Practical Considerations for Monitoring and Responding to Bottlenecks in Real Time: A Resource for MoRES Application

A COMPANION HANDBOOK TO
From “What Happened?” to “What’s Happening?”
Equity in action through real time monitoring

February 2014
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<td>Community-based Monitoring System (in the Philippines)</td>
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<td>CIB</td>
<td>Community Information Board (in Nigeria)</td>
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<td>CWIQ</td>
<td>Core Welfare Indicator Questionnaire</td>
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<td>DHS</td>
<td>Demographic and Health Survey</td>
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<td>DSEI</td>
<td>Special Indigenous Health District (in Brazil)</td>
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<td>EMIS</td>
<td>Education Management Information System</td>
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<td>GAM</td>
<td>Global Acute Malnutrition</td>
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<td>GIS</td>
<td>Geographical Information System</td>
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<td>GPS</td>
<td>Global Positioning System</td>
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<td>HDSS</td>
<td>Health and Demographic Surveillance Systems</td>
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<td>HMIS</td>
<td>Health Management Information System</td>
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<td>ICT</td>
<td>Information and Communications Technologies</td>
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<td>L3M</td>
<td>Level 3 Monitoring</td>
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<td>LQAS</td>
<td>Lot Quality Assurance Sampling</td>
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<td>MDS</td>
<td>Ministry of Social Development and the Fight against Hunger (in Brazil)</td>
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<td>MICS</td>
<td>Multiple Indicator Cluster Surveys</td>
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<td>MINFSSS</td>
<td>Malawi’s Integrated Nutrition and Food Security Surveillance System</td>
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<td>MoRES</td>
<td>Monitoring Results for Equity System</td>
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<td>PDA</td>
<td>Palm-held Digital Assistants</td>
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<td>RA</td>
<td>Rapid Assessments</td>
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<td>RIM</td>
<td>Rapid Impact Monitoring</td>
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<td>RTM</td>
<td>Real Time Monitoring</td>
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<td>SAM</td>
<td>Severe Acute Malnutrition</td>
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<td>SASI</td>
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<td>T4D</td>
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Executive Summary

This handbook summarizes the main findings and takeaways from a review of real time monitoring (RTM) methods and practices as well as an assessment of selected initiatives supported by UNICEF. It is intended to offer practical guidance: to help identify the most appropriate RTM method for a given purpose and in a given context, and to discuss an initial set of proposed guiding principles when considering undertaking a RTM initiative. The main audience is practitioners of RTM, including UNICEF staff involved in applying the Monitoring Results for Equity System (MoRES) approach, as well as partners who are providing support to governments to build or strengthen RTM as part of national data collection and reporting systems. While this handbook presents detailed lessons on the “how to” of implementing RTM, a companion report, From “What Happened?” to “What’s Happening?” Equity in action through real time monitoring, lays out the “investment case” for RTM.

UNICEF undertook a learning agenda under the name “RTM: Equity in Action” during 2011-12 to inform ongoing investments in RTM. This consisted of a multi-country assessment of and consultation on select RTM initiatives that collect higher frequency data on (i) changes in livelihoods security among vulnerable populations and (ii) instability in access to services. While the initiatives were selected from diverse programme areas and themes, they shared a specific focus on strengthening information systems in order to enable timely policy and service delivery responses and improve performance.

The main takeaway from the learning is that, if implemented properly, RTM is an effective tool to advance social inclusion, equity and child rights. What drives the value added of RTM is linking RTM data to speedy use and responsive action. As such, it is important to take a systemic approach to RTM, one that goes beyond data collection to give sufficient attention to each of the distinct components—data analysis, reporting (and information flow) and, most importantly, response capability—and treats them in an integrated manner.

The learning yielded further insights on performance issues that may arise when implementing RTM. Overall, this handbook proposes eight guiding principles:

- **Principle 1: Get the basics right – Identify the most vulnerable**, through guidance on identification protocols and mainstreaming them within existing systems, and adapting innovations to capture those quickly becoming vulnerable in pre-emergency situations;

- **Principle 2: Fit for purpose, applied context-specifically and dynamically**, to maximize the potential of RTM for equity gains without compromising data quality;

- **Principle 3: Ensure inclusivity**, through inclusive design and data collection arrangements, engaging local people and communities, and selecting equity-enhancing indicators;
• Principle 4: *Deepen and tailor data analysis and reporting*, to maximize user relevance and sharpen the focus of the information content on disparities and the most vulnerable;

• Principle 5: *Balance data sharing with cultural-sensitivity and confidentiality*, to ensure data quality and facilitate improved access by targeted groups to all available services;

• Principle 6: *Build response capability*, through formulating an impact strategy, engaging stakeholders, establishing accountability mechanisms and ensuring inter-operability;

• Principle 7: *Increase sustainability*, by strengthening local capacity and embracing a collaborative and coordinated process within a RTM initiative as well as across others; and

• Principle 8: *Demand appropriate technology*, through cost and benefit analysis, proactive management of risks (particularly exclusion risk) associated with the use of ICTs, multi-level design and community awareness, to harness the potential of innovation.

In addition to proposing a series of principles to maximize the equity potential of RTM initiatives, the handbook details each of the main methodological approaches for implementing RTM, which include: (i) routine data systems; (ii) sentinel site surveillance; (iii) rapid surveys and assessments; (iv) community-based monitoring; and (v) citizen-based monitoring. The description contains a snapshot of the kinds of indicators selected, the data collection arrangements and any results in terms of using the information generated. Both the overview of the methods and guiding principles are illustrated with recent examples from UNICEF case studies and the existing literature where there is sufficient information to allow for learning. The handbook concludes by presenting several tools to help practitioners get started.

Looking forward, it is important to recognize that RTM is not new and has been used to good effect in a range of sectors. As the digital divide narrows across developing countries, the momentum of RTM innovations will likely accelerate. The question for UNICEF is how to best support UNICEF and its partners’ capacity and improve coordination in designing and implementing RTM activities, with a view to enhancing the equity orientation of such activities.

Agile development of “know how” is an important aspect of this support. Already, since the RTM global study was conducted, several RTM initiatives included in the case studies have enhanced their methodology, improved their coordination and stakeholder engagements, and supported partner response capacity. To this end, this handbook should be seen as forming an early part of the ongoing learning to support the capacity development of UNICEF and its partners in applying the MoRES approach, as well as in building equity-sensitive and sustainable RTM national systems.
SECTION I. Background and Objectives

To help guide ongoing investments in real time monitoring (RTM), UNICEF undertook a learning agenda under the name “RTM: Equity in Action” during 2011-12. This looked at RTM initiatives that collect higher frequency data on (i) changes in livelihoods security among vulnerable populations and (ii) instability in access to services. While the initiatives were selected from diverse programme areas and themes, they shared a specific focus on strengthening information systems in order to enable timely policy and service delivery responses and improve performance.

RTM: Equity in Action consisted of three key learning components:

1. A literature review was carried out on over 100 documented RTM initiatives for which some form of evaluation is publicly available to allow for sufficient learning. A living knowledge portal was created to facilitate the documentation of these and other ongoing and future RTM initiatives (see: www.real-time-monitoring.org).

2. Seven in-depth case studies in UNICEF’s selected core programme areas and cross-cutting themes were developed through field research, using qualitative methods including common questionnaires, focus group discussions and interactive stakeholder workshops, the latter to validate preliminary conclusions (Table 1).

3. Internal and external consultations, including a global expert workshop convened in June 2012, which shaped the framing, content and focus of this handbook.

Table 1. Case Studies: Programme Areas and Themes

<table>
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<tr>
<th></th>
<th>Service Provision</th>
<th>Programme Effectiveness</th>
<th>Policy Influence</th>
<th>Advocacy</th>
<th>System Integration</th>
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<tr>
<td>Child protection</td>
<td>Senegal</td>
<td>Senegal</td>
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<td>Education</td>
<td>Bangladesh</td>
<td>Bangladesh</td>
<td>Bangladesh</td>
<td>Bangladesh</td>
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<tr>
<td>Health</td>
<td>Brazil, Uganda (mTrac)</td>
<td>Brazil, Uganda (mTrac)</td>
<td>Brazil, Uganda (mTrac)</td>
<td>Brazil, Uganda (mTrac)</td>
<td>Brazil, Uganda (mTrac)</td>
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<tr>
<td>Vulnerable minorities</td>
<td>Brazil</td>
<td>Brazil</td>
<td>Brazil, Romania, Vietnam</td>
<td>Brazil, Romania, Vietnam</td>
<td>Brazil</td>
</tr>
<tr>
<td>Response to macro, livelihood shocks</td>
<td>Yemen</td>
<td>Romania, Vietnam, Yemen</td>
<td>Romania, Vietnam, Yemen</td>
<td>Romania, Vietnam, Yemen</td>
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Drawing on the lessons learned, innovations and emerging good practices through RTM: Equity in Action, this handbook assesses the different RTM approaches and offers a set of guiding principles that should be considered to maximize the potential of RTM to generate actionable information and achieve equitable results, especially for the most vulnerable children. The findings are illustrated by concrete examples of RTM initiatives from around the globe, both those that are UNICEF supported or managed as well as those that have not yet been systematically documented.

This handbook is intended to offer practical guidance: to help identify the most appropriate RTM method for a given purpose and in a given context, and to discuss an initial set of proposed guiding principles when considering undertaking a RTM initiative. The main audience is practitioners of RTM, including UNICEF staff involved in applying the Monitoring Results for Equity System (MoRES) approach, as well as partners who are considering or already providing support to governments to build or strengthen RTM as part of national data collection and reporting systems.

This handbook accompanies an advocacy report, From “What Happened?” to “What’s Happening?” Equity in action through real time monitoring, which makes the investment case for RTM. Readers who are interested in conceptual issues about RTM, its potential to deliver equitable results or its relevance to the MoRES framework are encouraged to review the document, which is available at: www.real-time-monitoring.org.

The remainder of this handbook is organized as follows:

- **In Section II, Experiences Using RTM**, the relevant aspects of RTM practices are grouped into commonly used methods and discussed in depth, which includes a review of their respective strengths and weaknesses along with possible indicators and their uses.

- **In Section III, Putting RTM to Work for Equity**, the main lessons learned are presented around the core components of RTM as well as cross-cutting themes, which are then used to propose a set of guiding principles to inform on the design of ongoing or future initiatives.

- The handbook concludes with Section IV, Tools to Get Started, which includes a matrix to help practitioners in selecting the most appropriate method (or methods) for a given purpose along with a checklist of issues that should be considered when designing RTM.
SECTION II. Experiences Using RTM

This section describes the main methodological approaches for implementing RTM, which include: (i) routine data systems; (ii) sentinel site surveillance; (iii) rapid surveys and assessments; (iv) community-based monitoring; and (v) citizen-based monitoring. Each method is illustrated by recent examples from UNICEF case studies and the existing literature where there is sufficient information to allow for learning (Tool 1 in Section IV also provides an easy reference summary). The description contains a snapshot of the kinds of indicators selected, the data collection arrangements and any results (or lack thereof) in terms of using the information generated.

2.1 Routine data systems

Description

Routine data systems are part of information management systems and subsystems that continuously collect information at different time periods (daily, weekly, monthly) and across different levels [individual (student, patient), administrative unit (school, health center), administrative level (district, municipality)]. Routine data systems most commonly operate in education and health settings, such as Education Management Information Systems (EMIS) and Health Management Information Systems (HMIS), but they are increasingly being utilized in other areas, such as water supply and child protection. They differ from non-routine data systems, which collect information at specified time periods and are commonly derived from ad hoc studies or surveys, and should be a primary source of timely and actionable information.

Routine data systems increasingly involve the adaption of mobile technology to facilitate the breadth, timeliness and analysis of information generated. In Kenya, for instance, head teachers sent a standard format message each week from every school to report routine statistics (Traxler and Dearden 2005). In Uganda, short message service (SMS) is used to transfer the government’s weekly facility reports for disease surveillance, malaria case management, drug stocks and logistics information (RTM Case Study: Uganda, Cummins and Huddleston 2012). And in Rwanda, a RapidSMS system enables community health workers to identify and register pregnant women in their village as well as ensure continuity of care both before and after birth (UNICEF 2011).

Strengths and weaknesses

One of the main benefits of routine data systems is that they can be relatively inexpensive, since data generation may be viewed as a byproduct of the routine administration or service delivery function. Routine data systems are also conducive to generating time-series data that enables more reliable, robust trend analysis than intermittent cross-sectional surveys. Yet
another benefit is that routine data systems can permit a degree of disaggregation that allows users to determine not just that there are problems with service delivery in a given sector, but precisely where provision is failing and which sections of the population (women, the elderly, particular ethnic groups, etc.) are likely to be suffering the greatest impact.

The main drawback of routine systems is the limited content and coverage of data produced, which means that variables of interest may not be collected. Routine data are also not representative, except in the case of a national census, which then removes the real time element. Other limitations include the often low quality of data produced, the lack of compatibility between different routine sources and the potential for information to be influenced or manipulated by political aims.

In many countries routine data scarcity is not a problem. The major constraints on its effective use relate to the poor quality and coverage of information. Although the benefits of having strong routine data systems could be considerable, a key challenge is often deeply entrenched institutional barriers, including a lack of accountability and transparency. When such challenges are viewed as too difficult to overcome, funding a sample survey or establishing a stand-alone monitoring project may prove more attractive and continues to be the standard operating procedure for data collection in many countries.

Types of indicators and their uses

Data generated from routine data systems are sector based and most commonly intended to improve service delivery.

In health, routine facility-based indicators could include percent of health facilities with adequate supply of drugs/medicines, percent of patients appropriately diagnosed for different sicknesses and treated, ratio of health workers to patients, number of cases of disease (e.g. diarrhea, respiratory infections, malaria), number of cases of diseases that have the potential to cause epidemics (e.g. measles, cholera, meningitis, hemorrhagic fevers) and average cost per treatment. For instance, supply information can be used to identify possible drug stock outs and to reallocate supplies from nearby facilities, while information on disease prevalence can inform early responses and help to avert health pandemics or maternal/infant death (RTM Case Study: Uganda, Cummins and Huddleston 2012). Routine data systems can also generate routine vulnerability indicators on specific populations (e.g. indigenous, pregnant or nursing women), such as growth monitoring, birth/death recording and epidemiological surveillance, which can also be used to improve healthcare interventions (Boxes 1 and 2).

In education, indicators could include pupil-teacher ratios or classroom sizes, teacher absenteeism, age and gender-specific school attendance ratios, percent of vulnerable children enrolled (e.g. ethnic minorities, girls), completion and repetition rates, learning performance (e.g. test scores), and access to didactic materials or water and sanitation facilities. This information can be used to generate school profiles that promote effective decision-making at local levels; the data can also be aggregated to facilitate strategic planning and resource allocation at regional and national levels (Box 3). In more innovative approaches, indicators on
teaching performance and the degree to which children with special needs receive appropriate attention are used to improve learning outcomes at the school level (RTM Case Study: Bangladesh, Akhter et al. 2012).

In water supply, indicators from a routine data system could include the number of functioning wells, the volume of water extracted from a source over a particular time period, or information on the delivery of piped water (e.g. arrival time, quality). This information could be disaggregated by areas (e.g. urban/rural, highland/lowland, district/municipality), vulnerable groups (e.g. those living in urban slums or rural isolated areas) and/or local service delivery units (e.g. schools and health clinics). These indicators could be used to improve the delivery of safe drinking water to vulnerable populations by identifying areas/groups/local units that are unreached or facing quality issues due to a lack of hand-pumps, irregular testing, poor maintenance, etc. (Box 4).

In child protection, case management systems that have a RTM element can generate routine indicators, such as on child violence trends (e.g. types, number of child victims, household profiles, geographic concentration), on protective environment (e.g. number of children living on the street or with a disability, number and quality of available social workers and services, degree/level of cross-sectoral coordination of services), on children residing in institutions (e.g. number and profile) or on economic exploitation (e.g. number child labourers, conditions/types of exploitation, number of child survivors of trafficking taken into care). Such indicators could be used to improve the delivery of child protection services, such as by (i) strengthening the coordination and management of cross-sectoral child protection interventions, (ii) better understanding the depth and the scope of specific trends in terms of child vulnerability, mapping and tracking abuses, (iii) informing the design of targeted information and awareness campaigns and specific interventions in high risk areas, and (iv) monitoring programmatic interventions and well-being indicators of the most vulnerable children (Box 5).

**Box 1. Rwanda: Using Mobile Technology to Save Maternal and Newborn Lives**

In Rwanda, maternal and child deaths are mainly due to complications during pregnancy and childbirth that are not adequately managed in a timely manner. Underlying factors include limited access to quality care (e.g. geographic, infrastructure, financial), limited awareness of risks during pregnancy and cultural practices, such as home delivery. Consequently, numerous maternal and child deaths occur each year in hard-to-reach communities. However, overcoming three distinct delays can help prevent the majority of these deaths: (i) recognizing that there is a problem in pregnancy; (ii) reaching a health facility; and (iii) receiving care. To address the first two delays, UNICEF Rwanda developed an alert-based system using mobile telephone to track pregnant women and their newborn children.

The RapidSMS system enables community health workers in Rwanda to identify and register pregnant women in their village via free SMS text messages. All events related to antenatal care delivery are recorded in a central server via SMS. Any danger signs observed among newborns or pregnant or postpartum women are reported by community health workers and automatically redirected to the nearest healthcare center or an ambulance for treatment. Before this system, district and central health officials did not have a clear picture of what happened in remote communities. Pregnant women in distress had to choose between walking long distances to seek care or to stay home without help. RapidSMS now makes it possible to connect with remote communities and carry out interventions without delays.
Between April 2010 and August 2011 more than 14,000 pregnant women were registered in the RapidSMS database, which represented about 70% of the expected number. Overall, more than 50% were followed up until delivery, with the number of pregnant women who attended four antenatal care visits doubling over the time period. Moreover, deliveries in health facilities increased from 68% to 90% while home deliveries decreased from 26% to 7%. In short, the real time alert and reporting system provides health officials with important planning information (e.g. number of expected deliveries in the next month, number of high risk pregnancies) and has improved access to health services and outcomes among children and women in the most disadvantaged areas.

Figure 1. Overview of RapidSMS to Reduce Maternal and Newborn Deaths in Rwanda


Box 2. Brazil’s Indigenous Health and Vulnerability Monitoring Systems

A notable example of efforts to strengthen HMISs for the most vulnerable is Brazil’s Indigenous Health and Vulnerability Monitoring Systems. Under the national health system, an Indigenous Healthcare Subsystem was established and organized into 34 Special Indigenous Health Districts. The Xavante Special Indigenous Health District was selected as a field study in RTM: Equity in Action, which included local assessment of the Indigenous Healthcare Information System as well as the Food and Nutrition Monitoring System for Indigenous Peoples. These group together service delivery structures and referral networks around contiguous or socio-culturally related indigenous territories, each of which has a number of Multidisciplinary Indigenous Health Teams that generally consist of village-based indigenous community health workers who are supported by a nurse, dentist and nursing auxiliary. While frequent updating is a key element in the usefulness of RTM data, this is even more important for indigenous peoples who tend to be very mobile and are further characterized by high birth, morbidity and mortality rates.

Source: RTM Case Study: Brazil (Shankland et al. 2012)
Good practice

Box 3. Rwanda's ICT-based EMIS to Improve Education Planning

A public-private partnership framework developed between the Government of Rwanda, Agile Learning and Microsoft has been an interesting example of the roll-out of EMIS to schools in order to generate real time national educational data. The EMIS platform in this instance digitizes information that has traditionally been completed by schools by allowing teachers and administrators to input information directly into a database. Schools were provided with computers/laptops, and school principals were required to collect data routinely, including the number of students attending each school, grades, teachers, and resources like books and infrastructure. The EMIS, in turn, analyzes the data to generate school profiles that promote effective decision-making at local levels; the data can also be aggregated to facilitate planning at district and national levels. The programme was scaled nationally in 2011, which included the provision of computers, internet connectivity, EMIS databases and training to the country's 5,000 schools. This approach and software have been successfully piloted elsewhere in Africa, including in Botswana, Kenya, Mauritius, Swaziland and Uganda.

Sources: Microsoft (2009) and Agile Learning (http://www.agilelearning.com/)

Innovation

Box 4. India's Nextdrop

In 2010, initial trials of the NextDrop system began in the city of Hubli in the Indian state of Karnataka. Those responsible for opening the supply valves call an interactive voice response system, which then sends out a SMS message to consumers indicating when water should reach them, usually with an advance warning of 30-60 minutes. Water engineers managing the supply facility are provided with a real time map of the city showing which valves are open. They are also directly notified of any departures from the designated rotation schedule. The interactive voice system then contacts a random sample of households to determine if they have received water, after which the engineers are alerted by any discrepancies identified by the data.


Innovation

Box 5. Senegal's Database System for Case Management for Child Protection

Senegal’s experience offers an example of a routine data system that improves case management for child protection, from early detection, following up on reintegration, to identifying service delivery bottlenecks. UNICEF Senegal initiated the Database System for Case Management for Child Protection to support children who are survivors of abuse and exploitation, or who are living in high-risk situations. The higher level objective is to reintegrate child survivors with their families and communities, and to provide them with a protective environment in which to grow and develop. The database system supports this by improving partner coordination and increasing the efficiency and effectiveness of case management processes, including monitoring. Operationally, organizations and services working with vulnerable children use mobile phones and palm-held digital assistants (PDAs) to upload information about specific cases into an online database.

Among the list of indicators generated by the database includes the number of children: (i) placed in shelter (emergency shelter/day care); (ii) registered or reported by the state prosecutor, by the police or by the juvenile court; (iii) referred to dispensaries, health centers, maternity centers or the civil registration; (iv) returned to or reintegrated in a family or into a school or training center; (v) who are survivors of violence and received free health care services; and (vi) who have received psycho-social and socio-cultural support or who are medically monitored.

The platform is currently used by local partners who are in direct contact with victimized children, although the intention is to achieve integration and users at more central and aggregate levels over time. The online database was developed to support an existing case management system and launched in three prefectures in the country with the expectation that it will be scaled up nationally.
This database system in Senegal is still at an early phase and faces a number of challenges in terms of data sharing and aggregation, as well as geographic coverage. While this may preclude the ability to monitor child protection-related indicators more broadly and perform statistical analysis at present, such constraints are expected to be overcome as the system is eventually institutionalized in a ministry and scaled up. The case management database can be used to complement other sources of data on vulnerable children, such as from Multiple Indicator Cluster Surveys (MICS) and other surveys, by allowing child protection issues that are identified on an aggregate level to be compared against the actual number of treated cases of victimized children. The richness of data that is purported to be made available in the subsequent phase of the initiative in Senegal has the potential of allowing for real time tracking of a variety of indicators on vulnerable children, at least in the geographic areas of the project. If such a database is national in scope or at least nationally representative, case information, including type of abuse, services rendered and location, could further be used for mapping and tracking purposes at an aggregate level, as well as to inform UNICEF programme design and implementation and government policy more broadly, without comprising issues of confidentiality.

Source: RTM Case Study: Senegal (Edström et al. 2012)

2.2 Sentinel site surveillance systems

Description

The term “sentinel site surveillance” is generally used to denote the monitoring of selected service delivery units or communities. The main characteristics include a limited case ascertainment area and a surveillance network that is comprised of a selection of units (e.g. health clinics, hospitals, schools, communities) out of all possible units in the surveillance area. Where sites are related to a specific intervention, monitoring may be wide ranging, tracking changes over time in context, input, process, output and outcome indicators to assess the extent to which an intervention is achieving the expected effects. In other cases the range of monitoring variables may be much more limited. For example, the primary function of a demographic sentinel site surveillance system is to record vital events in order to determine trends in mortality and fertility. Other systems, such as those relating to notifiable diseases, medical conditions or malnutrition, may be linked to specific response mechanisms involving action to treat individuals or groups of individuals who are identified as at-risk.

An important aspect of this approach is that the selection of communities will reflect the objectives of the system. In some cases the aim may be to choose sites that are judged to be representative of larger populations and which can be used to generate regional or even national estimates. In other cases the focus may be on communities that are particularly vulnerable, for example to food insecurity or specific diseases. One key issue is that over time the focus on the selected sites will tend to attract additional resources, possibly from external agencies seeking to undertake research or pilot initiatives, impacting on the characteristics that influenced their original selection.

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1 The use of sentinel sites to generate such estimates can be highly contentious, perhaps most obviously in the case of estimating HIV/AIDS prevalence from ante-natal clinic data (Brookmeyer 2010).
Overall, there are four general types of systems. The first is *nutrition sentinel site surveillance systems*. Here, the type and frequency of data collection activities varies substantially depending on the primary objective. In a context of relative stability, the aim may be to provide guidance on general policy concerns, for example strategic decisions relating to the agricultural sector or poverty reduction. In this case data collection may involve a combination of routine data, such as clinic or community-based growth monitoring, and occasional large-scale surveys that allow for detailed econometric analysis. At times of serious food shortages or in emergency situations where immediate action is required, the emphasis will be on gathering data that can provide rapid and, where possible, frequently updated information that can inform relief efforts. In many cases the appropriate approach will be to design systems that have an inbuilt capacity for adaption to deal with emergency situations should the need arise.

The second is *Health and Demographic Surveillance Systems (HDSS)*, which set out to collect epidemiological data (risks, exposures and outcomes) within a defined population on a longitudinal basis. Since the 1960s, many developing countries have established HDSSs as a response to the absence of effective health and population data. One of the most prominent examples of this approach is the INDEPTH Network, which includes 36 members who oversee 43 HDSS sites in 21 countries. The defining characteristics of an INDEPTH field site include a geographically defined population under continuous demographic monitoring, with timely production of data on all births, deaths and migrations; the monitoring system then provides a platform for assessing a wide range of health-system, social and economic interventions, all closely associated with research activities. Most HDSS sites were originally established to undertake longitudinal demographic surveillance aimed at providing reliable fertility and mortality indicators that could be used in population forecasts (Kinyanjui and Timæus 2010).

The third is *facility-based sentinel site surveillance systems*. Partly in response to the increase of funding available to agencies combating diseases, such as HIV/AIDS, malaria and tuberculosis, there has been a recent increase in the use of these systems, typically combined with interventions to provide improved case management. Facility-based sentinel site surveillance can also take place in emergency contexts, such as to monitor the performance of therapeutic feeding centers.

*Early warning sentinel surveillance* is the last typology of this RTM approach. UNICEF country offices and partners in the East Asia and Pacific region launched a series of sentinel surveillance initiatives to provide information on how the most vulnerable families and communities were coping with the impacts of the 3F crisis, in order to trigger policy actions and strengthen data coordination and systems. The underlying premise of the various initiatives was to collect light-weight but important indicators with respect to health, education and child protection in various sentinel sites to be used as proxies for wider issues of educational attainment, health status of children and government commitment to social sector expenditures. As a result, they were not intended to produce nationally representative data, but rather to provide information about the ways in which the crisis was affecting vulnerable groups. In addition to this rather

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2 For more information, see [http://www.indepth-network.org/](http://www.indepth-network.org/).
reactive objective of RTM, these sentinel surveillance initiatives also aimed to identify early warning signals for upcoming crises to induce pro-active responses.

**Strengths and weaknesses**

One advantage of the sentinel site surveillance approach is its relatively low cost and administrative burden compared to representative surveys or community-based monitoring approaches. While more expensive than routine data systems, sentinel sites have the design flexibility to extract specific types of information from targeted populations and geographic areas. In addition to being useful for documenting trends and the routine monitoring of indicators of vulnerability, including at the individual level, sentinel site surveillance can also allow for detailed time-series analysis to inform on the longer term impacts of economic and social shocks and stresses.

A potential weakness, on the other hand, is that sites are often selected for study at least partly for reasons that substantially limit the generalizability of findings. These reasons may include factors like donor preferences, economic constraints, geographic location, infrastructure, and the degree of cooperation and commitment from local authorities and the general population. Thus there is generally a high potential for sampling bias, which implies a need to understand that findings cannot be generalized to populations outside the selected sites. This is not to say that sentinel sites are never representative; in fact, representativeness can be achieved by increasing the number of sites under surveillance. However, additional sites require additional financial and human resources, which often contradict the cost-effective impetus for selecting this particular RTM approach, as well as the common objective of getting data from specific areas or groups. In short, it is important that any claim that sites are “representative” of broader populations be rigorously examined.

It is also worth mentioning that in a rapidly changing situation, such as civil conflict or a drought, a site may change characteristics (e.g. population, economy) thus changing its eligibility according to sampling criteria and its representation of a given region or type of population. Access to a site may also be lost. Data, particularly for time series monitoring, must then be interpreted with great care.

**Types of indicators and their uses**

The types of indicators and their uses are context specific and vary according to the different surveillance systems, as discussed below.

Nutrition-based sentinel site systems are most commonly employed in areas that are vulnerable to food shortages or in emergency situations with the objective to track nutrition and food security trends in order to provide an early warning of deterioration or inform relief efforts. Here, indicators could include local prices of different food products, food consumption (including dietary diversity and caloric intake), water consumption, and the prevalence of global acute malnutrition (GAM), severe acute malnutrition (SAM) or micronutrient deficiencies to which the population could be at risk. Indicators could also be qualitative, such as the opinions
of the community and other stakeholders on the causes of malnutrition and/or vulnerability (Box 6).

In HDSSs, the objective is to routinely track health and population trends in areas where such information would not otherwise be available. Here, indicators could include birth and death rates, mortality causes and the number of immigrants/emigrants.

Facility-based sentinel site surveillance systems can also produce trend indicators, but are generally more concerned with improving programme performance and typically combined with interventions to improve case management. Here indicators could include the length of stay for in-patient visits, the availability of different medical supplies, the average cost per treatment or the number of suspected cases of different diseases (e.g. of diarrhea, pneumonia, malaria) that are tested and appropriately treated and monitored (Box 7). In other settings, like feeding centers, indicators could include admission rates to inform on the evolving nutrition situation or seasonal trends, as well as enrollment rates among targeted populations and coverage of severe acute malnutrition (SAM) or pediatric treatment.

Lastly, in early warning sentinel surveillance systems the objective is to understand the impacts of different shocks on vulnerable populations in order to inform timely policy responses. The types of indicators vary tremendously, from health (e.g. number of outpatient or ante-natal care visits, user fees, dietary diversity) and education (e.g. student and teacher attendance rates, availability of school meals, affordability of school uniforms) to child protection (e.g. number of street children or children in orphanages, number of female migrants from rural areas) to labour market trends and the cost of essential goods (e.g. detergent, gasoline, kerosene, soap). The important point is that indicators from early warning sentinel sites are used to identify and track vulnerability buildup and harmful coping mechanisms, whether it be rising school dropout rates, increasing jobless rates or informal working arrangements, understaffing in health centers, decreasing levels of nutrition intake, etc. Ultimately, these indicators are used as proxies for wider issues, like educational attainment, health status of children and government commitment to social sector expenditures, which can be used to build the evidence case for appropriate policy responses (Box 8).

**Box 6. Nutrition and Food Security Surveillance in Malawi**

A good example of a nutrition surveillance system and the use of ICTs to strengthen the utility of RTM is Malawi’s Integrated Nutrition and Food Security Surveillance System (MINFSSS). Functioning since 2003, the system monitors nutrition trends among a potential 9,100 children from five growth monitoring clinics in 26 districts across the country. The MINFSSS generates monthly data, with the objective of informing timely responses to changing trends in malnutrition and household food insecurity. An evaluation commissioned by FAO found that this approach to monitoring change was advisable, but suggested increasing the number of sentinel sites for a more representative sample at the district level.

More recently, to explore the potential of ICTs for faster and more reliable data collection and reporting, UNICEF piloted RapidSMS software to strengthen the MINFSSS. This involved training health workers in growth monitoring clinics in three districts to submit nutrition data via SMS text messages to a central computer. The computer, in turn, checked the consistency of data entered by reference to previous readings, identified children at risk and provided instant feedback to health workers, along with instructions as to how to proceed when further action was indicated. The
database was made available for dissemination and analysis via an internet site that could be accessed by the government and other stakeholders. Initial assessment indicated that delays in data transmission were substantially reduced, data quality improved because of the automatic checks, parents were less inclined to drop-out of the growth monitoring process because of the instant feedback on their child’s progress, and communications improved between field staff and senior government officials.

Sources: Teller (2008) and Blaschke et al. (2009)

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**Box 7. Uganda’s Experience with Malaria Surveillance**

A malaria sentinel surveillance site system was established in health facilities between September 2006 and January 2007, each in a different district, primarily to estimate trends in malaria morbidity rates. In each facility, an intervention was undertaken to improve case management, primarily through the appropriate use of diagnostic tests, using microscopy or a rapid diagnosis. The proportion of those suspected of having malaria who were tested and the proportion of those with a positive diagnosis who were appropriately treated were monitored on a monthly basis in each site. Between the start of surveillance and March 2010, some 425,000 patients were seen. Overall, the surveillance system achieved almost universal utilization of diagnostic testing in patients with suspected malaria and appropriate decisions to prescribe antimalarial drugs based on test results.

Source: Sserwanga et al. (2011)

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**Box 8. Lao PDR’s Experience with Crisis Surveillance**

In Lao PDR, the government endorsed the need for an early warning system to detect declining levels of well-being. It was proposed to collect information at a grass-roots level, including from schools and healthcare facilities, on a weekly or monthly basis in a number of selected sentinel sites. Four different areas of monitoring were subsequently identified: (i) consumer price data, which was to serve as an early warning signal for deteriorating nutritional outcomes and collected in eight sites; (ii) education, in particular, attendance data, which was considered a key indicator for deteriorating outcomes and collected in at least one primary school per province each month; (iii) health, which included the number of outpatient visits on a monthly basis from 18-27 health centers; and (iv) child protection, which included the number of street children and village children in orphanages on a periodic basis in some 120 communities across nine provinces.

Sources: UNICEF EAPRO (2011a-b)

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### 2.3 Rapid surveys and assessments

**Description**

Rapid surveys aim to quickly obtain general estimates of incidence rates or assess programme performance. Although originally designed to estimate immunization coverage at district levels, rapid surveys are now widely used in a variety of areas, including disease prevalence, health-related knowledge and practices, service utilization, quality management, post-disaster assessment, and disease and nutrition control in emergencies. They have also become increasingly important for planners and researchers in understanding the impacts of economic and environmental shocks as well as in detecting vulnerability buildup and strengthening emergency preparedness in crisis situations.
Rapid surveys typically rely on a short questionnaire and a small sample size to provide fast feedback to decision-makers. There are several standardized types of rapid surveys, including the World Health Organization’s 30 by 7 cluster surveys, Lot Quality Assurance Sampling (LQAS) surveys, and the Core Welfare Indicator Questionnaire (CWIQ) survey. These surveys have been widely used in assessing access to and quality of service provisions as well as providing temporary alternatives to incomplete and unreliable estimates obtained from administrative data systems.

Rapid assessments are broader than rapid surveys, since they involve multiple data collection methods. In addition to carrying out a rapid survey, a rapid assessment could also include any combination of reviewing existing information (e.g. reports, documents, analyses), observing or inspecting specific geographic areas and/or conducting key informant interviews, including one-on-one as well as focus group discussions. In the wake of the 3F crisis, UNICEF country offices and partners implemented a number of innovative rapid assessments to generate insights on coping behaviors adopted by vulnerable households, which combined qualitative and quantitative methods.

**Strengths and weaknesses**

Rapid surveys are cheap, easy to implement and can quickly gather reasonably reliable estimates and good information, especially qualitative, on the hardest-to-reach populations that do not typically have access to services where data is routinely collected. However, careful attention must ensure that the sampling frame is specifically adapted to the vulnerabilities of those groups. Although they are not meant to be nationally representative, rapid surveys can provide effective warning indicators of rising stress levels and inform on the ways in which households are coping with difficult conditions, complex crises and/or adjustments. Another important benefit is their ability to obtain information at the individual level.

The main drawback of rapid surveys is that they can produce findings that are misleading and potentially damaging to vulnerable populations, especially where linked to resource allocation. This largely reflects the complexities of the sampling design and analysis, which require high technical capacity; commonly used sampling methods oftentimes fail to meet basic probability requirements and create a high risk of sampling bias.

In terms of rapid assessments, their strengths and weaknesses depend on the types of methods employed, but their main advantage is flexibility in terms of gathering as much as or as little information as needed, as well as being able to generate multiple streams of information, including quantitative and qualitative, across multiple levels (community, facility, household, individual).

**Types of indicators and their uses**

Rapid surveys and assessments may be used for a variety of purposes. One common aim is to assess the poverty and distributional impacts of different shocks, like civil unrest, rising food prices or unemployment rates, which can also be used to establish the need for a more detailed
survey or to act as an early warning signal. Here, indicators could include changes to income/remittances, the number of vulnerable persons (e.g. orphans, pregnant or nursing women, female-headed households, migrants), the prevalence of child illnesses (e.g. diarrhea, coughs, measles), mortality rates and their main causes, nutritional status (e.g. household consumption of different food products, number of children eating fewer meals, number of persons who went to bed hungry), water and sanitation use (e.g. daily consumption of water, availability of soap), child protection issues (e.g. number of children who suffer from nightmares, bedwetting or behavioral problems or who fear playing outside), school attendance rates, use of formal and informal health services, etc.

Rapid surveys and assessments can also be carried out to coincide with policy or programme planning and implementation to inform the design, introduce midcourse corrections or support evaluations. These types of analyses tend to include more systemic indicators, such as on health services (e.g. conditions of local health facilities, number and skills of health workers, occupancy rates of beds, availability of interpreters, drug and vaccine supplies, health-related beliefs and traditions), on food and nutrition trends (e.g. food price monitoring, prevalence of clinically observable micronutrient deficiencies, number of children being cared for in feeding programmes), on the environment (e.g. climate, topography, storage facilities for food and medical supplies) or on local service delivery (e.g. the activities and capacities of different actors, levels of coordination, supply mapping).

As earlier mentioned, these approaches have the added flexibility to obtain qualitative information. Key informant interviews and focus group discussions can also generate a variety of indicators, like perceptions on the levels of poverty and well-being of the community or the quality of social relations during an economic crisis (Box 9) or awareness of and opinions of local job training programmes (Box 10).

**Box 9. Romania’s Experience with Rapid Assessment (RA)**

When it became clear that Romanian households were going to be hard hit by the crisis, UNICEF and the World Bank jointly initiated a RA, which took place during 2009-10 and included four rounds of data collection. While the principal objective was to understand the social and poverty impacts associated with the global economic crisis, the RA also sought to overcome the shortcomings of existing data collection and monitoring systems to generate timely information.

The RA combined quantitative and qualitative methods. The quantitative component consisted of a nationally representative household survey that was repeated every six months. This included information on the consequences of the economic crisis on households in terms of its impact on paid work, remittances, business activities, allocation of labour within the household, monthly earnings, children’s expenditures, stress on the family and community relations, as well as on coping strategies. The qualitative component, on the other hand, was based on sentinel-site monitoring and included interviews and focus group discussions with representatives of local businesses and the local community. In the context of the economic crisis, this included perceptions on the levels of poverty and well-being of the community, the main difficulties and concerns, the quality of social relations, crime levels, intra-household conflicts, and the main problems facing children and youth.

The suitability of the RA approach in a middle-income country setting where routine data collection efforts are strong was demonstrated by the high quality of analyses produced. However, Romania’s experience also highlights the difficulties of ensuring policy uptake, which failed to materialize following various dissemination challenges, including changing partners and political volatility.

Source: RTM Case Study: Romania (Roelen 2012)
2.4 Community-based monitoring

Description

Community-based monitoring is part of the broader Community-based Participatory Research (CBPR) methodology in which “people are facilitated to do things for themselves” (Chambers 2010). This approach is particularly well suited for higher frequency data collection on changes in vulnerabilities and access to services at the local level, with the broader objective of strengthening accountability through community participation. A key characteristic is the combination of a variety of strategies and processes to collect, analyze and disseminate information, such as on service delivery or progress on development projects and budget implementation, in order to make it accessible to citizens as well as influence donor and/or local and national policies. Community-based monitoring is also notable for being applied in virtually every domain of development and community action, from disaster management and conflict resolution to slum development and establishing the rights of indigenous peoples.

The use of ICTs, including mobile phones and tablets, in data collection processes in established or pilot community-based poverty monitoring initiatives has generated much interest in the potential for providing faster generation and feedback to local community, government agencies and other relevant stakeholders. For example, community-based total sanitation, an innovative methodology for mobilizing communities to eliminate open defecation, incorporated mobile phones so that communities can monitor progress toward achieving this goal (Mukherjee et al. 2011).
Strengths and weaknesses

Community-based monitoring has been increasing in popularity for a variety of reasons, including its potential to: (i) enable continuous collection of data in remote locations; (ii) provide new insights, priorities and definitions of problems and issues; (iii) better align incentives and opportunities for advocacy since the information sources are also primary stakeholders; (iv) strengthen the capacity of local people to analyze, reflect and take action; and (v) be cost effective beyond the initial investments in setting up the processes and training.

However, this approach is not without challenges. Lessons from the widespread use of participatory methodologies in the 1990s suggest that it is unlikely to be successful when there is a lack of homogeneity within communities or the absence of complementary efforts to improve local governance and institutional capacity in project planning and implementation (McGee and Gaventa 2010). For example, an evaluation of four community participation initiatives in India’s school system demonstrated mixed results, suggesting that the provision of information alone on the status of education and institutions was not enough to encourage the involvement of parents in schools; nor did successful mobilization always lead to change, as parents faced important constraints in influencing public services (Banerjee et al. 2010).

Community-based monitoring approaches can also be complex processes involving multiple stages (e.g. from identifying stakeholders and monitoring activities, to training and assessing the situation, to collecting, analyzing and acting on the data) whose success hinges on the capabilities of communities to know their rights and legal and institutional procedures, as well as their organization and analytical skills (Gaventa and Barrett 2010). Other challenges can include a lack of qualified and motivated individuals in remote communities, difficulties to control data quality and validation, which may be influenced by a particular group or be politically driven, and the need for significant upfront investments in capacity development.

Types of indicators and their uses

Indicators can be used for multiple purposes, from carrying out multi-dimensional poverty assessments at local levels, making the case for higher budgetary allocations, to identifying beneficiaries for targeted welfare programmes or monitoring and assessing the impact of development projects. Data are generally extracted at the household level under community-based monitoring initiatives, which are then used to generate a variety of indicators, such as health (e.g. number of under-5 and maternal deaths), food and nutrition (e.g. number of malnourished children or households that have experienced food shortages), water and sanitation (e.g. number of households that have access to safe drinking water or a sanitary toilet), shelter (e.g. number of households who are informal settlers or have adequate housing conditions), peace and order (e.g. number of households victimized by crimes), income (e.g. number of households with income below the poverty or food threshold), employment (e.g. number of households with an unemployed adult) and education (e.g. primary or secondary participation) (Boxes 11 and 12). In other cases, real time reports are used to populate community maps and fill gaps on local aspects of people’s lives (Box 13).
**Box 11. Community Information Boards (CIBs) in Nigeria**

CIBs help communities track the health and well-being of their children and women and empower them to participate in making decisions that affect their lives. With support from UNICEF, CIBs were launched in 2007 by the Government of Nigeria. As a community tool, it requires the participation of all members. The principal moderators of “the Board” are the traditional leader, the community or village development committee, and the “Recorder,” with the audience being the entire community. At the end of 2008, 138 communities in 21 states had updated their Boards and were using them to monitor indicators. By 2012, over 80% of all the communities in Nigeria were expected to have CIBs.

Overall, the Board tracks 16 indicators, such as the number of children born / registered at birth / not gaining weight / who died at birth or before age five / who received different vaccines / attending primary school / who are orphans; the number of households with insecticide-treated bed nets and latrines; the number of pregnant women attending antenatal clinic sessions and who died during or after childbirth; and the number of improved community water sources.

In terms of process, the assigned Recorder collects data on each indicator on a daily or weekly basis and enters it into a specified notebook. At the end of each quarter, this information is collated and entered on the CIB, which is placed in a prominent position in the village. Information is kept on the CIB for one year after which it is stored in a secure place. All community members have a chance to participate in responding to issues that arise from a common analysis of the implications of information on the CIB and in agreeing on ways to address problems and move forward within the community. Participation takes place through one or more local level communication forums, such as community or peer group dialogues, local theatre and house-to-house counseling.

Source: UNICEF (2012)

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**Box 12. The Philippines’ Community-Based Monitoring System (CBMS)**

Developed in the Philippines in the 1990s, the CBMS collects local level data to promote evidence-based policymaking and programme implementation as well as transparency and accountability; it also aims to empower communities to participate in the process. A census of all households in the community (not a sample survey), the CBMS centers on developing and implementing data collection instruments, analyzing data, and carrying out training activities to build the capacities of local personnel and community volunteers who serve as monitors. Adapting to the decentralization context, the CBMS is anchored in local government units and emphasizes community participation in all aspects of the monitoring cycle, from defining what information is captured, to analyzing and validating the collected data, to using the data to influence policy.

The CBMS generates a core set of indicators that capture the different dimensions of poverty, which are measured to determine the welfare status of the population. The CBMS also establishes databases at each geopolitical level, using freeware customized for CBMS-data encoding, processing and poverty mapping. While higher frequency data collection was not initially emphasized (the entire data collection and analysis process took about one year), timely reporting in terms of analysis and feedback to local governments, government agencies, civil society organizations and decision makers is an important characteristic (see Figure 2 on next page).

Source: Reyes and Due (2009) and Reyes (2012)

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**Box 13. Kenya’s Experience with Map Kibera**

Map Kibera is a citizen-mapping, citizen-media project in Kibera, one of the largest informal settlements in Africa located in Nairobi, Kenya. Map Kibera started in October 2009 with the objective of creating the first public, digital map of the area, through the training of local youth in the use of Global Positioning System (GPS) units and open source Geographical Information System (GIS) tools. It was expected that providing such information could lead to better coordination, planning and advocacy within the community and between Kiberans, their local administration and the government.
Since the launch, Map Kibera has developed from a one-off mapping exercise into a fully-fledged community information project supported by a thriving community of local participants trained in the use of new technologies. The combined use of mapping, video and SMS showcases the possibilities afforded by the blending of geographical information and digital storytelling for expression, advocacy and policy response. Through this blending, as best evidenced on the Voice of Kibera website, the digital map can become a canvas of information that expresses aspects of life in the community that are rarely captured by the hard data generated through the dozens of surveys that take place in Kibera every year or by images circulated in mainstream Kenyan and international media. The existence of a dedicated group of trained community members has also proven to be a valuable resource for effective policy response.


![Figure 2. The Philippines: The CBMS Process](source: Reyes (2012))

### 2.5 Citizen-based monitoring

**Description**

New methods for data collection and analysis supported by ICTs are fuelling innovation around the production, delivery and presentation of local information for and by vulnerable communities. And these processes have given birth to the most novel RTM approach: citizen-based monitoring. Its recent rise is due to mobile phone technology, which has enabled individuals to perform monitoring functions outside of the more traditional RTM methods earlier described. In practice, however, citizen-based monitoring is usually designed as a component of another monitoring approach, such as a routine data or community-based system.

Citizen-based monitoring typically aims to collect information on service delivery or community issues, which can then be triangulated with other data sources in order to trigger alerts and/or
inform responses. In practice, this method involves the transmission of information from a sender to a database via a descriptive text message or a phone call, after which it is interpreted either manually or through an automated process. Whereas an individual message could result in a specific alert and response (e.g. the reporting of a case of cholera in a remote community), groups of messages could be categorized, aggregated and checked with other data sources, also leading to some type of response (e.g. multiple reports of a contaminated water source). In short, the distinguishing characteristic of this method is the empowerment of the individual to report information that can be made actionable.

**Strengths and weaknesses**

Citizen-based monitoring serves as a great way to triangulate information and trends from other sources and can be useful for identifying particular areas or issues that require further research. Other advantages include: (i) it can be a quick and cost-effective way to collect data once a platform or system is in place; (ii) it is highly customizable, which can include the ability to collect information from specific areas (e.g. province, district, community), from specific groups (e.g. out of school children, orphans) and/or on specific topics (e.g. child protection, health and nutrition, education, water); (iii) data can be rapidly analyzed (often automated) at disaggregated levels; and (iv) it can gather quantitative and qualitative information at the individual level. Outside of the reporting function, another distinct value added is that citizen-based monitoring initiatives can be designed to share and disseminate information.

On the other hand, it is important to recognize that citizen-based monitoring should never be relied on as a primary source of information. Such data typically suffer from self-selection biases since the information is provided on a voluntary basis and only by persons who have access to mobile technology and telecommunications infrastructure. Aside from representation and quality issues, other drawbacks include: (i) difficulties in getting these types of initiatives started due to, among others, high start-up costs (e.g. sign up campaigns) and private sector partnerships (e.g. the rates charged for text or voice messages need to be negotiated with telecommunications companies); (ii) challenges to act on information received (e.g. responding to staff absenteeism reported at a local health facility or a broken water pump in a remote village); and (iii) confidentiality concerns among users, especially when obtaining information on potentially controversial or sensitive issues.

**Types of indicators and their uses**

Citizen-based monitoring will not generate indicators *per se*, but rather trigger alerts or inform on service delivery or a community challenge. In terms of alerts, an individual text message sent by a person in a hard-to-reach community could potentially report a suspected case of a highly infectious disease and immediately trigger a follow-up investigation by the respective district health office.

More common, however, citizen-based monitoring collects information that can be triangulated with other data sources to inform corrective responses. In the case of mTrac, an anonymous SMS hotline allows individuals to report bottlenecks in the healthcare system, like
medicine stock outs, absenteeism among local personnel, infrastructure problems or corruption (e.g. healthcare staff selling drugs or supplies) (Box 1).

U-report is another example. This is a social monitoring system that gives young Ugandans access to a free SMS communication service. Although not a main objective of the initiative, U-reporters (the “monitors”) can report independent issues (e.g. “There was no teacher at school today”), similar to the SMS hotline feature built into mTrac. But U-report is also designed to solicit information from individuals through poll questions. This type of citizen-based monitoring approach generates data that can be used to identify service delivery bottlenecks, such as the availability of clean water and sanitation facilities in specific communities, as well as to inform the targeting of specific campaigns, like the ‘Back to School’ initiative in areas where high dropouts rates were reported (Box 15).

Listen Loud in Namibia is a similar poll-based system whose primary objective is to promote youth participation. However, it too has successfully gathered real time information to identify key policy priorities and even help change national education policy. It is clear that further adaptations of Listen Loud hold the promise to serve as an effective citizen-based monitoring tool to not only engage youth but also report on service delivery and other local issues (Box 16).

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**Box 14. An SMS Hotline Improves Service Delivery in Uganda**

mTrac uses RapidSMS to transmit community and health facility data from local to national levels. In addition to accelerating the flow of information and monitoring responses within the routine data system, mTrac also includes a citizen-based monitoring component, which is a free and anonymous SMS hotline. This service allows any citizen to report on bottlenecks in the healthcare system, such as medicine or drug stock outs at local health facilities, absenteeism among local staff, infrastructure problems and/or suspected cases of abuse or corruption (e.g. the sale of public medicine by healthcare personnel). Information from the SMS hotline is further used to verify what is reported by the health facilities and identify areas that need further follow-up, support or investigation. In short, the crowd-sourcing of service delivery complaints from the SMS hotline improve the responsive of Uganda’s healthcare system and strengthen accountability.

Source: RTM Case Study: Uganda (Cummins and Huddleston 2012)

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**Box 15. U-report: Enabling Youth Monitors in Uganda**

U-report is a social and community-based monitoring system that uses RapidSMS. It offers young Ugandans a chance to voice their opinions on issues that they care about by giving them access to a free SMS service through which they can send in text messages, respond to polls, and receive factual information and results. U-report also supports government initiatives and campaigns (e.g. mass immunization) as well as UNICEF programme field coordination.

UNICEF developed the software application and built a web platform for managing communications between the social monitors, called U-reporters, and the central managers. Although the overall objective is to empower youth in general, specific issues tackled by U-reporters often address the needs of vulnerable children, and U-report further possesses the capability of soliciting information from specific areas as well as age groups that are vulnerable. Examples of poll questions include:

- Is there a safe water source within a 10 minute walk from your home?
- Do you have access to a hand-washing facility with soap and water at your workplace or school?
- Do you know children in your community that are of school age but not in school? If so, how many?
- Do you have a birth certificate? Do you know where to register births and deaths in your district?
- If you have had malaria, did you go for the malaria test at a health centre? Please share your reason(s) for not taking a malaria test.
- Have you been to the police station, probation office or local council? Were you a victim of a crime, a witness in a case, accused of an offence, visiting for other services? How was the service?

Such information has led to specific actions, such as the ‘Back to School’ initiative that targeted specific geographic areas where high dropout rates among primary school children were reported, or recommendations to improve child protection services for survivors of child abuse.

In terms of monitoring, virtually any young person anywhere in the country with a mobile phone can report information, for example, on whether the community water source is functioning or whether they or someone they know has suffered from a fever or malaria in the past month. U-report also has many other functions, which include raising awareness on different issues, supporting community-led development, fostering information sharing, including with parliamentarians, and serving as a tool for local and national policy advocacy.

At the time of writing, there were more than 200,000 U-reporters across Uganda (an overall average of 24) with more than 200 polls posted on the website. Moreover, following a review of the programme, all 386 Members of Parliament have been added to the U-report programme and are actively answering questions adding a real time advocacy component to the tool.

Source: RTM Case Study: Uganda (Cummins and Huddleston 2012) and http://ureport.ug/

Box 16. Listen Loud: Collecting Information from Youth in Namibia

Listen Loud enabled adolescents and young people to voice their opinions on priority issues and concerns affecting their lives in the run-up to the 2009 national election. This was possible through the use of innovative voice-guided opinion polling technology that allowed young persons to “vote” on priorities without having to identify themselves. A toll-free line was established so that youth could call in using a mobile phone and respond to the polling questions, which were provided in different languages.

A three-fold strategy was developed to get information from young persons: (i) use available technology (mobile phones were selected due to their wide availability to youth across Namibia); (ii) carefully structure the contents of the questions (this included focus group discussions with young people); and (iii) carry out a media strategy to promote awareness of the campaign (this included radio, posters, flyers and newspaper inserts).

Listen Loud took place over a five-week period, with each theme (education, health, HIV/AIDS, child protection and the future) running for one week. During an open poll, youth would make a toll-free call, listen to instructions in the language of their choice and choose an opinion that is closest to their personal opinion. A special SMS number was also established so that additional information could be provided. After each poll, the results were analyzed and presented in three major newspapers, while a television talk show also covered the campaign to further increase awareness of the findings.

In total, more than 20,000 young Namibians participated in Listen Loud, with an additional 250 SMS messages collected. In addition to the overall results on specific issues chosen by young people as their priorities, age-specific topics of interest were highlighted to contribute to future planning and advocacy. The data was compiled in a booklet, together with more evidence on specific issues, and used by the Children’s Parliament to develop recommendations to the new Parliament in 2010.

Following the success of the initial experience, Listen Loud for Education was launched in 2011 to get youth opinions on education issues. Topics and questions were previously identified and pre-tested with students (on enrolment, drop outs, teacher absenteeism, schooling costs, corporal punishment and abuse, etc.). Subjects had the broader theme of how to improve the education system in Namibia with special emphasis on the role of the ministry, schools, teachers, learners, parents, resources and the use of technology. The poll results were shared with experts during a national education conference and used to train learners. Ultimately, Listen Loud generated information to support advocacy efforts that led to the government’s decision to abolish primary school fees in 2012.

Sources: UNICEF (2009) and Keulder (2012)
SECTION III. Putting RTM to Work for Equity

This section synthesizes the main lessons learned and emerging good practices, based on which an initial set of guiding principles is proposed to enhance the equity utility of RTM efforts. The insights gained are organized around: (i) the core components of RTM (Figure 3), focusing on the main performance issues corresponding to each, namely data quality and inclusivity, user relevance and the potential for effective responses; and (ii) cross-cutting considerations, namely sustainability and the use of technology.

Figure 3. Core Components of RTM

The focus of this learning initiative on the most vulnerable has yielded deeper insights on the challenges associated with RTM efforts concerning the most vulnerable, as well as emerging solutions to overcome them. It should be noted that, while the specific challenges in reaching the most vulnerable have implications that are not unique to RTM (they may be applicable to conventional monitoring as well), they pose additional complications for the higher frequency aspects of data collection, analysis, reporting and response.
3.1 Insights around data collection

Guiding Principle 1: Get the basics right – Identify the most vulnerable

The study of RTM experiences highlights the specific challenges in identifying the most vulnerable children, who tend to be “invisible” from routine data systems and harder to track. A deliberate and systematic approach to properly identifying them and tracking their needs is perhaps the most important building block for realizing the equity utility of a RTM initiative.

Include systematic guidance on identification protocols and geo-referencing

Among the most vulnerable are indigenous people who tend to be highly mobile and have changing identities. As highlighted by the RTM case study on Brazil’s Indigenous Health and Vulnerability Monitoring System, the Xavante people move between villages to maintain family links or fulfill social obligations, and engage in circular migration patterns between indigenous territories and urban areas in search of economic opportunities or access to services, such as health and education. They also take on different names following significant life events. The absence of systematic guidance on recording individual names and ethnic identities makes it difficult to identify individuals who are away from their home villages and increases the likelihood that duplicate entries end up in the system.

The Brazil case study suggests that, when applied systematically, technical solutions can overcome some of these challenges. For example, implementing a more systematic approach to geo-referencing within the RTM initiative can enable analysis of health vulnerabilities affecting indigenous people at both the macro and micro levels, while strengthening response capabilities by improving its inter-operability with the mainstream monitoring and data analysis system that is premised on territorial logics.

Establish a designated system that is integrated with mainstream systems

Where mainstream monitoring systems are good at tracking vulnerabilities, the most vulnerable often fall through the information nets. For example, the mainstream Food and Nutrition Security Monitoring Information System (SISVAN) in Brazil regularly collects and uploads growth monitoring data to the national system as part of each municipality’s obligations under the administration of Bolsa Família. However, analysis of publicly available data shows that records are incomplete for indigenous children, partly reflecting the difficulty for municipalities to exchange data with the indigenous health districts, which are responsible for delivering services in the Xavante villages.

A possible solution to these limitations may be found in establishing dedicated systems for the most vulnerable, provided that there is political and financial commitment, such as that seen in Brazil. However, the Brazil experience also highlights the necessity of tackling institutional barriers but more importantly, the legacy of discrimination and prejudice affecting bureaucratic logic, in order to integrate the designated system into mainstream systems. Without the
deliberate planning and efforts to ensure integration, the potential of RTM for providing inclusive access to services and programmes for the most vulnerable will not be realized.

*Track the most vulnerable in pre-emergency situations*

In the context of a silent emergency that is developing without open recognition and against the background of a severe lack of routine data collection, RTM of vulnerable populations may be especially difficult. The unique challenge here is to identify the most vulnerable in a timely manner in order to inform preparedness despite the fact that the available data is highly inadequate to capture those who are quickly becoming the most vulnerable.

In pre-emergency situations, innovative solutions may be found by tapping into existing social programmes aimed at the poorest communities to expedite the identification of sentinel sites that could provide indications of evolving vulnerabilities, without necessarily informing on the representation of findings. In the RTM case study on Yemen, a rapid survey approach was utilized, aided by the use of i-Pads, to monitor and assess the rapidly deteriorating situation of some of the poorest communities. The information collected allowed for trend analysis of the food security situation of some of the most vulnerable households. When triangulated with limited up-to-date nutrition survey data, the RTM data helped raise early warning signals for a nutrition crisis developing in other areas of the country (Box 17).

### Innovation Box 17. Yemen’s Social Protection Monitoring Rapid Survey

The RTM initiative in Yemen was undertaken in response to the challenges of monitoring the impact of rapidly deteriorating socio-economic and political situations in a data scarce environment. Motivated by understanding the coping mechanisms being adopted by vulnerable families amidst the flurry of shocks, UNICEF Yemen and its partners initiated a RTM pilot survey to collect timely information on some of the poorest segments of the population. The sense among UNICEF staff was that the rapid increase in food, fuel and water prices, coupled with the breakdown of social services and a lack of resilience among vulnerable Yemeni households, would produce a large-scale “silent” emergency. The ensuing Social Protection Monitoring Survey pilot, which was carried out biweekly initially and then monthly, aimed to trigger timely follow up and further actions by humanitarian actors and national counterparts before the materialization of a full-blown emergency. An in-depth analysis of the data, while confirming a nutrition crisis underway in one area, showed rapidly increasing vulnerabilities in other areas previously considered “safe,” thereby raising early warning for the need to strengthen emergency preparedness in those locations.

*Source: RTM Case Study: Yemen (Smith 2012)*

**Guiding Principle 2: Fit for purpose data**

The review of RTM initiatives and the initial experiences of Level 3 Monitoring (L3M) suggest that it is possible to measure L3-type indicators relatively frequently, in a consistent manner, and at a reasonable set-up cost and effort. However, the viability of RTM as an alternative approach to monitoring hinges on the appropriate selection and application of RTM methods. If careful considerations are not given to design and collection arrangements, data quality might be compromised, resulting in data that is not used for intended purposes.
With the rapid growth in ICTs and the opportunities they afford to collect more, faster and often cheaper data, there may be a particular need to guard against the temptation to collect “any data” regardless of its quality, although the use of ICTs has been shown to improve the quality of data collection.

There is no one-size-fits-all RTM method

The review of the respective strengths and weaknesses of each of the main RTM methods presented in Section II, together with the in-depth discussion of how RTM can contribute to different elements of the MoRES framework in the synthesis report (Chai and Cummins 2013), suggests that there may be an advantage of one monitoring method over another for a given purpose and a determinant dimension.

In practice, it is important to recognize that RTM initiatives often combine elements from multiple methods, with the choice being highly contextualized and shaped by “preconditions.” Country examples show that preconditions, such as the ethnic make-up of a community, the function and capacity of local administration, institutional politics, and the specific strengths and weaknesses of existing routine data systems, among others, are important to consider before deciding on a method.

Nonetheless, available RTM experiences allow for assessing the possible utility of each of the main RTM methods to serve different purposes for tracking bottlenecks regarding different determinants, which are summarized in Table 2.

### Table 2. Possible Utility of RTM Methods

<table>
<thead>
<tr>
<th>Determinants and Purposes</th>
<th>Routine data systems</th>
<th>Sentinel site surveillance</th>
<th>Rapid surveys and assessments</th>
<th>Community-based monitoring</th>
<th>Citizen-based monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determinants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enabling environment</td>
<td>▲</td>
<td></td>
<td></td>
<td></td>
<td>▲</td>
</tr>
<tr>
<td>Availability/accessibility of services</td>
<td>+</td>
<td>▲</td>
<td>▲</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Effective demand/utilization of services</td>
<td>+</td>
<td>▲</td>
<td>▲</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Monitoring quality of services</td>
<td>+</td>
<td>+</td>
<td>▲</td>
<td>+</td>
<td>▲</td>
</tr>
<tr>
<td>Purposes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empower vulnerable populations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve local planning and service delivery</td>
<td>+</td>
<td>+</td>
<td>▲</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Strengthen crisis/emergency preparedness</td>
<td>▲</td>
<td>+</td>
<td>+</td>
<td>▲</td>
<td>▲</td>
</tr>
<tr>
<td>Enhance equity in policies, plans, budgets</td>
<td>+</td>
<td>▲</td>
<td>▲</td>
<td>+</td>
<td>▲</td>
</tr>
</tbody>
</table>

Note: + denotes optimal suitability, ▲ possible suitability and blank “not suitable”

Judge data quality by purpose and context

In the RTM innovations reviewed, the qualitative rapid assessment method is shown to be particularly valuable to gain deeper insights on the scope and depth of vulnerabilities of the
most vulnerable. But how can the quality of data be defined and judged without compromising its equity utility?

One possible approach to a more general definition of quality for RTM data would be to consider if they can be described as “fit for purpose”—which might be taken as implying that the data yield should not mislead users in any planned application. In other words, data should support, not distort, evidence-based decision-making processes in all areas for which they were intended to be used. This definition can be used to assess both quantitative and qualitative monitoring data sets, and though it may not lead to quantifiable indicators that can determine if “quality criteria” have been attained, it may serve as a pragmatic guide that has the potential for rigorous application.

Traditional definitions of the quality of quantitative data focus on concepts such as “validity,” “accuracy,” “precision” and “reliability,” which are defined in relation to a specific intended use. To some extent these criteria can be applied to qualitative data if they are also to serve a specific purpose. A requirement for qualitative data to be “accurate” may be that they can be used to generate unbiased indicators. For example, qualitative exercises with migrant workers in an industrial park as part of the RTM case study on Vietnam indicated that they saw return to agricultural work as “a last resort.” It would be reasonable to consider if this statement was likely to be an accurate/unbiased reflection of the general attitudes of these workers by considering factors such as the characteristics of the interviewer, the interview techniques and instruments adopted, and the details of the sampling procedures undertaken. Similarly, an assessment of “reliability” might consider if the same finding would have been reported by another interviewer on a different day. An assessment of “precision” would ask questions as to the range of possible interpretations attached to the qualitative findings—what could “a last resort” mean to these workers in this context.

Moreover, as in many of the examples considered in the desk review and case studies of RTM: Equity in Action, the monitoring data collected were not intended for narrowly defined specific uses. Individual data items (quantitative or qualitative) stored in the child protection database in Senegal, for example, may in some circumstances be sufficient to indicate the need for an urgent response where the well-being of an individual child is threatened. In many cases, however, multiple indicators would need to be collectively assessed to support a judgment call that action is needed. Any single indicator might not be considered sufficiently valid, accurate, precise or reliable to initiate a response, and it would be the fact that multiple indicators point to the same conclusion that the required threshold for action is met.

When “combined methods” are used in RTM, relevant dimensions for data quality may derive from the standards of rigor defined by their corresponding disciplinary area. For example, RTM data from the health and nutrition surveillance systems discussed in the RTM case study on Brazil should be subjected to established guidelines that would normally be applied to routine patient record systems. Similarly, the quality criteria demanded by professional anthropologists, sociologists or specialists in participatory research methodologies could apply to individual components of the qualitative studies, such as in Romania (Box 18).
Box 18. Romania's Experience with Mixed RTM Data

As described earlier in Box 9, Romania's rapid assessment initiative, carried out in series with relatively high frequency, combined quantitative and qualitative methods to track changes in key social and economic indicators, aimed at informing policy responses to the impact of the crisis and to deepen the understanding with qualitative information which shed lights on the plight of the most vulnerable such as informal Roma workers.

While the suitability of the RA approach in a middle-income country setting where routine data collection efforts are strong was demonstrated by the high quality of analyses produced. Romania's experience yielded three important lessons, discussed below.

First, a good RA should present an appropriate balance of quantitative and qualitative information—quantitative information makes the qualitative findings more tangible and appealing. When planning a RA, it is therefore important to gauge whether quantitative information should be a primary aim of the data collection exercise or whether such information can be based on secondary sources. This will help both in terms of costs and sustainability, especially if the exercise is intended to be longitudinal.

Second, the quantitative and qualitative balance of the design of the RA may involve an inherent trade-off between the depth of information and the timeliness of information. If the objective of the RA is to report trends toward a standard set of indicators that are primarily based on quantitative information, a simple reporting of such indicators may suffice, which can be achieved quickly and at a relatively low cost. However, if the subject requires more qualitative information and detailed analysis, such as for vulnerable and hard-to-reach populations, more time will be required.

Third, there was feeling that while data quality was high, more “precision” and “representativeness” may be beneficial for influencing policy making, although the experience of Vietnam's rapid impact monitoring suggests that such data quality aspects do not constitute a necessary condition for policy take-up of the RTM findings.

Source: RTM Case Study: Romania (Roelen 2012)

Apply the “fit for purpose” principle dynamically

The “fit for purpose” principle needs to be applied dynamically, taking into account any evolution in stakeholders, which can also lead to evolution in the “purpose” of a RTM initiative (Box 19). With the excitement often associated with faster data collection and reporting, there is a tendency for RTM initiatives to become overburdened with an expanding set of “purposes.” This raises quality concerns because the original methods and designs may no longer fit.

Box 19. Vietnam’s Experience with the Rapid Impact Monitoring (RIM)

The Vietnam case study illustrates that the qualitative rapid assessment methodology was innovative and effective for the RIM’s original objective, which is to ascertain the impact of the economic crises mainly through the labour market and export demand channels. However, the popularity of the RIM among policy makers and development partners led to significantly expanded scope and objectives over the later rounds, which included three additional objectives: assessing the poverty impact of rising food and fuel prices, monitoring the implementation of government macroeconomic policy (Resolution 11), and monitoring the effects of formal and informal social protection on the most vulnerable groups.

This greatly increased the demands on both the study design and the researchers implementing the study, with implications for the quality of the findings. In particular, the qualitative assessment moved away from the use of traditional qualitative interviews and innovative rapid appraisal methods to a more questionnaire-based approach (though with mainly opened questions).
The expanded scope and multi-objectives suggest that going forward, it would be important to refocus the RIM initiative, including evaluating the relative merits of a range of possible designs, as well as building on the existing expertise to develop “rapid impact assessment capacity” covering a range of backgrounds.

Source: RTM Case Study: Vietnam (Lucas and Chaudhuri 2012)

**Guiding Principle 3: Ensure inclusivity**

RTM: Equity in Action included a number of initiatives that were intended to focus on the most vulnerable. Some of them, such as the Chakaria HDSS in Bangladesh, were explicitly concerned with equity, and staff conducted an initial census of all people in the programme area. However, in many cases, the study finds access and inclusion issues related to the use of RTM, which have to do with the inherent difficulty in capturing “hard-to-reach” or “hidden” children.

For example, in the child protection case study on Senegal, “access” in terms of the case management system being able to capture all of the most vulnerable in a timely manner was found to be constrained by basic capacity questions (e.g. in terms of hotline services), design-based biases (e.g. case management information having limited options) and human error in the management of support to cases (e.g. where guidance is inadequate). The study further highlights the challenge in strengthening system sensitivity to a wider range of children at risk (e.g. children with disabilities) and the importance of deliberate efforts to ensure access by the “hidden,” at-risk children to the real time case management system.

The introduction of ICTs is found to add to the barriers unless explicit attention is given to technological access as well as ensuring representation from vulnerable groups among data collectors. For example, while community-based schemes, such as Map Kibera, a participatory community mapping and reporting initiative in a Kenyan slum (see Box 13), generated locally relevant information and made previously “hidden” communities visible, there were concerns over the level of effective participation in terms of the most marginalized within the communities, partly due to barriers introduced by the requirement of technological access.

These challenges notwithstanding, the review of recent experiences shows that building inclusivity in RTM is possible and starts with developing support around the equity principle along with inclusive design considerations.

**Innovate on inclusive design**

The RTM case study on Bangladesh’s education monitoring programme (Box 20) demonstrated that the most vulnerable children can be effectively monitored through special design considerations that involve the community in identification activities. In the case of BRAC-run pre-primary schools, they account for vulnerable groups and minorities in the education system registration process through stocktaking of the local community. Monitors also follow up with teachers so that additional teaching support can be provided to the most vulnerable children, such as those who are falling behind academically.
The Bangladesh experience further suggests that introducing enabling factors within the design can make routine monitoring of outcomes for the most vulnerable or disadvantaged children, in real time, possible. In the case of BRAC, its pre-primary education monitoring system utilizes randomized sampling, which reduces biases and also lowers costs. By monitoring student-teacher interactions and student testing in the classroom, monitors provide real time feedback to ensure programme corrections, such as teacher training and extra learning support for specific children, thus serving as change agents. In this case, it is the local feedback provided by monitors that is critical to the “real time” element of the monitoring and central to a strategy that emphasizes improved learning outcomes.

**Box 20. Traditional Monitoring Methods to Improve Education in Bangladesh**

One of the most unique examples of RTM supported by UNICEF is found in Bangladesh in the pre-primary education programme operated by BRAC. Randomization techniques are used for school selection by monitors as well as for intra-classroom sampling to test learning outcomes. Monitoring is a multi-level decentralized learning process that allows staff members to compare actual performance, outputs and results against standards, and monitoring duties are executed by the programme staff themselves as well as by the organization.

This initiative is unique due to the usage of monitoring data by multiple users, which serves both longer-term, evaluative functions as well as immediate feedback to improve all levels and functions of pre-primary education and enhance learning. The monitoring system is effectively a random sampling exercise to track quality and outcomes, with the data collection process designed to ensure a local response. This initiative also stands out in design considerations aimed at ensuring the inclusion of the most vulnerable children as well as the rapid feedback needed to improve their learning outcomes. The BRAC initiative further shows that ICTs are not a necessary ingredient of RTM despite the current fashion in thinking.

Source: RTM Case Study: Bangladesh (Akhter et al. 2012)

**Involving local people and communities**

The Community-Based Monitoring System in the Philippines (Box 12) points to the role of community and household-level data collection to ensure inclusivity of RTM. Data is available at the household level and aggregated at different geopolitical levels. The system was implemented from the bottom up, with local people trained to collect data, and covered all households in participating communities, with local governments shouldering the cost of implementation. The data make it easier to target programmes toward the most deprived and vulnerable communities, as well as to lobby the central government and donors for funds directed at specific needs, especially those of the most vulnerable. Despite these achievements, it is important to recognize that specific challenges in developing RTM systems are very context specific, including the degree of decentralization in a country.

Involving vulnerable children and communities in RTM processes also has the added benefit of empowering them to serve as agents of change. There are a growing number of examples whereby local people have been helped to collect their own data, which has the potential to bring about their own empowerment along with effective policy responses. Locally collected data can have a greater impact than nationally collected data, which may bear little relation to community-level circumstances.
With the rapid growth in ICTs, there is a strong case for RTM techniques and technologies to be placed in the hands of people exercising their entitlements and rights, in order to come up with their own data, and hold the public and private sectors to account. For example, new technologies can be used by marginalised groups to increase their visibility. In Kibera, a large slum in Nairobi, young volunteers use Global Positioning System (GPS) and Geographical Information System (GIS) tools to map out the slum which had previously appeared as only as a forest on official maps (Box 13).

*Select equity-enhancing indicators*

Design factors, especially in terms of the scope and the indicators to be reported, are important for enhancing the inclusivity of RTM. Indicators that can help enhance the inclusion of the most vulnerable in RTM are those aiming to capture: (i) visibility or disaggregation of data on socially excluded groups—focusing on addressing horizontal equity; and (ii) specific evidence on the poorest and most economically vulnerable—focusing on addressing vertical equity. Identifying such indicators as part of the monitoring design and consistently measuring them help to ensure that the most vulnerable are captured in the monitoring.

### 3.2 Insights around data analysis and reporting

The experiences of the RTM initiatives point to the importance of paying due attention to the steps of data analysis and communication, in order to generate relevant and actionable information content or messages for multiple users, which in turn strengthens the response capabilities of a RTM initiative.

*Guiding Principle 4: Deepen and Tailor Data Analysis and Reporting*

A main finding from assessing how RTM data is processed or analyzed is that oftentimes the depth and scope of analysis could be enhanced to optimize the information content for different users, while sharpening the focus on intra-sample disparities. The reporting on Yemen’s RTM data, for example, is at the aggregate indicator level, such as mean household meat consumption across the sample. Since data were collected at the individual household levels, deeper analysis in terms of the trends in caloric poverty and nutrition diversity rates may be useful to sharpen the advocacy value of the findings, as well as the programmatic value by informing on the correlations and concentration among the multi-dimensional vulnerabilities being tracked.

Paying specific attention to in-depth data analysis also means taking into account respective local partner capacity. For example, a lesson learned from the RTM case study on Yemen is to capitalize on the strengths of a local partner (proving excellent at data collection, for example) and not to expect a “one-stop-shop” from them, in which the capacity requirement on meaningful and timely data analysis turned out to be too much and delayed the reporting of findings.
Finally, in-depth analysis and communication should be seen as an integral part of strategy to ensure the response capabilities of a RTM initiative. This would entail targeted analysis and communication to convey the findings to a variety of audiences. Influencing policy processes requires an agenda that is relatively simple and easy to communicate to a broad range of actors, using different analytical methods according to the ministry or agency being engaged. Because policy processes or service delivery often involve multiple stakeholders, it is also critical to package findings and communication messages that are sensitive to bureaucratic turf wars among these stakeholders, while paying special attention to the overlap between political/institutional challenges, on the one hand, and social/cultural ones, on the other.

**Guiding Principle 5: Balance data sharing with cultural-sensitivity and confidentiality**

RTM concerning the most vulnerable needs to pay close attention to the confidentiality and cultural sensitivity of the targeted populations. The RTM case studies on Brazil and Senegal underscore this importance, as discussed below.

The Brazil experience suggests that decentralized health system planning and oversight, such as local health councils, provides an excellent potential entry point for RTM. However, this potential can only be realized if data and analysis tools are adapted and managers are trained to work effectively across different cultural contexts. In the case of Brazil, this includes sensitivity to the fact that concepts like “health,” “nutrition,” and “monitoring” do not necessarily map automatically onto analogous concepts within indigenous cultures—who may associate “health” with access to land, “nutrition” with the observance of food taboos or “monitoring” with the practice of spying on enemies. A targeted health system can begin to address these issues by establishing clear channels of communication, within the oversight structures, such as local health councils.

Experiences from Senegal indicate that without improved data-sharing functionalities and appropriate checks and balances to protect sensitive and confidential information, the great potential and value added of the real time case management database will not be fully realized. The implications of the data sharing concerns are illustrated in Box 21, which include duplicated case loads and unfilled promises due to the lack of integration of data from different sources in assessing the need for interventions.

<table>
<thead>
<tr>
<th>Lessons learned</th>
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</thead>
<tbody>
<tr>
<td><strong>Box 21. Senegal’s Experience with Child Protection Case Management System</strong></td>
</tr>
</tbody>
</table>

This initiative provides an exciting concept and initiative, with much potential for improving child protection services for individual children, as well as additional information generation for broader monitoring, advocacy and operations research. Some drawbacks identified point to a strong need for clearer definition and agreement of roles and responsibilities between actors and sectors at different levels, which currently limits data-sharing and the ability to clean data and access aggregate information. Other challenges involve cost considerations and ensuring appropriate support to users in terms of capacity building. Figure 4 (on the next page), illustrates how these main constraints compromise the functionality of the system, as well as highlights key areas for progress.
3.3 Insights around response capabilities

Linking data collection to policy or programme responses is found to be particularly challenging. While some of the RTM initiatives reviewed are still at an early stage, many have not succeeded in generating their intended responses. A key lesson learned is the importance of applying a system approach to RTM, of which response capabilities is an integral component. This component will include (i) a communication and impact strategy and (ii) an effective response mechanism that sets out the roles and accountabilities of each stakeholder, with appropriate data-sharing and identification protocols.

**Guiding Principle 6: Build response capabilities**

*Formulate a communication and impact strategy upfront*

It is useful to identify and understand the nature of key constraints and develop strategies to overcome them as an integral element of a RTM initiative. Country experiences suggest the need for a impact and communication strategy prior to initiating the RTM exercise (Boxes 22 and 23). The development of such a strategy should be based on an understanding of how relevant decision-making processes function, in order to identify and adopt mechanisms that can insert monitoring data in the most appropriate format into that process at the location and time when it is most likely to generate the intended response.
The nature of that response will vary depending on the purpose of the monitoring exercise. It may involve the provision of services to an individual in need, more effective implementation of programme activities, or advocacy to influence government policy or change public perceptions. The effectiveness of the response from a particular monitoring activity will depend on the nature and design of intervention and will require integration of feedback loops from monitoring to implementation. Therefore, when deciding on the appropriateness of a RTM activity, it is important to assess if existing mechanisms appear to have a reasonable possibility of achieving the intended responses, or if new or improved mechanisms need to be introduced.

**Box 22. Brazil’s Experience with the Health System for Indigenous Persons**

Examination of official documents and interviews with key informants working at different levels of the Indigenous Health Subsystem (SASI) and the Ministry of Social Development and the Fight against Hunger (MDS) made it possible to reconstruct the desired information flows for RTM and their corresponding policy responses, and identify points within these flows where the current functioning of the system is particularly problematic. A schematic representation of the functioning of the monitoring and response systems based on the case of the Xavante Special Indigenous Health District (DSEI) points where information flows are currently functioning below the desired levels to either a critical extent (in red) or a significant extent (in orange) (see Figure 5 on the next page).

**Figure 5. Brazil: Linkages and Bottlenecks for Health and Social Protection Response**

Source: RTM Case Study: Brazil (Shankland et al. 2012)

**Box 23. Romania’s Experience with Rapid Assessment (RA) of Crisis Impact**

Despite the overall positive experience (see Box 9), the RA faced challenges across the different stages of setup and implementation. Changing partner involvement has led to changed focus of the study across the four rounds, which compromised consistency and clarity about the message that the reports conveyed. Also, although the decision to maintain the qualitative component only was widely agreed upon, there was recognition that having both quantitative and qualitative information would have strengthened the outcomes and concurrent possibilities for dissemination and policy influence.
Although data generated allowed for important insights and improved understandings, it was felt that they lacked the power to make more general statements about the impact of the economic crisis. The most pertinent challenges referred to dissemination and research uptake. The failure to develop a dissemination or policy impact plan at the outset resulted in little policy influence; this was further compounded by the changing involvement of partners and political volatility in Romania, making it hard to explicitly link RA reports to programme or budget cycles (see Figure 6 on the next page).

**Engage stakeholders at all levels**

An important dimension of ensuring response capability is to build partnerships and engage stakeholders. This should focus on the extent to which key stakeholders have been identified and mechanisms developed to both encourage their involvement in the monitoring activity and allow their wishes to influence its design and implementation.

Experience suggests that the quality and further use of any monitoring exercise will be greatly enhanced if it enjoys the confidence and support of its key stakeholders, both those about whom information is sought and those expected to make use of that information. This situation can be significantly improved if those designing and implementing the intervention are open to genuine engagement. For example, in the RTM case study on Brazil, the intended beneficiaries of the RTM system are indigenous communities who, given past experiences, tend to have considerable doubts as to the underlying motivations of those responsible for the system; they are also willing to act on those doubts by withdrawing cooperation. Unless there are genuine efforts to work with these communities and a willingness to adapt the design and implementation procedures in line with community preferences, intended outcomes may be seriously jeopardised.
Country experiences further point to the importance of formulating an impact strategy at the onset of a RTM initiative. This may entail identifying early on the intended “clients” for the data generated as well as engaging multiple actors, including civil society, donors and lobby groups, who may present alternative ways to “make noise” and influence debate and policy processes. The RTM case study on Romania suggests that while the innovative use of quantitative and qualitative assessments generated insights on the impact of the crisis on vulnerable populations, such as the Roma, that was not sufficient to influence policy.

More broadly, considerable effort needs to be focused on “getting politics right.” Brazil’s experience shows that RTM for the vulnerable indigenous minorities has specific challenges, and with political will and resource commitments, it is possible to deliver at scale on technical solutions to these challenges. However, the case study makes clear that failing to give sufficient attention to politics can lead to the segmentation of different information systems and/or management disruptions that can make RTM impossible. The RTM case study on Vietnam indicates that politics can be a positive force in generating RTM responses. RIM was carried out to assess the short-term economic and social impacts of the global economic recession on specific populations. Despite its relative cheap implementation cost, the RIM achieved a high degree of traction within the Vietnamese National Assembly. Moreover, its recommendations directly fed into Resolution 11, a policy document that guided fiscal and monetary policies, but was expanded to include the RIM’s recommendations on policies to support vulnerable populations from 2011 onwards.

*Establish accountability mechanisms*

A further important aspect of quality is accountability, especially since RTM exercises are intended to generate a response or actions that will have consequences for individuals, often children or members of vulnerable groups. An example relates to Senegal’s child protection case management database, where the entry of incorrect information could have very serious implications for the well-being of individual children. This immediately raises questions as to who will take responsibility for the operation of the monitoring activities and how they will be held to account, particularly when those activities have unfavourable consequences. Accountability thus implies that appropriate and effective accountability mechanisms—addressing the potential needs of all stakeholders but with a particular emphasis on the vulnerable—have been incorporated into monitoring procedures.

Another key learning is that accountability can only be achieved if RTM is institutionalized within existing systems and is not created as a standalone mechanism. For example, if trying to ensure accountability of reporting on child abuse, this must be within the country’s legislative framework of reporting and response to child abuse as per the concerned ministry regulations. The same applies to referring malnutrition cases: if the RTM is not following the Ministry of Health’s existing procedures, then there will be no accountability for timely referral to therapeutic centres.
Ensure inter-operability

RTM data generated in isolation will not help build response capabilities. In this context, “technical inter-operability” is an important concept to consider, which requires that any proposed RTM initiative conduct a landscape mapping of existing policies and laws, government coordination capacity and data collection activities that address similar areas in order to identify measures for data exchanges. In the RTM case study on Brazil, for example, this involved persuading managers responsible for well-established mainstream systems to modify their protocols to take better account for a small segment of the population, namely indigenous groups.

Senegal’s experience in establishing a case management system suggests a possible mechanism for coordination of monitoring vulnerable children. Not only has the system led to harmonized monitoring standards applied by agencies and social workers, allowing for faster information management and immediate access to certain key information, but it has also improved coordination between partners, including quicker identification of bottlenecks in referrals, and allowed for better management and monitoring of staff and outreach/support work. All of these make for more effective and cost-efficient management of child protection cases.

3.4 Insights on cross-cutting themes

Guiding Principle 7: Increase sustainability

Strengthen local capacity

Country experiences suggest that it is important for RTM to have inbuilt mechanisms to promote sustainability. Sustainability is linked to financial support, but the concern is primarily with the extent to which the intervention has well-designed plans to strengthen local capacity, such that dependence on external assistance can be steadily reduced over time. mTrac in Uganda is a successful example that transcended its original donor funding to be fully taken on by the government. Following the piloting of the new electronic reporting system in several districts, which validated its ability not only to accelerate the submission of community and health facility data but also to strengthen the capacity of local health workers and achieve cost savings, the Ministry of Health took full ownership of its operation and scaled the system nationally (RTM Case Study: Uganda, Cummins and Huddleston 2012). Therefore, a key element of building response capacity concerns the political and institutional architecture of interventions—including the capacity and commitment for ensuring data quality and effective response mechanisms.

Moreover, decentralized monitoring in environments of weak institutions necessitates an explicit strategy to strengthen the skills of the actors involved to effectively perform the required tasks, but it also points to the importance of defining a baseline that reflects what is feasible in the overall envelope.
Embrace a collaborative and coordinative process

Taking a step back from individual initiatives, the big picture from the rapidly evolving RTM landscape points to the importance of a collaborative and coordinative process for undertaking RTM. The RTM study finds that the recent proliferation of RTM initiatives, mainly driven by mobile technologies, has given cause for concern. Experiences to date verify that failing to link to other RTM initiatives that have already attracted investments and/or share thematic similarities and geographic proximity indicates a high likelihood of unsustainability.

Many of these exercises are relatively small scale and time-limited. They are usually set up in isolation, with little reference either to similar initiatives in neighboring areas or to existing national data systems. These RTM initiatives commonly involve partnerships between the state, civil society, donors and the private sector. While there are often differences between partners in understanding of objectives, further divergences can occur due to the adoption of specific technology-driven approaches and because profit-making is a part of the equation for some partners. With the swarming in many countries, especially of pilot mHealth initiatives, there is risk of chaotic disconnects, of confrontation between rights and profits, and of overall failure to encourage appropriate alliances to build sustainable and effective national RTM systems. For example, Figure 7 identifies almost 40, mainly mutually incompatible, mHealth interventions in Uganda during 2010, which resulted in a government moratorium on new projects.

**Figure 7. Map of mHealth Pilots in Uganda**

![Map of mHealth Pilots in Uganda](source: UNICEF Uganda, Technology for Development Unit, 2010)
This demonstrates the importance of a collaborative and consultative process in developing or implementing RTM, to ensure sustainability. In this regard, development partners can play a pivotal role by highlighting such dangers, supporting national efforts to coordinate existing and future RTM initiatives, and encouraging appropriate alliances to build sustainable and effective national RTM systems. Some countries are progressing beyond these challenges, such as Uganda where the government, with support from UNICEF and other health development partners, is improving coordination of mHealth activities and national monitoring systems.

There are additional benefits from adopting a collaborative and consultative process in developing and implementing RTM. The Senegal experience of a real time case management system for protecting the most vulnerable children suggests that it helps by uncovering bottlenecks related to inconsistencies in procedures. For example, by improving communications between partners in tracking different cases, it uncovered inconsistencies in judicial procedures (e.g. repeated summons of a doctor responsible for a medical certificate), which resulted in the reluctance from the medical profession to deliver medical certificates to abused children. It can also influence policy development by highlighting the reality of individual children’s plight and sensitivity to critical timely responses, and by informing on which aspects of the legal and policy frameworks should be enhanced.

**Guiding Principle 8: Demand appropriate technology**

There are many pathways to RTM, for example those focusing on the genuine engagement and empowerment of local communities, which may involve no or only marginal use of ICTs (e.g. BRAC’s pre-primary education monitoring programme in Bangladesh or the indigenous health and vulnerability monitoring systems in Brazil). Both face-to-face and paper-based information gathering and transmission systems have potential advantages, for example in terms of low recurrent costs and limited reliance on fallible technologies (e.g. the rapid assessments carried out in Romania and Vietnam, and the rapid survey in Yemen). In many cases they can be effectively used in combination with ICTs to enhance the performance of RTM.

While the use of technologies should not be viewed as a core or even necessary component of effective monitoring activities, when deployed appropriately, they have the potential to greatly enhance the performance of RTM and utility to equity, by strengthening all components of RTM. At UNICEF, innovations using ICTs are being scaled up under the Technology for Development (T4D) agenda. Experience to date has demonstrated that ICT-based applications are well-suited for gathering information that is easy to collect, sensitive to change and actionable. While they are based on an open source platform that can be easily deployed in other countries, T4D innovations also have the potential to be applied to all sectors and across UNICEF’s programmatic areas. UNICEF experiences to date suggest that the combination of T4D innovations in rapid monitoring and routine reporting provides a realistic platform for L3M (Box 24). When used in conjunction and triangulated with data from national surveys (e.g. DHS, MICS, censuses), RTM tools can serve as the “pulse” and fill critical data gaps and validate, as needed, the information provided from routine sources. RTM can also be used to fine-tune routine data systems to ensure inclusion of the most vulnerable by expanding coverage.
Box 24. UNICEF Uganda’s Experience with Technology for Development (T4D)

In Uganda, the data being generated from different RTM initiatives developed by the T4D agenda have already become an important source of information for advocacy and action, and led to tangible, positive results. For instance, information generated by mTrac enabled the government to immediately respond to Ebola and cholera outbreaks, while U-report poll responses resulted in targeted “back-to-school” campaigns, ultimately increasing school enrolment in some of the most vulnerable communities. Moreover, since UNICEF Uganda was among the first country offices to undergo a comprehensive L3M bottleneck analysis, the relevance of T4D real time innovations for tracking and verifying a wide range of indicators has already been established, further enabling the country office (and government) to effectively monitor progress at the sub-national level (both district and community).

Many of the SMS applications that are being adopted in UNICEF Uganda offer practical, cost-effective tools to support implementation of MoRES. For example, early indications suggest that U-report surveys could be a cost effective way to obtain real time information that can be used for L3M purposes. The cost of conducting a nationwide poll in Uganda is around US$2,500, which can be viewed as relatively inexpensive in light of its ability to generate data that can help to both identify and monitor different bottlenecks that affect child well-being as well as be easily analyzed and disaggregated across community, district and national levels. Of course, it is important to weigh the merits of a particular monitoring tool, such as U-report, versus other data collection options, such as a sentinel site or rapid survey or information from routine systems, given the specific context and monitoring objective. And although further research is needed to better understand the sampling procedures required to avoid statistical error and to ensure the precision of U-report surveys, such technologies hold significant potential to enhance UNICEF’s ability to effectively monitor key barriers and bottlenecks in real time.

Source: RTM Case Study: Uganda (Cummins and Huddleston 2012)

At the same time, the introduction of ICTs may add to the barriers unless explicit attention is given to technological access as well as ensuring representation from vulnerable groups among data collectors.

Analyze costs and benefits

The potential for T4D needs to be guarded by insisting on technology that is appropriate at every level of involvement (high cost efficiency, robust, easily used, easily replaced parts and maintenance, etc.). Special caution is required if the application of an ICT-based monitoring approach involves substantial expenditure on either equipment or software. The appeal of ICT innovations to providers and recipients of intervention funding and to lower level staff who gain access to very attractive equipment is a good reason to treat them with considerable care. Most ICT devices are specifically designed and marketed to encourage large volume sales. Their capacity is often overstated and their potential deficiencies downplayed. In addition, though the cost of using mobile communications networks is falling, and the use of facilities such as SMS may appear relatively inexpensive, it is still a potentially important barrier, sometimes simply because local government officials do not have a budget heading to cover such costs. It is also important to recognize that many interventions only exist because of concessions from private sector mobile service providers, either in terms of tariff reductions or free or subsidized “short codes,” which allow high volume, high frequency communications (e.g. U-report in Uganda or in Listen Loud in Namibia).
Cost considerations aside, there are many lessons on the appropriate application of ICT solutions. In areas such as e-health, the tendency among those initiating or supporting ICT-based monitoring exercises has been to establish isolated pilot exercises, often with substantial financial and technical resources, but targeted at relatively limited populations. As a result, there is only limited evidence of successful scale up and little agreement as to how sustainability might be achieved once external support is removed.

Manage risk proactively

Another lesson is to sufficiently consider possible constraints and risks associated with the use of ICTs for monitoring activities and identifying appropriate solutions before deploying technologies. For example, the majority of persons living in resource-poor environments who have access to a mobile telephone will be using very basic models for voice communication, which may not allow applications and data sharing services to be utilized. In other instances, users may have limited literacy skills and/or be resistant to activities like text messaging. Availability of electricity and lack of facilities for recharging batteries can pose further challenges in rural and urban areas alike.

However, as shown by several examples in this review, by taking advantage of the capacities for data storage, programming and internet access available on current devices, and adapting them to rapidly evolving technology, it is possible to develop monitoring and response systems for large populations even in relatively remote areas. An illustration is the adaptation of SMS. Such systems can be used to send simple advisory texts to groups, for example pregnant women, or individual reminders, for example to patients on a strict drug regime, or allow individuals to respond to simple questions as to their well-being or send “alerts” to trigger a response from service providers (see Boxes 1 and 14, for example). With more advanced devices, relatively complex forms can be completed, allowing the use of mobile telephones or tablet computers to compile routine monitoring data. Internet access can also allow the maintenance of complex databases relating to targeted individuals with controlled access to multiple stakeholders, irrespective of their location. The challenge is to ensure that systems are inclusive and programme managers are sensitive to the potential political misuse of systems that are poorly designed from an equity perspective.

Consider multi-level design

Another learning regarding the use of ICTs for RTM is that designers need to work at multiple levels: the conceptual (what is the nature and purpose of the overall system?), the logical/software (what data items should be compiled to serve that purpose?) and the physical/hardware (what equipment should be used?). Developers have a tendency to become attached to their chosen hardware and software options, which can be a great advantage in terms of generating the level of commitment often required to turn good ideas into practical field applications. However, there is a need to routinely step back from immediate technical challenges to allow for the possibility of adopting a radically new approach to a given problem, even if this involves abandoning the technological options that feel most comfortable.
The need to introduce technology with a strong layer of awareness raising and community sensitization is also important. For example, Yemen’s social protection monitoring pilot survey deployed iPads to enable data collectors to enter household responses directly into data files, which were uploaded into a common dataset within SPSS every evening and then sent for preparation of the analytic report. Overall, the introduction of the iPads reduced the amount of time from data collection to submission of the report from three weeks to one week and further reduced data entry errors. However, through field visits, UNICEF Yemen learned that local tribal sheiks, who control the settlements where the respondents live, viewed the project with suspicion, particularly because the iPads were perceived as potential tools for covert surveillance/spying. Manual entry backup was used in such situations.
Tool 1. Overview of RTM Approaches

<table>
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<th>Method</th>
<th>Purposes</th>
<th>Strengths</th>
<th>Weaknesses</th>
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</table>
| **Routine Data Systems** | - To produce information at the facility level of programme implementation, which is typically sent to higher administrative levels for analysis and the adoption of corrective actions, if necessary. They can also generate information on issues outside of the control of the particular programme, whereby data can be used to advocate for possible solutions and policy changes. | - Data can be collected continuously  
- Data are abundant and do not require additional resources to collect  
- Allows for time-series analyses  
- Data can be disaggregated and allow users to determine service delivery problems, where provision is failing and which groups may be suffering the greatest impact  
- Relatively inexpensive | - Data often of low quality  
- Limited content and coverage of data (e.g. some variables of interest may not be collected), as well as lack of compatibility between different sources  
- Data may not be used to improve programme performance due to a variety of challenges: (i) quality concerns among decision makers; (ii) too narrowly focused and lack key socio-economic variables; (iii) limited commitment or absence of a systematic framework to analyze and disseminate findings; (iv) lack of feedback from higher administrative levels to the reporting units; (v) systems overburdened by excessive reporting requirements  
- Data are occasionally subject to political influences/manipulation |
| **Sentinel Site Surveillance Systems** | - To monitor selected communities or service delivery units (health facilities, schools, etc.)  
- The type and frequency of data collection activities will vary substantially; in a context of relative stability, the objective may be to provide guidance on general policy concerns; in crisis situations, the | - Data can be easily collected because of the relatively small number of sample points required  
- Easy to set and measure specific indicators as well as to calculate results  
- Allows for tracking changes over time in a wide range of areas, including context, process, input/output and outcome indicators, to assess the effects of an intervention  
- Can collect data at the household level, including on | - Data are not representative, and any claims that sites are “representative” of broader populations must be rigorously examined  
- Not possible to calculate accurate incidence rates  
- High potential for sampling biases, often reflective of site selection processes, which can be driven by donor preferences, resource constraints, geographic location, infrastructure, degree of local cooperation and |
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<th>Method</th>
<th>Purposes</th>
<th>Strengths</th>
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<td></td>
<td>emphasis may be on rapidly gathering data to inform immediate actions</td>
<td>vulnerability factors, which can then be compared to service-related and other information</td>
<td>commitment, etc. that impact on the generalizability of findings</td>
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<td></td>
<td></td>
<td>▪ Low cost and burden in terms of financial and human resources</td>
<td>▪ Still requires significant investments in personnel and other resources</td>
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<td>Rapid Surveys</td>
<td>▪ To quickly obtain inexpensive but reasonably reliable estimates of incidence rates or programme performance</td>
<td>▪ Can quickly get reasonably reliable estimates</td>
<td>▪ Either by design or lack of understanding, rapid surveys can produce findings that are misleading and potentially damaging to vulnerable populations, especially where they are linked to resource allocation</td>
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<td></td>
<td>▪ Although originally designed to estimate immunization coverage at district levels, rapid surveys are now widely used in a variety of areas, e.g. disease prevalence, health-related knowledge and practices, service utilization, quality management, post-disaster assessment, disease and nutrition control in emergencies</td>
<td>▪ Easy to implement</td>
<td>▪ Commonly used sampling methods often fail to meet basic probability requirements and create a high risk of sampling bias</td>
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<td></td>
<td></td>
<td>▪ Low cost</td>
<td>▪ The sampling design and analysis are complex and require high technical capacity</td>
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<td>▪ Timing can coincide with programme planning or implementation to inform the design or midcourse corrections</td>
<td>▪ Survey information can become quickly outdated unless repeated</td>
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<td></td>
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<td>▪ Can collect data at the individual level</td>
<td>▪ If used to gauge service delivery or programme performance, low client volume may pose limitations on what can be learned</td>
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<td></td>
<td></td>
<td>▪ Offers design flexibility, including ability to collect qualitative information</td>
<td>▪ Involves complex processes and multiple stages, from identifying stakeholders and monitoring activities, to training and assessing the</td>
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<td>Community-based Monitoring</td>
<td>▪ To make information about service delivery, progress on development projects, budgeting and/or spending accessible to citizens</td>
<td>▪ Enables continuous collection of data in remote locations</td>
<td>▪ Lack of qualified and motivated individuals in remote communities to effectively implement</td>
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<td>Community-based Monitoring</td>
<td>▪ Typically combines a variety of strategies and processes to collect, analyze and disseminate information in order to influence donor,</td>
<td>▪ Helps to overcome the lack of traditional information sources</td>
<td>▪ Difficult to control quality of data as well as validate, which can be easily influenced by a particular group or be politically driven</td>
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<tr>
<td>Community-based Monitoring</td>
<td></td>
<td>▪ Data can be collected quickly and cost effectively</td>
<td>▪ Involves complex processes and multiple stages, from identifying stakeholders and monitoring activities, to training and assessing the</td>
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<tr>
<td>Community-based Monitoring</td>
<td></td>
<td>▪ Allows for combining different methodologies, such as surveys and focus group discussions</td>
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<tr>
<td>Method</td>
<td>Purposes</td>
<td>Strengths</td>
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<tr>
<td>Citizen-based Monitoring</td>
<td>To obtain information on service delivery or attitudes and well-being of citizens, including youth and serve as a triangulation method</td>
<td>▪ Data can be collected quickly and cost effectively</td>
<td>▪ Can be difficult to get off the ground due to high start-up costs (e.g. sign up campaigns) and partnerships with the private sector (e.g. to negotiate text message rates to allow high volume, high frequency communications)</td>
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<td>Current approaches require use of mobile phones</td>
<td>▪ Fast (often automated) analysis of data and easily disaggregated</td>
<td>▪ Difficult to make the information actionable (e.g. responding to absenteeism reported at a local health facility)</td>
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<td>▪ Highly customizable: Can be targeted to solicit information from specific geographic areas, from specific groups on specific topics</td>
<td>▪ Data are not representative and can be of low quality</td>
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<td></td>
<td>▪ Can enhance efficiency and effectiveness of local programs/service delivery</td>
<td>▪ There is a need to protect the confidentiality of users, especially when obtaining information on potentially controversial or sensitive issues and even more so among young persons</td>
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Source: Based on literature review and case studies of RTM initiatives
## Tool 2. Initial Checklist of Issues to Consider when Designing RTM

<table>
<thead>
<tr>
<th>Key Aspects</th>
<th>Issues to Consider</th>
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| **Objective**                | • Improve programme performance  
                                • Inform policy  
                                • Early warning / risk mitigation  
                                • Multiple |
| **Method**                   | • Routine data system  
                                • Sentinel site surveillance  
                                • Rapid survey or assessment  
                                • Community-based monitoring  
                                • Citizen-based monitoring |
| **Value added**              | • No replication  
                                • Information fills an existing gap in a way that links to other data systems  
                                • Timeliness |
| **Equity sensitivity**       | • Coverage of minority groups, “hard-to-reach” or “hidden” children  
                                • Disaggregation of data on socially excluded groups  
                                • Specific evidence on the poorest and most economically vulnerable |
| **Quality of data**          | • Valid  
                                • Accurate  
                                • Reliable  
                                • Not misleading  
                                • Fit for purpose |
| **Achieving intended responses** | • Create demand for data  
                                • “Buy in” of key decision makers  
                                • Capacity to analyze and feed into appropriate processes  
                                • Feedback loops  
                                • “Buy in” of key stakeholders  
                                • Mechanisms to encourage involvement  
                                • Their influence (preferences) in the design and implementation  
                                • Communication and impact strategy  
                                • “Do no harm” principle (particularly in emergency contexts) |
| **Institutionalization**     | • Degree embedded within existing systems  
                                • Level of coordination with existing systems |
| **Mapping of similar initiatives** | • Objective  
                                • Coverage (geographic and beneficiaries)  
                                • Structure  
                                • Types of information  
                                • Partners  
                                • Applicable lessons  
                                • Possible synergies |
| **Sustainability / capacity constraints** | • Financial  
                                • Institutional  
                                • Personnel  
                                • Technology |
| **Other**                    | • Confidentiality: Access restricted to sensitive information |
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Keulder, T. 2012. *Improving Civic Participation of the Youth in Namibia through the Use of Mobile Phones and Engagement through a Study Circle Program in Schools*. Swakopmund: Namibia Institute for Democracy.


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