

REPUBLIC OF RWANDA



MINISTRY OF INFRASTRUCTURE

National Sanitation Policy Implementation Strategy

Kigali, December 2016

FOREWORD

Sanitation plays a vital role in preventive health care and quality of life. For that reason, the Government of Rwanda has made the provision of sustainable sanitation services one of the priorities of the National Development Agenda and is establishing supportive policies and legislation.

The Ministry of Infrastructure has developed the National Sanitation Implementation Strategy to ensure the proper implementation of key strategic actions in the sanitation sub-sector. The Policy and Strategy outlines initiatives to overcome challenges and exploit opportunities in an integrated manner, and will effectively contribute towards achieving the goals of the National Development Agenda.

The Government of Rwanda will ensure expanded access to safe and sustainable sanitation services through a number of means including: establishing district sanitation centres providing a wide range of sanitation technologies; improving the operation and maintenance of sanitation facilities; and assisting districts and the City of Kigali to plan and design projects to mitigate urban storm water issues.

The Government of Rwanda is also encouraging active participation of local private service providers and operators in the sanitation sub-sector and will ensure that the principles advocated by this strategy are adhered to in the whole process of sanitation services provision.

The Government further strongly recognizes the initiatives of the international and regional communities and will continue to cooperate in order to achieve the 2030 Sustainable Development Goals.

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Minister of State in charge of Energy and Water

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Acronyms

CBEHPP	Community-Based Environmental Health Promotion Programme
CHC	Community Health Club
CoK	City of Kigali
ECOSAN	Ecological Sanitation
EDPRS 2	Economic Development and Poverty Reduction Strategy (2013–2018)
EMIS	Education Management Information System
HAMS	Hygiène et Assainissement en Milieu Scolaire (School Sanitation)
KIST	Kigali Institute of Science and Technology
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MINEDUC	Ministry of Education, Science, Technology and Research
MINIRENA	Ministry of Natural Resources
MININFRA	Ministry of Infrastructure
MoH	Ministry of Health
MIS	Management Information System
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization
O&M	Operation and Maintenance
PEAMR	Projet d'alimentation en Eau et Assainissement en Milieu Rural
PHAST	Participatory Hygiene And Sanitation Transformation
PNEAR	National Rural Water Supply and Sanitation Program - Programme National d'alimentation en Eau potable et Assainissement en milieu Rural
PPP	Public Private Partnership
RSB	Rwanda Standards Board
REMA	Rwanda Environment Management Authority
RURA	Rwanda Utilities Regulatory Authority
SDGs	Sustainable Development Goals
SWAp	Sector-Wide Approach
UNICEF	United Nations Children's Fund
WASAC	Water and Sanitation Corporation, Rwanda
WATSAN	Water and Sanitation
WHO	World Health Organization
WSS	Water Supply and Sanitation

1. INTRODUCTION

The Policy Implementation Strategy consists of three main parts.

- 1) In the following chapter a set of key performance indicators and targets are defined to describe and monitor the sector's progress towards the goals.
- 2) Thereafter, the main part of the Policy Implementation Strategy provides implementation details – indicators, targets, responsibilities and cost estimates – for each of the four fields of action, which correspond to the specific objectives of the policy.
- 3) The final chapter provides further implementation-related information. It highlights the critical implementation issues and challenges, provides an overview of the institutional responsibilities and cooperation requirements, and summarizes the funding requirements for achieving the targets set.

2. COHERENCE BETWEEN POLICY AND THE POLICY IMPLEMENTATION STRATEGY

The policy document and this Policy Implementation Strategy have been prepared back-to-back and share the same structure. Each policy statement provides the basis for related actions, responsibilities and resources as well as time-bound monitoring indicators and milestones, which are detailed in the present Strategy.

The figure below illustrates the coherence between the overarching development goals, the objectives and statements defined in the policy and the Policy Implementation Strategy.

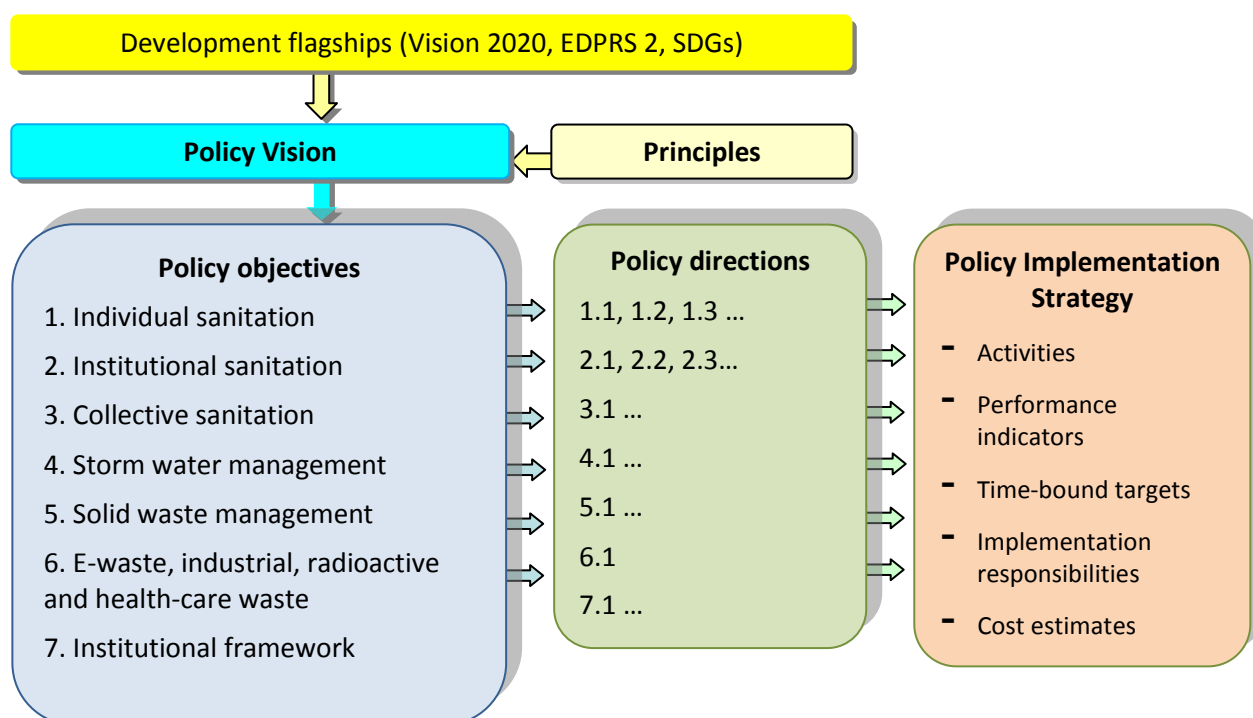


Figure 1: Coherence between the overarching development goals, the policy objectives and directions

Part 2 of this document, the **Policy Implementation Strategy**, focuses on how to achieve the objectives by breaking them down into concrete interventions with a strong view to implementation. It highlights the critical implementation issues and challenges, provides an overview of the institutional responsibilities and cooperation requirements, and summarizes the funding requirements for achieving the targets set. It also summarizes legal implications and conditions for business development.

3. TIME HORIZON AND FINANCIAL REQUIREMENTS

This Policy Implementation Strategy is meant to provide guidance for the achievement of key development goals set out in EDPRS 2, Vision 2020 and SDGs. Its time horizon has been set to 2020. The annual targets refer to financial years (July to June) in order to match Rwanda's budget cycles.

The total public funding requirements for the Sanitation Policy Implementation Strategy are about Rwandan francs 130.7 billion (US\$174 million) using an exchange rate of 1 US\$ = 749 RWF) for the five-year period 2015/16 to 2019/20. All cost estimates are indicative, pending more detailed cost evaluations through a Sector Investment Plan/financial model.

The bulk of investment needs is related to the infrastructure investments required for achieving 100 per cent service coverage in both rural and urban areas. The cost estimates provided here are based on per capita unit costs, to be replaced by more accurate cost estimates as soon as the rural and urban sanitation master plans become available.

4. SECTOR TARGETS AND PERFORMANCE INDICATORS

Overall sector performance will be assessed by a small set of indicators and intermediate targets that have been defined for each of the five fields of action (specific objectives) as well as for the cross-cutting issues.

The defined indicators do not capture the full range of issues, nor the new sanitation service provision concept to be addressed in sector development. They can, however, aggregate information in a meaningful way and continue to represent Rwanda's overall progress until building up a sector-specific Management Information System (MIS) over the next few years. This type of concise information is needed for joint sector performance monitoring in the sector-wide approach (SWAp) context; for informing Rwanda's larger planning, performance assessment and budgeting systems; as well as for communication with other government bodies, development partners and the general public.

4.1. TARGETS AND INDICATORS – SANITATION

Performance indicator	Baseline	Target				
	2015	16/17	17/18	18/19	19/20	29/30
1. Individual sanitation and behaviour change						
Raise and sustain household sanitation coverage to 100 per cent by 2018 and promote hygiene behaviour change.						
Per cent of households with improved sanitation facilities	72	85	95	100	100	100
Per cent of households having a hand-washing facility with water and soap at home	12	15	25	50	70	90

Performance indicator	Baseline	Target				
	2015	16/17	17/18	18/19	19/20	29/30
2. Institutional sanitation						
Implement improved sanitation for schools, health facilities and other public institutions and locations.						
Per cent of schools having gender- and disability-appropriate sanitation facilities as per the standards	N/A			100		
Per cent of schools having a functional hand-washing facility	N/A			100		
Per cent of health centres having gender- and disability-appropriate sanitation facilities	N/A			100		
3. Collective sanitation						
Develop safe, well-regulated and affordable off-site sanitation services (sewerage and sludge collection, treatment and reuse/disposal) for densely populated areas.						
Per cent of urban households in urban areas with access to collective sewerage services	2	2	2	15	20	35
Per cent of households with on-site improved sanitation facilities or septic tanks that have access to safe sludge disposal services	N/A	10	30	50	70	100
4. Storm water management						
Enhance storm water management to mitigate impacts on properties, infrastructure, human health and the environment.						
Per cent of urban population in areas covered by master plans with storm water considerations	N/A	20	40	60	80	100
5. Solid waste management						
Implement integrated solid waste management in ways that are protective to human health and the environment.						
Per cent of domestic waste recycled, reused or properly disposed in urban areas/grouped settlements	N/A	20	30	40	60	80
50 per cent of urban non-organic solid waste is recycled (organic, paper, metal, plastic, glass)	N/A	5	10	20	30	40
1. Ensure safe management of e-waste, industrial wastes, nuclear wastes and health-care waste						
Electronic-waste (e-waste) management						
Number of e-waste management facilities	N/A	1	5	10	12	15
Percentage investments for e-waste management in youth and information and communication technology sector	N/A	2%	3%	5%	7%	8%
Industrial waste management						
Percentage of industries with centralized waste-water treatment systems	N/A	10%	15%	20%	25%	30%

Performance indicator	Baseline	Target				
	2015	16/17	17/18	18/19	19/20	29/30
Number of industrial waste management tools developed	N/A	1	2	5		
Nuclear/radioactive waste management						
Number of appropriate nuclear/radioactive waste sites established	1	3	5	10	12	15
Number of relevant staff trained in nuclear/radioactive waste management	N/A	25	30	50	70	100
Health-care waste management						
Number of special health-care disposal sites established	TBD	5				
Percentage of hospitals with waste-water treatment facilities	TBD	50%				

4.1.1 Targets and Indicators – Institutional Framework and Cross-Cutting Issues

Performance indicator	Baseline	Target				
	2015	16/17	17/18	18/19	19/20	29/30
7. Institutional sector framework						
Develop the sector's institutional, capacity building, monitoring and evaluation (M&E) and knowledge management framework; promote applied research and the international exchange of experience.						
Harmonized financing mechanism in place	N/A	X				
Number of districts with at least one qualified water and sanitation engineer	N/A	30	30	30	30	30
Cross-cutting issues						
Environment:						
Per cent of off-site sanitation projects taking into account the EIA during the implementation	N/A	30	100	100	100	100
Gender:						
Per cent of women at least represented in key positions of district Water and Sanitation Boards	N/A	15	30	30	30	30
Social inclusion:						
Per cent of vulnerable households which have access to improved sanitation	N/a	85	95	100	100	100

4.1.2 Future indicators for sanitation (excreta, wastewater, hygiene)

Based on the definitions in chapter 3, the safe sanitation management concept (coverage; facilities and service provision) as outlined in the SDGs will require the development of new, more complex indicators based on a revised survey methodology.

The World Health Organization (WHO)/UNICEF Joint Monitoring Programme has monitored progress towards Millennium Development Goal (MDG) targets for water and sanitation and developed proposals for goals, targets and indicators for water, sanitation and hygiene (WASH) in the post-2015 agenda, the new SDGs. The Joint Monitoring Programme has identified a list of new sanitation and hygiene indicators that eventually could be used for monitoring the proposed SDG targets in all countries.

The Joint Monitoring Programme proposal presented in the table below is currently still being discussed globally. Rwanda, under the lead of the Sector Working Group (SWG) and in collaboration with the National Institute of Statistics, shall harmonize the development of its own set of new indicators for sanitation and hygiene with the ongoing approach led by the United Nations and development partners in 2016.

SDG Target 6.2 – “By 2030, achieve adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations”.

Target language	Normative definition of target elements
6.2 – By 2030, achieve	
access (for all)	Implies facilities close to home that can be easily reached and used when needed
to adequate	Implies a system which hygienically separates excreta from human contact as well as safe disposal of excreta in situ, or transport to a treatment plant
and equitable	Implies progressive reduction and elimination of inequalities between population sub-groups
sanitation	Sanitation is the provision of facilities and services for safe management and disposal of human urine and faeces
and hygiene	Hygiene is the conditions and practices that help maintain health and prevent spread of disease including hand washing, menstrual hygiene management and food hygiene
for all	Suitable for use by men, women, girls and boys of all ages including people living with disabilities
end open defecation	Excreta of adults or children are: deposited (directly or after being covered by a layer of earth) in the bush, a field, a beach, or other open area; discharged directly into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded
paying special attention to the needs of women and girls	Implies reducing the burden of water collection and enabling women and girls to manage sanitation and hygiene needs with dignity; special attention should be given to the needs of women and girls in ‘high use’ settings such as schools and workplaces, and ‘high risk’ settings such as health-care facilities and detention centres
and those in vulnerable situations	Implies attention to specific WASH needs found in ‘special cases’ including refugee camps, detention centres, mass gatherings and pilgrimages

Proposed indicators for monitoring sanitation services (Joint Monitoring Programme 2015)

Sanitation service ladder	Proposed indicator	Definition	Data sources and measurability	Disaggregation	Timeline
Safely managed sanitation	Percentage of population using safely managed sanitation services (Core)	Population using a basic improved sanitation facility which is not shared with other households and where excreta is safely disposed in situ or transported to a designated place for safe disposal or treatment.	Household surveys can provide info on types of sanitation facilities and disposal in situ. Administrative, population and environmental data can be used to estimate safe disposal/transport of excreta, when no country data are available	Urban/rural Wealth Affordability Others TBC	Elements from household surveys can be reported short term; excreta management will initially be estimated
Basic sanitation	Percentage of population using a basic sanitation service	Percentage of population using a basic improved sanitation facility not shared with other households	Household surveys	As above	Immediate
Shared sanitation	Percentage of population using a shared sanitation service	Percentage of population using a basic sanitation facility shared with other households	Household surveys	As above	Immediate
Unimproved sanitation	Percentage of population using an unimproved sanitation facility	Percentage of population using unimproved sanitation facilities, with or without sharing with other households	Household surveys	As above	Immediate
Open defecation	Percentage of population practicing open defecation	Percentage of the population practicing open defecation (defecating in bushes, fields, open water bodies or other open spaces)	Household surveys	As above	Immediate
Basic sanitation in schools	Percentage of pupils enrolled in schools that provide basic sanitation services	Percentage of pupils enrolled in primary and secondary schools with functional basic separated sanitation facilities for males and females on or near premises ¹	Institution surveys, admin data, Education Management Information System (EMIS)	Urban/rural Gender	Medium-term monitoring package needs to be standardized
Basic sanitation in health-care facilities	Percentage of beneficiaries using health care facilities providing basic sanitation services	Percentage of beneficiaries using health care facilities with functional basic separated sanitation facilities for males and females on or near premises ²	Institution surveys, admin data, EMIS	Urban/rural	

Proposed indicators for monitoring hygiene (Joint Monitoring Programme 2015)

¹ At least one toilet/latrine for every 25 girls, at least one toilet/latrine for female school staff, a minimum of one toilet/latrine and one urinal for every 50 boys and at least one toilet for male school staff

² At least one toilet for every 20 users at inpatient centres, at least four toilets – one each for staff, female, male and child patients – at outpatient centres.

Hygiene indicators	Proposed indicator	Definition	Data sources and measurability	Disaggregation	Timeline
Hand washing at home	Percentage of population with hand-washing facilities with soap and water at home (Core)	Population with a hand-washing facility with soap and water in the household	Household surveys	Urban/rural Wealth Affordability Others TBC	Immediate
Hand washing in schools	Percentage of pupils enrolled in schools with basic hand-washing facilities	Percentage of pupils enrolled in primary and secondary schools with functional hand-washing facilities, soap (or ash) and water available to girls and boys	Institution surveys, admin data, EMIS	Urban/rural Gender	Medium term (monitoring questions need to be agreed; monitoring systems require national and international support)
Menstrual hygiene management in schools	Percentage of pupils enrolled in schools with basic menstrual management facilities	Percentage of pupils enrolled in primary and secondary schools with adequate and appropriate sanitary facilities for washing and change management and disposal of menstrual waste; these facilities must offer privacy, safety and dignity to menstruating students and teachers	Institution surveys, admin data, EMIS	Urban/rural Gender	
Hand washing in health-care facilities	Percentage of beneficiaries using health-care facilities with basic hand-washing facilities	Percentage of beneficiaries using health-care facilities with adequate hand hygiene supplies (running water, liquid soap, single use towels/alcohol-based hand rinse) available at key locations	Institution surveys, admin data, HMIS	Urban/rural	Medium term (monitoring questions need to be agreed; monitoring systems require national and international support)
Basic menstrual hygiene management in health-care facilities	Percentage of beneficiaries using health-care facilities with basic menstrual management facilities	Percentage of beneficiaries using health facilities with basic separated sanitation facilities for females that provide privacy; soap, water and space for washing hands, private parts and clothes; and places for changing and disposing of materials used for managing menstruation	Institution surveys, admin data, HMIS	Urban/rural	

5. IMPLEMENTATION STRATEGY TO ACHIEVE THE SPECIFIC OBJECTIVES

5.1. INDIVIDUAL SANITATION AND HYGIENE

Objective 1: Raise and sustain improved household sanitation coverage to 100 per cent by 2018, and promote hygiene behaviour change.

5.1.1. Background and rationale

Today, 96 per cent of Rwandan households have financed and built their own private toilets or latrines, albeit quality standards and hygiene practices remain suboptimal. Sanitation coverage with safe and hygienic conditions is estimated in 2015 at 58 per cent and at 72 per cent including shared toilets.

In the absence of collective sewerage systems, the country's challenge is not only to motivate and support households so they are willing and able to improve, replace or build about 500,000 new improved on-site sanitation facilities every year to reach full coverage, but also to improve hygienic behaviour of the population.

Sanitation is primarily about health. An improved or hygienic latrine is defined as a sanitation facility the use of which effectively breaks the cycle of disease transmission. However, full sanitation coverage should include: hygienic latrines available to all, use of such latrines by all, proper maintenance for continual use, improved hygienic practice and safe disposal of effluents and faecal sludge to avoid pollution of soils and water resources.

Sanitation is by nature a cross-cutting issue and involves construction works, provision of services and enhancement of hygiene awareness. The support of individual or on-site sanitation services will address mainly private owners as financiers, builders and operators, which is different from addressing and monitoring large public infrastructure facilities.

Thus, the main actors of on-site sanitation will continue to be private households and the informal construction sector.

To shift from a project-based to a nationwide coordinated sanitation approach, governmental entities at national and district levels, as well as other stakeholders must develop the appropriate new functions and responsibilities in this sub-sector. State regulation, well-designed sensitization and marketing programmes shall foster efficient public spending and mobilize a multiple thereof through private investments.

The role of the district administrations is crucial for scaling up the sanitation effort and its sustainability. Rwanda's progressing decentralization is reflected in the increasing expenditure for sanitation and environmental health executed at district level.

The ambitious objective of constructing about 500,000 latrines/toilets annually until 2018 will require the establishment of a dedicated special Programme Implementation Unit, coordinating all efforts throughout the country. After 2018, the activities shall then be managed as normal tasks by the responsible authorities within their organization and budgets.

This shift of responsibilities requires strengthening the operative capacity of the districts. In the future, districts must assume distinct responsibilities for (a) the coordination of the *individual sanitation supporting programmes*; (b) the *provision of services* directly or by delegation to the private sector; and (c) eventually the implementation and management of *urban sewerage systems* in highly densified areas.

While the latter can be hosted within an infrastructure department, individual sanitation requires the establishment of a new special supporting unit that coordinates its efforts with MINISANTE

(Community-Based Environmental Health Promotion Programme, CBEHPP) and takes into account both sanitation hardware and software. The new district sanitation programmes shall prioritize urbanized areas and grouped settlements (Imidugudu).³

5.1.2. Strategic actions

Successful on site sanitation programmes are **based on an enabled environment approach**

For individual sanitation, the service consists of a balanced distribution of tasks and responsibilities between households and community. To achieve a goal of sustainable access it is necessary to develop the two sides of the service, demand and offer:

- a) The first priority is to generate **demand** for individual sanitation services. Three mechanisms for the demand generation are:
- i. *Awareness rising*, through campaigns or education (schools). Environmental health promotion must enhance awareness of the Rwandan population about the invisible risks related to excreta and waste and generate or enhance demand for a higher level of hygiene practice and sanitation improvements.

The Ministry of Health (MoH) CBEHPP, with its community health club methodology, shall become the strategic vehicle for systematic nationwide promotion of environmental health outcomes. The programme will address improved personal and domestic hygiene and sanitation: safe excreta disposal, hand washing with soap, safe water handling, food hygiene, indoor air pollution and vector control.

- ii. *Marketing* of technical options: once demand is manifest, the market must respond and offer affordable and safe sanitation technical options to thousands of households and businesses for both upgrading and construction of new on-site facilities. The offer requires both comprehensive “product” information and the full supply chain including advice, construction guidelines and services, materials and access to finance to boost implementation among the lower-income quintiles of the population. Sanitary improvements are mandatory, but successful sanitation practice has shown that the initiative of the clients is the strongest prerequisite for ownership and sustainability (demand-oriented and household-centred approach).

Marketing aims at informing households about the available solutions in their local market in order to meet the demand generated (*see above*). Marketing sanitation is done through actions of social and/or commercial marketing.

To be effective, marketing will be based on the existing services: it is no use promoting solutions that cannot be accessed (= built, used and maintained) by households.

Sanitation is still a wallflower, but must become visible and tangible: Given the magnitude of private sanitation improvements planned (400,000 latrines annually), each district will need a powerful marketing and communication tool, e.g., in the form of a “*District Sanitation Centre*”. The concept can be implemented in each district, able to reach about 300,000 inhabitants each.

A “District Sanitation Centre” (including, ideally, a showroom of some feasible technical solutions) is not a recipe and has to be adapted to the context. It can integrate and focus on all key supporting activities for households and the private sector described below in a modular way. It can support the dissemination of technical know-how, visualize comfort and price options, provide services and material supplies, and support technology development and training opportunities.

³ National Human Settlement Policy, MININFRA, 2015.

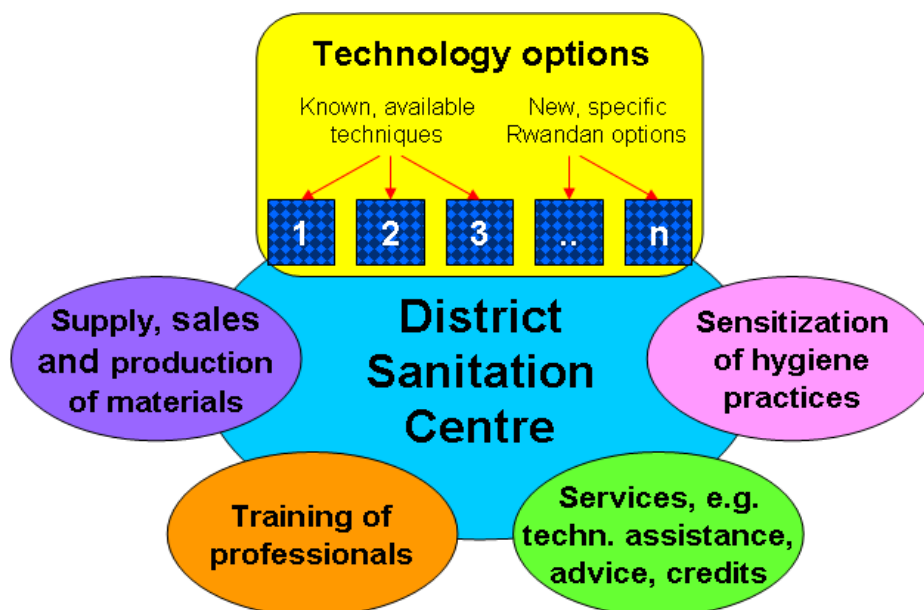


Figure 2: The manifold dimensions of a District Sanitation Centre (©Ecopsis)

The content of a showroom will vary in function of the local focus and priorities. First of all, it shall visualize different technical options of sanitation and hand-washing facilities to visiting households and professional builders. As any other shop, the centre shall inform visitors about techniques, construction methods, prices and conditions.

Technical solutions may include composting facilities such as alternating twin-pit VIP latrines, fossa alterna, ecological sanitation, arbour loo and pour-flush toilets (as well as rainwater harvesting). Collective latrines including biogas facilities are considered feasible solutions in densified settlements. An adequate set may include both waterless latrines and flush toilets, covering preferences of all rural and urban inhabitants. If conceived and built like an exhibition sanitation park in some locations, Rwandan technicians can improve existing and develop new technical low-cost solutions, and show them to the public.

A "District Sanitation Centre" can serve for the training of awareness trainers or to link environmental health awareness campaigns with discovering feasible physical sanitation solutions, thus optimizing the sensitization impact. It may be conceived as a centre hosting other related services such as exposition, production and sales of materials, transportation logistics, credit and subsidy approval agency, or as a training facility for professionals. Some district may even integrate the offices of their new sanitation services in the sanitation centre.

A "District Sanitation Centre" can be operated by the district, by a private entrepreneur or under a public-private partnership (PPP) scheme – e.g., with a distributor of construction materials, or be located within a vocational school.

All districts should implement their own sanitation service for the supporting activities for on-site sanitation within their territories.

- iii. *Enforcement of the regulation.* Promoting awareness messages about the importance of hygiene and have a latrine certainly have an impact and are necessary for behaviour change. However, they are not enough to ensure that behaviour change is installed in a sustainable way.⁴

⁴ Enforcement of sanitation regulation is a *must* in all human societies, whatever the level of education and awareness of the population.

Individual sanitation includes a dimension of "common good". Users must comply with obligations to the community, to protect their neighbours, the community, and the natural resources in order to comply with the SDGs.

Therefore, each user carries a responsibility to keep his or her facilities running. Instead, the community can (and should) monitor the proper use of services. The monitoring also applies to service providers (sludge management, masons, etc.).

The enforcement of a local sanitation regulation is important for the sustainability of individual sanitation. In the absence of enforcement, the community will tend to abandon the new practices and the use of facilities. In contrast, the enforcement will maintain service coverage (including sustainable use and access) to an acceptable level.

As such, enforcement of regulation creates a real demand and will motivate households in investing and maintaining their facility in proper conditions.

It should be emphasized that regulation can be of different kinds, including:

- Formal, such as municipal or district regulation; and
- Informal, enforced by the community itself – for instance, through the sanitation committee, health centre or even by the school.

b) The second priority is to make sure that households are able to **access the services** they demand. Four (4) types of service provision are considered necessary:

i. *Construction*: Investments in construction have an important multiplier effect on income and employment. Putting in place the national sanitation strategy, Rwanda's construction sector can experience substantial growth. The private formal and informal planning and construction sector will be challenged to rapidly enhance its service and production capacity to meet demand for the new on-site sanitation improvements in general and collective systems in urban areas.

Thus, the sector requires training of more qualified craftsmen, such as masons, and adequate sanitary technology know-how should be introduced as per 2016 in the curriculum of vocational schools. The increase in demand for industrial or semi-industrial material may give the opportunity to develop and promote local production and substitute imports. Temporarily, the Government of Rwanda may need to coordinate imports of material to avoid shortage, speculation and subsequent price distortions hampering the strategy implementation.

ii. *Material*: Households need to access to materials to build and keep their facilities operational. Depending on the local environment and construction standards, these materials may be cement, bricks, tiles, doors, locks, etc. It has been proven that the availability and affordability of such materials is an important use for sustainable access. Such materials can be provided by different types of actors: community, associative, municipal, private sector.

iii. *Operation & Maintenance (O&M)*: To comply with the SDGs, the local capacity for operating and maintaining the individual sanitation facilities should be increased. This includes construction capacities and material. It also includes the provision of faecal sludge management.

iv. *Financial services*: Traditional pit latrines certainly have an economic value, but often they have been built without cash outlay by the household using family labour and locally available material for the construction. On the other hand, improved sanitation facilities require cash for some industrially produced materials and sometimes for qualified craftsmen. In order to support and not to jeopardize market and business development, subsidies shall

be *targeted*. Subsidies can then boost sanitation demand and should be considered for the following reasons: (a) Expenditures in sanitation generate an impressive economic return on investment and subsequent health benefits are a foundation for economic development and poverty reduction; and (b) Although willing to improve, rural and peri-urban lower income households sometimes do not have sufficient cash or savings to invest upfront. Credit mechanisms, subsidized or not, allow spreading credit reimbursements over time in accordance with local monetary income conditions. Credit mechanism can target individual households or communities and associations, for instance, as a guarantee fund for microfinance organizations, or in order to reduce the cost of material provided by local shops.

Only in very specific and well identified cases subsidies can be used in order to support households in difficult environmental conditions and for which the construction costs of latrines will be higher than the average cost (e.g., difficult geological conditions, flooding risks). Pro-poor subsidies shall be designed for limited periods, allowing for full impact accountability, and effectiveness shall be evaluated annually.

As a rule of thumb, subsidies are most efficient if they create incentive for the realization of latent demand, the mobilization of household efforts, the promotion of a specific type of sanitation system, and the conformity of the works with improved sanitation standards.

Output-base aid schemes do strengthen demand but shall be targeted above all to the development of the professional construction sector at the district level for individual and collective sanitation works.

The chart presented in Figure 3 shows the **balance between demand and supply** that should be achieved for increasing and sustaining individual sanitation services.

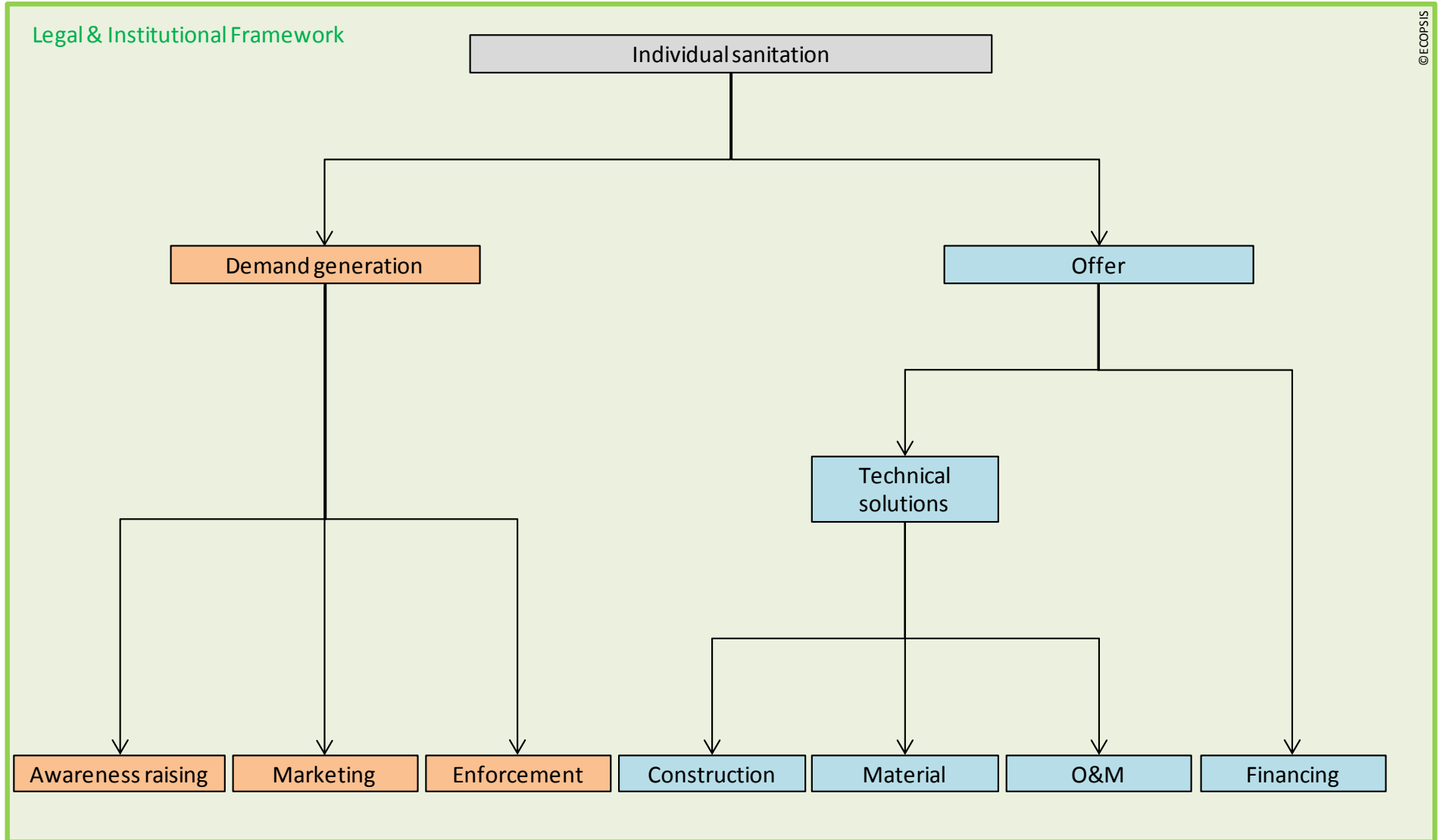


Figure 3: Balancing demand and offer of individual sanitation services

A national Sanitation Working Group (a sub-group of the Sanitation sub-sector working group) integrating the main state stakeholders must ensure coordination and regulation of the new sector approach.

Progress of health improvements as a result of improved hygiene practice and sanitation are difficult to measure without comprehensive impact analysis and over short periods. The number of households with improved or hygienic latrines or toilets is an overall indicator of achievements, but interpretation shall consider the other indicators in this section.

The number of districts with active village Community Health Clubs, marketing campaigns rolled out and subsidy systems in place will provide clear indication of the strategy's overall progress. The same applies to the indicator on the development of the private sector: training courses accomplished should be directly correlated to the increase in national coverage. However, the relevance, efficiency and impact of these activities are to be evaluated at district level.

Annual workshops at provincial or national levels will gather and discuss manifold lessons learned from sanitation centres, public and private projects about adequate on-site sanitation technologies, service provision, dissemination and support practices. Cost reduction of technologies shall be a major concern in sanitation research and development, and improved, low-cost on-site latrines, such as VIP, ecological sanitation or pit latrines with a slab, must be made available for less than RWF 200,000 for a majority of households.

At a later stage, more data may be available and allow measuring the efficiency of state activity supporting individual on-site sanitation: public spending related to the growth of improved sanitation facilities and health indicators.

5.1.3. Targets and estimated costs by the public sector (All costs 2015–2020, in RWF million)

Individual sanitation (and sector coordination)

Performance indicator	Target					Costs ≤ 2020	Implementation
	16/17	17/18	18/19	19/20	29/30	Total	
1.1 Establish a cooperation framework for a comprehensive inter-sectoral programme to promote improved household sanitation and behaviour change							
National Sanitation Steering Group operational	X					10	MININFRA; MoH; MINALOC; Districts
Sector coordination and support	X	X	X			300	
Communication and information	X	X	X			150	
Number of districts with sanitation services staffed and operational (responsibilities and tasks defined)	3	10	30	30	30	1,000	
					Total	1.460	

Performance indicator	Target					Costs ≤ 2020	Implementation
	16/17	17/18	18/19	19/20	29/30	Total	
1.2 Raise sanitation coverage by enhancing the demand for sanitation through a combination of promotion measures							
Per cent of rural households with hygienic (improved) on-site latrines	71	85	100	100	100	40,000	MININFRA; MoH; MINALOC; Districts
Per cent of urban households with hygienic (improved) on-site latrines	83	90	100	100	100	15,000	MININFRA; MoH; MINALOC; Districts
Number of districts with roll out of the CBEHPP approach implemented and operational	9	25	30	30	30	1,500	MoH; MININFRA; MINALOC; Districts
Number of districts with marketing campaign promoting suitable technical sanitary solutions executed	2	7	30	30	30	500	MININFRA MoH, MINALOC, Districts
Number of on-site sanitary construction incentives/output-based aid schemes tested and implemented at district level	2	7	20	30	30	2,000	MININFRA; MoH; MINALOC; Districts; Credit institutions
Per cent of sanitation and environmental health expenditure executed by districts	30	35	40	45	50	0	MINECOFIN; MINALOC; Districts
					Total	59,000	
1.3 Develop private-sector capacities for improved sanitation							
1.3 Develop private-sector capacities for improved sanitation							
Number of technical and commercial training courses executed at district level	10	30	60	60	60	200	PSF; Districts; MINEDUC; MININFRA
Distribution of construction tools and materials promoted at district level	X	X	X	X		100	PSF; Districts; MINEACOM
					Total	300	
Performance indicator	Target					Costs ≤ 2020	Implementation
	16/17	17/18	18/19	19/20	29/30	Total	

1.4 Develop, pilot and demonstrate a range of individual sanitation technologies for different standings								
Annual workshop on appropriate sanitation technologies and results disseminated	X	X	X	X	X	50	MININFRA; MoH; Districts	
Number of private or public sanitation showrooms built in districts (for demonstration, exposition, training, point of sale)	2	6	15	30	30	200	MININFRA; Districts; PSF	
Number of sanitation marts at least promoted in district by the private sector	5	15	30	30	30	40	MININFRA; Districts; PSF	
					Total	290		

Performance indicator	Target					Costs ≤ 2020	Implementation
	16/17	17/18	18/19	19/20	29/30	Total	

1.5 Capacity building under CBEHPP of extension workers, Community Health Workers, Community Hygiene Clubs and Environmental Health Desk								
Community Hygiene Clubs training materials in Kinyarwanda developed	x					90	MoH	
Number of orientation workshops organized	x	x				70	MoH	
Number of meetings and messages for advocacy, mobilization and community sensitization	x	x				200	MoH	
Number of training sessions for environmental health officers, school teachers, community health workers and hygiene clubs	x	x		x	x	250	MoH	
Rapid assessment of Household hygiene practices organized.	x	x	x	x	x	150	MoH	
Monitoring & Evaluation by MoH 'Core Team' organized	x	x				20	MoH	
Capacity-building support to Environmental Health Desk /CBEHPP	x					20	MoH	
Number of vehicles for CBEHPP supervision purchased	x	x	x			200	MoH	
Construction of Health Posts/Community Hygiene Clubs Centres		x	x			500	MoH, MININFRA	
					Total	1,500		

Total costs of individual sanitation 2015–2018: RWF 62,550,000,000

5.2. INSTITUTIONAL SANITATION

Objective 2: Improve sanitation for schools, health facilities and other public institutions and locations.

5.2.1. Background and rationale

Children, patients and care-takers in schools and health centres are particularly vulnerable, and people using poor public sanitary toilets are facing similar (if not higher) health risks. Safe water supply, hygiene education, and child- and patient-friendly hand-washing and sanitary facilities are of particular importance to significantly reduce (diarrhoeal) morbidity:⁵

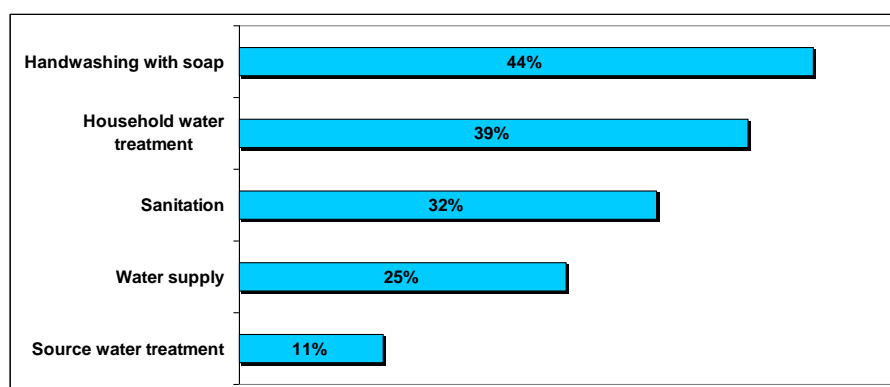


Figure 4: Per cent reduction in morbidity from diarrhoeal disease

Children learn some of their most important hygiene skills at school, and for many this is where they are introduced to hygienic practices that may not be promoted or possible in the home. Schoolchildren shall learn and practice life-long positive hygiene behaviours, and they can be effective messengers and agents for change in their families and the wider community. In order to fully leverage the exemplary function of improved public sanitation services, in particular among the young generation, such provision must be understood as being part of a cross-cutting environmental health programme. The balance between hygiene education, water supply and sanitation facilities is a crucial foundation of this goal, and its impact goes way beyond the convenience of having improved facilities.

Rwanda started a specific school hygiene and sanitation programme (Hygiène et Assainissement en Milieu Scolaire /HAMS) in 2000, which was replaced by sanitation and hygiene clubs. The initiative aims at decreasing water- and sanitation-related diseases and its main objective is to speed up behaviour change in terms of sanitation and hygiene via the school population. The approach includes sensitization and mobilization of the Rwandan community to live hygiene culture, and sustainable improvements of water and sanitation infrastructures. Without its own budget, the programme operates under the umbrella of other water and sanitation projects.

For similar reasons, health facilities and other public institutions countrywide shall demonstrate best practices in hygiene and sanitation, including menstrual requirements for women. Public places with poor water, sanitation and hygiene conditions, and intensive levels of person-to-person contact remain high risk environments for the population. Construction or rehabilitation programmes of public facilities shall therefore always include an environmental health promotion component.

⁵ Fewtrell, Lorna, et al., 'Water, Sanitation, and Hygiene Interventions to Reduce Diarrhoea in Less Developed Countries: A systematic review and meta-analysis' *The Lancet Infectious Diseases*, vol. 5, no. 1, January 2005.

5.2.2. Strategic actions

Community health clubs shall be promoted as well as the construction of sanitary facilities in public buildings. Affordable and adequate technical options shall be developed and implementation supported by MINEDUC, MoH and the districts under their respective programmes.

The promotion of sanitation marts by the private sector shall facilitate the availability and access to sanitation materials and equipment.

O&M of institutional facilities shall be strengthened and institutions such as schools and health centres shall be held accountable.

Strong emphasis has to be given to the management of public sanitary facilities – e.g., at market places. All too often operation and maintenance are neglected, putting users of well-built facilities at high risk. If districts or sectors do not have the management capacity, such facilities can be leased out to Non-Governmental Organizations (NGOs) or the private sector for better operation under a PPP arrangement.

All institutions shall give clear priority to guaranteed safe water for drinking and hand-washing facilities, while excreta disposal can be either water-borne toilets or waterless latrines.⁶

Community health clubs shall continue to be operated under the umbrella of all school-related water supply and sanitation programmes. The corresponding hygiene and sanitation committees at sector and school levels are of particular importance for the implementation of this combined soft- and hardware strategy, additionally providing learning from failures and success stories.

The first indicator used – the number of public (and private) schools with improved sanitary facilities – shall reflect not only the physical achievements but, combined with the following indicator (HAMS), shall reflect the improvement of the overall environmental health conditions. The HAMS indicator of actively functioning committees shall demonstrate to what extent the objective of accelerating behaviour change has been reached by operating, monitoring and evaluating school committees.

Sanitary facilities at health centres shall be improved in accordance with the stipulations of the National Environmental Health Policy. The indicator on the number of health facilities with improved sanitary conditions shall demonstrate the physical evidence, while the soft component on hygiene promotion is assumed to be covered by MoH's own activities.

Of particular interest are the sanitary improvements in public places or buildings, such as administrations, stadiums and market places, which are partially under the responsibility of districts. Albeit this indicator does not refer to the total number of public places to be built, the quantity achieved is to be understood as a first step towards lowering public health risks.

⁶ Rwanda's Building Control Regulation, 2015, already stipulates that schools and workplaces without sewer systems and less than 75 litres per person per day, the disposal of foul water shall be by waterless latrines.

5.2.3. Targets and estimated costs by the public sector (all costs 2015–2020, in RWF million)

Institutional sanitation (schools, health facilities, markets)

Performance indicator	Target					Costs ≤ 2020	Implementation
	16/17	17/18	18/19	19/20	29/30	Total	
2.1 Implement a joint programme to provide hygienic sanitary facilities and promote hygiene in all schools, health facilities and other public institutions							
Per cent of schools with latrines or toilets with hand-washing facilities as per standards	60	70	100	100	100	800	MINEDUC; MoH
Per cent of CHCs in schools with actively functioning committees	60	70	100	100	100	400	<u>MINEDUC,</u> <u>MoH</u>
Per cent of health facilities with latrines or toilets with hand-washing facilities as per standards	45	60	100	100	100	1.000	<u>MINISANTE,</u> <u>districts</u>
Number of hygienic public latrines in public areas with hand-washing facilities (markets, administration)	200	400	600			4.000	<u>Districts; City</u> <u>of Kigali,</u> <u>MININFRA</u>
					Total	6.200	

Total costs of institutional sanitation 2015–2018: RWF **6,200,000,000**

5.3. COLLECTIVE SANITATION

Objective 3: Develop safe, well-regulated and affordable off-site sanitation services (sewerage and sludge collection, treatment and reuse/disposal) for densely populated areas.

5.3.1. Background and rationale

In most urban areas, the majority of domestic sanitation services will remain individual on-site solutions. However, in some urban areas collective alternatives are needed and can even be cheaper than improved on-site solutions. The Government of Rwanda has to complement private endeavours and promote and provide directly or indirectly sludge emptying services and sewerage systems, as shown below.

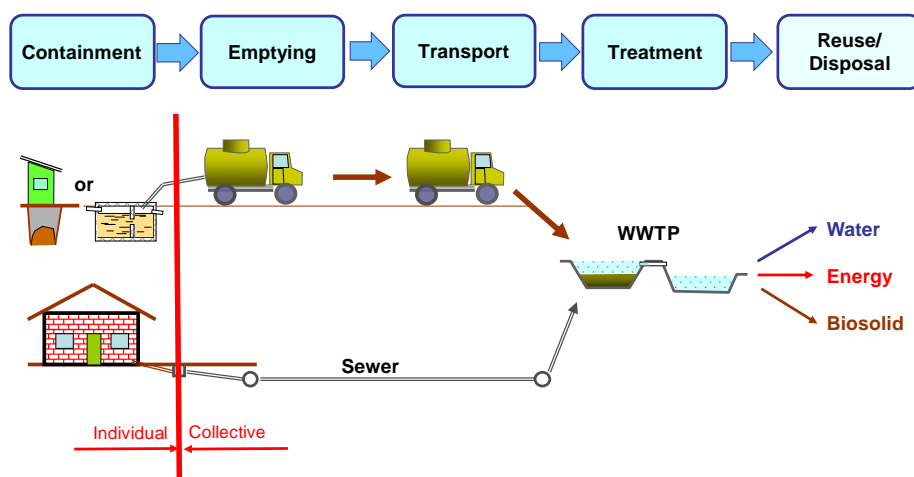


Figure 5: Complementary on- and off-site, individual and collective sanitation systems (©Ecopsis)

Today, only a few hotels, hospitals and small residential areas in Kigali have constructed sewers and wastewater treatment plants.⁷ Domestic and industrial sludge is seldom disposed of in a safe manner and the country has little experience in planning, regulating, enforcing, financing and providing collective sanitation services. Specific institutional structures have to be in place at national and district levels in order to guide these activities and to create mechanisms to develop and strengthen the sector progressively and to successively learn from failures and successes.

Sanitation development is essentially multi-sectoral. Successful delivery of collective sanitation requires a clear understanding of the roles and responsibilities of the various actors, both in terms of their mandates and their inputs. Under the leadership of MININFRA/the Agency, the institutional structures concerned include other ministries, regulating, financing and implementing agencies, local government structures and utilities responsible for sanitation, hygiene promotion and water supply, as well as NGOs and communities.

The private sector will have a crucial role in the construction, provision and eventually financing of collective sanitation services.⁸ With regard to operation, the private sector may perform as private operators or under a PPP scheme.

Collective sanitation often requires substantial upfront investments for public infrastructure, and cost efficiency must be a major concern. As it is the case in other sectors, overall costs are a function of the balance between costs of construction, equipment, O&M and organizational skills. The more efficient the organization, the lower the hardware costs can be kept, or, with a given budget, the higher coverage can be achieved. The state must create the enabling environment, including capacity building and financing, to optimize and fully leverage public sanitation expenditures in terms of local job creation, technology development and improvement of sanitation service delivery. High-tech turnkey options built by foreign contractors may not contribute much to develop Rwanda's own collective sanitation capacity unless carefully configured under this perspective.

Collective (and individual) sanitation is the responsibility of many different agents. It is therefore necessary to regulate sanitation in order to ensure that the recipients of sanitation get the same

⁷ This proves that a sanitation demand and commitment exists. However, the Rwandan offer or supply side is still weak and most of these entities had to seek foreign engineering advice.

⁸ Rwanda National Construction Policy, MININFRA 2008; Government shall decrease involvement of the public sector in actual service delivery and effectively disengage from the implementation of physical infrastructure construction. Capacity building, the use of appropriate technologies and access to credit facilities are among the main objectives.

benefits and that the objectives of the various agencies are met by all public and private service providers. The harmonization and updating of the regulatory framework, norms and standards for effluents, sanitation services and facilities shall be done in realistic steps, ensuring above all that the necessary enforcement capacity is implemented in parallel. The Agencies, Rwanda Utilities Regulatory Authority (RURA) and Rwanda Environment Management Authority (REMA), shall coordinate their regulative and enforcing activities in sanitation.

5.3.2. Strategic actions

As is the case for the promotion of individual sanitation, the new attempt to enhance collective off-site sanitation conditions must address software and hardware aspects, hygiene education as well as infrastructure.

Sludge emptying services: Septic tanks need periodic emptying of the sludge. Manual tank emptying and uncontrolled dumping of the sludge constitute a major risk for public health. Kigali's city administration provides a mechanized sludge emptying service to public institutions only and the sludge is discharged at the waste dumpsite of Nduba. Other urban centres do not have a service yet.

While the provision of the sludge emptying service and disposal sites can be operated by public and/or private operators, the administration must develop the regulatory, enforcing and supporting framework – e.g., inventory of premises with septic tanks, certification of public and private operators, standards for equipment and protection, service pricing (tariffs), inspection, professional training of operators, labour safety regulations, building standards for sludge disposal sites, effluent standards for different uses of treated wastewater,⁹ and operational and effluent control of sites.

All sanitation master plans must reference sludge disposal site and services. Sludge disposal sites shall be constructed in all major urban areas with premises using septic tanks for wastewater. MININFRA shall prepare guidelines for construction as well as for operation and maintenance favouring low-cost, gravity-based technologies without energy consumption. Disposal sites for faecal sludge can be built as stand-alone solutions or in connection with wastewater treatment plants.

The guidelines shall also indicate cheap and easy-to-execute alternative techniques for temporary safe sludge disposal until full studies have been carried out and funding made available. Private-sector investments shall be encouraged, e.g., by facilitating access to financing (investment only), import or other tax reductions and training opportunities.

Collective sewerage systems: There are few collective sewerage technology options available and all are water-borne systems: Condominial (including simplified), small bore (or settled or solid-free) and conventional sewerage. Cost being a crucial factor, conventional sewerage can normally be eliminated from further consideration on the grounds of its very high costs per connection.¹⁰

Condominial sewerage was developed in Brazil and it has gained ground in Latin America, South and West Africa and Asia. The condominial approach combines a technical and a social dimension, resulting (a) in 50– 80 per cent lower capital and operating costs¹¹ than conventional gravity sewers and (b) in higher ownership and hygiene behaviour changes due to community involvement.

⁹ For example, based on WHO guidelines for the safe use of wastewater, excreta and greywater, WHO 2006, vol. 1–4.

¹⁰ Or, within a given investment budget, the condominial approach then allows for more connections.

¹¹ Compendium of Sanitation Systems and Technologies, EAWAG-Sandec, 2015; and Water Supply and Sanitation Options for Small Urban Centres in Developing Countries, UN-Habitat, 2006.

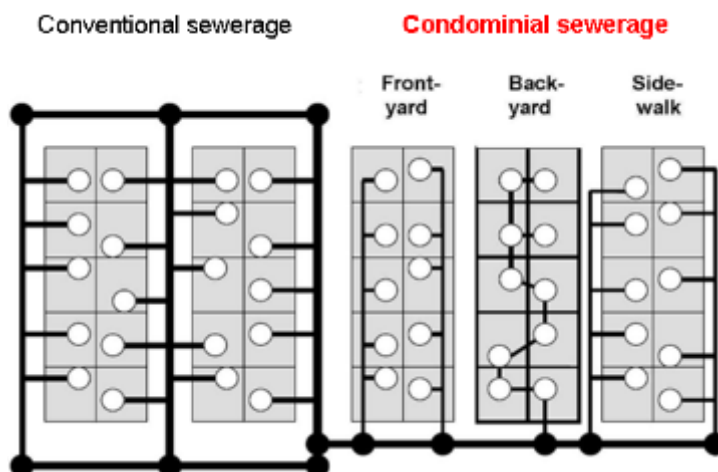


Figure 6: Comparison of conventional and condominial sewerage systems

“Condominiums” are the “neighborhood” units and the social dimension means that the service provider must interact with the beneficiary communities from the very beginning of the planning process, and these contribute to the project with delivering constructions permits for networks on private or community-owned lots.

Communities can participate in the design process, and in the construction and maintenance, thereby lowering their monetary monthly costs for wastewater service. The preparatory community involvement is the ideal opportunity to promote not only hygiene practice and sanitary education, but also to address drainage and solid waste issues.

Condominial sewerage is technically a network of small diameter pipes laid at shallow depth, mostly on private ground before joining the public primary network.¹² It becomes affordable and even cheaper than on-site solutions in areas with a density of more than 150 people per hectare, but needs a wastewater generation of not less than 40–50 litres per person per day.¹³ Due to multiple design options and easy construction, the highly flexible system works for poor and rich areas and has turned out to be often the only affordable solution to provide sanitation services in unstructured, very high density settlements in difficult topographic situations.

Rwandan hydraulic design standards shall be adapted to take into account best practice in condominial and simplified sewerage design, such as sewer gradients and diameters.

Settled or small bore sewerage (solid-free): Settled sewerage is a sewer system that conveys only septic tank effluents or grey water. Without solid sewage, these less expensive sewers can be designed differently and executed where existing toilets (with septic tanks) or waterless latrines are already providing a safe level of on-site service.

Wastewater treatment: Wastewater should be treated prior to surface discharge or reuse in agriculture and/or aquaculture. Treatment usually means a reduction in biodegradable organic material and suspended solids, and some nutrients such as nitrogen and phosphorous. However, the large centralized sewage facilities corresponding to full treatment standards require very high financial, material and human resources.

¹² Simplified sewerage is designed, like conventional sewerage, to receive unsettled wastewater and the design procedure ensures its blockage-free operation by using a minimum tractive tension (rather than a minimum self-cleansing velocity) of 1N/m^2 which is achieved at least once a day at peak flow.

¹³ The Rwanda Building Control Regulation, MININFRA, 2015, requires for all buildings with a piped water supply system capable of providing not less than 75 litres per person per day a water-borne system of excreta disposal and the adequate discharge.

Rwanda's priority shall be on how to control pathogenic and hazardous/toxic material. Therefore, treatment processes shall first be geared towards environmental health protection and then on natural resources protection. The overall level of environmental health and environmental protection is directly correlated to the standards that a country can afford to pay and maintain for liquid (and solid) waste treatment, which stresses the need for clear priorities.¹⁴ Low-cost treatment options shall be implemented that have low O&M requirements and maximize the utilization of the potential resources, principally irrigation water and nutrients. Decentralized solutions shall be evaluated systematically and energetic resources optimized, if possible.

Preliminary and primary treatment shall remove gross solids and reduce the polluting load. Anaerobic techniques are suitable secondary treatment stages for the treatment of pathogenic material with significant application potential for reuse of treated effluents in irrigation.¹⁵ Tertiary treatment for removal of specific pollutants may be integrated into the planning concept but realized after environmental health protection objectives are met and operating sustainability is confirmed.

The overall approach for urban wastewater treatment shall take into consideration industrial effluent loads such as hydrocarbons and heavy metals and elaborate a concept including the necessary industrial pre-treatment options. The same applies to other heavy polluters such as slaughterhouses and hospitals. If these polluters are not connected to a sewerage system, adequate decentralized on-site solutions shall be implemented.

Project selection criteria: Sewerage and treatment systems shall be evaluated with regard to technical complexity and appropriateness, easiness of operation and maintenance, opportunities to include hygiene promotion, level of job generation and capacity-building needs, and environmental impact. Comparative financial analysis of project options shall assess all capital and recurrent costs and be based on life cycle cost calculation: 20–30 years for wastewater treatment plants and 50–60 years for sewer systems.

The Water and Sanitation Corporation, (WASAC) shall build the first public sewerage system in Kigali and develop Rwanda's sanitation O&M know-how. By achieving sound service delivery performance, including operating and financial efficiency as well as transparency and accountability also in its sewerage division, WASAC shall be able to source capital investments from Rwanda's domestic financial market by 2015.

Sanitation guidelines for Imidugudu shall consider both on-site options as well as decentralized collective systems, e.g., for grey water with subsequent treatment for irrigation reuse.

Tariff structure for collective sanitation services: The determination of tariffs implies that sanitation service costs are known. Providers must put in place an analytical accountancy system and enforcement and audit procedures have to be implemented. WASAC shall provide accounting guidelines for sludge emptying/disposal services and sewerage operators.

Full *cost recovery* based on the 'user pays' principle shall be the target for collective service provision and means that beneficiaries will pay for construction and O&M costs. However, for similar reasons as for on-site sanitation support, such as promotion of public health, cost recovery through monthly billing shall start to recoup sewerage operating costs only. This implies that capital costs are temporarily subsidized through taxes, donor grants or cross subsidization among

¹⁴ Usually between 1–2 per cent of gross domestic product.

¹⁵ Example: The Valle Mezquital represents the world's largest area of wastewater irrigated agriculture. Some 83,000 hectares are irrigated annually using 1,900 million m³ raw, untreated wastewater from the metropolitan area of Mexico City. Via the irrigation, the wastewater receives a natural land treatment, which is estimated to be equivalent or even superior to conventional secondary treatment. However, recent data on pathogen incidence underscore the importance of wastewater treatment before land application. (In Romero, H., The Mezquital Valley, Mexico, 1997).

users in place. However, recovery of capital costs (depreciation or replacement costs) shall progressively be introduced over a period of five years after the beginning of operation.

Awareness campaigns to households on safe hygiene practice shall include information about investment and operating costs of sewerage in order to increase cost understanding and willingness to pay.

5.3.3. Targets and estimated costs by the public sector (All costs 2015–2020, in RWF million)

Collective sewerage services

Performance indicator	Target					Costs ≤ 2020	Implementation
	16/17	17/18	18/19	19/20	29/30	Total	
3.1 Establish an effective regulatory and institutional framework for collective sewerage and sludge management							
Legislation for sanitation, hygiene and environmental health updated		X				50	Authority; MoH; MINIRENA
Regulatory framework, norms and standards guide for effluents and minimum standards for sanitary facilities defined and disseminated	X	X				70	Authority; MoH; MINIRENA RURA; REMA; RSB; WASAC
					Total	120	
3.2 Prepare sanitation master plans for all urban areas							
Terms of References for sanitation master plans established	X					20	<u>MININFRA;</u> <u>MINALOC;</u> <u>MoH</u>
Kigali's integrated sanitation master plan reviewed/updated	X				X	(N/A)	<u>City of Kigali;</u> <u>MININFRA</u>
Number of sanitation master plans for other urban areas developed	5	10	30	30	30	750	<u>MININFRA;</u> <u>MINALOC;</u> <u>Districts</u>
Sanitation guidelines for Imidugudu developed and reviewed	X					20	<u>MININFRA;</u> <u>MINALOC;</u> <u>Districts</u>
					Total	790	
3.3 Promote viable, low-cost approaches for collective sewerage services							
General approach defined, technology strategy and feasibility studies	X					20	<u>MININFRA;</u> <u>RURA; REMA;</u> <u>RSB</u>
Number of urban areas with sludge disposal facilities + services operational		2	30	30	30	3.000	<u>MININFRA;</u> <u>MINALOC;</u> <u>District;</u> <u>WASAC</u>

Number of public collective sewerage services built in urban areas		1	7	11	11	40.000	MININFRA; MINALOC; District; WASAC
					Total	43.020	

3.4 Implement cost recovery for collective sewerage systems							
Financial model and tariff structure for sludge disposal and sewerage developed and approved	X	X	X			30	RURA; MININFRA; Districts; WASAC
					Total	30	

Total costs of collective sanitation 2015–2020: RWF 43,960,000,000

5.4. STORM WATER MANAGEMENT

Objective 4: Enhance storm water management in urban areas to mitigate impacts on properties, infrastructure, human health and the environment.

5.4.1. Background and rationale

Storm water is a subset of surface water resources. Urbanization typically increases runoff rates due to increased impervious areas and replacement or filling up of natural watercourses and overland flows. Subsequent higher uncontrolled discharge of storm water can:

- have a significant impact on water quality and public health: storm water runoff can include a variety of pollutants such as sediments, litter, bacteria, organic nutrients, hydrocarbon, metal, oil and grease, pesticides and acids; and
- put people at risk, and cause erosion of land and damages to property and infrastructure.

The focus of the storm water strategy in urban areas must be on alleviating existing and preventing future problems through careful design, planning and only complementary drainage networks. Successful affordable management of storm water needs a long-term coordinated approach to integrate best practice as well as community and business involvement and education programmes.

Storm water shall be understood as a resource. Diversion of storm water has a series of advantages, including financial, over traditional approaches to storm water management, which usually gave priority to costly network constructions. “Water sensitive urban design” or “Low Impact Development” are approaches to urban planning and design that integrate management of the total water cycle into urban development. The approach also includes methods such as porous pavements, infiltration and rain harvesting systems, swale and wetlands, which shall be incorporated in development of new and upgrades of existing infrastructure.

5.4.2. Strategic actions

A national task force under the lead of MININFRA/the Authority shall formulate responsibilities and tasks, coordinate the relevant national and district stakeholders, set the objectives and implementation methods, revise or elaborate standards and norms, and develop guidelines for

urban storm water management. Additionally, the task force shall define the terms of reference for the storm water component in urban sanitation master plans considering its correlation with wastewater and solid waste management. Kigali's 2008 storm water master plan¹⁶ shall be updated with the perspective of the new guidelines. Planning, design and implementation shall encompass the following elements:

- a. *Risk assessment*: A detailed analysis of the probability of natural events or system failures and the social, economic and environmental consequences of such events shall be carried out in urban areas. This allows identifying an overall risk profile of the catchment areas and basing priorities of intervention upon.

Albeit the level of flood risk is mitigated by Rwanda's topography and geology, an additional risk map of critical flood areas (flooding from rivers and storm water runoffs) shall be drawn to help local authorities to (a) understand the risks when considering where settlements, business and other developments should be built or relocated and (b) strengthen the country's preparedness and response for emergencies. Analysis shall consider the likelihood and consequences and magnitude of events.

- b. *Best practices for storm water design standards, land use and urban planning*: Water-sensitive urban design offers an alternative to the traditional view of storm water merely as a nuisance. It seeks to minimize the extent of impervious surface and mitigate changes to the natural water balance, by temporarily storing the water close to where it falls and slowly releasing it into the ground or natural waterways.

The incorporation of storm water and rainwater harvesting in the construction permit is a very important measure in order to enforce the reduction of the flow of storm water and rain water at the compound level.

Demand for new and improved drainage systems in the future will depend on activities such as urban consolidation, Greenfield developments and expansion of commercial and industrial areas, reducing the area of pervious surface available to soak up the water if no preventive provisions are taken.

By integrating major and minor flow paths in the landscape and adopting a range of low-cost, low-impact development design techniques, the country can reduce the extent of the storm water drainage and the size of the drains required. These techniques include detention and retention systems to lower peak flows, and grassed swale drain and vegetation to facilitate water infiltration and pollutant filtration. Costly construction shall remain the second option.

Drawing standards for storm water infrastructure shall be revised or formulated in line with adequate Rwandan standards and practice – i.e., in accordance with local coefficients of runoff, storm frequencies, socially acceptable risk levels and economically affordable standards.¹⁷ Communities shall be involved in planning, building and maintenance of drainage systems.

- c. *Water quality and environmental protection*: Increased flood volumes, peak discharges and higher water flows in urban areas cause a significant increase in the amount of pollutants carried by the water. Appropriate techniques to correct deficiencies of the storm water drainage system shall be developed which also take into account concerns of litter, pollution and water quality.
- d. *Network capacity and maintenance*: Age, level of maintenance and the increase in the

¹⁶ Plan d'assainissement du plan directeur des eaux pluviales et des eaux usées de Kigali, Electrogaz et MININFRA, 2008. Proposed investments until 2015: US\$18 million.

¹⁷ Rwanda Building Control Regulations, MININFRA, 2015; Requirements for Building Applications.

density of residential development have a direct impact on the capacity of the existing storm water drainage system. The process of urbanization replaces the absorbent soil surfaces with impervious roofs and pavements, which leads to an increase in the volume of storm water runoff. An evaluation of the existing drainage system as the “last line of defence” shall assess the components having the highest risk of failure and the capacity to handle current and future demand. Based on this analysis, improvements, extensions and costs can be determined considering risks and updated design standards.

The regular and ongoing maintenance of the drainage network is essential to maintain its efficiency and to reduce impacts. As highlighted by studies on Kigali’s drainage system, litter easily obstructs the system in the valleys. Inspection and maintenance must be organized and shall involve the local communities.

- e. *Awareness and education*: People need to recognize that human activities have increasing polluting consequences and other environmental sensitive impacts. Education and awareness programmes shall be carried out to improve understanding about storm water and encourage a sense of responsibility. Schools shall be the primary target audiences.

5.4.3. Targets and estimated costs by the public sector (All costs 2015–2020, in RWF million)

Storm water management

Performance indicator	Target					Costs ≤ 2020	Implementation
	16/17	17/18	18/19	19/20	29/30	Total	

4.1 Build the institutional and regulatory framework for storm water management							
National Storm Water Task Force operational	X					15	Authority; MINALOC; MINIRENA; REMA; Districts
Legislation, standards and norms for urban storm water planning reviewed	X					25	
					Total	40	
4.2 Support districts and the City of Kigali in planning, design and implementation							
Storm water management concept and guidelines for urban areas established and disseminated	X					25	Authority; MINALOC; MINIRENA; REMA; Districts; City of Kigali
Number of sanitation master plans for urban areas integrating storm water considerations	1	3	5	8	15	cf. 7.3	
Implementation of upgrade and rehabilitation of storm water prevention in Kigali started (e.g., drainage)			X			3.000	
					Total	3.025	

Total costs of storm water management 2015–2018: RWF 3,065 million

5.5. SOLID WASTE MANAGEMENT

Objective 5: Implement integrated solid waste management in ways that are protective to human health and the environment.

5.5.1. Background and rationale

Rwanda is facing significant challenges in relation to solid waste management. Waste generation is increasing, while a sizeable portion of it is disposed on improperly located and operated dumpsites, resulting in adverse impacts on environment and health. The country has a backlog in waste legislation enforcement as well as in coordination and promotion of existing efforts to recycle and dispose of waste properly.

A National Sanitation Working Group shall establish an affordable, integrated approach to solid waste management based on the international waste hierarchy of:

- Reducing the amount and toxicity of material entering the waste flow (minimization);
- Reusing as much material as practicable;
- Recycling the waste that cannot be used and recovery of resources; and
- Residue disposed of in an environmentally sound way.

Therefore, an integrated approach to solid waste management must mobilize all public and private stakeholders and consider the relevant financial, technical, cultural, organizational and legal aspects. A clear division of responsibilities in terms of regulating, monitoring, promoting and operating functions shall be established among public entities at national and district levels as well as among private business, communities and households.

Waste management shall aim at full cost recovery and encourage private and community initiatives for financing and operating waste management operations.

The existing legislation and regulatory framework shall be updated and establish minimum levels of service and environmental protection. Such levels can be scaled up over time, but shall remain realistic – i.e., technically, socially and economically enforceable at each stage of development. Enforcement should be accompanied by user-friendly advice and guidance and must address aspects such as operating licenses, producer responsibilities, landfill regulation, tariffs, disposal of hazardous, industrial and agricultural waste, illegal dumping, prosecution and recovery of clean-up costs.

5.5.2. Strategic actions

Waste reduction, prevention and minimization: Waste prevention is at the top of the **Waste Hierarchy** and the number one priority for integrated solid waste management.

It emphasizes the need to move waste management away from landfill towards more sustainable and less environmentally harmful practices, and emphasizes avoiding waste generation, reducing the quantity and hazardous nature of waste at source and reusing products before they enter the waste stream.

The concept of “life cycle of materials” supports a broader consideration of how waste can be minimized and recovered at every stage of the process. In the transition towards efficient resource management, waste strategy needs to focus on those key stages of the life cycle which have the greatest influence on waste generation and recycling. The following categories shall be assessed: commercial and industrial waste, construction, demolition and excavation waste, hazardous waste, agricultural waste, packaging, electrical waste and electronic equipment, end-of-life vehicles, tires and batteries.

The Waste Hierarchy implies that there is an order of priorities when planning for waste management:

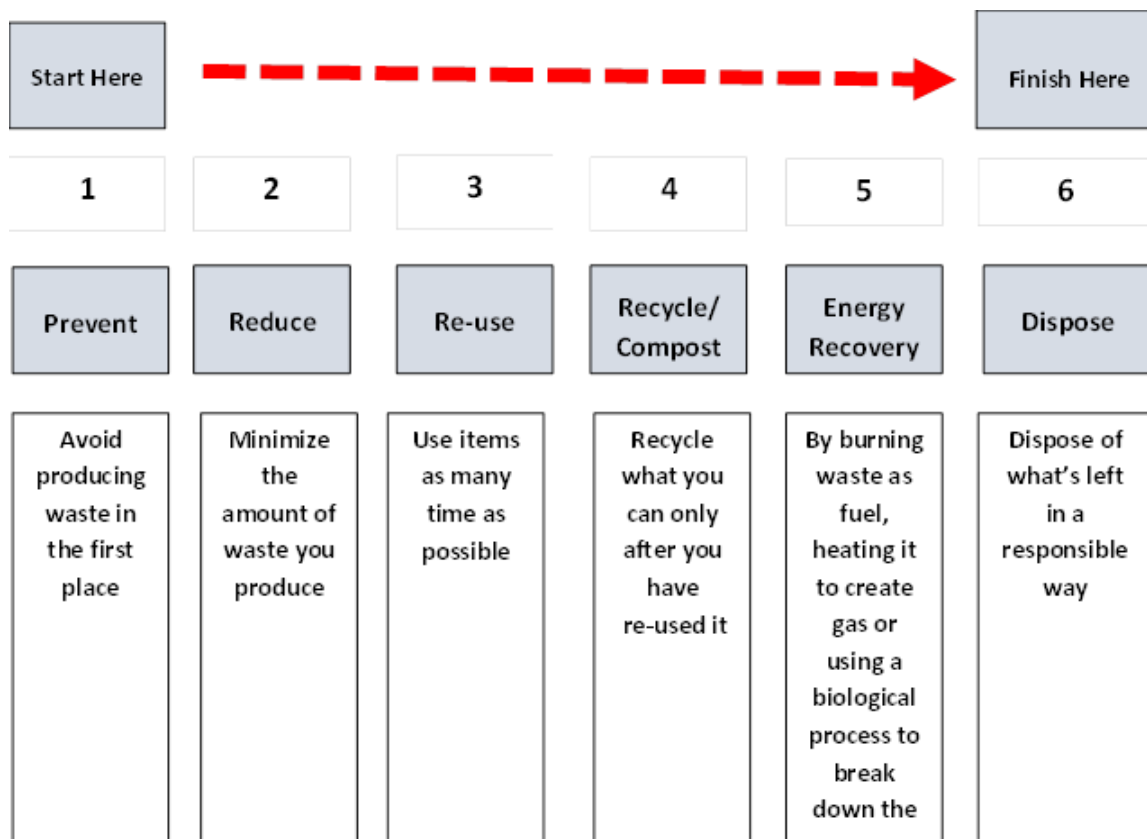


Figure 7: Sequence of the Waste Hierarchy [adapted from Staffordshire County Council, UK]

- Stage 1 "**Prevent**" aims at motivating waste producers for less waste. Prevention of waste is important in manufacturing. Purchasing products that incorporate waste reduction features or those that can be given an extended life support source reduction of waste. Two incentives shall sustain the minimization policy. At the very front-end, the "polluter-pays" principle holds that importers, manufacturers and distributors who profit from waste generating activities shall pay for the costs of pollution. The complementary incentive, the "user-pays" principle implies that those who use a service should pay for it proportionally.
- Stage 2 "**Reduce**" means reducing waste at the source. It can take many different forms, including reusing or donating items, buying in bulk, reducing packaging, redesigning products, and reducing toxicity. Several initiatives can support legal enforcement and encourage businesses to accept increased liability and to lower waste generation, such as setting prevention and reduction targets through voluntary agreements, partnerships with professional institutions and associations, targeted awareness campaigns, waste audits and promotion of the "clean production" concept.

The mobilization of public and political support is as crucial to both financing waste management and keeping waste minimization as cost-effective as possible. Successful waste minimization relies on support, acceptance and commitment from the community, individuals and organizations within the community. As for hygiene education, schools shall be a primary target group for waste education. This has to be addressed by developing a behaviour change model including resourcing education, research, awareness campaigns, reward schemes, dissemination of good practice and support for community initiatives and promotion.

- Stage 3 "**Re-use**" implies that waste can be turned into a value worth using for the same or another use.
- Stage 4 "**Recycling and composting**" are a series of activities that includes the collection of used, reused or unused items that would otherwise be considered waste; sorting and processing the recyclable products into raw materials; and remanufacturing the recycled raw materials into new products. Consumers provide the last link in recycling by purchasing products made from recycled content. Recycling also can include composting of food scraps, garden trimmings and other organic materials. Recycling prevents the emission of many greenhouse gases and water pollutants, saves energy, supplies valuable raw materials to industry, creates jobs, stimulates the development of greener technologies, conserves resources and reduces the need for new landfill sites and combustors.

Recycling can reduce waste in landfills as well as provide economic, environmental and social positives. The state shall assist private-sector and community initiatives in establishing markets for recyclable products, with priority for materials that are currently being recycled and/or can find sustained market demand. Such support may include training and the provision of reimbursable funding or grants.

Complementarily, the segregation of waste at source and separate collection of recyclable and compostable waste must be promoted and shall be implemented first within the institutional sector.

Advice, assistance, practical demonstration, pamphlets and educational materials are means to promote the benefits and techniques of home composting and worm farming as alternatives to disposal via public collection. Schoolchildren may cultivate their potage and learn about composting.

- Stage 5 "**Energy Recovery**" from waste is the conversion of non-recyclable waste materials into useable heat, electricity or fuel through a variety of processes, including combustion, gasification, pyrolyzation, anaerobic digestion and landfill gas recovery. This process is often called Waste –to- energy (WtE).

Organic waste represents the majority of the waste to dumpsites. Additionally, an unknown portion of organics is composted or buried by households and businesses on their premises. At the dumpsites, organic garden waste and paper are the source of most of the damaging leachate, greenhouse gases and odours, but they also represent a valuable resource which should be recovered, e.g., composted or transformed into briquettes.

- Stage 6 "**Disposal**" is the least-favoured option and should only be applied to the remaining section of waste that was not managed through previous stages. This stage includes landfills treatment facilities.

Due to high transportation costs, collection efficiency is crucial and shall be optimized through a system of kerbsides, transfer stations and adequate means of transportation for each stage. Kerbsides shall be equipped for waste separation and its management can be outsourced to local waste collectors. Private and community initiatives are to be encouraged also outside Kigali in secondary urban centres.

A range of technologies is available to reduce the amount of waste in landfills, including anaerobic digestion, composting, mechanical, biological and thermal treatment. Some techniques allow energy recovering from waste and can contribute to meeting fuel demand.

Uncontrolled dumpsites shall cease to operate and be replaced with environmentally sound landfills. Identification of future landfill sites and technologies shall be undertaken based on selection processes considering technical, financial, social and operational criteria. A site shall

host sufficient volume.

New developments in low-cost landfill technology and operation shall be continually investigated. Landfill operators shall establish partnerships with Rwandan scientific institutions for quality control and operational performance. Landfills shall monitor types and quantities of waste supplied from different sources, while general urban waste surveys can be carried out periodically.

Due to the elevated and often concentrated environmental risks, a map and register of hazardous industrial and medical waste producers and products shall be established and include actual techniques and equipment used for disposal, e.g., incinerators. To comply with environmental legislation, guidelines are to be edited for safe waste handling, storage, transport, treatment and drop-off or disposal for each category of hazardous waste. A Technical Advisory Network shall be set up in collaboration with Rwanda's scientific institutions that, considering the level of risk, shall monitor premises and activities and establish emergency plans to remedy or mitigate adverse impacts.

The full application of the Waste Hierarchy will have a significant impact on the cost of public services. In specific circumstances (for instance, in some industries) prevention, reuse and recycling may eventually lead to zero waste processing, in which there are no waste produced at all.

Should all preventive measures be applied and prove to be successful, then the cost of public services (and, more importantly, the cost of sustainable O&M) will be considerably reduced.

Conversely, should no prevention measures be implemented, and no use made of household responsibility and ability to reduce waste at source, then the cost of public services will remain a very heavy burden on public finances. By combining both the Waste Hierarchy and the household responsibility approach it is possible to identify potential opportunities for optimized solid waste management. This list of actions is not exhaustive, but will illustrate the kind of measures that need to be taken for each priority. Government institutions, Districts and Development partners may identify additional measures suitable for the local conditions.

5.5.3. Targets and estimated costs by the public sector (All costs 2015–2020, in RWF million)

Solid waste management

Performance indicator	Target					Costs ≤ 2020	Implementa- tion
	16/17	17/18	18/19	19/20	29/30	Total	

5.1 Develop an integrated approach for solid waste management in Rwanda								
National Solid Waste Task Force operational	X					15	Authority; MINALOC; MINEDUC; MINEACOM; REMA; RURA; Districts; City of Kigali	
Integrated solid waste management concept and master plan for Kigali established	X					30		
Emergency and transitional measures ready for implementation	X					30		
Number of sanitation master plans for urban areas integrating <u>solid waste</u> considerations	1	3	5	8	15	cf. 7.3		

						Total	75
5.2 Implement minimization of waste as a national priority							
Tools developed and awareness campaigns on solid waste reduction executed	X	X	X	X	X		150
						Total	150
5.3 Recover value from waste and promote safe collection and reuse/recycling systems involving the private sector							
Per cent of non-organic domestic waste collected in urban areas	60	80	100				250
Per cent of domestic waste reused, recycled or properly disposed in urban areas (e.g., paper, glass, plastic, metal)	10	20	40	60	80		250
						Total	500
5.4 Ensure safe disposal of residual waste and improve existing dumpsites in the context of sanitation master plans							
Number of landfills constructed in urban areas by district as per minimum standard	1	5	12	15	25		14.112
Per cent of non-organic industrial waste collected and disposed in urban areas	50	60	70	80	90		100
						Total	14.212

Total costs of solid waste management 2015–2020: RWF **14,937,000,000** (without e-waste)

5.6. SAFE MANAGEMENT OF E-WASTE, INDUSTRIAL WASTE, RADIOACTIVE WASTE AND HEALTH-CARE WASTE

Objective 6: Ensure safe management of e-waste, industrial waste, radioactive waste and health-care waste

5.6.1. Background and rationale

The waste produced by electronic equipment, industrial processes, radioactive action and medical facilities is harmful to the environment and human health when not properly managed. Strategic actions for the safe management of waste generated from such activities have been formulated.

i) E-waste management

The increased usage of electrical and electronic equipment would subsequently generate increased volumes of e-waste. Moreover, the current lack of infrastructure to handle e-waste in Rwanda has motivated institutions and private persons to store outdated equipment, which also needs to be managed in an environmentally safe manner. To ensure a safer environment and good health for the community, the specific e-waste policy as well as the e-waste regulations shall be finalized to enhance e-waste management. The appropriate Legal and regulatory framework for electronic waste management shall be established.

Given the challenge of lack of infrastructure for e-waste handling and management, facilitation of establishment of such Infrastructure will be pertinent. Enticement of the private sector will be central to putting in place the e-waste Management infrastructure and resource mobilization for sustainable management of e-waste.

E-waste management awareness campaigns and environmental health promotion shall enhance awareness of the Rwandan population about the risks associated with e-waste.

ii) Industrial waste management

Industrial waste is the waste produced by industrial activity which includes any material that is rendered useless during a manufacturing process such as that of factories, industries, mills and mining operations.

Waste from industrial firms is a particularly damaging problem for the water sources in the country. This waste shall need to be mitigated through the promotion of treatment and through the cleaner production process. The Government of Rwanda, particularly local government in collaboration with the regulatory authority, shall have a big role to play in the regulation of pollution as well as provision of infrastructure for mitigation and the treatment of waste.

Important strides have been made where most industries have been placed in the appropriate industrial zones to ensure the protection of the environment as well as human health. Challenges still linger with respect to industrial waste management infrastructure. A specific industrial waste management policy as well as the regulatory tools shall be developed followed by ensuring that industrial parks are constructed with centralized wastewater treatment plants.

iii) Radioactive/nuclear waste management

The main objective of radioactive/nuclear waste management is to control and account for radioactive waste to protect human health and the environment, but also to make sure that unnecessary burdens are not left for future generations. Due to the specificity of nuclear/radioactive waste, a specific nuclear/radioactive waste management policy and strategy shall be developed.

iv) Health-care waste management

The policy framework for health-care waste exists whereby the National Policy on Injection Safety, Prevention of Transmission of Nosocomial Infections and Healthcare Waste Management (2009), National Guidelines on Health Care Waste Management, Health Policy 2014 and Health Sector Strategic Plan (2012–2018) have been developed.

Special health-care waste disposal sites shall be constructed and special transportation facilities for health-care waste shall be availed due its impact on human health and the environment. The law governing health-care waste management will need to be developed as well to ensure effective waste management.

5.6.2. Targets and estimated costs by public sector (all costs 2015–2020, in RWF million)

Management of e-waste, industrial waste, radioactive waste and health-care waste

Performance indicator	Target					Costs ≤ 2020	Implementa- tion
	16/17	17/18	18/19	19/20	29/30	Total	
1. Establish e-waste collection and management framework							
Completion of the specific policy on e-waste	X					10	MYICT; RURA;MINEA COM; REMA;RSB
Development and approval of e-waste regulations and legislation	X					40	
Awareness campaigns on e-waste management	X	X	X	X	X	8	
					Total	58	

2. Establishment of the industrial waste management framework to minimize environmental pollution							
Industrial waste management policy developed		X				50	Authority; MINALOC; MINIRENA; REMA; Districts
Industrial waste management guidelines developed and disseminated			X			40	
Development and dissemination of Industrial Waste Law	X			x		30	
Development of industries with centralized wastewater treatment systems	X	x	x	x	x	4,000	
					Total	4,120	

3. Develop radioactive waste management framework							
Radioactive/Nuclear Policy and Strategy Developed		x				100	Authority; MINALOC; MINIRENA; REMA; Districts
Regulations, guidelines and law for Radioactive/Nuclear waste Developed	X	x	x			45	
					Total	145	

6.4 Strengthen the policy framework for the management of health-care waste							
Review of health-care waste management policy	X					25	MINISANTE, MININFRA, REMA, Districts
Capacity-building framework on health-care management developed		x				30	
Dissemination of health care management guidelines to health centres	X					25	
					Total	80	

Total costs of e-waste, industrial waste, radioactive waste and health-care waste 2015–2020: RWF 4,403,000,000

6. IMPLEMENTATION STRATEGY TO ACHIEVE THE SPECIFIC OBJECTIVES

6.1. CRITICAL ISSUES AND CHALLENGES

The purpose of this section is to highlight critical aspects of implementation in a concise manner, without repeating the details provided in other sections.

6.1.1. Year 2016/17

The magnitude of the planned interventions combined with the need to revise and develop the institutional framework makes it obvious that 2016 is decisive for laying the ground for successful sector development. This involves creating or strengthening institutions, financing and coordination mechanisms; capacity building at all levels; strengthened sector harmonization; and the formulation and funding of the key projects/programmes to be carried out in subsequent years.

This will require political attention, considerable efforts, clear priorities and adequate planning and management capacities. It is strongly recommended to strengthen the sector management capacities by involving technical assistance during the next –two to three years to assist a Programme Implementation Unit to coordinate the strategic actions for individual sanitation.

6.1.2. Sanitation challenges

At the overall level, there are three major challenges for the implementation of the sanitation sub-sector strategy.

Start-up phase: The relative inexperience in providing and promoting national sanitation services will require considerable initial efforts. Sufficient planning capacity and funding must be made available for the 2016 start-up phase. Under the strategy, 2016/17 may focus on pilot projects, in particular with regard to infrastructure, before rolling out and scaling up interventions starting in 2017/18.

Sector coordination: Successful sanitation programmes need not only infrastructure works but also the provision of services and behaviour change-oriented concepts and activities. The appropriate balance to manage state interventions will require a multi-sectoral approach involving various line ministries, regulation bodies and administrative levels down to districts, sectors and imidugudu, as well as the mobilization of the private sector, community-based associations and households. A dedicated Programme Implementation Unit shall coordinate these interventions until 2018.

Efficiency of public financing: The financing of the planned increase of sanitation coverage needs to tap into all available sources and the optimization of public investments down to the districts. Since access to the domestic financial market is hardly available for operators yet, state investments and expenditures must mobilize financial contributions from public or private investor-operators, such as WASAC and others under the PPP scheme, as well as, to an even larger extent, from private households. The latter will be required to provide to the bulk of the funds for the construction or improvements of most domestic sanitary facilities.

Specific strategic conceptual and implementation challenges concern the following domains:

Individual sanitation: The key role will belong to the households and the challenge is to develop a performing institutional set-up at district level that will be able to conceive and implement an effective combination of demand generation and service provision measures, including emptying services and sludge treatment.

Collective sanitation hardware: The challenge is to plan and implement low-cost sewerage systems combining a balanced social and technical approach, to achieve cost recuperation (sustainability) and eventually to tap into the domestic financial market for the financing of sewerage extensions. In addition to that, WASAC does not have experience in operating sewerage systems, and training and capacity building must be provided to achieve the planned and built performance.

Storm water management: The main challenge is to implement intelligent urban planning measures in order to limit expensive construction works.

Solid waste management: The challenge is to establish a cost-effective and sustainable solid waste management approach by identifying the key drivers for most cost-effective waste minimization and profitable recycling and for the mobilization of all stakeholders.

6.2. INSTITUTIONAL RESPONSIBILITIES AND COOPERATION REQUIREMENTS

Implementation of the Policy and the Policy Implementation Strategy will be a joint responsibility of various government institutions – several ministries and national autonomous entities as well as local governments – in general under the overall oversight of MININFRA. Government bodies, development partners and non-government stakeholders will cooperate in a SWAp framework, agreed in 2015 but to be fully operationalized in 2016 and beyond.

MININFRA shall lead the institutional reform process and will host a regular Sector Working Group that ensures coordination and monitoring of the sector programme, including dialogue and communication with other sector stakeholders (in particular local governments, other sector institutions, cross-sectoral planning and regulatory bodies, NGOs and the private sector). MININFRA shall present a report on policy/strategy implementation to the Sector Working Group on a six-month basis.

A specific Working Group as a sub-group of the Sector Working Group will be set up for coordination and development of the solid waste and storm water management sub-sectors.

The schemas below provide an overview of the key roles and responsibilities of the public institutions involved in each of the sanitation components for rural and urban areas.

Institutional Responsibilities - Sanitation (management excreta and wastewater)				
Solutions / facilities →	Individual Sanitation		Collective Sanitation	
Responsibilities ↓	On-site (households)	Off-site sludge management	On-site (households)	Off-site networks
	(Latrines, toilets w/ septic tanks, not connected to network)	(sludge emptying services, sludge disposal facilities)	(Waterborne toilets connected to network)	(Sewerage networks, public or private wastewater treatment plants)
Planning (Policy, strategy)	MININFRA with contribution MoH, MINALOC		MININFRA with contribution MoH, MINALOC, REMA	
Legislation	MININFRA, MoH, MINALOC		MININFRA, MoH, MINALOC	
Standards	MININFRA, MoH, REMA, RSB		MININFRA, MoH, REMA, RSB	
Masterplans	Districts with support MININFRA		Districts with support MININFRA	
Coordination	New Individual Sanitation Program Unit at MININFRA or MINALOC		MININFRA	
Demand generation				
<i>Awareness</i>	MoH + Districts		MININFRA, MoH, Districts	
<i>Marketing</i>	Shops, masons	Service providers, District	WASAC (urban areas), District, private service providers	WASAC (urban areas), District, private operators
<i>Enforcement</i>	District	REMA, RURA, District	District	REMA, RURA, CoK , District
Access provision				
<i>Equipment, material</i>	Shops, trade	District, private service providers	Shops, trade	WASAC (urban areas), private operators
<i>TVET</i>	MINEDUC	MINEDUC	MINEDUC	MINEDUC
<i>Construction</i>	Masons (hired by households, with support by District)	District (sludge disposal)	Masons (hired by households/ owners, with support by District)	WASAC (urban areas), private operators
<i>O&M</i>	Households	WASAC (urban areas), District, private service providers	Households (owners/users)	WASAC (urban areas), District, private operators
<i>Financial (CAPEX)</i>	Households	MINECOFIN, MININFRA, District, private service providers	Households (fees)	WASAC (MINECOFIN), private operators
Sanitary inspection	-	-	-	-
M & E	NISR, MoH	NISR, MoH, RURA, REMA	NISR	NISR, MoH, RURA, REMA

The main responsibilities of the state for **individual sanitation** will be with MININFRA and MoH, sharing the responsibility with the districts to promote environmental health awareness and to provide and support technical and financial solutions for creating an enabling environment allowing for efficient upgrading or replacing gradually the household latrines. However, individual households as well as the industry will continue to be fully responsible for financing, building and operating their individual sanitation facilities.

MININFRA will hold the main responsibility for promoting **collective sanitation** services, storm water and solid waste infrastructure and management. MININFRA will count on the support from MoH (environmental health) and will cooperate with WASAC (for urban sewerage), the districts and the private sector for planning, implementation and O&M. The private sector is encouraged to contribute technically and financially as service provider, constructor, operator or real estate developer. Households and communities (e.g., Imidugudu) will participate in a variety of ways for sanitation, storm water prevention and solid waste management.

The technical and financial responsibilities for **institutional sanitation** improvements in schools, health facilities and public places will be shared among MINEDUC, MoH and districts that will count on technical support from WASAC and MININFRA.

Institutional Responsibilities - Sanitation (management excreta and wastewater)

Solutions / facilities	Institutional Sanitation
Responsibilities	Institutional level
	(Latrines + toilets in schools, health centers, markets, stadionss and public places)
Planning (Policy, strategy)	MININFRA, MoH, MINEDUC, MINALOC
Legislation	MININFRA, MoH, MINALOC, MINEDUC
Standards	MININFRA, MoH, REMA, RSB,
Masterplans	MoH, MINEDUC, MINALOC
Coordination	MININFRA
Demand generation	
<i>Awareness</i>	MoH, MINEDUC, MINALOC (Districts)
<i>Marketing</i>	MoH, MINEDUC, MINALOC (Districts)
<i>Enforcement</i>	MoH, MINEDUC, MINALOC (Districts)
Access provision	
<i>Equipment, material</i>	Shops, trade
<i>TVET</i>	MINEDUC
<i>Construction</i>	Masons + contractors (hired by institutions)
<i>O&M</i>	MoH, MINEDUC, MINALOC (Districts)
<i>Financial (CAPEX)</i>	MoH, MINEDUC, MINALOC (Districts)
Sanitary inspection	MoH
M & E	MoH, MINEDUC, MINALOC (Districts), NISR

Institutional Responsibilities - Drainage / Storm Water		
Solutions / facilities	Drainage / Storm water Management	
Responsibilities	Household level	Public/off-site
	(rain harvesting, surface permeability, stormwater storage)	(Urban planning/land use, retention measures, drainage systems)
Planning (Policy, strategy)	<u>MININFRA</u> with contributions from MINALOC, REMA	
Legislation	MININFRA, MINALOC, REMA, RURA	
Standards	<u>MININFRA</u> , REMA, RSB	
Masterplans	<u>Districts</u> with support MININFRA	
Coordination	Task Force at MININFRA or MINALOC	
Demand generation		
<i>Awareness</i>	Districts	
<i>Marketing</i>	District	Service providers, CoK, District
<i>Enforcement</i>	District	<u>REMA</u> , RURA, District
Access provision		
<i>Equipment, material</i>	Shops, trade	District
<i>Construction</i>	Masons (hired by households)	District, CoK, RTDA with Contractors, private operators (condominials)
<i>O&M</i>	Households	District with Contractors, private operators (condominials)
<i>Financial (CAPEX)</i>	Households	District with Contractors, private operators (condominials)
M & E	-	District

Institutional Responsibilities - Solid Waste Management		
Solutions / facilities →	Solid Waste Management	
Responsibilities ↓	Household level	Public/off-site
	(Separation of waste, composting, recycling)	(Reduction, selective collection, transport, recycling, reuse, safe disposal)
Planning (Policy, strategy)	MININFRA with contributions from MINALOC, REMA, District	
Legislation	MININFRA, MINALOC, REMA	
Standards	MININFRA, REMA, RSB, RURA	
Masterplans	Districts with support MININFRA	
Coordination	Task Force at MINALOC	
Demand generation		
<i>Awareness</i>	Districts, REMA	
<i>Marketing</i>	District, REMA	Service providers, CoK, District
<i>Enforcement</i>	District, REMA	REMA, RURA, CoK, District
Access provision		
<i>Equipment, material</i>	Shops, trade	District
<i>Construction</i>	Masons (hired by households)	CoK, District with Contractors, private operators (condominials)
<i>Business development</i>	-	MINICOM
<i>O&M</i>	Households	District with Contractors, private operators (condominials)
<i>Financial (CAPEX)</i>	Households	District with Contractors, private operators (condominials) (household pay tariff)
M & E	-	District

Institutional responsibilities – Sanitation (electronic waste, industrial waste, radioactive waste and health-care waste)				
Solutions/facilities →	Electronic waste	Industrial waste	Radioactive/nuclear waste	Health-care waste
Responsibilities ↓				
Planning (Policy, strategy)	MYICT, MININFRA, MINEACOM, MoH	MINEACOM, MININFRA	MININFRA, MINIRENA, MoH	MoH; MININFRA
Legislation	MYICT, MINEACOM	MINEACOM	MININFRA, MINIRENA	MoH; MININFRA
Standards	REMA, RSB, NICA	REMA, RSB, NICA	REMA, RSB, NICA	REMA; RSB; NICA
Master plans	Districts with support from MYICT	Districts with support from MINEACOM	Districts with support from MINIRENA and MININFRA	Districts with support from MoH; MININFRA
Coordination	MYICT/MININFRA	MINEACOM, MININFRA	MININFRA, MINIRENA	MoH; MININFRA
Guidelines development	MYICT, MoH	MINEACOM, MININFRA	MININFRA, MINIRENA	MoH
Regulations development	RURA	RURA	RURA	RURA
Awareness-raising	Districts +MYICT	Districts + MINEACOM	Districts + MININFRA and MINIRENA	Districts + MoH
<i>Selection of the sites</i>	MYICT + Districts +MoH	MINEACOM/districts	Districts + MINIRENA	Districts + MoH
<i>Enforcement</i>	Districts with support from MYICT	Districts with support from MINEACOM	Districts with support from MINIRENA	Districts with support from MoH
<i>Imports</i>	Rwanda Revenue Authority, Users	Rwanda Revenue Authority, private sector	Rwanda Revenue Authority, Private Sector	Rwanda Revenue Authority; RSB
Skills development	MINEDUC	MINEDUC	MINEDUC	MINEDUC
Sanitary inspection	REMA, RURA, RSB	REMA, RURA, RSB	REMA, RURA, RSB	REMA; RURA; RSB
M&E	REMA, MININFRA, MYICT	REMA, MININFRA, MINEACOM	REMA, MINIRENA, MININFRA	REMA; MoH; MININFRA

In all areas, the district administrations and the City of Kigali shall assume a leading role in the execution and supervision of activities within their territory and must develop the appropriate management capacities. RURA, REMA and RSB are the main independent national regulating bodies, while the subsequent enforcing functions and responsibilities have to be defined carefully by the task forces of each area.

6.3. IMPLEMENTATION COSTS AND FINANCING

6.3.1. Total funding requirements

As summarized in the table below, the total public funding requirements for the Sanitation Policy Implementation Strategy are about RFW 135.1 billion (US\$179.5 million) for the three-year period 2016–2018. All cost estimates are indicative, pending more detailed cost evaluations through a detailed Sector Investment Plan/financial model by type of activity and/or intervention.

The costs below refer to public funding requirements only, to be provided through the government budget and/or through channels of development cooperation. Private investments (by households or companies) and costs covered by fees (such as O&M costs) are not shown, but are described in the following section on financing arrangements.

Table 1: Public funding requirements in the sanitation sub-sector 2016–2020

Priority areas	Public funding requirements		
	Cost 2016–2020		
	RWF (millions)	USD	%
Individual sanitation and sector coordination	62,550	83	46
Institutional sanitation (schools, health facilities, markets)	6,200	8	5
Collective sewerage services	43,960	59	33
Storm water management	3,065	4	2
Solid waste management	14,937	20	11
E-waste, industrial waste, radioactive waste and health-care waste	4,403	5.5	3
	135,115	179.5	100

The largest portion of investments is allocated to structural measures (hardware): sanitation facilities, sewerage systems and sanitary landfills. The responsible organizations are supposed to allocate part of their capacities and operational budget to the management of the sector activities. However, within the RWF 135.1 billion investment are included about RWF 400 million for task forces and workshops (in addition to regular ministerial operational budgets for salaries and expenses).

6.3.2. Sanitation sub-sector financing arrangements

Individual sanitation: Private households, institutions, industries and trade shall finance their sanitation facilities as in the past. Holding the overall promoting responsibility, the state shall optimize fund allocation and direct its financial means to leverage private investments through adequate sanitation marketing, regulation and standards, technical assistance and training for small enterprises and the informal construction sector. In addition to that, the state shall promote access to sanitation credit facilities and, under certain circumstances, provide targeted incentives to boost sanitation coverage.

Institutional sanitation: Building and maintenance of these sanitary facilities fall under the responsibilities of the respective institutions (MoH, MINEDUC, MINALOC/Districts) that shall provide the necessary financing for improvements, hygiene promotion and proper maintenance. However, it's proposed to make these investments eligible for funding through the sector's harmonized financing mechanism. Construction and O&M of certain public toilets – e.g., in stadiums, markets and bus stations – can be outsourced to the private sector that can provide partial or full financing and operate the facility.

Collective sanitation: Public infrastructures such as sewerage systems and sludge disposals require substantial upfront investments as well as operating funds that can be recovered in the best case only slowly over extended periods of time. The state has to provide financing and channel it through WASAC, the state-owned corporation in charge of urban collective sanitation. Alternatively, the state can establish attractive conditions for a PPP scheme in order to tap into

the (national) financial market and attract private investors/operators. Part of collective sanitation works and services will be financed, built and operated by households and industries themselves – e.g., private connections inside the premises to the public sewer, new upper/middle-class condominiums or industrial pre-treatment plants. Sludge emptying services can be carried out by the private sector as well, provided that pre-set tariffs conditions allow for business commitment.

Storm water: If the focus is put on prevention, households, business and institutions shall finance and build a major portion of local infrastructure inside their premises by integrating adequate design and planning standards into their own construction projects at reasonable/affordable costs. The state again shall optimize allocation of funding and emphasize on the financing of education, regulation, technical assistance, enforcement and the construction of the complementary public drainage systems only.

Solid waste management: This area encompasses both public infrastructure and services. The state may be requested to finance expensive upfront investments for landfills and regulate tariffs for operating cost recovery. Waste collection and recycling activities can also be provided by the private sector and community associations. Additionally, PPP arrangements for landfills can alleviate public financing needs and ensure cost recovery. Under such a participative scenario, the state should focus on financing awareness campaigns, education and training, simplified business credit schemes, regulation and enforcement and technical assistance – e.g., for heavy polluters such as slaughterhouses, hospitals and industries that may be required to finance their own solid (and liquid) waste (pre-)treatment.

Electronic waste, industrial waste, radioactive waste and industrial waste management:

Building and maintenance of the sanitary facilities fall under the responsibilities of the respective institutions (MYICT, MINEACOM, MININFRA MINIRENA and MoH) that shall provide the necessary financing for both policy and waste management guidelines development, as well as the construction of waste management facilities. However, it's proposed to make big investments eligible for funding through the sector's harmonized financing mechanism as well as private-sector involvement in the entire waste management hierarchy.

Institutional sector framework: The ambitious sector objectives can only be achieved if the institutional framework is developed to an adequate level of capacities and operational funding. In the past, many activities – senior sector staff, costs of workshops and studies, development of the MIS, etc. – have been covered by individual projects or development partners on a case-by-case basis. In the context of the SWAp joint financing channels shall be established to finance sector development activities such as:

- Program management, including SWAp secretariat costs;
- Workshops, joint performance reviews, etc.;
- information and communication technology costs (MIS, website, external communication);
- Capacity building and training courses organized by the sector;
- Consultancies, studies and technical assistance;
- Research grants for applied research in the WSS services sector; and
- Exchange visits, study tours and participation in international conferences.

At a later stage, a key challenge is to ensure regular and sufficient funding for operation. By replacing the existing and planned project implementation units to manage the implementation stage, financing shall be built into Rwanda's regular budgeting process for public services (e.g., under the results-based management method).

6.4. MONITORING AND EVALUATION AND RESULTS-BASED MANAGEMENT

The sector made considerable efforts to develop its M&E system, which is as a core part of the sector framework and SWAp. Its further optimization is one of the tasks tackled by this Policy Implementation Strategy. The ultimate objective is full implementation of results-based management at the sector level.

Considerable progress has been made in 2015 by establishing a comprehensive, Web-based MIS and conducting a baseline assessment. The challenge is to sustain the new SDGs-based concept and indicators and to make it fully operational over the next years. This include to, develop sustainable data collection, reporting and quality assurance mechanisms and formats, and provide training to all the stakeholders involved in system operation, including in particular the decentralized level (data providers).

To implement it, a sector officer will be appointed for planning, M&E and data and information management, in addition to the technical staff needed for MIS operation. A focal point in charge of data collection and progress monitoring will be nominated in each district. Efforts will be made to involve other stakeholders, in particular the utility and the NGOs active in the water sector, in the monitoring and reporting system.

Joint multi-stakeholder sector reviews will be held on a regular basis, at least annually. Key information on sector performance, EDPRS-related indicators and on the progress to develop the new indicators will be made available online.

One of the key challenges is to combine administrative, programme-related reporting with national household surveys. The sanitation sub-sector must collaborate with the National Institute of Statistics to ensure compatibility and synergies between both types of information collection.

The sector MIS will be linked to Rwanda's cross-sectoral planning and reporting systems (EDPRS, M&E frameworks and DevInfo system). It will also inform coordination forums such as the Sector Implementation Group, forum of the Secretary Generals, Development Partners Coordination Group and Cabinet.

6.5. LEGAL IMPLICATIONS

The new policy will have legal implication on the following aspects:

6.5.1. Regulation

The existing regulation shall be updated in order to match with the new Policy and Strategic Plan.

Regulations need to be updated at both national and sub-national or city levels by separate decrees, decisions, standards and guidelines defining the rules and potential penalties for the following aspects:

- the authorized stakeholders for each step of the service chain, their roles and obligations, and the mechanisms responsible for the monitoring and enforcement of each activity;
- the required design and construction standards for the on-site sanitation technologies and treatment infrastructures;
- the authorized roads and traffic rules for collection and transport for faecal sludge;
- the authorized sites for treatment and disposal for faecal sludge;
- the access and discharge conditions for the solid waste treatment, resource recovery and disposal sites (e.g., opening hours, tariffs);
- the required standards for services and products;
- Possible temporary special conditions for private business development in the sector; and
- the required enforcement and monitoring outputs.

6.5.2. Enforcement

Recent evaluations and experience of implementers have shown evidence that awareness alone is not enough to keep the status and coverage rate at a high level, ideally at 100 per cent. Unless proper enforcement of the regulation is legally implemented there is a risk of ‘natural erosion’ of the households’ commitment and investment into operation and eventually maintenance of their facilities.

A “natural” erosion can be considered as acceptable if the “effort” that is necessary to maintain the coverage rate over time originates from the community itself – or with a very light external support by legal authorities.

As in every human society the question is not whether there will be defaulters or not – but (i) how can these defaulters be dealt with within the community and (ii) what is the critical percentage of defaulters above which the coverage rate is put at stake – and the rapidity of the decline of the coverage (as illustrated in **Figure 8** below).

This figure shows that the objective of 100 per cent coverage is feasible at a specific moment in time but can hardly be sustained in the long term without enforcement. The capacity of the community to deal with defaulters through regulation enforcement so their numbers can be held at an acceptable level (for instance less than 5 per cent) is a critical requirement for long-lasting (= sustainable) adherence to the coverage rate once achieved.

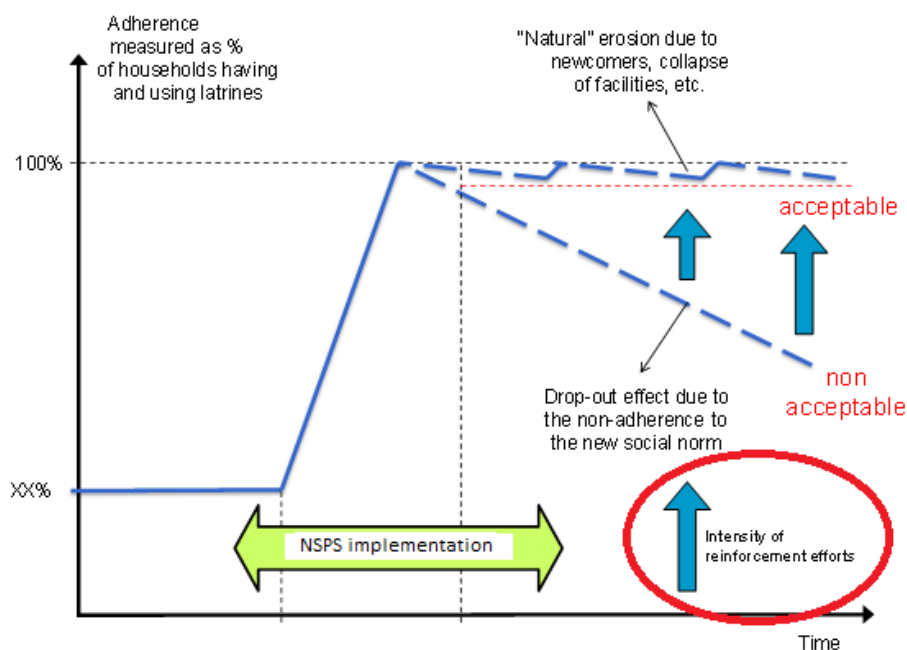


Figure 8: Importance of regulation enforcement for keeping the coverage rate over time

6.6. IMPACT ON BUSINESS

6.6.1. Cross-sector benefits

Whereas health improvement is the key consideration in the provision of water and sanitation services, other benefits are linked with the improvement of sanitation.

Figure 9 below shows the "map of benefits" of sanitation in the different sectors.

These benefits may contribute to increasing the business opportunities in several sectors if the economic benefits can transform into financial benefits for the service providers, e.g., via tariffs:

- Health conditions of the population, increasing productive days due to less illness and

- attention to patients;
- Tourism and fisheries;
- Productive reuse of treatment wastewater and treated sludge (manure) for agriculture purposes; and
- Protection of water resources implying less treatment needs for water supply.

See Figure 9 below:

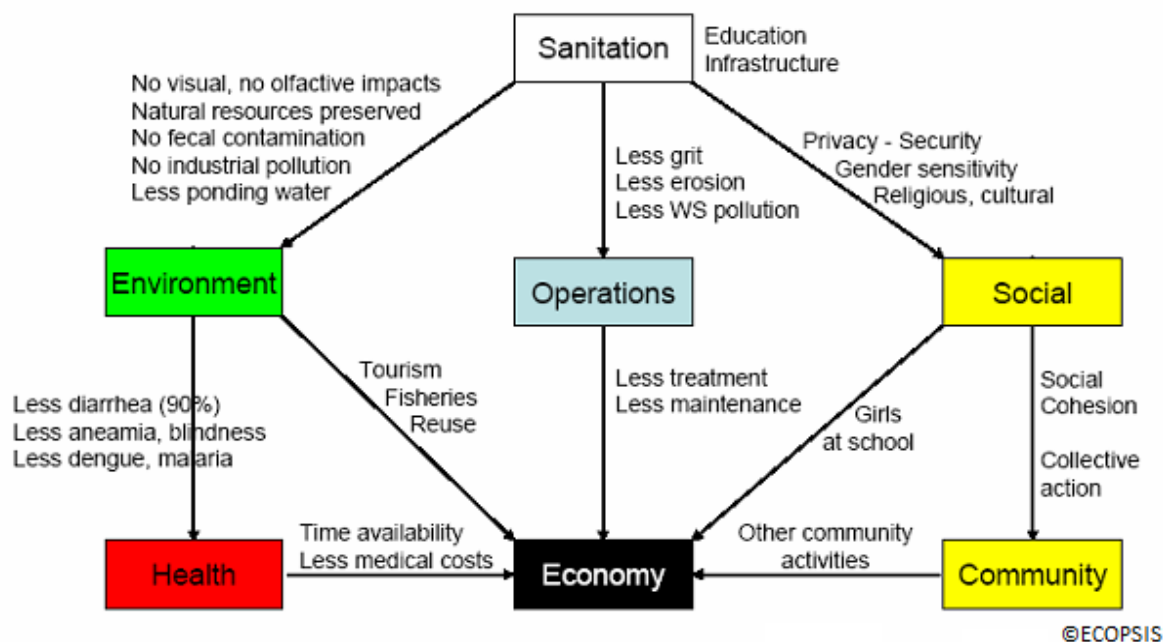


Figure 9: Economic benefits of sanitation

6.6.2. New businesses

Experiences worldwide show that sanitation can be a viable business opportunity, and has the potential to provide multiple benefits to several sectors, as shown in Figure 9 above. Market-based approaches seek to address the challenges of financial sustainability and to strengthen the role of the private business sector while empowering local communities and individuals to make their own informed decisions about obtaining sanitation products and services.

Considering the sanitation sub-sector as a marketplace full of business opportunities, is not a new concept. The private sector – be it internationally operating large-scale enterprises, social entrepreneurial programmes or small and micro-scale businesses of masons, plumbers, cleaners, emptiers or wholesalers – has often been ignored as a reliable alternative or addition to public service providers in the sanitation sub-sector.

Today the implementation of the activities in the Policy and Strategic Plan provides a strong opportunity for new businesses active in sanitation. The awareness campaigns and the enforcement of regulation will create demand that will need to be addressed by existing and new businesses.

Individual entrepreneurs that usually engage in offering simple products and services that do not require high investments – for instance, repairing and installation of toilets and bathrooms. They can act as masons, plumbers and traders, and thus generate income.

Apart from the discussion of who is involved in sanitation, it is of utmost importance not only to look at single components of sanitation but to consider the whole sanitation services chain,

including all services that are required to be in place to deliver sustainable sanitation, as described in the SDGs. The following selection shows different revenue opportunities within the sanitation services' chain, including:

- Production of sanitation hardware;
- Installation of sanitation systems;
- Operation and maintenance
- Promotion and advertisements;
- Emptying of toilets and collection and safe disposal of faecal matter;
- Training and education; and
- Reuse of nutrients, water, organic matter and biogas by, e.g., commercial farmers.

The sanitation sub-sector has the potential to provide economically viable business opportunities for both public and private organizations. Although the National Sanitation Policy Implementation Strategy puts a strong emphasis on private enterprises, the role of government must not be overlooked. Improved the specific *regulation* in the sanitation sub-sector is a key area in which government must play a leading role, as it has already shown by simplifying the rules of doing business in Rwanda.

Collaboration between private and public entities in sanitation should be encouraged where the districts provide sites and approvals for the construction and the private sector covers investment costs. Private and social businesses should be encouraged further to increase their presence in service provision in the sanitation sub-sector. The sale of sanitation products will remain dominated by the private sector, but more enterprises should become active in the product area so as to establish a wider distribution network to reach the people who need affordable sanitation products the most.

7. COMMUNICATION STRATEGY

7.1. OBJECTIVES

The elaboration process of the National Sanitation Policy Implementation Strategy is an excellent opportunity to start communicating and advocating for understanding key challenges and support change, in particular the ambitious objective of universal access and coverage by 2018. The appropriate communication can support the following strategic changes:

- the mobilization of all financing sources including government, donors, self-financing, local private sector, communities and microfinance;
- the facilitation of the consultative process with all stakeholders so that sector planning becomes more accessible, transparent and accountable;
- the emphasis on affordable and sustainable urban and rural sanitation propositions supported by the Government of Rwanda's budget allocation, institutional mechanism and performance monitoring;
- the motivation to strengthen the capacities of districts and the private sector in service delivery; and
- the promotion of increased public awareness, effective citizen participation and media interest leading to greater parliamentary scrutiny and accountability of activity in the sector and service providers' efficiency and responsiveness.

The objectives are twofold:

Short-term objective:

- To promote a sector-wide endorsement of the Policy and Strategic Plan and the commitment to support implementation.

Long-term objective:

- To enhance general awareness about sanitary challenges, solutions, costs and responsibilities of all stakeholders and beneficiaries.

7.2. STAKEHOLDERS AND TARGET AUDIENCES

Stakeholders who regard the issue as important, and who also have influence over that issue, are likely to be the priority audience, as Figure 10 illustrates:

Importance of the issue to the target audience	High	Secondary audience	Priority audience	Priority audience
	Medium	Ignore	Secondary audience	Priority audience
	low	Ignore	Ignore	Secondary audience
		Low	medium	high

Influence of the target audience on the issue

Figure 10: Stakeholder diagram

A similar analysis will allow the identification of those who are likely to be key allies and opponents in relation to the issue.

- Those who have most influence but are most anti-position will be those where the key convincing will need to take place first;
- Those with the most influence and who are most in favour of the issue are likely to be key allies from the very beginning; and
- Those with high influence, who are neutral on the issue, could well be key targets at the earlier stages of the communication and advocacy work.

7.3. KEY MESSAGES

The content of the messages must be based on solid facts and analysis, creating compelling arguments and message design. Existing sector analysis and the background papers for the National Sanitation Policy Implementation Strategy will provide evidence about the situation as well as about the key challenges.

In addition to that, selection and content of the messages must be framed differently, according to the audience the message is aimed at. Communication can focus on economic returns of sanitation, while communication with communities should rather emphasize issues related to their daily concerns, such as the impact of sanitation on child health.

Some key message control questions are: What shall be communicated? Why? Who communicates? To whom? When? Where? How?

The National Policy and Strategy Steering Group shall be responsible for the elaboration of the communication strategy and detailed action plan, and monitor its implementation over the next three years.

Annex: List of documents used for the policy review

1. 'Assessment of Surface and Groundwater Quality in the Nyabugogo Wetland: Impacts of domestic, industrial and wastewaters and climate change'; University of Rwanda – List of Members Dr. Christian Sekomo Birame, Dr. Uwamariya Valentine, Dr. Omar Munyaneza and Mr. Nkundimana Emmanuel, 19 September 2014.
2. 'Characteristics of Households and Housing' Thematic Report, Fourth Population and Housing Census, RPHC 4 or EICV 4 Rwanda, 2012.
3. Child-Friendly Schools Infrastructure 'Standards and Guidelines Primary and Tronc Commun schools', Rwanda Ministry of Education, updated on 12 October 2008.
4. Detailed district physical plans for Kicukiro and Gasabo, Kigali, Rwanda; 'Kigali City Master Plan Report: Task Order 3 – Concept planning', city of Kigali, May 2013.
5. Economic Development and Poverty Reduction Strategy 2008–2012, Republic of Rwanda, September 2007.
6. Fonseca, C., 'DRM and WASH in the Financing for Development Agenda', Finance Brief 4, Public for WASH, April 2015, <www.publicfinanceforwash.org>.
7. 'Getting Africa to Meet the Sanitation MDG: Lessons from Rwanda', Mr. Nitin Jain, July 2011.
8. 'Governance/Institutional Arrangements for Urban Storm Water Drainage Management', United Nations Human Settlements Programme, August 2014.
9. Government of Rwanda, Ministry of Infrastructure, Water and Sanitation sector Working Group, Task Force on Benchmarking and Functionality of Rural Water Supply Systems, 'Monitoring Service Delivery of Rural Water Supply Systems in Rwanda', December 2014.
10. 'Guidelines for Drinking-Water Quality', Fourth Edition, World Health Organization, 2011.
11. 'Guideline of Latrine Technologies Usable in Rwanda', developed by MININFRA in partnership with UNICEF, November 2011.
12. 'Harmonization of Water, Sanitation and Hygiene (WASH) Concepts, Norms and Standards: Final report', MININFRA funded by Japan International Cooperation Agency, prepared by HICE Consult, November 2013.
13. Health Sector Policy, Ministry of Health, 2014.
14. 'Identified Wash Facilities Used in Rwanda', MININFRA, November 2013.
15. 'Improving Hygiene Behaviour of Communities throughout Rwanda, Republic of Rwanda', Ministry of Health produced with support from WSP, November 2008.
16. 'Improving Rural Water Service in Rwanda with Public-Private Partnerships', Smartlessons, Authors: IFC and WSP – Mr. Christophe Prevost, Mr. Bruno Mwanafunzi, Mr. Nitin Jain and Approving Manager Mr. Jae So, November 2010.

17. Joint Monitoring Programme for Water Supply and Sanitation, 'Improved Drinking-Water Sources', World Health Organization/United Nations Children's Fund, updated March 2012.
18. Law No. 62/2008 of 10 September 2008 putting in place the use, conservation, protection and management of water resources regulations.
19. Ministerial order relating to the requirements and procedure for environmental impact assessment, Minister of Natural Resources
20. 'Monitoring Levels of Service and Sustainability', Akvo FLOW, Water for People.
21. 'National Policy and Strategy for Water Supply and Sanitation Services', MININFRA, February 2010.
22. ODI Report, 'Private Sector and Water Supply, Sanitation and Hygiene', Mr. Nathaniel Mason, Ms. Mariana Matoso and Mr. William Smith, October 2015.
23. Order No. 71/18: Public Hygiene and Sanitation, Enforced in Rwanda by ERO no. 71/106 of 20 July 1949.
24. Order No. 71/18: Public Hygiene and Sanitation, Enforced in Rwanda by ERO no. 71/106 of 20 July 1949.
25. Republic of Rwanda, Government Programme 2010–2017, Mr. Paul Kagame – President of the Republic of Rwanda, October 2010.
26. Republic of Rwanda, Ministry of Health, 'National Food Safety Policy', validated draft, January 2016.
27. 'Roadmap for CBEHPP, Community-Based Environmental Health Promotion Programme', Republic of Rwanda – Ministry of Health, January 2010.
28. Rwanda Standard, Potable Water — Specification, RS 2:2012, second edition, RBS 2012, 25 January 2012.
29. Rwanda Vision 2020, Republic of Rwanda, June 2003.
30. The City of Kigali Development Plan, 2012/13-2017/18, Republic of Rwanda, 21 October 2013.
31. 'The Third Integrated Household Living Conditions Survey (EICV 3), Main Indicators Report', National Institute of Statistics of Rwanda, 2011.
32. 'The Fourth Integrated Household Living Conditions Survey (EICV 4), Main Indicators Report', National Institute of Statistics of Rwanda, September 2015.
33. The Guideline study on large-scale water supply projects, Final Report, 'Definition of Large-Scale Water Supply Projects Concept and Selection on Sites for Large-Scale Water Supply Projects in Eastern Province', Prepared by HICE Consult, October 2014.
34. Updated version of the National Human Settlement Policy in Rwanda, MININFRA, May 2009.

35. 'UNICEF's Role in Water towards 2015 and Beyond', UNICEF WASH Position Paper, November 2011.
36. 'Wastewater Treatment Plants, Part 1: Vocabulary', RBS 2012.
37. 'Wastewater Treatment Plants, Part 3: Safety principles', RBS 2012.
38. 'Wastewater treatment plants, Part 4: General data required', RBS 2012.
39. Water discharge standards.
40. World Water Council, 'Water: Fit to finance? – Catalyzing national growth through investment in water security', Report of the high-level panel on financing infrastructure for a water-secure world, April 2015.
41. WSP, 'The Costs of Meeting the 2030 Sustainable Development Goal Targets on Drinking Water, Sanitation, and Hygiene', Summary Report, Mr. Guy Hutton and Ms. Mili Varughese, January 2016.
42. World Health Organization, United Nations Children's Fund and United States Agency for International Development, 'Improving Nutrition Outcomes with Better Water, Sanitation and Hygiene: Practical solutions for policies and programmes': 1. Nutrition disorders; 2. water quality; 3. sanitation; 4. hygiene health; and 5. knowledge, attitudes and practice, 2015.
43. UN-Water GLAAS Country Survey 2011; UN-Water GLAAS December 2011; 8 June 2012.