

Mali

Positioning Survey for the Dutch water sector

Aidenvironment

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Glossary

ABN	Niger Basin Authority
ABV	Volta Basin Authority
AEDD	Agency for Environmental and Sustainable Management
ANGSEM	National Agency for Management of Treatment Stations of Mali
BECEAO	Central Bank of West African States
CILSS	Permanent Trans-boundary Committee for the Fight against Drought in the Sahel
CLE	Local Water Committees
CMDT	Malian Company for Textile Development
CNEE	National Committee for Environmental Studies (Commissie MER)
CREE	Committee for Water and Electricity Regulations
CSA	Commission for Food Security
DAF	Director for Administration and Finance
DIN	Inner Niger Delta
DNACPN	National Directorate for Sanitation and of Pollution and Nuisance Control
DNEF	National Directorate for Water and Forests
DNGR	National Directorate for Irrigation (under MDR)
DNH	National Directorate for Hydraulics
ECOWAS	Economic Community of West African States
EPA	Public Administration Organization
FDOV	Facility for Sustainable Entrepreneurship and Food
FSGP	Private Sector Guarantee Fund
GEF	Global Environmental Facility
GIRE	IWRM
GIRENS	IWRM Upper Niger Program
GLAAS	Global Analysis and Assessment of Sanitation and Drinking Water (WHO)
IFC	International Finance Corporation
IWRM	Integrated Water Resource Management
LOA	Law on Agricultural Orientation
MASP	Multi-Annual Strategic Plan
MDG	Millennium Development Goal
MDR	Ministry of Rural Development
MEADD	Ministry of Environment, Sanitation and Sustainable Development
MEE	Ministry of Energy and Water
MFS	Medefinancieringsstelsel
NABC	Netherlands African Business Council
NGO	Non Governmental Organization
ODA	Official Development Assistance
OMVS	Organization for the Development of the Sénégal River
ON	Office du Niger
ORM	Mopti Rice Office
OVHN	Upper Niger Valley Office
PADIN	Programme d'Aménagement du Delta Intérieur du Niger
PANA	National Program for Climate Change Adaptation
PROSEA	Water and Sanitation Sector Program
PSI	Private Sector Investments
PSO	Public Service Organization
SLH	Local Hydraulics Service
SME	Small and Medium Enterprises
SNV	Dutch Development Cooperation Organization

SOMAGEP	Drinking Water Management Corporation
SOMAPEP	Drinking Water Infrastructure Corporation
UNDP	United Nations Development Program
UNICEF	United Nations Fund for Children
WAEMU	West African Economic and Monetary Union (CEDAO)
WASH	Water, Sanitation and Hygiene
WB	World Bank

Executive Summary

The aim of the water positioning survey is to identify opportunities, product market combinations (PMCs), strategies, and approaches for the Dutch water sector in Mali. Chapter 1 gives an overview of the current water situation and the water sector, chapter 2 provides insight in the current activities, opportunities, and potential PMCs that are present for the Dutch water sector, and chapter 3 elaborates on the (positioning) strategies to enter and operate on the market.

Pressing needs in Mali are related to water supply and sanitation infrastructures in cities. The large population growth and rapid urbanizations increase this pressure. There is also need to improve the productivity of agricultural land (better irrigation) to meet the needs for food. This is related to the need for stronger IWRM practices for management of the deltas and flood plains. These are used by farmers for irrigation and animal husbandry. Potential development of hydropower dams can have negative influence on the water levels and water availability downstream.

According to the web survey a number of Dutch companies and NGOs are present in Mali, which mostly are active in the IWRM sector and the WASH sector. The organizations that have shown interest in the country see opportunities in IWRM, water for agriculture, and drinking water supply & treatment. Main activities are advice, design, supply of goods and capacity building. Haskoning has been active in advice in Mali for thirty years, but has closed the office in 2013. A number of Dutch organizations are active through partnerships with companies or NGOs. Public Service Organizations (PSOs) are not active in Mali.

Potential product-market combinations (PMCs) have been identified for the sectors IWRM, WASH, water and agriculture and the cross over water & ICT. In IWRM there could be potential for capacity building and advice for delta technology and integrated river basin management in the large delta (Inner Niger Delta, DIN). WASH opportunities lie in water supply for large cities (Kabala Bamako project). This includes advice for water pumping, storage and transmission, and capacity building and advice for development of payment systems. For water and agriculture opportunities have been identified in institutional support and advice for water management in large scale irrigation schemes and water management in flood based and dry-land agriculture.

Because of the difficult political situation in Mali, it is expected that the level of direct investments, both domestic and foreign, will remain low in the coming years. Hence, companies, NGOs, PSOs would in the first place make use of finance for development cooperation. The GIRE program supported by the Netherlands offers opportunities until 2019. For water supply projects (mainly Bamako) a budget of € 850 million is expected from the World Bank, AfDB, EU, EIB and the French Development Bank, which may offer opportunities for Dutch organizations. The PNE, which is supported by the GIRE program, could provide assistance in following tenders and getting involved in large tenders.

This positioning survey is not a fully fledged marketing survey or report. This survey elaborates on the (current/base line) activities of the Dutch water sector and flags potential opportunities and product market combinations. The survey makes suggestions on possible positioning strategies for Dutch sector players. To make a well balanced decision on entering or operating on these markets we recommend organizations to perform an in-depth due diligence themselves.

1. Country profile

This chapter provides an overview of all relevant basic information on the country in general and the water sector specifically. The chapter has three parts: 1) facts and figures on the country, 2) the (physical) water situation, and 3) the water sector, describing the institutional setting and framework. Part 3 ends mentioning the Dutch Government strategy on cooperation.



1.1 Facts¹

Government type	Democratic Republic
Political situation	<p>After the coup d'état of 2 March 2013, two-thirds of the national territory was occupied by terrorists and armed rebels of different origins. Since that date, Mali has known a security and institutional crisis. As a result, many international organizations suspended technical and financial cooperation programs. Later in 2013, the political situation started to improve after military intervention in the North, with the involvement of the Economic Community of West African States (ECOWAS) and of Chad. A new president was elected in August 2013 and a new government was formed in September of that year.</p> <p>The state ministries, their regional and local representatives in seven regions and municipalities are re-established. The eighth region (Kidal) is still occupied by armed groups. The administration's performance varies considerably. The central administration is relatively powerful, whereas local governmental bodies remain non-institutionalized to some extent, due to insufficient implementation of decentralization of resources to regional and local bodies (Via Water, 2014; BTL, 2014).</p>
Stability	Since the start of the rebellion, the country remained unstable due to activities of Islamic militants and radical Tuareg groups in the north of the country. International military forces are still present

¹ The facts concern the year 2013, unless indicated otherwise. Source: CIA Database

Currency exchange rate: € 1 = USD 1.18, € 1 = 561 CFA Franc

	in the country in order to stabilize the situation, but rebellious activities continue to occur (Via Water, 2014; BTI, 2014).
Language	French (official language), Bambara (46.3%), Peulh / Fulani (9.4%), Dogon (7.2%), Songhay, and other languages cover the remaining 37.1%.
Population	16,455,903
Population growth	3% (12 th fastest growth rate globally)
Economic growth (GDP)	4.8% (global ranking: 61)
Expected growth (GDP)	2015: 5.8%, 2016: 5.7%
GDP (PPP)	€ 9.6 billion
GDP (PPP) per capita	€ 932 (global ranking: 216)
Unemployment rate (in %)	30% (2004 est.)
Inflation rate (in %)	0.1%
Forecasts (in %)	2015: 1.76%, 2020: 0.68%
Foreign direct investments (in % of GDP)	3.7%
ODA in % of GNI	10.2%
Imports	€ 2,453 billion
Import partners	France (11.2%), Senegal (9.9%), Cote d'Ivoire (8.7%), China (8.6%) (2012 est.)
BTI index on banking system	7. Institutional foundations for a banking system have been laid, but there are vulnerabilities due to extreme dependence on outside factors. Although the financial system has sufficient liquidity, the banks in Mali lack resources for long-term financing. In 2011 the government has created a private-sector guarantee fund (FGSP) in order to provide banks with guarantees for loans for SMEs and a capital-stock investment company (SICR) was created to take shareholdings in companies. There are 13 commercial banks operating in the country. The Banque Internationale pour le Mali has been privatized. The degree of foreign ownership of banks remains low. The state and regional institutions such as the Banque Centrale des États de l'Afrique de l'Ouest (BCEAO) hold significant stakes in the Malian banking sector. The West African Economic and Monetary Union (UEMOA / WAEMU) obliged its member states to increase minimum capital requirements for banks, which was achieved by Malian banks. Mali is member of the CFA Franc currency community, which provides a direct link to the euro via the French treasury.
Doing business index	151 (out of 189)
WEF Global competitive index	128 out of 148

1.2 The water situation

This section describes the physical water situation (including flooding of river systems, coastal zones and maritime areas), the influence of climate change, the effect of irrigation and the water pressure.

1.2.1 Physical description of the water situation

The main source of water for Mali is the Niger River, which feeds the southern and central parts of the country. The Niger watershed covers 47% of the country, while 11% of the country is situated in

the watershed of the Sénégal River. Annual rainfall ranges from 1,400 mm in the south to 127 mm in the north. The northern parts of Mali are fed with seasonal desert streams after rains. During the dry season, rainfall is very scarce, with almost no rainfall between November and March. The rainy season has a rainfall peak in July, August and September (ViaWater, 2014). Mali has over 4 million hectares of wetlands of international importance mainly located in the Inner Niger Delta. Here, the plains are seasonally flooded which allows for flood irrigation, grow crops grown on retreating water (cultures de décrue), improved pastures, and improved fish breeding. Existing and planned hydro energy power plants in the Niger River, such as the Selingué dam, Markala dam or the Fomi dam, reduce the peak flows of the river, which creates a serious threat for the downstream wetlands (Aquastat, 2014).

The more fertile soils in the south of the country are mainly used for production of cereals (finger millet, sorghum, and maize). Other main crops are cotton (export crop), fish, rice, fruits & vegetables, tobacco, and tree crops. Currently a shift from millet production to rice production is occurring (Via Water, 2014), but the increase in production tends to result from area expansion rather than from intensification. Rather, there are indication that the increase in agricultural land in the past decades has not resulted in an equal increase in food production. This is especially the case in rain-fed areas (Aquastat, 2014).

1.2.2 Climate and climate change

Mali is a country with an extreme climate. Flooding and droughts lead to famine and loss of livestock caused by insufficient food available. Climate change effects in Mali include higher temperatures, severe droughts and inadequate and erratically distributed rainfall. Deforestation, overgrazing, droughts and flooding as a result of climate change affect farming production systems, cause soil erosion, reduce soil fertility and have effects on other biophysical situations. Increased temperatures change the suitability of the land for different types of animal husbandry. In the North, where the main type of livelihood is cattle-based pastoralism, the husbandry of sheep and goats will become more suitable. Agricultural diversification both for crops and livestock increases the climate change resilience of small farmers. Climate change can also threaten the food security in the Sahel region through its negative effects on infrastructure. Heavy rains may destroy roads, which make transport in rural areas very difficult, both for import and export to those areas (Climate Change and Food Security Profile: West Africa, 2014). The potential of Niger's Interior Delta and its yearly flooding in Mali remains also an asset, the challenge is how to manage and use it in a sustainable manner. Other effects of climate change are market prices of water that react strongly to reduced rain fall and the reduced availability of surface water and lower underground water levels. This leads to raising water costs and limited water use by urban inhabitants, who are to a large extent dependent on wells or bottled water (ViaWater, 2014; MASP, 2014).

The high migration rate of young people from rural areas to urban areas results in a lower labor capacity. This decreases the adaptive capacity of famers to climate change and a general smaller food production. A negative cycle occurs when more people leave the agricultural sector due to food shortage, which on its turn, results in a further decline in yields and adaptive capacity (Climate Change and Food Security Profile: West Africa, 2014). For the Dutch embassy it is important to recognize the importance of the connection between improved water management, food security, and climate change.

1.2.3 Pressures on water sources

The total renewable water resources in Mali are 100 cu km/yr (2011). The Niger River and the Sénégal River are the main sources of fresh water. The fresh water withdrawal is 6.55 cu km/yr of which 90% is used for agriculture, 9% has domestic purposes and only 1% is used in industries. Approximately 50% of the total area of the country is desert, where rainfall is below 200 mm/year

and where plants can grow for a maximum of 15 days per year. Population growth and increased water scarcity lead to fierce competition between water users upstream and downstream, between agriculturalists and pastoralists, and between rural and urban inhabitants. This water scarcity also sets back the Malian government in reaching the MDGs on eradication of extreme poverty and ensuring environmental sustainability.

1.2.4 Irrigation

Controlled irrigation (maîtrise totale) covers 2,358 km² (CIA, 2003), which is 5% of the 4.7 million ha of arable land. The main regions in which irrigated food production is possible is along the Niger river in the Ségou and Mopti regions and the Tombouctou plains, and near Gao. These areas are fed by the Niger and Bani River systems. The – much smaller - Sourou system also holds an interesting potential for irrigation. Gravity irrigation is the main irrigation method used in Mali (MASP, 2014). Other systems are surface irrigation, sprinkler irrigation, drip irrigation and ‘Californian irrigation systems’. The main irrigated crops in Mali are, rice, onion, tomato, maize, sorghum, potatoes, wheat and other vegetables. In river deltas, farmers make use of floods for irrigation of their fields and for animal keeping. In the past, the Netherlands have invested much in the development of the Office du Niger and the Mopti region. The Dutch embassy has given attention to the sustainability of its investments in relation to availability of water, access to land, and financial management.

1.2.5 Flooding of river systems

The seasonal floods of the Niger River lead to a large spread of the water because of flat slopes in the Delta area. The water network in the delta consists of the main river, a number of lakes, three river branches and secondary rivers that bring or take water to and from lakes. The Niger Delta is home to about up to two million people (during the dry season) who mainly rely on agricultural activities. Floods are used for agriculture, for the production of rice, livestock and production of animal fodder (bourgoutières), and fisheries. The Inland Delta plays the role of a natural buffer for the populations and countries downstream. Any excessive flood event is leveled off as the excess water is channeled off to the main lakes in the northern part of the Delta. During the dry season it releases part of the water stored in the flood plains to the Niger River, providing drinking water and irrigation supplies to populations close to the river in Mali and Niger (APFM, 2004).

1.3 The water sector

This section describes the public sector, the legislation, the spending and investment planning and the role of the private sector, NGOs and knowledge institutes. This section ends by identifying the pressing needs and explaining the Dutch Government engagement strategy.

1.3.1 Public sector

The use, conservation, protection and management of water resources are regulated by the Water Code. Three ministries are directly involved in the water sector for agriculture, rural development, environmental management and water supply and sanitation; these are the Ministry of Rural Development, the Ministry of Energy and Water (MEE), and the Ministry of Environment, Sanitation and Sustainable Development (MEADD). Other ministries that are involved in the water sector include the ministry of Health and Public Hygiene and the Ministry of Industry and Mining. The Ministry of Environment, Water and Sanitation is divided in six departments:

- National Direction of Water and Forests (DNEF)
- National Directorate of Sanitation and of Pollution and Nuisance Control (DNACPN) plays a secondary role in water supply and sanitation projects.

- Agency for Environment and Sustainable Development (AEDD), this administrative institution is responsible for sustainable environmental development, environmental management and the fight against desertification and climate change.
- Niger River Basin Agency (2002). This agency aims to safeguard the Niger River, its tributaries and its basins, as well as the integrated management of the resources. The agency works closely with rural development offices for the development of master plans and water resource management (Aquastat, 2014).
- Administrative and Financial Direction (DAF)
- Planning Unit and Water Sector Statistics, Environment, Planning and State Domains (CPS)
- National Agency for Management of Treatment Stations of Mali (ANGSEM)

Within MEE, the National Hydraulic Directorate (DNH) is responsible for planning and management of IWRM and water supply, and is the main entry point for donors. DNH is responsible for execution of tasks such as the development of the national water policy and the coordination and monitoring of implementation. Local governments are responsible for water supply under the Water Code. Planning and implementation are carried out by directorates, the relative stable executive arms of ministries. DNH is represented on district (Cercle) by level the Local Hydraulic Service (SLH).

Frameworks and programs

Mali is member of the trans-boundary Niger Basin Authority (ABN). It is also member of the Organization for Development of the Sénégal River (OMVS) which aims to provide and secure electricity, agriculture, and ecosystem maintenance in the river basin. Finally, the country is member of the Volta Basin Authority (ABV). A fourth international organization of which Mali is member is the Permanent Trans-boundary Committee for the Fight against drought in the Sahel (CILSS).

A number of political frameworks exist for the implementation of programs on planning and water management, also in relation to food security. These frameworks and programs are established in line with the social-economic development of the country.

- The government has prepared and started the implementation of a national program for IWRM (PAGIRE), which offers a framework for the implementation of water management policies aiming at increasing food security. PAGIRE aims to improve water governance in legislation, regulation and economics in relation to the environment, reforming the institutional framework and developing various (management) tools (G4AW, 2014). For the implementation of IWRM at local level, the government has installed Local Water Committees (CLE) through the IWRM Upper Niger program (GIRENS). 26 local committees have been installed in four regions of Mali.
- National Plan for Access to Potable Water (2004-2015)
- National Program on Climate Change Adaptation (PANA)
- Water and Sanitation Sector Program (PROSEA) (2004) which has the aim to commit to the MDG on drinking water. The objectives of the water program are:
 - Improve access to water, equitable and sustainable manner
 - Improve people's incomes by improving access to water for other use
 - Ensure the availability and quality of water for all uses by the Water Resources Management (IWRM)
 - Improve the quality of water public service effectively and efficiently

The objectives of the sanitation program are:

- Organization for development of the sanitation sub-sector
- Reduce pollution and environmental damage
- Ensure people's access to sustainable sanitation services
- Sustainably reduce the unhealthy living environment of people through changes in their behavior

- National Plan for Access to Safe Water (2004-2015) in place to reach the goal of PROSEA.
- Integrated resource management Niger River Basin program:
 - Promotion of IWRM for sustainable development through information and awareness
 - Fight against shoreline erosion and degradation of ecosystems in the Niger River Basin
 - Capacity development of the Niger River Basin Agency and its partnership and cooperation.
- Rice Initiative Program (2008/2009)

Frameworks and organizations

Several frameworks and organizations have been created at the national or local level for consultation and / or management of water resources:

- Office du Niger (1930) is a major semi-government organization that is responsible for irrigation in the Ségou Region. Its tasks and responsibilities include water management, the maintenance of irrigation schemes, and provision of technical assistance to farmers.
- Water Management Committees for the Sélingué dam and the Markala dam
- Commission Gestion des Eaux de la Retenue de Selingue et du Seuil de Markala
- Interdepartmental Committee for Coordination of the Water and Sanitation sector (1995)
- National Water Council (2004)
- Regional and Local water Councils (2003)
- Basin and Sub-basin Committees
- Committee for Water and Electricity Regulations (CREE).
- Malian Company for Textile Development (CMDT), established in 1974
- Office of the Upper Niger Valley (OVHN), a public administrative organization (EPA) for increasing the agricultural production in the area
- Mopti Rice Office (ORM), a public administrative organization established in 1991 for increasing rice production in the Mopti region
- Commission for Food Security (CSA) (2004)

1.3.1.1 Legislation

Mali has a number of policies and acts in place for sustainable water resource management:

- Water Code (2002), regulates water resource management
- Strategic Framework for Growth and Poverty Reduction (2006) for policies and strategies on medium term
- National Water Policy (2006) that gives strategic directions for sustainable management of the water resources
- National Sanitation Policy (2007) for solid waste management of households and industries and management of wastewater
- National Policy for Environmental Protection (1998)
- National Policy for Wetlands (2003) for long term (2025 horizon) sustainable wetlands management
- Agricultural Orientation Law (LOA) 2006
- National Strategy for Development of Irrigation (2007/2008)

1.3.1.2 Public sector current spending and investment plans

In the year 2013 the budgets of the departments (including DNH) of the Ministry of Environment and Sanitation were allocated as can be seen in Table 1. For the year 2013 the Ministry of Environment and Sanitation was funded with a total of € 105.2 million by international donors (Table 2). The expected budget for sanitation over the years 2015-2017 is given in Table 3, showing a stable amount of around € 30 million. This is one-third of the available budget of the MEA in 2013.

For water, the annual figures are higher than for sanitation. Donor funding in 2013 was more than € 500 million (Table 5) and also the annual budgets for 2015-2017 reach up to € 50 million (Table 4). According to the GLAAS report (2014) the government of Mali has an investment plan for rural and urban WASH. A national hygiene plan is not present or is under development. The governmental budget for WASH in Mali is estimated at € 67 million for the year 2012.

Table 1 Budgets of departments (including DNH) of the MEA in 2013 (million euro)

Department	Budget	Realization
DNH	60.8	17.6
AEDD	1.8	1.54
DNEF	4.8	4.7
ANGSEM	3	2.9
ABFN	6.8	6.7
DNACPN	10.7	1.07
Total	87.9	34.7

Table 2 Funding sources Ministry of Environment and Sanitation for 2013 (million euro)

Donor (Technical and Financial partner)	Amount	
IDA (loans and grants from WB)	23.1	
Sweden	15.4	
BAFA/UEMOA	13.2	
GIZ/UNDP	11.7	
UNDP	6.9	
EU	6.6	
Multiple donors	6.3	
Denmark	6	
GIZ	3.5	
AFD (French Development Agency)	3.2	
GEF	2.3	
UNDP/GEF	1.9	
UNDP/UNEP	1.5	
Netherlands	0.77	
French Global Environment Facility (FFEM)	0.7	
UNEP/FAO	0.59	
UNEP	0.5	
FNU	0.44	
CROPLISCE	0.26	
FAO	0.17	
West African Economic and Monetary Union (WAEMO/UEMOA)	0.1	
Total	105.2	
Total loan	1.87	1.8%
Total grant	103.4	98.2%

Table 3 Medium term expenditure framework sanitation objective 2015-2017 (million euro)

Year	Budget	Funding acquired
2015	29	7.8
2016	32.5	2.2
2017	30	2.3
Total	91	12.3

Table 4 Medium term expenditure framework water objective 2015-2017 (million euro)

Year	Budget	Funding acquired
2015	38.43	28.07
2016	57.81	14.19
2017	56.59	6.29
Total	152.83	48.55

Table 5 Funding sources Ministry of Energy, Water, and Environment for 2013 (million euro)

Donor (Technical and financial partner)	Amount	
AFD (French Development Agency)	76.6	
AfDB	69.7	
World Bank	69.1	
European Investment Bank	58.4	
EU	55	
Inter-American Development Bank (IDB)	54.7	
KfW (Germany)	45	
AfDB/ BAFA	40.3	
Denmark	34.3	
Kuwait Economic Development Fund (FKD)	12.6	
West African Development Bank (BOAD)	6.4	
Saoudian Development Fund	4.3	
Total	526.6	
Total loan	413.7	78.6%
Total grant	112.9	21.4%

1.3.2 Private sector

The Malian government supports the private sector to invest, produce and sell goods and services. Some governmental reforms should play an important role in attracting foreign direct investments in Mali, which is expected to remain low in the coming years (MASP, 2014). Paragraph 2.1.2 shows a brief overview of Dutch companies active in Mali. Also French companies and Danish companies are present in the country for a number of years.

1.3.3 NGOs and knowledge institutes

Many international NGOs are present in Mali. SNV is active in the country since 1979 in the agricultural sector, WASH sector, and renewable energy sector and focuses on organizational strengthening and building partnerships. ICCO runs programs on, among others, WASH and food security. Some NGOs active in the WASH sector are the Dutch WASH Alliance, Helvetas, IRC, Eau Vive, and Plan Mali. Other NGOs active in Mali are Terrafina, Oikokredit, Oxfam Novib, NEF, Wetlands International, and CARE.

1.3.4 Dutch cooperation and priorities

The Embassy of the Netherlands (EKN) has three thematic priorities for the period 2014-2017 including integrated water resource management (IWRM) for food security. The EKN distinguishes three levels of IWRM implementation:

- 1) International – inter-governmental cooperation mainly with Guinea and Niger. Emphasis is on knowledge development, policy development, and international lobby
- 2) National with a focus on knowledge development, policy development, planning and supervision. All activities aim at strengthening the public sector and creation of a sound business climate.
- 3) Local with a focus on knowledge development, policy development, planning, supervision, and implementation. The latter emphasizes controlled flood-based irrigation and is mainly channeled through international NGOs in Mali.

Various programs will be used to reach these goals, among which financial instruments of the Dutch government, cooperation with institutes and networks, Dutch companies and Dutch NGOs. Integrated water resource management will be supported at different levels. At international, national, and local levels, water management institutions will develop plans that are integrated, inclusive and sustainable. At the local level more attention will be given to participation of producers, at the national level support will be given to promote rational choices based on the water availability and the needs. With regard to efficient irrigation and other innovative water management infrastructures, the emphasis will be on the Office du Niger, and on irrigation projects in the regions Ségou, Mopti, Gao and possibly Tombouctou. This includes promotion of efficient irrigation and drainage, including irrigation finance and market access. Support for increased sustainable food production will be given through implementation of the National Agricultural Development Policy strengthening of agricultural statistics. Finally, on value chain development program is funded by the Dutch government. This program aims to improve the investment climate for the onions and fish (traditional fisheries and aquaculture).

2. Opportunities relevant to the Dutch water sector

This chapter presents the results of the web survey among Dutch water sector players, completed by the main observations derived from previous (existing) market studies and interviews with water professionals and strategic actors within the Dutch water sector (please refer to Appendix I providing an overview of the method of research). The first section describes the current situation. The second section describes the most important trends, linking the current situation with future opportunities, which is the topic of the third section. This chapter ends by identifying promising product market combinations (PMCs).

2.1 Current situation

The section starts by describing the current situation, how the Dutch water sector is involved, the type of activities performed, client groups and performance on specific development indicators.

2.1.1 Progress on MDGs

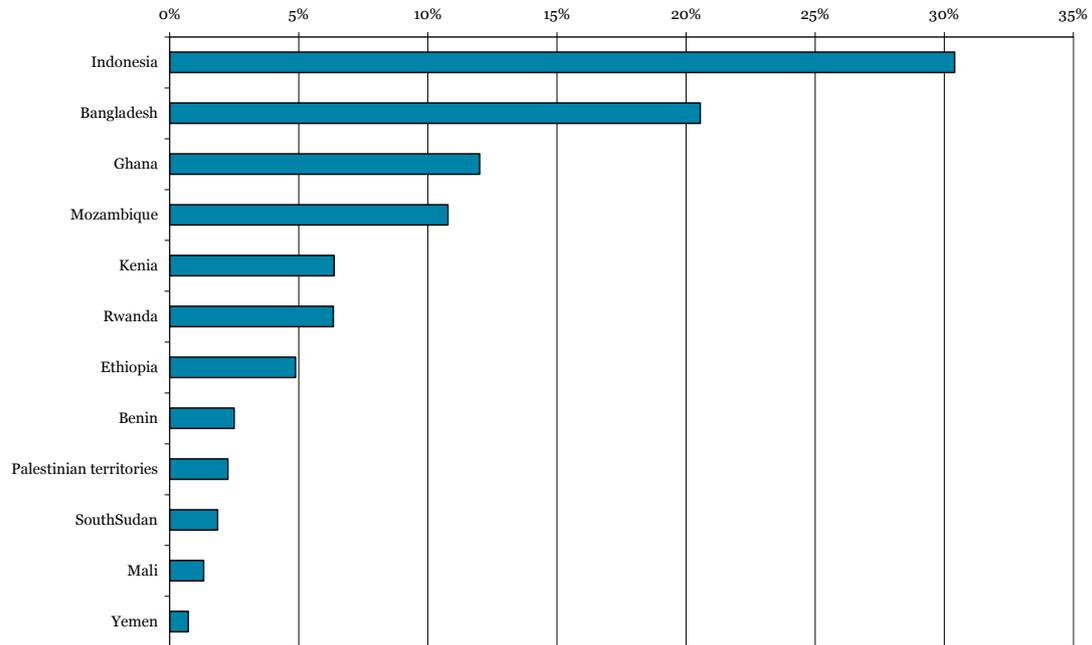
69.2% of the urban population and 61.3% of the rural population had access to improved water sources in 2013. In total this means that 63.6% of the population has access to improved drinking water sources. In urban areas, 35% of the population has access to improved sanitation facilities, compared to 15% of the rural population. In total, 22% of the Malian population has access to improved sanitation facilities.

2.1.2 Dutch water sector involvement

The share of total Dutch exports in the water sector to the 12 OS-countries is estimated at 25% of total Dutch exports in this sector, equaling about € 60 million.² The share of Mali is only 2% of the total amount in the sector, which ranks Mali 11th of the twelve countries ending just above Yemen (Web survey Panteia, 2014/2015). Nine percent of the interviewed Dutch companies are active in Mali. Over twenty percent is not active, but is interested in doing business in the water sector in Mali. While Mali is not the country of first choice of Dutch companies for doing business, NGOs are quite active in the country. 60% of the interviewed NGOs are already active in Mali and an additional 7% shows interest for the future (Web survey Panteia, 2014/2015).

² This estimation is based on the sample results of the web survey. Starting from this value relative export shares of the various regions and countries have been determined for the sample. Since the sample may not represent the whole water sector in an optimal way, the research cannot draw any hard or general conclusions. The actual value of export will be higher, but this value can only be obtained with sample results once the whole population is known. Getting to know the population is complex and cannot be realized in the context of this study. Another complicating factor lies in the fact that large projects (especially those in water construction) may influence export figures drastically and lead to large fluctuations over time. For the sample of the web survey no such 'disturbing' projects have been found. The method used in this survey is in line with the method used for WEX 2014, which are also based on sample results.

Figure 1 Breakdown of Dutch exports in the water sector to the 12 OS-countries, in % of turnover (N = 60)



Source: Web survey Panteia, 2014/2015

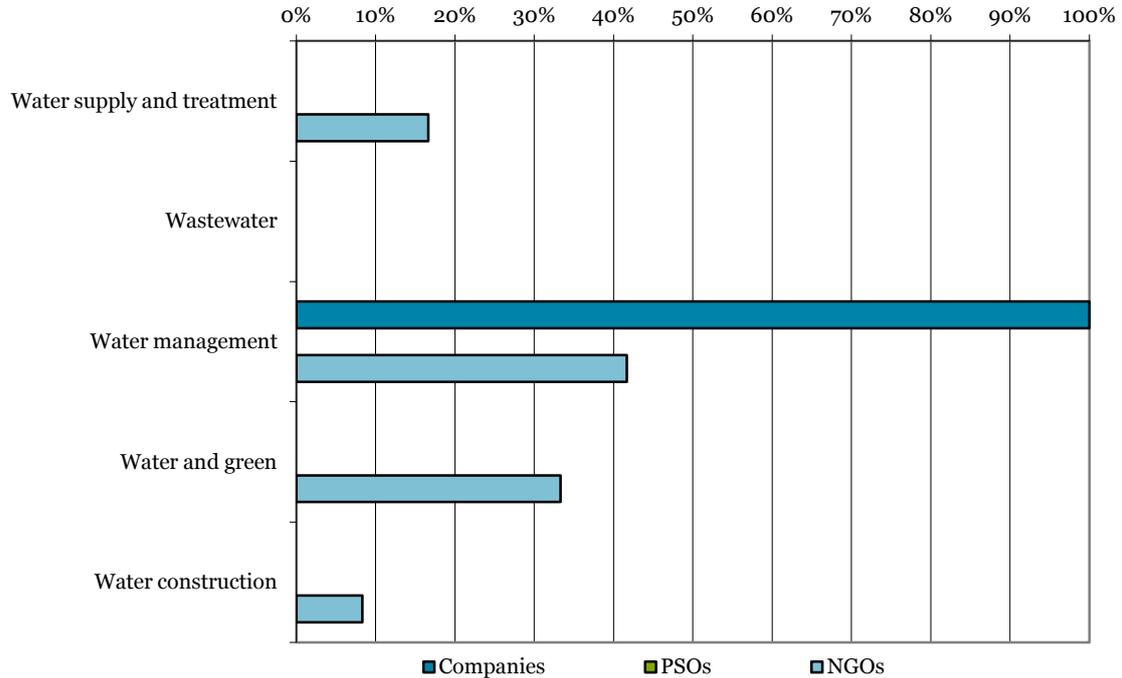
NGOs operating in Mali are the Dutch WASH Alliance (WASH), SNV (food security and WASH), Akvo (ICT - WASH), Wavin (WASH), Wetlands International (IWRM, flood forecasting), Practica (Research/WASH), IICD (ICT- food security), RAIN Foundation (IWRM), and Aqua for all (WASH).

Consultancy companies active in Mali are Altenburg & Wymenga (IWRM, flood forecasting), Acacia Water (groundwater management), EARS Earth Environment Monitoring BV (ICT – remote sensing), Euroconsult Mott MacDonald (IWRM).

Current activities in various subsectors in Mali

One company in Mali is active in the water management sector. NGOs are mostly active in water management (42%) and water and green (33%). There are no public service organizations (PSOs) active in Mali (see Figure 2).

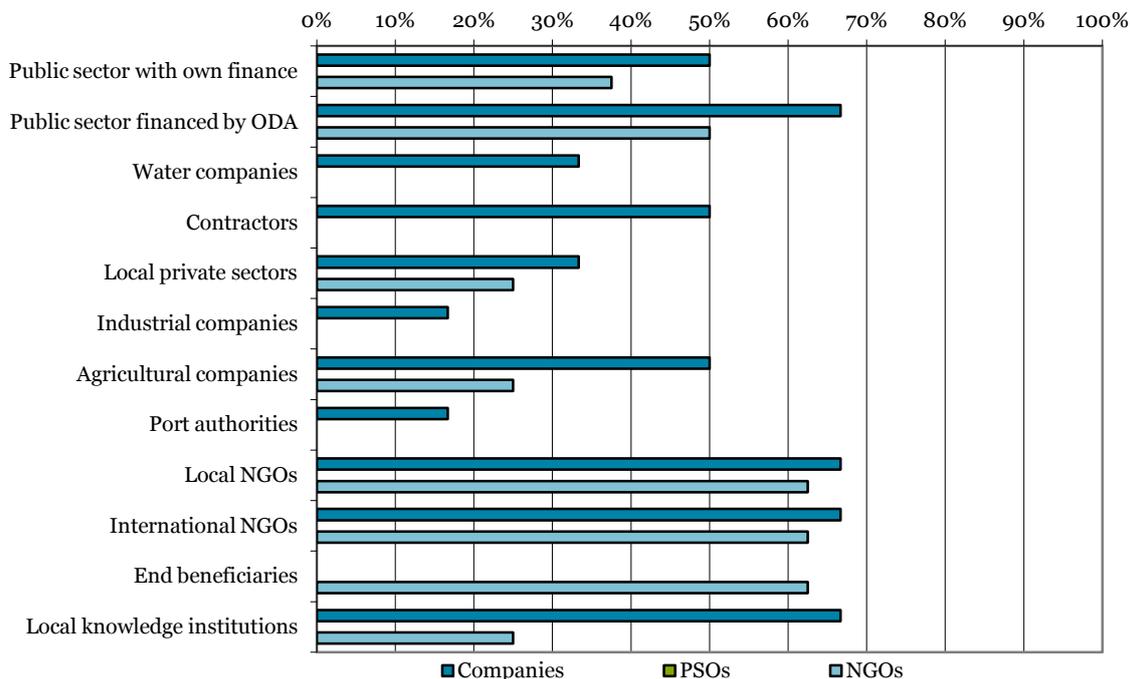
Figure 2 Current activities of Dutch companies (N=1) and NGOs (N=12), in the various subsectors of Mali, in % of total observations



Source: Web survey Panteia, 2014/2015

Companies in Mali focus on advice, design and supply of goods (each 50%). NGOs focus on capacity building and providing technical advice / support in projects (see Figure A.1, Appendix III). The main clients of companies active in Mali are the public sector, either financed by ODA (67%) or with own finance (50%). Other clients are local and international NGOs and local knowledge institutes (67%). Clients of NGOs are local or international NGOs and end beneficiaries (all 67%) (see Figure 3).

Figure 3 Current client groups of Dutch companies (N=6) and NGOs (N=8) in Mali, in % of respondents (more answers possible)



Source: Web survey Panteia, 2014/2015

2.1.3 Dutch public support programs

Mali is one of the focus countries of the Partners for Water program. This program offers support to players in the Dutch water sector to realize their ambitions for doing business or providing aid related work in other countries. It aims to improve the cooperation between countries in the water sector and specifically focuses on those projects and programs that offer a high potential for spin-off or that can realize more opportunities for the Dutch water sector. Other funds such as Private Sector Investment Program (PSI) or FDOV were used in Mali, but not in the water sector.

The Embassy has a number of water programs in place with a budget of € 5.5 million in the year 2013³, while another € 9 million was committed to international NGOs in 2014 and € 1 million was allocated to drinking water in Gao. € 17,298 million bilateral IWRM program was signed in December 2014. Figure 4 shows the two main subsectors financed. Table 6 gives a more detailed overview of the EKN programs for the sectors of Figure 4.

³ Resultaat fiche water 2013 EKN

Figure 4 Sectors of Dutch support programs - coordinated from EKN 2013

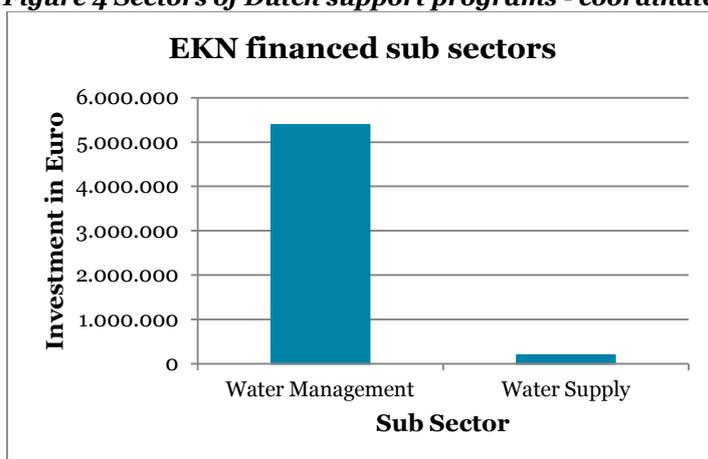


Table 6 Overview of Dutch support programs - coordinated from EKN 2013 (million euro)

Program	Budget 2013	Implementing channels	Sector
Projet de renforcement de l'harmonisation et de l'efficacite de la gestion	0.16	SOFRECO, ON & Others (research institutes and companies)	Water management
Programme d'Appui a l'Office du Niger pour L'Execution du Contrat Plan 2009-20	1.9	Office du Niger (government)	Water management
Programme d'Amenagement du Delta Interieur du Niger (PADIN I)	0.75	CARE (NGO)	Water management
Appui Eau Potable (AEP GAO)	0.19	SOMAGEP-SA (government)	Water supply
Inner Delta Food Security, Resilience & Agricultural Water Management	0.25	NEF (NGO)	Water management
Outil de Prediction de l'inondation du Delta Interieur du Niger (OPIDIN)	0.1	Wetlands International (NGO)	Water management
Programme d'Amenagement du Delta Interieur du Niger (PADIN II)	2.3	CARE (NGO)	Water management
Total	5.4		

Further Dutch support is given in the bilateral IWRM program, abbreviated as GIRE in French. This support program is executed in the period 2014-2019 and has a budget of € 17.289 million. The focus of the program is on the creation of a favorable environment for IWRM, strengthening management capacities, and improving the knowledge and sustainable use of water resources. The program intervenes on trans-boundary river systems, national policy level and on the level of the Office du Niger and the Inner Delta.

2.2 Trends

This section describes the trends starting by summarizing the most important pressing needs followed by an overview of government plans and the agenda of donors and funders.

2.2.1 Pressing needs

Population growth and urbanization add pressure on already insufficient sanitation infrastructure in cities. To cope with this situation, the urban drainage and waste system management requires an improvement, for which investments and waste management are essential. Sanitation is also a large problem in the country and an increasing demand from the population of better sanitation is rising. Also water supply in cities remains a large problem, since today only 48% of the urban population is provided with safe water.⁴

Achieving adequate food security needs efficient use of irrigation systems and efficient use of arable land. Mali has a large potential of agricultural land that not used in a sustainable manner, especially compared to neighboring countries such as Niger. Increased water scarcity during dry seasons leads to higher competition between water users and hinders the government to reach MDG 1 and MDG 7. These effects have extra impact on poor households that deal with food insecurity. Improving irrigation is one of the strategies to cope with food insecurity. Mali is not more vulnerable for climate change than other countries, while climate change does have its effects on less flooded land, which negatively impacts agricultural food production.

Internationally, there is a pressing need for stronger IWRM practices to manage floods, especially in the Niger River Basin. This is in line with the need for regional agreements on responsible water use of that same river. Possible dam construction in the upper basin in Guinea such as the proposed Fomi dam on the border of Guinea and Mali requires an international approach of water use. This dam could potentially have an important and detrimental impact on the potential for irrigation and animal husbandry in the Niger Inner Delta. Flooded areas would become much smaller, which highly affects farmers and pastoralists, who depend on the floods for agriculture and grazing respectively.

2.2.2 Government plans and development agenda

- The government of Mali has adopted an Action Plan for Integrated Water Resources Management (IWRM) in 2008
- Development of national policy on agricultural water control (politique nationale de maîtrise de l'eau agricole) for efficient use of water
- The government is integrating climate change into development scenarios while adopting new hydro techniques that are more economic efficient.
- A new National Action Program for Climate Change Adaptation (PANA) has been set up with the support from UNDP and GEF. The goal of this program is to contribute to mitigate the negative effects of climate change on the most vulnerable populations in the context of sustainable development.
- With regard to IWRM there is an increased need of the Malian government to learn from experiences of the Dutch approach and of integration between Dutch and Malian projects.
- Formally, the government in Mali is decentralized. This is however not yet fully implemented and local governments do not get much responsibility over the development of plans and its funding.

2.2.3 Plans and agenda of donors and funders

⁴ <http://www.worldbank.org/en/news/press-release/2013/11/21/world-bank-funding-to-boost-drinking-water-supply-in-bamako>

Netherlands:

- IWRM for food security is the priority theme of the EKN. The GIRE program, PADIN, PASARC and GAO programs have a strong emphasis on improved land and water management in the broad sense.
- Further to this, EKN supports the strengthening of the unions and fish food chains (G4AW, 2014)

World Bank and African Development Bank:

Both banks do not have a Country Strategy paper for Mali available for the periods after 2011 and 2009 respectively. Recent programs of both banks focus on water supply and IWRM of the Niger River Basin.

2.2.4 Macro-economic developments in agriculture

No major changes are expected in the coming years. The government is likely to further support local rice cultivation, with a strong emphasis on irrigated rice. A shift toward small farmer-managed irrigation blocks was announced in 2013 by the Ministry of Rural Development, but this remains to be confirmed. There are no signs that the government would reduce its involvement in Office du Niger and other major agricultural authorities. Cotton remains rain-fed and its production area is expected to become smaller. Privatization occurs to a limited extent and takes place mainly in horticulture.

2.3 Opportunities

This section provides insight in concrete programs and projects that offer opportunities for the Dutch water sector. Identifying examples of past and present opportunities and the way these opportunities have been financed provide insight in product market combinations that offer potential to enter and explore or to expand and consolidate.

2.3.1 Past and current opportunities

In recent years, Dutch companies have hardly been involved in the water sector in Mali. NGOs were able to seize a number of opportunities:

- The Dutch WASH Alliance is a consortium between Simavi, Akvo, Amref Flying Doctors, ICCO, RAIN and WASTE. As part of the work of the consortium, RAIN works together with HELVETAS in Mali on capacity building for rainwater harvesting. Further cooperation takes place with Wetlands International on ecological sustainability in WASH activities. The WASH Alliance is Dutch funded through MFS 2.
- Partners for Resilience (PFR) is a consortium consisting of the Netherlands Red Cross, Care, Cordaid, Wetlands International, and the Red Cross Red Crescent Climate Centre, and is funded by MFS 2. PFR operates in the regions of Tombouctou and Mopti where communities are introduced to work with simple techniques to strengthen livelihoods through small scale agriculture and efficient water use.
- Connect for Change is a third partnership funded through MFS 2. This partnership consists of IICD, Akvo, Cordaid, Edukans, ICCO and TTC.
- SUM Africa (Scaling up micro-insurance in Africa) is an international partnership between EARS, a French insurance broker, and a local farmer collective. The partnership is funded by G4AW and income per target farmer, and builds on the FESA Micro-insurance project of 2009-2013, which was a millennium project of the Dutch Ministry of Foreign Affairs. The aim of the program is to provide low-cost, satellite based drought and excessive precipitation insurance to smallholder farmers in Mali.

- OPIDIN is a project of Wetlands International and Altenburg & Wymenga in collaboration with DNH on flood forecasting. It is an early warning system for people living and working in the Inner Niger Delta. The project is supported financially by the Embassy of the Netherlands in Mali.

2.3.2 Future opportunities

The security situation in Mali remains fragile, notwithstanding important UN support through MINUSMA. This context has an impact on the willingness to invest in the development of the water sector in Mali. Direct investment – both local and foreign – is expected to remain very low in the coming years, which limits opportunities for most actors.

As a result, funding through development cooperation – in combination with public funding – must be expected to remain the main source of opportunity. Through such funding, it is expected that the water sector will continue to offer potential for international NGOs. At the same time, development cooperation funding also provides ample potential for research institutes, education and companies. Hereunder, the main opportunities within are presented.

Dutch support opportunities

The GIRE program effectively runs from 2014 to 2018. The program funding will be partly managed by DNH / the Ministry of Energy and Water and partly by Wetlands International Mali. Both organizations are working together in the program management unit of DNH. The program management unit of DNH will launch relatively small tenders on a regular basis. These are expected to range from hydrological studies and simulations to master plan development and from training and capacity building (local, national, international) to innovative pilots. Hydrological studies (large scale and small scale) may be executed by engineering companies such as Witteveen+Bos, Royal HaskoningDHV, Altenburg & Wymenga or Euroconsult Mott MacDonald. Master plan development would be of interest to these companies, as well as to Deltares. Capacity development, training, and communication are potentially attractive to organizations such as SNV, ICCO, RAIN, MDF, Water Boards and others.

Opportunities may also arise downstream of IRWM activities carried out within the GIRE, PADIN, and OPIDIN programs. It is expected that these would mainly occur in irrigated agriculture: supply of seeds, planting material, measuring devices, or processing equipment. These opportunities are expected where large NGOs provide a linkage between companies and large groups of well organized farmers.

Further Dutch supported activities will depend on the evolution of the geopolitical situation. This might result in opportunities for drinking water supply and river / water police in the larger Niger Inner Delta (up to Gao).

G4AW provides a list of opportunities for the Dutch water sector that are in line with the goals of EKN:

- Knowledge development and information management
- Food (processing) industry and – chains and agricultural production
- Integrated cross boundary water resources management
- Institutional sustainability
- Irrigation optimization

View of the Dutch water sector

- Dutch companies see IWRM as the most promising area in Mali (100%), followed by water productivity & food production and water distribution & quality (both 80%). NGOs have also

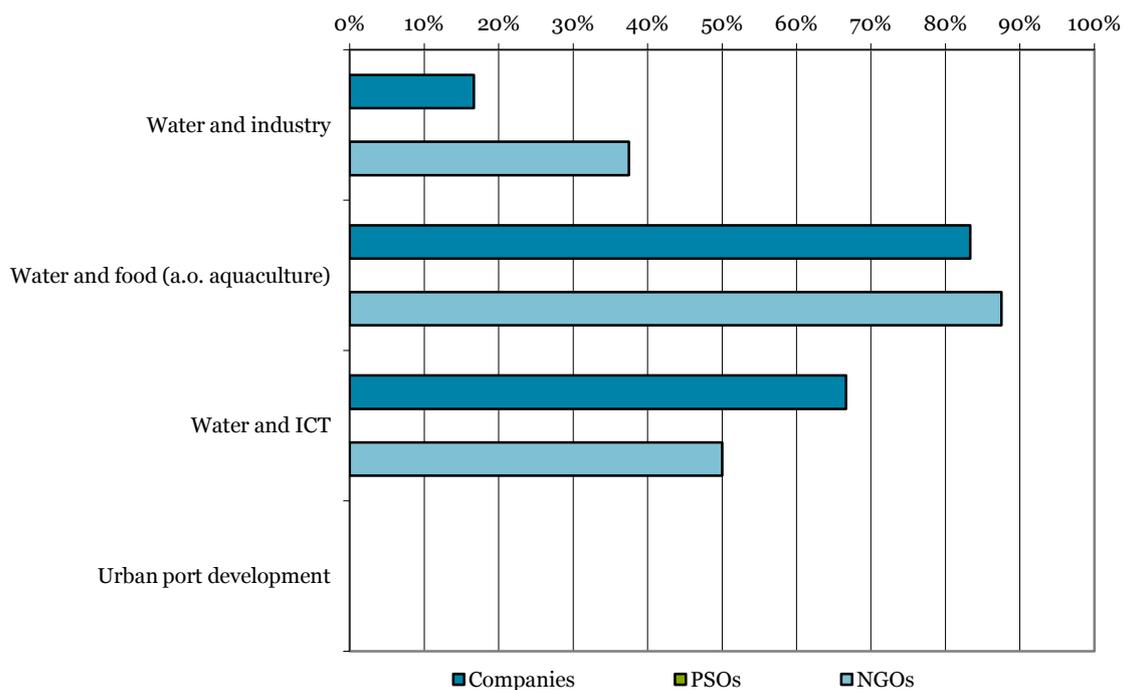
defined IWRM as the most promising area (71%), followed by drinking water supply & treatment, and water productivity & food production (both 57%) (see Figure A.2, Appendix III).

- According to Dutch companies and NGOs active in Mali, the most promising cross-over is water & food, followed by water & ICT. Water & industry ranks third (Figure 5).
- Mali remains a country that needs development aid. Companies and NGOs see many opportunities in water management & safe deltas (in Mali this would be the Inner Niger Delta), higher water productivity in agriculture, and WASH. This latter is more potential for NGOs than for companies (Figure 6).
- Respondents of the survey mentioned some opportunities that can be aggregated as follows:
 - Strengthening of water governance structures: strengthening water authorities, strategies and institutional frameworks
 - Monitoring, mapping and data collection: drought monitoring and agricultural yield forecasts in relation to yield insurances.
 - IWRM: opportunities for IWRM in relation to food security and biodiversity protection.

International support opportunities

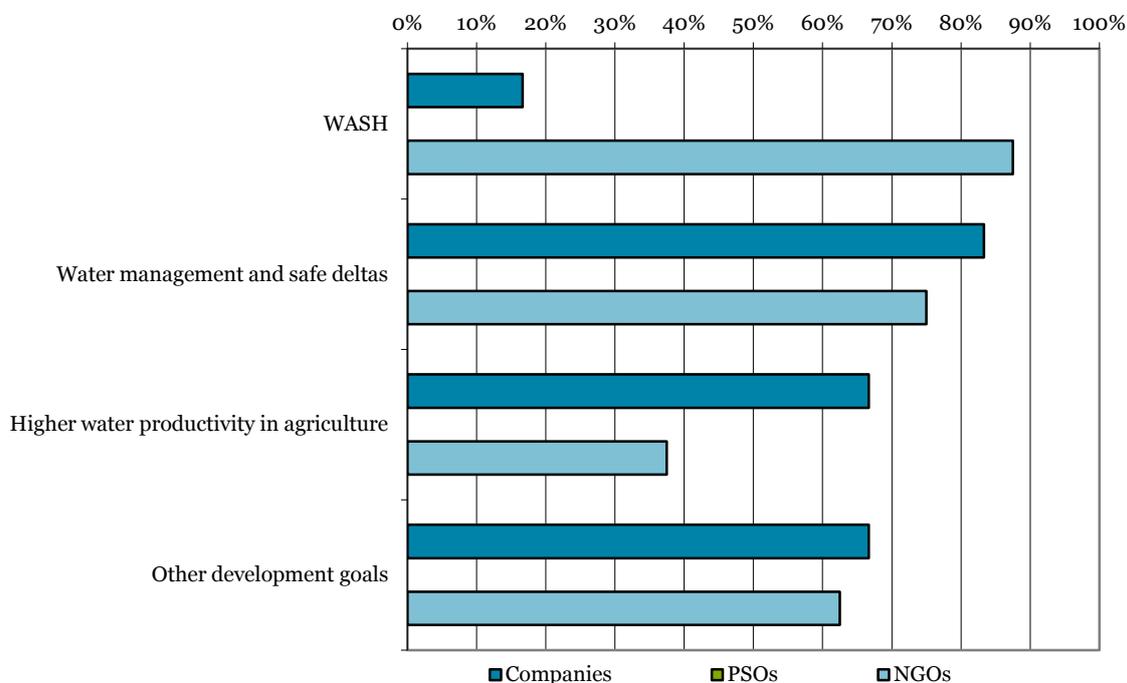
Water supply and sanitation for Bamako may offer opportunities for the Dutch water sector. The total investment is expected to reach € 850 million. The total program is divided in lots that are each financed by a consortium of development banks and other institutions. These include the World Bank, African Development Bank, European Union, European Investment Bank and the French Development Bank. Drinking water supply will come from surface water and projects offer chances over the entire chain: pump stations, water treatment, piping, connections to households, and drainage. The program is expected to be implemented between 2015 and 2025. For the Dutch sector it offers opportunities in consultancies. The EC will implement a series of infrastructure programs including the support of local authorities for drinking water and sanitation for € 20 million. Irrigation projects come from AfDB (UAC 39 million) and KfW Germany (€ 40 million). See Table A.2, Appendix IV for more details on the IFI projects.

Figure 5 Promising cross-overs in Mali according to companies (N=6) and NGOs (N=8) active in this country, in % respondents (more answers possible)



Source: Web survey Panteia, 2014/2015

Figure 6 Development opportunities in Mali according to companies (N=6) and NGOs (N=8) active in this country, in % respondents



Source: Web survey Panteia, 2014/2015

2.4 Product-Market Combinations

Table 7 presents a list of Product-Market-Combinations (PMCs) that result from the supply and demand in both the Netherlands and Mali. It is a descriptive overview of the specific products (what can the Dutch water sector deliver) and the market (who benefits and who is the client). Paragraph 3.5 goes deeper into a selection of the PMCs, including the partners that should be found, ways of financing and the strategy toward the market. The investment climate in Mali is relatively poor and the outlook is equally mediocre. As a result, most PMCs in Mali are related to development cooperation funding in the broad sense. This is potentially attractive for the private sector, NGOs, and education & research institutes.

Table 7 Product-Market Combinations

Theme	Product	Market
IWRM		
1.1	Hydrological studies, including simulation of high and low water impacts, feasibility studies for e.g. the Fomi dam or other hydropower dams	Office du Niger, Office Riz Ségou, Office Riz Mopti, ABN, OMVS
1.2	Studies on river basin management and the development of master plans. Including stakeholder identification and their priorities in water	ABN, Office du Niger, OMVS

	management	
1.3	Consultancy services on management of wetlands, deltas and river basins. Delta technology can be introduced in the Niger River Basin, while the Senegal River offers opportunities for river basin management (also Sourou basin and Mopti region)	ABN, Office du Niger, OMVS
1.4	Support on water management in relation to climate change and climate roughness, with a focus on water retention, reuse and recharge	ABN, Office du Niger, OMVS
Water supply		
2.1	Support of water committees and Water Boards, including knowledge sharing and development of organizational capacity	Water committees and Water boards via sub districts and local governments
2.2	Water Operating Partnership (WOP) with water supply and water infrastructure bodies	SOMAGEP and SOMAPEP
2.3	Bamako water supply. Water pumping (surface water), storage, transmission, and treatment of used water	DNH
2.4	Decentralized water supply from rivers or rain water harvesting solutions in secondary cities and rural areas.	DNH/ DRH
2.5	Promotion of sustainable investments and sustainable maintenance by communities and governments through quality control and ownership	
Agriculture		
3.1	Water management in small, medium and large scale irrigation schemes	Office du Niger, Office Riz Ségou, Office Riz Mopti, DIN, Tomboucto, Gao
3.2	Irrigation in horticulture offers opportunities in the seeds and seedling business	
3.3	Study on efficient water use in irrigation and use of alternative more water efficient crops for food security. This can be linked to work of FAO.	
Cross-over: water and ICT		
4.1	Geodata and showing visibility of results	ABN, OMVS, Office du Niger, DIN, Timbouctou, Gao

3. Market strategies

To convert market opportunities into business requires a plan: a market strategy. Strategic interviews and results from the web survey, completed with desk research on existing market studies provided valuable insight in different market (entry) strategies. The chapter starts by describing how Dutch organizations cooperate with parties, projects and programs. How Dutch organizations operate on the market is part of section two. Section three describes lessons learnt, while section four describes the major bottlenecks and drivers. The chapter ends by suggesting specific positioning strategies per potential product market combination (PMCs).

3.1 Entering or re-entering the country

After a thorough assessment of the market and the feasibility of the business case / project, organizations have different ways to enter the country. Finding the right local partner and building up a relationship by working together is a first good step when entering the country.

Mali has a National Water Partnership. The PNE (Partenariat National de l'Eau du Mali) is member of the Global Water Partnership. Because the partnership is located in the office of DNH, it has close contact with the directorate. The PNE will be supported by the GIRE program and can offer assistance in getting involved in projects of different sizes. Also the Netherlands African Business Council (NABC) can offer opportunities for entering the country.

One company has set foot on the ground in Mali by providing technical assistance to the Directorate of Water management and Hydraulic Network Maintenance and the Directorate of Irrigation Construction and Land Management (Office du Niger), with funding from the European Union. This project is expected to end in August 2015. The general opinion of the company is that Mali (and other OS countries) is in principle well accessible for new comers when taking into account the following:

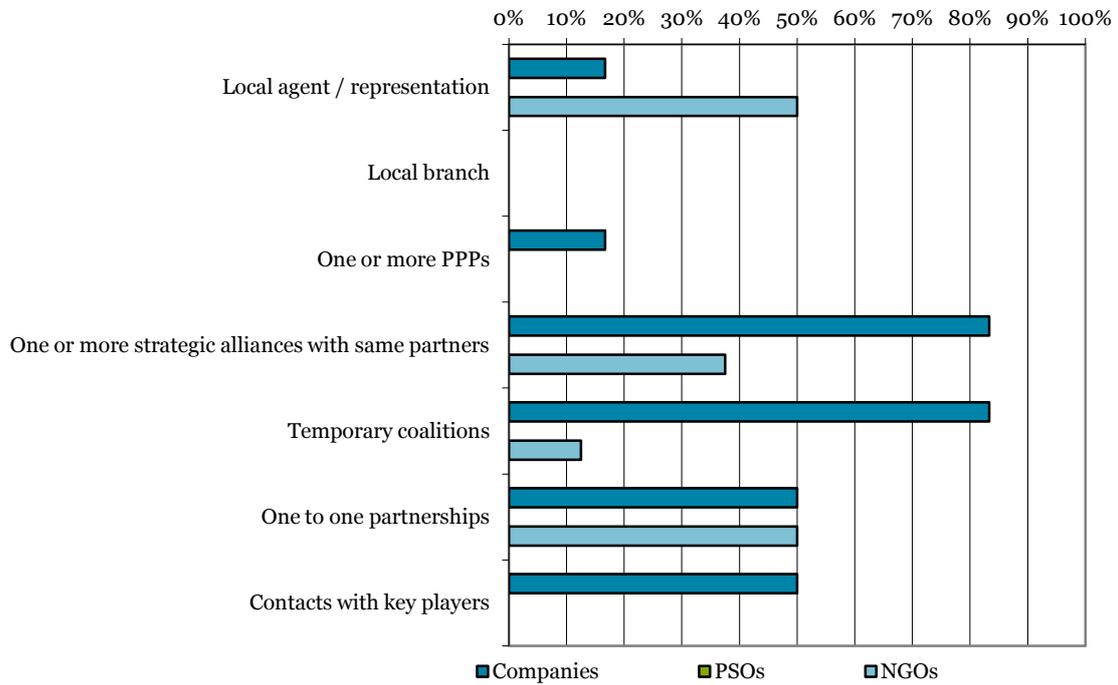
1. Expertise and products that are internationally competitive
2. Working with good and reliable local partners
3. Understanding the local market conditions
4. Having a good relationship with clients
5. Having international references and track record
6. Having a good reputation⁵

3.2 Cooperation and business development alternatives

After finding the right local partner(s) and the appropriate financial means, Dutch organizations follow different strategies to represent themselves in the country. Dutch companies active in Mali mostly operate from strategic alliances, temporary coalitions or work in partnerships with local organizations. NGOs tend to work from a local representation or branch, whereas this is less done by companies, or one to one partnerships (Figure 7). The current strategies for both companies and NGOs are relatively similar and focus on the formation of PPPs, strategic alliances, temporary coalitions, or one to one partnerships (Figure 8).

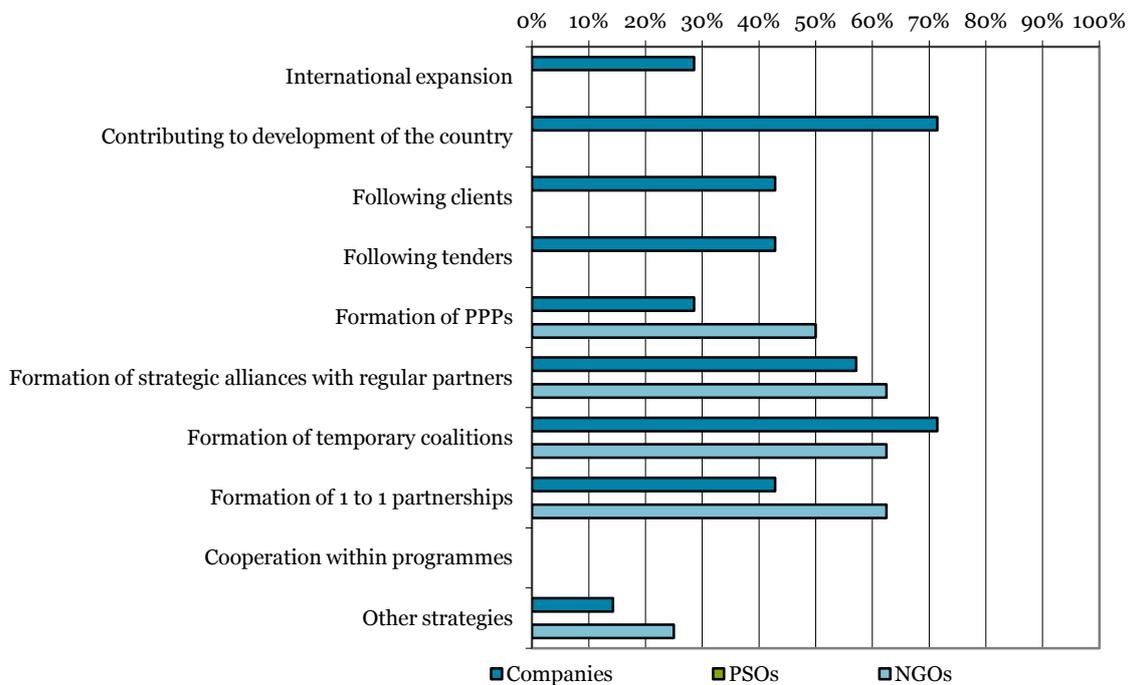
⁵ Interview No. 3

Figure 7 Current representation characteristics of Dutch companies (N=6) and NGOs (N=8) in Mali, in % of respondents (more answers possible)



Source: Web survey Panteia, 2014/2015

Figure 8 Current strategies Dutch companies (N=7) and NGOs (N=8) in Mali, in % of respondents (more answers possible)



Source: Web survey Panteia, 2014/2015

3.3 Successes and lessons learned

From the private sector, the involvement of a single company can be mentioned as a success story for entering the country. In an interview they emphasized that their reputation and track record have helped to be competitive in the tender. The OPIDIN project is an example of a fruitful cooperation between an NGO, a company, and the government in this case between Wetlands International and Altenburg & Wymenga and MEE / DNH. Other successful projects mentioned by respondents in the survey are the projects of the Dutch WASH Alliance, Partners for Resilience and of WCAR-UNICEF. Royal Haskoning can also be mentioned as a successful company in Mali. The consultancy organization has been active in Mali for thirty years and has closed its office in 2013 due to the political situation and security in the country.

3.4 Drivers and bottlenecks

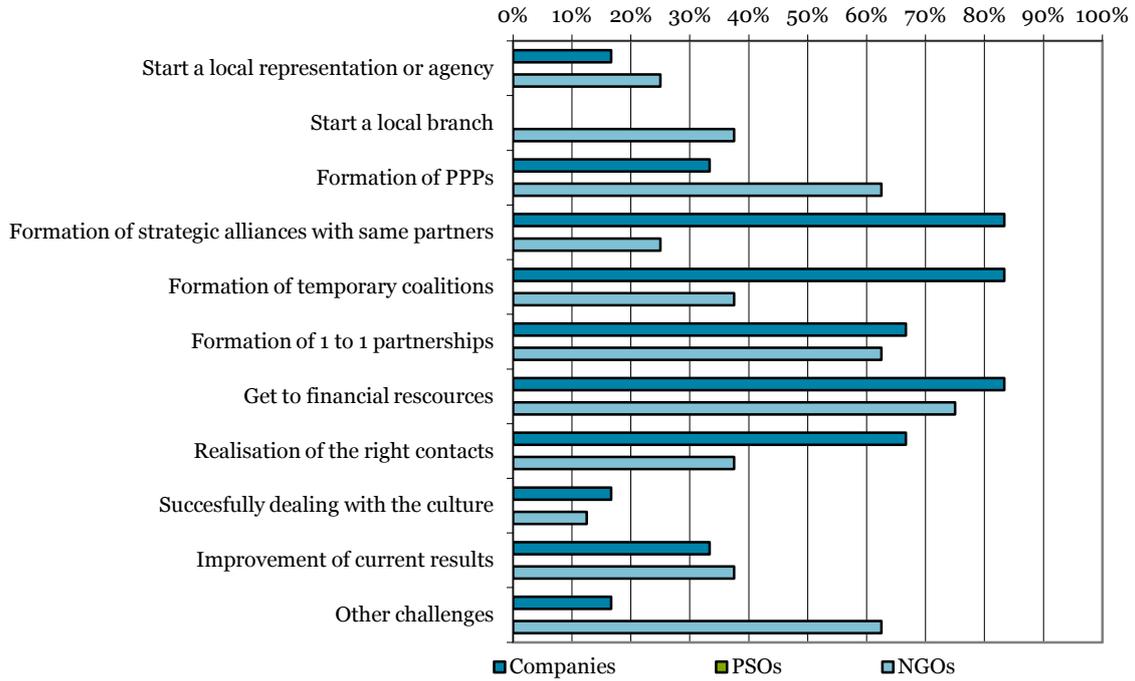
The global competitiveness index of the World Economic Forum ranks Mali 128 on a range from 1 to 144. Doing business in Mali is fraught with difficulties. While the low ranking says a lot about the overall investment climate, this is certainly true for the individual organizations that may have a competitive advantage related to the Malian water sector. The main reasons for companies and organizations to not have Mali high on their priority list are directly or indirectly related to the political instability. As a consequence, a number of organizations have shifted their focus to other countries (Figure A.8, Appendix III). Respondents of the survey indicated that they are not interested or willing to do business in Mali. Challenges defined by Dutch companies and NGOs in the web survey are the formation with partners and getting the right contacts (Figure 9).

Another reason that was found in documentation (not mentioned by respondents of the web survey) is the French language and the perceived competitive advantage of France and French speaking countries. Such a perceived advantage is not confirmed by the corporate members of PNE though. The success of Danish and Norwegian companies is cited by PNE to illustrate that the competitive advantage of France may be smaller than imagined.

An incentive for the Dutch water sector players can be the start of a new program between the Dutch government together with IFC that focuses on the improvement of the investment climate and value chains programs (fish and onions) in Mali. Here the water sector can be linked to food security and agribusiness. The Dutch water sector does not have much presence on the ground in Mali, but this is similar for most European countries, including France. Therefore, this is not a barrier or obstacle for the Dutch sector to get involved.

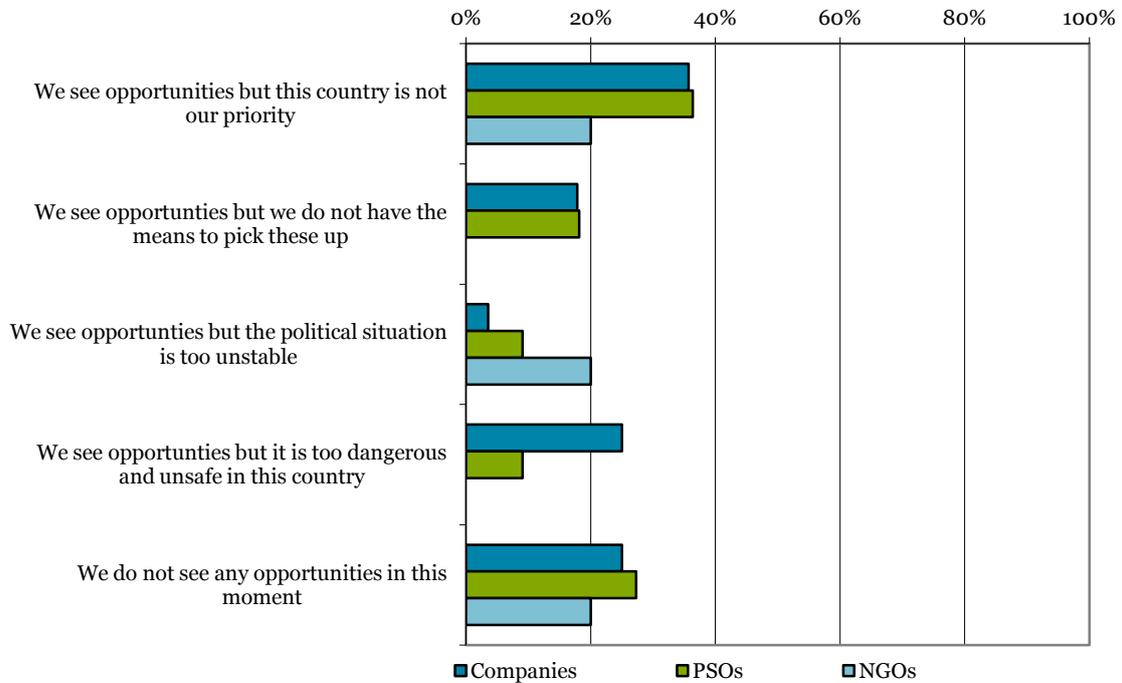
The challenge for Dutch organizations to penetrate in the water sector in Mali appears to be more an issue of perception, understanding, acknowledging the importance of the resources and sharing of information, with both the public and the private sector.

Figure 9 Top 5 challenges for scaling up activities in Mali for companies (N=6) and NGOs (N=8), in % of respondents



Source: Web survey Panteia, 2014/2015

Figure 10 Reasons why companies and NGOs are not active in Mali, in % of respondents



Source: Web survey Panteia, 2014/2015

3.5 Strategies for each PMCs

Based on the secondary market research and the outcome of the web survey, demand and potential supply have been matched, and the following Product Market Combinations were identified as being 'potential'. The following PMCs are a selection of the PMCs defined in chapter 2.4

Theme: IWRM

Need

The Niger River, Sénégal River, and Sourou (Volta River basin) deal with very strong seasonal water fluctuations that can lead to (excessive) flooding. Farmers make use of the water from flooding for agricultural practices and the flood plains of Mali hold a major potential for agricultural development. At the same time, uncontrolled flooding can cause disasters which pose a threat for humans and animals. Furthermore, the increasing number of hydro-power dams in rivers influences the water levels, the fluctuations of these water levels, and the water availability for agriculture and drinking water. To manage the water in the rivers and the use of the water, an integrated approach is necessary to meet all demands of stakeholders. Because the rivers cross international boundaries, an international approach is required.

Product

Capacity building and advice for delta technology in the Niger River Basin and integrated river basin management in the Sénégal River and Sourou River to the relevant governmental authorities (see Market). This can include hydrological studies and more ICT related elements such as development of simulation models for water fluctuations.

Market

DNH, Office du Niger, Niger River Basin Agency, Niger Basin Authority, Volta Basin Authority

Strategy

The GIRE program can offer prime entry possibilities through its embedding with the Ministry of Environment, Water and Sanitation. Organizations that are currently active in Mali on IWRM could play an important role. The Fomi Dam, which is located on the border of Mali and Guinea in the Niger River, should be part of the management plans.

Finance

Funding can come from the GIRE program, as well as from the World Bank, the European Union, France and Sweden. To make river management plans sustainable and because of the international aspect of the river management, innovative financing might be of high importance. One could think of payments systems between the Upper Niger River areas in Guinea (the payer) and the Lower Niger River areas in Mali (the receiver), as well as a sector wide financing approach that involves hydro-power, irrigation and water supply. This can create opportunities for structural fewer donor grants.

Partners

Wetlands International in its quality of implementing partner in the GIRE program

Theme: Water supply for Bamako

Need

The capital of Mali, Bamako, has inadequate water supply to households in the city. There is not

sufficient water production, storage, distribution capacity and little attention for treatment of used water. Water systems are often not operational. This results in a deficit of 48% of water supply per day. Sanitation coverage is poor. The combined effects of population growth and rapid urbanization justify the essential need for improved water provision and sanitation.

Product

(Technical) Advice for water pumping (from surface water), storage, transmission of water, and treatment of used water. Capacity building and advice can be provided to develop payment systems for water consumers, to provide the city with sustainable and more self financed systems. This may also include WOP, delivery of goods and supervision of building and construction.

Market

DNH, Municipality of Bamako, through various consortia of lenders and contractors.

Strategy

The World Bank and eleven other donors have started the Kabala Project (2014-2018). Large numbers of international tenders for supply, works, engineering and consultancy will be published in the coming years.

Finance

A total funding of \$ 850 million is expected from eleven donors (a.o. World Bank, EU, EIB) and the government of Mali, currently seven donors are in place. Payment systems for water can be developed with support from local banks to make the project financially sustainable after 2018.

Partners

Technical consultants, constructors, banks, water companies (for WOP), and NGOs.

Theme: Agriculture

Need

Mali has a large agricultural potential, but land is not used in a sustainable manner. Main problems for the low agricultural productivity are the inefficient use of both irrigated areas and areas for dry-land agriculture. In order to increase the available amount of food in the country, there is a need for practical solutions as well as for support on the institutional level.

Product

Institutional support and advice for 1) water management in large scale irrigation schemes and 2) water management in flood based irrigation and dry-land agriculture.

Market

Office du Niger, DNH, regional development programs, NGOs

Strategy

Because of the dependency of many stakeholders on water sources, integration of water for irrigation with other sectors, such as river basin management and drinking water supply is required. Effective integration of the above knowledge and expertise provides the best opportunity for creating a competitive advantage.

Finance

Bilateral and multilateral development programs, major international NGOs.

Partners

Local NGOs (CARE),

Appendix I: Methodology

The Water OS positioning survey is part of the Water OS program: a facility of the Ministry of Foreign Affairs. The Water OS program aims at providing support to the Dutch Embassies in 12 partner countries in the formulation and implementation of their water programs. Central element of the program is the involvement of the Dutch water sector, i.e. companies, NGOs, knowledge institutes and governmental organizations.

In order to generate more evidence for effective continuation of the Water OS Program and to 'trigger' Dutch water sector players, RVO contracted Aidenvironment, in collaboration with Panteia, Chris Engelsman and Jan Oomen, to conduct a "Positioning Survey". This survey identifies opportunities, strategies and approaches for the Dutch water sector, and more specifically seeks high potential Product/Market Combinations (PMCs) in the 12 Water OS countries included in the Survey. The final deliverables of the survey are twelve positioning survey reports (one for each country) and one overarching management summary. Primary target group for the Positioning Survey Reports are the Technical Experts (TDs) at the Netherlands Embassies in the 12 OS countries, with all Dutch water sector players as secondary target group.

The methodology comprises desk research, a web survey and additional strategic interviews:

- The desk research studied the most essential reports and documents per country (market scans, market reports, strategic papers of Embassies and International Financial Institutions). The Key Advisors within the Water OS program played an important role in rendering accessible and prioritizing the data available.
- In the period November 2014 – January 2015, Panteia carried out a web survey. Two different questionnaires have been applied, one for companies, knowledge institutions and water boards, and another questionnaire for NGOs. Despite the length of the survey and thanks to a considerable effort of the project team and NWP, the response rates were not disappointing and for a web survey in general above average: NGOs: 16 out of 48 implying a response rate of 33,3%, and companies (including knowledge institutions and water boards): 87 out of 531 implying a response rate of 16,4%.
- Based on the outcomes of the desk study and web survey, Aidenvironment selected 27 companies, 3 (semi) commercial financiers, 7 NGOs, and 8 knowledge institutes (including Water Boards ('waterschappen') and water service providers) to be interviewed on strategic topics focusing on market opportunities and applicable market entry strategies (and business models). Through these strategic interviews, the research team gained more detailed information on projects of front runners. These projects gave more information on lessons learned, success factors, and opportunities for up scaling.

Regarding the web survey, two important remarks can be made:

Value and limitation of the survey results

The web survey results have provided very useful data for this study. The value of the results especially lies in the provision of relative figures on various aspects enabling comparisons between countries, opportunities, bottlenecks, groups or respondents, etc. and to monitor the developments in these figures over time. The limitation of the study lies in the inability to provide reliable absolute figures on for instance turnover values.

OS-study versus WEX

For the web survey a similar methodology has been applied as is done for the WEX (Water Export Index) – study, which is carried out twice a year. A sample of companies and institutions is asked to provide data on national and export turnover in the water sector and the division of this turnover

over regions and over subsectors. The samples do not have the same composition. Also over time the samples may differ in the WEX, but never provide a bottleneck though to assess the WEX and to make reliable comparisons over time. Like in the WEX, the estimation of the export turnover is based on the sample results of a survey. Starting from this value relative export shares of the various regions and countries have been determined for the sample. Since the sample may not represent the whole water sector in an optimal way, we cannot draw any hard or general conclusions about the export turnover figure and division of this figure over subsectors, regions and countries. The real value will be higher, but this value can only be obtained with sample results once the whole population is known. Getting to know the population is difficult and cannot be realized in the context of this study nor in the WEX-study. Another complicating factor for generalizing study results lies in the fact that large projects (especially those in water construction) may influence total and regional export figures drastically and lead to large fluctuations over time. For the sample of the web survey no such 'disturbing' projects have been found. The sample results of the OS-study regarding relative export shares of regions are in line with the results of the WEX 2014.

The average budget per country positioning report is EUR 7,000. Therefore, the positioning survey cannot be seen as a fully fledged market research. An in-depth assessment of the markets (the OS Water countries) was not part of this research, instead the research relied on secondary information (reports available) and expert opinions (Key Advisors Water OS program, TD staff on Embassies, YEP network, and a network of 'water professionals').

An important disadvantage of the web survey – in contrast with a telephone survey for which a stratified sample has been selected - is that the characteristics of the total population are unknown. By lack of a stratified sample, the outcome of the web survey does not offer the opportunity to level up the sample results to the total population and to calculate absolute figures for turnover and export volumes for each subsector and region. Despite this limitation of the web survey, it does provide very useful information for the positioning studies.

Additionally to the country specific positioning reports, a management summary was drafted. The management summary elaborates on the overall findings and provides overall conclusions.

Appendix II: Finance

The Dutch Government is able to support activities performed by the water sector in developing countries (in this case the 12 Water OS countries) in different ways. On a strategic level, financial support can be labeled as:

Bilateral support (country to country)

Multilateral support (to different countries often funneled through International Financial Institutes or UN related organizations)

Specific instruments (e.g. managed by RVO or commercial organizations like Atradius and FMO)

The financial support from Dutch Government related to the 12 Water OS countries aims to combine trade and aid perspectives. The policy focuses on three key points: 1) improved management of water catchments and safe deltas, 2) efficient use of water, especially in the agriculture sector, and 3) improved access to clean drinking water and sanitation.

This appendix provides an overview of the support provided on different strategic levels: bilateral, multilateral and specific instruments. The content is structured following the most important organizations involved in funneling these funds starting with the Ministry of Foreign Affairs, The Dutch Embassies, RVO, Dutch (Semi) Commercial Players, and the most relevant International Finance Institutes. At the end, the appendix provides a non exhausted list of foundations financing water related projects and activities.

Centralized programs managed by IGG/Water DGIS/Ministry of Foreign Affairs

DGIS (within the Ministry of Foreign Affairs) focuses on the Dutch international cooperation with partnering countries. The cooperation involving the water sector is mandate of the section water within the department of DME (future: IGG (Inclusive Green Growth)). This section manages the water related portfolio of programs providing regional and multilateral support. The funding is often labeled and does not provide direct opportunities for the Dutch water sector.

Decentralized programs managed by Embassies:

The Multi Annual Strategic Plans (MASP) is the nucleus of Dutch bilateral support to a country. Projects, programs or businesses being part of the Embassies' program to implement the MASP fit into the country specific strategy and are aligned with the overall water policy of Dutch government. The funding of Dutch Embassies provides opportunities for the Dutch water sector.

Specific Instruments: RVO

RVO has developed different type of instruments depending on the phase the project/program/business is in, starting at the development of an idea, testing the concept in a pilot, scaling up the pilot to significant size to start building a business or self financing project on. We follow this structure when presenting the different instruments.

To finance the development of an idea, innovation or R&D:

VIA water:

This is a relatively small fund (EUR 10 million over 4 years) to finance out of the box ideas and small-scale innovations using grants. Aqua for all manages the fund, which started operating in 2015.

Maximum size of the grant is EUR 200,000 per project.

To finance a pilot:

Partners for Water:

This is a funding program (grants) financed by different Ministries runs from 2010 till 2014. After 2015 the program will continue following the same strategy. In 2015 the facility is not open for new application. The program financed 80 projects of which 50 included a pilot. The average subsidy size was EUR 200,000 financing 20-80% of the budget. The new program will start with a total budget of EUR 10.5 million.

DHK:

This instrument provides grants and aims to finance demonstration pilots, feasibility studies and acquiring of knowledge. The program has a specific EUR 3 million window for DGGF countries of which EUR 1 million is allocated to the least developed countries. This facility is specifically applicable for projects in fragile states.

DRR:

DRR finances the Dutch Risk Reduction Team, a database of Dutch Water Experts that are available for solving water related issues with respect to disasters. DRR is not a facility financing disaster response or aid, though DRR provides knowledge that can be used to e.g. avoid disasters. RVO in close cooperation with NWP manages the facility.

To finance the scale up of activities or pilots:

ORIO / DRIVE:

ORIO was cancelled in 2014. ORIO used to be a grant facility financing investments related to the development, implementation and operation of infrastructure in developing countries. Governments of these countries submit the applications and the private sector is involved in the development and execution of projects.

DRIVE is the successor of the ORIO program and provides concessional loans to governments of developing countries to develop, construct and operate infrastructure. DRIVE will be launched in April 2015 and has an available budget of EUR 100.000.000 annually expecting to finance 10-15 projects. The facility aims to actively involve the Dutch Water sector and contribute to development of the receiving country.

G4AW:

G4AW stands for Geodata for Agriculture and Water and finances projects, programs and businesses aiming to improve food security in developing countries by using satellite data. Netherlands Space Office (NSO) is executing this program, commissioned by the Dutch Ministry of Foreign Affairs. In 2014-2015 the facility has EUR 30.5 million available to provide grants (EUR 0.5-5.0 million) financing up to 70% budgets. Proposals and partnerships should be based on a business plan geared towards satellite data at the start of the information chain.

FDW/FDOV and GWW:

RVO developed three facilities to finance Public Private Partnerships (PPP) in the water (and agriculture) sector. These facilities aim to: 1) increase access to drinking water and sanitation, 2) enhance efficient and sustainable water use (especially in the agriculture sector), 3) improve management of catchment areas and safe deltas, and 4) (specifically for FDOV) improve food security and private sector development. GWW (Ghana Wash Window) is a specific window financing water related PPPs in Ghana.

The three facilities are in place since 2012, in 2014 FDW and FDOV launched and closed its second call, the GWW second call for proposals closes in February 2015. The facilities are planning the third call to be executed in 2016. Because the facilities just started operating, (impact) results have not been reported yet.

The facilities provide grants and have different modalities. The facilities received many applications and resulted into the finance of new initiatives. The application process is being perceived by a significant group of applicants as complex, and requires a clear business case, or theory of change aiming to enhance the enabling environment as part of the proposal, plus a significant contribution

by the private sector. The facilities are especially applicable for large applications fitting into investment agenda's or strategic objectives of the private sector players involved.

DGGF:

The Dutch Good Growth Fund started operations in mid 2014 and aims to combine aid and trade goals. DGGF is a revolving fund, providing finance (not grants) to initiatives with a 'healthy risk profile'. DGGF focuses on 66 countries (called the DGGF countries), including the Water OS countries. DGGF is build on three pillars: 1) a fund financing activities of Dutch SMEs in DGGF countries (managed by RVO), 2) a fund financing local SMEs and banks in DGGF countries (managed by PWC and Tripple Jump), and 3) a fund financing export credit insurance and export finance activities (managed by Atradius).

In Pillar 1, RVO works closely together with Dutch banks. The fund is equipped to provide guarantees to banks up till 60% of the credit risk, loans to banks and investment funds (equity). The maximum is EUR 10 million per project or business. A TA facility will be in place to provide assistance on improvement of the business plan or investment proposal.

Pillar 2 is under construction; this pillar will provide fund to fund investments up to EUR 175,000.

Pillar 3 provides export credit insurances covering non-market risks up till a maximum claim amount of EUR 15 million. Besides insurances, this fund provides export finance instruments. Products focus on Dutch SMEs needs, covering small and large transactions.

Besides these above mentioned programs and facilities, the following instruments can be useful and applicable for financing water related activities.

PSI:

PSI was grant program available for non-Dutch and Dutch companies wishing to make an innovative investment, in cooperation with a local partner in one of the PSI countries. This program stopped operating mid 2014.

MMF:

MMF is a match making program, aiming to establish a long term business relationship between a Dutch entrepreneur and an entrepreneur from a developing country.

OS Partner Countries:

This program finances the projects, managed by the local Dutch Embassies. These projects fit into the Multi Annual Strategic Plans of the specific Embassies.

TDs / economic diplomacy:

This program finances the so called thematic experts working at the Dutch Embassies in a limited number of OS Partner Countries.

TMEA:

Managed by DDE / DGIS, this large program focuses on the East African region financing initiatives contributing to the enhancement of trade relations within the region. The facility is applicable for financing initiatives linked to port development.

Water Mondiaal:

Water Mondiaal is a program launched by the Dutch government to cooperate actively with countries in low-lying delta areas, protecting them against floods and ensuring sufficient, clean water. Partners for Water is managing this program, the program aims creating long lasting cooperation agreements

between the public and private sector, and civil society and knowledge institutes. Water Mondial focuses on five deltas: Egypt, Bangladesh, Indonesia, Mozambique and Vietnam.

(Semi) Commercial Organizations managing funds on behalf of Dutch Government

The following facilities or organizations are in some way closely linked to RVO or the Ministry of Foreign Affairs.

Atradius:

Atradius offers a comprehensive range of credit management solutions that protect businesses of all sizes against the commercial and political risks inherent in domestic and global trade. Atradius provides credit insurance, debt collection services, bonding, reinsurance and a range of special products.

Atradius Dutch State Business performs different facilities on behalf of and for account of the Dutch State. There is no direct link with the RVO organization, though Atradius products can be combined with RVO instruments (e.g. ORIO/DRIVE).

Atradius does not specifically focus on the water sector. However dredging, waste management, port development and the maritime sector are important sectors from a business perspective. Atradius is not actively involved in all Water OS countries; the table below provides an overview of the outstanding volumes of credit insurance products per January 2014.

Table 1: Atradius business in Water OS countries

Credit Insurance outstanding risks

Country	Risk Volume (EUR million)
Mali	1
Yemen	1.2
South Sudan	0
Palestine	0
Ethiopia	0
Mozambique	105
Benin	0
Rwanda	0.1
Ghana	182
Kenya	118
Indonesia	1,373
Bangladesh	0

Atradius manages the third pillar of DGGF. In the first six months Atradius received 7-8 requests, one of these came from the maritime sector. The DGGF facility provides support on smaller transactions; therefore this product is applicable for Dutch small and medium enterprises.

FMO:

FMO manages three funds relevant for the Dutch water sector.

FOM-OS

The first pillar of the DGGF program will replace this fund. The fund offered loans to private sector players investing in non (commercially) bankable projects or businesses in developing countries.

Innovative Finance Fund for Development

This fund aims to catalyze private sector investments.

IDF

IDF stands for Infrastructure Development Fund. The IDF is aimed at creating reliable infrastructure in many sectors, ranging from potable water and mobile telecommunication services to roads and power. By providing risk capital through the IDF, FMO takes on definite risk while acting as a gateway for other financiers.

IDF offers finance through equity, mezzanine and debt products that can be used even in early stage of projects. The fund has the following fund limits:

Individual transaction amounts maximized at EUR 25 million

Financing about 25% of total project investment

Shareholding maximum 25%

Maximum tenor of 20 years

Convertible contributions are selectively available for financing during the development phase of projects (up to 49% of total development cost)

About 8% of the portfolio is allocated to water related projects (mainly water related to energy: dams). IDF hardly finances projects in other sub sectors of the water sector, this is due to: 1) the limited willingness to pay (drinking water), 2) the strong involvement of a weak public sector, 3) the limited role of the private sector, 4) the lack of involvement by Dutch water sector as a strategic operator or investor.

Within the FMO organization the department NL Business manages the IDF fund and provides (financial) transaction advisory support to Dutch businesses aiming to become active in developing markets. NL business brings in the financial perspective when Dutch businesses want to develop a consortium. Regarding consortium development within the Dutch water sector, port development, dredging and waste (water) treatment are potential sectors. Thinking along the lines of so called corridor concepts (infrastructure connection points like transfer utilities) seems to be a promising market entry point.

EP - Nuffic:

EP-Nuffic is the main expertise and service centre for internationalization in Dutch education, from primary and secondary education to higher professional and academic higher education and research. EP – Nuffic runs several programs, the NICHE program is relevant for the water sector.

The Netherlands Initiative for Capacity development in Higher Education (NICHE) is a Netherlands-funded development cooperation program. By sustainably strengthening higher education and technical and vocation education and training (TVET) capacity in partner countries, it contributes to economic development and poverty reduction. The program focuses on four policy priorities: 1) Water, 2) Food security, 3) Sexual and Reproductive Health and Rights (SRHR) and 4) Security and the rule of Law.

Dutch Commercial Banks:

Looking at the global networks of the larger Dutch international operating banks (ABN AMRO, Rabo bank and ING), the Rabobank has the most visible overall presence in the 12 Water OS. In the strategic interviews, this bank was the only commercial bank mentioned a couple of times as being active in the international water sector.

The water sector is not a specific priority sector for Rabobank. From an international perspective Rabobank focuses on the agriculture sector. However Rabobank is involved in financing the Dutch water sector in The Netherlands. From this perspective, Rabobank ‘follows its clients abroad’

(especially the dredging and water engineering sector plus larger consultancies are being mentioned). Rabobank has branches in Kenya and Indonesia, participations in Rwanda and Mozambique and operates in partnership with e.g. Standard Charter Bank in Mali, Ghana, and Bangladesh.

Export finance, guarantees and currency risk management are the most common services/products offered to international operating clients.

International Financial Institutes (IFIs):

The so-called multilateral aid program of governments is being managed by IFIs like the Worldbank, ADB, AfDB and EU (EU grant program and EIB). The following IFIs play an important role financing water sector related projects, programs and businesses.

World Bank (WB):

In 2014 WB announced reorganization. The new structure has five relevant departments focusing on water: GP14 Water, GP1 Agriculture, GP3 Energy and Extractives, GP 4 Environment & Natural Resources, GP12 Transport and ICT, and GP13 Urban & Rural Social Development. GP14 Water department integrates WASH, irrigation, and Water Resource Management. One global staff pool is in place to partner with outside organizations. More weight is put on knowledge into operations. WB offers loans to developing countries, projects have to fit the multiyear WB strategy, and the fund receiving countries lead the tender procedure. About 20% of the annual budget is allocated to water projects of which 53% WASH, 13% irrigation, 24% water and energy, and 10% flood protection and delta technology.

The Asian Development Bank:

Programs of ADB are complementary to other donors and have the starting point to promote inclusive water policies (including the poor). Focus on mainstreaming water efficiency in supply and use and enhanced cooperation with the private sector. From 2010-2020 the budget is USD 20-25 billion.

The African Development Bank (AfDB):

Looking at the AfDB strategy 2013-2022 paper, the 10 year focus will be on inclusive growth and green growth. The bank identifies five operational priorities: 1) infrastructure development, 2) private sector development, 3) governance and accountability, 4) regional economic integration, and 5) skills and technology. In implementing its ten-year Strategy, the Bank will pay particular attention to fragile states, agriculture and food security, and gender. Supporting the water sector is specifically part of the agenda on infrastructure and agriculture and food security.

In view of its important contribution to the achievement of all the MDG goals and therefore its unique contribution to poverty reduction on the continent, the water sector has received major attention as a strategic priority of the Bank. Since 2000, following the adoption of its Integrated Water Resources Management (IWRM) Policy, the Bank has increased its focus on the water sector, especially on drinking water, sanitation and hygiene, and the promotion of integrated management of water resources.

The African Water Facility is an interesting facility that can be used to finance WASH related activities.

The EU:

These funds are the main source of EU development aid for the African, Caribbean and Pacific (ACP) countries and the overseas territories (3% of the annual EU budget in 2008-13). The funds are connected to the Cotonou Treaty. The European Investment Bank invests significant amounts in the water sector. The grant programs do not have a specific focus on water related projects, the EU Water Facility, one of the grant programs focusing specifically on water will be cancelled.

Foundations:

Especially for development related activities within the water sector, foundations provide interesting opportunities to finance projects and programs. Below an unexhausted list of foundations provides a first entry point to seek for funds. As each foundation has its own finance policy, we refer to the individual websites for more information.

Blood:Water.

Blue Planet Network Foundation
Charity Water
ExxonMobil Foundation
Global Water Challenge
Millennium Water Alliance
Project Concern International
ActionAid International USA
Alcoa Foundation
Boeing Company Charitable Trust
BP Foundation
Global Green USA
Habitat For Humanity International, Inc.
Lemelson Foundation
McKnight Foundation
Prem Rawat Foundation
Water 1st International
Water Environment Research Foundation
Wateraid America, Inc.
World Vision, Inc.

Appendix III: Elaborated outcomes of web survey

The Comext database of Eurostat includes trade statistics for a limited number of water sector related products. Table 1 demonstrated the development of the exports of these products for EU-28 in total and for some EU-countries during the 2010-2013 period. The Dutch share in total EU-28 exports is only 1% on average, much lower than the respective shares of Germany and France.

Table A.1 Exports from EU28-countries to Mali (in million euro) in total and for water sector related products and export shares of some EU-countries, 2010-2013

	2010	2011	2012	2013	Total 2010-2013
Total EU-28 exports to Mali	607	701	706	756	2.771
Water sector related products	5	8	7	8	28
<i>Shares in EU-28 exports of water sector related products</i>					
- Netherlands	1%	2%	1%	1%	1%
- Germany	13%	16%	24%	14%	17%
- France	51%	49%	40%	65%	52%
- Denmark	1%	9%	0%	1%	3%

Water sector related products:

TUBES, PIPES AND HOSES, AND FITTINGS THEREFOR, OF PLASTICS

TUBES, PIPES AND HOLLOW PROFILES, AND TUBE OR PIPE FITTINGS, OF IRON OR STEEL

STEAM TURBINES AND OTHER VAPOUR TURBINES AND PARTS THEREOF, N.E.S.

PUMPS FOR LIQUIDS, WHETHER OR NOT FITTED WITH A MEASURING DEVICE; LIQUID ELEVATORS; PARTS FOR SUCH PUMPS AND LIQUID ELEVATORS

Source: Comext Eurostat

Figure A.1 Current activity areas of Dutch Companies (N=6) and NGOs (N=8) in Mali, in % of respondents (more answers possible)

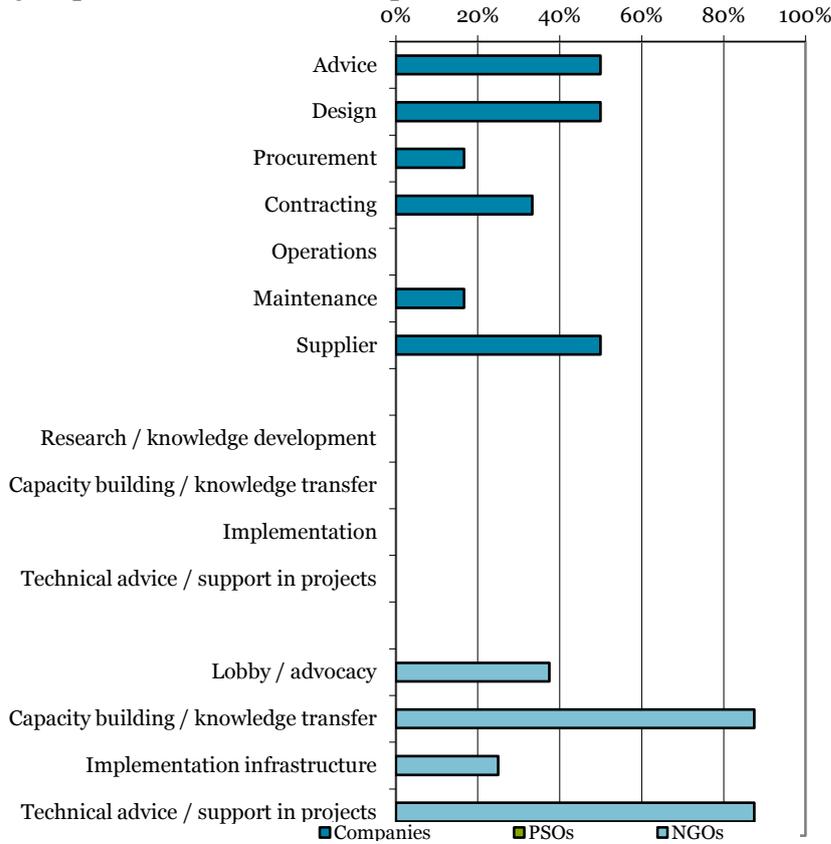
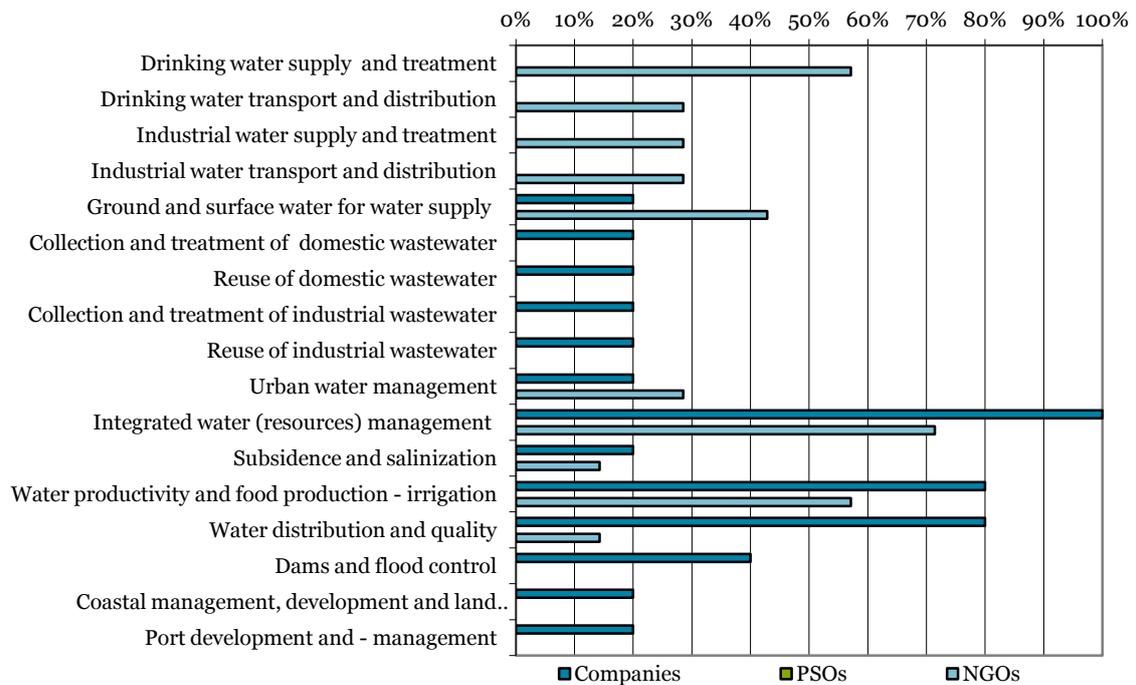
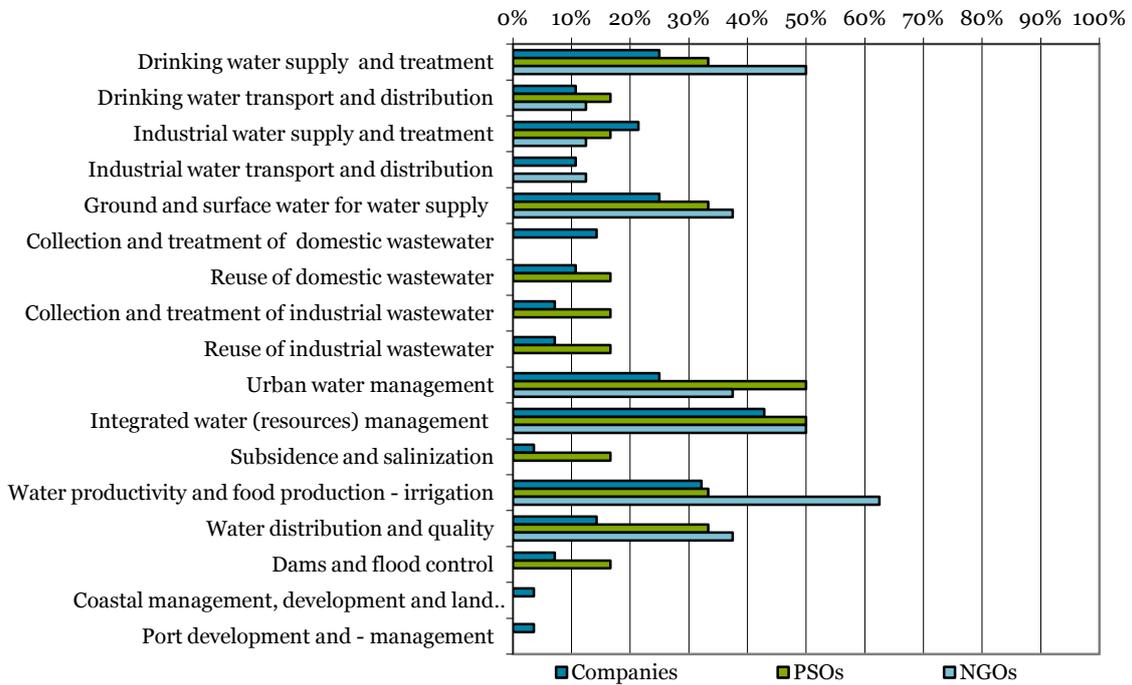


Figure A.2 Promising areas in Mali according to companies (N=5) and NGOs (N=7) active in Mali, in % of respondents (more answers possible)



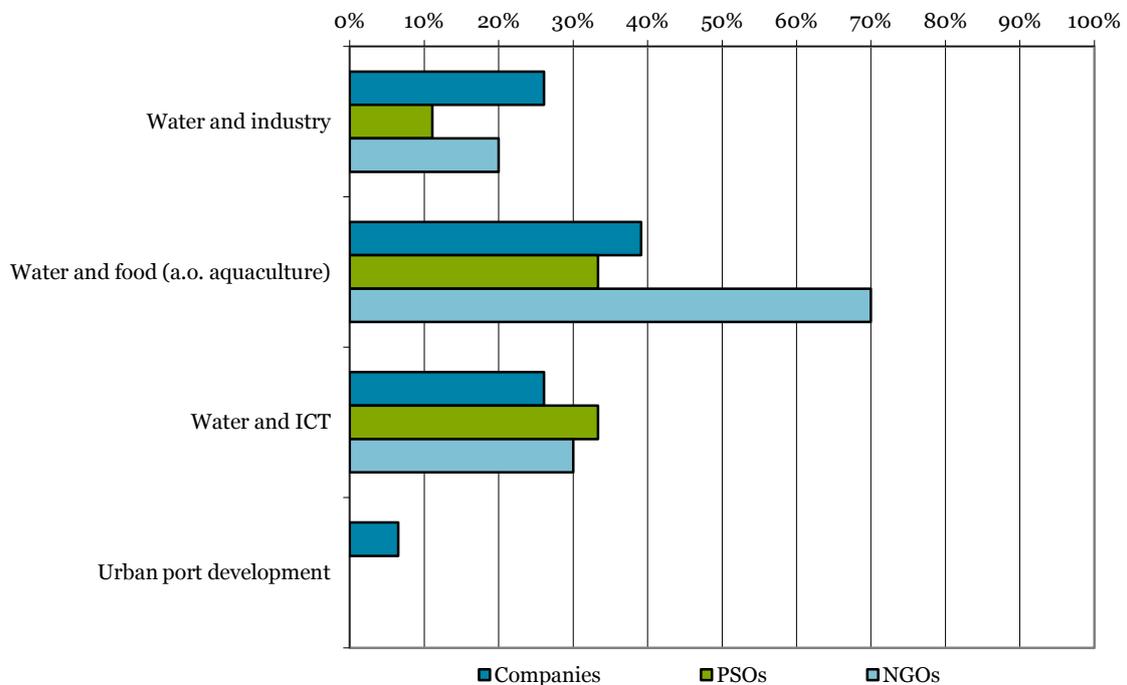
Source: Web survey Panteia, 2014/2015

Figure A.3 Promising areas in Mali according to companies (N=28), PSOs (N=6) and NGOs (N=8) interested in Mali, in % of respondents (more answers possible)



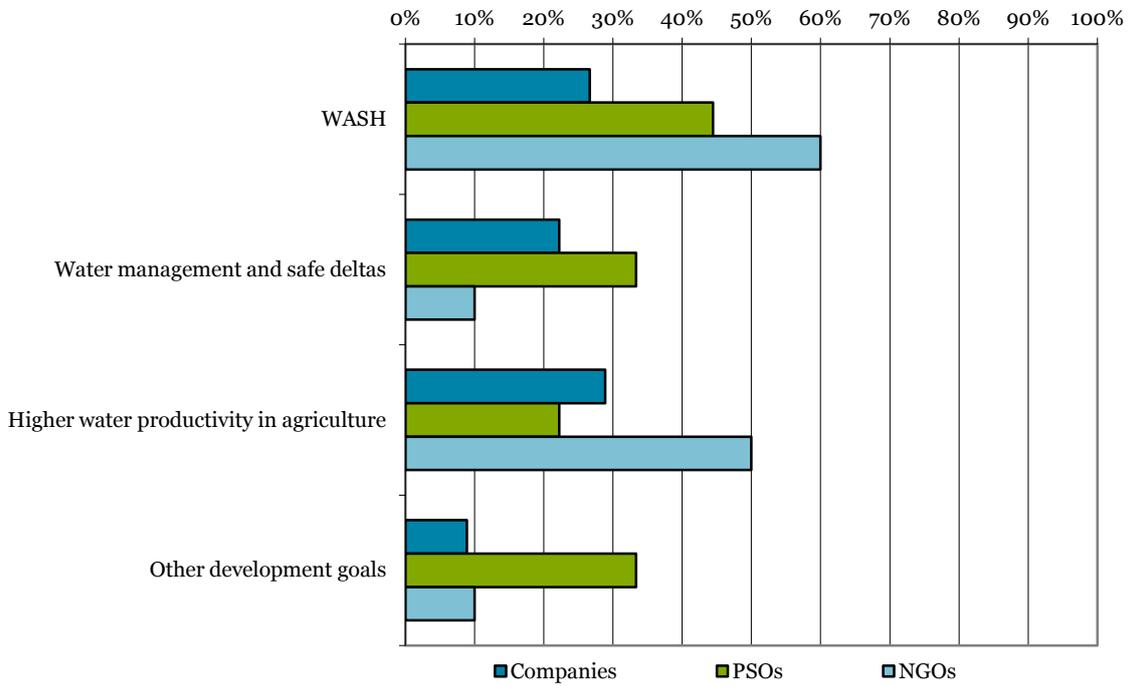
Source: Web survey Panteia, 2014/2015

Figure A.4 Promising cross-overs in Mali according to companies (N=46), PSOs (N=9) and NGOs (N=10) interested in Mali, in % of respondents (more answers possible)



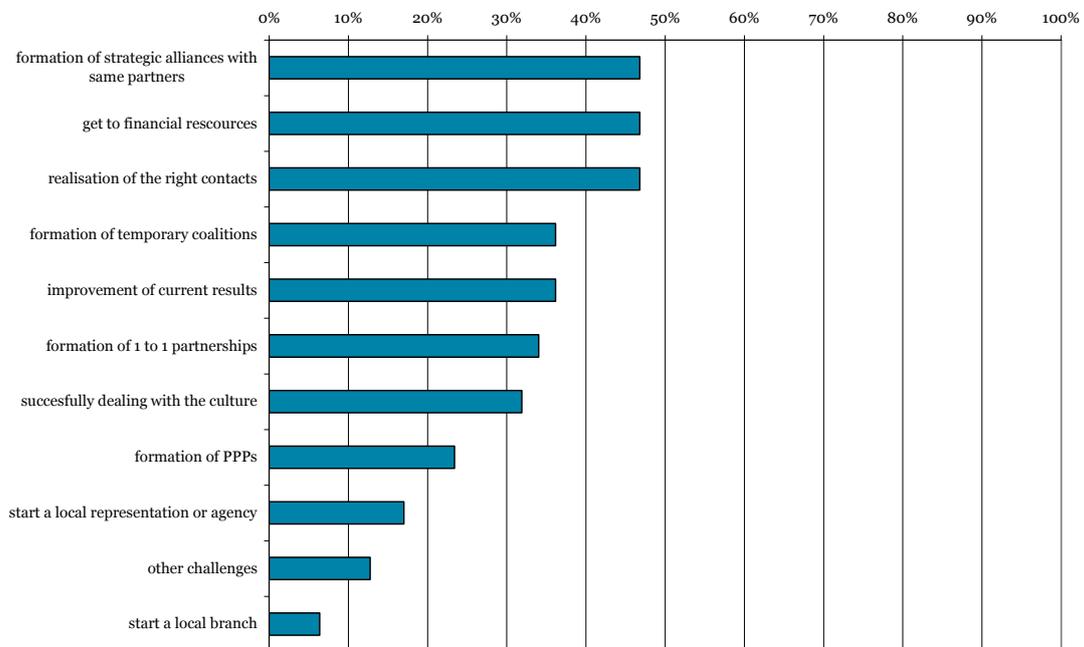
Source: Web survey Panteia, 2014/2015

Figure A.5 Development opportunities in Mali according to companies (N=45), PSOs (N=9) and NGOs (N=10) interested in Mali, in % of respondents (more answers possible)



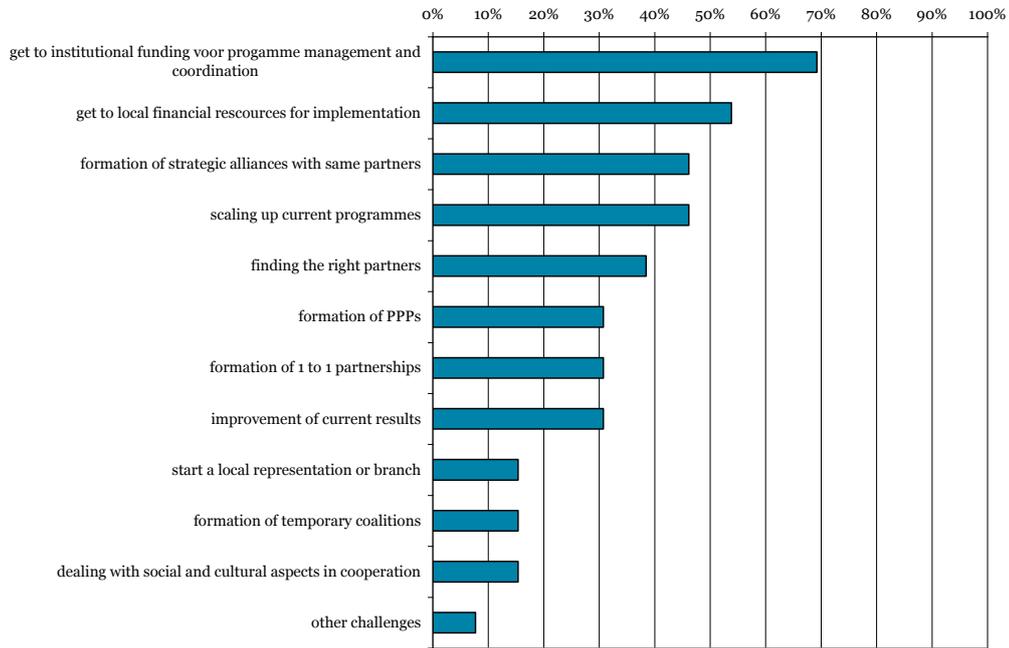
Source: Web survey Panteia, 2014/2015

Figure A.6 Challenges for scaling up activities in Mali according to Dutch companies, Water Boards and knowledge institutions, in % of respondents (N=47)



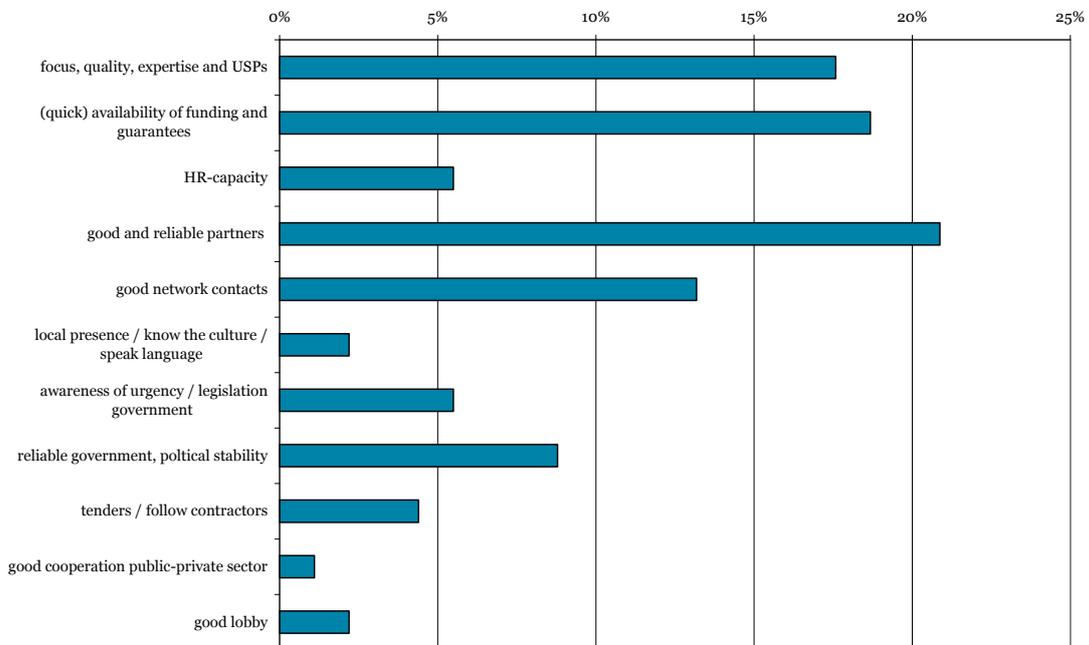
Source: Web survey Panteia, 2014/2015

Figure A.7 Challenges for scaling up activities in Mali according to NGOs, in % of respondents (N=13)



Source: Web survey Panteia, 2014/2015

Figure A.8 General drivers and bottlenecks for OS-countries (N=91)



Source: Web survey Panteia, 2014/2015

Appendix IV: Additional information

Table A.2 Overview of planned projects in Mali

Project	Donor	Budget	Approval date	Sector
Bamako Water Supply Project	WB	USD 80 million	Dec 2013	Water supply
Natural Resources Management in a Changing Climate in Mali	WB	USD 21 million	Dec 2013	Water and food (irrigation/ fisheries)
Support Program for Local Authorities for Drinking Water and Sanitation	EC	€ 20.2 million	2014	Water supply and waste water
Installation works of drinking water supply systems and hydrologic production units in the regions Koulikoro and Tombouctou and the realization of boreholes in the Tombouctou region.	EC		Dec 2014	Water supply urban
Installation works for drinking water supply and implementation of an after sales service in 40 rural and semi-urban centers.	EC		Dec 2014	Water supply rural
Project for strengthening food security through development of irrigated crops	AfDB	UAC 39 million	2014-2020	Water and green
Project to supply drinking water to Bamako	AfDB, WB, EU, AFD, EIB	€ 148 million AfDB/WB € 50 million EU € 18 million AFD € 39 million EIB € 40 million	2013-2017	Water supply
Sanitation project for Bamako	AfDB	UAC 18 million	?	Water treatment
Hydroelectricity plants	AfDB	UAC 1,5 million	Dec 2013	Water and energy
Sanitation and Urban Development of Bamako	AFD France	€ 20 million	?	WASH
Program for Small Irrigation, Self-help Fund Dogon County	KfW Germany	€ 40 million	?	Water and green

Appendix V: Sources

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Leusink et al (2014) Strengthening IWRM in Mali – Program Document

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Websites:

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Aquastat Mali via http://www.fao.org/nr/water/aquastat/countries_regions/MLI/index.stm

Central Intelligence Agency via <https://www.cia.gov/library/publications/the-world-factbook/geos/ml.html>

Doing Business Index via www.doingbusiness.org

Dutch Water Sector via www.dutchwatersector.com

European Commission Développement et Coopération EuropeAid via <https://webgate.ec.europa.eu/europeaid/online-services/index.cfm?ADSSChck=1423213351048&do=publi.welcome&searchtype=AS&zgeo=35507&debpub=&orderby=upd&orderbyad=Desc&PubliList=50&page=2>

Global competitiveness index via <http://www.weforum.org/issues/global-competitiveness>

Partners for Water via www.partnersvoorwater.nl

World Bank Projects via http://www.worldbank.org/projects/search?lang=en&searchTerm=&countrycode_exact=ML

Appendix VI: Respondents

NWP/Key Advisors:

Peter de Haan (NWP)

Dutch Embassy:

Peter Zoutewelle

Local water professionals:

Housseini Amadou Maiga (independent sr. IWRM specialist)

Banzoumana Coulibali (YEP Mali)

Bourama Traore (PNE Mali)

Web survey:

Not disclosed

Strategic interviews:

Name organization	Contact person
Alkyon + ARCADIS	Ferry Vis
Aqua for All	Sjef Ernes
Aqua Industrial Water Treatment	Marik Beerten
AquaAero Water systems	Martijn Nitzsche
Atradius	Oscar Boot
Bam International	Maikel Jagroep
Bam International	Henk van Veen
Basic Water Needs	Martijn Smid
Berson UV	Paul Buijs
Boskalis	Bastiaan Lammers
Bucon Industries	Peter Bulsing
Colubris Environment	Marco Moekardanoë
Deltares	Ron Thiemann
ECORYS Nederland	Viek Verdult
ECORYS Nederland	Ilse van de Velde
Euroconsult Mott Macdonald	Pieter van Stuijvenberg
Euroconsult Mott Macdonald	Hero Heering
FMO	Roel Messie
Genap	Dick van Regteren
Groasis	Pieter Hoff
Grontmij Nederland	Ernst Malipaard
Hatenboer-Water	Peter Willem Hatendoer
ID Consultancy	Dick Konijn
IHC Merwede	Sergio Ooijens
IRC	Stef Smits
ITC	Victor Jetten
ITC	Dinand Alkema
Landustrie Sneek	Arie van Steen

MetaMeta
Nijhuis Water Technology
Norit
Rabobank International
Redox Water Technology
Royal Eijkelkamp
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Royal Haskoning DHV Nederland
Safisana Holding
Simavi
SNV
TNO
UNESCO-IHE
Vitens-Evides International
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Waterschap Aa en Maas
Wavin Overseas
Wetlands International
Witteveen + Bos
WUR
ZOA

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