



Federal Ministry  
for Economic Cooperation  
and Development

# Practical implementation of the 2030 Agenda. Synergies and conflicts between water (SDG 6) and other goals.

Six guidelines for implementation within development cooperation.

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STRATEGY PAPER



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# Background and aim of the strategies

The United Nations 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) can only be implemented if the linkages between different sectors are adequately taken into account. **Doing so will also help to increase the effectiveness of German development cooperation. Therefore, the BMZ has outlined, in six different strategies for interlinkages**, how various other sectors affect and are affected by the water sector and where action needs to be taken.<sup>1</sup>

The strategies for interlinkages were drafted jointly with those responsible for the different sectors in BMZ and in the implementing organisations. They now form part of the guidelines for all the sectors concerned. Formally, they complement the BMZ water strategy ([http://www.bmz.de/en/publications/type\\_of\\_publication/strategies/Strategiepapier390\\_08\\_2017.pdf](http://www.bmz.de/en/publications/type_of_publication/strategies/Strategiepapier390_08_2017.pdf)). This new type of cooperation, with its horizontal approach, permits a consensus to be achieved between the different sectors concerned. This ensures that the everyday work being done is of high quality.

The strategies for interlinkages describe the principles of German development cooperation and the areas being tackled. They also provide examples showing the impact of measures implemented at the nexus between different sectors. Where possible and appropriate, the strategies are to be taken into account when developing and drafting documents such as country strategies, written opinions and programme proposals for official development cooperation and also in international policymaking. In this way, they provide sector-specific guidance.

The strategies for interlinkages are mainly aimed at and implemented by those staff of the BMZ and the implementing organisations who are responsible for planning projects and international processes. Like the water strategy itself, the strategies for interlinkages also serve as a guiding framework for technical experts on the partner side, for non-governmental organisations, private agencies, research institutions and the private sector.

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<sup>1</sup> Six areas were specified in the 2017 BMZ water strategy: (1) Water, education, health and food, (2) water, sustainable economic development and job creation, (3) water, agriculture and energy, (4) water, the environment and climate change, (5) water, good governance and urban development and (6) water, displacement and migration.

# BMZ Strategy for Interlinkages<sup>1</sup> between Water, Education, Health and Food Security<sup>2</sup>

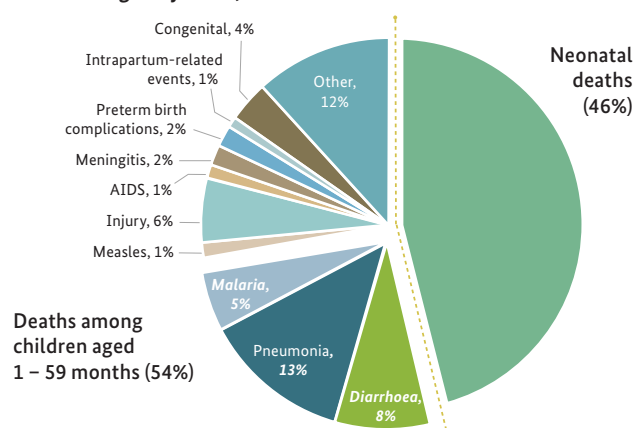
Synergies and conflicting goals

## 1. BACKGROUND

Access to water and sanitation are both human rights and goals of the 2030 Agenda for Sustainable Development. Making progress on the SDG targets relating to water supply and sanitation (SDGs 6.1 and 6.2) is a prerequisite for reducing water-borne diseases and achieving the health targets of the 2030 Agenda (esp. SDG 3.3). The WHO has identified deficits in regard to “WASH” (WATER, Sanitation, Hygiene) as the fourth-most important global risk factor for disease.<sup>3</sup> In 2016, diarrhoea alone was the cause of 8 per cent of all under-five deaths.<sup>4</sup> Furthermore, climate change is likely to promote an increase in water-borne diseases.<sup>5</sup> Improvements in WASH, in wastewater management and in the sustainable management of water resources (e.g. through reduced breeding grounds for pathogens) could lower the global burden of disease by almost 10 per cent, thanks to a resulting decline in numerous diseases such as diarrhoeal diseases, worm infections and malaria, on the one hand, and in malnutrition, on the other.<sup>6</sup> Although the importance of WASH for health is scientifically well-documented, in practice it is difficult to prove the direct linkage

between sufficient clean water, adequate sanitation and improved health, since better health depends on many other factors besides an adequate water supply and sanitation.

**Figure 1: Global distribution of deaths among children under age 5 by cause, 2016**



Nearly half of all deaths in children under age 5 are attributable to undernutrition

Source: UNICEF (2017): Levels and Trends in Child Mortality, Report 2017, p. 11.

<sup>1</sup> The content of this strategy for interlinkages is determined by the BMZ divisions responsible for German development cooperation activities in the sectors concerned, who are jointly responsible for its elaboration. The strategy is to be taken into account when framing documents such as country strategies, short statements and programme proposals for official development cooperation, and in international policymaking.

<sup>2</sup> The present document is concerned only with the consumption-related aspects of food security. Production-related aspects are dealt with in another strategy for interlinkages.

<sup>3</sup> WHO (2009): Global Health Risks. Mortality and burden of disease attributable to selected major risks, p. v.

<sup>4</sup> UNICEF (2018): Diarrhoeal Disease.

<sup>5</sup> WHO (2018): Climate Change and Health.

<sup>6</sup> WHO (2004): Mortality and burden of disease from water and sanitation.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, EDUCATION, HEALTH AND FOOD SECURITY

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WASH also contributes to improved educational opportunities. The aim of the education SDG (particularly 4.a – effective learning environments) is to make education facilities inclusive, accessible and suitable for all children. Access to WASH is one of the indicators for SDG target 4.a. WASH in schools lowers the number of days pupils are absent due to illness (currently 443 million a year). It also reduces the number of girls in puberty who no longer attend school regularly or stop attending altogether because of inadequate provisions for menstrual hygiene (inter alia a lack of infrastructure).<sup>7</sup> It is important to provide separate sanitary facilities for boys and girls to minimize the risks of sexualized attacks. Furthermore, facilities must be accessible and ensure user privacy. If the distances between households and the nearest source of water were reduced, children, especially girls, would spend less time fetching water and more time in school.

WASH is also an important factor for food security. It is a necessary precondition for hygienic food preparation as well as absorbing and processing nutrients. Faecal pathogens can prevent the adequate absorption of nutrients – even when the quantity and quality of the food is appropriate. Diarrhoea and infections of the digestive tract caused by worms account for about half of all cases of children who are underweight or undernourished.<sup>8</sup> Worldwide almost one in every four children under the age of five is affected by stunted growth due to chronic malnutrition,<sup>9</sup> which hampers physical and mental development and significantly reduces learning potential and future prospects. Children in households with good sanitation and hygiene can develop at the appropriate rate for their age and are thus less impeded in their physical and cognitive development than children living in a contaminated environment.<sup>10</sup>

WASH-related health risks can be substantially reduced through people's behaviour. This is espe-

cially true in situations where there is no safe and uninterrupted supply of water, no safe sanitation solutions and no properly functioning wastewater management. The transportation and storage of drinking water reduces its quality quite considerably. It is possible to significantly reduce health hazards by practising proper hygiene, especially washing hands with soap, when handling drinking water and dealing with sanitation. Good personal hygiene, proper hygiene in regard to childcare, for example when feeding infants, and good hygiene in the household for example when making meals, when making meals all contribute to better health. Institutions in the water sector have only limited influence over these practices. Raising awareness among the people is mainly the responsibility of the health sector and the education sector.

## 2. BASIC PRINCIPLES

German development cooperation support in the field of water supply and sanitation derives from the human rights to water and sanitation and the water SDGs 6.1 to 6.3, and from the aforementioned linkages to other SDGs. Access to adequate water supply and sanitation is an important factor in tackling issues like poverty and marginalisation in their many different dimensions.

German development cooperation places a particular focus on ensuring the availability of water and improving the supply for poor and marginalised or vulnerable consumers, and for areas with particularly high rates of water-borne or hygiene-related diseases.

The water sector can create the conditions necessary for a reduction in water-borne diseases by improving infrastructure and by operating supply systems in a sustainable way. Where hygiene is still poor or demand for sanitation infrastructure is low, a combination of measures to improve infrastructure

<sup>7</sup> UNDP (2006): Human Development Report 2006, p. 6 and p. 22.

<sup>8</sup> UNESCO (2012): Managing Water under Uncertainty and Risk. The United Nations World Water Development Report 4, p. 728.

<sup>9</sup> UNICEF, WHO, World Bank Group (2018): Levels and trends in child malnutrition. Key findings of the 2018 edition.

<sup>10</sup> World Bank (2013): How much international variation in child height can sanitation explain? Policy Research Working Paper 6351, p. 6.

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together with activities to promote changes in behaviour and stimulate demand is necessary, since this greatly helps to achieve the desired impacts.

In most cases, it is primarily the institutions dealing with health, education, food and agriculture that have the competencies and the responsibility for implementing measures to change behaviour and stimulate demand. The support given here should be for participatory and inclusive measures which empower the people concerned.

Use should be made of the potential for cross-sectorial approaches, for example when it comes to promoting hygiene practices. The costs and benefits of cooperation between different sectors should be weighed up. Cross-sectorial approaches are not always a matter of cooperation between institutions from different sectors; such approaches can also be found in *conceptual strategies within a single sector*.

### 3. FIELDS OF ACTION

When it comes to planning projects and priority areas or engaging in international sector dialogue on interlinkages between the topics water, education, health and food security, the following fields of action are particularly important.

#### 3.1. FIELDS OF ACTION IN ALL THE AFOREMENTIONED SECTORS

- **Advice on sector reform** and support for implementing structures: Here, the focus should be placed on cooperation among and a clear division of labour between the health, education and water sectors and the field of nutrition, both at the national and local levels (e.g. in regard to providing information about health risks, undertaking hygiene inspections of facilities, elaborating guidelines for drinking water and waste-water).
- **Programmes for WASH-related school health** (SDGs 3, 4 and 6): These programmes can be docked onto projects in each of these sectors as independent and flexible components. For the impact of the programme, it is important to have a clear mandate from the education sector.

The programmes should combine educational, health and WASH elements as needed: 1) policy advice, esp. for institutions in the education and health sectors, inclusive policy instruments, standards and monitoring; 2) expansion and sustainable operation of inclusive infrastructure in schools; enabling educational institutions to make decisions pertaining to budgets, staff and clear responsibilities so they can focus on the operation, cleaning, maintenance and use of facilities during a normal school day; 3) integrating health competencies into the formal school system and a normal school day (e.g. curricula, daily routines) and also, if appropriate, in informal education systems (e.g. adult education, teacher training); 4) involving pupils, families, school management and communities in good hygiene practices.

- **WASH programmes in health facilities and the health system:** These programmes should combine the following elements as needed: 1) policy advice for health sector institutions, and anchoring adequate WASH as a core criterion for access to health services and in quality standards; 2) expanding inclusive infrastructure that is operated in a sustainable way in health facilities; enabling health facilities to take care of the cleaning, maintenance and use of infrastructure (including budgets for equipment and staff); 3) enabling workers and visitors at health facilities to practise proper hygiene (inter alia through financial resources, necessary materials, responsibilities); 4) strengthening incentives for health education (that is appropriate for children and youth) in the health system.
- **Measures to change behaviour and improve hygiene** (esp. regarding faecal-oral transmission and menstrual hygiene, see also background section): These measures can be individual or accompany infrastructure development. They should be evidence-based, gender-sensitive, adapted to the local situation and designed to be sufficiently long term. Measures can consist of:
  - Educational and capacity development measures to change behaviour (e.g. Social and Behaviour Change Communication);
  - measures to disseminate relevant goods or

services (such as through social marketing or by developing distribution channels), e.g. products for disinfecting drinking water or for menstrual hygiene, where appropriate in cooperation with the private sector; and general awareness-raising campaigns.

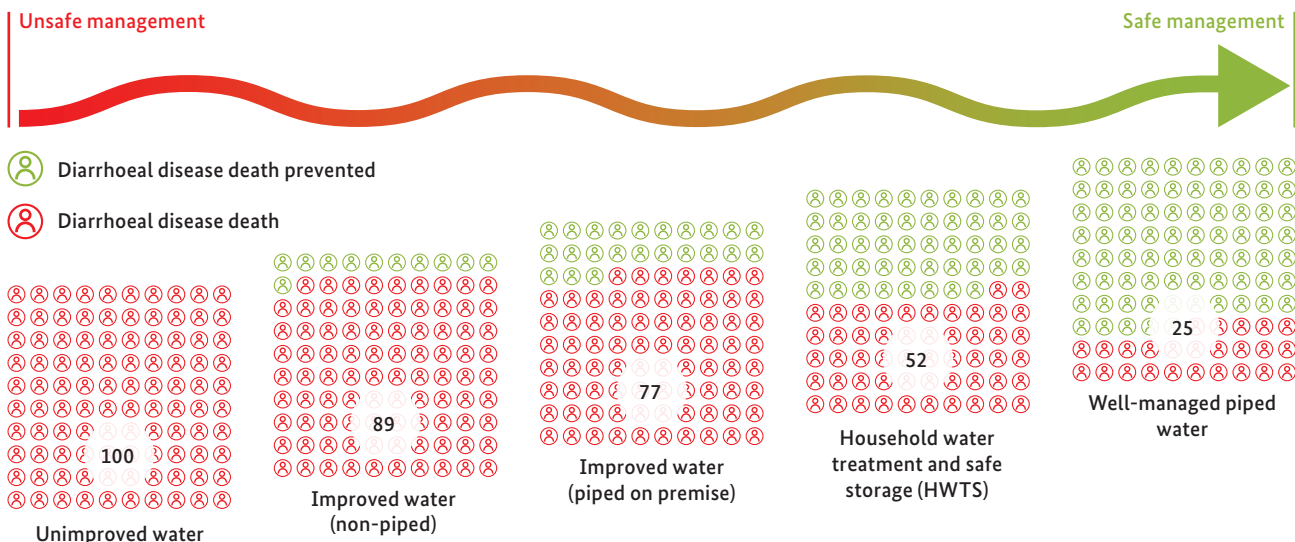
- In the field of international sector policy, cooperation needs to be more firmly established between the policy areas of WASH, nutrition, health and education in international initiatives (e.g. Scaling-Up Nutrition (SUN) Movement, Nutrition for Growth process, UN Decade of Action on Nutrition, Sanitation and Water for All, UN Secretary-General’s Every Woman Every Child initiative). In the case of SUN, there is particular potential via active participation in the SUN donor network on a global level and through support for the multi-sector SUN process in partner countries of German development cooperation.

**3.2. FIELDS OF ACTION IN THE WATER SECTOR (WATER SUPPLY AND SANITATION, HYGIENE)**

→ **Drinking water supply:**

- In order to achieve improvements in drinking water quality, the following approaches/ measures should be considered:
  - advising partner institutions, esp. utilities, on applying the WHO guideline for drinking water;
  - measures by operators such as a) investing in water treatment and in removing contamination hazards in the pipe network, and other measures that will assist in securing the quality of the water at the point of consumption, and b) ensuring professional operation in order to avoid disruptions and contamination;
  - supporting the monitoring of drinking water quality in partner institutions through infrastructure (laboratories, mobile units) and training programmes;
  - promoting household hygiene – this is important when drinking water is stored and transported or when there are frequent interruptions to the water supply.
- Promoting minimal consumption of water if the situation on the ground requires it.

**Figure 2: Reductions in diarrhoeal disease risk associated with improving drinking-water services**



Source: WHO (2018): Water, Sanitation and Hygiene Strategy 2018-2025, p. 5.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, EDUCATION, HEALTH AND FOOD SECURITY

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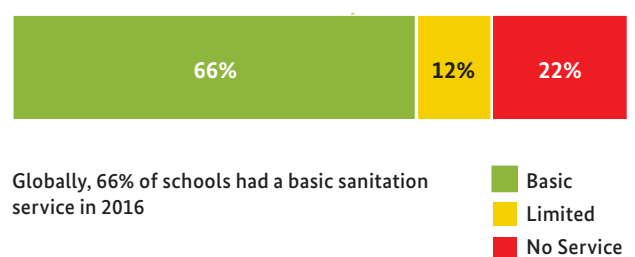
- **Measures to provide sanitation** (toilets, management of faecal sludge and of wastewater) should aim at nationwide, sustainable access and use, since this is crucial for good impacts on health. Implementing circular systems correctly (using treated waste water for irrigation and faecal sludge as fertiliser) can contribute to food security.
- **Programme planning and monitoring** should be guided by considerations on health and/or food security:
  - For planning and implementation a) draw on expertise from the health and education sectors or from the field of food security; b) use studies on changing behaviour; c) focus measures on areas with a high burden of disease or with malnutrition and with marginalised inhabitants, and, above all, on women and young children.
  - For monitoring, include proxy indicators for impacts on health and food security, such as drinking water quality at the household level or changes in behaviour.
- Integrating water and associated issues into central and decentralised budgets (recurrent costs, maintenance)
- Providing teaching materials
- **With regard to measures for building or renovating schools**, include water supply and sanitation infrastructure (separated by gender, safe, accessible, environmentally sustainable) and facilities for washing hands.
- **Bringing the topic into families and communities** to supplement the WASH-related school health programmes referenced at 3.1.
  - Enabling pupils from primary and secondary schools and teaching staff to act as agents of change and to bring skills and practices into families and communities, involving NGOs when appropriate
  - Raising issues that stand in the way of educating girls, such as fetching water, lack of menstrual hygiene, and household hygiene being a task primarily allocated to women and girls.

### 3.3. FIELDS OF ACTION IN THE EDUCATION SECTOR

- **Policy advice** for the sustainable anchoring of WASH in the education system and in school routines should also be taken into account in the following fields:
  - Sector governance (national guidelines, supervision/responsibility, etc.)
  - Sector funding – especially budgets for maintenance, cleaning, etc.
  - Updating curricula and school development and education plans (from kindergarten through primary and secondary school up to adult education) to include WASH and environmental teaching for the sustainable use of water resources, and designing measures for implementing plans
- **School management and capacities of teaching staff**
  - Integrating the topic into task descriptions and further training for teaching staff and school administrators

**Multilateral education funds** and advising partner countries on applying for financial assistance: there should be appropriate support for integrating WASH topics. The Global Partnership for Education (GPE) sees WASH as a huge challenge and a crucial contribution to gender equality.

Figure 3: Global school sanitation coverage, 2016



Source: WHO/UNICEF JMP (2018): Drinking water, sanitation and hygiene in schools. Global baseline report, p. 5.



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#### 3.4. FIELDS OF ACTION IN THE HEALTH SECTOR

→ In policy advice WASH should be positioned as a relevant part of preventive health care, preventing epidemics, fighting disease and providing food security in the health system. This can be done via:

- a) national policies/strategy papers and laws, in particular with regard to quality standards and quality assessments for health care facilities, and b) the development of incentives in the health system to enhance efforts to promote health;
- ensuring that adequate financial, institutional and human resources are available a) for skills-based approaches and behaviour-oriented approaches at the community level (NGOs, communities), and b) for further developing health promotion/prevention activities on WASH topics in health facilities;
- expanding supervisory capacities in health authorities (laboratories, monitoring).

→ When it comes to **infrastructure support** in the health sector, attention must be paid to the following:

- Provision of water supply and sanitation infrastructure in health facilities should be non-discriminating and accessible.
- Health care facilities should be able to take care of the cleaning, maintenance and use of infrastructure (this includes clear responsibilities and budgets for equipment and staff).
- Health care facilities should take steps to ensure adequate hygiene practices by visitors and staff (financial resources, necessary materials, responsibilities, integrating good hygiene practices into work flows).

- Besides the basic availability of an adequate supply of safe water and sanitation infrastructure in health care facilities, there should be separate toilets for males and females, facilities for menstrual hygiene and for washing hands.

- The **capacities of health sector staff** should be improved. This includes, depending on the context, NGOs and communities. There is a need for development in the context of promoting health, in particular as regards hygiene practices and healthy eating, and in terms of anchoring WASH in connection with “risk communication” and “youth-friendly services” (hygiene, menstrual hygiene, sexual and reproductive health and rights, family planning).
- Ongoing costs for WASH must be covered by central or decentralised health budgets (maintenance, cleaning, use of hygiene articles, etc.).
- Investigating the options to promote mass treatment and prevention programmes (e.g. de-worming, dental health, vaccinations, hygiene information campaigns).

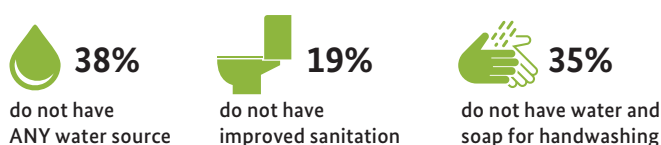
#### 3.5. FIELDS OF ACTION IN THE AREA OF FOOD SECURITY (FOOD CONSUMPTION)

- **Policy advice** for focusing food security policies and measures on the 1,000-day window crucial for sustainable nutrition interventions – from the start of pregnancy and during lactation, up to the end of the 2nd year of life. Furthermore, defining other vulnerable groups, such as women of reproductive age, main target groups can increase the impact of the measures.

##### → **Multi-sectoral approach**

- Promoting multi-sectoral approaches (cooperation with the health, agricultural, water, social protection and education sectors), especially in terms of elaborating and implementing guidelines and quality standards, and in the planning, coordination and monitoring of the implementation of multi-sectoral activities.
- Institutions operating in the fields of food, water, health and education work together to bring about the following improvements, especially for vulnerable groups:

Figure 4: Global coverage of WASH in health care facilities



Source: WHO (2016): Delivering quality people-centred health care for all: The role of water, sanitation and hygiene in achieving quality UHC.

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- 1) water supply and sanitation in households, institutions and public places, in order to improve community hygiene; 2) access to food (also school meals), including diversifying nutrition through school, community and household gardens, and accompanying measures to improve the processing of nutrients by the body and reduce faecal-oral transmission of pathogens through both preventive measures (e.g. washing hands with soap) and curative measures (e.g. de-worming); 3) hygiene behaviour in regard to WASH and preparing food; and 4) nutrition teaching that includes WASH topics.
  - Measures with a multi-sectoral approach link at least two of the following sectors: health, agriculture, water, social protection and education. The sectors chosen depend on the specific context; the selection is made based on needs analyses carried out beforehand.
  - Including the expertise of water experts in the planning and implementation of food security projects.
- 4. EXAMPLES OF IMPACTS <sup>11</sup>**
- A significant decrease in the percentage of **missed school days** (especially in the case of girls after puberty begins).
  - An **increase in pupils' performance and powers of concentration**.
  - A significant increase in the **use** of adequate water and sanitation infrastructure in health/educational facilities and in the practice of good hygiene.
  - Patients learn from health personnel how to **practise WASH-related basic health care**.
  - Pupils learn from school staff how to implement WASH-related basic health practices and practise what they have learned as part of the normal school day.
  - Utilities contribute, via improved **drinking water quality** and/or a significant increase in **coverage** in the case of sanitation and water supply, to a reduction in the incidence of water-borne diseases among marginalised or vulnerable population groups.
  - Among the population, more people **make proper use** of water and sanitation infrastructure, wash their hands and practise **good household and food hygiene**.
  - A decline in the percentage of children with **stunting** and **cognitive deficits** due to chronic malnutrition (especially due to diarrhoeal diseases).
  - A significant **reduction in deaths** of under-fives.

<sup>11</sup> The impacts of the development cooperation programmes that are listed here are considered plausible based on the results chain for these interventions.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, EDUCATION, HEALTH AND FOOD SECURITY

### Synergies and conflicting goals

#### 5. REFERENCES

1. UNDP (2006): Human Development Report 2006, <http://hdr.undp.org/sites/default/files/reports/267/hdr06-complete.pdf> (last accessed: 10.01.2019).
2. UNESCO (2012): Managing Water under Uncertainty and Risk. The United Nations World Water Development Report 4, <https://unesdoc.unesco.org/ark:/48223/pf0000215644> (last accessed: 10.01.2019).
3. UNICEF (2018), Diarrhoeal Disease, <http://data.unicef.org/child-health/diarrhoeal-disease.html> (last accessed: 10.01.2019).
4. UNICEF, WHO, World Bank Group (2018): Levels and trends in child malnutrition. Key findings of the 2018 edition, <http://www.who.int/nutgrowthdb/2018-jme-brochure.pdf?ua=1> (last accessed: 10.01.2018)
5. WHO (2004): Mortality and burden of disease from water and sanitation, [http://www.who.int/gho/phe/water\\_sanitation/burden/en/index2.html](http://www.who.int/gho/phe/water_sanitation/burden/en/index2.html) (last accessed: 10.01.2019)
6. WHO (2009): Global Health Risks. Mortality and burden of disease attributable to selected major risks, [https://www.who.int/healthinfo/global\\_burden\\_disease/GlobalHealthRisks\\_report\\_full.pdf](https://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf) (last accessed: 10.01.2019).
7. WHO (2018): Climate Change and Health, <http://www.who.int/mediacentre/factsheets/fs266/en/> (last accessed: 10.01.2019).
8. World Bank (2013): How much international variation in child height can sanitation explain? Policy Research Working Paper 6351, <http://documents.worldbank.org/curated/en/449651468191643600/pdf/wps6351.pdf> (last accessed: 10.01.2019).

#### 6. LIST OF FIGURES

- **Figure 1:** UNICEF (2017): Levels & Trends in Child Mortality Report 2017, [https://www.unicef.org/publications/files/Child\\_Mortality\\_Report\\_2017.pdf](https://www.unicef.org/publications/files/Child_Mortality_Report_2017.pdf) (last accessed: 10.01.2019).
- **Figure 2:** WHO (2018): WHO Water, Sanitation and Hygiene Strategy 2018-2025, <http://apps.who.int/iris/bitstream/handle/10665/274273/WHO-CED-PHE-WSH-18.03-eng.pdf?ua=1> (last accessed: 10.01.2019).
- **Figure 3:** WHO/UNICEF JMP (2018): Drinking water, sanitation and hygiene in schools. Global baseline report, [https://www.who.int/water\\_sanitation\\_health/publications/jmp-wash-in-schools.pdf?ua=1](https://www.who.int/water_sanitation_health/publications/jmp-wash-in-schools.pdf?ua=1) (last accessed: 10.01.2019).
- **Figure 4:** WHO (2016): Delivering quality people-centred health care for all: The role of water, sanitation and hygiene in achieving quality UHC, [https://www.who.int/water\\_sanitation\\_health/facilities/wash-and-quality-uhc.pdf?ua=1](https://www.who.int/water_sanitation_health/facilities/wash-and-quality-uhc.pdf?ua=1) (last accessed: 10.01.2019).

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BMZ Offices

BMZ Bonn

Dahlmannstraße 4  
53113 Bonn, Germany  
T +49 228 99 535 - 0  
F +49 228 99 535 - 3500

BMZ Berlin

Stresemannstraße 94  
10963 Berlin, Germany  
T +49 30 18 535 - 0  
F +49 30 18 535 - 2501

Contact

poststelle@bmz.bund.de  
www.bmz.de

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# BMZ Strategy for Interlinkages<sup>1</sup> between water, sustainable economic development, job creation and vocational training

Synergies and conflicting goals

## 1. BACKGROUND

Every year since 2011, the **World Economic Forum** has included water-related risks among the five global risks that are most likely to occur and have the greatest potential to cause damage to the economy, the state and society. Water (the subject of SDG 6) has a **very significant impact** on the **economic development** of a country or region. As such, it contributes directly to the achievement of SDG 8, encompassing employment and growth, as well as indirectly to other related goals, such as SDG 9 on industry, innovation and infrastructure. Essential considerations for the economic prospects of a country or region include whether water is available in sufficient quantity and quality, what criteria are used in allocating access to water and what conflict potential water resources entail. According to estimates in the *UN World Water Assessment Report 2016*, **40 per cent of the world's jobs** are dependent on water in some way. In the agricultural sector, this figure even tops 90 per cent.

Water is an **important production factor** for businesses worldwide. For many businesses, water supply uncertainties are tantamount to a **strategic risk** for their value chains. Water shortages and pollution, droughts and flooding – exacerbated as

they are by the effects of climate change – all pose a threat to businesses and production. As a consequence, investments fail to materialise, jobs are lost and factors that drive migration increase.

There are numerous **synergies** between the water sector and sustainable economic development. For example, environmentally sound, water-saving production methods can help to conserve water resources; improved water supply and sanitation can have a positive effect on the health and productivity of the population. Similarly, however, there can also be significant **conflicting goals** – for example, if environmental risks arise as a result of entrepreneurial activities (e.g. through over-exploitation or industrial wastewater) which entail further risks for the drinking water supply or the amount of water available to the general public.

Water plays an increasingly important role in **development cooperation with the business sector** as well as for our partner countries' domestic private sector. By the same token, measures of German development cooperation in the water sector invariably have an important role to play in making economic development sustainable. The development of

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## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, SUSTAINABLE ECONOMIC DEVELOPMENT, JOB CREATION AND VOCATIONAL TRAINING

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technologies for using water more efficiently, for re-cycling industrial process water, for integrating the use of grey water in new industrial, residential and commercial buildings, and for re-using treated wastewater in agriculture and industry is considered a high priority when it comes to protecting water resources. Such efficiency-enhancing technologies can also have the effect of raising the competitiveness of the local private sector.

It is equally important to encourage the players involved to use water resources in a sustainable and socially responsible way, so as to avoid negative consequences for the population at large. Actions of this kind can also help to avoid reputational risks, such as can be caused by the establishment of businesses with relatively large water consumption needs; or by permitting, as part of a country's national industrial strategy, industries that cause water pollution to set up in areas where water is already scarce; or by allowing indecent working conditions, as found in workplaces with no toilet facilities.

Also vital for the smooth running of the water sector are **vocational education and training** and application-oriented higher education courses. Developing countries often have high rates of youth unemployment while simultaneously suffering from a lack of skilled workers. In order to meet the **significant need for skilled labour** in the water sector, vocational training systems need to be developed that produce sufficient numbers of qualified personnel – of whom an appropriate share should be women – and that foster lifelong learning.<sup>2</sup> First and foremost, there will be a need for technical personnel who are capable of installing, operating and maintaining water-related systems. There will also be a need for instructors and teaching staff, administrative and managerial staff, as well as personnel whose task it will be to help change people's hygiene-related behaviour. Potential development paths are independent training and education in specially designed water supply

and sanitation jobs; basic training in specialist jobs accompanied by complementary, modular qualification programmes in water supply and sanitation and in the operation and maintenance of irrigation facilities. In addition, a system of further training and education should be put in place which will provide specialists with the required technological skills. However, since many partner countries lack qualified instructors and professionals skilled in middle management functions, these countries will also need to introduce specially designed higher education courses to fill these gaps.

### 2. BASIC PRINCIPLES

Successful economic development is based on **socially equitable and ecologically responsible growth**. It therefore follows that water is not merely an input. The development and use of suitable technologies, the production infrastructure and appropriate capacity development offer a growing market for the business sector and employment prospects.

The business sector is an important actor in development cooperation, which is why it makes sense to **work with businesses** that (a) are severely affected by water risks or (b) possess the know-how and technology for improved water resources management.

Sustainable development, gender equality, and the upholding of a human rights-based approach are the guiding principles of German development cooperation. It is also important, however, to keep potential trade-offs in mind. That is why sustainable **economic development must take into account what impacts** it may have on drinking water supplies, water quality and the availability of water. If necessary, it must avoid or offset any negative impacts. In light of the guiding principles that inform German development cooperation, the following must apply:

- One aim of its activities is to ensure that human rights are respected. Especially in situations in

<sup>2</sup> Cf. paper published by GIZ on behalf of the BMZ (2016): Berufliche Bildung im Wasserektor (in German only), [https://de.dwa.de/files/\\_media/content/PDFs/Abteilung\\_BiZ/Internationale\\_PDFs/giz2016-0200de-berufliche-bildung-wasserektor.pdf](https://de.dwa.de/files/_media/content/PDFs/Abteilung_BiZ/Internationale_PDFs/giz2016-0200de-berufliche-bildung-wasserektor.pdf) (last access: 29.01.2019).

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which different interests need to be weighed against each other, the human rights to water supply and sanitation take clear precedence. In addition, Germany is committed to ensuring that businesses respect the UN Guiding Principles on Business and Human Rights.

- Development plans that are likely to lead to excessive exploitation of water resources are not eligible for support.
- Projects that boost the export of goods or promote services that use up scarce water resources as well as projects that entail a risk to the aforementioned human rights must be subjected to very rigorous appraisal. The appraisal must clearly show that, on balance, the overall security of the water supply available to low-income population groups in the exporting country will not be adversely affected.

**Employment opportunities** should go **hand in hand with improvements to basic services**. Wherever feasible, employment opportunities should be created especially in small to medium-sized enterprises operating in the water sector, as well as in related industrial sectors which contribute to improving people's incomes and living conditions.

In the water sector and elsewhere, **vocational education and training** should be designed with the help of e-business to be **practice-oriented and geared to the local labour market**. Women and men should have equal access to vocational education and subsequent employment, thereby also boosting gender equality.

Furthermore, **higher education courses** intended for future specialists and executives in the water sector, as well as training for vocational teachers in water-related disciplines, should be both interdisciplinary and **application-oriented**. If conditions permit, an integrated degree programme can be a suitable approach to provide higher education that is practical and application-oriented. The water sector has the potential to create new and modern occupations that can help to create new markets for environmentally-friendly, water-conserving technologies of the future.

### 3. FIELDS OF ACTION

When it comes to planning projects and priority areas, or engaging in international sector dialogue on interlinkages between water, sustainable economic development, job creation and vocational education, the following fields of action in particular should be taken into account.

#### 3.1. FIELDS OF ACTION AT THE INTERLINKAGE BETWEEN THE WATER SECTOR AND SUSTAINABLE ECONOMIC DEVELOPMENT

- **Fostering development partnerships**
  - Across several links of the value chain (in the sense of a Water Stewardship) in order to avert water-related risks.
  - Encouraging **networking among relevant players** involved in water supply and wastewater management.
- Joint development of innovative **broad-based and ecologically sustainable solutions and business models** to address challenges in the water sector.
- Applying sector-specific approaches and strategies to the **economical use of water resources** as well as to water treatment and wastewater management; making the subject intelligible to both experts and the general public.
- Establishing adequate access to water and sanitation facilities and ensuring adequate hygiene as measures towards creating **decent working conditions**.

#### 3.2. FIELDS OF ACTION IN THE WATER SECTOR

- **With respect to sector policies:**
  - Drafting and implementing integrated water management plans and/or agreements on groundwater use.
  - Driving forward the drafting and enforcement of regulations governing water use and emission rights for industry and water utility companies (taking into account education and training in setting water and wastewater tariffs).

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- Encouraging the statutory regulation and incentives-based enforcement of a water efficiency and recycling policy, including using faeces and sludge from water treatment plants.
  - With respect to integrating vocational education into programmes that support sector strategies and **coordinating infrastructure development with vocational education**:
    - Stepping up supporting measures for public services and investment in water infrastructure by offering training measures (be they general, accompanying or advanced training measures).
    - Incorporating modules for education and training in the workplace in the guidelines governing invitations to tender issued by public institutions in partner countries.
  - **With respect to employment and investments**:
    - Ensuring investments have the greatest possible positive impact on employment, particularly with regard to refugees and displaced persons.
    - Reducing the risk of water-related disasters, for example by climate-proofing existing infrastructure. Measures to increase resource efficiency and availability, so-called “no-regret” measures, are eligible for support. Such measures can boost businesses’ willingness to invest.
  - **With respect to cooperation arrangements and conflict resolution**:
    - Fostering cooperation with German, European and African business partners.
    - Supporting voluntary partnerships between operators of infrastructure services, towns, cities and farmers (*stewardship* approach).
    - Working together to push innovative triangular cooperation arrangements.
    - Building suitable conflict management capacities to deal with conflicts – which sometimes cross borders – over the use of water resources.
- ### 3.3. FIELDS OF ACTION AT THE INTERLINKAGE BETWEEN VOCATIONAL TRAINING AND THE WATER SECTOR
- With respect to **sector policies**, getting the relevant ministries (responsible for water, employment and education) to work together.
  - **Overcoming shortages of skilled personnel** in the water sector:
    - Producing a market analysis – in collaboration with business, local authorities, water utilities and businesses with high water consumption needs – of the types of qualifications and skills that are needed, taking into account not only new technologies, digital applications, etc., but also the needs of marginalised groups of people (such as people living in poverty, people with disabilities or elderly people).
    - Construction, extension and equipment of relevant vocational training institutions, as well as in-firm vocational training and advanced training in the water supply and sanitation sector.
  - Developing standards in vocational training, certification and examinations that are in line with local requirements.
  - Financing of vocational training and further training, for example with the help of (utility) companies and the public purse, and by awarding training or advanced training scholarships or vouchers.
  - Ensuring broad-based, gender-sensitive access to education and further training, including in the informal sector.
  - Creating incentives for vocational training, for example through a positive image and attractive salaries and career prospects.
  - Training in technical professions to include management and planning skills as well as instruction in, and raising awareness of, human rights issues in the field of water supply and sanitation.

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- Supporting the training of specialists in behaviour change and awareness-raising methodology and in the management of participatory processes within the general public and water user groups.
  - Incorporating relevant aspects into the syllabi of university and technical college courses for teaching staff, health service workers, vocational training instructors and other groups working in related areas.
  - Establishing relevant training and/or applied **university programmes** (if appropriate as integrated degree programmes) for vocational college tutors and training instructors as well as for administrative, specialist and managerial staff.
  - **Cooperation with businesses**, primarily in order to ensure that vocational training is in line with its requirements. Harnessing and maximising expertise by working with chambers and associations, for example as part of a programme for vocational training partnerships or with the help of experts sent out via Germany's ExperTS Programme.
  - Instruction in entrepreneurship should be included in both vocational training and higher education programmes in the water sector in order to encourage start-ups. Vocational training and higher education programmes should also offer additional, specialised services and should develop these services further for marginalised sections of the population.
- ### 3.4. FIELDS OF ACTION WITH REGARD TO SUSTAINABLE ECONOMIC DEVELOPMENT
- **With respect to sector policies:**
    - Statutory and regulatory conditions (for instance ownership rights, taxation, subsidisation, licences) which are conducive to economic and social development, while also helping to protect natural resources, should be in place.
    - State institutions should be given enhanced powers to supervise and regulate water consumption by business and industry.
  - **Developing a competitive market**
    - Enhancing local businesses' competitiveness by introducing resource-efficient production processes and environmentally sustainable innovations.
    - Introducing measures to promote green technologies and encourage green businesses (for example by providing easier access to finance) when promoting private enterprises.
    - Developing markets for environmental technologies and related services in connection with efficient water use and environmental services.
    - National institutions responsible for dealing with site developments are to enshrine compliance with human rights standards with regard to water supply and sanitation measures as a criterion for development permission.
    - Leveraging investments by working together with businesses to improve water resource security and create job prospects, both in urban areas and in the agricultural sector.
  - **Responsible business conduct**
    - Helping poorer sections of the population to gain access, on a commercially viable basis, to water and sanitation by means of "Green and Inclusive Business Models".
    - Creating awareness among businesses for the importance of using water in a sustainable way (for example through environmental management systems) and of adopting the WASH programme (at the workplace); supporting businesses which exercise due diligence in connection with human rights, including the right to water and sanitation.
  - **Programme development and implementation**
    - Making use of experience gained in the German water industry – transferring water management skills and water treatment technologies.
    - Considering water resource security as a prerequisite for sustainable water resources development and when selecting value chains.



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- Collaborating with businesses to set up systems of water resources management and to integrate these into existing projects, for instance via a *Water Stewardship* initiative.
  - **Financing and financial systems**
    - Supporting partner countries in their efforts to take into account environmental factors, such as water risks, in investment and lending decisions, in product design, and in risk management procedures for financial institutions.
    - When developing financial systems, raising awareness of the proper management of water resources – for instance, factoring in the local accounting price of water when calculating credit risks; providing adapted financial services for investments in resource-conserving production processes.
- #### 4. EXAMPLES OF IMPACTS
- Opportunities for earning an income have improved for both men and women – but particularly for women – as a result of new job opportunities in the water sector.
  - As service provider structures become more professional and efficient and staff become better qualified, the commercial and institutional conditions are evolving, making it possible to extend water supply and sanitation services to marginalised sections of the population.
  - Where water risks are reduced, investment certainty and corporate competitiveness become enhanced.
  - By working with businesses and other experienced organisations, **vocational training measures** have been tailored to suit the needs of the utility companies and the market for supply services.
  - Overall health has improved markedly as a result of professionally executed WASH initiatives.

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BMZ Offices

BMZ Bonn  
Dahlmannstraße 4  
53113 Bonn, Germany  
T +49 228 99 535 - 0  
F +49 228 99 535 - 3500

BMZ Berlin  
Stresemannstraße 94  
10963 Berlin, Germany  
T +49 30 18 535 - 0  
F +49 30 18 535 - 2501

Contact

poststelle@bmz.bund.de  
www.bmz.de

Download here...



# BMZ Strategy for Interlinkages<sup>1</sup> between Water, Energy and Agriculture<sup>2</sup> (Nexus perspective)

Synergies and conflicting goals

## 1. BACKGROUND

Global forecasts predict a 40 to 50 per cent increase in the **demand for fresh water, energy and food** until 2030 due to pressure caused by population growth, economic growth, international trade, urbanisation, changes in eating habits, climate change and technological advances.<sup>3</sup>

Access to secure supplies in one sector has an impact on security of supply in another. There is a need for a multi-sector approach at the systemic level to optimise supply and demand. The objective is to adopt an **integrated approach for the three sectors water, energy and agriculture (Nexus perspective)**, with a view to **reconciling their interests** as they compete for the same scarce resources and **resolving conflicts** while **respecting planetary boundaries**. The Nexus approach further secures livelihoods by protecting natural resources and ensuring economic stability and in relevant contexts, reduces the risk of conflict or increased displacement. Hence certain Sustainable

Development Goals – SDG 6: Water, SDG 7: Energy and SDG 2: Food Security – are closely linked together, either directly or indirectly via environmental and climate goals (SDGs 11, 13 and 15).

The Nexus perspective has been a topic of widespread international discussion ever since it was first introduced in 2011 at an international conference in Bonn hosted by the Federal Ministry for Economic Cooperation and Development (BMZ) and the Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU). Important international players who are helping to put the Nexus approach on the map are, among others, the European Union (EU), the World Bank, the Food and Agriculture Organization (FAO), the International Union for the Conservation of Nature (IUCN), the UN Economic Commission for Europe (UNECE) and various energy and food multinationals.

<sup>1</sup> The content of this strategy for interlinkages is determined by the BMZ divisions responsible for German development cooperation activities in the sectors concerned, who are jointly responsible for its elaboration. The strategy is to be taken into account when framing documents such as country strategies, short statements and programme proposals for official development cooperation, and in international policymaking.

<sup>2</sup> This only concerns the production side of food security. The consumption side is addressed in the document covering the interlinkages between water, education, health and food.

<sup>3</sup> National Intelligence Council (2012): Global Trends 2030, S. iv.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, ENERGY AND AGRICULTURE (NEXUS PERSPECTIVE)

### Synergies and conflicting goals

## 2. PRINCIPLES

In promoting the Nexus perspective, German development cooperation is contributing to **coherent policy design, sustainable planning and implementation of measures** in the water, energy and food/agriculture sectors, and protecting the environment, natural resources and the climate. It is also contributing to the realisation of **SDG 17** (global partnership for sustainable development – systemic issues).

Especially in situations when there are pros and cons to be weighed up, **human rights take precedence** in German development cooperation, with Germany strongly championing the human rights of the local population to enjoy safe access to safe drinking water and sanitation and food security over other uses of the same resources. It can make sense to promote redistributive mechanisms within and between different sectors, always keeping in mind social structures on the ground.

### 2.1. PREPARATION AND APPRAISAL OF PROJECTS

Environmental and Climate Assessments (ECAs) are a binding requirement for all German development cooperation projects. The ECA includes:

- checking for synergies
- avoiding conflicting goals and
- showing how competing interests from the three aforementioned sectors can be resolved.

Furthermore, the risks and impacts that projects may entail with regards to human rights must be assessed. The findings are presented in the programme or module proposal. Approaches are considered not eligible for support if they are likely to either cause or exacerbate one of the following:

- **excessive exploitation of water resources**
- **soil degradation**
- **consumption of non-renewable groundwater resources** (exceptions can be made in the case of humanitarian emergencies)
- the **commercial tradability** of water.

Projects that promote the export of goods and services that use **scarce** water or land resources for their production, and projects that entail a risk to human rights, such as the human right to water and sanitation, must be subjected to critical appraisal. It must be clearly shown that **overall supplies to meet the needs of low-income population groups** in the exporting country will suffer no detriment on balance.

#### 2.1.1. Designing inter-sectoral cooperation in the project context

Action must be taken to link components, modules and even complete projects from the three sectors if it is to be expected that this will increase their effectiveness or improve the balance of interests, e.g. in the case of multifunctional infrastructure in the form of dams or in the case of projects concerned with circular economy (waste and wastewater management). However, such approaches do place higher demands on governance capacities of all institutions involved. The need for and feasibility of special capacity building that goes well beyond accompanying measures, and the cost-benefit ratio of consultation processes must all be examined in such cases.

At government negotiations and in the preparation and implementation of development cooperation measures involving a Nexus situation, there should be balanced involvement of the concerned sectors in the partner structure.

Relevant interlinkages are taken into account in the design of German development cooperation projects. In the water sector, for example, relevant interlinkages can be influencing factors such as energy systems, trading areas for agricultural products, urban conurbations or administrative borders. Decentralisation projects can also be good entry points to better link sectoral components.

## 2.2. PRIORITY ASPECTS FOR SUPPORT AND SUCCESS FACTORS

### 2.2.1. Players and coordination, roles and responsibilities

The abilities of relevant national players (e.g. authorities, associations) to execute coordinating functions is improved. Players from one sector should be able to engage in exchange with other sectors on an equal footing as far as possible.

In German development cooperation attention is given to the following factors which are essential for the success of projects: to promoting in a balanced way the effective execution of regulatory functions in all Nexus sectors (land use planning and monitoring, awarding water rights/supervising bodies of water, awarding state land, monitoring greenhouse gas emissions) and to keeping these regulatory functions separate from implementation measures (planning and implementation of infrastructure investments, and strengthening operators in utility companies and irrigation associations).

Achieving the SDGs for the three sectors Water, Energy and Food must be accomplished within the framework of recognised sustainability standards and existing environmental standards. The focus here is on the multi-sector mandate of environmental protection authorities for water, energy and land use. In national policymaking as well, an integrated approach must be taken wherever possible for zoning plans (regional planning), water and land management and climate protection. The multi-level approach is an essential factor for success in this regard.

### 2.2.2. Policymaking

Measures to **increase resource efficiency and availability**, so-called “no-regret”<sup>5</sup> measures, are eligible for support, e.g. weirs to dam and store water, drip irrigation systems and energy-saving pumps. Regular attention must be given to the risk of **rebound effects**<sup>5</sup>. If necessary, steps must be taken to counter these effects, e.g. by means of effective groundwater governance in the context of massively deployed decentralised solar pumps.

At the **policy and macro-planning level** of the partner side, instruments that are in line with the ECA are to be promoted. These may include Nexus assessments, integral data modelling, planning approaches that overcome “sector silos” or multi-sector dialogues. One example of good practice is shifting energy generation from hydropower to other forms of energy in order to protect drinking water supplies during periods of drought.

**Resolving conflicts of use** around land and water resources is encouraged by developing suitable conflict management capacities, e.g. through instruments for avoiding conflict escalation, alternative technical-economic usage scenarios or mediation. This is particularly to be considered in the context of existing disputes, e.g. ethnic conflicts.

<sup>4</sup> “No-regrets options”: Technology for reducing greenhouse-gas emissions whose other benefits (in terms of efficiency or reduced energy costs) are so extensive that the investment is worth it for those reasons alone. UNFCCC: Glossary of climate change acronyms and terms.

<sup>5</sup> Rebound effects: Efficiency increase oftentimes reduces product or service costs, which can in turn ramp up consumption (due to reduced prices), thus partly cancelling out the original savings. This is known as the rebound effect. German Environment Agency: Glossar, No-regret-Maßnahmen.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, ENERGY AND AGRICULTURE (NEXUS PERSPECTIVE)

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### 3. FIELDS OF ACTION

When planning projects and priority areas and designing the international sector dialogue on interlinkages between the topics of water and wastewater, energy and agriculture, the following fields of action are to be taken into account as far as reasonably possible and appropriate in the given context.

#### 3.1. FIELDS OF ACTION WITH A FOCUS ON ENERGY AND WITH INTERLINKAGES TO WATER AND AGRICULTURE

- Advice and support for **energy efficiency** covering multiple sectors wherever possible, so that significant energy consumption and inefficiencies in both the drinking/wastewater sector (pumping current, water losses) and the food/agricultural sector (irrigation pumps, farming and food processing) are also considered.
- Assessing **energy subsidies** to determine their impacts on the sustainable management of water resources (cf. SDG 12c on subsidised fossil fuels).
- At least gradually structuring fair **energy prices** as a way of encouraging careful consumption of resources. Where water pumps are used for irrigation, energy consumption prices have an important influence on the volume of water removed and the piping radius.
- Examining ways to link projects that promote cost-effective **renewable energies** (also, if appropriate, through a combination of renewable energies and fossil fuels as a back-up) with energy-intensive projects, e.g. projects involving the extensive use of desalination for drinking water, and projects concerned with wastewater treatment plants or irrigation.
- Promoting the socially and environmentally sound **expansion of hydropower** in compliance with relevant support guidelines, in particular those of the World Commission on Dams (WCD), with development scenarios that are as multi-functional as possible. This includes retro-actively adding water turbines to dams so that they can be used to generate electricity. There must be effective cross-border or national water resource management. The capacities of civil society and independent environmental authorities in the catchment area need to be strengthened in particular, if necessary also through special levies.
- Promoting context-specific **diversification of the energy mix** in order to improve the linkage options between the sectors, e.g. to get through drought periods, when drinking water supplies and local irrigation take priority.
- Promoting the use of pellets (wood for energy), taking into account recognised, including water-related, sustainability criteria along the whole value chain. Efficient **use of biomass**, focusing where appropriate on non-product output, offers application potential for cooking and for local or national generation of heat, fuel and electricity.
- Supporting the **production of biofuels** whilst avoiding negative interdependencies such as overpriced and thus less accessible staple foods, the conversion of virgin forests into plantations for food production or rising water scarcity. Thought must therefore be given to limiting the production of biofuels.
- Promoting **optimised water use** in the energy sector, especially in (semi-)arid regions. In energy policy, consideration is to be given to linking various branches of the energy sector (sector coupling) and to technologies that use as little water as possible, such as recycling, using grey water or dry cooling in the context of thermal power plants. Options for cooling in connection with thermal energy generation processes should also be examined.
- Supporting **reliable access to energy and water at the household level** as an important contribution to food security. (90 per cent of staple foods are cooked. Water counts as a food.)

### 3.2. FIELDS OF ACTION WITH A FOCUS ON AGRICULTURE AND WITH INTERLINKAGES TO WATER AND ENERGY

- Promoting a sustainable and **climate-aware land use that preserves soil and water resources** as a way of achieving production security, storing water and renewing groundwater in the medium to long term.
  - Integrated improvement of **water storage capacity and soil fertility**. This applies to both rain-fed agriculture and irrigated agriculture.
  - Strengthening the **individual responsibility of agricultural players** and of water and environmental authorities with a view to safeguarding water and land resources in the long term.
  - Promoting financial instruments and investments in **green infrastructure**<sup>6</sup>.
  - Supporting voluntarily negotiated **partnerships** between operators of infrastructure services, cities and farmers (stewardship approach).
  - Inter-sectoral coordination for the transition from non-sustainable national self-sufficiency strategies to **secured import strategies**.
  - Promoting **irrigation and increased water efficiency** in irrigation within the framework of the principle of not over-exploiting water and land resources.
  - Taking basic account of water resource management when **using water pumping systems in agriculture**, in order to prevent over-exploitation. The use of more efficient or solar-operated pumping systems in particular must not encourage over-exploitation of water resources.
  - **Re-using treated waste water** as an important support option for increasing efficiency, especially in the case of water scarcity.
- Hygienic and environmental risks must be considered. Investments in plant and institutional interlinkages must go hand in hand. One example is shifting water use from agriculture to urban drinking water supply. Irrigation facilities are compensated with treated waste water.
- **Ensuring just awarding of land and water rights** on the basis of relevant guidelines<sup>7</sup>, including for disadvantaged and especially vulnerable groups such as indigenous people. Water rights issues must also be taken into account as part of agro-political and land reforms, especially in the case of large-scale, possibly foreign, land investments, which must be designed to conform with human rights requirements.
  - Sustainable **provision of water resources for livestock farming and forage production** are activities that are in principle eligible for support, since they can contribute significantly to food security and to increasing incomes. The water balance and quality must also be examined in the case of projects involving animal husbandry and forage production, especially in regions where water is scarce.
  - Where support is to be provided for intensive livestock farming, the risk of impacting on water quality due to high quantities of slurry must be considered and steps taken to counteract the risk if necessary.
  - Advice on **using plant protection and fertilisers** also with regard to protecting groundwater and water resources, especially in the catchment areas of facilities for supplying drinking water.
  - Examining **subsidies**, especially for diesel fuels, fertilisers and plant protection products, to

<sup>6</sup> A planned network of natural and semi-natural areas in urban or rural regions, which is designed and managed to provide a broad range of ecosystem services, incorporating terrestrial and aquatic ecosystems. Cf. EU Commission Communication on Green Infrastructure EUCOM (2013) 249 final.

<sup>7</sup> Esp. FAO (2012): Voluntary Guidelines on the responsible Governance of Tenure of land, fisheries and forests in the context of national food security.

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determine their impacts on the sustainable management of water resources.

- Supporting the **avoidance of food losses** along the value chain with a view to increasing energy and water efficiency and improving seasonally dependent and universal access to food, e.g. through solar-based cooling or drying technologies.

### 3.3. FIELDS OF ACTION WITH A FOCUS ON WATER AND WITH INTERLINKAGES TO ENERGY AND AGRICULTURE

#### 3.3.1. Integrated Water Resource Management (IWRM)

- Designing **(cross-border) IWRM** following the **Nexus perspective**,
  - especially regarding water quantity/water drawing rights
  - and water quality/discharge permits, taking into account all three sectors and environmental mediums such as land area/soil, biodiversity and greenhouse gas emissions
  - taking into account planning influences beyond the river basin
  - with a view to a fair balance of interests and just allocation of resources between interest groups, based on human rights standards and principles
  - and through advice on Nexus-oriented, context-specific **organisational and financing models**.
- Supporting the **development of independent, multi-sector supervisory authorities and the establishment of complaints mechanisms** for water resource management; advising on close dovetailing with regulators for water supply and waste water.
- Systematic support for improving multi-functional **water retention and storage capacities**, through advice and also the planning and

implementation of investment projects; suitable combination of grey and green infrastructure; important examples are groundwater recharge or reforestation, which offer regular benefits for several sectors (protecting settlements against flooding and landslides, avoided soil erosion and sedimentation in reservoirs, protecting drinking water and irrigation resources, and climate protection).

#### 3.3.2. Water/sanitation and wastewater management

- Supporting activities that harness **energy efficiency potential along the value chain** of drinking water supply/sanitation, e.g. the use of pumps, which technical procedures are selected and how facilities are managed.
- Promoting sophisticated methods of **energy recovery** such as micro-turbines or heat exchangers in drinking water and waste water pipes, biogas generation/combined heat and power cycle generation in water treatment facilities and collecting nutrients from waste water or faeces (slurries).
- Regularly considering **ways to optimise operations** with a view to securing sustainable use of resources, including reducing water losses and managing demand as essential components of projects for drinking water supply.
- **Promoting an optimum supply of fresh water for industrial use and treatment of effluent** (here in particular recycling); above all projects to support the agro-food industry and the textile industry, and for the construction and operation of power plants.
- Providing advice on **regulatory policy and incentives-based enforcement** of a water efficiency and recycling policy, including using faeces and sludge from water treatment plants, e.g. in the form of municipal and industrial water and waste water legislation or urban by-laws.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, ENERGY AND AGRICULTURE (NEXUS PERSPECTIVE)

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### 4. EXAMPLES OF IMPACTS

These are general impacts (not examples of best practice) in the context of the interfaces between water, energy, agriculture and food security. In order to formulate indicators at the impact level, the impacts need to be specified on a case-by-case basis.

- The **energy efficiency** in the case of water supply and/or wastewater management has increased as a result of operating advice and/or investment measures
- the **enabling environment** for resource-efficient use (of water/soil and/or energy resources) has been improved due to the use of integrated multi-sector planning approaches; competition between the sectors for natural and/or energy resources has been systematically taken into account in the planning approaches
- the **incomes** of agricultural producers have been secured by making more sustainable use of agricultural water and soil resources, thereby helping to improve **water storage capacity and soil fertility**
- the town/city x has access to sufficient water resources to **provide drinking water** because of an increased use of recycled water in the agricultural sector
- energy supplies have been secured by strengthening the **drought resilience** of the energy providers.

### 5. REFERENCES

1. EU Commission (2013): Mitteilung Grüne Infrastruktur EUCOM (2013) 249 final, [https://eur-lex.europa.eu/resource.html?uri=cellar:d41348f2-01d5-4abe-b817-4c73e6f1b2df.0012.04/DOC\\_1&-format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:d41348f2-01d5-4abe-b817-4c73e6f1b2df.0012.04/DOC_1&-format=PDF) (last accessed: 14.02.2019).
2. FAO (2012): Voluntary Guidelines on the responsible Governance of Tenure of land, fisheries and forests in the context of national food security, <http://www.fao.org/docrep/016/i2801e/i2801e.pdf> (last accessed: 14.02.2019).
3. National Intelligence Council (2012): Global Trends 2030: Alternative Worlds, <https://globaltrends2030.files.wordpress.com/2012/11/global-trends-2030-november2012.pdf>, (last accessed: 14.02.2019).
4. German Environment Agency: Glossar, No-regret-Maßnahmen, <https://www.umweltbundesamt.de/service/glossar/n> (last accessed: 14.02.2019).
5. UNFCCC: Glossary of climate change acronyms and terms, <https://unfccc.int/process-and-meetings/the-convention/glossary-of-climate-change-acronyms-and-terms#n> (last accessed: 14.02.2019).

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#### BMZ Offices

**BMZ Bonn**  
Dahlmannstraße 4  
53113 Bonn, Germany  
T +49 228 99 535 - 0  
F +49 228 99 535 - 3500

**BMZ Berlin**  
Stresemannstraße 94  
10963 Berlin, Germany  
T +49 30 18 535 - 0  
F +49 30 18 535 - 2501

#### Contact

poststelle@bmz.bund.de  
www.bmz.de

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# BMZ Strategy for Interlinkages<sup>1</sup> between Water, the Environment and Climate Change

Synergies and conflicting goals

## 1. BACKGROUND

**Water** is a vital natural resource and, as such, an **integral part of our environment and climate system**. However, water resources are dwindling, meaning that we are edging closer to the planetary boundaries. There are numerous interlinkages between water and wastewater, the environment – including biological diversity – and climate change. The protection of water as a natural resource is therefore a common concern of the Sustainable Development Goals dealing with **water (SDG 6)**, the **climate (SDG 13)** and the **environment (SDGs 14 and 15)**.

Aquatic ecosystems such as rivers and lakes, and terrestrial ecosystems such as forests, moors and marshes, and natural grasslands are the habitats of a great number of **species**. Furthermore, these ecosystems are of direct and indirect benefit to humankind because they supply, naturally purify and store water for us. Thus, they make a vital contribution to ensuring human survival. Other **ecosystem services** include the prevention of droughts and erosion, and flood control. What is more, habitats such as forests, moors and marshes and natural grasslands, help to sequester large quantities of carbon, thus contributing to climate protection.

**Biological diversity** is one feature amongst several ensuring that ecosystems remain intact. In the case of freshwater and marine ecosystems, this depends

largely on **water quality**, as well as on keeping the water bodies as natural and diverse as possible. Ecosystem services can be impaired by human activities such as changes in land-use, the withdrawal of water, or the construction and operation of hydro-power or shipping-related infrastructure projects, if the activities are not planned and implemented in a sustainable manner.

As many water catchment areas and their ecosystems are **transboundary**, changes related to them such as water withdrawal or pollution can also have an international impact. Thus, for example, pollutants that are discharged into inland water bodies that flow into the sea become a huge problem for the marine environment too.

**Water** is the medium through which climate change **impacts the lives of people most directly**, affecting not only their everyday environment but also various sectors of the economy, such as agriculture (irrigation) and power generation (water for cooling and hydro-power). Climate change becomes particularly noticeable when there are changes in water availability and quality, and when there are extreme weather events. In many regions, climate change is already exacerbating existing problems of water shortages, or heavy rains and flooding, for instance.

<sup>1</sup> The content of this strategy for interlinkages is determined by the BMZ divisions responsible for German development cooperation activities in the sectors concerned, who are jointly responsible for its elaboration. The strategy shall be taken into account when framing documents such as country strategies, short statements and programme proposals for official development cooperation, and in international policymaking.

Water supply and wastewater management are two processes that use a great deal of energy, causing considerable amounts of **greenhouse gases** to be released into the atmosphere. Furthermore, if the treatment of sewage and faeces is poorly managed, this causes the release of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) – both extremely damaging greenhouse gases – into the atmosphere. These gases are also released in the course of certain agricultural activities, such as rice cultivation and animal farming. At the same time, hydropower is playing an increasingly important role in some countries as a source of renewable energy.

## 2. PRINCIPLES

Water, the environment and climate change are often linked by a relationship of **co-benefits**. An **eco-system-based approach** to climate change adaptation generally helps both to rehabilitate and sustainably protect ecosystems such as wetlands, forests, alpine ecosystems and urban green spaces, and to protect the climate through carbon storage. Such comprehensive, multi-pronged approaches are to be given priority. This requires strengthened cross-sectoral collaboration and the integration of strategic policies on water, the environment and climate change.

Germany's development cooperation activities support and make possible the implementation of the goals set out in **international agreements** – for example in the **Convention on Biological Diversity (CBD)**, the **Convention to Combat Desertification (UNCCD)**, the decisions of the **Framework Convention on Climate Change (UNFCCC)**, including the decisions adopted in the 2015 Paris climate agreement, the **1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses**

and the **1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes** (referred to as the “Water Convention”) by the **United Nations Economic Commission for Europe (UNECE)**.

Water sector projects which aim to protect the environment and the climate and conserve biodiversity, or which aid adaptation to climate change, must present their **contributions to these goals in a transparent manner**. Furthermore, they must respect all applicable human rights and satisfy specific financing criteria. Projects relating to biodiversity have to visibly support at least one of the aims of the Convention on Biological Diversity, namely conservation, sustainable use or benefit sharing.

The key guiding principle for German development cooperation in the water sector is **Integrated Water Resources Management (IWRM)**, which promotes concepts of water resources management that are socially, economically and environmentally sustainable. Potential transboundary impacts of Germany's development cooperation projects are also taken into account. In its development cooperation programmes concerned with wastewater management, Germany is guided by the **idea of a circular economy**. Therefore it is keen to support the management (i.e. collection and treatment) of wastewater, faecal and other sewage sludge, and especially their safe use to generate energy or their re-use, in pre-treated form, in agriculture (e.g. for irrigation). Furthermore, water sector solutions with aims in the area of environmental protection, biodiversity conservation, climate protection and climate change adaptation, are to reflect the **human-rights-based approach** adopted in German development cooperation.

<sup>2</sup> See also: Published by GIZ on behalf of the BMZ (2016): General Orientation and Guidelines on how to integrate biodiversity conservation in water and wastewater programmes.

<sup>3</sup> This is in accordance with the BMZ strategy paper on “Human Rights in German Development Policy” of 2011 and the BMZ guidelines on incorporating human rights standards and principles, including gender, in programme proposals for bilateral German Technical and Financial Cooperation, published in February 2013.

Projects in the water sector related to climate change adaptation and mitigation of greenhouse gas emissions are **in line with national climate change planning and instruments** such as the **Nationally Determined Contributions (NDCs)** and the **National Adaptation Plan (NAP)** process, and contribute to their human-rights-based implementation.

In addition, projects in the water sector – as well as projects in the environmental and climate sectors – should make use of opportunities for **bilateral and multilateral climate financing** (for example through the **Green Climate Fund** or the **Global Environment Facility**) available for water-related activities.

The **planning of climate change adaptation activities** is based on an analysis of the risks and potential benefits, if any, that accompany extreme climate variability and/or climate change. The specific vulnerability is to be described in accordance with the BMZ Guidelines on the use of Rio markers KLA (climate change adaptation) and KLM (reduction of greenhouse gases), and with current climate change projections. Complex factors that have an influence on planning, such as uncertain climate projections, population dynamics or land-use changes, are to be communicated in a transparent manner. Activities suitable for reducing climate risks will be identified on the basis of the results of the risk analysis. If the impacts of climate change also bring potential benefits for development (such as increased water availability), then these are to be utilised. Activities known as **“no regret measures”** – i.e. measures that are useful from a development point of view regardless of whether climate change has the expected impacts or not – as well as modular infrastructure solutions that can be extended in a flexible manner (such as decentralised or semi-centralised sewage treatment plants) should be the measures of choice if there is a large degree of uncertainty in the climate change vulnerability models.

Where **activities to reduce greenhouse gases** are undertaken, the targeted reduction is to be contrasted with a “business as usual” scenario. And in the case of activities in the water sector which require energy, it will be investigated whether that energy can be generated using renewable energy sources, and whether energy efficiency can be improved. In the case of wastewater management, ways must be sought to reduce emissions of the greenhouse gases nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>), which are extremely detrimental to the climate. When building man-made water reservoirs, consideration must be given to the fact that the anaerobic degradation of organic material in the water will also release greenhouse gases.

### 3. FIELDS OF ACTION

When planning projects and priority areas, or engaged in international sector dialogue on interlinkages between the topics water, the environment and climate change, the following areas of action are to be taken into account, as far as is possible and reasonable in the given context.

#### 3.1. FIELDS OF ACTION IN THE WATER AND ENVIRONMENTAL SECTOR AND WITH REGARD TO BIODIVERSITY<sup>4</sup>

##### 3.1.1. Legal framework and institutional capacities

→ **Advice on the legal, political and institutional framework** needed – in environmental legislation and regulation, for example, – in order to protect ecosystems and biodiversity through sustainable water resource security; such advice is to cover:

- Standards and regulatory limits governing discharges into water bodies, ecological standards in water quality, and minimum run-offs in order to maintain intact ecosystem services, or

<sup>4</sup> Section 3.1 relates to development support activities by the BMZ that come under the CRS purpose code 140\* for water supply and sanitation, purpose code 31140 for agricultural water resources, markers UR for environmental protection and resource conservation, BTR for the Biodiversity Convention and/or CRS code 410\* for environmental protection, also wherever environmental protection is the main sector.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, THE ENVIRONMENT AND CLIMATE CHANGE

### Synergies and conflicting goals

- Environmental principles (e.g. “polluter pays principle” and “no harm principle”), support for schemes to introduce “payments for ecosystem services” (PES) and for “source-to-sea” schemes that encourage integrated management of water all the way from its source to the sea (e.g. when constructing treatment plants in order to protect flora and fauna).
  - Support for **collaborative and human-rights-based schemes** – for example in order to reconcile the interests of different users and to secure water resources for people and the environment as well as for business and industry.
  - Support for **transboundary water management**:
    - Consideration of the transboundary effects which the activities of one riparian country may have on the other riparian countries;
    - Support for regional arrangements and agreements on transboundary water resources management as well as for river and lake basin commissions;
    - Support for regional agreements on exchange of information and joint management of transboundary catchment areas.
- 3.1.2. Activities relating to green and grey infrastructures**
- Rehabilitation and conservation of natural water reservoirs, such as lakes and groundwater.
  - Support for the protection, or restoration of **ecosystems** in order to restore their original functions (as in, for example, the restoration of wetlands or flood plains alongside rivers).
  - Measures that directly protect **water quality** (including groundwater protection) and ensure adequate water quantity, for example by establishing conservation areas.
  - Implementation of **sustainable land use planning**, for example by creating water retention areas (flood plains) that are practical in hydrological terms and useful in ecological terms.
- Opportunities for **ecological methods of sewage treatment**, which can lead to increases in biodiversity (e.g. by using constructed wetlands).
  - Assessment and, if necessary, improvement of hydraulic engineering in waterways infrastructure in order to ensure that **fish can migrate**.
  - Finding the **best location for water supply and wastewater infrastructure** in order to reduce negative impacts on wetlands and other ecosystems, among other things.
- 3.2. FIELDS OF ACTION AT THE INTERFACE BETWEEN WATER SECTOR AND CLIMATE CHANGE<sup>5</sup>**
- 3.2.1. General water-related climate change interventions**
- Support in elaborating water-related **climate strategies and programmes**, e.g. in the context of NDCs and NAP, also within the context of proposals for climate finance projects.
  - Emphasis on **water-related topics in the context of international climate change negotiations and in climate financing mechanisms**.
- 3.2.2. Fields of action in the water sector to enhance climate change adaptation (KLA marker)**
- **Measures to strengthen governance**: Support for flexible and effective schemes for water allocation as a key measure for adapting to changing climate conditions and greater variations in water availability, among other things. Such support is to be provided with the help of appropriate capacity building activities at various levels within the institutions and groups concerned, such as water user groups, government authorities, regional associations and regulatory authorities.

<sup>5</sup> Section 3.2 relates to development support activities by the BMZ that come under the CRS purpose code 140\* for water supply and wastewater, purpose code 31140 for agricultural water resources, combined with the markers KLA for climate change and/or KLM for reducing greenhouse gases.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, THE ENVIRONMENT AND CLIMATE CHANGE

### Synergies and conflicting goals

- **Measures to be taken where water resources are dwindling:** Measures in this context are to be human-rights-based and designed to make the use of water resources more efficient and sustainable, as well as designed to protect water resources so as to strengthen water resource security.
    - **Management of the demand for water:** Introduction of water-efficient irrigation methods for agriculture; reduction of water losses due to physical or administrative deficiencies in the water supply system (for instance, as a result of a lack of accountability within government authorities); adequate tariff systems; and public awareness campaigns regarding the effects of climate change.
    - **Management of the water supply:** Extension of the infrastructure needed to store water, including ecosystem-based approaches; wastewater treatment to sustainably protect soil and water bodies; ecosystem-based means of protecting water resources, for example afforestation; use of alternative water resources, for example by re-using treated wastewater; sustainable methods of desalinating brackish water or seawater.
  - **Whenever extreme weather events – such as droughts, floods and surge tides – become more violent and/or more frequent,** comprehensive climate risk management must be put into place.
    - This includes ecosystem-based or technical solutions to **storing water** and technologies for **tapping into water resources** in the event of droughts, for example by drilling wells for use in emergencies.
    - **Adapting the water infrastructure,** for example by building protective structures.
    - **Combining grey and green infrastructure,**
      - to protect against flooding, such as retention areas/flood plains, municipal drainage or specially adapted sanitation systems; and
      - to protect coastlines, such as dikes or the preservation or restoration of vegetation cover that is species-rich and resilient (for example mangroves).
  - **Measures to cope with an increasing loss of predictability as a result of climate change:**
    - Devising and developing **data, information and analysis systems** that will provide better insight into climate and weather factors, and more insight on surface water and ground-water resources, including their quantity and quality.
    - Capacity development **to aid decision-making in the face of increasing uncertainty,** for example with regard to the application of complex simulation models such as the *Economics of Climate Adaptation* model, and with regard to optimum utilisation of available funds in combination with regulatory and behavioural and, if necessary, complementary measures such as climate risk insurances.
- 3.2.3. Fields of action in the water sector in order to reduce emissions (KLM marker)**
- Optimisation of **energy efficiency and emission control in projects relating to water supply and treatment and wastewater management,** for example by improving the efficiency of pumps, reducing water losses and using renewable energies.
  - **Low-emission wastewater management** (reduction in methane and nitrous oxide emissions) and the use of biogas to produce heat and energy.
  - Use of water as an important **source as well as reservoir of renewable energies,** such as sustainable hydropower.

#### 4. EXAMPLES OF IMPACTS

These are general outcomes (not examples of best practice) in the context of interfaces between water, the environment and climate. In order to formulate indicators at the impact level, the outcomes need to be specified on a case-by-case basis.

- **Greenhouse gas emissions** in the water sector are reduced (thereby contributing to climate change mitigation).
- **Ecosystem services** are preserved through improved and more effective regulation of the water and environmental sector.
- The restoration of ecosystems helps to provide **natural means of water purification**, thereby ensuring that drinking water supplies are of high quality.
- The **water supply** of a specific target group can be assured despite the likelihood of water scarcity developing as a result of climate change.
- Enhanced **data, information and analysis systems** used for water resources management will flow into infrastructure planning and will increase the **ability to predict** water-related risks, thereby offering a basis for appropriate planning.

#### 5. REFERENCES

1. BMZ (2011): Human rights in German Development Policy, [https://www.bmz.de/en/publications/archiv/topics/human\\_rights/Strategiepapier305\\_04\\_2011.pdf](https://www.bmz.de/en/publications/archiv/topics/human_rights/Strategiepapier305_04_2011.pdf) (last accessed: 14.02.2019).
2. BMZ (2013): Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation, [https://www.bmz.de/en/zentrales\\_downloadarchiv/themen\\_und\\_schwerpunkte/menschenrechte/Leitfaden\\_PV\\_2013\\_en.pdf](https://www.bmz.de/en/zentrales_downloadarchiv/themen_und_schwerpunkte/menschenrechte/Leitfaden_PV_2013_en.pdf) (last accessed: 14.02.2019).

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As at	February 2019

BMZ Offices	BMZ Bonn Dahlmannstraße 4 53113 Bonn, Germany T +49 228 99 535 - 0 F +49 228 99 535 - 3500	BMZ Berlin Stresemannstraße 94 10963 Berlin, Germany T +49 30 18 535 - 0 F +49 30 18 535 - 2501
Contact	poststelle@bmz.bund.de www.bmz.de	

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# BMZ Strategy for Interlinkages<sup>1</sup> between Water, Good Governance and Urban Development

Synergies and conflicting goals

## 1. BACKGROUND

Providing public services effectively strengthens the **output legitimacy** of public-sector institutions, thereby helping to make the **polity** more resilient to crises and violent conflicts. **Inadequate governance** (how governments and companies conduct their affairs and interact with one another) is one of the **key causes of water crises** – whether in the context of water supply and sanitation or in connection with water resource management. Governance deficits lower the performance of institutions at various levels both in the water and public sector.<sup>2</sup> Water supply and sanitation is a highly politicised sector, particularly in least developed countries (LDCs) and in (semi-) arid countries: Inadequate intervention by public authorities and local governments in the management of utility companies, opaque budget allocations at the national level, a lack of accountability and clientelism when supervisory boards are being appointed are just some of the issues.

Rapid **urban growth** as a localised form of population growth often poses two particular challenges for the water sector and urban development:<sup>3</sup> Firstly, in urban centres, **informal settlements** are growing especially strongly; according to the United Nations,

by 2020 there will be 889 million people living in informal settlements.<sup>4</sup> In these places, unclear matters of land tenure and public sector responsibilities make infrastructure development difficult. Secondly, the way metropolitan areas are now expanding – both as a result of population growth and migration of the rural population to urban centres – is at times so **fast and uncontrolled** that available water resources and the normal speed of infrastructure development are insufficient.

In order to make **progress in the water** sector, there must be good coordination between governance factors in the water sector and governance factors outside the sector. **Governance measures** can **have an influence** on many of these factors (e.g. civil service law and the public sector remuneration system, the system of government or level of decentralisation, social protection systems, tendering legislation and procurement law, the public finance system, coherence of the legal system, sanction mechanisms/enforceability of the law, the spread of corruption, citizen-oriented budget planning, anti-corruption measures). Strengthening integrity and reducing corruption (SDG 16.5) is a strong

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<sup>2</sup> The fields of action involved here are decentralisation, integrated urban development, public finances, anti-corruption activities and the rule of law.

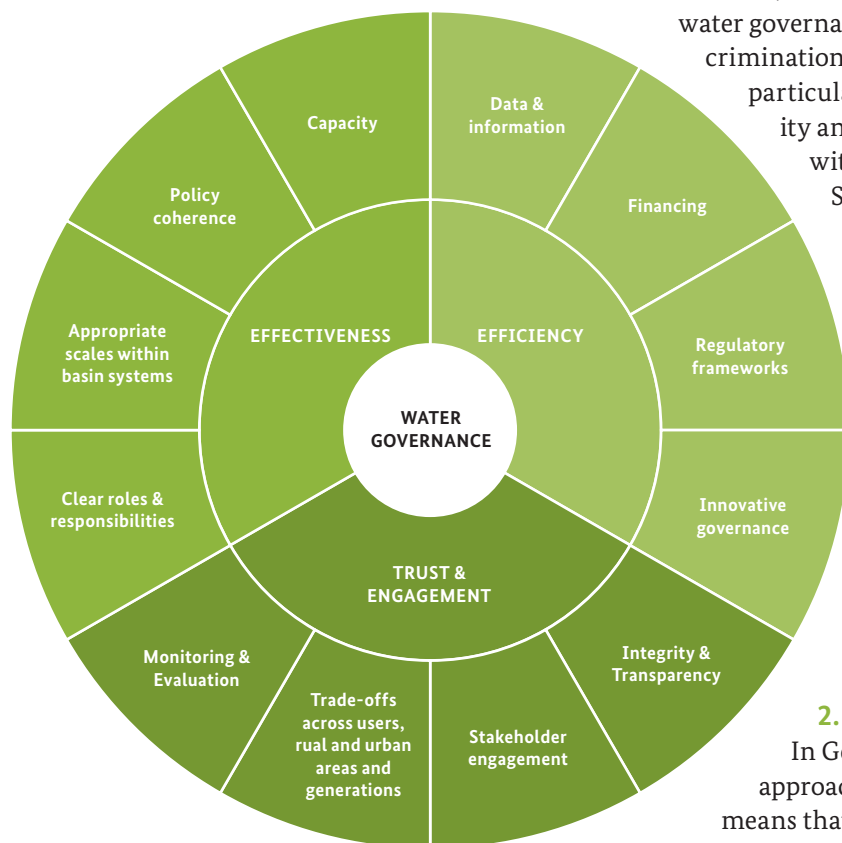
<sup>3</sup> Today, half the world's people are living in cities. It is estimated that, by 2050, this figure will have risen to two-thirds.

<sup>4</sup> UN Habitat (2014): A Practical Guide to Designing, Planning, and Executing Citywide Slum Upgrading Programmes – United Nations Human Settlements Programme, p. 7.

## BMZ STRATEGY FOR INTERLINKAGES BETWEEN WATER, GOOD GOVERNANCE AND URBAN DEVELOPMENT

### Synergies and conflicting goals

Figure 1:  
Overview of OECD Principles on Water Governance



Source: OECD (2015):  
*Principles on Water Governance*, p. 4.

concern of official German development cooperation. Corruption is a significant obstacle to development; the water sector loses considerable resources because of it. Estimates (from the World Bank<sup>5</sup>) suggest that 20 to 40 per cent of funding is lost through corruption.

Internationally, important **principles for water governance** are enshrined in the **human rights** to sufficient, safe, accessible and affordable water supply

and sanitation for all, and in the integrated water resources management (**IWRM**) approach.<sup>6</sup> In addition, the **OECD** has elaborated **principles** on water governance.<sup>7</sup> Next to the principles of non-discrimination, gender equality and inclusion, they particularly address participation, accountability and transparency. Closer interlinkages with the water sector can be found in the SDG 16 targets 5 to 7 on corruption, effective institutions and participatory decision-making. The implementation of SDG 6 (water) can only succeed if the relevant institutions and processes (SDG 16) are strengthened and if integrated planning takes place, especially in urban areas (SDG 11). Furthermore, the guiding principle of “leave no one behind” set forth in the 2030 Agenda also needs to be taken into account.

## 2. BASIC PRINCIPLES

In German development cooperation, the approach to governance is **holistic**, which means that it includes formal and informal rules (legal norms, incentives), institutions and processes that influence the performance of the water sector.

German development cooperation promotes the implementation of the aforementioned **governance principles** and fosters the observation, protection and realisation of all human rights for all citizens, particularly for disadvantaged people and groups (leave-no-one-behind principle), on the basis of the best available data.

German development cooperation ensures that there is **coherence between its contributions to governance reforms** (e.g. administrative, public finance,

<sup>5</sup> Stålgren, P. (2006), *Corruption in the Water Sector: Causes, Consequences and Potential Reform*, p. 3. Transparency International (Global Corruption Report 2008: *Corruption in the Water Sector*, p. xxiv and p. 10) cites similar figures.

<sup>6</sup> See inter alia: United Nations General Assembly: Human right to safe drinking water and sanitation, Note by the Secretary-General (Annual Report) (A/70/203), 2015.

<sup>7</sup> OECD (2015): *OECD Principles on Water Governance*.



decentralisation, legislative and judicial reforms) and its contributions to **reforms in the water sector** at all levels. In the planning and implementation of governance programmes, German development cooperation takes care to ensure that, in addition to individual projects that promote good governance (GG), GG principles are also explicitly enshrined in other sectors. Wherever possible, this is done by following a *“twin-track”* approach, whereby projects to support governance reforms and measures in other sectors go hand in hand. This helps ensure that people can benefit from citizen-oriented, transparent and efficient service delivery by the public sector.

**Water programmes** introduce GG approaches above all into **advisory service interventions** in the fields of sector reforms and strategies, the drafting and implementation of legislation, and regulation.

Targeted investments in infrastructure enable structural improvements in governance in the contexts of decision-making, as well as the funding and management of projects that go beyond the actual investment measure in question. They can, for example, positively influence corporate management, participatory decision-making processes and accountability.

**Reducing corruption and taking GG principles into account** when identifying, planning, financing and implementing projects and during monitoring and evaluation in national water sectors is the aim of German development cooperation. Only then is it possible to improve living conditions for all, including particularly marginalised people (leave no one behind) through targeted investments and the efficient implementation of projects by the responsible institutions within the framework of acceptable cost-benefit ratios.

German development cooperation measures take **forecasts for population development** into account, particularly forecasts for migration to peri-urban settlements and to urban centres, as part of the planning and design of urban infrastructure projects in the water sector.

### 3. FIELDS OF ACTION

When it comes to planning projects and priority areas or engaging in the international sector dialogue on interlinkages between the topics water, good governance and urban development, the following fields of action in particular are to be taken into account.

#### 3.1. FIELDS OF ACTION IN ALL THE AFOREMENTIONED SECTORS

- Strengthening the capacities and professionalisation of **local authorities** in accordance with the multi-level approach and in line with the principle of subsidiarity, so they are better able to execute their responsibility of supervising and ensuring the provision of water supplies and the protection of water resources.
- Improving the capacities of public **administration in the water sector at the local level** (e.g. providing citizen-oriented services) **and the national level** (e.g. budget allocations, management of public infrastructure projects, inter-ministerial coordination) for more effective provision of basic services such as water and sanitation.
- Supporting the **financial management** of metropolitan authorities when it comes to mobilising funds to finance infrastructure, including collecting municipal revenues, partnerships with the private sector and financing modalities in metropolitan associations.
- Ensuring transparent, accountable and economic use of public funds in the water sector in line with **good financial governance** (including establishing democratic control mechanisms that respect the rule of law).
- Strengthening **participation processes and enforceable complaint mechanisms** at the local level and the level of the water catchment area in order to increase accountability and transparency.<sup>8</sup>
- Raising awareness among civil society organisations, citizens, user groups, etc. – especially at the local level and the level of water catchment areas – with regard to their role as **“watchdogs”** to strengthen water supply and use.

<sup>8</sup> See also SDG 6b (“Support and strengthen the participation of local communities in improving water and sanitation management”) and SDGs 16.6 (“Develop effective, accountable and transparent institutions at all levels”) and 16.7 (“Ensure responsive, inclusive, participatory and representative decision-making at all levels”).

### 3.2. FIELDS OF ACTION IN THE WATER SECTOR – POLICY COHERENCE/SECTOR REFORMS

- **Supporting reforms in the water sector** and sector planning
  - Building sector structures based on GG principles.
  - Enshrining **human rights** in sector policies, legislation and regulations.
  - Improving policy coherence and stepping up cooperation **with other sectors** (e.g. decentralisation, public finances, agriculture, the environment, health, education, mining and urban development).
  - Involving **important development players** (e.g. cities, water catchment authorities, farmers, associations, water user organisations, NGOs) more closely in the national dialogue, e.g. via association structures.
  - Taking population development into account in the planning of (water) infrastructure, e.g. envisaging **further expansion stages** from the outset so as to enable a **more flexible** approach to necessary increases in capacity.
- **Regulation**
  - Supporting and developing effective **regulatory institutions, instruments and processes** in harmony with GG principles (see above) and promoting integrity in the sector.
  - Developing incentives for water utilities to improve water supplies for **poor and disadvantaged population groups** and to increase their compliance through indicators and reporting systems.
- **Corporate management**
  - Strengthening the integrity and professionalism of utility **managements** and of supervisory bodies (e.g. through codes of conduct) in order to improve internal and external accountability and transparency.
  - Creating a sufficient degree of **autonomy** for public and private utilities to act in line with the dictates of sound business management (planning of business operations, budgets, investments, maintenance work and staff development).
- Establishing adequate **transparency and accountability** vis-à-vis users and official supervisory bodies by means of suitable supervisory and control mechanisms.
- Developing suitable mechanisms for dialogue with user and interest groups.
- **Statistics and sector monitoring**
  - Strengthening the collection, analysis and use of disaggregated data for **sector monitoring** and as the basis for water supply and sanitation for all and for integrated water resources management – especially taking into account the needs and interests of disadvantaged groups (leave no one behind).
  - **Cooperation** between local, regional and national sector institutions and administrations as well as with statistics authorities to improve the quality and quantity of information and data and to facilitate better exchange (see SDG 17.18).
- **Financing in the water sector**
  - Strengthening sustainable **financing sources and mechanisms** (e.g. subsidies from the 3 Ts,<sup>9</sup> poverty funds) for implementing water and sanitation policies and realising sector development goals.
  - Strengthening transparent and coherent **allocation of funds** for the water sector at all levels (national, regional and local) on the basis of sector and local authority planning and sector monitoring.
  - Strengthening internal and external **control and accountability mechanisms** in order to ensure goal-oriented, economic use of funds.
  - Measures to reduce **susceptibility to corruption**.
  - Improving **urban or regional planning and management approaches** in order to avoid conflicts of use.

<sup>9</sup> 3 Ts: tariffs, taxes and transfers.

→ **Involving users**

- **For water supply and sanitation:** Establishing inclusive, accessible, gender-sensitive and effective **mechanisms for participation and complaints** at all levels, especially for disadvantaged groups (e.g. through e-governance systems, dialogue forums).
- **For water resource management:** Promoting transparent allocation decisions at the national or sub-national level on the basis of stakeholder participation (towns and cities, municipalities, user groups, watershed organisations). Improving participatory **planning and management approaches** at the urban and regional levels in order to avoid conflicts of use.

→ **Anti-corruption**

- Supporting the establishment and effective implementation of risk management systems for the core processes of water management, e.g. in the case of infrastructure investments / sector financing / tendering and procurement systems.
- Introducing whistleblower systems and measures to protect whistleblowers.
- Promoting cooperation between water sector players and anti-corruption bodies.
- Establishing rules for dealing transparently with conflicts of interest.

### 3.3. FIELDS OF ACTION IN THE GOOD GOVERNANCE SECTOR, INCLUDING THE THEMATIC FIELD OF URBAN DEVELOPMENT

→ **Decentralisation and local governance**

- Ensuring the **coherence of overarching decentralisation and sector reforms** (e.g. separating policy, regulation and investment from service delivery; formal declaration of mandate at all administrative levels; close consultation between government institutions and service providers at all levels; autonomy and economies of scale for utilities of service providers) oriented

towards the principle of subsidiarity and the principles of GG.

- Promoting **cooperation between relevant sectors** (e.g. the water, energy, agriculture, health, housing and transport sectors) on integrated solutions involving all stakeholders for the planning, coordination and implementation instruments of the respective local and regional administrations or authorities – with a view to wards increasing, for example, (climate) resilience, climate justice, resource efficiency and health impacts, and reducing conflicting goals.
- Developing **incentive systems** to boost administrative performance at the local, regional and national levels.<sup>10</sup>
- Strengthening strategies for participatory municipal **settlement planning and the expansion of public services**, especially in urban slums.

→ **Reforming public finances**

- Transparent design of **budget processes** (budget planning and implementation) within the respective local and regional administrations, with a close focus on the economic viability of water utilities in policies for investments and subsidies.
- Strengthening administrative capacities at the national and sub-national levels for effective management of public infrastructure investments (public investment management) in the water sector.
- Supporting independent internal and external **control mechanisms** at all levels (nexus parliamentary control, courts of audit, civil society).

→ **Legal and judicial reform**

- Supporting the formulation of water legislation **reforms** and ensuring conformity with the rule of law and human rights principles.
- Supporting the reform of general **administrative (procedural) law** to bring about an improvement in the legality of water

<sup>10</sup> See also SDG 16.6: “Develop effective, accountable and transparent institutions at all levels.”

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- administrations at all levels (internal guidelines, codes of conduct, disciplinary regulations, etc.).
  - Promoting (general) legal means and competencies within administrations / courts for **mediation and law enforcement** in the water sector, and also reasonable mingling of formal and informal/traditional forms of mediation.
  - Supporting the establishment of rule of law/ administrative-legislative principles in the sector which assist users in asserting their rights.
  - **Anti-corruption:** Supporting instruments for integrity and fighting corruption in public administration and water utilities.
  - **Public participation:** Strengthening conducive conditions for constructive dialogue between users, utility companies and local authorities/government (e.g. online information platforms, institutionalised public participation mechanisms, e-participation to communicate funding requirements with regard to (new) user fees, etc.).
  - **Urban and regional planning competencies and capacities:** Strengthening national and regional institutions, paying particular attention to the availability of resources and to questions of land tenure and land management. Special attention is given to the development of slum areas (often at the edge of urban centres), in combination with impacts on health and employment, and to the support of funding approaches with subsidy mechanisms for people living in poverty (e.g. output-based aid – OBA).
  - Promoting the collection, transfer, storage and evaluation of relevant **data** (e.g. from the registry of births, marriages and deaths) with the help of modern ICT applications, whilst observing pertinent data protection measures.
  - Supporting **basic planning** (e.g. elaborating master plans or zoning plans, monitoring systems and baseline studies, and participatory land use planning), both through advisory approaches and as measures to pave the way for investments.
  - Supporting **integrated development** between cities and surrounding rural areas, e.g. through joint infrastructure planning.
- #### 4. EXAMPLES OF IMPACTS
- ##### 4.1. EXAMPLES OF IMPACTS IN THE WATER SECTOR
- **Inequalities and discrimination** as regards the provision of water and sanitation or in connection with water resources have been reduced.
  - Improved **incentive schemes** in the sector lead to an expanded, improved and more efficient water supply.
  - Sustainable **financing** of the water sector with a view to expanding and improving the provision of water and sanitation to poor and disadvantaged communities has been established.
  - **Regulation** of the water sector at the national, regional, local and watershed levels follows the principles of GG.
  - **Performance data** for the water sector (e.g. for water utilities) is accessible to the public.
  - The **rates of access** to water supply and sanitation in fast-growing peri-urban neighbourhoods have improved.
- ##### 4.2. EXAMPLES OF IMPACTS IN THE SECTORS GOOD GOVERNANCE AND URBAN DEVELOPMENT
- **Resilience** within society to crises and state failure has been raised thanks to the increased output legitimacy of the state.
  - **Public authorities are meeting their mandate** to provide basic municipal services and to protect water resources.
  - Decision-making in the water sector is citizen-oriented, inclusive and participatory.
  - Integrated, coherent **approaches between individual sectors** (e.g. urban development, water supply and sanitation, transport, energy, agriculture or education) on the basis, for example, of inter-sectoral coordination or planning instruments create the prerequisites for efficient and effective policy formulation and implementation.

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- **Funding allocations** are made based on poverty-oriented monitoring and public authority decisions made as a result of the monitoring process.
- Urban and regional planning authorities know about and use **planning processes** that take water sector and climate issues into account.

### 5. REFERENCES

1. OECD (2015): OECD Principles on Water Governance, <http://www.oecd.org/cfe/regional-policy/OECD-Principles-on-Water-Governance.pdf> (last accessed: 21.01.2019).
2. Stålgren, P. (2006): Corruption in the Water Sector: Causes, Consequences and Potential Re-form. Swedish Water House Policy Brief Nr. 4, [http://www.waterintegritynetwork.net/wp-content/uploads/2015/03/swh\\_policy\\_brief\\_water\\_sector.pdf](http://www.waterintegritynetwork.net/wp-content/uploads/2015/03/swh_policy_brief_water_sector.pdf) (last accessed: 21.01.2019).
3. Transparency International (2008): Global Corruption Report 2008: Corruption in the Water Sector, [https://www.transparency.org/whatwedo/publication/global\\_corruption\\_report\\_2008\\_corruption\\_in\\_the\\_water\\_sector](https://www.transparency.org/whatwedo/publication/global_corruption_report_2008_corruption_in_the_water_sector) (last accessed: 21.01.2019).
4. UN Habitat (2014): A Practical Guide to Designing, Planning, and Executing Citywide Slum Up-grading Programs, United Nations Human Settlements Programme, [https://www.ohchr.org/Documents/Issues/Housing/InformalSettlements/UNHABITAT\\_A\\_PracticalGuidetoDesigningPlaningandExecutingCitywideSlum.pdf](https://www.ohchr.org/Documents/Issues/Housing/InformalSettlements/UNHABITAT_A_PracticalGuidetoDesigningPlaningandExecutingCitywideSlum.pdf) (last accessed: 21.01.2019).
5. United Nations General Assembly (2015): Human right to safe drinking water and sanitation, Note by the Secretary-General (Annual Report) (A/70/203), [http://www.un.org/en/ga/search/view\\_doc.asp?symbol=A/70/203](http://www.un.org/en/ga/search/view_doc.asp?symbol=A/70/203) (last accessed: 21.01.2019).

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BMZ Offices

BMZ Bonn  
Dahlmannstraße 4  
53113 Bonn, Germany  
T +49 228 99 535 - 0  
F +49 228 99 535 - 3500

BMZ Berlin  
Stresemannstraße 94  
10963 Berlin, Germany  
T +49 30 18 535 - 0  
F +49 30 18 535 - 2501

Contact

poststelle@bmz.bund.de  
www.bmz.de

Download here...



# BMZ Strategy for Interlinkages<sup>1</sup> between Water, Displacement and Migration

Synergies and conflicting goals

## 1. BACKGROUND

There are numerous interlinkages between water, displacement and migration.

The large numbers of refugees, particularly in the Middle East and in Africa, have made such interlinkages between the water sector and the issues of displacement and migration even more evident. On the one hand, a **lack of water security** is a key factor in the complex and interconnected root causes of displacement and migration. Conversely, as a result of rising numbers of refugees and displaced people, the water sector is facing tremendous **challenges** in terms of infrastructure development, management, stakeholders involved and conflict sensitivity. SDG 6 of the 2030 Agenda calls for ensuring **water availability and water security for all**. At the same time, the 2030 Agenda recognises that **migrants make important contributions to sustainable development** and aims to strengthen these contributions. However, it also emphasises that migrants, refugees and internally displaced persons are **vulnerable**

**groups** whose protection and equal rights need to be ensured in accordance with the “Leave no one behind” principle. An increasing number of international regulatory frameworks from the contexts of human rights, emergency aid and displacement contain rules and requirements for providing support to refugees and migrants, such as the Global Compact on Refugees<sup>2</sup> and the Global Compact for Safe, Orderly and Regular Migration.

A lack of water resource security impedes development and affects people’s living conditions, weakens state legitimacy and equal participation and may thus increase the likelihood of violent conflict, displacement and forced displacement. In the discourse on the conflict in Syria, for example, the lack of water security is regarded as one of numerous factors fuelling the conflict.<sup>3</sup> Currently, **258 million people** are **international migrants**, i.e. people living in a country other than the country in which they were born.<sup>4</sup> Worldwide, more than 68 million

<sup>1</sup> The content of this Strategy for Interlinkages is determined by the BMZ divisions responsible for German development cooperation activities in the sectors concerned, who are jointly responsible for its elaboration. The strategy is to be taken into account when framing documents such as country strategies, short statements and programme proposals for official development cooperation, and in international policymaking.

<sup>2</sup> The Global Compact on Refugees highlights in its programme of action the importance of water, sanitation and hygiene and emphasises that natural resources in the vicinity of large refugee settlements are often under great stress. The Global Compact for Safe, Orderly and Regular Migration mentions as one of its 23 goals the reduction of the root causes and structural factors that force people to migrate. Specifically, this refers to, among other things, natural disasters, slow-onset environmental degradation and the negative consequences of climate change.

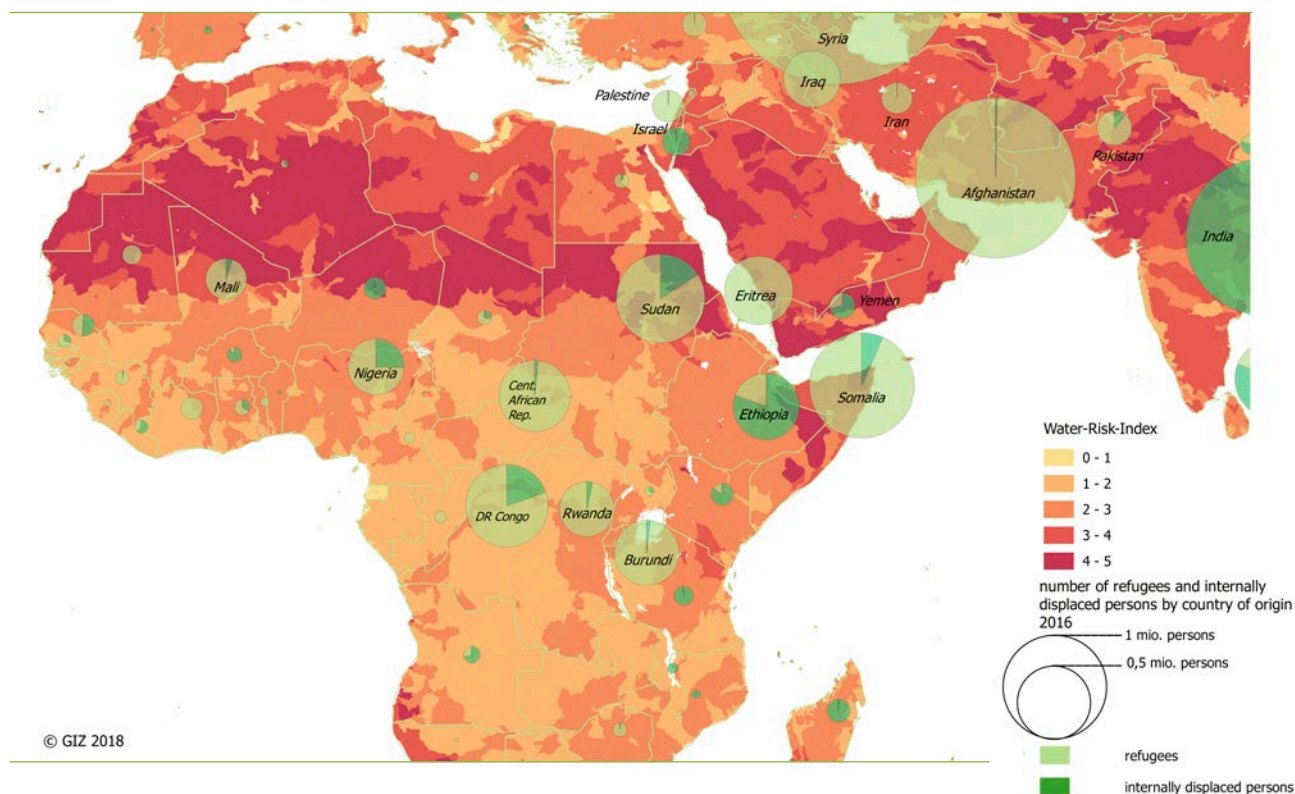
<sup>3</sup> See, for example: Francesca de Châtel (2014): The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution. Middle Eastern Studies 50,4.

<sup>4</sup> UNDESA (2017): The International Migration Report 2017, p. 3. This publication applies the definition of migrants established by the UN Population Division and the World Bank, which regards all people living outside their country of origin (including refugees) as migrants.

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Figure 1 (author's illustration): Water risk and the number of refugees and internally displaced persons by country of origin



The water risk index aggregates scores of 12 indicators and is published by the World Resources Institute (Aqueduct Water Risk Atlas 2015). In addition to water availability and use, the Atlas also takes into account other indicators such as on droughts/floods and media attention. The numbers on refugees and internally displaced persons by country of origin were retrieved from the website of the World Bank and are based on UNHCR data for 2016. This cartographic representation is for information purposes only and in no way implies recognition under international law of boundaries and territories.

people are fleeing wars, violence, human rights violations and persecution; approximately 25.4 million of them are refugees, 3.1 million are asylum-seekers and 40 million are internally displaced persons.<sup>5</sup> Some 85 per cent of all refugees seek protection in **developing countries**.<sup>6</sup>

Water-related natural disasters are another central reason why people leave their country of origin. In

many regions, extreme weather events such as storms, floods and droughts will become more intense and frequent as a result of climate change. **Floods** alone accounted for almost a third of all people who became internally displaced persons in 2017 worldwide (8.6 million people in total).<sup>7</sup> Gradual changes in water availability can lead to migration (which is difficult to quantify, but significant in terms of migrant numbers) and increased competition for water resources.<sup>8</sup>

<sup>5</sup> UNHCR (2018): Global Trends: Forced Displacement in 2017.

<sup>6</sup> UNHCR (2018): Global Trends: Forced Displacement in 2017.

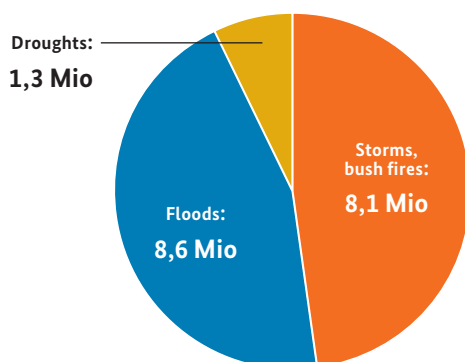
<sup>7</sup> Internal Displacement Monitoring Centre (2018): Global Report on Internal Displacement, p. 6.

<sup>8</sup> Migration decisions are multi-causal and are triggered, in addition to climate and weather conditions, by social, economic and political factors. However, in some countries, e.g. in Bangladesh, climate and weather conditions are the key drivers of migration.

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Figure 2 (author's illustration):  
Internal displacement caused by disasters (2017)



In 2017, there were 18 million new internally displaced people as a result of disasters, with water-related disasters accounting for 9.9 million.

Source: Internal Displacement Monitoring Centre (2018): *Global Report on Internal Displacement 2018*.

**Greater water security** can help to improve people's **living conditions**, prevent violent conflict, support people in coping more effectively with natural disasters, reduce the pressure to migrate and mitigate the factors that drive migration and displacement. As a result of integrated water resources management, in particular, water can become a **resource for peace between and inside countries**.

In many host countries, the influx of refugees, internally displaced persons and other migrants can further increase existing **deficits** in the area of water supply and sanitation and also the impact of these deficits, e.g. with regard to people's health.<sup>9</sup> **Women** are particularly hard hit; for instance, maternal mortality is considerably higher in contexts of displacement.<sup>10</sup> In host communities, conflict may also arise over water supply and sanitation between refugees, internally displaced persons and the local population.

Another challenge for water and sanitation in a crisis context is how to interlock humanitarian assistance with longer-term **development cooperation**, including transitional aid, with the aim of improving gov-

Figure 3: By 2050 – if no action is taken – there will be more than 143 million internal climate migrants across these three regions.



Source: World Bank (2018): *Groundswell: Preparing for internal climate migration*.

ernance, sector management and supply standards. A case in point is the emergence of parallel structures due to different competencies and responsibilities; in partner countries, responsibility for refugees often lies with **central government authorities** (e.g. prime ministers) while implementation rests with **emergency assistance agencies**. Responsibility for the local population in partner countries lies with **sector ministries** and, in some cases, sector ministries at regional and municipal levels whilst implementation is undertaken by **utilities**, with development cooperation support. In the event of insufficient coordination, numerous problems may arise, e.g. when sector-relevant investments made in a context of displacement and crisis are not coordinated with the water ministries or dovetailed with national sector strategies.

However, refugees and migrants can also help to better cope with the challenges in the water sector, since money or knowledge transfers from the **diaspora** or **returning experts** can strengthen the water sector. When properly managed and safe, migration can also be a strategy for climate change adaptation. However, host regions always need to be involved in

<sup>9</sup> Center for Mediterranean Integration (2017): *Mediterranean Host Municipalities Network. Best Practices in Hosting Refugees*, p. 9.

<sup>10</sup> According to Care International, around 60 percent of avoidable maternal deaths is related to conflicts, displacement and disasters. Care International (2017): *Suffering in silence: The 10 most under-reported humanitarian crises of 2016*, p. 17.



the planning process in order to achieve this. In addition, participatory and voluntary resettlements, as an ultima ratio, can shield emergency situations from further deterioration.

## 2. BASIC PRINCIPLES

In its development cooperation, Germany pursues a **human rights-based approach**. It places emphasis on the duty on the part of countries of origin, transit and destination to respect, protect and fulfil the right to water and sanitation for all migrants and refugees.

The aim of German development cooperation is to **reduce the pressure to migrate** by improving living conditions and resilience in partner countries and to **mitigate the root causes of displacement** through measures aimed at promoting peace, preventing crises and resolving conflict. The overarching goal is to empower the affected population groups to make **voluntary migration decisions**. This includes giving people better prospects to build a future for themselves on the ground and creating opportunities for safe and orderly migration by means of international and national migration policies (SDG 10.7)<sup>11</sup>. Through its development cooperation, Germany provides special support to **marginalised groups** put under additional pressure to migrate by the consequences of climate change, regardless of whether they want to or are able to migrate or not (“trapped populations”). The key objective is to strengthen people’s capacity to adapt to extreme weather events and long-term climate-induced changes.

In contexts of migration and refugee movements, German development cooperation puts special emphasis on conflict-sensitive action and strict compliance with the “do no harm” principle. This includes, among other things, involving different population groups, e.g. through water user committees, and strengthening host communities that take in

refugees and internally displaced persons. German development cooperation is based on a holistic approach, always giving equal consideration to migrants, refugees, internally displaced persons and the local population. The aim is to achieve swift and sustainable, yet tangible improvements in the living conditions of all people on the ground. In its development cooperation activities, Germany takes into consideration the special needs of women in contexts of displacement, e.g. with regard to hygiene, and enhances their participation in planning and decision-making processes, e.g. through water use committees. In order to improve water and sanitation, German development cooperation harnesses the potential of people living in the diaspora and of (highly) skilled returnees.

The aim is to dovetail emergency aid, transitional aid, special initiatives and bilateral development measures (Technical and Financial Cooperation) in German development cooperation, also in the context of large flows of refugees and recurrent crises. Through its transitional aid and special initiatives, Germany creates a link between emergency aid and bilateral development cooperation. In order to ensure long-term support for refugees and host communities, any measures that are implemented in situations of urgent crisis need to be translated into national structures, and responsibility for them must be transferred to the sector ministries in the medium to long term. In its development cooperation activities, Germany works to ensure that, wherever possible and sensible, support measures for refugees are aligned with national rules and regulations and coordinated with the competent institutions in the partner country (“alignment”). It keeps an eye on the compatibility of these measures with state structures. German development cooperation also aims to integrate the needs of refugees, internally displaced persons and other migrants into national plans and strengthen the capacity of the competent state structures.<sup>12</sup>

<sup>11</sup> SDG 10.7. Facilitate orderly, safe and responsible migration and mobility of people, including through implementation of planned and well-managed migration policies.

<sup>12</sup> In this way, Germany supports the Comprehensive Refugee Response Framework, adopted in 2016 as part of the New York Declaration for Refugees and Migrants, and the Global Compact on Refugees.

Particularly in contexts of crisis and restricted access, the BMZ also commissions selected **UN agencies and national and international non-governmental organisations** with the implementation of these measures. In designing and executing the measures, the BMZ and its implementing organisations (in particular KfW and GIZ) work to ensure their complementarity with other measures. As part of the commissioning and implementation process, Germany makes arrangements to ensure that the contractors (UN agencies, NGOs) coordinate their measures with other players of German development cooperation in the partner country, taking into account the specific requirements and conditions on the ground. Moreover, there is **transparent communication** between UN agencies and the organisations of German development cooperation (e.g. on costs, use of funds and selection of measures). In its development cooperation, Germany aims to ensure that contractors **take account of international environmental, social and compliance standards** and perform **conflict analyses**. In the consultation process with other German ministries and through its development cooperation officers on the ground, the BMZ promotes close **coordination** of programmes of humanitarian aid with transitional aid and development cooperation programmes, both in the planning and in the implementation stages.

When it comes to resolving severe crisis situations, there are also conflicting goals, which means that objectives and expectations need to be realistic. In its decisions, Germany **weighs up different aspects** relating to the technical standards of water, wastewater and sanitation structures in refugee camps and host communities, taking into account the planned **lifetime** of the respective infrastructure. It takes into consideration that infrastructure is often **used for much longer** than originally intended, especially in protracted refugee situations. In the event of conflicting goals, short-term effects must be weighed against long-term improvements of the supply situation, taking account of **economic and ecological sustaina-**

**bility**. The goal of covering costs, be it only operating costs, by way of tariffs often cannot be achieved in contexts of displacement, which means that grants are needed, including from development cooperation funds. However, users should not be exempt per se from paying some of the costs. In protracted refugee situations, in particular, they should make an appropriate contribution.

### 3. FIELDS OF ACTION

When it comes to planning projects and priority areas, or in international dialogue between different sectors on interlinkages between water, displacement and migration (primarily CRS codes starting with 14 and/or 7<sup>13</sup>), the following areas of action in particular are to be taken into account.

#### 3.1. MITIGATING THE PRESSURE TO MIGRATE AND TACKLING THE ROOT CAUSES OF DISPLACEMENT

**In the context of crisis prevention and conflict management**

- Promoting the **improvement of water supply and sanitation** and of the **hygiene situation** in the **countries of origin** of migrants and refugees, **paying special attention to conflict-sensitive and gender-sensitive approaches**.
- **Establishing (transboundary) integrated water resources management (IWRM)**, especially in regions where water is very scarce, in the interest of ensuring a **fair balancing of interests and distribution of resources** between interest groups. This includes the promotion of mechanisms such as water tribunals, water agreements and compensation payments, using both civil society and conflict-sensitive approaches with the aim of improving water security and living conditions.
- Enhancing the **data basis and analyses** on the correlation between water availability, water management and migratory movements and between improved water management and conflict.

<sup>13</sup> Other Credit Reporting System (CRS) codes, such as 16050 (multisectoral aid for basic social services) and 15220 (civil peace-building), also play a prominent role.

**In the context of human mobility induced by environmental changes (including climate change)**

→ Measures for quickly and **noticeably improving living conditions for people on the ground** in regions with severe water scarcity and increased risk of flooding by designing appropriate IWRM measures, particularly aimed at improving agricultural livelihoods. Promoting **climate-sensitive land use that makes optimum use of soil and water resources** as a way of achieving production security, storing water and renewing groundwater in the medium to long term. Promoting **irrigation** and **increased water efficiency** in line with the principle of not over-exploiting water and land resources.<sup>14</sup>

→ **Projects on comprehensive climate risk management**, involving not just measures to reduce greenhouse gas emissions over the long term, but also measures for climate change adaptation and disaster risk reduction, address the consequence of extreme weather events<sup>15</sup> and of slow-onset environmental changes.<sup>16</sup> Such measures may include, for instance, ecosystem-based or technological approaches for water storage, flood control/coastal protection, early warning systems, a more efficient use of resources (on both the supply and the demand side) and tapping into water resources that are still unutilised, e.g. through treatment of rainwater or brackish water, water reuse or desalination. Specific measures should also be taken into consideration in the following areas:

- Combining grey and green infrastructure, especially in **peri-urban neighbourhoods**, to provide protection against flooding, e.g. retention basins, urban drainage and appropriate sanitation infrastructure.
- Developing and promoting **supply and disposal systems that include mobile components** and flexible, smaller systems.

- Developing national **contingency plans** to respond to natural disasters, health crises and conflict (including concepts for providing priority support to public institutions in cases of emergency); in the event of drought: drilling and temporary use of emergency wells.
- **Comprehensive climate-risk management<sup>17</sup> and climate insurance, including insurance schemes** supporting people in coping with damage and losses in the event of disaster.

→ **Facilitating safe and orderly migration routes** as agreed in SDG 10.7 and further specified in the Global Compact for Migration (e.g. to diversify employment-earning opportunities for families or to create alternative sources of income locally) can be another strategy for adapting to the consequences of climate change. In light of the fact that most migratory movements occur in the context of climate change and within domestic borders, the main focus is on approaches to support domestic migration. Supporting **resettlement measures that were planned in a participatory process** is the ultima ratio, e.g. when land mass is lost due to rising sea levels.

<sup>14</sup> The fields of action relating to water resource security, planetary boundaries and food security are explained in detail in the “Strategy for Interlinkages between Water, Energy and Agriculture (nexus perspective)”.

<sup>15</sup> E.g. droughts and floods, but also heavy rainfall events, tsunamis etc.

<sup>16</sup> E.g. rising sea levels, loss of biodiversity, melting glaciers etc.

<sup>17</sup> Parts of the fields of action mentioned in the water-climate nexus were taken from the “Strategy for Interlinkages between Water, the Environment and Climate Change”.

### 3.2. SUPPORT FOR REFUGEES, INTERNALLY DISPLACED PERSONS AND HOST COMMUNITIES

- Promoting the **improvement of the water, sanitation and hygiene situation** in host communities that take in refugees and/or internally displaced persons and in refugee and IDP camps, including interim solutions.
  - **Ensuring that the technical standards and dimensions of water supply solutions are adapted to the refugee situation.** As quickly as possible, replacing temporary solutions of humanitarian aid, or when there are large numbers of refugees and internally displaced persons (for water supply, such solutions are often water tankers etc.), with more environmentally friendly supply solutions that have a structural impact (rehabilitation, enlargement or new construction of wells and distribution systems, water points/kiosks) and that provide long-term benefits not only for refugees/internally displaced persons but also for the local population. When planning the dimensions of such solutions, the future development of the displacement situation should be anticipated, where possible. In protracted refugee situations, the aim should be to implement sustainable solutions, possibly using adapted solutions based on lower but still acceptable technical standards.
  - **In the field of sanitation**, give special attention to:
    - **Public sanitation facilities** and showers separated by gender and public outlets, and supply for health and education institutions.
    - For women and girls: integrating **menstrual hygiene** concepts into menstrual in refugee camps and developing concepts on sanitation that prevent **gender-based violence** in refugee camps. This includes ensuring appropriate lighting, a central location, clearly separated sanitation facilities and possibly security staff.
  - In crisis situations in particular: work-intensive, income-generating **rehabilitation** of basic infrastructure through cash-for-work measures, or clearing up after armed fighting; e.g. providing materials/supplies for the construction of canals and latrines, with work being executed by refugees/internally displaced persons and the host population.
- **Capacity building and management concepts that are adapted to the refugee situation**, e.g. with regard to
  - **State institutions:** strengthening the management, planning and regulatory capacity of state institutions, e.g. of communities (including contingency plans); in cases where different state institutions are responsible for refugees and the local population, provide early support to promote close coordination between them.
  - **Utilities and service-providers for operation and maintenance of supply systems**, including of financing concepts and tariffs (e.g. through joint water committees), taking into account that the financial resources of refugees and internally displaced persons are usually very limited, and involving representation bodies that have often been established, at least in camps (often elected refugee representatives), and respecting the “do no harm” principle. This is particularly important when it is necessary to have different tariffs for refugees/internally displaced persons and the local population.
  - **Participation** of refugees, internally displaced persons and the local population (with women and children/youth participating equally) in planning processes and in user committees, in employment/construction works and in education and employment programmes in the water sector.
  - **Vocational training and further training measures** targeted at refugees/internally displaced persons and the local population so they can acquire skills in the water sector (e.g. plumbing skills).
- **Dismantling parallel structures** between support measures as part of humanitarian aid,

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on the one hand, and national supply structures, on the other, e.g. obtaining approvals for drilling wells, complying with national supply standards, where possible in spite of the crisis context and the limited governance capacities of state institutions. This also applies where measures are outsourced to UN agencies and relief organisations/non-governmental organisations.

- **Aligning** measures for supporting refugees under short- and medium-term measures of transitional aid, special initiatives and bilateral development cooperation with the country's **legal and institutional environment**, e.g. taking into account the needs of refugees in national planning processes in the area of water resource management and integration into existing water supply structures.
- **Mainstreaming measures to make** responsible stakeholders in the water sector aware of possible alternatives in the water sector in contexts of displacement
- Promoting the **exchange of knowledge** on human mobility in the context of environmental change (e.g. as a result of climate change) and the needs of the people who are affected, for example by participatory **identification and documentation** of “hot spots”, i.e. informal settlements or squatter areas where large numbers of environmental and climate migrants are presumed to be living.

### 3.3. RETURN AND REINTEGRATION

- Improving **basic services** (water supply and sanitation and wastewater disposal) in communities that take in returnees.
- Supporting reintegration, for instance through **cash-for-work measures** for rebuilding water infrastructure when it has been destroyed by wars.
- Exploring possibilities to give returnees **new prospects to build a future for themselves** through **upskilling measures** – this applies both to low-skilled returnees (employment in the water sector and in adjacent sectors) and more qualified and highly-skilled returnees (knowledge transfer, technical expertise etc.).

- In all cases, ensuring compliance with the “do no harm” principle by avoiding **preferential treatment** of returnees vis-à-vis the local population who stayed in their home communities, having both groups participate jointly in development measures.

### 4. EXAMPLES OF IMPACTS

- Water and sanitation access and usage rates for migrants and the local population have been improved.
- Water infrastructure projects create employment opportunities in the medium to long term and increase the available income of refugees, internally displaced persons and the local population.
- Appropriate access to water and sanitation services and income-generating measures for refugee families and the local population in host communities reduce the potential for violent conflict, enhance peaceful coexistence and help to give people a viable future in their home country.
- Improved flood control reduces the risks of floods in vulnerable regions, helps to protect people's living conditions and infrastructure and reduces the pressure to migrate.
- Improved protection and a more efficient use of water resources mitigate cultivation risks in regions with severe droughts, reducing forced migration induced by these factors.

## 5. REFERENCES

1. Care International (2017). Suffering in silence: The 10 most under-reported humanitarian crises of 2016, [http://www.care.org/sites/default/files/documents/report\\_suffering\\_in\\_silence\\_web\\_version.pdf](http://www.care.org/sites/default/files/documents/report_suffering_in_silence_web_version.pdf) (last accessed: 15.01.2019).
2. Châtel de, F. (2014): The Role of Drought and Climate Change in the Syrian Uprising: Untangling the Triggers of the Revolution. Middle Eastern Studies 50,4, <https://blogs.commons.georgetown.edu/rochelledavis/files/francescadeschatel-drought-in-syria.pdf> (last accessed: 15.01.2019).
3. Internal Displacement Monitoring Centre (2018): Global Report on Internal Displacement, <http://www.internal-displacement.org/global-report/grid2018/downloads/2018-GRID.pdf> (last accessed: 15.01.2019).
4. UNDESA (2017): The International Migration Report 2017, [http://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017\\_Highlights.pdf](http://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017_Highlights.pdf) (last accessed: 15.01.2019).
5. UNHCR (2018): Global Compact for safe, orderly and regular migration, [https://refugeesmigrants.un.org/sites/default/files/180711\\_final\\_draft\\_0.pdf](https://refugeesmigrants.un.org/sites/default/files/180711_final_draft_0.pdf) (last accessed: 15.01.2019).
6. UNHCR (2018): Global Trends: Forced Displacement in 2017, <https://www.unhcr.org/globaltrends2017/> (last accessed: 15.01.2019).
7. UNHCR (2018): Report of the United Nations High Commissioner for Refugees Part II. Global compact on refugees, [https://www.unhcr.org/gcr/GCR\\_English.pdf](https://www.unhcr.org/gcr/GCR_English.pdf) (last accessed: 14.01.2019).
8. Center for Mediterranean Integration (2017): Mediterranean Host Municipalities Network. Best Practices in Hosting Refugees, [https://www.cmimarseille.org/sites/default/files/newsite/library/files/en/Refugees%20English%20final\\_0.pdf](https://www.cmimarseille.org/sites/default/files/newsite/library/files/en/Refugees%20English%20final_0.pdf) (last accessed: 15.01.2019).

## 6. LIST OF FIGURES

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- **Figure 2:** Author's illustration. Source: Internal Displacement Monitoring Centre (2018): Global Report on Internal Displacement, <http://www.internal-displacement.org/global-report/grid2018/downloads/2018-GRID.pdf> (last accessed: 15.01.2019)
- **Figure 3:** World Bank (2018): Groundswell: Preparing for internal climate migration, [http://www.worldbank.org/en/news/infographic/2018/03/19/groundswell--preparing-for-internal-climate-migration?CID=CCG\\_TT\\_climatechange\\_EN\\_EXT](http://www.worldbank.org/en/news/infographic/2018/03/19/groundswell--preparing-for-internal-climate-migration?CID=CCG_TT_climatechange_EN_EXT) (last accessed: 15.01.2019).

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BMZ Offices

**BMZ Bonn**  
Dahlmannstraße 4  
53113 Bonn, Germany  
T +49 228 99 535 - 0  
F +49 228 99 535 - 3500

**BMZ Berlin**  
Stresemannstraße 94  
10963 Berlin, Germany  
T +49 30 18 535 - 0  
F +49 30 18 535 - 2501

Contact

poststelle@bmz.bund.de  
www.bmz.de

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