |
| Dimension | Key indicators |
| **Accessibility**  *(including physical access, social access, insecurity)* | % of interviewed vendors reporting that some customers have faced physical barriers to accessing marketplaces over the last X days/months  % of interviewed vendors reporting the presence of damaged, deteriorating, or dangerous access roads, or the absence of enough usable access roads, serving their marketplaces over the last X days/months  % of interviewed vendors reporting that some customers have faced social barriers to accessing marketplaces over the last X days/months  % of interviewed vendors reporting concerns about lack of safety and/or insecurity in their marketplaces over the last X days/months |
| **Availability**  *(including presence and diversity of core items)* | Level of availability of monitored items during the data collection window (by category of item) |
| **Affordability**  *(including price levels and financial access)* | Comparison of median prices at the national and market level (by item)  % of interviewed vendors reporting that some customers have faced financial barriers to accessing marketplaces over the last X days/months  % of interviewed vendors unable to predict price changes over the next X days/months |
| **Resilience**  *(including stock levels and vulnerability to disruption)* | Level of stock of assessed items during the data collection window (by category)  Ease of restocking assessed items during the data collection window (by category)  % of interviewed vendors mostly relying on a single supplier to stock their businesses (by category)  % of interviewed vendors reporting difficulties keeping their business operational and well-stocked over the last X days/months |
| **Infrastructure**  *(including quality of facilities and roads, storage options, payment modalities)* | % of interviewed vendors reporting the presence of damaged, deteriorating, dangerous, or inadequate commercial structures in their marketplaces over the last X days/months  % of interviewed vendors reporting that they lacked access to a locked, secure storage facility for their stock within their marketplaces over the last X days/months  % of interviewed vendors reporting that they accepted payment modalities other than cash or informal credit over the last X days/months |

### Construction of the MFS

Market Functionality Scores should be constructed individually for each country in which they are used. Although the dimensions are standardised across countries and the indicators are drawn from a semi-standard menu, teams will need to review and weight each indicator based on their understanding of the greatest local determinants of market functionality. Constructing and fine-tuning an MFS involves several steps:

1. **Assemble a list of indicators and questions** corresponding to the five dimensions above, following the standard indicator menu closely, and ensure that all are integrated into your assessment tool.
2. **Assign individual weights to each indicator** based on the degree to which they are assumed to drive outcomes for their dimension of market functionality, as well as assigning thresholds via which different responses to each indicator can receive different scores.
3. **Assign overall weights to each of the five dimensions** to reflect their relative importance to market functionality.
4. **Calculate Market Functionality Scores** for each assessed market and, if desired, assign them to categories based on locally assigned thresholds.
5. **Pilot and test** the indicators, thresholds, weights, and categories over several months using real data, comparing the MFS results to a qualitative understanding of which markets are most and least functional and making alterations as needed.

#### Creating a list of indicators

All teams constructing a Market Functionality Score should begin with the [**MFS indicator menu**](https://acted-my.sharepoint.com/:x:/g/personal/christopher_paci_reach-initiative_org/EfmGaUdwI2JKkCPkktc10W8BAiipeuicMNKTzrnEdenukA?e=5Yp7iH). This list of sample indicators and questions, developed based on the principles laid out in this document, spans the five dimensions of accessibility, availability, affordability, resilience, and infrastructure, with suggested scoring methods provided for each indicator. The menu is divided into “essential” indicators, which should be included in every relevant assessment unless there are extenuating circumstances, and “useful” indicators, which are not required in every context but can provide crucial perspectives on market functionality if added.

**The dimensions and indicators in the menu have not yet been weighted.** The listed maximum scores for each indicator should therefore not be compared to each other and do not imply any recommendations about the ”standard” levels of relative importance that should be assigned to different indicators. The precise scoring methodologies for each indicator will need to be changed based on the relative importance each dimension and indicator is deemed to have in the local context.

Country teams should ideally integrate these question prompts into their market assessment questionnaires as written, changing only small details such as recall periods and item/category names. Staying close to the standard wording makes a major difference to REACH’s ability to conduct cross-crisis market analysis on the global level. That said, exceptions can be made, with HQ consultation, if there are contextual reasons why the wording needs to change in your local context. While the question prompts should remain as static as possible, the lists of answer options can be modified to suit local contexts as long as the new options can be easily coded to match the main MFS aggregations REACH aims to do.

Questions or answer options that are inapplicable to the local context may be removed. Similarly, teams are encouraged to add new questions or answer options that capture additional local drivers of market functionality that are not captured by the current menu. For example, a team working in a context with a liquidity crisis, where financial access depends not only on an item’s price but on customers’ ability to pay for goods using a modality that traders will accept, might consider adding an indicator on specific constraints caused by a lack of access to cash. **Overall, the process of selecting indicators, tailoring answer options to the local context, and defining thresholds should be done in consultation with HQ.**

The indicator menu can be found at the SharePoint link below, which is accessible to all IMPACT staff logged into an organisational OneDrive account:

[REACH Cash and Markets COP - Market Functionality Score (MFS) indicator menu](https://acted-my.sharepoint.com/:x:/g/personal/christopher_paci_reach-initiative_org/EfmGaUdwI2JKkCPkktc10W8BAiipeuicMNKTzrnEdenukA?e=5Yp7iH)

#### Weighting the indicators within each dimension

Once we have finalised the list of indicators that will form the MFS, we must weight them by setting a maximum score for each based on its relative importance within its dimension. To do this, we need to first identify the specific values or answer options for each indicator that reflect the best and worst situations with regard to market functionality. In general, the best outcome should receive the maximum score, the worst should receive a score of 0, and intermediate thresholds along the way should receive scores between the minimum and maximum (except in the case of yes/no questions and other binary variables). The sum of the maximum scores for all indicators in a dimension must equal the maximum score for that dimension established in the previous stage.

An indicator’s intermediate thresholds do not always need to be evenly spaced. For instance, if the “full availability” of a staple food item would receive a maximum score of 6, it may make sense for “limited availability” to receive a score of 4 and for “no availability” to receive a score of 0, as the leap from “limited availability” to “no availability” indicates a larger underlying market failure and is more alarming from the standpoint of households’ ability to meet their needs.

Below are examples of how indicators from various countries have been interpreted for use in the MFS. While these examples are well constructed, they do not necessarily represent the only ways in which the results of these indicators can be encoded.

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension | Indicator(s) | Aggregation | Scoring |
| **Accessibility** | Vendors who have observed or heard about protection incidents taking place in or near their marketplace | Percentage of vendors selecting a relevant answer option | **4** if 0%  **3** if > 0% and ≤ 5%  **2** if > 5% and ≤ 10%  **1** if > 10% and ≤ 20%  **0** if > 20% |
| **Availability** | Level of availability of imported wheat  Level of availability of locally produced rice | Mode of vendor responses for each item | **8** if both cereals are fully available  **6** if one cereal has limited availability  **4** if both cereals have limited availability  **2** if one cereal is not available  **0** if both cereals are not available |
| **Resilience** | Number of days of remaining stock of maize  Number of days it would take to fully restock maize if an order were made today | Median of vendor responses | **3** if # restocking days – # days of remaining stock > 3  **2** if # restocking days – # days of remaining stock > 0 and ≤ 3  **1** if # restocking days – # days of remaining stock = 0  **0** if # restocking days – # days of remaining stock < 0 |

It is possible to incorporate *time-series data* into certain MFS indicators—for example, to compare the price of a Minimum Expenditure Basket this month to that in the previous month, and to assign progressively fewer points if the price has fluctuated by more than 5%, more than 10%, or more than 15%. This, however, should be implemented carefully. For instance, it may seem to make sense to assign a positive score when prices decrease (become more affordable) and a negative score when prices increase (become less affordable), but this is not always advisable; it risks rewarding sudden price crashes that may harm producers’ livelihoods and penalising markets that are in the process of returning to normal price levels. Consider carefully how indicators like this are likely to affect the MFS in a number of different scenarios.

In most cases, the thresholds, categories, and scoring mechanisms for each indicator can only be finalised after a country-level pilot has been completed, as an objective evaluation of how well these elements work will depend on data from indicators that may not have previously been collected. It is usually wise to plan for a 2-month pilot, during which time all MFS indicators will be consistently collected and compared to qualitative observations and the MFS construction will be fine-tuned, before finalising your MFS construction and beginning to publish analyses.

#### Weighting the dimensions

Although all five dimensions of market functionality are relevant to markets worldwide, they have varying weights within the Market Functionality Score to reflect their assumed relative importance and interdependence. For example, because a market’s most basic function is to make goods available to local populations, the core availability of these goods is among the most heavily weighted dimensions of the MFS. On the other hand, the affordability of goods is often tightly linked to their availability, as shortages and unstable supplies are one of the major drivers of price rises in most contexts; as a result, affordability receives a lower weight to avoid having a single underlying dynamic (absence of core goods) dominate the MFS via multiple dimensions.

|  |  |
| --- | --- |
| MFS dimension weights | |
| Accessibility | 25 / 100 |
| Availability | 30 / 100 |
| Affordability | 15 / 100 |
| Resilience | 20 / 100 |
| Infrastructure | 10 / 100 |

The table above shows the weights that have been assigned to each dimension of the MFS, which represent the maximum score that each of these dimensions can receive. These weights are standard across countries to enable cross-crisis comparison of MFS values.

Overall, the MFS is calculated out of a total maximum score of 100, which would reflect a market with no concerns whatsoever about accessibility, availability, affordability, resilience, or infrastructure: a scenario REACH is unlikely to encounter in most of the countries where we work.

#### Categorising outcomes (optional)

Once all indicators have been analysed and scored based on the methods above, and once dimension weights have been applied to calculate a full MFS for each assessed market, an optional final step is to categorise assessed markets by score. This is **not a required step** in the process, but can be useful if you or your readers find it clearer not to report the raw, abstract Market Functionality Scores, but rather to use words to describe these markets’ relative levels of functionality.

Based on its MFS, each market can be placed into a category for “full functionality”, “reduced functionality”, “limited functionality”, or “poor functionality”, representing the degree to which it is able to fulfil basic functions of a market as defined by the MFS’s five dimensions. These classifications should be built around *absolute thresholds*, not *relative comparisons* among a country’s markets; that said, these thresholds should be shaped by local conditions to ensure that they provide aid actors with meaningful guidance.

A suggested classification framework is below. However, in order to evaluate whether it is fit for purpose in a given humanitarian context, this framework, like any framework, will need to be tested with real data and adjusted based on an on-the-ground understanding of the area’s most and least functional markets (see “Piloting and fine-tuning the Market Functionality Score”).

* **Full functionality:** (1) total MFS is > 80% of the maximum total score *and* (2) no dimension falls beneath 50% of its maximum score
* **Limited functionality:** (1) total MFS is > 70% of the maximum total score *or* (2) no more than one dimension falls beneath 50% of its maximum score
* **Poor functionality:** (1) total MFS is < 50% of the maximum total score *or* (2) at least two dimensions fall beneath 50% of their maximum scores
* **Severe issues:** (1) total MFS is < 25% of the maximum total score *or* (2) at least three dimensions fall beneath 50% of their maximum scores
* **Insufficient data:** one or more entire dimensions could not be collected in this market, making it impossible to calculate a full MFS

Certain REACH missions have also integrated a *warning component* into their MFS to indicate that a market is prone to facing severe functionality challenges in the near future. For example, in a given market, if the median number of days of remaining stock for key cereals drops below a certain level, or if vendors report difficulty restocking any staple food, the warning component may be triggered and an exclamation point (**!**) may be placed beside this market on the market functionality map. This is not a core element of the MFS, but it may be valuable to integrate in some contexts.

#### Piloting and fine-tuning the Market Functionality Score

The process of constructing an MFS is heavily based on assumptions: about the relative importance of each dimension to market functionality, about the relative importance of each indicator within its dimension, and about the thresholds that should result in a market being declared fully functional, poorly functioning, etc. within its country context. These assumptions should not simply be accepted, but must be tested and fine-tuned based on real data before the MFS can be considered complete.

An MFS being implemented as part of a **recurring assessment**, such as a JMMI, should be tested on two to three rounds of real data, either from past rounds (if data is available for every MFS indicator) or from future rounds into which all proposed indicators have been incorporated. The country-level MFS analysis framework should be applied to each round’s dataset separately to determine whether its market categorisations seem accurate based on field teams’ understanding of on-the-ground conditions; results from each round should be compared to each other to evaluate whether the framework seems responsive enough to capture REACH’s anecdotal knowledge of changes in local market functionality over time. Changes should be made to improve the framework at each step as needed.

An MFS being implemented as part of a **one-time assessment**, such as a supply chain assessment or a JRAM, cannot be iteratively changed in the same way. Still, teams should try to test their assumptions on the data they have. Consider splitting the dataset into halves by market, with a random selection of assessed markets falling into each half; you can then fine-tune the MFS based on how it performs on the first half of the dataset, then test it on the untouched second half of the dataset to ensure that your assumptions hold true.

Some potential issues that it may be possible to correct by fine-tuning the weighting, thresholds, and/or categorisation within the country-level MFS analysis framework:

* *A lack of discernible patterns.* Do markets with full, limited, and poor functionality seem to be randomly scattered across the map? Does one city appear to have less in common with a city across the river than with another city 400 kilometres away? If this seems to be the case, first consider whether there are alternative geographic, economic, or crisis-related dynamics that might explain the variation. If not, it may be possible that the indicators with the greatest effect on local market functionality are not being prioritised in the weighting, obscuring patterns that could otherwise be discerned.
* *Patterns that do not match REACH’s understanding of on-the-ground dynamics.* Are remote markets with difficult transport links receiving a higher MFS than markets in the capital city? Do markets in heavily conflict-affected cities seem not to exhibit any major issues? Do markets within a zone hard-hit by a natural disaster appear to be functioning better than markets outside it? If you observe hard-to-explain dynamics such as these, investigate which indicators seem to be driving the results, and consider whether they may be drowning out the results of other indicators and whether less weight needs to be placed on them.
* *Nearly all markets falling into the same functionality category.* Does this match what you expect based on your team’s knowledge of local markets? Is every market indeed highly functional? Is every market being affected in the same way by a countrywide trend, with little regional variation? Or does your team perceive differences in the levels of functionality among different markets that are not being captured in the MFS? If the last is true, consider using smaller categories in your classification framework to bring out finer variations in functionality, and/or consider whether to add new indicators to your MFS that would better highlight the variation you perceive.

Throughout this process, remember that there is a fine line between adjusting a model to produce more accurate, robust results and overfitting the model to produce only the results you expect and no others. Use a light touch when making adjustments to the scoring or classification thresholds, and try always to tie each change to logic rather than to a simple desire to make the model match your expectations.

### For more information

Feel free to send a message to [cashandmarkets@impact-initiatives.org](mailto:cashandmarkets@impact-initiatives.org) for further questions and perspectives on the resources above. As always, if you have any suggestions for further resources to add, feel free to send them our way.