REVIEW OF THE EVIDENCE SUPPORTING THE SPHERE STANDARDS

FINAL REPORT

22 MARCH 2017

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SUMMARY

This review is the result of a collaboration between Elrha, the London School of Hygiene and Tropical Medicine (LSHTM) and the Sphere Project. Funded by DIFD and the Wellcome Trust, Elrha's Research for Health in Humanitarian Crises (R2HC) programme – which aims to improve health outcomes by strengthening the evidence base for public health interventions in humanitarian crises – commissioned LSHTM to conduct a review of the evidence supporting the Sphere standards. The review was conducted in close collaboration with the Sphere Project, and has contributed to the process of the 2017 update of the Sphere Handbook.

This report contributes to the 2018 revision of the Sphere Handbook by providing rigorous analysis of existing evidence and supporting the production of new empirical evidence where appropriate. Objectives were to: 1. Analyse and classify Sphere indicators from the WASH, Food Security and Nutrition, and Health Action (Essential Health Service only) chapters according to the SMART criteria: Specific, Measurable, Attainable, Relevant and Time bound; and 2. Review the evidence generated by the LSHTM Humanitarian Health Evidence Review supporting indicators from the Sphere Handbook.

Key findings:
- Four studies support 3 out of 58 (5.2%) of the WASH indicators included in the Sphere Handbook and 3 out of 13 (23.1%) standards
- Eight studies provide evidence to 7 (11.1%) of the 63 indicators included in the Sphere Handbook and 5 out of 18 (27.8%) standards
- Twenty-one studies support 4 out of 38 (10.5%) indicators of Health Action (essential health services) and 3 out of 17 (17.6%) standards
- Only 1.3% (2 out of 159) indicators integrate a time-bound element that is usually included when evaluating indicators as "SMART" (Specific, Measurable, Attainable, Relevant and Time bound)
- 51.7% WASH indicators, 57.1% Food Security and Nutrition indicators and 81.6% Health Action indicators were categorised as SMAR or SMAR with guidance notes and/or appendices

Key recommendations:
- Be transparent about the way indicators are selected by linking standards and indicators to studies, guidelines, other documents or expert consensus
- Make sure the indicators are realistic and achievable
- Add a "time-bound" element to the indicators to suggest when they should be measured

- Rephrase the non-SMAR indicators in order to provide clear indicators of measurement
- Homogenise the indicators in the different topical chapters to allow same level of information for all topics included
- Include recent guidelines such as Emergency Medical Teams (EMT) from WHO, or the new Infant and Young Child Feeding (IYCF) guidelines

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1. INTORDUCTION

1.1 BACKGROUND

The Sphere Project is responsible for developing and periodically updating the Sphere Handbook, Humanitarian Charter and Minimum Standards in Humanitarian Response, a widely used set of common principles and universal minimum standards in life-saving areas of humanitarian response, including health. The Sphere Project has identified a set of minimum standards in key lifesaving sectors, which are in the Handbook's four technical chapters: water supply, sanitation and hygiene promotion; Food Security and Nutrition; shelter, settlement and non-food items; and Health Action. The Core Standards are process standards and apply to all technical chapters. The minimum standards represent best practice in humanitarian response. Key actions, key indicators and guidance notes accompany each standard, providing guidance on how to attain the standard.

The Sphere Project is embarking on a fourth revision of the Handbook and Enhancing Learning and Elrha's Research for Health in Humanitarian Crises (R2HC) programme, in collaboration with the London School of Hygiene and Tropical Medicine (LSHTM), through this review, aims to contribute to the empirical evidence on which the current principles and indicators are based.

Elrha has been partnering with the LSHTM since 2013, when LSHTM was commissioned to undertake a comprehensive evidence review on the research base to inform humanitarian decision making in the field of public health intervention and, in particular, to identify the research gaps. The review addresses evidence on interventions in humanitarian crises (including early recovery and forced displacement) for health topics of: communicable disease control; water, sanitation and hygiene (WASH); nutrition; sexual and reproductive health (SRH), including gender-based violence (GBV); mental health and psychosocial support; non-communicable disease (NCD); injury and physical rehabilitation; health services, and health systems[1]. The review can be located here: http://www.elrha.org/r2hc/research/humanitarian-health-evidence-review/

In 2009, the Health and Nutrition Tracking System initiative hosted by the World Health Organisation (WHO) published a report on Priority Indicators in Complex Emergencies. It included an assessment of the Sphere indicators and reported that out of 346 indicators (2004 Sphere Handbook), 224 (65%) were not quantifiable, 48 (14%) were quantifiable but could not be supported by a search of the published literature, and 55 (13%) were supported by data[2]. This report was taken into account during the 2011 revision of the handbook.

1.2 PURPOSE AND OBJECTIVES

Elrha, the LSHTM and the Sphere Project share a commitment to improving humanitarian practice through the use of evidence-based interventions in the health sector. To this end, Elrha and the LSHTM will contribute to the 2018 revision of the Sphere Handbook by providing rigorous analysis of existing evidence and supporting the production of new empirical evidence where appropriate. Specific objectives are as follows:

1. Analyse and classify Sphere indicators from the WASH, Food Security and Nutrition, and Health Action (Essential Health Service only) chapters in line with SMART criteria: Specific, Measurable, Attainable, Relevant and Time bound

2. Review the evidence generated by the LSHTM Humanitarian Health Evidence Review on WASH, nutrition and health, and identify studies supporting indicators from the following chapters of the Sphere Handbook: WASH, Food Security and Nutrition, and Health Action (Essential Health Service only)

2. METHODS

First, Sphere indicators from the WASH, Food Security and Nutrition, and Health Action (essential health services only) chapters were classified as follows:

- SMART (green)
- SMART when including guidance notes and/or appendices (yellow)
- Not SMART (red)

SMART stands for Specific, Measurable, Attainable, Relevant and Time bound[3, 4]:

- Specific – The indicator must be able to be translated into operational terms and made visible. While the outcome/result itself can be broad, the indicator should be narrow and focus on the 'who' and 'what' of the intervention. Additionally, 'how' and 'where' the 'who' is doing the 'what' is important to include in the indicator as it provides the action for the intervention

- Measurable – The indicator has the capacity to be counted, observed, analysed, tested, or challenged
- Attainable – The indicator is achievable if the performance target accurately specifies the amount or level of what is to be measured in order to meet the result/outcome
- Relevant – An indicator is relevant to the extent that it captures or measures a facet of the outcome (in our case the minimum standards) that it is intended to measure
- Time bound – The indicator should state when it will be measured

Second, each study included in the LSHTM Humanitarian Health Evidence Review on the following topics was assessed and matched to Sphere standards and indicators when applicable: WASH, Nutrition, and Health including communicable diseases, non-communicable diseases, sexual and reproductive health (including gender-based violence) and mental health.

The following information was provided for each study that provided evidence to Sphere standards and indicators: Author, date, design of the study, study category and very basic summary. Study categories are defined as: category A includes studies that measure statistical associations between intervention and health-related outcome, while category B includes studies that measure changes in health-related outcome, but do not report on statistical associations[1].

Interviews were conducted with selected humanitarian health experts with extensive experience in humanitarian crises as researchers or practitioners. These interviews were used to validate the results of the study and gather views and perspectives on the importance of standards in the humanitarian sector and on how to improve the development and use of the Sphere standards.

3. RESULTS

3.1 CLASIFICATIONS OF SHERE INDICATORS

The WASH, Food Security and Nutrition, and Health Action (excluding health systems) chapters in the Sphere Handbook included 48 standards and 159 indicators, comprised of 13 minimum standards and 58 indicators for WASH, 18 minimum standards and 63 indicators for Food Security and Nutrition, and 17 minimum standards and 38 indicators for Health Action.

Only two indicators (from Health Action) out of 159 indicators included a time-bound element. None of the others gave any indication as to when to measure the indicator. Although the time-bound element is not very precise, the two indicators below specify the assessment should be done after vaccination campaigns or "once Expanded Programme on Vaccination (EPI) services are re-established":

- Upon completion of measles vaccination campaign: at least 95 per cent of children aged 6 months to 15 years have received measles vaccination; at least 95 per cent of children aged 6–59 months have received an appropriate dose of Vitamin A
- Once routine EPI services have been re-established, at least 90 per cent children aged 12 months have had three doses of DPT (diphtheria, pertussis and tetanus), which is the proxy indicator for fully immunised children

In order to continue the analysis, the "T" of the SMART criteria was excluded from our analysis and we focused on the following four "SMAR" criteria: specific, measurable, attainable and relevant. Indicators from the WASH, Food Security and Nutrition and Health Action Chapters were therefore classified as follows:

- SMAR
- SMAR with guidance notes (GN) and/or appendices
- Not SMAR

We chose the "R" component in SMAR to stand for *relevant*, but it could also refer to *realistic*. This is because a number of Sphere indicators may be unrealistic or only possible to measure in very specific settings such as in small, well organised refugee camps. Although we should aim to target all people in need and to ensure that all health centres are supported in the best possible way, it may be difficult to attain full coverage of indicators where the following language is used: "all users", "all staff", "all the disaster-affected people", "all targeted beneficiaries", "at all times", and "no cases of health hazards".

There is a wide discrepancy in the way indicators are phrased between chapters. Over half of the WASH (51.7%; 30 out of 58) and the Food Security and Nutrition (57.1%; 36 out of 63) indicators could be categorised as "SMAR", or "SMAR with guidance notes and/or appendices", with a larger proportion of "SMAR with guidance notes and/or appendices" for the Food Security and Nutrition compared to the WASH chapter (19.0% versus 8.6%). The Health action chapter has a larger

proportion of indicators SMAR or SMAR with guidance notes and/or appendices (81.6%; 31 out of 38) (See Table 1 and Figure 1). See Annex 1 for detailed categorisation by indicators for each chapter.

Indicators classified as "not SMAR" did not satisfy the following criteria: specific, measurable, attainable and relevant. For example, the following WASH indicator is not SMAR: "All women, men and children have access to information and training on the safe use of hygiene items that are unfamiliar to them". This indicator could be reformulated as such to meet the "SMAR" criteria: "From the first month of intervention, at least 70% of women, men and children attend a training on the safe use of hygiene items once a month".

Table 1: Clasification of Sphere Indicators

	SMAR (n, %)	SMAR with GN/ appendix (n, %)	Not SMAR (n, %)
WASH (n=58)	25 (43.1)	5 (8.6)	28 (48.3)
Food Security and Nutrition (n=63)	24 (38.1)	12 (19.0)	27 (42.9)
Health Action (n=38)	29 (76.3)	2 (5,3)	7 (18.4)

WASH

Food Security and Nutrition

Health Action

43%
48%
9%

38%
43%
19%
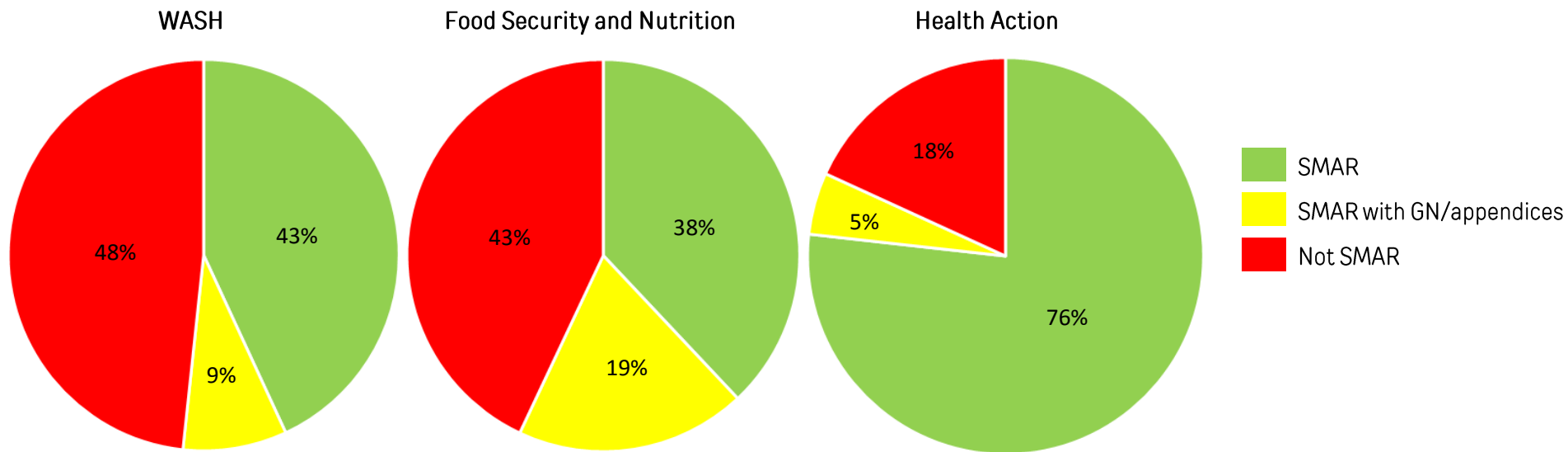
76%
5%
18%

SMAR

SMAR with GN/appendices

Not SMAR

Figure 1: Classification of the 159 Sphere indicators in three categories

3.2 ASSES THE EVIDENCE FROM THE LSHTM REVIEW SUPPORTING THE SPHERE STANDARDS AND INDICATORS

The LSHTM Humanitarian Health Evidence Review[1] included 6 studies on WASH, 77 studies on Nutrition and 236 studies on Health (151 studies on communicable diseases, 8 on non-communicable diseases, 15 on sexual and reproductive health and 62 studies on mental health). Very few of these studies provide evidence for the standards and indicators encompassed in the Sphere Handbook. Find the list of study references providing evidence Annex 2.

The WASH chapter from the Sphere Handbook contains 13 minimum standards and 58 indicators. Out of the 6 studies included in the review, 4 studies support 3 (5%) of the indicators included in the Sphere Handbook and 3 (23.1%) standards. Four studies support directly the 3 indicators and parts of the standards presented in Table 2 and all 4 studies measured statistical associations between intervention and diarrhoea (i.e. category A). Although studies provide some evidence, they do not support fully the indicator. For example, the study on soap distribution does not include all "hygiene items" and the study on bucket provision does not specify the size or number of buckets. Two of the 3 remaining indicators supported by evidence from the LSHTM review were classified as SMAR and 1 not SMAR (Table 2).

The Food Security and Nutrition chapter contains 18 minimum standards and 63 indicators. Of the 77 studies included in the review, 8 provide evidence to 7 (11 %) of the 63 indicators included in the Sphere Handbook and 5 (27.8%) standards. Although food security was not included in the review conducted by LSHTM, 6 of the studies included support 5 food security indicators in the Sphere Handbook. All studies provide evidence directly supporting the indicators, and 7 measure statistical association between intervention and health outcome (acute malnutrition, micronutrient deficiencies, underweight, stunting), while 1 measures changes in acute malnutrition prevalence, but does not report statistical associations (category B). Similar to the evidence supporting WASH indicators, the evidence supporting Food Security and Nutrition indicators provides evidence only for parts of the indicators. Four of the 7 indicators supported by evidence from the LSHTM review were classified as SMAR with guidance notes and/or appendices, and 3 not SMAR (see Table 3).

The Health Action contains 17 minimum standards and 38 indicators (excluding health systems). Of the 236 studies included in the review, 21 support, to some extent, 4 (11%) of the 38 indicators of Health Action (essential health services only). The 2 indicators on vaccination (measles and EPI routine) provide only some evidence on the positive impact of the vaccination itself, but no evidence

regarding the coverage that should be reached. Of the 21 studies, 12 measure statistical associations between intervention and health outcome (category A), while 9 measure changes in health outcomes but do not report statistical associations (category B). All the indicators supported by evidence from the LSHTM review are classified as SMAR (see Table 4). As confirmed by the experts interviewed, there was already awareness about the lack of evidence behind the standards. This is first time, however, for detailed analysis to be provided for each indicator, and this information can help guide the development of the 2017 Sphere Handbook.

Table 2: The three evidence-based indicator for WASH

Minimum Standard	Indicators	Study			
		Author (date)	Design	Category	Summary
Hygiene promotion standard 2: Identification and use of hygiene items	Women, men and children have access to hygiene items and these are used effectively to maintain health, dignity and well-being	Peterson et al (1998)	Uncontrolled Longitudinal Study	A	Effect of soap distribution on diarrheal risk
Water supply standard 2: Water quality	Any household-level water treatment options used are effective in improving microbiological water quality and are accompanied by appropriate training, promotion and monitoring	Doocy et al (2006)	RCT	A	Safe water storage; Flocculant disinfectant effect on diarrheal incidence
		Elsanousi et al (2009)	Uncontrolled Longitudinal Study	A	Household iodinated water filter effect on diarrhoeal prevalence
Water supply standard 3: Water facilities	Each household has at least two clean water collecting containers of 10–20 litres, one for storage and one for transportation	Roberts et al (2001)	RCT	A	Bucket provision for storage & WASH education positive effect on diarrheal incidence
		Doocy et al* (2006)	RCT	A	Safe water storage & Flocculant disinfectant positive effect on diarrheal incidence

*Same as article above on water supply standard 2; RCT= randomised controlled trials; Category A: Studies that measure statistical associations between intervention and health-related outcome; Category B: Studies that measure changes in health-related outcome, but do not report statistical associations
Red shading: Not SMAR; Green shading: SMAR

Table 3: Evidence-based indicators for Food Security and Nutrition

Minimum Standard	Indicators	Study Author (date)	Design	Category	Summary
IYCF standard 2: Basic and skilled support	Breastfeeding mothers have access to skilled breastfeeding support	Andersson et al (2010)	Before/after	A	Positive impact of breastfeeding promotion/support
Management of acute malnutrition and micronutrient deficiencies standard 3: Micronutrient deficiencies	Micronutrient interventions accompany public health interventions to reduce common diseases associated with emergencies such as measles (Vitamin A) and diarrhoea (zinc)	Magoni et al (2008)	Before/after	A	Positive impact of iron supplementation & treatment for common diseases & food supplementation
		Menon et al (2007)	RCT	A	Positive impact of micronutrient Sprinkles through an Integrated Health and Nutrition programme
Food security standard 1: General food security	All the disaster-affected people in need of food security responses receive assistance that meets their primary needs, prevents erosion of their assets, gives them choice and promotes their dignity.	Bush (2005)	Before/after	B	Food aid positive impact on households and economy recovery
		De Waal et al (2006)	Cross-sectional	A	Food aid and reduced child mortality
Food security – food transfers standard 1: General nutrition requirements	• There is adequate access to iodised salt for the majority (>90 per cent) of households • There is adequate access to additional sources of niacin (e.g. pulses, nuts, dried fish) if the staple is maize or sorghum • There is adequate access to additional sources of thiamine if the staple is polished rice	Kassim et al (2012)	Cross-sectional	A	Excess iodine in refugee camp (linked to guidance not 5)
		Malfait et al (1993)	Case-Control	A	On access to niacin and pellagra outbreak
		Luxemburger et al (2003)	Cohort	A	Effect of treatment of beriberi on infant mortality rate
Food security – cash and voucher transfers standard 1: Access to available goods and services	Cash and/or vouchers are the preferred form of transfer for all targeted populations, particularly for women and other vulnerable people	Doocy et al (2005)	Case-Control	A	Microfinance programme impact on nutritional status and well-being of female clients and their families

RCT= randomised controlled trial; Before/after=controlled before-after studies; Category A: Studies that measure statistical associations between intervention and health-related outcome; Category B: Studies that measure changes in health-related outcome, but do not report statistical associations
Red shading: Not SMAR; Yellow shading: SMAR guidance notes and/or appendices.

Table 4: Evidence-based indicators for Health Action

Minimum Standard	Indicators	Study			
		Author (date)	Design	Category	Summary
Essential health services – child health standard 1: Prevention of vaccine-preventable diseases	Upon completion of measles vaccination campaign: – at least 95 per cent of children aged 6 months to 15 years have received measles vaccination; – at least 95 per cent of children aged 6–59 months have received an appropriate dose of Vitamin A.	Aaby (2003) Aaby (2005) CDC (2003) Elsayed (2004) Garenne (1997) Kamugisha (2003) Marfin (1994) Mupere (2005) Porter (1990) Senessie (2007) Talley (2003)	Cohort Cohort Before/after Cross-sect. Cohort Cross-sect. Before/after Before/after Before/after Before/after Cohort	A A B B A B B A A B B	Positive impact of measles vaccination
	Once routine EPI services have been re-established, at least 90 per cent children aged 12 months have had three doses of DPT (diphtheria, pertussis and tetanus), which is the proxy indicator for fully immunised children.	Aaby (2002) Aaby (2003) Aaby (2005) Garenne (1997) Myint (2011) Senessie (2007)	Cohort Cohort Cohort Cohort Before/after Before/after	A A A A B B	Positive impact of DTP vaccination
Essential health services – child health standard 2: Management of newborn and childhood illness	All children <5 years of age presenting with diarrhoea have received both oral rehydration salts and zinc supplementation	Myint (2011) Isaza (1980)	Before/after Before/after	B A	Rehydration positive impact on people with diarrhoea
		Habib (2010)	Cohort	A	Zinc provision positive impact on people with diarrhoea
Essential health services – sexual and reproductive health standard 1: Reproductive health	All pregnant women in their third trimester have received clean delivery kits	McPherson et al (2006)	Case series	A	Birth preparedness package improves maternal/newborn health including obstetric care

Before/after=Controlled before–after studies; Cross-sect.= Cross sectional; Category A: Studies that measure statistical associations between intervention and health-related outcome; Category B: Studies that measure changes in health-related outcome, but do not report statistical associations.
Green shading: SMAR.

4. DISCUSSION

Approximately half of the indicators from the WASH, Food Security and Nutrition and Health Action chapters are specific, measurable, attainable and relevant, "SMAR", while a small proportion require the guidance notes or appendices in order to be specific enough and measurable. The three chapters have different proportions of "SMAR" indicators, with a much larger proportion in the Health Action chapter. Out of the 159 indicators included in the three chapters, 2 indicators take into account the time-bound element that is usually included when evaluating indicators as "SMART" which is why they were assessed as "SMAR". Furthermore, some indicators may be unrealistic (i.e. "all the disaster-affected people", "all targeted beneficiaries").

Very few studies from the LSHTM review of evidence on interventions in humanitarian crises support the indicators from the three chapters. A total of 33 studies support either fully, or to some extent, 14 indicators and 11 standards. The Sphere standards have many references such as various World Health Organisation (WHO) guidelines or the Inter-Agency Standing Committee (IASC) recommendations, but are not directly linked to a specific standard, action or indicator.

5. CONCLUSION: NEXT STEPS

The revision of the Sphere Handbook provides an excellent opportunity to up-date the standards and also to highlight the evidence behind each standard. There is clear consensus amongst the experts and the people surveyed (see companion report related to the survey) that the Sphere standards are very important but require significant revision if they are to be relevant and appropriate. One of the key requirements will be to use existing evidence as a starting point when constructing the new standards. As highlighted by the experts interviewed and the analysis presented in the report, the following recommendations should be taken into account when revising the Sphere Handbook:

- Be transparent about how indicators were selected by linking standards and indicators to studies, guidelines, other documents or expert consensus. This will require the review team to document and justify choices made for the selection of indicators and standards by linking these to information sources (expert consultation, common sense or scientific evidence)
- Ensure clarification on whether the standards are minimal standards, or targets to be achieved
- Make sure the indicators are realistic and achievable

- Limit the number of standards to its minimum

- Distinguish standards – that are measurable indicators – with guiding principles – that offer guidance rather than measurement

- Add a "time-bound" element to the indicators to suggest when they should be measured

- Rephrase the non-SMAR indicators in order to provide clear indicators of measurement

- Homogenise the indicators in the different thematic chapters to allow same level of information for all topics included

- Include recent guidelines such as Emergency Medical Teams (EMT) from WHO, or the new IYCF guidelines

- The Sphere Handbook should become an online tool and a dynamic document that is continuously improved and updated as new evidence becomes available

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Annex 1: Classification of Sphere indicators

Table 1: Classification of WASH Sphere indicators (SMAR= green; SMAR with GN and/or appendices= yellow; Not SMAR= red)

WASH standard 1: WASH programme design and implementation

Indicators:

· All groups within the population have safe and equitable access to WASH resources and facilities, use the facilities provided and take action to reduce the public health risk

· All WASH staff communicate clearly and respectfully with those affected and share project information openly with them, including knowing how to answer questions from community members about the project

· There is a system in place for the management and maintenance of facilities as appropriate, and different groups contribute equitably

· All users are satisfied that the design and implementation of the WASH programme have led to increased security and restoration of dignity

Hygiene promotion standard 1: Hygiene promotion implementation

Indicators:

· All user groups can describe and demonstrate what they have done to prevent the deterioration of hygiene conditions

· All facilities provided are appropriately used and regularly maintained

· All people wash their hands after defecation, after cleaning a child's bottom, before eating and preparing food

· All hygiene promotion activities and messages address key behaviours and misconceptions and are targeted at all user groups

- · Representatives from all user groups are involved in planning, training, implementation, monitoring and evaluation of the hygiene promotion work

- · Care-takers of young children and infants are provided with the means for safe disposal of children's faeces

Hygiene promotion standard 2: Identification and use of hygiene items

Indicators:

- · Women, men and children have access to hygiene items and these are used effectively to maintain health, dignity and well-being

- · All women and girls of menstruating age are provided with appropriate materials for menstrual hygiene following consultation with the affected population

- · All women, men and children have access to information and training on the safe use of hygiene items that are unfamiliar to them

- · Information on the timing, location, content and target groups for an NFI distribution is made available to the affected population

- · The safety of affected populations and staff is prioritised when organising an NFI distribution

Water supply standard 1: Access and water quantity

Indicators:

- · Average water use for drinking, cooking and personal hygiene in any household is at least 15 litres per person per day

- · The maximum distance from any household to the nearest water point is 500 metres

- · Queuing time at a water source is no more than 30 minutes

Water supply standard 2: Water quality

Indicators:

- There are no faecal coliforms per 100ml of water at the point of delivery

- Any household-level water treatment options used are effective in improving microbiological water quality and are accompanied by appropriate training, promotion and monitoring

- There is no negative effect on health due to short-term use of water contaminated by chemicals (including carry-over of treatment chemicals) or radiological sources, and assessment shows no significant probability of such an effect

- All affected people drink water from a protected or treated source in preference to other readily available water sources

- There is no outbreak of water-borne or water-related diseases

Water supply standard 3: Water facilities

Indicators:

- Each household has at least two clean water collecting containers of 10–20 litres, one for storage and one for transportation

- Water collection and storage containers have narrow necks and/or covers for buckets or other safe means of storage, for safe drawing and handling, and are demonstrably used

- There is at least one washing basin per 100 people and private laundering and bathing areas available for women. Enough water is made available for bathing and laundry

- Water at household level is free from contamination at all times

- All people are satisfied with the adequate facilities they have for water collection, storage, bathing, hand washing and laundry

- Regular maintenance of the installed systems and facilities is ensured and users are involved in this where possible

Excreta disposal standard 1: Environment free from human faeces

Indicators:

- The environment in which the affected population lives is free from human faeces

- All excreta containment measures, i.e. trench latrines, pit latrines and soak-away pits, are at least 30 metres away from any groundwater source. The bottom of any latrine or soak-away pit is at least 1.5 metres above the water table

- In flood or high water table situations, appropriate measures are taken to tackle the problem of faecal contamination of groundwater sources

- Drainage or spillage from defecation systems does not contaminate surface water or shallow groundwater sources

- Toilets are used in the most hygienic way possible and children's faeces are disposed of immediately and hygienically

Excreta disposal standard 2: Appropriate and adequate toilet facilities

Indicators:
- Toilets are appropriately designed, built and located to meet the following requirements: – they are sited in such a way as to minimise security threats to users, especially women and girls, throughout the day and the night
– they provide a degree of privacy in line with the – norms of the users

– they are sufficiently easy to use and keep clean and do not present a health hazard to the environment. Depending on the context, the toilets are appropriately provided with water for hand washing and/or for flushing

– they allow for the disposal of women's menstrual hygiene materials and provide women with the necessary privacy for washing and drying menstrual hygiene materials

– they minimise fly and mosquito breeding

– they are provided with mechanisms for desludging, transport and appropriate disposal in the event that the toilets are sealed or are for long-term use and there is a need to empty them

– in high water table or flood situations, the pits or containers for excreta are made watertight in order to minimise contamination of groundwater and the environment

· A maximum of 20 people use each toilet

· Separate, internally lockable toilets for women and men are available in public places, such as markets, distribution centres, health centres, schools, etc.

· Toilets are no more than 50 metres from dwellings

· Use of toilets is arranged by household(s) and/or segregated by sex

· All the affected population is satisfied with the process of consultation and with the toilet facilities provided and uses them appropriately

· People wash their hands after using toilets and before eating and food preparation

Vector control standard 1: Individual and family protection

Indicators:

· All populations have access to shelters that do not harbour or encourage the growth of vector populations and are protected by appropriate vector control measures

· All populations at risk from vector-borne disease understand the modes

· All people supplied with insecticide-treated mosquito nets use them effectively

· All food stored at the household level is protected from contamination by vectors such as flies, insects and rodents

Vector control standard 2: Physical, environmental and chemical protection measures

Indicators:

· The population density of mosquitoes is kept low to avoid the risk of excessive transmission levels and infection

· Fewer people are affected by vector-related health problems

Vector control standard 3: Chemical control safety

Indicators:

· Accepted international standards and norms are followed in the choice of quality, storage and transport of chemicals for vector control measures. No adverse reactions are reported or observed due to vector control chemicals

· All vector control chemicals are accounted for at all times

Solid waste management standard 1: Collection and disposal

Indicators:

- All households have access to refuse containers which are emptied twice a week at minimum and are no more than 100 metres from a communal refuse pit

- All waste generated by populations living in settlements is removed from the immediate living environment on a daily basis, and from the settlement environment a minimum of twice a week

- At least one 100-litre refuse container is available per 10 households, where domestic refuse is not buried on-site

- There is timely and controlled safe disposal of solid waste with a consequent minimum risk of solid waste pollution to the environment

- All medical waste (including dangerous waste such as glasses, needles, dressings and drugs) is isolated and disposed of separately in a correctly designed, constructed and operated pit or incinerator with a deep ash pit, within the boundaries of each health facility

Drainage standard 1: Drainage work

Indicators:

- Water point drainage is well planned, built and maintained. This includes drainage from washing and bathing areas as well as water collection points and hand washing facilities

- There is no pollution of surface water and/or groundwater sources from drainage water

- Shelters, paths and water and sanitation facilities are not flooded or eroded by water

- There is no erosion caused by drainage water

Table 2: Classification of Food Security and Nutrition Sphere indicators (SMAR= green; SMAR with GN and/or appendices= yellow; Not SMAR= red)

Food Security and Nutrition assessment standard 1: Food security

Indicators:

· Food security and livelihoods of individuals, households and communities are investigated to guide interventions

· Assessment findings are synthesised in an analytical report including clear recommendations of actions targeting the most vulnerable individuals and groups

· The response is based on people's immediate food needs but will also consider the protection and promotion of livelihood strategies

Food Security and Nutrition assessment standard 2: Nutrition

Indicators:

· Assessment and analysis methodologies including standardised indicators adhering to widely accepted principles are adopted for both anthropometric and non-anthropometric assessments

· Assessment findings are presented in an analytical report including clear recommendations of actions targeting the most vulnerable individuals and groups

Infant and young child feeding standard 1: Policy guidance and coordination

Indicators:

· A national and/or agency policy is in place that addresses IYCF and reflects the Operational Guidance on IFE

· A lead coordinating body on IYCF is designated in every emergency

· A body to deal with any donations of BMS, milk products, bottles and teats is designated

- · Code violations are monitored and reported

Infant and young child feeding standard 2: Basic and skilled support

Indicators:

- · Measurement of standard WHO indicators for early initiation of breastfeeding, exclusive breastfeeding rate in children <6 months, and continued breastfeeding rate at 1 and 2 years

- · Caregivers have access to timely, appropriate, nutritionally adequate and safe complementary foods for children 6 to <24 months

- · Breastfeeding mothers have access to skilled breastfeeding support

- · There is access to Code-compliant supplies of appropriate BMS and associated support for infants who require artificial feeding

Management of acute malnutrition and micronutrient deficiencies standard 1: Moderate acute malnutrition

Indicators:

- · More than 90 per cent of the target population is within less than one day's return walk (including time for treatment) of the programme site for dry ration supplementary feeding programmes and no more than one hour's walk for on-site supplementary feeding programmes

- · Coverage is >50 per cent in rural areas, >70 per cent in urban areas and >90 per cent in a camp situation

- · The proportion of discharges from targeted supplementary feeding programmes who have died is <3 per cent, recovered is >75 per cent and defaulted is <15 per cent

Management of acute malnutrition and micronutrient deficiencies standard 2: Severe acute malnutrition

Indicators:

- More than 90 per cent of the target population is within less than one day's return walk (including time for treatment) of the programme site.

- Coverage is >50per cent in rural areas, >70per cent in urban areas and >90per cent in camp situations

- The proportion of discharges from therapeutic care who have died is <10per cent, recovered is >75per cent and defaulted is <15per cent

Management of acute malnutrition and micronutrient deficiencies standard 3: Micronutrient deficiencies

Indicators:

- Cases of micronutrient deficiencies are treated according to current best clinical practice

- Micronutrient interventions accompany public health interventions to reduce common diseases associated with emergencies such as measles (Vitamin A) and diarrhoea (zinc)

Food security standard 1: General food security

Indicators:

- All the disaster-affected people in need of food security responses receive assistance that meets their primary needs, prevents erosion of their assets, gives them choice and promotes their dignity

- Households do not use negative coping strategies

- The choice of cash, vouchers or a combination of these is based on thorough assessment and analysis

Food security – food transfers standard 1: General nutrition requirements

Indicators:

· There is adequate access to a range of foods, including a staple (cereal or tuber), pulses (or animal products) and fat sources, that together meet nutritional requirements

· There is adequate access to iodised salt for the majority (>90 per cent) of households

· There is adequate access to additional sources of niacin (e.g. pulses, nuts, dried fish) if the staple is maize or sorghum

· There is adequate access to additional sources of thiamine (e.g. pulses, nuts, eggs) if the staple is polished rice

· There is adequate access to adequate sources of riboflavin where people are dependent on a very limited diet

· There are no cases of scurvy, pellagra, beriberi or riboflavin deficiency

· The prevalence of Vitamin A deficiency, iron deficiency anaemia and iodine deficiency disorders are not of public health significance

Food security – food transfers standard 2: Appropriateness and acceptability

Indicators:

- Programme decisions are based on full participation of all targeted people in the selection of food items

- Programme design takes into account access to water, cooking fuel and food processing equipment

- There is no general distribution of powdered or liquid milk or milk products as single commodities

Food security – food transfers standard 3: Food quality and safety

Indicators:

- All recipients receive food that is 'fit for purpose': for safety, food should not pose a risk to health; for quality, food should match quality specifications and be nutritious

- Accountability monitoring tracks all the beneficiaries' complaints received and resolved

Food security – food transfers standard 4: Supply chain management (SCM)

Indicators:

- Food reaches intended distribution points

- Commodity tracking systems, inventory accounting and reporting systems are in place from the beginning of the intervention

- SCM assessment reports show evidence of assessment and inventory of local SCM capacities, local food availability and local logistics infrastructure

- SCM reporting shows: – evidence of transparent, fair and open systems for awarding contracts; – evidence of supplier/service provider performance

management and reporting; – number and proportion of SCM staff trained; – completeness and accuracy of documentation; – losses are minimised and maintained at less than 2 per cent and all food is accounted for; – regular pipeline analysis and relevant stakeholders informed of food pipeline and supply chain.

Food security – food transfers standard 5: Targeting and distribution

Indicators:

· Targeting criteria must be based on thorough analysis of vulnerability

· Targeting mechanisms are agreed among the disaster–affected population

· Existence of relevant alternative distribution models for people with reduced mobility

· Recipients should not have to walk more than 10 kilometres to the distribution site, i.e. no more than a four–hour walk

· Presence of ration cards, banners and/or signposts specifying the food rations during distributions

· Monitoring and/or beneficiary accountability mechanisms track: – stakeholders' preferences on distribution methods; – information provided to beneficiaries on distribution; – beneficiaries/food receipt: actual versus planned (timeliness, quantity, quality).

Food security – food transfers standard 6: Food use

Indicators:

· No cases of health hazards from food distributed.

· Raise beneficiaries' awareness of good food hygiene

· All relevant staff must be trained on food handling and hazards from improper practices

·   Full household access to adequate and safe food preparation materials and equipment

·   Full presence of carers for all individuals with special assistance needs

Food security – cash and voucher transfers standard 1: Access to available goods and services

Indicators:

·   All targeted populations meet some or all their basic food needs and other livelihood needs (e.g. productive assets, health, education, transportation, shelter, transport) through purchase from the local markets

·   Cash and/or vouchers are the preferred form of transfer for all targeted populations, particularly for women and other vulnerable people

·   The transfer does not result in anti-social expenditures

·   The transfer does not generate insecurity

·   The local economy is supported to recover from the disaster

Food security – livelihoods standard 1: Primary production

Indicators:

·   All households with assessed needs have access to the necessary inputs to protect and restart primary production to the level pre-disaster, when justified, and in accordance with the agricultural calendar

·   All targeted households are given cash or vouchers, where it is considered (or assessed) to be operationally viable, at market value of required inputs,

giving households choices on livelihoods options

Food security – livelihoods standard 2: Income and employment

Indicators:

· All the targeted people generate incomes through their activities and contribute to meeting their basic and other livelihoods needs.

· Responses providing employment opportunities are equally available to women and men and do not negatively affect the local market or negatively impact on normal livelihood activities

· Populations are kept aware of and understand remuneration as a contribution towards the food security of all household members equally

Food security – livelihoods standard 3: Access to markets

Indicators:

· Interventions are designed to support the recovery of markets, either through direct intervention or through the promotion of local traders via cash and/or voucher programmes.

· All targeted populations have safe and full access to market goods, services and systems throughout the duration of the programme.

Table 3: Classification of WASH Sphere indicators (SMAR= green; SMAR with GN and/or appendices= yellow; Not SMAR= red)

Health systems standard 1: Health service delivery

Indicators:

·   There are an adequate number of health facilities to meet the essential health needs of all the disaster–affected population: – one basic health unit/10,000 population (basic health units are primary healthcare facilities where general health services are offered); – one health centre/50,000 people; – one district or rural hospital/250,000 people; – >10 inpatient and maternity beds/10,000 people

·   Utilisation rates at health facilities are 2–4 new consultations/person/year among the disaster–affected population and>1 new consultations/person/year among rural and dispersed populations

Health systems standard 2: Human resources

Indicators:

·   There are at least 22 qualified health workers (medical doctors, nurses and midwifes) / 10,000 population (see guidance note 1): – at least one medical doctor/50,000 population; – at least one qualified nurse/10,000 population; – at least one midwife/10,000 population

·   There is at least one community health worker (CHW)/1,000 population, one supervisor/10 home visitors and one senior supervisor.

·   Clinicians are not required to consult more than 50 patients a day consistently. If this threshold is regularly exceeded, additional clinical staff are recruited (see guidance note 1 and Appendix 3: Formulas for calculating key health indicators).

Health systems standard 3: Drugs and medical supplies

Indicators:

·   No health facility is out of stock of selected essential medicines and tracer products for more than one week

Health systems standard 4: Health financing

Indicator:

· Primary healthcare services are provided to the disaster-affected population free of charge at all government and non-governmental organisation facilities for the duration of the disaster response

Health systems standard 5: Health information management

Indicators:

· All health facilities and agencies regularly provide a HIS report within 48 hours of the end of the reporting period to the lead agency.

· All health facilities and agencies report cases of epidemic-prone diseases within 24 hours of onset of illness

· The lead agency produces a regular overall health information report, including analysis and interpretation of epidemiological data, as well as a report on the coverage and utilisation of the health services.

Health systems standard 6: Leadership and coordination

Indicator:

· The lead agency has developed a health sector response strategy document to prioritise interventions and define the role of the lead and partner agencies at the onset of emergency response

Essential health services standard 1: Prioritising health services

Indicators:

· The crude mortality rate (CMR) is maintained at, or reduced to, less than double the baseline rate documented for the population prior to the disaster

· The under-5 mortality rate (U5MR) is maintained at, or reduced to, less than double the baseline rate documented for the population prior to the disaster

Essential health services – control of communicable diseases standard 1: Communicable disease prevention

Indicator:

· Incidences of major communicable diseases relevant to the context are stable (not increasing).

Essential health services – control of communicable diseases standard 2: Communicable disease diagnosis and case management

Indicator:

· Standardised case management protocols for the diagnosis and treatment of common infectious diseases are readily available and consistently used

Essential health services – control of communicable diseases standard 3: Outbreak detection and response

Indicators:

· A written outbreak investigation and response plan is available or developed at the beginning of disaster response

· Health agencies report suspected outbreaks to the next appropriate level within the health system within 24 hours of detection

· The lead health agency initiates investigation of reported cases of epidemic-prone diseases within 48 hours of notification

· Case fatality rates (CFRs) are maintained below acceptable levels: – cholera – 1 per cent or lower; – Shigella dysentery – 1 per cent or lower; – typhoid – 1 per cent or lower; – meningococcal meningitis – varies, 5–15 per cent; – malaria – varies, aim for <5 per cent in severely ill malaria patients; – measles – varies, 2–21 per cent reported in conflict-affected settings, aim for <5 per cent
(see guidance note 10).

Essential health services – child health standard 1: Prevention of vaccine-preventable diseases

Indicators:

· Upon completion of measles vaccination campaign: – at least 95 per cent of children aged 6 months to 15 years have received measles vaccination; – at least 95 per cent of children aged 6–59 months have received an appropriate dose of Vitamin A.

· Once routine EPI services have been re-established, at least 90 per cent children aged 12 months have had three doses of DPT (diphtheria, pertussis and tetanus), which is the proxy indicator for fully immunised children.

Essential health services – child health standard 2: Management of newborn and childhood illness

Indicators:

· All children under 5 years old presenting with malaria have received effective anti-malarial treatment within 24 hours of onset of their symptoms

· All children under 5 years of age presenting with diarrhoea have received both oral rehydration salts (ORS) and zinc supplementation

· All children under 5 years of age presenting with pneumonia have received appropriate antibiotics

Essential health services – sexual and reproductive health standard 1: Reproductive health

Indicators:

· All health facilities have trained staff, sufficient supplies and equipment for clinical management of rape survivor services based on national or WHO protocols.

· All pregnant women in their third trimester have received clean delivery kits

· There are at least four health facilities with (basic emergency obstetric care) BEmOC and newborn care/500,000 population.

· There is at least one health facility with (comprehensive emergency obstetric care) CEmOC and newborn care/500,000 population.

· The proportion of deliveries by caesarean section is not less than 5 per cent or more than 15 per cent

Essential health service – sexual and reproductive health standard 2: HIV and AIDS

Indicators:

· People most at risk of exposure to HIV are targeted with a HIV prevention programme.

· Pregnant women known to be HIV positive have received ARV drugs for PMTCT.

· 100 per cent of transfused blood is screened for transfusion-transmissible infections including HIV.

· Individuals potentially exposed to HIV (occupational exposure in healthcare settings and non-occupational exposure) have received PEP within 72 hours of an incident.

· All primary healthcare facilities have antimicrobials to provide syndromic management to patients presenting with symptoms of an STI.

Essential health services – injury standard 1: Injury care

Indicators:

· All health facilities have trained staff and systems for the management of multiple casualties.

Essential health services – mental health standard 1: mental health

Indicator:

· All health facilities have trained staff and systems for the management of mental health problems.

Essential health services – non-communicable diseases standard 1: Non-communicable diseases

Indicators:

· All primary healthcare facilities have clear standard operating procedures for referrals of patients with NCDs to secondary and tertiary care facilities.

· All primary healthcare facilities have adequate medication for continuation of treatment to individuals with NCDs who were receiving treatment before the emergency.

Annex 2: References of studies providing evidence to support Sphere standards and indicators

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Annex 3 List of experts interviewed

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