

VIA Water

Defining Pressing Needs for the Water Sector

Benin, Ghana, Kenya, Mali, Mozambique, Rwanda and South Sudan



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Content

- Advice 3
- Introduction..... 5
- Method..... 6
- Overview of the defined needs 9
- NEEDS LINKED TO DEMAND OF USERS 9
 - 1) The pressing need for improved sanitation facilities 9
 - 2) The pressing need for improved and increased water supply 10
 - 3) The pressing need for improved water infrastructure in slums and second cities 11
 - 4) The pressing need for the expansion of irrigated agriculture and higher efficiency in water use in agriculture 12
- NEEDS LINKED TO SUPPLY 13
 - 5) The pressing need for increased and more reliable water harvesting and storage 13
 - 6) The pressing need for improved soil conservation 14
 - 7) The pressing need for optimisation of the use of groundwater resources 15
 - 8) The pressing need for improved water quality of surface and groundwater 16
- NEEDS FOR GOOD WATER MANAGEMENT 17
 - 9) The pressing need for a strong enabling environment 17
 - 10) The pressing need for viable and sustainable financial arrangements..... 18
 - 11) The pressing need for good quality data gathering, management & sharing 19
 - 12) The pressing need for transparent water measuring, metering & payment..... 20
- NEEDS LINKED TO UNCERTAINTIES 21
 - 13) The pressing need for capacity and strategies to prevent and cope with floods and droughts (structural and caused by climate change) 21
 - 14) The pressing need for improved response preparedness for disaster situations..... 22
- OTHER POTENTIAL NEEDS/OPPORTUNITIES 23
- Literature..... 24
- Annex 1: Country Comparison 28

Advice

We have not been asked to focus on the implementation of this report. However, while studying the sources, we could not push thoughts about the final set-up of the VIA Water fund.

We would like to share the following thoughts for your consideration:

Wild Card: The studies done are based on literature building on a vast array of knowledge. VIA water has chosen to add to these studies knowledge from the field with a workshop and the survey. We would like to propose to allow the market to add to this knowledge as well. It is likely that there are needs and possible connected innovative solutions which we did not include. With a wild card you could allow organisations to share the needs they identify and their innovative approach. The wild card is not limited to the requirements that you will eventually develop for the fund.

Local Connection: Local people and those with experience of working in the different countries have the best knowledge of the needs within the countries. It is advised to look for an open structure in which those ideas and local knowledge are connected via the VIA water fund. This can be done in the initial stages of the projects and by providing a platform for stakeholders during implementation and evaluation of the projects.

Connection with partners: The water sector is small, and the problems are big. There are many partners out there, Dutch and International. What kind of innovation consortia can be formed?

Connection with other sectors: Strength and success of the innovations do not only rely on building on the experience of existing partners and networks, but especially on cooperation with other sectors, and other than the 'usual water suspects'. Existing networks can help in linking up with the other sector organisations and businesses. Search for new (network) events, seminars and the like for making VIA water and the fund known.

Sustainable innovation: It is recommended to ask possible project partners about their long-term view on their innovation: can it have a long term positive impact beyond the implementation phase, and what are the possible steps after the pilot-period?

Good governance & Capacity Developments: Although good governance was not mentioned as a pressing need in discussions with VIA water, we would like to emphasize the importance of this. It is acknowledged as innovation (governance and knowledge exchange) by the World Bank and the European Innovation Partnerships they are important cornerstones for development.

If it is not taken into account as pressing need, it could be taken up as integral part of each project proposal, (possibly shaped as: connection to existing policies and/or activities, connection with local partners - ownership and accountability-, answering to a real need of the target group and/or area, knowledge to be shared with those who are experiencing the problem, ensuring a long term use of the idea and product also without the Dutch partner, not negatively affecting the stakeholders and others).

However, the definition of governance is broad. Some of the pressing needs identified in this report are directly affecting the means and capabilities of institutions and individuals to govern water

resources. An imaginable never-ending list of innovative ideas that can contribute to these needs can provide tools and instruments for improved management and governance.

Uncertainties: The focus countries of VIA water are all developing countries. Some are even dealing with (civil) war, violence, and refugees. Implementation of projects can therefore be disrupted, or slowed down. It is advised that VIA water designs a plan for this.

Defining innovation: Upgrading of technology to implement it in a development situation can also be innovation.

Aiming at the buzzwords: We discussed looking for the new issues, but it appears that in the focus countries, the old issues still deserve a lot of attention. The advice is to not limit the scope, and take into account the big issues too (MDGs, SDGs etc.), and to look for new solutions to old problems.

Introduction

VIA water is aiming for providing a platform to enable the best ideas and innovations to be implemented in order to contribute to the positive development of the water situation in Benin, Ghana, Kenya, Mali, Mozambique, Rwanda, and South Sudan.

It was asked to remain attentive for new needs.

From the analysis of the document, it appears though that the pressing needs are connected to long existing development questions. It is apparent that most of the focus countries of VIA water still have a long way to go on the road to development. Most of the countries will not meet targets set through the Millennium Development Goals. Most of the needs described in the document are therefore connected to these challenges.

It was also asked to focus on future pressing needs.

As described, the challenges from the past are mostly still the challenges of today. From the rate of development, it is clear that these challenges are also the challenges of the future. However, when discussing future pressing needs, we have to take into account certain trends which can aggravate the situation. The most important trends are:

- Population growth (higher demand, increased pressure on the environment)
- Rising demand due to a rise in welfare
- Climate change and linked uncertainties in rainfall
- Urbanisation

These trends will negatively affect the current steps in development, and will greatly define the future needs.

Furthermore, the VIA water countries are fragile states. In three of the seven countries, violent and large scale conflicts occur at the moment. This tilts the pressing needs from long term measures to short term emergency aid.

All these factors need to be taken into account when defining the needs and the innovative solutions. Subsequently, we have taken the opportunity to write down our ideas for next steps following our research.

*“ We can’t solve problems by using the same kind of thinking we used when we created them.”
Albert Einstein*

(Reference used in the World Water Development Report, 2012)

Method

Background

VIA water has requested insight into the most pressing needs concerning in their focus countries, based on an analysis of literature. In general, publications focused on defining problems, challenges, or innovations and solutions will be taken into account. Moreover, if the said sources will not provide enough information other sources such as research and reports of networks will be used.

This report is part of a broader process in which the focus areas of VIA water are defined. A second literature review is done by the African Study Centre. In addition to these studies, a survey and a workshop have been used to gather ideas from water users and professionals in the seven countries concerning the most pressing needs and trends.

Goal

The goal of this research is two-fold:

- Defining criteria for the pressing needs and thus for a certain extent for the criteria of projects to be funded in the future;
- Making an analysis of the most pressing issues shared by the focus countries of VIA water.

Definitions

The research is guided by the question:

*Which (future) **pressing needs** can be identified in the **water sector** in the focus countries of VIA water, to which **innovative solutions** and Dutch knowledge can positively contribute?*

First it is important to define the most important terms, after which the method of analysis will be explained.

Definition of pressing needs: an essential issue, demanding immediate attention, in order to improve the livelihood of people.

Definition of the Water Sector: All means and activities devoted to creating net added value from the water resources available in a given territory (Examples of 'net added value' include production of food, maintaining or improving the health status of the population through provision of potable water etc) (UNWater 2009).

Definition of Innovative solutions: An innovation is a new product, process or idea. An innovative solution provides a new way to meet an existing need.

Based on these definitions, a list of criteria for pressing needs was created:

Term	Criteria
Pressing need	<ul style="list-style-type: none"> The need demands immediate and urgent attention The issues affect a large part of the society (has a clear and negative impact) The need has to be shared by more than three of the seven VIA water project countries The need has to be quantified, in order to be able to measure impact The need should be relevant in the future too (5 to 10 years-span)
Water sector	<ul style="list-style-type: none"> The need should be clearly linked to the water sector, and can link to other sectors as well
Innovative solutions	<ul style="list-style-type: none"> The Dutch water sector needs to have the expertise to be able to support, or deliver the innovation needed (independent or in cooperation with local partners)

Literature

The sources used vary from sources broadly focusing on trends in the water sector, such as the World Water Development Report (UNWater 2014, 2012), and sources focusing specifically on the situation in each of the countries such as series regarding the AMCOW country overview of the Water and Sanitation Program (2011). We have used a wide array of literature in order to ensure a global insight in each country. The focus is on reports and not scientific articles in order to take into account recent developments. However, we have not aimed to be complete: the literature we scanned is limited.

In defining pressing needs the question ‘for whom’ pops up continuously. The literature analyzed is written by organizations from different backgrounds and with various interests, shaping how they define a need. Also, when considering macro-economic growth, a need can differ greatly from a need defined with increasing social equity as a starting point. We can look at ‘pressing’ from different perspectives: e.g. local business development, social justice, environmental protection, Dutch business opportunities, or food security. Which ones to consider or emphasise obviously depends on political motives. As water interest are highly debated, so are defining the words ‘pressing’ and ‘needs’.

Method

Literature was analysed using the criteria defined. Issues identified were gathered in an Excel form, which was analysed twice. First, a broad scan was made of the common issues. After defining the overarching pressing needs, a second detailed scan was done in order to ensure that all issues identified were taken into account in this report.

The defined pressing needs were discussed by the consultants, and clustered. It was decided not to link the needs to different subsectors, but to cluster them according to needs. The following clusters were made based on the analysed needs:

- Needs linked to demand of users
Needs directly linked to demands of the various users
- Needs linked to supply
Needs directly linked to the improvement of ecosystem services for the benefits of humans
- Needs for good water management
Needs directly linked to improve the enabling environment of water sector institutions
- Needs linked to uncertainties
Needs directly linked to a changing environment

Legend



- Described in literature as clear and present need
- Described in literature as pressing need with medium impact
- Described in literature as pressing need with less impact, often (mildly) positively addressed

Overview of the defined needs

NEEDS LINKED TO DEMAND OF USERS

Needs directly linked to demands of the various users

1) The pressing need for improved sanitation facilities

In all of the focus countries but Rwanda, the MDG on improved sanitation facilities will not be met (mdgtrack.org, August 2014). For water supply, four countries (Benin, Ghana, Mali and Kenya) are on track in achieving the goals. The other three countries are off track (see Annex 1). Hence, challenges exist in increasing the coverage of improved water sanitation.



Although the issue has been a focus point of the sector on this issue for many years, the problems are not solved. This need is not a new one, but it is expected that a significant contribution can, and needs to, be made to relieve this problem.

Geography

- There are large differences between the rural and urban situation. In rural areas sewerage facilities are hardly ever present and water is often directly drained into the ground- or surface waters without treatment.
- Few urban areas are fully connected to proper sewerage systems, leading to environmental degradation and posing health risks.

Specification of possible solutions

- Smart solutions for treatment and sewerage, systems or on-site treatment technologies, such as energy-saving treatment and pre-sedimentation technologies to reduce operational costs
- Smart solutions to expand and improve the sewerage system in cities
- Smart solutions to connect rural areas
- Toilets, personal hygiene and laundry facilities
- Opportunities to re-use of water
- Implementation of a payment-system to improve the sustainability
- to renew sewerage systems

Links

- Water Supply
- Health and pollution, especially in areas with a dense population
- Gender issues (safety, menstrual health)

2) The pressing need for improved and increased water supply

The supply of clean drinking water is still an issue in all focus countries. In urban areas water supply faces different challenges than rural areas. Usually more residents of urban areas are connected to a water supply network, but these often face problems with leakage, unreliability and water quality. Institutions are facing problems concerning low or absent payments and accountability. In rural areas, connectivity is low, but attention from donors for rural water supply has increased over the past years.

Present in



Decentralisation is a trend in four of the seven countries (ODI 2011), demanding for easy to manage systems and knowledge exchange on how to maintain the system and payment structures. From the literature, it became evident that many institutions are facing issues regarding the sustainability of the systems due to a lack of metering and payment.

Water losses in the systems are generally high, and the quality of water is low.

Geography

- Water supply in cities supplies a larger group of people and brings more revenue. Urban areas are essential for growth and poverty reduction.
- Water supply to disadvantaged areas are not cost-recovering, and hence need government support or new modes of supply.
- Industrial water supply versus supply for households is an issue not directly appearing from the literature. When water is scarce, there will be increased competition over the resource (most probably beneficial to those who have more control over water by e.g. paying more). Water allocation and water rights are therefore crucial.

Specification

- Expansion of distribution systems to peri-urban areas (with a positive effect on the revenue base)
- Reducing water losses in water supply; improved efficiency and rehabilitation
- Water purification and distribution
- Opportunities for the re-use of water; use of gray water.
- Implementation of water metering and payments

Links

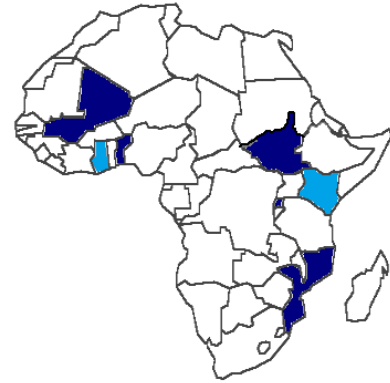
- Sanitation
- Pollution
- Metering

3) The pressing need for improved water infrastructure in slums and second cities

Slums are facing a particular problem due to a low level of development and high density. The level of regulation is low, and there is hardly space to accommodate new sewer and water supply networks.

Because of the economic development, but also because of conflict, young people move to the cities for safety and work. The rate of urbanisation in all countries is high, and the water supply to slums is clearly a future need.

Present in



Geography

- In the VIA water focus countries, 40 to 80% of the urban population live in slums (World Bank 2014, Annex 2, table).
- There is a special need for the development of 'second cities'. They are not the capital and don't receive the same attention as the capital, but are often growing fast and are facing the same challenges.

Specification

- Adapting utilities, or enabling utilities to flexibly cope with the challenges of population growth and rising demand.
- Decrease the large difference in development between rich and poor areas, by developing smart ways to connect slums to infrastructure.
- Develop infrastructure which can be installed in densely populated areas

Links

- Sanitation
- Pollution
- Metering

4) The pressing need for the expansion of irrigated agriculture and higher efficiency in water use in agriculture

Rain-fed agriculture makes crop production vulnerable to weather variability. By improving access and secure storage of water and efficient irrigation methods farmers have tools for realising a more secure harvest. Smallholder farms have often less access to knowledge, information and credit. With many small users and sources, efficiency in water use becomes challenging. In small-holder systems priority is not always given to proper drainage, resulting in salinisation of the soil and pollution of water sources by agro-chemicals.

For large-scale farmers, challenges have been found in using water more efficient. In many countries irrigation systems have lost its initial potential and some have even fallen in disuse. Rehabilitating and upgrading opens up new ways for efficient water use. Pollution by agro-chemicals can threaten groundwater and surface water, for example in the horticultural sector.

Present in



Geography

Small holders focusing on subsistence based farming face different challenges than large scale farmers producing for the internal, or even international, market.

Specification

- Reducing water losses in water supply; improved efficiency through new technologies, smart allocation and rationing of water, and rehabilitation of large irrigation systems, rationalization mechanisms, incentives and disincentives for individuals to use water more efficiently
- Increase water storage facilities for securing access to water during drought
- Reduction of the drainage of agro-chemicals into ground- and surface waters.
- Development of area under irrigation
- Developing smart irrigation methods which are easy to maintain, and have little impact on the soils
- Rehabilitation of current systems
- Increase water storage facilities for securing access to water during drought

Links

- Economy and entrance to markets
- Food preservation (from market to store)
- Soil quality
- Gender equality

NEEDS LINKED TO SUPPLY

Needs directly linked to the improvement of ecosystem services for the benefits of humans

5) The pressing need for increased and more reliable water harvesting and storage

Availability is the first priority in enabling different water uses. Water availability varies enormously within the selected countries. Water stress is present in certain catchments. By optimising water availability, and more specifically, by making water available during times that it is needed the most, more flexibility is created, whereby The current water storage capacities are not sufficient to allow people to compensate for hydrological changes.

Present in



Geography

Most of the focus countries of VIA water have a diverse scenery, facing large periods of droughts in specific parts of the country, with increased unreliability in rainfall due to climate change.

Rain water can be harvested by individuals and house-holds, to farmers, industries and communities. The methods and use differ greatly. The innovations will need to be adapted per focus group, and also the impacts of water harvesting on other actors and the environment need to be taken into account.

Specification

- Improve and increase surface and sub-surface water facilities for climate resilience and maximum water use; develop the potential of e.g. large surface water storage or sand dams.
- Increase rain-water harvesting facilities (closed surface water storage)
- Optimization of groundwater storage (including recharge) and soil-moisture in the root zone.

Links

- Climate change
- Food security
- Provision of an improved water source

6) The pressing need for improved soil conservation

As populations are growing, the pressure on land increases. This can lead to degradation of land through soil depletion due to agricultural developments, and increased erosion through deforestation and agriculture. These are some of the issues that have been highlighted in the documents. In Benin for instance, land degradation is a problem in 66% of the cultivated land (MJSP Benin). As a consequence, the water holding capacity of water catchments decreases, and sedimentation causes problems for natural and man-made watercourses and infrastructure.

Present in



Improvement of soil conservation can make a contribution to increase the water storage capacity for environment and human consumption. By reducing soil erosion, water storage capacities will increase and sedimentation in water works will decrease.

Geography

Better soil and water conservation at different scales: from field level to catchment level. The actors responsible for this differ from farmers to waterboards and municipalities to small and large industries.

Specification

- Improving agricultural methods to prevent soil salinisation and erosion.
- Improving landscapes, introducing knowledge on the importance of vegetation to contain nutrient soil layers
- Introducing data and measuring equipment to measure soil degradation and identify pollution sources
- Strengthening enforcement mechanisms to prevent or stop pollution
- Planning and regulation of land-use at catchment level

Links

- Climate change
- Agriculture
- Maintenance of infrastructure
- Enabling environment

7) The pressing need for optimisation of the use of groundwater resources

In all selected countries groundwater is already widely used as a source for agriculture, livestock and domestic consumption. Challenges arise with accessing both shallow and deep groundwater, water quality and management of the resources. Limited qualitative and quantitative data is available making allocation, regulation and management of this resource difficult.

Groundwater is a reliable, and often untapped, source of which the use can contribute to the livelihoods of smallholders. However, it is a source which is difficult to monitor, and for which overuse can have detrimental long-term effects.

Present in



Geography

Groundwater can be reached through wells and pumps. These are more easily available for those with knowledge and funding. This can create or increase inequality.

Specification

- Increase the knowledge base of groundwater resources: need for data gathering, interpretation and sharing - what is available, what are the depletion levels, pollution, etc.
- Implement methods for regulation and management of groundwater to avoid depletion of the resource
- Identify potential for recharge of groundwater (natural and man-made), which can form an important option for water supply. (Managed Aquifer Recharge (MAR) is amongst the most significant adaptation options seeking to reduce vulnerability to climate change and hydrological variability (Kenya Water Scan 2011)).
- Knowledge and monitoring required of downstream effects, and interaction with surface water
- Methods to introduce wells, pumps and groundwater use in a sustainable way.

Links

- Agriculture
- Soil conservation

8) The pressing need for improved water quality of surface and groundwater

Water quality concerns have not been the most prominent issues in the literature. However, water quality affects each user. In urban areas, where population density is high and economic and industrial developments are taking place, water quality is at risk of deterioration. To satisfy the many different interests within the cities, sound urban planning is necessary. In addition, pollution from farming was indicated as a problem in the focus countries. This concerns surface and groundwater. Pollution from industries or saline groundwater was less profound.

Present in



Geography

The geography of improved water quality concerns mainly the pollution sources. The main sources are industries, households and agriculture.

Specification

- Reduction needed in pollution from agriculture through pesticides, livestock, horticulture and farming
- Pollution of surface water from various sources; sewerage and seepage through pit latrines, Reducing salt water intrusion at coasts
- Knowledge and infrastructure needed to set up or improve water treatment plants (small & large scale), either at source or general.

Links

- Agriculture
- Industry
- Water supply and sanitation

NEEDS FOR GOOD WATER MANAGEMENT

Needs directly linked to improve the enabling environment of water sector institutions

9) The pressing need for a strong enabling environment

The focus countries of VIA water face governance challenges, including a low efficiency and corruption. Some are even dealing with (civil) war, violence, and (internally) displaced people, making priority setting a complex issue. Supporting the development of a strong enabling environment is therefore seen as one of the biggest needs for projects to succeed. It is also seen as one of the major reasons why development is hampering and the impact of certain projects is low.

Present in



Geography

Actors differ in power and size. There is a need to stimulate the creation or improvement an environment where actors know their rights and where regulations and rights are being enforced. An example can be the strengthening of Water User's Associations and rural water committees, or the strengthening of partnerships between governments, NGO's, water users and private parties.

Specification

- Strengthening the effectiveness of government institutions
- Strengthening the legal system and enforcement methods (central and decentralised)
- Empower groups and individuals to make use of rights
- Strengthen networks between private, public and CSO's, in order to increase knowledge exchange and cooperation
- Strengthening of economies

Links

Linked to all aspects of the water sector and to organisations, individuals and projects linked to, or dependent on, water.

10) The pressing need for viable and sustainable financial arrangements

Money makes the world go round, and good ideas and plans need funding for implementation. In the past years, the Dutch government tries to stimulate new funding bases for development, thereby hoping to achieve less dependency on donor money in the long term. Making smart use of the finances available is an important aspect of making development sustainable.

Geography

This pressing need is focused on combining different scales and regions in finding financial resources on the short and long term. How can the money best be used, and can funds from the national and international private sector be used to develop public utilities?

Present in



Specification

- Public-private partnerships: finding alternative financing and make use of innovation potential for investing in infrastructure.
- Accountable and commercially viable water utilities
- Commercialise the maintenance and operation of more advanced rural systems if communities and water services boards are unable to do so (lack of manpower, funding and transport)
- Improved commercial competences for water utilities
- Reduce the disconnection between water institutions and the market by developing guidelines and best practices, and improving data availability.

Links

- data gathering and measuring
- legal aspects
- economy
- Enabling environment

11) The pressing need for good quality data gathering, management & sharing

Data gathering and sharing is necessary to contribute to a large need of all stakeholders. Governments need reliable information to base their policies on. Local stakeholders need reliable information to convince decision makers. Investors need information to decide on their next investment. Donors need information to decide where to support the partner.

Geography

Reliable information is needed for all water sector stakeholders, at any level.

Specification

- There is a need for information sharing and transparency: knowledge is power. It is therefore necessary to make the data widely available, for both local users or NGO's to national governments and international organisations.
- Information is needed for better informed decision-making - the need for information can be integrally linked to all the needs described in this report; from hydro-meteorological data, to information on the quality of the soil or reasons for degradation, the amount of untreated waste water, or the amount of water available and water demanded to make better informed decisions for water allocation by national and regional water authorities;
- Improved access and development of data: on water use within basins, on groundwater, potential and use of aquifers; improved understanding of interaction between surface- and groundwater.

Links

- Evaluation and monitoring
- Enabling Environment

Present in



12) The pressing need for transparent water measuring, metering & payment

There is a prominent need for reliable and accountable water institutions and for users to pay directly or indirectly for their water use. However, due to low trust in the government and institutions, and the little means available to enforce payments, institutions deal with a lack of funds to address development and maintenance issues.

Geography

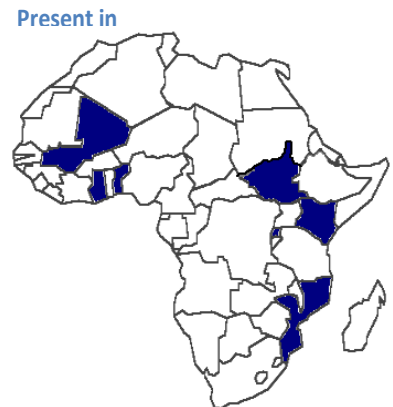
The question is both valid for the urban and rural water sector, and applicable to all water users.

Specification

- Need for developing monitoring sheets, smart monitoring measures, and evaluation methods
- Need for ensuring that the data collection process involves the communities
- Need to build in mechanisms for quality control
- Need to build in mechanisms for permit issuance and control
- Successful implementation will contribute to improved service provision
- The need to raise money for maintenance and operation, possibly through more successful water pricing

Links

- Enabling environment
- Water supply
- Sanitation
- Health
- Pollution

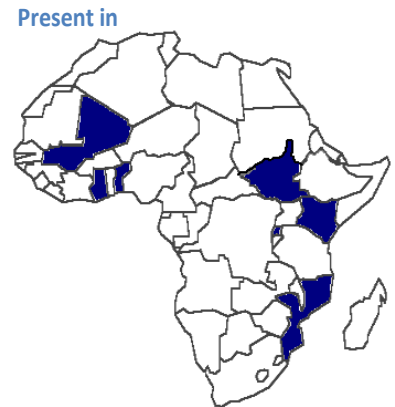


NEEDS LINKED TO UNCERTAINTIES

Needs directly linked to a changing environment

13) The pressing need for capacity and strategies to prevent and cope with floods and droughts (structural and caused by climate change)

Droughts are an apparent issue in all VIA water countries, which is aggravated by the trend of climate change. The droughts become more unpredictable and frequent. At the same time, the countries are identified as flood hotspots. After famine, floods affect the highest level of people in the whole continent. The infrastructure is generally not equipped or maintained to reduce the impact of floods.



Geography

The changing environment increases food insecurity, and hampers the development of farmers. It especially affects subsistence based farmers as they often don't have stocks or other options to sustain their livelihoods but by moving to other regions or by migrating to the cities.

Specification

With respect to floods

- Infrastructural measures (dams and dykes) in densely populated areas
- invest in flood forecasting and warning systems, evacuation plans, flood mitigation plan, flood hazard map, community-based disaster management
- Make use of natural retarding systems (pastures, paddies and dry fields)
- More flood data is required in order to install early warning systems, address infrastructure deficiencies, and gain insight in trends

With respect to droughts

- Water harvesting methods
- Groundwater use when possible
- Delivery of food from other parts of the country if possible

Links

- Water supply
- Agriculture
- Urbanisation
- Climate change
- Harvesting and storage

14) The pressing need for improved response preparedness for disaster situations

Three of the seven VIA water countries currently face violent conflict situations. These have different causes (political, environmental, economical), but effects are often the same: an increasing difficult position for the government to provide basic needs, displacement of people, and a loss of trust in the economy and of national and international investors. Floods and droughts also have a large effect on people, demanding for emergency relief.

Geography

Kenya, Mali and South Sudan are facing conflict now. All countries face floods and droughts, and all are facing challenges with regard to government preparedness to respond adequately.

Specification

- The need for smart methods to cope with questions regarding water in disaster situations:
 - o Water purification
 - o Distribution of clean water
 - o Sanitation
- Strengthening of planning and decision-making instruments for emergency relief situations

Links

- health
- sanitation
- supply
- climate change

Present in



OTHER POTENTIAL NEEDS/OPPORTUNITIES

Other needs or areas of potential innovations identified that have not been found explicitly in the desk research:

- Improved transboundary management of water resources
- Planning for livestock water needs: high risk of conflicts in arid and semi-arid lands
- Water and health: prevention of bilharzia and malaria, varies per country
- Wetland management and protection
- Water quality of groundwater
- Coastal water management; water safety and salt water intrusion issues
- Nutrient retrieval from human waste
- Hydropower

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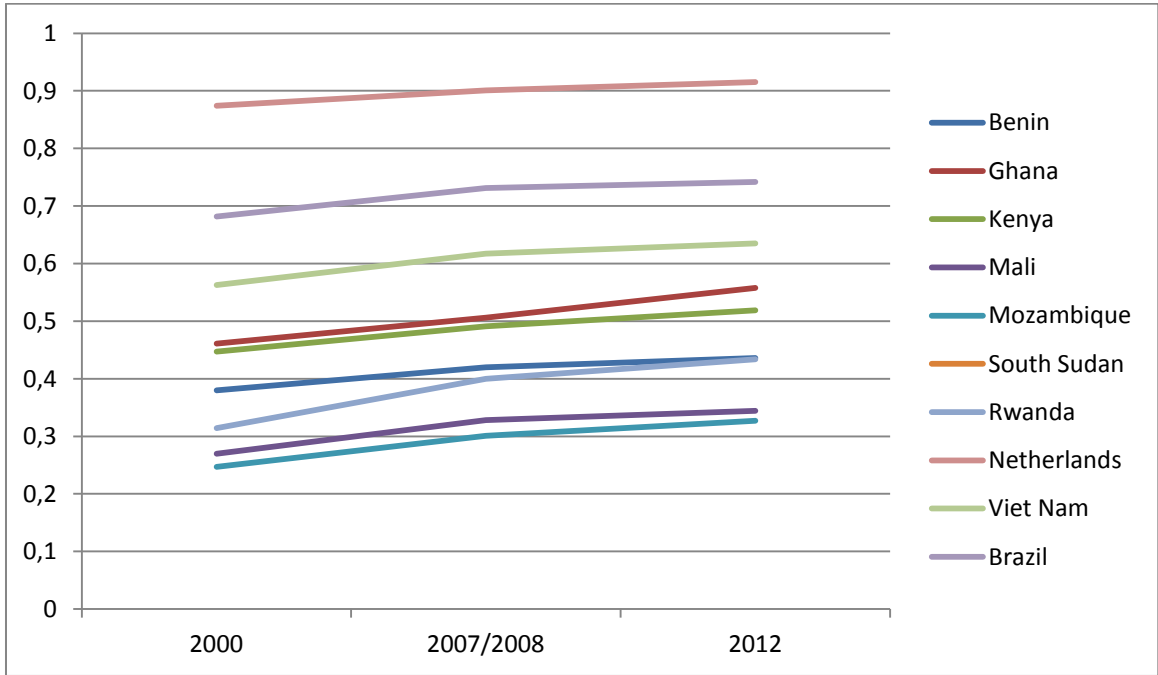
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Annex 1: Country Comparison

The focus countries of VIAwater, Benin, Ghana, Kenya, Mali, Mozambique, Rwanda and South Sudan, are all very different. However, they will share the same issues to a more or lesser extent. To understand the challenges, it is good to have a general insight in the various countries. Data gathered by the World Bank is used to develop the graphs below.

Five of the seven countries are low income countries (\$1,045 or less), being: Benin, Kenya, Mali, Mozambique and Rwanda(World Bank 2014). South Sudan and Ghana are indicated as Lower-middle-income economies (\$1,046 to \$4,125).

Graph 1 - Human Development Index (UNDP 2014; World Bank 2014)



The Human Development Index (HDI) is a summary measure of three dimensions and provides a first insight in the general development in a country. It is composed of a health dimension, education, and standard of living¹.

Although all countries show an upward trend, the level of human development of all countries is still low.

¹ <http://hdr.undp.org/en/content/human-development-index-hdi>

Other important factors for VIA water are the level of good governance and corruption. For this, the World Governance indicators from the World Bank are used (World Bank 2014²)

Graph 2 - Voice and Accountability

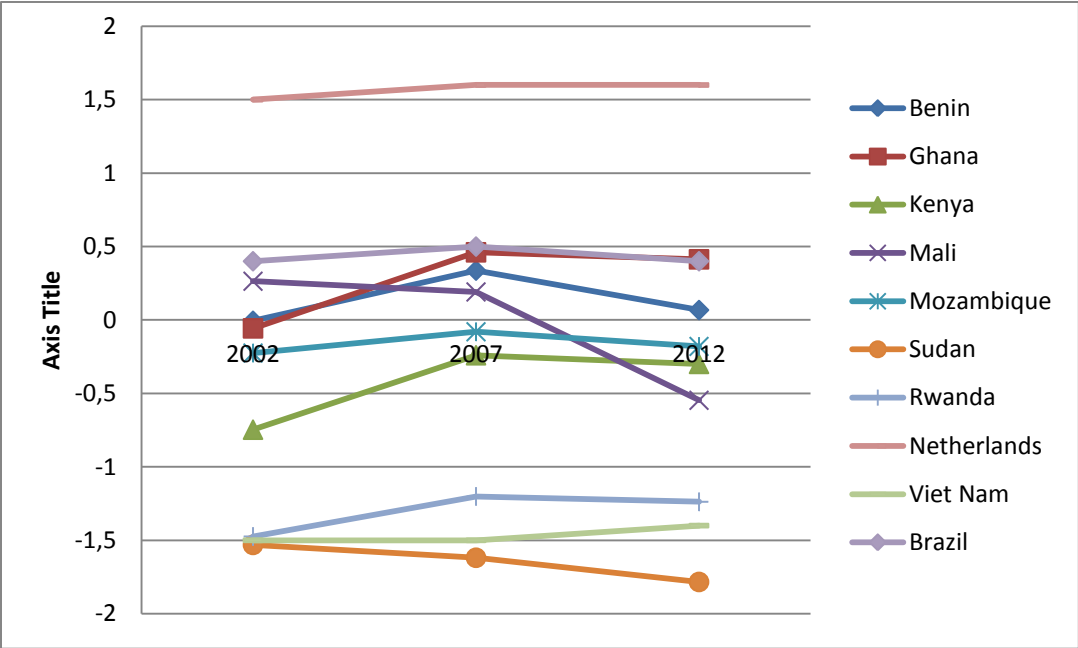
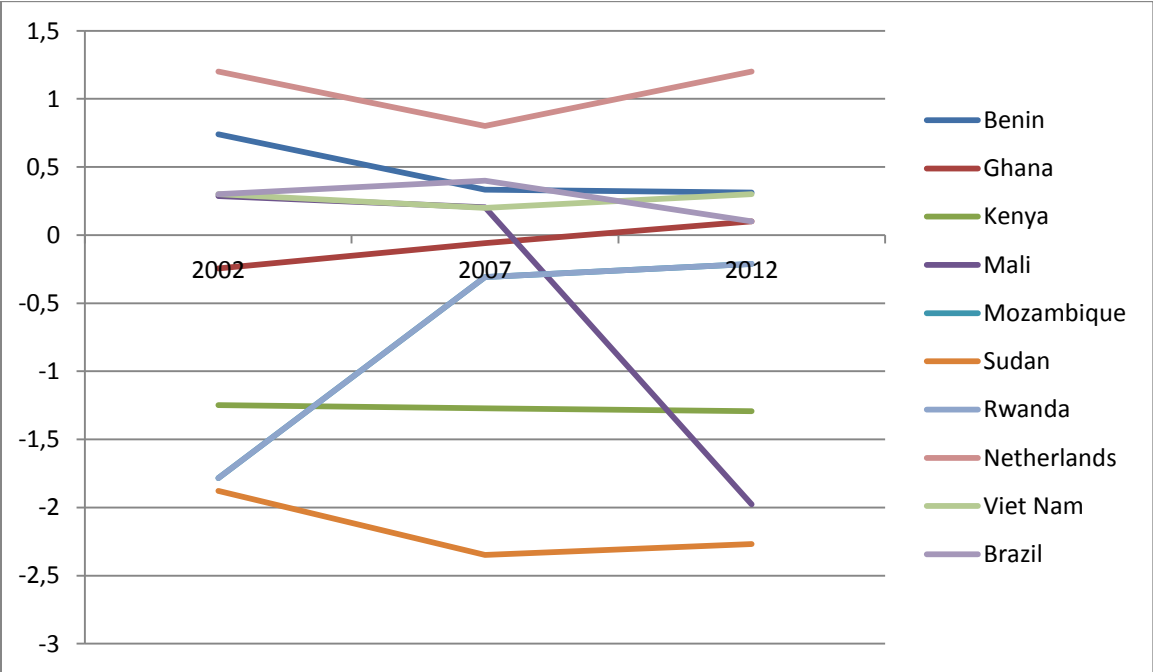


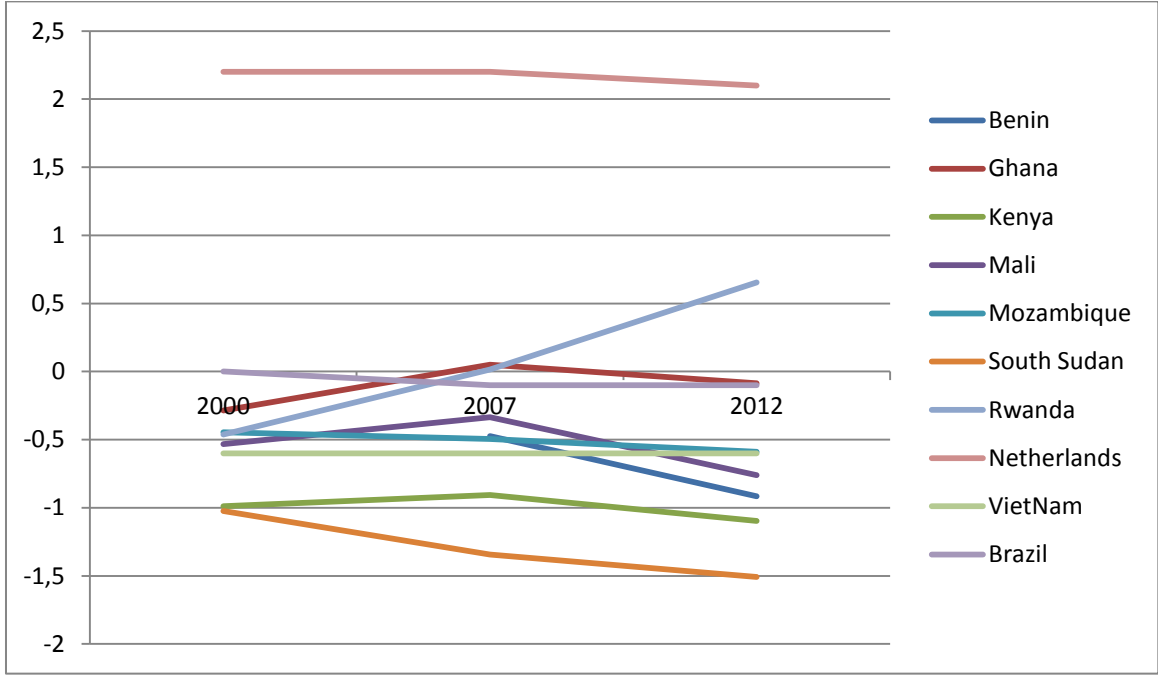
Table 3 - Political Stability and Absence of Violence/Terrorism



In this Graph, it is clearly visible that Sudan is facing large political instability and violence. In Mali, the situation has deteriorated since 2007. Kenya is also facing a period of political unrest, which has not improved during the period of measurement.

² <http://info.worldbank.org/governance/wgi/index.aspx#reports>

Graph 4 - Control of Corruption



This graph shows that Rwanda is developing positively with regard to the control of corruption. The other VIA water countries are facing negative trends.

Graph 5 - Overview of achievement of Millennium Development Goals

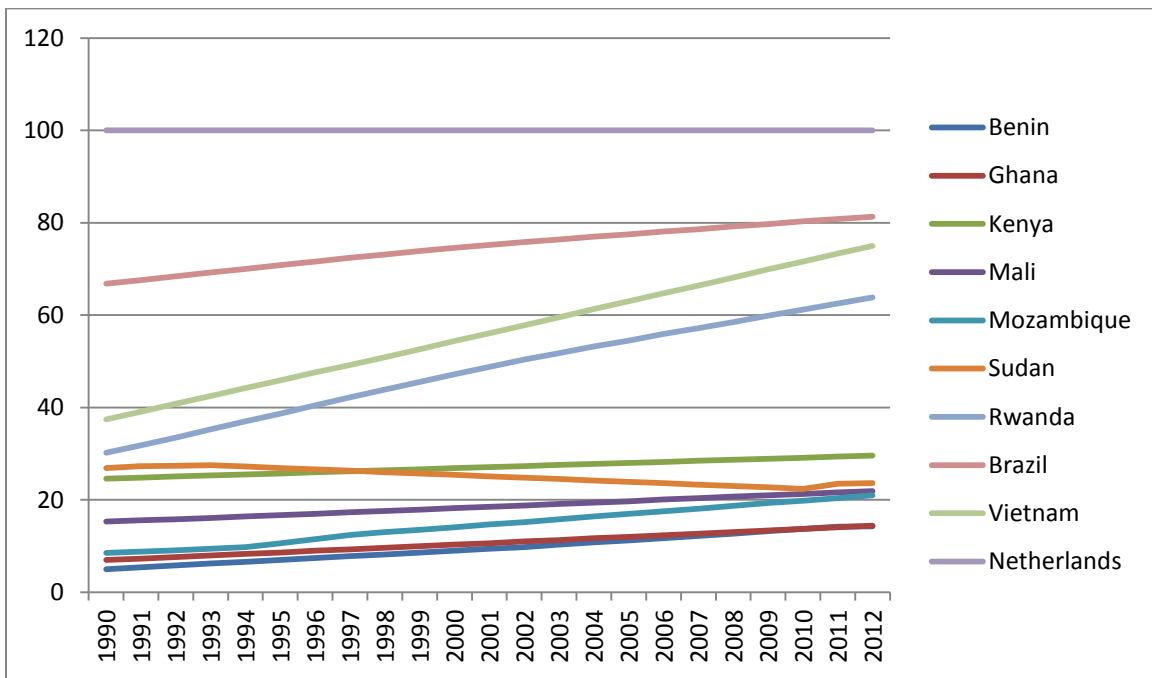
The Graph below shows to which extent the 7 countries are on track in achieving the parts of the millennium development goals mostly related to water issues.

	MDG 1* <i>Malnutrition</i>	MDG 7 <i>Sanitation</i>	MDG 7 <i>Water sources</i>
Benin	off track	off track	on track (2011)
Ghana	on track (2011)	off track	on track (achieved)
Kenya	off track	off track	on track (2020)
Mali	on track (2018)	off track	on track (2012)
Mozambique	on track (2013)	off track	off track
Rwanda	off track	on track (2011)	off track
South Sudan	off track	off track	off track

*Between brackets the (expected) year of reaching the MDG. Source: mdgtrack.org (August 2014)

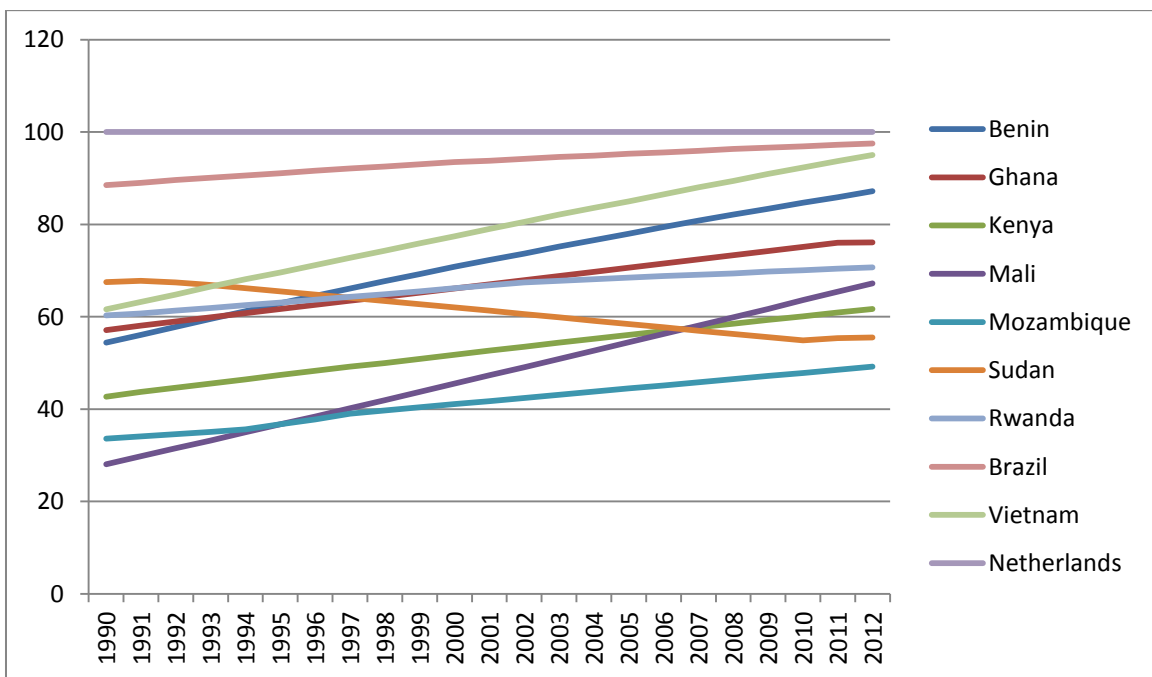
Although all countries are in an upward trend with regard to Sanitation and Water resources, it is very clear that the needs regarding sanitation and improvement of water resources are high.

Graph 6 - Improved sanitation facilities (% of population with access)



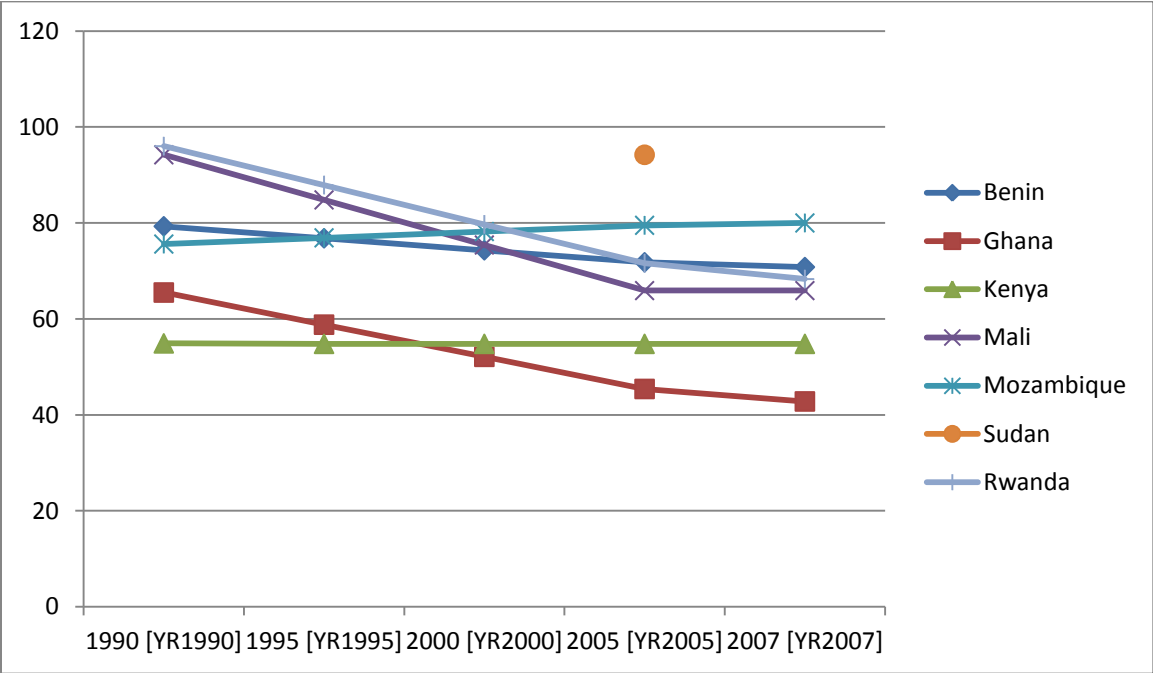
Still a big challenge for most countries: all below 30 %, except for Rwanda, despite the large attention for the situation due to the Millennium Development Goals. Advice, take this into account.

Graph 7 - Improved water source (% of population with access)



Almost all countries are in an upward momentum concerning the percentage of the population with access to an improved water source. The image is more positive than Graph 6 concerning water and sanitation.

Graph 8 -Population living in slums (% of urban population)



This graph is included to show that the needs for development of living circumstances are high in all countries. Although the amount of people living in slums is in a downward (positive) trend in all countries but Mozambique (no data for available for Sudan/South Sudan), the amount of people living in slums is still very high. This situation is often closely linked to problems of water supply, sanitation and pollution.