

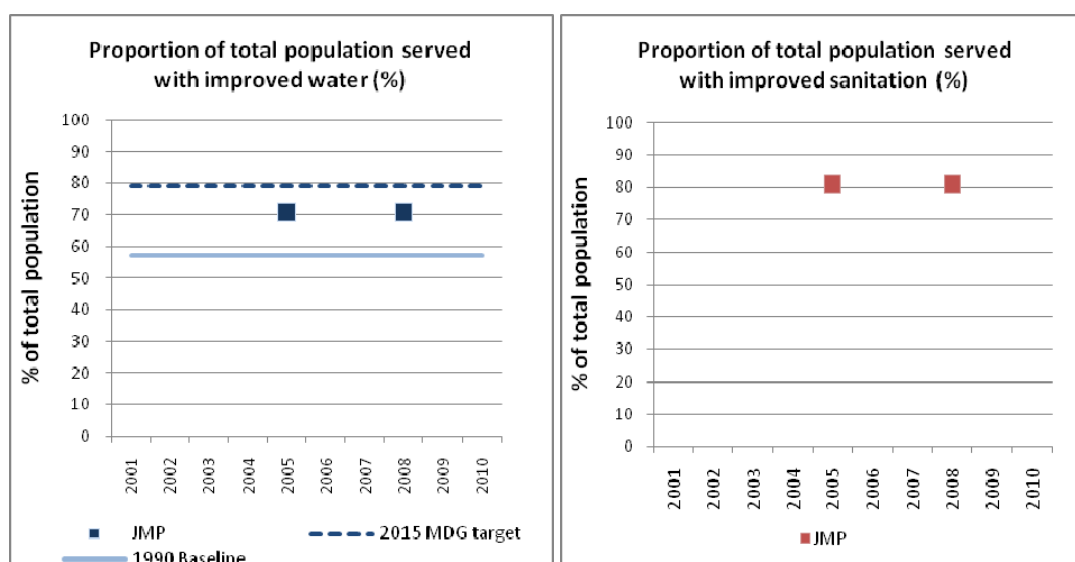
### Headline issues

- Reliable information about the Burmese WASH sector is difficult to access and likely out of date, since the last sector assessment was conducted in 1993. A WASH Sector Review is in the early stages of being planned.
- A series of recent natural disasters including major cyclones (2008, 2010), major floods (2010) and an earthquake (2011) have provided the opportunity for the international non-governmental organisation (NGO) community to offer assistance.
- Information coming out of disaster-affected areas (e.g. post Cyclone Nargis and post Cyclone Giri recovery efforts) shed light on WASH issues that could reflect conditions elsewhere in Burma, such as water supply sources and sanitation practices.

### Coverage and WASH related health statistics

Water and sanitation coverage data published by the WHO/UNICEF Joint Monitoring Program (JMP)<sup>1</sup> is shown in Figure 1, where the 1990 water coverage value is shown as a baseline from which a water target under the Millennium Development Goal was calculated. JMP has no sanitation data for Burma in 1990, hence a similar baseline and target are not shown in the sanitation figure. JMP suggest Burma is on track for its Millennium Development Goals (MDG) water and sanitation targets, but observations and comparison with other countries with similar health conditions suggest these may be significantly overstated.<sup>2</sup> This latter view is consistent with the limited information presented in this country brief.

Figure 1: Access to improved water and sanitation



Source: WHO/UNICEF Joint Monitoring Program (JMP) (2010) data for 2008.<sup>3</sup>

**Water supply access:** Through much of rural Burma, communal ponds, hand-dug wells and household rainwater harvesting systems are the main sources of water supply.<sup>4,5</sup> Villages that depend primarily on manmade ponds are at high risk of severe water stress during the dry season during March, April and May, a situation that existed prior to the cyclones.<sup>4,5,6</sup>

In 2009, a Period Review survey of Cyclone Nargis-affected areas indicated that 76% of surveyed households used unimproved water sources, particularly in the dry season; and 32% did not treat their water to safe standards.<sup>4</sup> An assessment of areas affected by Cyclone Giri showed 71% of sampled households treated their water by filtering with a cloth.<sup>5</sup> The same assessment found that when water was scarce, people would fetch water from other villages or collect water seeping out of springs or holes dug in dried ponds – with a very small number of households purchasing water from vendors. While the cyclones damaged the limited infrastructure and caused saline intrusion to water supplies that exacerbated the situation, it is possible that these patterns of low rural water access extend well beyond the areas affected by the two cyclones.

Piped water is supplied to approximately 60% of the urban population in the city of Rangoon which comprises 11% of the nation’s population.<sup>7</sup> Piped water is sourced through aging colonial era infrastructure from four distant reservoirs and tube wells from various parts of the city.<sup>8,9</sup> Private wells, public tanks, ponds and harvested rainwater supply the remaining population of Rangoon.<sup>10</sup>

**Sanitation access:** The 2009 Period Review of Cyclone Nargis-affected areas show 25% of surveyed households disposing of faeces in drains and ditches, with 15% reporting they left it in the open.<sup>4</sup> The assessment of Cyclone Giri-affected areas found 80%-100% of sampled households practiced open defecation and only around 11% of rural households had latrines.<sup>5</sup> Across the country it is highly likely that open defecation rates are significantly higher than the 1% estimated in JMP data.<sup>2</sup>

An aging sewerage system and wastewater treatment system serves six townships in downtown Rangoon City. Suburban areas of the city are served by individual septic tanks.<sup>7</sup>

The WASH facilities in schools may be inferred from the assessment of Cyclone Giri-affected areas, which found around half the schools in the assessed area had no toilets or hand washing facilities. Only 6 of the 100 schools in the assessment had any water supply infrastructure – piped water from community wells or tube wells within the school compound – while many of the remaining schools sent older 5<sup>th</sup> graders to fetch water.<sup>5</sup>

Infant mortality rates have been decreasing at an annual rate of 1.1% since 1990 but are not on track to reach this MDG.<sup>11</sup> Table 1 gives a summary of water-related health indices for Burma from publicly maintained indicator databases. The high rates of WASH-related disability-adjusted life years (DALYs) and deaths reinforce the assessment that government statistics significantly overstate access.

**Table 1: Summary health statistics**

Infant mortality (deaths per 1000 births) <sup>12</sup>	71
WASH-related DALYs (% of all DALYs) <sup>13</sup>	10%
Total WASH related DALYs (Years) <sup>13</sup>	1,359,546
Total WASH related deaths per year <sup>14</sup>	36,419
WASH related proportion of deaths (%) <sup>14</sup>	7%

Sources: World Bank and WHO as shown in endnotes

## Finance trends

Information about government investment is not available. The World Bank and Asian Development Bank have provided no funds to Burma in over 20 years.<sup>15, 16</sup> Many other Western donors have also restricted their support, resulting in Burma receiving around one-twentieth the amount of aid that other least developed countries receive on average.<sup>17</sup> A WASH sector review has not been conducted since 1993, and a new sector review and strategy are in the early stages of being planned in order to determine the priorities and level of investment required.<sup>18</sup>

## Sector governance

The Environmental Health Program under the National Health Plan (1993-1996, 1996-2001, 2001-2006 and 2006-2011) covers community water supply, sanitation and air/water pollution controls.<sup>19</sup> The Ministry of Health has been organising community engagement events for several decades in collaboration with UNICEF, such as the '4 Cleans' campaign (clean food, clean water, clean toilet and clean hands) and annual sanitation week, which promotes good sanitation practices throughout the country.<sup>2</sup>

The Department of Development Affairs (DDA) under the Ministry for Progress of Border Areas and National Races and Development Affairs has been responsible for construction of infrastructure including drinking water supply.<sup>19</sup> Specific roles and responsibilities in this area may change under the new government.<sup>18</sup>

Water resources management including water use is the responsibility of the Ministry of Agriculture and Irrigation. This includes monitoring of water quality parameters such as arsenic in drinking water supplies in collaboration with the Water Resources Utilisation Department, DDA and UNICEF.<sup>7</sup>

The Ministry of Education plays a key role in WASH community education programs including WASH in Schools and Global Handwashing Day in collaboration with UNICEF.<sup>18</sup>

## Subsector governance

### Urban sanitation

Urban sanitation-specific sector information was not accessible within the timeframe of this study.

### Urban water

Urban water is managed at city level – the Rangoon City Development Committee (YCDC) is responsible for water supply and sanitation in Rangoon.<sup>8</sup> Water users pay a very low fixed fee for services and use water liberally.<sup>18</sup>

### Rural sanitation

Information about governance of the rural sanitation sector wasn't accessible within the timeframe of this study. Donor agencies such as UNICEF have a greater presence in rural WASH programs than urban programs.

### Rural water

The Department of Development Affairs delivers water supply schemes to villages.<sup>20</sup> It is unclear how these schemes are managed over the longer term.

## Health and hygiene

UNICEF programs in collaboration with government (Ministries of Health and Education) have a strong focus on WASH and hygiene.

## Climate change and water resources

While the total available freshwater is high, availability is highly variable across the regions.<sup>21</sup> In the coastal and delta areas, potential climate change impacts include more frequent storms (cyclones) and floods, moving shore line, sea water intrusion and changes in rainfall pattern and intensity,<sup>21</sup> where the duration of rainfall has decreased while intensity has increased, making runoff more difficult to capture for later use.<sup>18</sup> In the country's dry zone, increased drought, reduced annual rainfall and higher dry season temperatures are expected.<sup>21</sup> Table 2 summarises water resource availability and vulnerability for Burma from publicly maintained indicator databases.

**Table 2: Status of water resources and climate vulnerability**

Renewable water (ML/population) <sup>22</sup>	21
Overall Climate Vulnerability factor 2010 <sup>23</sup> (on scale of <i>Acute, Severe, High, Moderate, Low</i> )	Acute
Overall Climate Vulnerability Factor 2030 <sup>23</sup> (on scale of <i>Acute, Severe, High, Moderate, Low</i> )	Acute
Environmental Vulnerability Status <sup>24</sup> (on scale of <i>Extremely vulnerable, Highly vulnerable, Vulnerable, At risk, Resilient</i> )	Vulnerable

In recent years arsenic in groundwater supplies has been identified as an issue.<sup>7,18</sup> However, the health impacts of long term consumption may be less than in Bangladesh and India because of the availability and public preference for rainwater, so arsenic contaminated water is not consumed year round. This situation is being monitored by UNICEF and government agencies.<sup>18</sup>

## Donor environment

Prior to Cyclone Nargis in 2008 there were three international non-governmental organisations (NGOs) active in the WASH sector (Save the Children, CARE and Adventist Development Relief Agency) in addition to UNICEF.<sup>18</sup> Many international agencies came to Burma's assistance following Cyclone Nargis, including several who specialised in WASH programming. Following the end of the recovery phase (July 2010) some nine new WASH agencies remained, bringing the total number of international agencies to 12. In addition to UNICEF, the UNDP, UNHCR and UN-Habitat now have WASH programs in some parts of the country. There are many more national NGOs also implementing WASH projects.<sup>18</sup>

UNICEF recently initiated training in Community Led Total Sanitation (CLTS) and began piloting CLTS in 10 villages, with plans to scale up.<sup>18</sup> The recent training session was attended by four participants from the Environmental Sanitation Division of the Ministry of Health, which intends to implement CLTS in a few villages near Nay Pyi Taw – the administrative capital since 2006.<sup>18</sup> Some NGOs present at the training session are also initiating CLTS in their project areas.<sup>18</sup> Further training is planned for late 2011.<sup>18</sup>

The sector has formed a Thematic Group that meets monthly with a view to developing a coordinated approach to WASH across the country, with sub-groups focused on areas such as emergencies, hygiene promotion and gender issues. The Thematic Group preceded Cyclone Nargis but its membership has grown since.<sup>18</sup>

One of the Thematic Group's current priorities is to conduct a review of the WASH Sector in Burma to develop a strategic plan for the sector (the last sector review was completed in 1993). UNICEF has just completed a Knowledge, Attitude and Practice (KAP) study of 6,000 households in 24 townships to develop a better picture of WASH across the country.<sup>18</sup> UNICEF, through the WASH Thematic Group, is taking the lead in the sector review in the absence of World Bank and ADB, and the sector will attempt to develop a strategic outlook to help steer the WASH development in Burma.<sup>18</sup> The first consultation for the planned sector review was held in May 2011 in Rangoon with UN agencies, NGOs and government partners.<sup>18</sup> A second consultation is planned for late 2011 in Nay Pyi Taw, after which the Thematic Group intends to develop a Terms of Reference for the review.<sup>18</sup>

In addition to the Thematic Group, there are specific short term donor coordination initiatives that have been created in cyclone affected areas under the Inter Agency Standing Committee's cluster approach to coordinating multi-sector emergency humanitarian assistance.<sup>17</sup> These included the now disbanded Tripartite Core Group (TCG) for Cyclone Nargis affected areas,<sup>4</sup> and the Joint Humanitarian Initiative (JHI) for the 2010 Cyclone Giri-affected Northern Rakhine State.<sup>25</sup>

## Sector monitoring

Formal and consistent WASH sector monitoring is lacking in Burma. Challenges identified during the Water Environment Partnership in Asia meeting in 2010 include a "lack of appropriate monitoring facilities, proper and systematic keeping of records, regular monitoring and surveillance data for water quality control and basic standards of water quality for drinking water".<sup>7</sup>

The Tripartite Core Group formed to oversee post Cyclone Nargis recovery aims to monitor and evaluate implementation of recovery action plans and the situation on-the-ground in areas affected by Cyclone Nargis,<sup>4</sup> which includes WASH. The interventions in this small part of the country are largely completed or wound up.<sup>18</sup>

### *Acknowledgements*

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<sup>1</sup> Source: WHO / UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation (2010). <http://www.wssinfo.org/data-estimates/maps/> Accessed 23 June 2011.

<sup>2</sup> UNICEF (2010) Combined Country Profiles. Sanitation Updates UNICEF Reviews of Community Approaches to Total Sanitation. <http://sanitationupdates.wordpress.com/2011/01/19/unicef-reviews-community-approaches-to-total-sanitation-cats/> Accessed 23 June 2011.

<sup>3</sup> WHO/UNICEF (2010) *Progress on Sanitation and Drinking Water 2010 Update*, available at [www.wssinfo.org](http://www.wssinfo.org). Accessed 23 June 2011.

<sup>4</sup> Tripartite Core Group (TCG) (2009) Post Nargis recovery and preparedness plan: prioritized action plan to address the critical needs of the survivors of Cyclone Nargis to July 2010. Tripartite Core Group (ASEAN, Government of the Union of Myanmar, and United Nations) October 2009.

<sup>5</sup> Myanmar Survey Research 2011. *WASH Cluster Assessment in Cyclone GIRI Affected Townships in Rakhine State*. January 2011.

<sup>6</sup> Shelter Working Group (2011) Post-Giri Recovery Strategy And Action Plan For Shelter Sector February 2011 Myanmar. <http://reliefweb.int/node/388272> Accessed 23 June 2011.

<sup>7</sup> Than M.M. (2010). 'Water and Waste Water Management in Yangon, Myanmar' (Irrigation Dept, Ministry of Agriculture and Irrigation) in Proceedings of Water Environment Partnership in Asia (WEPA) First International Workshop, March 2010. <http://c11kw mug.securesites.net/pdf/1003forum/workshop.pdf>

<sup>8</sup> Nagashio, D. (2002) 'Case Example of the Technical Cooperation of Japan in Yangon'. [www.niph.go.jp/soshiki/suido/omn/casestudies/PDF/Yangon.pdf](http://www.niph.go.jp/soshiki/suido/omn/casestudies/PDF/Yangon.pdf)

<sup>9</sup> Kitakyushu (date unknown) Public-Private Partnership for Yangon's Water Supply (A case study).

<http://kitakyushu.iges.or.jp/docs/sp/water/2%20Yangon.pdf>

<sup>10</sup> Source New Mandala, 'Water problems in Yangon', 2 March 2009. <http://asiapacific.anu.edu.au/newmandala/2009/03/02/water-problems-in-yangon/> Accessed 23 June 2011.

<sup>11</sup> Countdown to 2015 (2010) Countdown to 2015 Decade Report (2000-2010) with country profiles. WHO and UNICEF. 2010.

<http://www.countdown2015mnch.org/reports-publications/2010-country-profiles>. Accessed 23 June 2011.

<sup>12</sup> The probability per 1,000 that a newborn baby will die before reaching age five (2009). Source: World Bank Open Data from the Inter-agency Group for Child Mortality Estimation.

<sup>13</sup> Disability-adjusted life year (DALY) measures the years of life lost to premature mortality and the years lost to disability. Source: 2004 update of the Table 1 and Annex of the publication 'Safer water, better health', by Prüss-Ustün et al, WHO, Geneva, 2008. Available at [http://www.who.int/quantifying\\_ehimpacts/publications/saferwater/en/index.html](http://www.who.int/quantifying_ehimpacts/publications/saferwater/en/index.html). Accessed 23 June 2011.

<sup>14</sup> Source: 2004 update of the Table 1 and Annex of the publication 'Safer water, better health', by Prüss-Ustün et al, WHO, Geneva, 2008 as above.

<sup>15</sup> [www.worldbank.org](http://www.worldbank.org) Accessed 23 June 2011

<sup>16</sup> ADB 2009. Myanmar Fact Sheet. Accessed 23 June 2011. [www.adb.org/Documents/Fact\\_Sheets/MYA.pdf](http://www.adb.org/Documents/Fact_Sheets/MYA.pdf)

<sup>17</sup> Global Public Policy Institute 2010. IASC Cluster Approach Evaluation Country Study: Myanmar. For Inter-Agency Standing Committee. Viewed 30 May 2011. [http://www.gppi.net/fileadmin/gppi/GPPI-URD\\_Cluster\\_II\\_Evaluation\\_MYANMAR\\_e.pdf](http://www.gppi.net/fileadmin/gppi/GPPI-URD_Cluster_II_Evaluation_MYANMAR_e.pdf)

<sup>18</sup> Personal communication. Johnston, D. (Head, UNICEF WASH program in Myanmar). 29 April 2011.

<sup>19</sup> Water Supply and Sanitation Collaborative Council, Myanmar: Wash Sector at a Glance. <http://www.wsscc.org/countries/asia/myanmar/wash-sector-glance>. Accessed 23 June 2011.

<sup>20</sup> See ReliefWeb Updates, for example May 2010 <http://reliefweb.int/node/355232>

<sup>21</sup> Zaw, T. & Than M.M. 2010. Climate Change Impacts to the Water Environment and Adaptation Options. (Irrigation Dept, Ministry of Agriculture and Irrigation) in Proceedings of Water Environment Partnership in Asia (WEPA) First International Workshop, March 2010. <http://c11kw mug.securesites.net/pdf/1003forum/workshop.pdf>

<sup>22</sup> Renewable Freshwater Supply estimates (km<sup>3</sup>/yr) (2006) from Pacific Institute ([www.worldwater.org](http://www.worldwater.org)), converted to ML per head of population using JMP population estimates. Data should be used with caution and treated as 'order of magnitude'. Freshwater estimates (2006 updates) were made at different periods from different sources. 2008 JMP population data used for consistency with other calculations.

<sup>23</sup> Source: Climate Vulnerability Monitor 2010 <http://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2010>. Countries are classified according to: ACUTE+, ACUTE, ACUTE-, SEVERE+, SEVERE, SEVERE-, HIGH+, HIGH, HIGH-, MODERATE, LOW. For information on included datasets and methodology for aggregation and categorising, see [http://daraint.org/wp-content/uploads/2010/12/CVM\\_Methodology.pdf](http://daraint.org/wp-content/uploads/2010/12/CVM_Methodology.pdf).

<sup>24</sup> Source: Environmental Vulnerability Index 2004 developed by SOPAC, UNEP and partners. <http://www.vulnerabilityindex.net/> Countries are classified according to: Extremely vulnerable, Highly vulnerable, Vulnerable, At risk, Resilient. Accessed 23 June 2011.

<sup>25</sup> MIMU (2010) Northern Rakhine State, June 2010. Myanmar Information Management Unit (MIMU)

<http://www.themimu.info/Term/HTML/SnapShots.html> Accessed 23 June 2011.