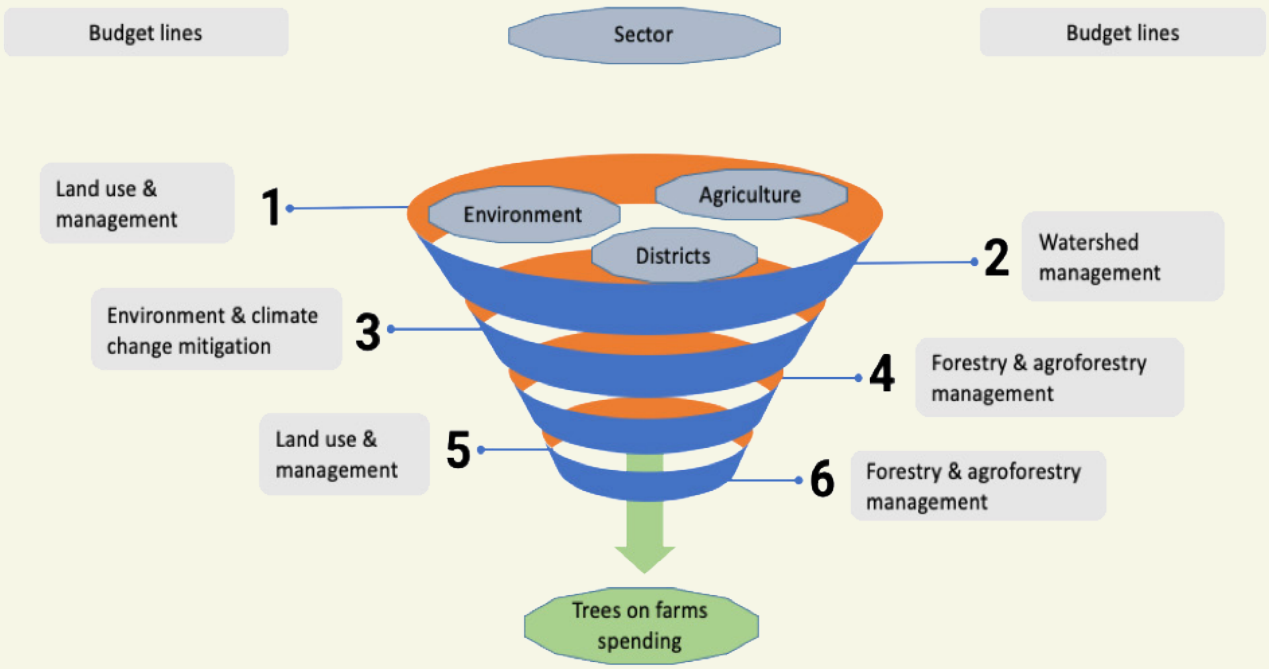
Tracking public investments in trees on farms in Rwanda - Analysis of National Budget Allocations (2015–2019)



Laurent Ndiramiye
Brian Chiputwa
Anja Gassner
Phil Dobie
Athanase Mukularinda

WORKING PAPER 8

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Laurent Ndiramiye

Brian Chiputwa

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CIFOR
Jl. CIFOR, Situ Gede
Bogor Barat 16115
Indonesia
T +62 (251) 8622-622
F +62 (251) 8622-100
E cifor@cgiar.org

ICRAF
United Nations Avenue, Gigiri
PO Box 30677, Nairobi, 00100
Kenya
T +254 20 7224000
F +254-20- 7224001
E worldagroforestry@cgiar.org

cifor-icraf.org

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Executive summary

1. Background and context

a) "Trees on Farms" and the Aichi Biodiversity Targets (COP 10)

"Trees on Farms" (TonF) refer to the integration of different tree species within agricultural lands for the purpose of contributing directly to (i) household well-being through the provision of food (e.g., fruits), the supply of fuelwood, or income generation (e.g., sale of timber, fuelwood); and (ii) ecosystem services that have supporting and regulating functions, such as carbon sequestration, the prevention of soil erosion, or improved soil and water quality. TonF therefore perform a key function in connecting ecosystems while maintaining soil and agrobiodiversity.

TonF are especially pivotal in mitigation actions to reduce greenhouse gas emissions that lead to climate change. "At about 1 billion hectares worldwide, agroforestry systems harbour carbon that can offset the equivalent of 20 years of emissions from deforestation," says Peter Minang, director for Africa at the Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF). Besides, "with forests becoming scarce, farmers realize the importance of having woodlots on their farms as a source of fuel. They are also increasingly getting tree varieties for fruits and other food items to supplement deficiencies."

Target 7 of the Aichi Biodiversity Targets (COP 10) stated that "by 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity." Countries' abilities to achieve the general objectives of Aichi Target 7 are improved by advancing knowledge of TonF for biodiversity and human well-being. However, the significance of TonF has not been adequately incorporated into countries' National Biodiversity Strategies and Action Plans (NBSAPs).

b) Main objective of the analysis

The Trees on Farms (TonF) project is aimed at building awareness of the role that trees on farms can play in biodiversity conservation in Peru, Indonesia, Honduras, Uganda and Rwanda. It supports the integration of sustainable management and agricultural biodiversity into the areas of policy and planning. This analysis of the budgetary allocations for sustainable resource management and trees on farms aims to improve the understanding of the biodiversity and agricultural communities so that institutions can incorporate trees on farms as part of their sustainable resource management activities on agricultural lands within national budgets.

The objective of this analysis is therefore to identify in Rwanda's national budgets any allocations that involve the sustainable management of natural resources and 'trees on farms' on agricultural lands. The analysis focuses on two key ministries: the Ministry of Agriculture (MINAGRI) and the Ministry of Environment (MoE). This study will help establish potential allocations under which a TonF roadmap (as defined in Work Package IV of the Project Document) can be fully or partially integrated into the national programme.

c) Research questions

The analysis seeks to answer the following research questions:

Areas	Research question
1. Spending basics	• Which ministries are allocated a budget for the management of natural resources and TonF? • How much do they spend, and what do they spend it on?
2. Agriculture and environment categories	• What were the trends in budget allocation and expenditure for the Ministry of Agriculture and the Ministry of Environment over the past 5 years? • How do they compare with the national budget?
3. SMNR and TonF categories	• What were the trends in budget allocation and expenditure for SMNR and TonF over the past 5 years?
4. Policy alignment	• How does financing compare with these sectors' contributions to GDP? • Is spending aligned with stated government policies and priorities?
5. Delivery patterns	• Has all the allocated money been spent? If not, what are some possible explanations? • Are there barriers to spending allocated budgets? • What opportunities exist to integrate SMNR and TonF into the budgeting processes more effectively?
6. Financing sources and solutions	• Are there opportunities for improved efficiency of SMNR and TonF financing within public expenditure?
7. Future spending business case	• What SMNR and TonF expenditure trends and data can be identified to predict future spending? • How do these projections compare with future expected SMNR and TonF needs?
8. Business case	• How can we use the information in this expenditure review to make a better business case for increased budget allocations for SMNR and TonF? **Note**: This report's outputs will be turned into policy briefs that answer these questions, helping policymakers understand the general trends in SMNR and TonF expenditure and whether this is in line with Bonn Challenge pledges and the government's post-2020 vision.

2. Methodology

In the budgetary processes, TonF activities comprise any allocation whose purpose is to support the integration of different tree species within agricultural lands. The methodology used for the analysis of budget allocations and spending for SMNR and TonF activities included:

a) Desk review of the budget information

The first step consisted of collecting various documents on national budget allocations and execution published by the Ministry of Finance and Economic Planning (MINECOFIN). Given that this analysis is a post-budget implementation exercise, the figures in the final revised budgets approved by the Parliament were used as the budget allocations. For this purpose, data in Annex II-1: Detailed Expenditure by Budget Agency of each annual budget law were used.

Budget execution reports are also published by MINECOFIN. However, only the data for 2016 through 2019 are available. The level of detail of the reports is also different from one fiscal year to another. As this information is also available in budget-implementing institutions' annual reports and Joint Sector Review (JSR) backward-looking reports, these documents were consulted whenever MINECOFIN data were not available or were incomplete.

b) Analysis of trends in budget allocation and spending

Four steps were followed:

Step 1: Collection of all budgetary allocation and execution data per institution: Once the budgetary allocation and execution data were collected and transcribed in Microsoft Excel, calculations were made to produce the totals by budget chapter for each institution in the agriculture and environment sectors. Balances between budget allocation and budget execution were also calculated.

Step 2: Conversion of budgetary information into US dollars: The US dollar (USD) was selected as the reporting currency. For the purpose of currency conversion, the USD/RWF daily exchange rates of the National Bank of Rwanda (BNR) from July 2014 to June 2019 were used. The annual average exchange rate was calculated for each fiscal period and used to convert Rwandan francs into USD for each particular fiscal period.

Step 3: Identification of SMNR and TonF direct and indirect budget lines by area and institution In consultation with the agroforestry team in Rwanda – and based on the different budget nomenclatures in the national budget, as published by the Ministry of Finance – line budgets directly or indirectly related to SMNR and TonF were identified in the budget allocations to different institutions in the agriculture and environment sectors.

Step 4: Trend analysis This involved comparing resource allocations in each of the two sectors against the national budget to determine the percentages allocated to agriculture, the environment, SMNR and TonF. On the other hand, the budget execution rates were determined by dividing the budget execution figures by the budget allocation figures. Further analysis involved comparing trends of institutions, identifying the burn rates of budget lines, and tracing the origin of observed performance in budget execution rates.

c) Consultation with implementing institutions in the areas of SMNR and TonF

The compilation and analysis of budget allocation and execution data were crosschecked with the implementing institutions to ensure that their transcription was correct and to solicit their explanations for trends highlighted in the analysis. These consultations also made it possible to identify and/or confirm direct and indirect spending on SMNR and TonF.

d) Formulation of conclusions and recommendations:

The results of the analysis led to the formulation of conclusions and recommendations. The findings and recommendations were presented at a TonF workshop in the Rwandan capital, Kigali, in December 2021.

3. Key findings

a) Rwanda's national budget financing

Rwanda's national budget varied from USD 2.4 billion to USD 2.9 billion during FY 2015 and FY 2019. It is financed from domestic revenues, loans and grants. In line with the country's ambition of self-financing, domestic revenues are expected to account for 67% of the national budget, equivalent to USD 2.5 billion (RWF 2.5 trillion) for the FY 2022 budget.1 However, official development assistance (ODA) continues to be a major resource for financing Rwanda's development strategies. The country's net ODA receipts were USD 1,332.3 million in FY 2019, USD 1,217.9 million in FY 2018 and USD 1,217.8 million in FY 2017. Rwanda's debt was estimated at USD 4.9 billion in FY 2018, representing 53.6% of gross domestic product (GDP).2

b) Spending basics

Which ministries were allocated budgets for the sustainable management of natural resources and TonF?

i. Responsibility for the implementation of the agroforestry chapter of the national forestry policy is shared by MoE and MINAGRI through an institutional framework whereby the ministry in charge of forestry (MoE) and MINAGRI provide the overall policy coordination and leadership in the implementation and extension of agroforestry programmes, respectively. At local level, district offices responsible for the agriculture and natural resource sectors coordinate and monitor agroforestry-related programmes, projects and activities.
ii. MINAGRI and its two agencies, the Rwanda Agriculture Board (RAB) and the National Agricultural Development Board (NAEB); MoE and its multiple agencies; and the districts are thus allocated funds in the national budget for the implementation of SMNR and TonF.

c) Agriculture and environment

Trends in budget allocation and expenditure for the Ministry of Agriculture and the Ministry of Environment over the past 5 years, and how they compare with the national budget

i. The total national budget for FY 2015–2019 was USD 12,751.7 million, of which 5.6% (USD 711.1 million) was allocated to agriculture and 1.8% (USD 234.8 million) to the environment.
ii. The annual budget allocations to agriculture fluctuated from USD 136.5 million (5.7% of the national budget) to USD 146.3 million (6.1% of the national budget).
iii. The annual budget allocations to the environment declined from 2.3% (USD 56.9 million) of the national budget in FY 2015 to 1.4% (USD 40.8 million) in FY 2019.
iv. Allocations to agriculture through MINAGRI, its agencies and districts declined from USD 146 million in FY 2015 to USD 136 million in FY 2019, while the budget allocation to institutions in charge of the environment and related agencies fell from USD 56 million in FY 2015 to only USD 40 million in FY 2019. This was accompanied by a declining utilization rate of allocated budgets to levels as low as 33.6% for the environment and 52.5% for agriculture in FY 2018. This is partly the result of several institutional reforms that occurred in the coordination of the environment and natural resources sector during the studied period.
v. The district is the natural target for the implementation of agricultural and environment policies. In addition, 70% of the Rwandan population live in rural areas, where they depend on agriculture for their food and livelihoods. Allocations to districts for the agriculture and environment sectors amounted to only 1% of all funds allocated to the districts. Nevertheless, the funds utilization rate was higher for districts, whose financial and administrative autonomy probably shielded them from the effects of reforms at the central level.

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1 How 2021/2022 budget will be financed. New Times. https://www.newtimes.co.rw

2 Rwanda to finance 39 percent of budget with external loans. The East African. https://www.theeastafrican.co.ke

d) TonF and SMNR

i. TonF was allocated USD 358,374,241 from FY 2015 to FY 2019. This was 2.8% of the national budget, with variations ranging from 2% to 3.4% during those five years. This comprised USD 139,460,930 in direct financing (39%) and USD 218,913,311 in indirect financing (61%).

ii. SMNR was allocated USD 871,549,460, representing 6.8% of the national budget. Direct budget allocations (20.3%) amounted to USD 176,805,434 and indirect allocations (79.7%) came to USD 694,744,026 of the overall budget earmarked for SMNR (Table 1: Budget allocation and expenditure towards the environment, agriculture, SMNR and TonF).

Table 1: Budget allocation and expenditure towards the environment, agriculture, SMNR and TonF

Budget allocation		2015	2016	2017	2018	2019	TOTAL
National budget	Amount	2,526,719,876	2,388,164,271	2,393,581,859	2,502,881,873	2,940,346,364	12,751,694,242
	Percentage	100%	100%	100%	100%	100%	100%
Agriculture	Amount	144,137,520	146,263,014	136,544,387	146,247,419	137,899,660	711,092,000
	Percentage	5.70%	6.10%	5.70%	5.80%	4.70%	5.60%
Environment	Amount	56,920,224	45,837,854	43,193,665	48,041,609	40,825,476	234,818,827
	Percentage	2.30%	1.90%	1.80%	1.90%	1.40%	1.80%
SMNR	Amount	186,170,483	192,100,867	139,882,150	199,480,355	153,915,606	871,549,460
	Percentage	7.4%	8.0%	5.8%	8.0%	5.2%	6.8%
TonF	Amount	81,136,012	57,833,057	47,583,188	71,610,303	100,211,681	358,374,241
	Percentage	3.2%	2.4%	2.0%	2.9%	3.4%	2.8%

Source: Compiled from MINECOFIN budgets

e) Trends in budget allocation and expenditure for SMNR over the past 5 years.

i. About 36% of SMNR direct allocations was earmarked for "Environment and natural resource policy development and coordination," 15% for "Land administration and land use management," 14% for "Environmental management and climate change resilience," 11% for "Integrated water resource management" and 10% for "Environment in district budgets."

ii. The budget utilization rate for direct SMNR funding was notably low for "Land administration" (37.6%), "Environmental management and climate change resilience" (59%), and "Integrated water resource management" (53.8%), even though all these areas are central to SMNR.

iii. Indirect budget allocations to SMNR are mostly composed of budget lines under agriculture agencies, which experienced no major structural issues during the relevant period – apart from budget reallocations from MINAGRI to RAB – and hence show better budget utilization rates than for direct allocations.

iv. For SMNR indirect funding, only 61.9% of budget allocations for "Research, technology transfer, advisory services and professionalization of farmers" and 53.7% of funds allocated to "Sustainable crops and animal resources production and productivity" were utilized. Other budget lines have been consistently used.

v. TonF-funded areas included: (i) Environment and climate change mitigation, which absorbed 35% of the resources (USD 124,555,577); (ii) Agriculture production and value-chain management, which received 28% of TonF financing (USD 99,954,443); (iii) Land use and management, with USD 84,175,579 allocated which was 23.5% of TonF financing; (iv) Forestry and agroforestry management, which was allocated 7% of the TonF budget (USD 26,273,238); (v) Watershed management, which received 5% of the budget (USD 17,957,655); and (vi) Water resources management with only 2% of the TonF budget (USD 5,457,748).

vi. In terms of distribution of resources among institutions, 73% of the TonF budget was allocated to four institutions: RAB (23.8%), MINAGRI (15.6%), MINIRENA (14.8%) and districts (18.8%). The remaining 17% was distributed among several other central agencies, most of them directly in charge of environment management, as shown in Table 2: TonF funding share among institutions.

Table 2: TonF funding share among institutions

INSTITUTIONS	DIRECT	INDIRECT	TOTAL	Share (%)
RAB	33,784,243	51,684,400	**85,468,643**	**23.8%**
DISTRICTS	18,222,187	49,168,497	**67,390,684**	**18.8%**
MINIRENA	-	55,916,381	**55,916,381**	**15.6%**
MINAGRI	49,944,065	2,924,537	**52,868,602**	**14.8%**
NAEB	-	27,771,292	**27,771,292**	**7.7%**
RWFA	15,233,958	4,655,545	**19,889,504**	**5.5%**
FONERWA	-	17,046,813	**17,046,813**	**4.8%**
RNRA	16,380,875	203,970	**16,584,845**	**4.6%**
RLMUA	-	6,372,402	**6,372,402**	**1.8%**
REMA	5,820,795	410,194	**6,230,988**	**1.7%**
MoE	23,737	2,647,856	**2,671,593**	**0.7%**
MINILAF	51,070	111,423	**162,493**	**0.05%**
TOTAL	**139,460,930**	**218,913,311**	**358,374,241**	

vii. TonF resource allocations are scattered. A significant amount (47.1%) was allocated to the three institutions in the agriculture sector while the remaining budget was shared among the multiple institutions in the environment sector, including forestry. This means the share of the TonF budget allocated to each institution was not significant, apart from MINIRENA (15.6%). The same situation holds for the budget allocated to the districts (18.8%) – these funds were scattered among 30 districts, meaning the budget for each one was insufficient to make a visible impact on the ground.

viii. The overall budget utilization rate for TonF was also low (67.2%). Out of USD 358,374,241 allocated, only USD 240,870,994 was spent. Budget underspending was identified in FY 2017 (62.7%) and FY 2019 (55.6%). TonF areas that showed budget underspending include: (i) Water resources management (only 29% spent), (ii) Watershed management (41% spent), (iii) Environment and climate change mitigation (59% spent), and to some extent (iv) Land use and management (65%). However, the budget for forestry and agroforestry was utilized at a rate of 89%.

f) Disaggregating forestry and agroforestry management budget allocations

i. Forestry and agroforestry management is amalgamated in national budget allocations. "Forestry and agroforestry management" received USD 26,273,238 in direct budget allocations, of which USD 23,435,561 was spent effectively (89%). This comprises allocations for: (i) "Forestry policy development" under MoE and MINILAF (USD 74,807 – of which USD 37,994 was spent), and (ii) "Forestry plantation management and agroforestry" (RNRA, RWFA and districts) with USD 26,198,432, of which USD 23,397,567 was spent (89% execution rate).

ii. Some details on the financing of agroforestry in RAB and RNRA in 2014/15 to 2015/16 show that very few areas of activity were expressly tagged as agroforestry, and the funding was insignificant (USD 154,555), given the overall amount allocated to forestry and agroforestry management (USD 26,273,238). This is an indication that far more resources were used for forestry management activities than for agroforestry.

Table 3: Agroforestry activities in 2014/15 to 2015/16 (USD)

Budget lines	2014/2015			2015/2016			TOTAL		
	Revised budget	Budget execution	Balance	Revised budget	Budget execution	Balance	Revised budget	Budget execution	Balance
Training (RNRA)	4,301	4,301	-	-	-	-	4,301	4,301	0
Seedling production and distribution (RNRA)	-	-	-	6,587	2,626	3,961	6,587	2,626	3,961
Research (RAB)	216,749	147,571	69,178	197,283	115,868	81,416	414,032	263,438	150,594
Total	**221,050**	**151,872**	**69,178**	**203,870**	**118,494**	**85,377**	**424,920**	**270,365**	**154,555**

Source: Biofin data

g) Policy alignment

Agriculture and environment financing, and contribution to GDP

i. Rwanda's GDP totalled USD 45.3 billion for the five-year period from FY 2015 to FY 2019, increasing from USD 8.4 billion in FY 2015 to USD 9.9 billion in FY 2019.
ii. The average contribution of agriculture to national GDP was USD 8.7 billion (19.3%). Only 1.6% of national GDP was reinvested in agriculture, but this financing accounted for 8.1% of GDP from agriculture.

Table 4: Agriculture contribution to national GDP (USD millions)

	2015	2016	2017	2018	2019	Total
National GDP	8,371.2	8,659.8	8,864.0	9,482.0	9,910.2	45,287.2
Agriculture GDP	1,551.2	1,637.2	1,897.2	1,909.6	1,733.4	8,728.6
Agriculture contribution to GDP (%)	18.5%	18.9%	21.4%	20.1%	17.5%	19.3%
Agriculture financing	144.1	146.3	136.5	146.2	137.9	711.0
Agriculture financing % of GDP	1.7%	1.7%	1.5%	1.5%	1.4%	1.6%
Agriculture financing % of GDP from agriculture	9.3%	8.9%	7.2%	7.7%	8.0%	8.1%

Source: GDP figures from NISR GDP report 2019/2020

iii. The environment sector (only the forestry contribution is included in GDP figures) accounted for 5.5% of GDP which was approximately USD 2.5 billion, of which 0.5% was reinvested in environment management. Overall financing for the environmental sector was about USD 234.7 million (approximately 9.4% of total GDP) from the environment, which is by far less than the amount of agriculture GDP reinvested into agriculture in abosolute terms.

Table 5: Environment contribution to national GDP (USD millions)

	2015	2016	2017	2018	2019	Total
National GDP	8,371.2	8,659.8	8,864.0	9,482.0	9,910.2	45,287.2
Environment GDP (forestry)	480.3	463.4	432.4	528.9	605.1	2,510.10
Environment (forestry) contribution to GDP	5.7%	5.4%	4.9%	5.6%	6.1%	5.5%
Environment financing	56.9	45.8	43.2	48.0	40.8	234.70
Environment financing % of GDP	0.7%	0.5%	0.5%	0.5%	0.4%	0.5%
Environment financing % of GDP from environment (forestry)	11.8%	9.9%	10.0%	9.1%	6.7%	9.4%

Source: NISR GDP report 2019/2020

h) Spending alignment with stated government policies and priorities

i. Rwanda's "Implementation of Agroforestry Strategy" through its integration into relevant sectoral policies and strategic plans was financed indirectly through institutions such as (i) RLMUA and MoE (and its predecessor ministries) as part of the "development of land policy and regulations" and "land use planning and management"; (ii) MoE and MINIRENA as part of the "development of environment policy" and "research and planning"; and (iii) MINAGRI through "Agriculture sector planning, coordination, financing and information systems" and "Animal resources policy, strategies development." The financing amounted to USD 85.4 million, which was 23.8% of the resources allocated to TonF.

ii. Opportunities to finance the integration of TonF in relevant sectoral policies and strategic plans were therefore available. However, the question is how TonF received the required attention in those sectors during implementation, given that no mechanisms for monitoring were in place.

iii. "Increasing diversity and access to seedlings of forest tree species suitable for agroforestry" was another policy, directly financed through the development of "forestry policy" and "forestry plantation management and agroforestry" (MoE, RFA and districts). About USD 26.3 million was allocated to the implementation of this policy, which represented 7.3% of all resources allocated to forestry. Yet forestry contributed USD 234.7 million to GDP during the same period. More reinvestment in the sector would therefore be appropriate, and TonF could be a particular focus area.

iv. "Disseminating and implementing agroforestry techniques" was financed indirectly through (i) RAB (Sustainable, diversified and climate-smart crop production and productivity; Nutrition and household vulnerability; Soil conservation and land husbandry; Nutrition-sensitive agriculture and resilience mechanisms); (ii) MoE, RFA and Meteo Rwanda (Terrestrial ecosystems management; Climate change vulnerability; Environmental education and mainstreaming; Watershed rehabilitation and management); and (iii) Districts (Sustainable crop production; Water resources management). The total financing amounted to USD 113.2 million, which represented 68.8% of indirect financing for TonF.

v. "Putting in place and supporting joint-sector/inter-ministry Agroforestry Committees" does not appear anywhere in the financing. The committees are not in place, yet this is the tool that could ensure the coordination of TonF funding and implementation, catalysing synergies among all players in the sector.
vi. The National Agroforestry Strategy (2018–2027), which MoE officially approved and released for use in 2020, embeds the following strategies:
    - Creating a policy and institutional framework for agroforestry
    - Innovative research and knowledge for agroforestry development
    - Strengthening communication and extension for agroforestry adoption and upscaling
    - Promotion of priority agroforestry practices
    - Marketing of agroforestry products and development of their value chains
    - Empowering women and youth through agroforestry development
    - As the strategy was released after the period relevant to this study, links with financing in the national budget can be established in subsequent analysis of TonF financing.

i) Delivery patterns

Has all the allocated money been spent? If not, what are some possible explanations? Are there barriers to spending allocated budgets?

i. The average rate of budget utilization in the environment sector is relatively low (60.2%). Only USD 130,387,353 was effectively utilized out of the USD 216,596,640 allocated to the ministries and agencies in the sector. This low budget burn rate was essentially due to multiple reforms and institutional restructuring that took place in the sector in FY 2017. Reforms triggered by this restructuring took time to mature, which affected budget use (putting in place institutions and revising implementation systems, staffing, etc.). All these changes are reflected in the budget utilization rate for FY 2017–2019, with rates as low as 29.4%.
ii. The agriculture sector's budget execution rate stood at 73.7%, on average. The rate was lower in FY 2018 (46.3%) and FY 2019 (49.6%), coinciding with a significant shift in budget allocations from MINAGRI to RAB.
iii. The budget allocations to RAB more than doubled from USD 44.9 million in FY 2017 to USD 100.9 million in FY 2018 and USD 85.9 million in FY 2019. However, increases in budget allocations to RAB were not followed by a similar increase in budget performance. Its budget execution rate fell to 39.8% in FY 2018 from 87.1% in FY 2017 and was only 43.3% in FY 2019, well below the sector's average of 73.7%. RAB was not ready for the additional resources it was allocated. This was due to several changes in its top management, thus reducing the pace of budget use.
iv. For TonF, the rate of fund utilization was 67.2% for FY 2015-2019. Out of USD 358,374,241 allocated to TonF, only USD 240,870,994 was spent. Budget underspending was identified in FY 2017 (62.7%) and FY 2019 (55.6%), including funds allocated to: (i) Water resources management (only 29% spending), (ii) Watershed management (41% spent), (iii) Environment and climate change mitigation (59% spent), and to some extent (iv) Land use and management (65%). However, the budget for forestry and agroforestry was utilized at a rate of 89%.
v. For SMNR, the budget execution rate was 74% for FY 2015-2019. Only USD 644,998,502 was used out of the USD 871,549,460 allocated. Fund utilization was particularly low in FY 2017 (67.3%) and 2018 (46.6%), which corresponds to the period when agencies and ministries in the environment sector were restructured.
vi. The TonF and SMNR sectors were thus affected by weaknesses in institutional setup and reforms. This indicates an urgent need for cross-sectoral coordination mechanisms.

j) Policy recommendations

i. Increase SMNR and TonF funding in the national budget to at least 10% and 5%, respectively.
ii. Promote visibility of TonF activities and funding in the budget of relevant institutions (RAB in agriculture, RFA in environment) and at district level, while defining clear budget lines that can be monitored.
iii. Ensure that there are containment measures to limit the impact of institutional reforms on budget allocations and utilization for SMNR and TonF in the future. This includes:
    - setting up national cross-sectoral coordination mechanisms;
    - decentralizing resources from the central government to districts, which are responsible for implementing national policies and are shielded from frequent reform setbacks due to their financial autonomy.
iv. Put in place strong monitoring and evaluation measures (clear indicators and dedicated analytical budget-tracking mechanisms) to ensure optimum utilization of resources allocated to SMNR and TonF.

1 Background and context

1.1 The Aichi Biodiversity Targets (COP 10)

The UN Convention on Biological Diversity (CBD) is a legally binding treaty that includes 196 countries and promotes national strategies for the conservation and sustainable use of each member's natural resources. The Strategic Plan for Biodiversity comprises 20 time-bound, measurable targets set in Aichi, Japan, in 2010 (Aichi Biodiversity Targets[3]) that were to be met by the year 2020. Through their respective National Biodiversity Strategies and Action Plans (NBSAPs), each country was expected to pursue specific targets at multiple levels.

Despite this, the UN Decade on Biodiversity 2011–2020 resulted in little progress towards the global biodiversity targets. For a second consecutive decade, the world failed to fully achieve any of the 20 goals that were designed to protect ecosystems and wildlife. The CBD is currently negotiating new targets for the next 30 years.

Target 7 of the Aichi Biodiversity Targets pledged that "areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity." As stressed by Aichi Target 7, agriculture has an important role to play in ensuring the conservation of biodiversity. It is therefore necessary to sustainably manage the entire landscape, including agriculturally productive areas.

Countries' abilities to meet the general objectives of Aichi Target 7 are improved by advancing knowledge of TonF for biodiversity and human well-being. TonF perform a key function in connecting ecosystems and maintaining soil and agrobiodiversity. However, the significance of TonF has not been adequately incorporated into partner countries' NBSAPs.

"**Harnessing the potential of TonF to meet national and global biodiversity targets**" is a project funded by the International Climate Initiative (IKI) and implemented by World Agroforestry (ICRAF) in partnership with the Center for International Forestry Research (CIFOR), Centro Agronómico Tropical de Investigación y Enseñza (CATIE), the International Union for Conservation of Nature (IUCN), Georg-August-Universität Göttingen and Leibnitz Universität Hannover. The TonF project is aimed at building awareness of the role that trees on farms can play in biodiversity conservation in Peru, Indonesia, Honduras, Uganda and Rwanda. The project uses various approaches to improve knowledge of TonF. By integrating Indigenous and local knowledge, the project provides relevant stakeholders with context-specific, tree-based measures that can contribute to biodiversity conservation, the avoidance of emissions and adaptation to climate change impacts.

The project is also supporting the integration of sustainable management and agricultural biodiversity into the areas of policy and planning. With this, one of the specific objectives linked to the analysis of the budgetary allocations for the "Sustainable Management of Natural Resources" (SMNR) and "Trees on Farms" (TonF) was to improve the understanding of the biodiversity and agricultural communities so that institutions will incorporate trees on farms as part of their SMNR activities on agricultural lands within national budgets.

3 The Aichi Biodiversity Targets – named after the Aichi Prefecture, Japan, where the 10th COP meeting was held on 18–29 October 2010.

1.2 Rwandan macroeconomic and fiscal trends (2015–2019)

Rwanda's population was 12.4 million in 2019 (currently more than 13 million). In the same year, its GDP per capita was USD 798 and inflation was contained to -2.43 (based on Consumer Price Index data). The unemployment rate was 15.2% in 2019, while the rates of poverty and extreme poverty were 38.2% and 16%, respectively, as established by the fifth household living condition survey (EICV5) in 2017.

Table 6: Macroeconomic indicators

Indicator		2015	2016	2017	2018	2019	Source
GDP (nominal) in USD		749	758	753	784	798	NISR, GDP National Accounts, 2020
Population (in millions)		11.3	11.5	11.8	12.1	12.4	NISR, RPHC4 population medium projection 2012–2032 (Table 32)
Inflation (%)		-2.51	-5.72	-4.84	-1.36	-2.43	NISR, Consumer Price Index (February 2014 = 100)
Unemployment (%)				17.3	15.1	15.2	NISR, Labour Force Survey 2019 and 2020
Poverty (%)				38.2			NISR, EICV5 (2017)
Extreme poverty (%)				16			NISR, EICV 5 (2017)
Annual foreign direct investment (USD millions)		223.3	266.3	270.7	305.5	384.5	National Bank of Rwanda[4]
Spending on biodiversity (USD millions)		24	15.5	16.9			Biofin expenditure review
National budget (mln USD)	Allocation	2,527	2,388	2,394	2,503	2,941	Ministry of Finance budget and execution reports
	Expenditure	2,527	1,970	2,014	2,190	2,535	
	Balance	0	418	380	313	406	

Foreign direct investment increased steadily from USD 223.3 million in 2015 to USD 384.5 million in 2019, and the trend is still on the rise. The national budget also increased slightly from USD 2,527 million in 2015 to USD 2.941 million in 2019, while the budget execution rate was at 86% in 2019 (see Figure 1).

4 Rwanda Foreign Direct Investment | 2021 Data | 2022 Forecast | 2009-2020 Historical (tradingeconomics.com)

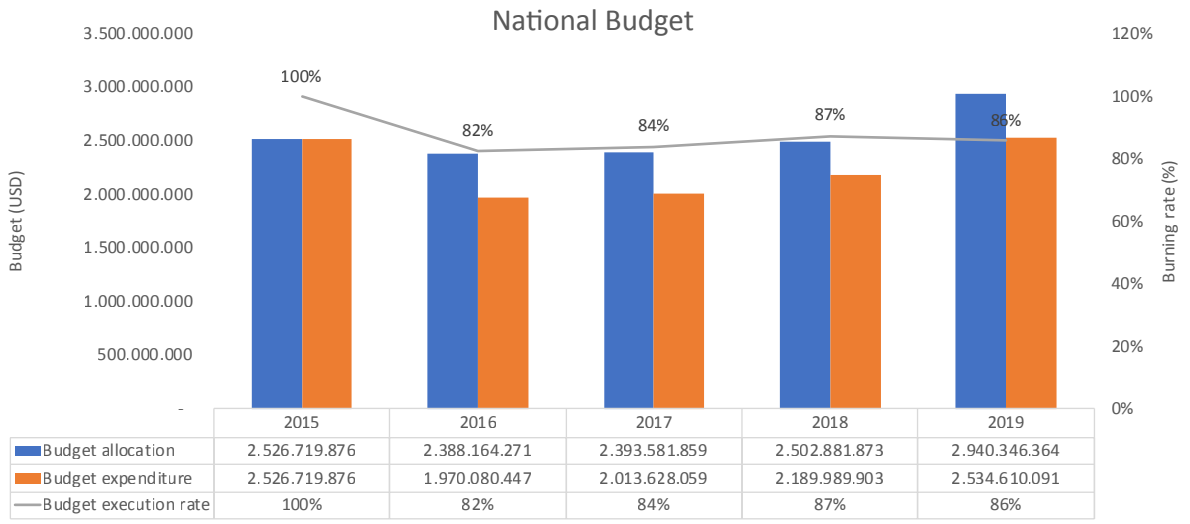
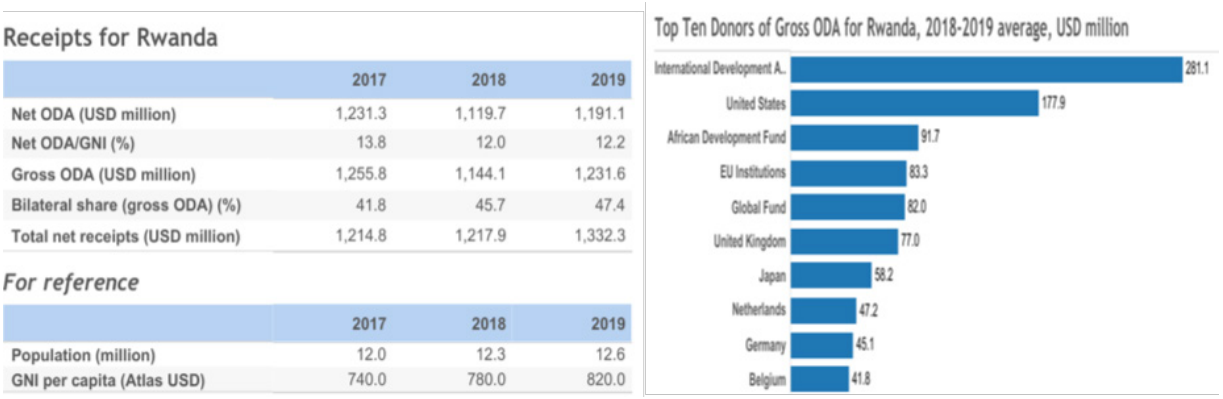


Figure 1: National budget performance 2015–2019

Source: Compiled from MINECOFIN budgets

Rwanda's national budget varied from USD 2.4 billion to USD 2.9 billion in FY 2015–2019. Normally, it is financed from three primary sources: domestic revenue, loans and grants. In line with the country's ambition to finance itself, domestic financing is expected to raise 67% of the national budget, equivalent to RWF 2.5 trillion, for the FY 2021/22 budget.[5] As of 2018, the country's total debt was estimated at USD 4.9 billion (RWF 4.67 trillion), representing 53.6% of GDP.[6] Official development assistance (ODA) continues to be a major resource for financing the development strategies. Rwanda's net ODA receipts were USD 1,332.3 million in FY 2019, USD 1,217.9 million in FY 2018 and USD 1,217.8 million in FY 2017 (see Figure 2).



Receipts for Rwanda

	2017	2018	2019
Net ODA (USD million)	1,231.3	1,119.7	1,191.1
Net ODA/GNI (%)	13.8	12.0	12.2
Gross ODA (USD million)	1,255.8	1,144.1	1,231.6
Bilateral share (gross ODA) (%)	41.8	45.7	47.4
Total net receipts (USD million)	1,214.8	1,217.9	1,332.3

For reference

	2017	2018	2019
Population (million)	12.0	12.3	12.6
GNI per capita (Atlas USD)	740.0	780.0	820.0

Figure 2: Rwanda ODA receipts, 2017–2019

Source: OECD. https://www.oecd.org/dac/financing-sustainable-development/development-finance-data/aid-at-a-glance.htm

1.3 The budgeting and spending process in Rwanda

In Rwanda, the budgeting and spending process is centralized and coordinated by the Ministry of Finance and Economic Planning (MINECOFIN). The planning and budgeting process starts in September with the release of the first Planning and Budgeting Call Circular (PBCC) to all "budgetary entities." It is not

5 How 2021/2022 budget will be financed. New Times. https://www.newtimes.co.rw

6 Rwanda to finance 39 per cent of budget with external loans. The East African. https://www.theeastafrican.co.ke

a request for budget submission but rather a request for information to facilitate the timely coordination, proper planning, and prioritization of areas to receive funding.

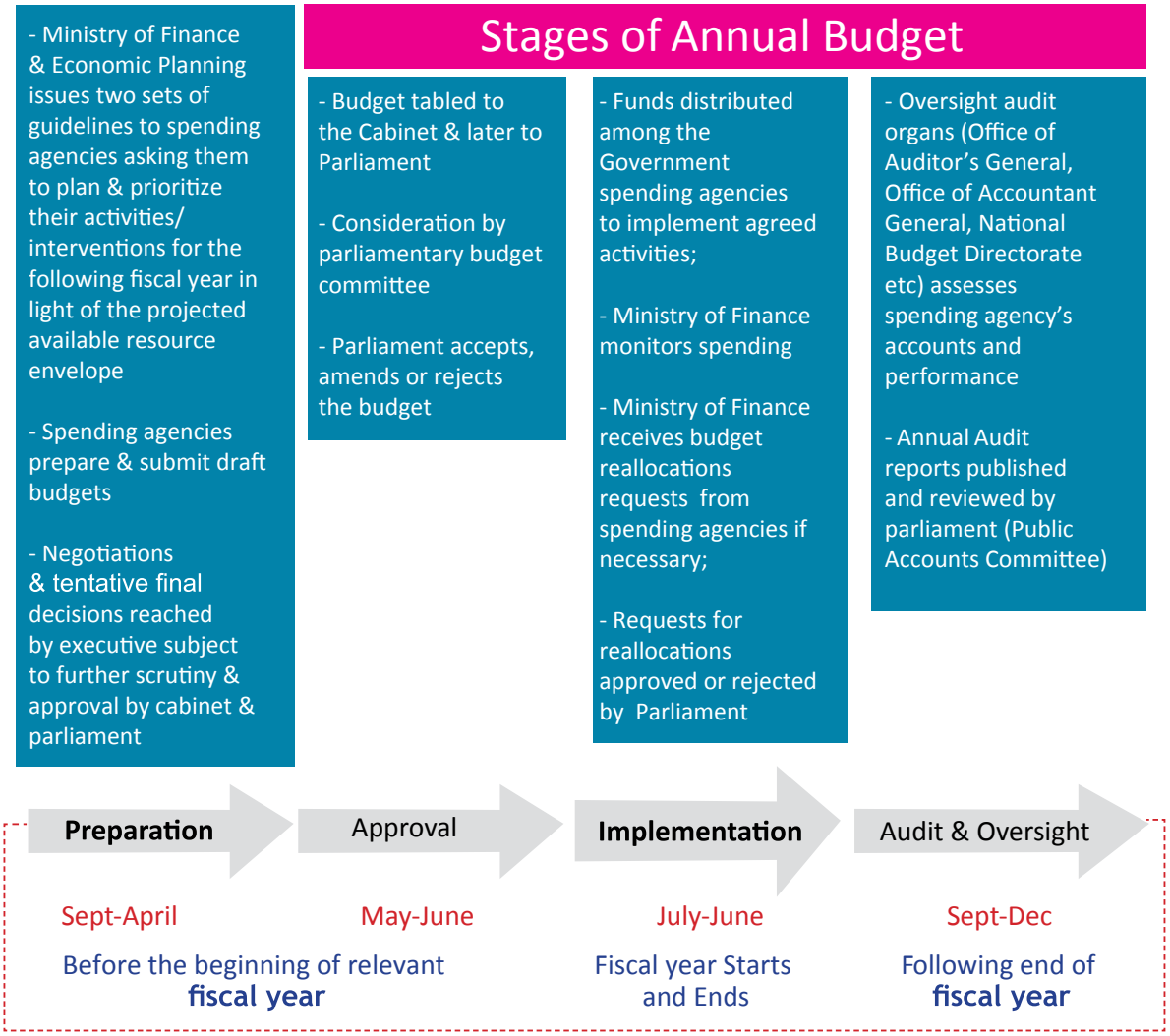


Figure 3: Stages of the budgeting process in Rwanda
Source: Citizen's Guide to 2014–2015 Budget, MINECOFIN

The initial indicative ceilings are issued in the second budgeting call circular in December. The final budget allocations are informed by the quality of plans and projects of each budgetary entity. Line ministries are delegated the responsibility of coordinating the planning and budgeting process for institutions under their supervision, while national organs (e.g., Parliament, Ombudsman, commissions) that are not attached to a line ministry work with MINECOFIN in the budgeting process. The districts work with the fiscal decentralization unit in the budgeting department of MINECOFIN, under the guidance of the Rwanda Local Administrative Entities Development Agency (LODA) and the Ministry of Local Government (MINALOC).

Mainstreaming the environment and climate change is a goal of the planning and budgeting process in the district budgets, in order to consider climate change mitigation measures. For example, the Planning and Budgeting Call Circular (PBCC) for FY 2021/2022 asks districts to plan for projects related to environmental protection, such as radical and progressive terracing as well as tree planting, in the more affected areas. Annex 9 of the PBCC contains a Checklist for Environment and Climate Change Mainstreaming.

At central level, the planning and budgeting process for technical sectors directly linked to the sustainable management of natural resources and trees on farms – such as the agriculture and environment sectors – is coordinated by MINAGRI (for agriculture) and MoE (for the environment). For the environment sector, the supervising ministry and implementing agencies underwent some reshuffling and restructuring in FY 2017. This included the conversion of the Ministry of Environment and Natural Resources (MINIRENA) into the Ministry of Environment (MoE) and the creation of a specific Ministry of Lands and Forestry (MINILAF), as well as several new agencies (RLMUA, RWFA and RMB) out of the RNRA. This had a deep impact on the financing and use of resources in the sector. The Ministry of Agriculture and Animal Resources (MINAGRI) has also undergone restructuring, but in the form of shifting implementation responsibilities from the ministry to its two agencies (NAEB and RAB).

In the planning and budgeting process, ministries ensure that all agencies under their supervision, including the ministry itself, develop annual action plans in accordance with the instructions in the first PBCC. The annual budgets follow the Medium-Term Expenditure Framework (MTEF) approach – the current budget also includes projections for the following two fiscal periods. This provides information for activities to be implemented over several fiscal periods, such as development projects. As a rule, budget lines for a following fiscal year are increased by at least 5%, unless there is reliable information justifying an increase/decrease or deletion of the budget line in the MTEF.

The ministry transmits separate budgets for each agency under its supervision to MINECOFIN. Each sector has a focal person among the budget officers in MINECOFIN's National Budget Department, which also has a fully fledged fiscal decentralization unit to oversee the district budgeting processes.

With the second PBCC, sector ministries receive ceilings from MINECOFIN, based on plans submitted in response to the first PBCC. The sector ministry's planning department convenes budgeting sessions with the budget directors/officers to agree on the portions of the allocated budget for each agency and the ministry. The ministry and its agencies work with their focal person in MINECOFIN throughout the budgeting process, especially on the alignment and adequacy of budgets and plans to meet national development priorities. That working relationship continues throughout the fiscal period, during implementation and reporting on the budget use.

The final budget is captured in MINECOFIN's Integrated Financial Management Information System (IFMIS), which all budget agencies and districts can access online. Once the budget is voted on and approved by the Parliament in June of every year, it becomes law and can be implemented from 1 July. Each budget agency has a budget manager – usually the director general (for agencies) and permanent secretary for ministries/provinces – who collaborates with the institution's accountant and budget officer. The budget officers have different, but complementary roles, levels of authorization and access to the IFMIS modules, thereby guaranteeing segregation of duties and internal controls in the budget execution (commitments and spending).

As each public institution has administrative and financial autonomy, it has full authority to spend its budget. However, institutions have to submit to MINECOFIN (more specifically, the Treasury department) a quarterly plan for payments to be made for cashflow management at Treasury level. The national Treasury also makes disbursements directly to the suppliers of goods and services – and not to the institution itself – based on commitments made by the budget agencies, in regular purchase orders and in the supplier's invoice.

This means any fluctuations in budget utilization are mostly due to events that are at least partially controllable by the budget agency. There might be cases where the government decides to reduce or reallocate part of the budget to other urgent activities. In this case, MINECOFIN will negotiate/inform the relevant budget agencies to agree on the amount and budget lines of the reallocation. In most cases, this happens in emergency situations. Changes in the allocated budget are factored into December budget revisions.

It is during the budget revision that any increases or decreases in institutions' budgets are made official and voted on by the Parliament again. In June, an 'original budget' is voted on by the Parliament and implemented by January of the fiscal period. In December, a budget revision takes place based on available implementation data (e.g., unused/underused budget lines, activities requiring more funds) and on events of the first 5–6 months of budget implementation that may require changes to the original budgets. The annual budget execution will be evaluated (e.g., budget execution or burn rate) against this revised budget. Changes made between the original and revised budgets will also be entered in the budget reports.

1.4 Main objective of the analysis of budgetary allocations

The main objective of this report is to identify budgetary allocations for two key ministries – the Ministry of Agriculture and Animal Resources (MINAGRI) and the Ministry of Environment (MoE) – involving SMNR activities and TonF on agricultural lands. This will assist in establishing potential allocations with which a TonF roadmap (as defined in Work Package IV of the Project Document) can be fully or partially integrated into the national programme.

The analysis comprises a review of the national budgets and other official documents for the 5-year period from FY 2015 to FY 2019, complemented by individual consultations with relevant stakeholders, to determine:

a. the total budget allocated and spent by MINECOFIN to MINAGRI and MoE;
b. the budget share allocated and spent by different agencies within each ministry (RAB, NAEB, RFA, REMA);
c. the budget share allocated and spent towards SMNR activities in each agency;
d. the budget share allocated and spent towards TonF (or agroforestry) in each agency.

1.5 Research questions

The following research questions are to be addressed by the results of the analysis:

Table 7: Conceptual framework and key guiding questions

Areas	Research questions
1. Spending basics	• Which ministries are allocated a budget for the sustainable management of natural resources and TonF? • How much do they spend, and what do they spend it on?
2. Agriculture and environment	• What were the trends in budget allocation and expenditure for Ministry of Agriculture and the Ministry of Environment over the past 5 years? • How did they compare with the national budget?
3. TonF and SMNR	• What were the trends in budget allocation and expenditure for SMNR and TonF over the past 5 years?
4. Policy alignment	• Was spending aligned with stated government policies and priorities? • How did financing compare with these sectors' contribution to GDP?
5. Delivery patterns	• Was all the allocated money spent? If not, what are some possible explanations? • Were there barriers to spending allocated budgets? • What opportunities exist for integrating TonF and SMNR more effectively into the budgeting processes?
6. Financing sources and solutions	• Are there opportunities for improved efficiency of TonF and SMNR financing within the public expenditures?

Continued to next page

Table 7. continued

Areas	Research questions
7. Future spending business case	• What TonF and SMNR expenditure trends and data can be identified to predict future spending? • How do these projections compare with the expected needs of TonF and SMNR in the future?
8. Business case	• How can we use the information in this expenditure review to make a better business case for increased budget allocations for TonF and SMNR? **Note:** The outputs from this report will be turned into policy briefs that answer these questions, helping policymakers understand the general trends in TonF and SMNR expenditures and whether these are in line with Bonn Challenge pledges and the government's post-2020 vision.

1.6 Definition of key concepts

The main concepts discussed in this analysis are defined as follows:

- **Agriculture** is the science, art or practice of cultivating the soil, producing crops, raising livestock and, to varying degrees, preparing and marketing the resulting products.7
- **Agroforestry** is the practice and science of the interface and interactions between agriculture and forestry, involving farmers, livestock, trees and forests at multiple scales. Interactions between trees and other components of agriculture may be important at a range of scales: in fields (where trees and crops are grown together); on farms (where trees may provide fodder for livestock, fuel, food, shelter or income from products, including timber); and in landscapes (where agricultural and forest land uses combine in determining the provision of ecosystem services).8 While agriculture is the science of food production, and forestry is the science and art of wood production, agroforestry is the science of food and wood production on a unit of land. In agroforestry, there are always ecological and economic interactions between wood and agricultural components.
- **Environment** is the natural world as a whole or in a particular geographical area, especially as affected by human activity. It is anything that surrounds us. It can be living (biotic) or non-living (abiotic) things. It includes physical, chemical and other natural forces. In the environment, there are different interactions between animals, plants, soil, water as well as other living and non-living things. Agriculture can have serious impacts on the environment through pollution or the degradation of soil, water and air. However, agriculture can also positively impact the environment, for instance by trapping greenhouse gases within crops and soils, or mitigating flood risks through the adoption of appropriate farming practices.
- **Sustainable management of natural resources (SMNR)** refers to any budgetary allocation whose purpose is to make a positive impact, to reduce or eliminate environmental degradation pressures, and/or to restore ecosystem services functioning on agricultural lands. These allocations may fall within (but are not limited to) the following categories: "sustainable management of natural resources practices," "biodiversity conservation," "land use management," "restoration activities," "green economy" and "adaptation/mitigation strategies."
- **Trees on Farms (TonF)** activities comprise any allocation whose purpose is to support the integration of different tree species within agricultural lands for the purpose of contributing directly to: (i) household well-being through the provision of food (e.g., fruits), the supply of fuelwood, or income generation (the sale of timber, fuelwood); and (ii) ecosystem services that have supporting and regulating functions (e.g., carbon sequestration, prevention of soil erosion, improved soil and water quality).

7 https://www.merriam-webster.com/dictionary/agriculture

8 Coulibaly JY, Chiputwa B, Nakelse T and Kundhlande G. 2017. Adoption of agroforestry and the impact on household food security among farmers in Malawi. Agricultural Systems 155:52–69.

- **Direct** and **indirect budget allocation/expenditure:** Each allocation/expenditure entry is tagged as **"direct"** if it is intentionally and explicitly spent on SMNR or TonF activities, such as planting or distributing tree seedlings to farmers. Similarly, it is tagged as **"indirect"** if it is an allocation that is not primarily targeted at – but may contribute positively to – SMNR or TonF activities (e.g., the development of tree nursery infrastructure or capacity building for national staff).
- **Original budget** for a particular fiscal period is voted on by the Parliament in June, and the budget allocations are used from 1 July. In Rwanda and other East African Community member countries, the fiscal year runs from 1 July to 30 June.
- **Revised budget** for a particular fiscal period is the final budget as revised in December of each fiscal year. In October, MINECOFIN starts the budget revision exercise, building on the budget execution performances of the first 5–6 months. The revision results in a revised budget for the fiscal year that is approved by the Parliament again and used from January to June. It is the revised budget that becomes the official budget for the fiscal period and against which the budget execution performance is measured for a particular fiscal period. This budgetary analysis uses the revised budgets for FY 2015–2019.
- **Budget execution rate** or **burn rate:** This is the percentage of the allocated budget that was spent effectively by the end of the fiscal period. After the government enacts the original budget by the end of June, the budget execution process starts on 1 July and generally follows these steps:
    1. Agencies initiate expenditures by procuring goods, works and services. Each institution develops a procurement plan that is captured in the e-procurement platform and is accessible to all registered suppliers of services, supplies and works.
    2. Budget-implementing agencies start procuring for services, works and supplies through the national public procurement platform (e-procurement).
    3. After the signing of contracts with suppliers, the budget-implementing agency makes expenditure commitments on different budget lines.
    4. Funds are not released to line ministries (or departments/agencies) or districts. All payments are made by the Ministry of Finance (the Treasury department) directly to the suppliers, based on budget commitments, purchase orders and invoices duly authorized by the budget-implementing agency (line ministry, public agencies or districts).
    5. Payments for these expenditures are made from the National Bank, which is the government's cashier.
    6. Expenditure transactions are recorded in accounting books.
    7. Execution reports (monthly and quarterly) are generated from the IFMIS throughout the year, culminating in the closure of the accounting books and the production of year-end reports (the final execution report of a given budget year).

In practice, budgets are rarely implemented exactly as approved. This can result from adjustments in policies in response to changes in economic conditions or lower tax collection than projected, for example, thereby leading to budget revisions. In this analysis, the budget allocation refers to the final revised budget.

Usually, the negotiations that culminate in the revised budget take place between the Ministry of Finance and the budget managers from ministries, agencies and the local governments, based on national policy priorities, the Treasury status (tax collection, loans and grants) and the prevailing economic conditions. The budgeting system is fully digitized and well implemented. Financial reporting is carried out monthly, quarterly and annually by all budget agencies online through the the IFMIS. This is a centralized platform monitored by the Ministry of Finance and can be accessed by all public accountants, and budget managers, with different thresholds and levels of authorization based on the separation of duties.

- **Expenditure data** comprise the amounts that are spent from the revised budget allocations, as shown in the annual budget execution reports. Government expenditure refers to the purchase of goods and

services, which include public consumption and public investment, as well as transfer payments consisting of income transfers (pensions, social benefits) and capital transfers.[9]

- **Joint Sector Review (JSR) backward-looking reports:** The performance of a sector is reviewed on an annual basis by the stakeholders operating in that particular sector. These include public institutions (ministries and agencies) and development partners, such as international organizations, embassies, NGOs and the private sector. The utilization of allocations from the national budget is one of the areas reviewed during the JSR.
- **Budgeting entities:** These are public institutions with administrative and financial autonomy and are entitled to receive budget allocations from MINECOFIN. Budgetary entities include ministries, national organs (Parliament, Ombudsman, national commissions and councils), public agencies, provinces and districts. Each budgeting entity has a budget manager who is responsible for authorizing the commitment and spending of the allocated budget. Chief budget managers include heads of public agencies, commissions and councils; permanent secretaries in ministries and provinces; and executive secretaries in the districts.

9 https://www.myaccountingcourse.com/accounting-dictionary/government-expenditures

2 Methodology

2.1 Steps in the analysis

The methodology used for the analysis of the budget allocation and spending on SMNR and TonF activities consisted of:

i Desk review of the budgetary information:

The first step involved collecting various documents on national budget allocations and budget execution. This information is officially published by MINECOFIN on its website. This is the prime repository for budgetary information in Rwanda. For budget allocations, the budget laws approved by the Parliament – and available on the MINECOFIN website[10] – were used. Given that this is a post-implementation budget analysis, the budget allocations were drawn from the final revised budgets. Budget execution reports are also published by MINECOFIN.[11] However, only the data for 2016 through 2019 are available. The level of detail of the budget execution reports is also different from one fiscal year to another. As this information is also available in budget-implementing institutions' annual reports and in Joint Sector Review (JSR) backward reports, these documents were consulted whenever data from MINECOFIN were not available or were incomplete.

ii Consultation with implementing institutions in the areas of SMNR and TonF :

The compilation and analysis of data on budget allocations and execution were crosschecked with the implementing agencies and ministries to ensure that their transcription was correct and to solicit their explanations on trends highlighted in the analysis. These consultations also made it possible to identify and/or confirm direct and indirect spending on SMNR and TonF.

iii Analysis of trends in budget allocation and spending

Four steps were followed in conducting the analysis:

Step 1: Collection of all data on budget allocation and execution: This was based on the revised budget. For the budget allocation, information in the "Annex II-1: Detailed Expenditure by Budget Agency" of each annual budget law was used. Budget execution reports by MINECOFIN as well as the annual and JSR reports from implementing institutions were used. Once the budgetary allocation and execution data were collected, and then transcribed in Microsoft Excel, calculations were made to produce the totals by budget chapters, each institution and the sectors of environment and agriculture. Balances between budget allocation and budget execution were also calculated (Annex 1).

Step 2: Conversion of budgetary information into US dollars: The US dollar (USD) was selected as the reporting currency. For the purpose of currency conversion, the USD/RWF daily exchange rates of the National Bank of Rwanda (BNR) from July 2014 to June 2019 were used.[12] The annual average exchange rate was calculated for each fiscal period and used to convert Rwandan francs into US dollars.

10 https://www.minecofin.gov.rw/1/publications/reports

11 https://www.minecofin.gov.rw/1/publications/reports

12 https://www.bnr.rw/currency/exchange-rate/

Step 3: Trend analysis: This involved comparing the allocation of resources to each of the two sectors against the national budget to determine the percentages allocated to agriculture, the environment, SMNR and TonF. On the other hand, the budget burn/execution rate is tha ratio between funds budget funds used to execute specific activities to the total budget allocation. Further analysis consisted of comparing trends by institutions, identifying budget lines with low burn rates, and trying to trace the likelihood cause (e.g., institutional reforms that may affect the execution of SMNR and TonF related activities).

iv Formulation of conclusions and recommendations:

The formulation of conclusions and recommendations was based on the results of this analysis, in line with the conceorual framework outlined in Table 7: Conceptual framework and key guiding questions.

2.2 TonF direct and indirect budget lines by area and institution

In consultation with the agroforestry team in Rwanda, and on the basis of the different budget nomenclatures in the national budget, as published by the Ministry of Finance, line budgets directly or indirectly related to TonF were identified in the budget allocations to different institutions in the agriculture and environment sectors. These comprised (i) Land use and management, (ii) Environment and climate change mitigation, (iii) Watershed management, (iv) Forestry and agroforestry management, (v) Water resources management, and (vi) Agricultural production and value-chain management. (See Table 8.)

Table 8: TonF-related direct and indirect budget lines in the national budget

Budget line	Allocation		Spending institutions
	Direct	Indirect	
Land use and management			
Soil conservation and land husbandry	X		MINAGRI + RAB + districts
Land tenure regularisation		X	RLMUA
Land use planning and management		X	RLMUA
Land policy development		X	MoE + MINILAF
Environment and climate change mitigation			
Sector planning and coordination		X	MINIRENA + MoE + FONERWA
Sustainable, diversified and climate-smart crop production and productivity		X	RAB
Sector policy development		X	MINIRENA
Environmental education and mainstreaming	X		MINILAF
Climate change vulnerability	X		MINILAF
Terrestrial ecosystem management	X		RNRA + RWFA
Environmental policy development		X	MoE
Environmental research and planning		X	REMA

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Table 8. continued

Budget line	Allocation		Spending institutions
	Direct	Indirect	
Watershed management			
Watershed rehabilitation and management	X		RNRA + RWFA
Forestry and agroforestry management			
Forestry plantation management and agroforestry	X		RNRA + RWFA + districts
Forestry policy development (MoE & MINELA)	X		
Water resources management			
Water resources monitoring		X	RNRA + RWFA
Water resources management	X		District
Agricultural production and value-chain management			
Sustainable crop production		X	District
Development of priority value chains – export		X	NAEB
Nutrition-sensitive agriculture and resilience mechanisms		X	RAB
Nutrition and household vulnerability	X		RAB
Agriculture sector planning, coordination, financing and information systems		X	MINAGRI
Animal resources policy, strategies development		X	MINAGRI
Crop policy and strategy development		X	MINAGRI

In the current national budget coding, agroforestry activities are included in six budget line items as shown in Table 8: TonF-related direct and indirect budget lines in the national budget. The current data on budget allocations and execution available from MINECOFIN do not contain financing details that would make it possible to clearly distinguish TonF financing from land management, forestry and other activities. There are only a few budget lines that do not reflect the actual status of TonF in the national budget. In addition, reported budget information tends to amalgamate forestry and agroforestry in the financing. The results of the current analysis may therefore be (i) an over-estimate if the case that not all funds allocated to a budget line were entirely spent on TonF; and (ii) an under-estimate due to some funds ending up being allocated to TonF related activities yet they are tagged on budget lines that have noting to do with TonF activities. However, our analysis provide some insights on roughly how much of the public expenditure was spent on TonF activities over the five year period.

2.3 SMNR direct and indirect budget lines by area and institution

Budget allocations towards sustainable management of natural resources (SMNR) are expected to be higher compared to those under TonF13. In this analysis, budget allocations made to institutions in charge of environmental management were treated as direct allocations to SMNR (see Table 9).

Table 9: SMNR direct budget lines in the national budget

Budget line	Institutions
Environment and natural resource policy development and coordination	
220901 Sector policy development	MINIRENA
220902 Sector planning and coordination	MINIRENA
EB01 Environmental policy development	MoE
EB02 Water resources policy development	MoE
EB03 Land policy development	MoE
EB04 Forestry policy development	MoE
Environmental management and climate change resilience	
221001 Environmental education and mainstreaming	REMA
221002 Climate change vulnerability	REMA
221003 Pollution management	REMA
221004 Environmental research and planning	REMA
Land administration and land-use management	
221101 Land tenure regularisation	RNRA
221102 Land use planning and management	RNRA
Integrated water resource management	
221201 Water resource monitoring	RNRA
221202 Watershed rehabilitation and management	RNRA
2213 Terrestrial ecosystems and forest resource management	
221301 Forest plantation management and agroforestry	RNRA
221302 Terrestrial ecosystem management	RNRA
2214 Mineral and quarry exploration and exploitation	
221401 National earth potential resources evaluation	RNRA
2215 Meteorological operations	
221501 Technology and information services	METEO RWANDA
B002 Weather/climate services	METEO RWANDA
A9 Mineral and quarry exploration and exploitation	RMB
A901 National earth potential resources evaluation	RMB
A902 Mineral and quarry resources value addition	RMB
Environment in local governments budgets	

Continued to next page

13 TonF activities are conisidered as a subset of SMNR

Table 9. continued

Budget line	Institutions
Environment and natural resources	Districts
Forestry resource management	Districts
Soil conservation	Districts
Water resource management	Districts

Budget allocations made to institutions in charge of agriculture were mostly treated as indirect financing of SMNR (see Table 10).

Table 10: SMNR indirect budget lines in the national budget

Budget line	Institutions
0906 Agriculture and animal resource intensification	
090601 Soil conservation and land husbandry	MINAGRI
090602 Irrigation and water management	MINAGRI
090603 Agricultural mechanization	MINAGRI
090604 Agrochemical use and markets	MINAGRI
090605 Livestock development	MINAGRI
090606 Nutrition and household vulnerability	RAB
090607 Seed development	RAB
08 Inputs to improve soil fertility and water management	RAB
0907 Research, technology transfer, advisory services and professionalization of farmers	
090701 Research and technology transfer	RAB
090703 Farmer cooperatives and organizations	RAB/MINAGRI
090704 Extension and proximity services for producers	RAB
8 Value-chain development and private-sector investment	RAB
EH01 Research and innovation	RAB
EH02 Extension services, technology adaptation and skills development	RAB
EF Value addition and competitiveness of crops and animal resources	
090801 Creating an environment to attract private-sector investment, entrepreneurship and access	NAEB
090803 Development of priority value chains: export crops	NAEB
EF05 Farmer-market linked infrastructure	RAB
EF01 Food systems for domestic market supply	MINAGRI
EF04 Quality assurance (inspection) and regulation	MINAGRI
EF02 Traditional export crop development	NAEB
EF03 Export diversification	NAEB

Continued to next page

Table 10. continued

Budget line	Institutions
0909 Institutional development and agricultural cross-cutting issues	
090902 Decentralization	MINAGRI
090903 Legal and regulatory framework	MINAGRI
090904 Agricultural statistical systems and knowledge management	MINAGRI
090908 Cross-cutting issues in agriculture	MINAGRI
EG Sustainable crops and animal resources production and productivity	
EG01 Sustainable, diversified and climate-smart crop production and productivity	RAB
EG02 Sustainable animal resources production and productivity	RAB
EG03 Nutrition-sensitive agriculture and resilience mechanisms	RAB
Agriculture in Local Governments budgets	
Agriculture	DISTRICTS
Sustainable crop production	DISTRICTS
Sustainable livestock production	DISTRICTS
Producer professionalization	DISTRICTS
Administrative and support services	
0905 Administrative and support services (environment)	MOE, MINERENA, ETC.
Administrative and support services (agriculture)	MINAGRI, RAB, NAEB

3 Key findings

3.1 SMNR and TonF policy context in Rwanda

Development financing follows the policy choices of a country. It is therefore important to understand the policy context for Sustainable Natural Resources Management (SMNR) and TonF in budget allocations. The Constitution of the Republic of Rwanda (Article 22) states that "everyone has the right to live in a clean and healthy environment." Article 53 further stresses that "everyone has the duty to protect, safeguard and promote the environment."

Rwanda is increasingly facing adverse climate change impacts. This includes seasonal flooding and landslides that cost lives and resources; as well as droughts damaging agriculture. Vision 2020 had already recognized climate change as "a major environmental problem, inextricably linked to development." The country had thus resolved in Vision 2020 to "develop eco-friendly policies and strategies in all sectors of the economy and promote green growth" (Government of Rwanda, 2012).

With the advent of Vision 2050, Rwanda still pledges that "growth and development will follow a sustainable path in terms of use and management of natural resources while building resilience to cope with climate change impacts. These aspirations will continue to be embedded in Rwanda's long-term Green Growth and Climate Resilient Strategy (GGCRS), aiming to achieve a carbon-neutral and climate resilient economy (Government of Rwanda, 2021).

The National Strategy for Transformation 2017–2024 (NST1), bridging Vision 2020 and Vision 2050, has included among its priorities "Sustainable Management of Natural Resources and Environment towards a green economy." The focus is placed on "improving cross-sectoral coordination to ensure smooth implementation of environmental policies and regulations," especially in the sectors of agriculture, urbanization, infrastructure and land use management.

The National Environment and Climate Change Policy (2019) further stresses that Rwanda aims "to have a clean and healthy environment resilient to climate variability and change that supports a high quality of life for its society" (MoE, 2019). The policy is articulated around seven objectives that include: (i) greening economic transformation, (ii) enhancing functional natural ecosystems and managing biosafety, (iii) strengthening meteorological and early-warning services, (iv) promoting climate change adaptation, mitigation and response, (v) improving environmental well-being for Rwandans, (vi) strengthening environment and climate change governance, and (vii) promoting green foreign and domestic direct investment and other capital inflows.

The Ministry of Environment is the line ministry for the implementation of environment policy and is entrusted with the responsibility to "coordinate and monitor the implementation of the policy – in collaboration with other ministries or central agencies and the local governments." (MoE, 2019).

As far as forestry and TonF are concerned, the Government of Rwanda aims to ensure that forests make up 30% of total land coverage by 2024, through forest landscape restoration, and to halve the number of households depending on fuelwood as a source of cooking energy – from 79.9% in 2017 to 42% by 2024. The forestry sector plays a vital role in job creation through charcoal production, wood production as well as the distribution and trade of wood products. The value of Rwanda's fuelwood and charcoal represented 6% of national GDP in 2018.

The government's seven policy statements include the "Adoption of Agroforestry and Trees Outside Forest (TOFo) techniques to be enhanced to contribute to overall forest resources and agriculture productivity" (MINILAF, 2018). According to the National Forestry Policy, the communities should "adopt and implement agroforestry technologies that enhance soil productivity and participate in forest conservation and protection." The Forestry Sector Strategic Plan 2018–2022 has assigned responsibility for the implementation of this agroforestry-related chapter of the policy to MINAGRI and MINILAF (now MoE), expressly stating that the ministry should:

- integrate into agroforestry techniques specific measures to maintain and enhance protected tree species;
- put in place and support joint-sector / inter-ministry Agroforestry Committees;
- implement the agroforestry strategy through its integration into relevant sectoral policies and strategic plans;
- disseminate and implement agroforestry techniques;
- increase diversity and access to seedlings of forest tree species suitable for agroforestry.

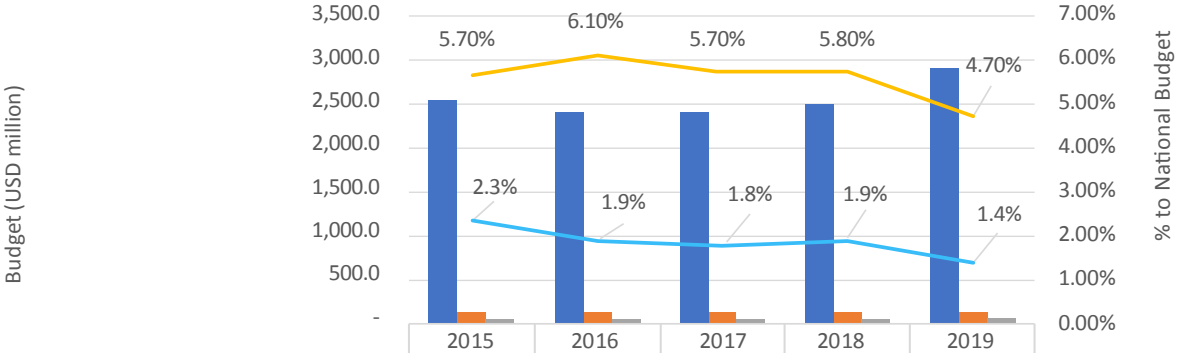
The financing of SMNR and TonF would therefore be expected to follow this policy and strategic framework, providing resources to institutions entrusted with the implementation of policies and strategies discussed above.

3.2 Trends in budget allocation and expenditure for Ministry of Agriculture and Ministry of Environment in the national budget

3.2.1 Agriculture and environment allocations in the national budget

The total national budget for the FY 2015–2019 period was USD 12,751.7 million, of which 5.6% (USD 711.1 million) was allocated to agriculture and 1.8% (USD 234.8 million) to the environment. The annual budget allocations to agriculture fluctuated between USD 136.5 million (5.7% of the national budget) and USD 146.3 million (6.1% of the national budget).

The annual budget allocations to the environment declined from 2.3% (USD 56.9 million) of the national budget in FY 2015 to 1.4% (USD 40.8 million) in FY 2019. This was accompanied by a fall in the budget utilization rate in the environment sector (see Figure 5) due to several institutional reforms during the period relevant to this study.



	2015	2016	2017	2018	2019
National Budget	2,526.7	2,388.2	2,393.6	2,502.9	2,940.3
Agriculture	144.1	146.3	136.5	146.2	137.9
Environment	56.9	45.8	43.2	48.0	40.8
& Agriculture to National Budget	7.70%	6.10%	5.70%	5.80%	4.70%
& Environment to National Budget	2.30%	1.90%	1.80%	1.90%	1.40%

Figure 4: Budget allocations to agriculture and environment for FY 2015–2019 (USD millions)

Source: Compiled from MINECOFIN budgets

The ministries in charge of the environment and natural resources, as well as various agencies, were reshuffled at different times, or dismantled to create new institutions. This resulted in the slowing of activities and budget utilization, as new structures need time to take shape and work properly.

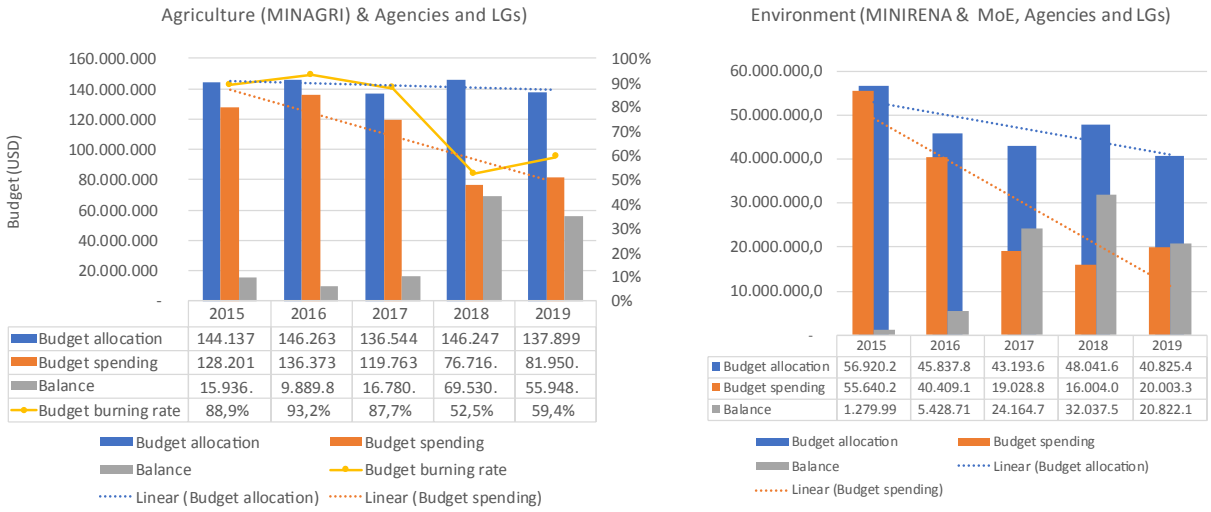


Figure 5: Trends in budget allocation and spending in institutions coordinating agriculture, environment and natural resources management (USD millions)

Source: Compiled from MINECOFIN national revised budgets and budget execution data, www.minecofin.gov.rw

The Biodiversity Expenditure Review (2017) indicated that the environment sector had not demonstrated the absorption capacities necessary to spend its budget and meet its targets due to "institutional reforms that slowed down planning and requests for funds," as well as "limited staffing and capacities to absorb all funds."[14]

While the budget utilization rate remained below 87.5% for the fiscal period 2016–2019 (see Figure 6), the budget execution rate for the environment was as low as 33.3% in FY 2018, down from 97.8% in FY 2015. For agriculture, a significant decline in the budget utilization rate was noted in FY 2018 (52.5%) and FY 2019 (59.4%).

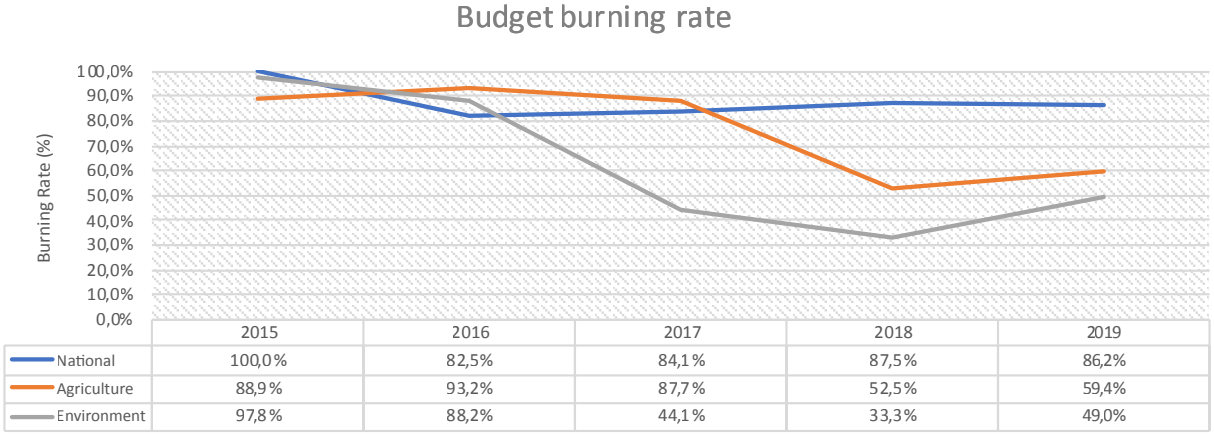


Figure 6: Budget execution rate

Source: Compiled from MINECOFIN national revised budgets and budget execution data

14 Biodiversity Expenditure Review, Final report. Prepared by Christina Van Winkle, 16 November 2017.

3.2.2 Agriculture and environment financing, and contribution to GDP

Rwanda's GDP totalled USD 45.3 billion for the five years, increasing from USD 8.4 billion in 2015 to USD 9.9 billion in 2019. The average contribution of agriculture to national GDP was USD 8.7 billion (19.3%). Only 1.6% of national GDP was reinvested in agriculture, but this financing of agriculture accounted for 8.1% of agriculture GDP. The environment sector (only the forestry contribution is included in GDP data) contributed USD 2.5 billion (5.5%) to national GDP, of which 0.5% was reinvested in environmental management. The overall financing of the environment (USD 234.7 million) accounted for 9.4% of environment GDP (see Table 11).

Table 11: Agriculture and environment contribution to national GDP (USD millions)

	2015	2016	2017	2018	2019	Total
National GDP	8,371.2	8,659.8	8,864.0	9,482.0	9,910.2	45,287.2
Agriculture:						
Agriculture GDP	1,551.2	1,637.2	1,897.2	1,909.6	1,733.4	8,728.6
Agriculture contribution to GDP (%)	18.5%	18.9%	21.4%	20.1%	17.5%	19.3%
Agriculture financing	144.1	146.3	136.5	146.2	137.9	711.0
Agriculture financing % of GDP	1.7%	1.7%	1.5%	1.5%	1.4%	1.6%
Agriculture financing % of agric. GDP	9.3%	8.9%	7.2%	7.7%	8.0%	8.1%
Environment:						
Environment GDP (forestry)	480.3	463.4	432.4	528.9	605.1	2,510.10
Environment (forestry) contribution to GDP	5.7%	5.4%	4.9%	5.6%	6.1%	5.5%
Environment financing	56.9	45.8	43.2	48.0	40.8	234.70
Environment financing % of GDP	0.7%	0.5%	0.5%	0.5%	0.4%	0.5%
Environment financing % of environment (forestry) GDP	11.8%	9.9%	10.0%	9.1%	6.7%	9.4%

Source: GDP figures from NISR GDP report 2019/2020

3.2.3 Budget allocations and expenditure by institutions in the environment sector

Institutions coordinating environment management were allocated USD 216,596,640 during FY 2015–2019. About 28.9% of these resources were allocated to MINIRENA, 21.7% to RNRA, 15.3% to REMA and 11.2% to RWFA, while other institutions in the sector were allocated less than 10% of the total funds earmarked for the sector (see Table 12).

The average rate of budget utilization was relatively low (60.2%), with only USD 130,387,353 effectively used out of the USD 216,596,640 allocated to ministries and agencies in the sector. This low burn rate was essentially due to multiple reforms and institutional restructuring that took place in the sector in FY 2017.

Table 12: Budget allocation in environment sector (%)

Institution	TOTAL			% of revised budget
	Revised budget	Budget execution	Balance	
MINIRENA	62,634,374	43,723,090	18,911,283	28.9%
RNRA	47,017,352	36,790,192	10,227,160	21.7%
REMA	33,243,008	16,455,674	16,787,334	15.3%
RWFA	24,212,394	9,126,461	15,085,933	11.2%
FONERWA	17,046,813	1,046,548	16,000,266	7.9%
RMB	10,354,728	9,065,713	1,289,015	4.8%
RLMUA	9,944,638	4,765,627	5,179,011	4.6%
METEO RWANDA	7,148,710	7,470,796	- 322,086	3.3%
MOE	4,203,414	1,476,499	2,726,915	1.9%
MINILAF	791,209	466,753	324,456	0.4%
TOTAL	**216,596,640**	**130,387,353**	**86,209,287**	**100.0%**

Source: compiled from MINCECOFIN district budgets

This includes the closure of the Rwanda Natural Resources Authority (RNRA) and the creation of new specialized agencies to take over RNRA responsibilities (RWFA, RMB and RLMUA). Ministries in charge of coordinating the sector also changed frequently during the period under analysis. MINIRENA was first dismantled to create MoE and MINILAF. The latter was later dropped and its responsibilities were reassigned back to MoE, which is the current line ministry for all agencies in the environmental management sector.

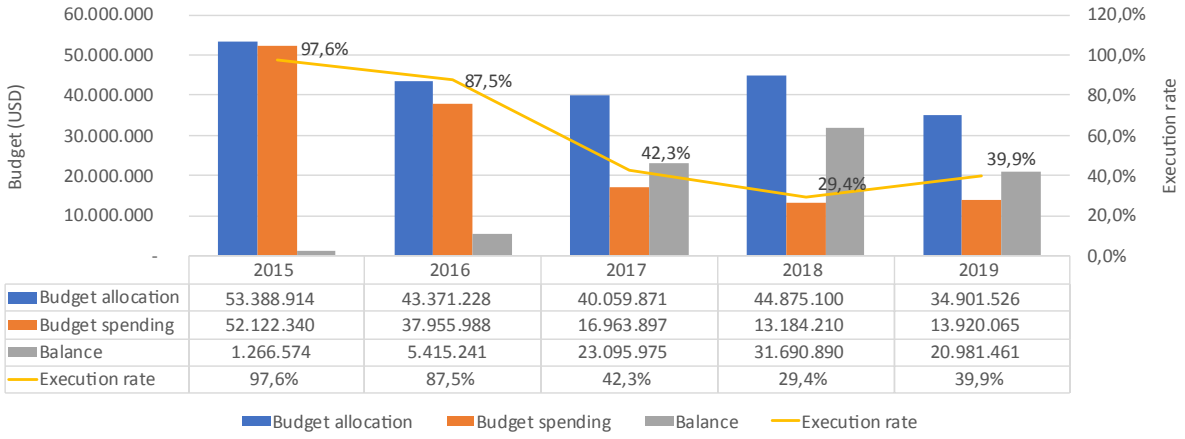


Figure 7: Ministry of Environment (MINIRENA, MoE, MINILAF) and agencies (USD millions)
Source: Compiled from MINECOFIN district budgets

Reforms triggered by these restructuring measures took time to mature, which affected budget use (putting in place institutions and revising implementation systems, staffing). All these changes are reflected in the budget utilization rates for FY 2017–2019, which were as low as 29.4% (see Figure 7).

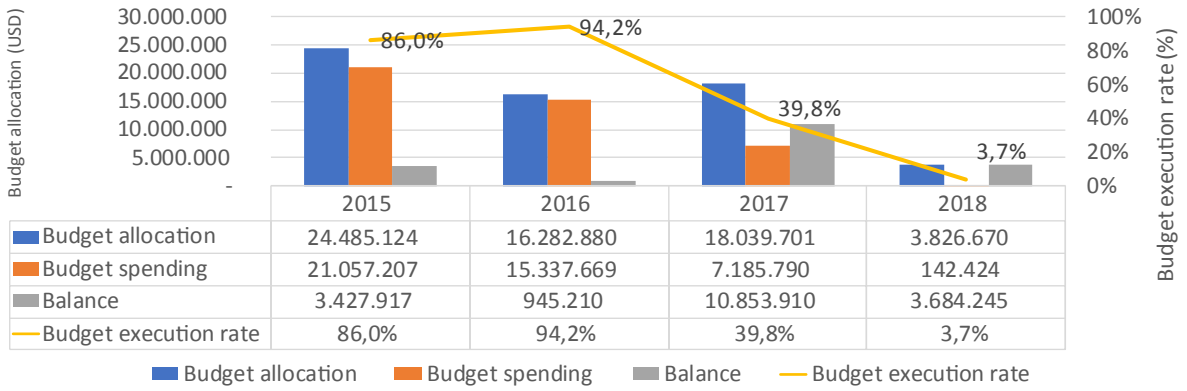


Figure 8: Budget allocations and execution by MINIRENA (USD millions)

Source: Compiled from MINECOFIN district budgets

Institutions were affected in various ways, depending on the depth of reforms they underwent. MINIRENA, the first line ministry until 2017, was allocated 29% of the resources and had a good budget execution rate until 2017, when it was closed (see Figure 8).

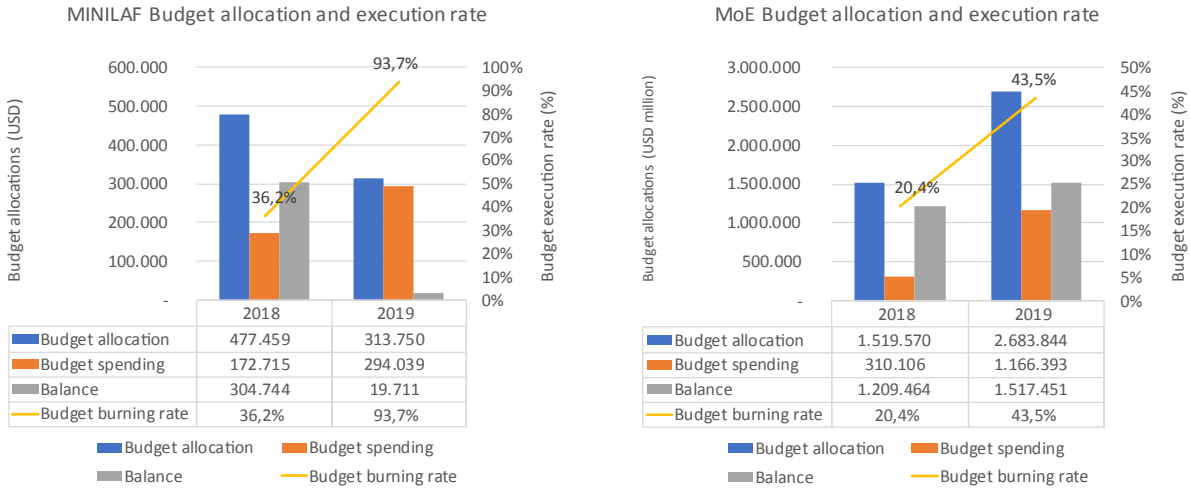
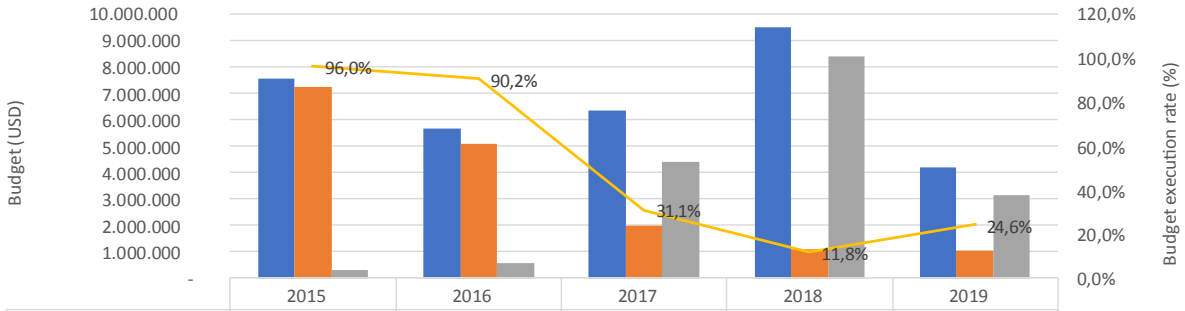


Figure 9: Budget allocations and execution by MINILAF and MoE

Source: Compiled from MINECOFIN district budgets

MINIRENA was replaced by two ministries – the Ministry of Environment (MoE) and the Ministry of Lands and Forestry (MINILAF). Both ministries recorded low budget utilization rates in FY 2018, according to MINECOFIN budget reports (see Figure 9).

MINILAF implemented its budget at a rate of only 36.2% in FY 2018, but it had a better budget utilization rate (93.7%) in FY 2019. Most of its work focused on policy reforms in the sectors of land and forestry, among the prime focus areas of this ministry. MINILAF was later closed and its responsibilities reverted back to MoE.

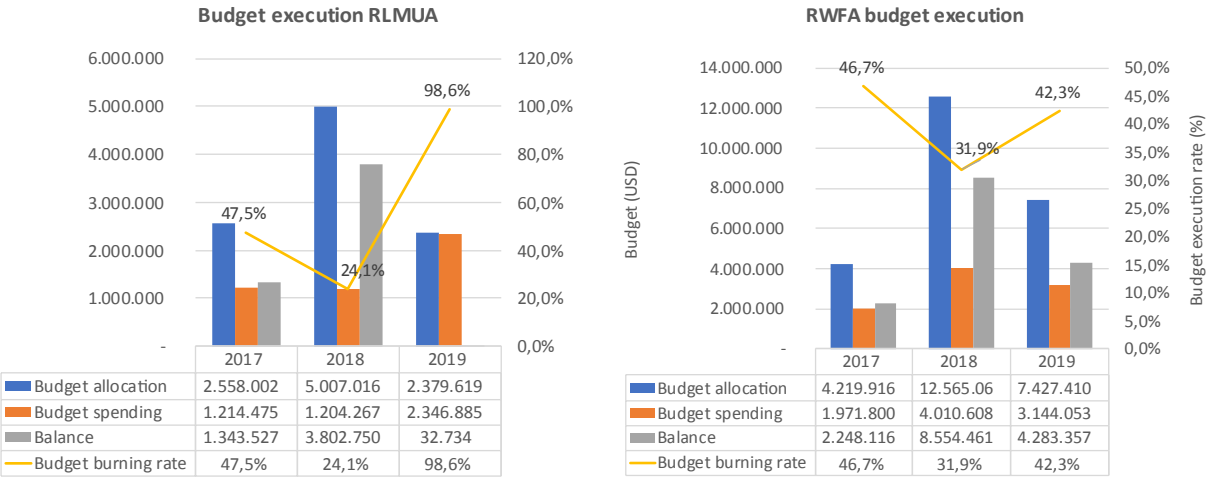


	2015	2016	2017	2018	2019
Budget allocation	7.547.440	5.633.812	6.362.484	9.503.407	4.195.865
Budget spending	7.245.542	5.082.784	1.977.118	1.116.859	1.033.370
Balance	301.898	551.029	4.385.365	8.386.548	3.162.495
Budget burning rate	96,0%	90,2%	31,1%	11,8%	24,6%

Figure 10: REMA budget allocations and execution

Source: Compiled from MINECOFIN district budgets

Other agencies also had low burn rates in FY 2017–2019, especially REMA and RWFA. REMA's budget burn rate fell from 90.2% in FY 2016 to only 31.1% in FY 2017, 11.8% in FY 2018 and 24.6% in FY 2019 (see Figure 10). This was a dramatic decline in budget performance, even though the agency did not experience any significant restructuring.



	2017	2018	2019
Budget allocation	2.558.002	5.007.016	2.379.619
Budget spending	1.214.475	1.204.267	2.346.885
Balance	1.343.527	3.802.750	32.734
Budget burning rate	47,5%	24,1%	98,6%

	2017	2018	2019
Budget allocation	4.219.916	12.565.06	7.427.410
Budget spending	1.971.800	4.010.608	3.144.053
Balance	2.248.116	8.554.461	4.283.357
Budget burning rate	46,7%	31,9%	42,3%

Figure 11: Budget execution rate, RLMUA and RWFA (USD)

Source: Compiled from MINECOFIN budget reports

Newly created agencies took time to deliver good budget execution. RLMUA could spend only 47.5% of its allocated budget in FY 2017 and 24.1% in FY 2018. This resulted in a significant reduction in allocated funds, from USD 5 million in FY 2018 to only USD 2.3 million in FY 2019. At this reduced level, RLMUA was able to spend 98.6% of its allocated funds in 2019.

RWFA – the agency in charge of water, forestry and agroforestry – did not show the same speed in increasing its budget burn rate from its entry rate on creation. In FY 2017, it used 46.7% of the USD 4.2 million allocated. Its budget was increased threefold to USD 12.5 million in FY 2018, but the agency spent only 31.9% (USD 4 million). This led to a reduction in budget to USD 7.4 million in FY 2019, of which only 42.3% (USD 3.1 million) was used (see Figure 11).

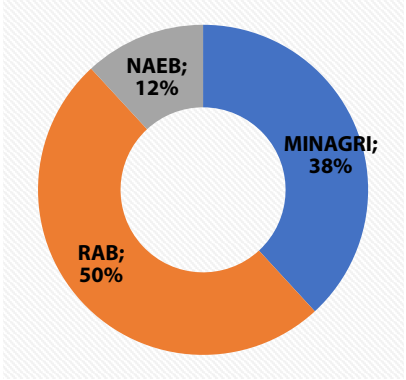


Figure 12: Budget allocation among MINAGRI and agencies

Source: Compiled from MINECOFIN budget reports

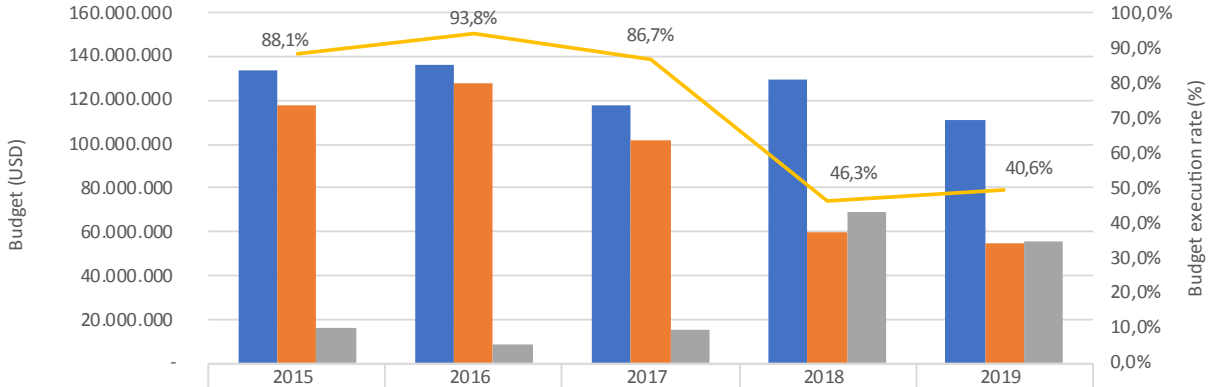
3.2.4 Budget allocation and spending by institutions in the agriculture sector

At central level, two agencies implement agriculture policies – RAB and NAEB. RAB has the mandate to develop agriculture and animal resources through research, agricultural and animal resources extension in order to increase agricultural and animal productivity. NAEB is a public commercial institution created in 2011 with the mandate to drive growth in Rwanda's agri-export revenue by supporting the export sector in production, value addition, marketing and policy interventions. RAB and NAEB rely on MINAGRI for policy guidance, resource mobilization and capacity building.

Overall, MINAGRI and its two agencies were allocated USD 628,045,912 during the FY 2015–2019 period, of which USD 462,838,097 was effectively used. RAB was allocated USD 302 million (50% of the total budget), MINAGRI was allocated USD 253.4 million (38%) and NAEB was allocated USD 72.6 million (12%).

The budget execution rate stood at 73.7%, on average. However, the rate was low during FY 2018 (46.3%) and FY 2019 (49.6%), well below the budget performance for previous periods, as shown in Figure 13.

This coincided with a significant shift in budget allocations from MINAGRI to RAB in FY 2018. The budget allocations to RAB more than doubled from USD 44.9 million in FY 2017 to USD 100.9 million in FY 2018, and amounted to USD 85.9 million in FY 2019.

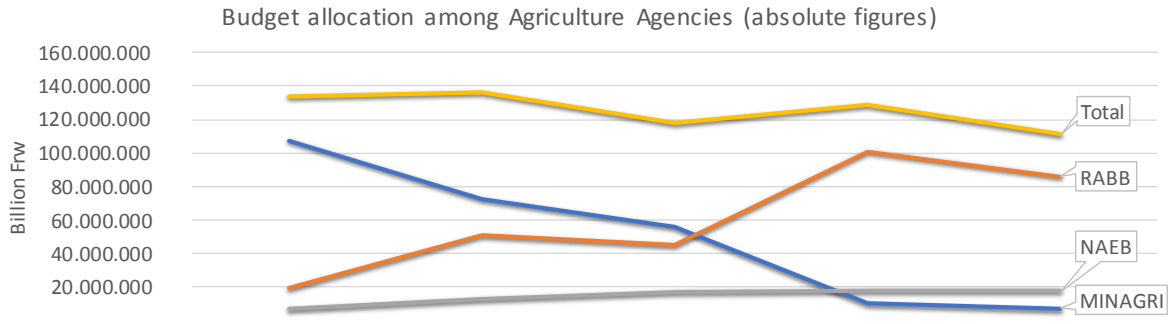


	2015	2016	2017	2018	2019
Budget allocation	133.908.909	136.516.053	117.602.824	129.015.164	111.002.962
Budget spending	118.011.749	128.084.825	101.938.066	59.699.387	55.104.070
Balance	15.897.160	8.431.228	15.664.758	69.315.778	55.898.892
Execution rate	88,1%	93,8%	86,7%	46,3%	49,6%

Figure 13: Budget execution rate in agriculture institutions (USD)

Source: Compiled from MINECOFIN budget reports

There was a significant reduction in funds allocated to MINAGRI, from USD 55.7 million in FY 2017 to USD 10.5 million in FY 2018 and USD 7.3 million in FY 2019. (see Figure 14).

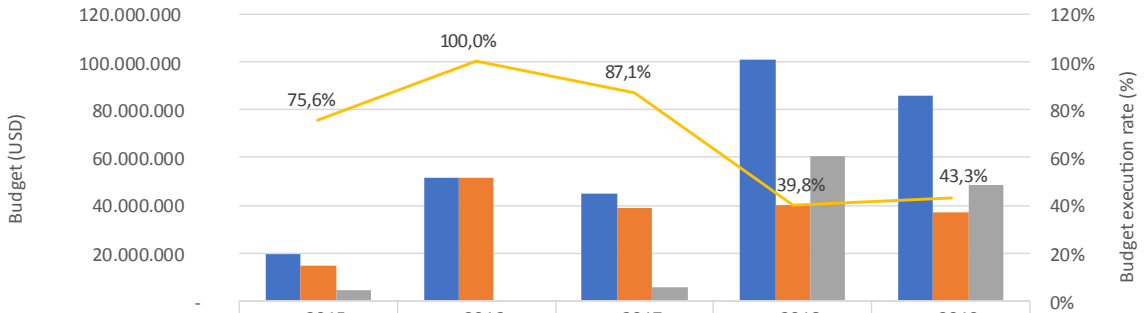


	2015	2016	2017	2018	2019
MINAGRI	107.315.634	72.499.366	55.713.338	10.540.889	7.326.775
RAB	19.268.558	51.216.847	44.865.532	100.848.123	85.860.103
NAEB	7.324.717	12.799.840	17.023.953	17.626.152	17.816.083
Total	133.908.909	136.516.053	117.602.824	129.015.164	111.002.962

Figure 14:Trends in budget allocation among agriculture institutions

Source: Compiled from MINECOFIN budget reports

Budget allocation increases to RAB were not matched in budget performance. Its budget execution rate fell to 39.8% in FY 2018 from 87.1% in FY 2017 and amounted to only 43.3% in FY 2019. This was well below the sector's average of 73.7% (see Figure 15).

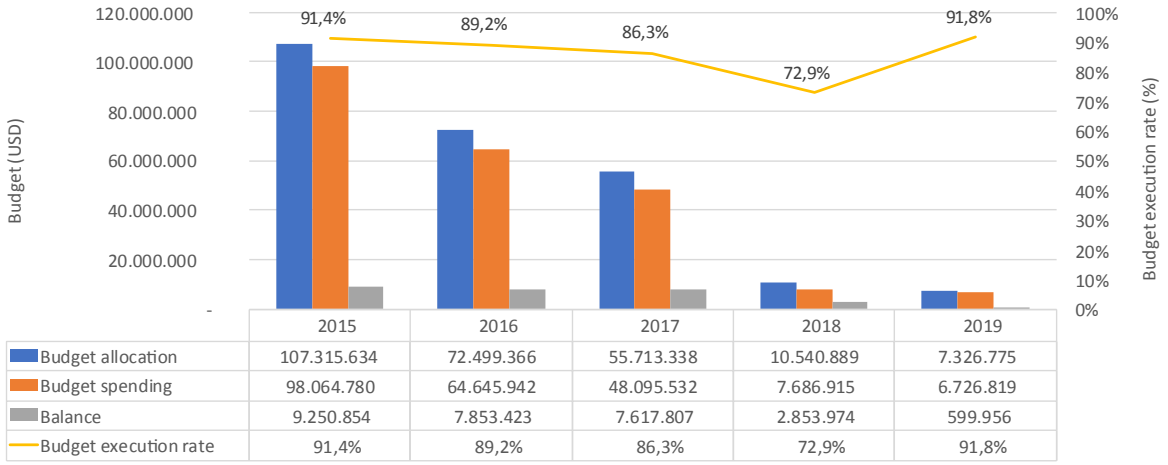


	2015	2016	2017	2018	2019
Budget allocation	19.268.558	51.216.847	44.865.532	100.848.123	85.860.103
Budget spending	14.576.134	51.216.847	39.070.984	40.175.559	37.157.938
Balance	4.692.424	-	5.794.548	60.672.564	48.702.165
Budget burning rate	75,6%	100,0%	87,1%	39,8%	43,3%

Figure 15: RAB budget execution

Source: Compiled from MINECOFIN budget reports

The budget execution rate of MINAGRI was 72.9% in FY 2018 and increased to 91.8% in FY 2019 (see Figure 16). This seems to indicate that RAB was not ready for the additional resources it was allocated, or did not inherit the corresponding systems for implementation of related activities.

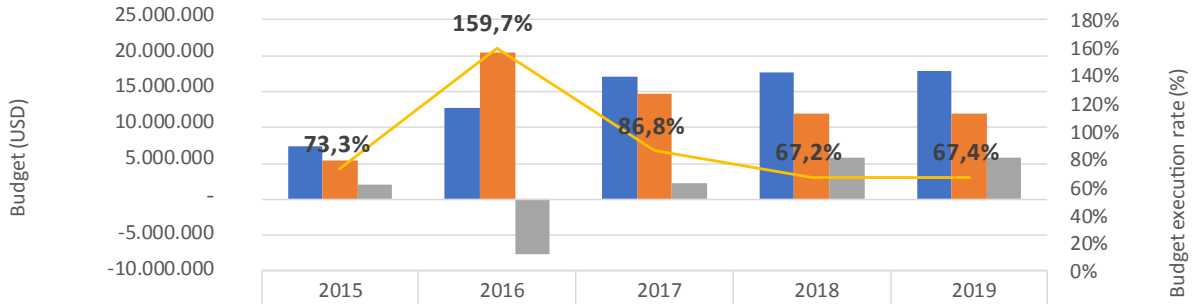


	2015	2016	2017	2018	2019
Budget allocation	107.315.634	72.499.366	55.713.338	10.540.889	7.326.775
Budget spending	98.064.780	64.645.942	48.095.532	7.686.915	6.726.819
Balance	9.250.854	7.853.423	7.617.807	2.853.974	599.956
Budget execution rate	91,4%	89,2%	86,3%	72,9%	91,8%

Figure 16: MINAGRI budget execution

Source: Compiled from MINECOFIN budget reports

NAEB's budget burn rate soared to 159.7% in FY 2016 as it overspent USD 7.6 million on the originally allocated budget of USD 12.8 million. The budget utilization rates declined in FY 2018 and FY 2019 to 67.2% and 67.4%, respectively (see Figure 17).



	2015	2016	2017	2018	2019
Budget allocation	7.324.717	12.799.840	17.023.953	17.626.152	17.816.083
Budget spending	5.370.835	20.444.881	14.771.550	11.836.912	12.014.135
Balance	1.953.882	-7.645.041	2.252.403	5.789.240	5.801.949
Budget burning rate	73,3%	159,7%	86,8%	67,2%	67,4%

Figure 17: NAEB budget execution

Source: Compiled from MINECOFIN budget reports

3.2.5 Budget allocations and expenditure on agriculture and environment in districts

The budgets earmarked directly for the districts also contain allocations for agriculture and environmental management. An analysis of SMNR and TonF funding also needs to consider these allocations to local governments. In addition, all SMNR and TonF activities – whether implemented at the central level or by the districts – ultimately take place on the ground in the districts. This is why it is important to appreciate the districts' involvement in co-implementing SMNR and TonF programmes.

Budget allocations for environmental management at district level – unlike at central government level – increased from USD 3.5 million in FY 2015 to USD 5.9 million in FY 2019 (see Table 13).

Table 13: Financing environmental management at district level 2015–2019

Budget lines		Revised budget	Budget execution	Balance
Forestry resources management	Amount (USD)	14,818,679	13,751,282	1,067,397
	%	0.7%	0.7%	0.7%
Soil conservation	Amount (USD)	2,805,275	2,349,600	455,675
	%	0.1%	0.1%	0.3%
Water resource management	Amount (USD)	598,233	838,310	- 240,077
	%	0.03%	0.04%	-0.2%
Total environment and natural resources	Amount (USD)	**18,222,187**	**16,939,193**	**1,282,994**
	%	0.9%	0.9%	0.9%
Total budget of districts	Amount (USD)	**2,105,444,608**	**1,962,153,610**	**143,290,999**
	%	100%	100%	100%

Source: MINECOFIN district budget reports

Budget utilization rates followed the same trend. This means the administrative and financial autonomy of districts shielded them from budget declines following the frequent restructuring of central government institutions, which affected the allocation and use of resources.

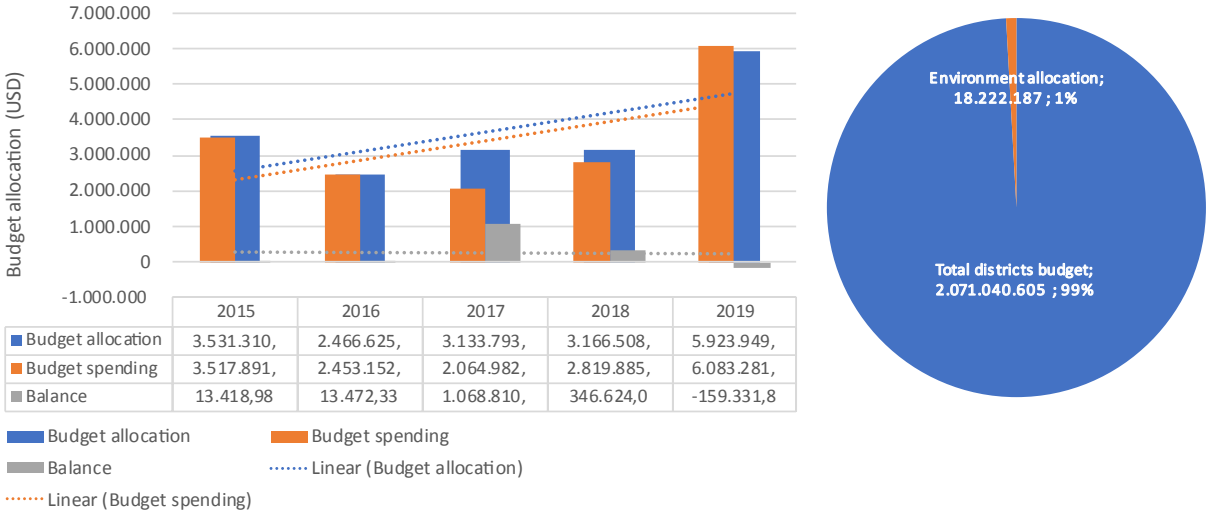


Figure 18: Environment financing in district budgets (USD millions)

Source: Compiled from MINECOFIN district budget reports

The other component of SMNR financing at district level includes funds allocated to agriculture activities. Agriculture financing in the districts made up 4% (USD 83,046,087) of all resources used (USD 2,105,444,608). These included budget lines for sustainable crop production (USD 49,168,497), sustainable livestock production (USD 30,486,164) and producer professionalization (USD 3,391,426) (see Table 14).

Table 14: Agriculture financing in districts, 2015–2019 (USD)

Budget lines		Revised Budget	Budget Execution	Balance
Sustainable crop production	Amount	49,168,497	46,523,751	2,644,746
	%	2.3%	2.4%	1.8%
Sustainable livestock production	Amount	30,486,164	30,232,025	254,139
	%	1.4%	1.5%	0.2%
Producer professionalization	Amount	3,391,426	3,411,881	-20,455
	%	0.2%	0.2%	-0.01%
Total agriculture	Amount	83,046,087	80,167,658	2,878,430
	%	3.9%	4.1%	2.0%
Total budget of districts	Amount	2,105,444,608	1,962,153,610	143,290,999
	%	100%	100%	100%

Source: MINECOFIN district budget reports

Agriculture budgets at local level also cover indirect expenses for the sustainable management of natural resources as well as TonF activities. Government direct financing of agriculture at district level was USD 83,046,087, which was almost 4% of the districts' total budget (USD 2,105,444,608) for the period relevant to the study. This comprised the financing of crop production (USD 49,168,467), livestock production (USD 30,486,164) and producer professionalization (USD 3,391,426), as seen in Table 14.

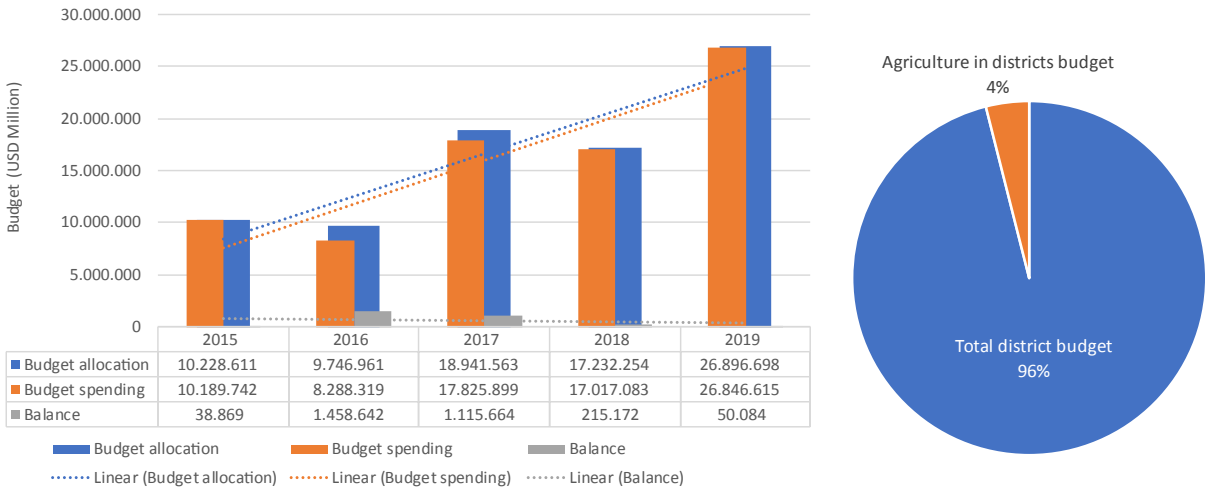


Figure 19: Agriculture budget allocations and expenditure in districts, 2015–2019

Source: Compiled from MINECOFIN district budget reports

In addition, around 70% of the Rwandan population lives in rural areas and depends on agriculture for a living. This is why adequate financing of agriculture is paramount, and so is the financing of SMNR and TonF systems to support sustainable agriculture and climate change mitigation. Over the five years (FY 2015–2019), budget allocations to agriculture in the districts increased from USD 10.2 million in FY 2015 to USD 26.8 million in FY 2019 (see Figure 19). The budget execution rates were also good, following the same trend line of budget allocation increases.

3.3 Budget allocated and spent towards sustainable management activities

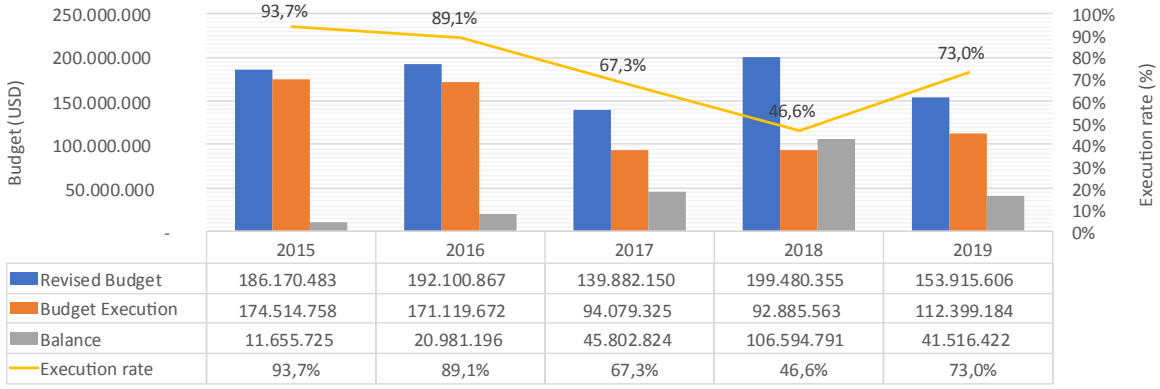
During FY 2015–2019, a total of USD 871,549,460 was allocated to the sustainable management of natural resources (SMNR), accounting for 6.8% of the national budget. The overall budget execution rate was 74%, with only USD 644,998,502 used out of the USD 871,549,460 allocated (see Table 15).

Table 15: SMNR budget allocations in the national revised budget (USD)

Description	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	TOTAL
SMNR	186,170,483	192,100,867	139,882,150	199,480,355	153,915,606	871,549,460
National budget	2,526,719,876	2,388,164,271	2,393,581,859	2,502,881,873	2,940,346,364	12,751,694,242
SMNR vs national budget	7.4%	8.0%	5.8%	8.0%	5.2%	6.8%

Source: Compiled from MINECOFIN budget reports

As noted in the analysis of institutions' budgets overall, fund utilization was particularly low in FY 2017 (67.3% of allocated resources) and FY 2018 (46.6% of allocated resources), as seen in Figure 20. This corresponds to the restructuring period of the agencies and ministries in the environment sector.



	2015	2016	2017	2018	2019
Revised Budget	186.170.483	192.100.867	139.882.150	199.480.355	153.915.606
Budget Execution	174.514.758	171.119.672	94.079.325	92.885.563	112.399.184
Balance	11.655.725	20.981.196	45.802.824	106.594.791	41.516.422
Execution rate	93,7%	89,1%	67,3%	46,6%	73,0%

Figure 20:Budget execution – Sustainable management of natural resources

Source: Compiled from MINECOFIN budget reports

SMNR financing is composed of direct and indirect budget allocations. Direct budget allocations amounted to USD 176,805,434 (20.3%) and indirect allocations to USD 694,744,026 (79.7%) of the overall budget earmarked for SMNR.

Table 16: Areas of budget allocation to sustainable management of natural resources (USD)

Budget line	Revised budget	Budget execution	Balance	% to total	% use
Direct	**176,805,434**	**121,971,723**	**54,833,712**	**20.3%**	**69.0%**
Environment and natural resource policy development and coordination	62,830,583	51,876,554	10,954,030	36%	82.6%
Land administration and land use management	26,644,520	10,031,437	16,613,083	15%	37.6%
Environmental management and climate change resilience	25,588,682	15,103,945	10,484,737	14%	59.0%
Integrated water resource management	19,013,686	10,226,501	8,787,185	11%	53.8%
Environment in districts' budgets	18,222,187	16,939,193	1,282,994	10%	93.0%
Terrestrial ecosystem and forest resource management	13,220,883	9,906,754	3,314,129	7%	74.9%
Mineral and quarry exploration and exploitation	7,093,840	3,341,441	3,752,399	4%	47.1%
Mineral and quarry exploration and exploitation	2,315,534	1,993,466	322,067	1%	86.1%
Meteorological operations	1,875,520	2,552,433	- 676,912	1%	136.1%
Indirect	**694,744,026**	**522,981,987**	**171,762,039**	**79.7%**	**75.3%**
Agriculture and animal resource intensification	317,809,625	233,041,026	84,768,599	46%	73.3%
Value addition and competitiveness of crops and animal resources	96,170,596	74,959,134	21,211,461	14%	77.9%
Agriculture in districts' budgets	83,046,087	80,167,658	2,878,430	12%	96.5%
Sustainable crops and animal resources production and productivity	68,003,336	29,398,981	38,604,355	10%	43.2%
Research, technology transfer, advisory services and professionalization of farmers	50,283,532	31,146,182	19,137,350	7%	61.9%
Administrative and support services (agriculture)	45,267,209	43,517,944	1,749,265	7%	96.1%
Administrative and support services (environment)	32,262,973	29,017,149	3,245,824	5%	89.9%
Institutional development and agricultural cross-cutting issues	1,900,668	1,733,913	166,755	0%	91.2%
TOTAL SMNR	**871,549,460**	**644,953,709**	**226,595,751**	**100%**	**74.0%**

Source: Compiled from MINECOFIN budget reports

About 36% of direct allocations were earmarked to "Environment and natural resource policy development and coordination," 15% to "Land administration and land use management," 14% to "Environmental management and climate change resilience," 11% to "Integrated water resource management" and 10% to "Environment in districts' budgets" (see Table 16).

Indirect budget allocations to SMNR amounted to USD 694,744,026, which was 79.7% of the overall budget earmarked for SMNR. Indirect budget allocations to SMNR were mostly composed of budget lines under agriculture agencies, which had no major structural issues during the period relevant to the study – apart from budget reallocations from MINAGRI to RAB – and hence show better budget utilization rates than for direct allocations.

3.3.1 Direct budget allocations to SMNR

Sharp declines in budget execution rates for direct budget allocations to SMNR were recorded in FY 2017 (27.1%) and FY 2018 (23.6%) (see Figure 21).

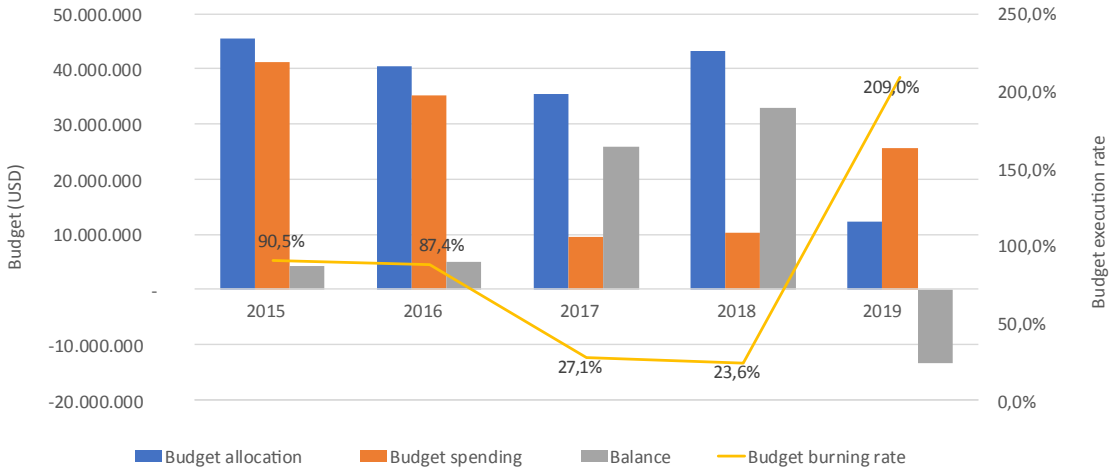


Figure 21: SMNR - Direct budget allocations: Execution rates (USD)

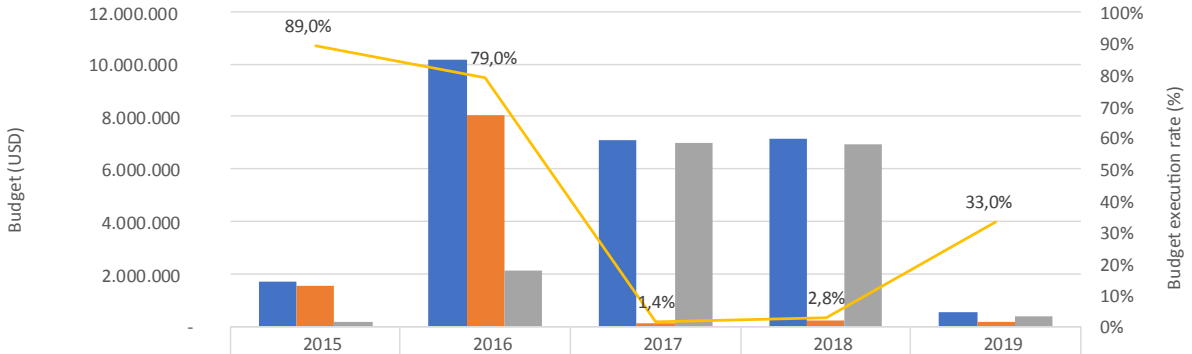
Source: Compiled from MINECOFIN budget reports

Direct allocations were composed mostly of budget lines under institutions in the environment sector. Their budget execution rate was obviously impacted by the different limitations that were discussed in the previous section. This included significant institutional restructuring and reorganization in the sector.

Budget lines that were most underspent included: (i) Land administration and land-use management, previously under RNRA, which later migrated to RLMUA – (37.6%); (ii) Integrated water resource management (53.8%), previously under RNRA, later shifting to RWFA and now under the Rwanda Water Resources Board (RWB); (iii) Environmental management and climate change resilience (59%) under REMA; and (iv) Mineral and quarry exploration and exploitation (47.1%), previously under RNRA and currently under RMB.

a) Land administration and land-use management

The budget execution rates for land administration and land-use management dropped from 79% in FY 2016 to 1.4% in FY 2017 and 2.8% in FY 2018, before rising to 33% in FY 2019. This again corresponds to the period of transition from RNRA to RLMUA.



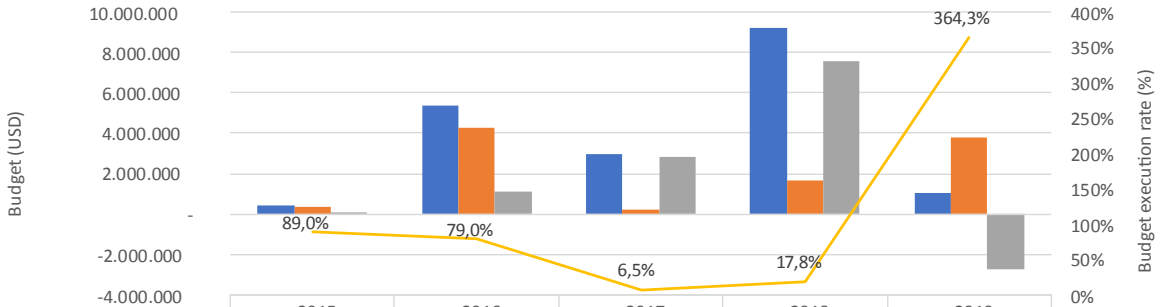
	2015	2016	2017	2018	2019
Budget allocation	1.705.512	10.171.953	7.104.953	7.125.730	536.372
Budget spending	1.517.906	8.035.843	100.801	199.957	176.930
Balance	187.606	2.136.110	7.004.152	6.925.773	359.441
Budget burning rate	89,0%	79,0%	1,4%	2,8%	33,0%

Figure 22: Budget execution rate – Land administration and land-use management (USD)

Source: Compiled from MINECOFIN budget reports

b) Integrated water resource management

The budget implementation rate for "Integrated water resource management" showed similar declines in FY 2017 (6.5%) and FY 2018 (17.8%), but the budget was overspent in FY 2019 (364.3%). This was a line budget handled by RNRA until 2016 and reverted to RWFA from FY 2017, also a new institution resulting from the closure of RNRA and MINILAF.



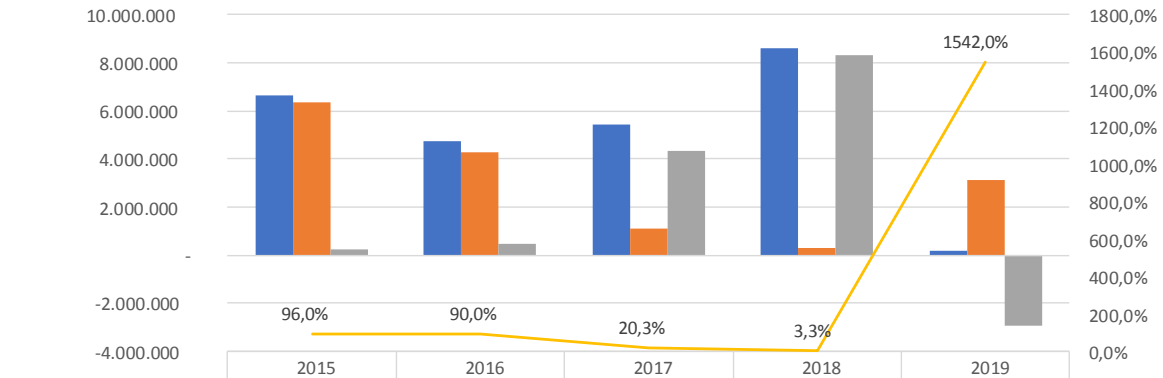
	2015	2016	2017	2018	2019
Budget allocation	389.923	5.368.459	2.993.227	9.218.160	1.043.918
Budget spending	347.031	4.241.082	194.567	1.640.336	3.803.484
Balance	42.891	1.127.376	2.798.660	7.577.824	-2.759.566
Budget burning rate	89,0%	79,0%	6,5%	17,8%	364,3%

Figure 23: Budget execution – Integrated water resource management (USD)

Source: Compiled from MINECOFIN budget reports

c) Environmental management and climate change resilience

The budget execution rates for "Environmental management and climate change resilience" (REMA) were at an acceptable level in FY 2015 (96%) and FY 2016 (90%), but dropped sharply in 2017 to 20.3% and to just 3.3% in 2018. Overspending then reached 1,542% in FY 2019, as shown in Figure 24.

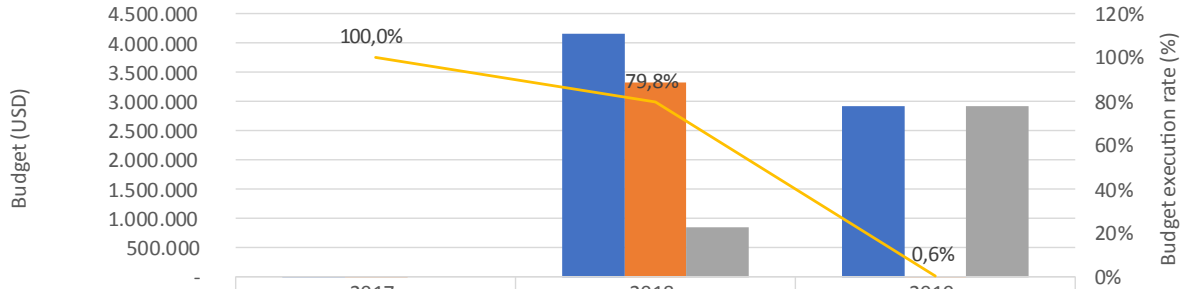


	2015	2016	2017	2018	2019
Budget allocation	6.618.062	4.736.248	5.448.532	8.584.839	201.001
Budget spending	6.353.339	4.262.623	1.108.408	280.189	3.099.386
Balance	264.722	473.625	4.340.125	8.304.650	-2.898.385
Budget burning rate	96,0%	90,0%	20,3%	3,3%	1542,0%

Figure 24: Budget execution – Environmental management and climate change resilience (USD)
Source: Compiled from MINECOFIN budget reports

d) Mineral and quarry exploration and exploitation

This was a budget line that transitioned to RMB. Significant underspending was noted in FY 2019, with almost the entire allocated budget remaining unused (0.6% budget execution rate).

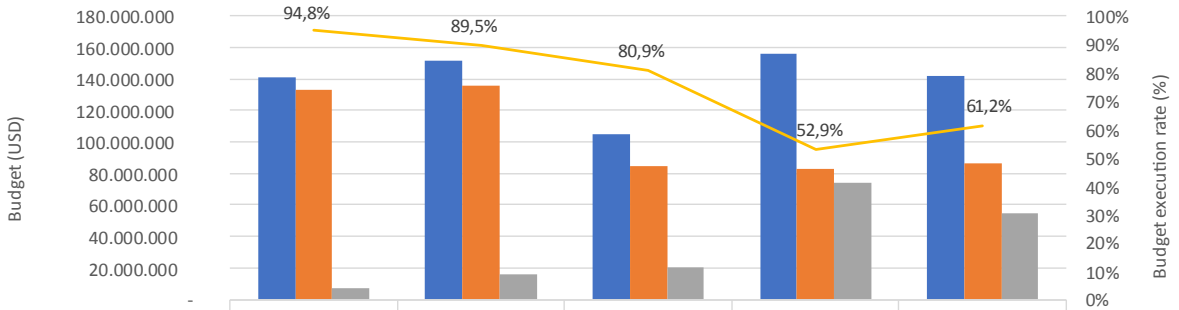


	2017	2018	2019
Budget allocation	629	4.164.782	2.928.429
Budget spending	629	3.324.501	16.311
Balance	0	840.280	2.912.119
Budget burning rate	100,0%	79,8%	0,6%

Figure 25: Budget execution – Mineral and quarry exploration and exploitation (USD)
Source: Compiled from MINECOFIN budget reports

3.3.2 Indirect budget allocations to SMNR

Budget execution rates declined in FY 2018 (52.9%) and FY 2019 (61.2%), compared with previous years (see Figure 26). This was due to decreases in spending on: (i) Sustainable crops and animal resource production and productivity – with a budget burn rate of 43.2%; and (ii) Research, technology transfer, advisory services and professionalization of farmers – with a budget utilization rate of 61.9%. Both developments occurred under RAB.



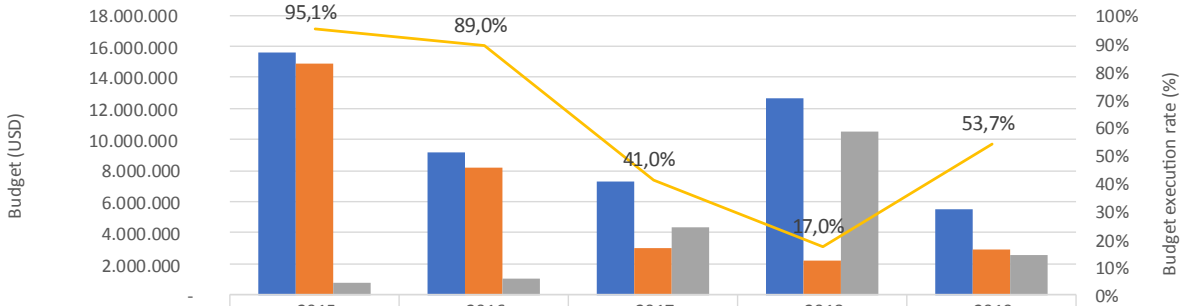
	2015	2016	2017	2018	2019
Budget allocation	140.652.765	151.715.503	104.459.509	156.308.877	141.607.373
Budget spending	133.338.931	135.824.887	84.484.342	82.700.331	86.678.288
Balance	7.313.834	15.890.616	19.975.167	73.608.546	54.929.085
Budget burning rate	94,8%	89,5%	80,9%	52,9%	61,2%

Figure 26: SMNR – Indirect budget execution (USD)

Source: Compiled from MINECOFIN budget reports

a) Research, technology transfer, advisory services and professionalization of farmers

There was a significant drop in fund utilization on "Research, technology transfer, advisory services and professionalization of farmers" in FY 2017 (41%) and FY 2018 (17%) before a modest recovery in FY 2019 (53.7%).



	2015	2016	2017	2018	2019
Budget allocation	15.626.374	9.196.518	7.296.508	12.658.691	5.505.442
Budget spending	14.854.864	8.184.901	2.994.742	2.157.492	2.954.183
Balance	771.510	1.011.617	4.301.766	10.501.199	2.551.259
Budget burning rate	95,1%	89,0%	41,0%	17,0%	53,7%

Figure 27: Budget execution – Research, technology transfer, advisory services and professionalization of farmers (USD)

Source: Compiled from MINECOFIN budget reports

The decline in FY 2018 was even deeper if one considers that resource allocations to this particular line had increased from USD 7.3 million in FY 2017 to USD 12.6 million the following year. This resulted in the halving of budget allocations to only USD 5.5 million in FY 2019 (see Figure 27).

b) Sustainable crops and animal resources production and productivity

This budget line first appeared in FY 2019 with an allocation of USD 5.5 million, of which USD 2.9 million was utilized at a burn rate of 53.7%.

3.4 Budget allocated and spent towards "Trees on Farms"

TonF was allocated USD 358,549,460 from FY 2015 to FY 2019, representing 2.8% of the national budget. The level of TonF financing varied from 2% to 3.4% during this period, as shown in Table 17.

Table 17: Budget allocated and spent towards "Trees on Farms" versus national budget (USD)

Description	2015	2016	2017	2018	2019	Total
TonF	81,136,012	57,833,057	47,583,188	71,610,303	100,211,681	358,374,241
National budget	2,526,719,876	2,388,164,271	2,393,581,859	2,502,881,873	2,940,346,364	12,751,694,242
TonF to national budget	3.2%	2.4%	2.0%	2.9%	3.4%	2.8%

Source: Compiled from MINECOFIN budget reports

TonF received USD 139,460,930 in direct financing (39%) and USD 218,913,311 in indirect financing (61%). Focus areas for TonF financing in the national budget comprised: (i) Environment and climate change mitigation, which absorbed 35% (USD 124,555,577) of the resources allocated to TonF; (ii) Agricultural production and value-chain management, which received 28% (USD 99,954,443) of TonF financing; (iii) Land use and management with USD 84,175,579; (iv) Forestry and agroforestry management, which was allocated 7% (USD 26,273,238) of the TonF budget; (v) Watershed management, which received 5% (USD 17,957,655) of the budget; and (vi) Water resources management, with only 2% (USD 5,457,748) of the TonF budget. (See Table 18.)

Table 18: Focus areas for TonF financing: TonF budget allocations and execution by area and institution (USD)

Budget allocation and use	Direct		Indirect		Total		% Budget execution
	Revised budget	Budget execution	Revised budget	Budget execution	Revised budget	Budget execution	
Land use and management	**77,556,325**	**52,892,299**	**6,619,254**	**1,691,269**	**84,175,579**	**54,583,568**	**65%**
Soil conservation and land husbandry (MINAGRI + RAB + districts)	77,556,325	52,892,299			77,556,325	52,892,299	68%
Land tenure regularization (RLMUA)			6,021,487	1,149,182	6,021,487	1,149,182	19%
Land-use planning and management (RLMUA)			350,915	350,004	350,915	350,004	100%
Land policy development (MoE + MINILAF)			246,852	192,083	246,852	192,083	78%
Environment and climate change mitigation	**8,098,221**	**2,953,671**	**116,457,356**	**67,382,395**	**124,555,577**	**70,336,066**	**56%**
Sector planning and coordination (MINIRENA + MoE + FONERWA)			44,763,297	14,492,572	44,763,297	14,492,572	32%
Sustainable, diversified and climate-smart crop production and productivity (RAB)			40,571,541	26,573,431	40,571,541	26,573,431	65%
Sector policy development (MINIRENA)			29,432,652	25,996,665	29,432,652	25,996,665	88%
Environmental education and mainstreaming (MINILAF)	3,023,095	1,474,438			3,023,095	1,474,438	49%
Climate change vulnerability (MINILAF)	2,797,699	57,656			2,797,699	57,656	2%
Terrestrial ecosystems management (RNRA + RWFA)	2,277,426	1,421,576			2,277,426	1,421,576	62%
Environment policy development (MoE)			1,279,673	55,705	1,279,673	55,705	4%
Environmental research and planning (REMA)			410,194	264,021	410,194	264,021	64%
Watershed management	**17,957,655**	**7,322,941**	**-**	**-**	**17,957,655**	**7,322,941**	**41%**
Watershed rehabilitation and management (RNRA + RWFA)	17,957,655	7,322,941			17,957,655	7,322,941	41%
Forestry and agroforestry management	**26,273,238**	**23,435,561**	**-**	**-**	**26,273,238**	**23,435,561**	**89%**

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Table 18. continued

Budget allocation and use	Direct		Indirect		Total		% Budget execution
	Revised budget	Budget execution	Revised budget	Budget execution	Revised budget	Budget execution	
Forestry plantation management and agroforestry (RNRA + RWFA + districts)	26,198,432	23,397,567			26,198,432	23,397,567	89%
Forestry policy development (MoE & MINELA)	74,807	37,994			74,807	37,994	51%
Water resources management	**598,233**	**838,310**	**4,859,515**	**755,988**	**5,457,748**	**1,594,298**	**29%**
Water resource monitoring (RNRA + RWFA)			4,859,515	755,988	4,859,515	755,988	16%
Water resources management (district)	598,233	838,310			598,233	838,310	140%
Agricultural production and value-chain management	**8,977,258**	**9,079,625**	**90,977,185**	**74,518,935**	**99,954,443**	**83,598,559**	**84%**
Sustainable crop production (district)			49,168,497	46,523,751	49,168,497	46,523,751	95%
Development of priority value chains – export (NAEB)			27,771,292	25,164,763	27,771,292	25,164,763	91%
Nutrition-sensitive agriculture and resilience mechanisms (RAB)			11,112,858	303,932	11,112,858	303,932	3%
Nutrition and household vulnerability (RAB)	8,977,258	9,079,625			8,977,258	9,079,625	101%
Agriculture sector planning, coordination, financing and information systems (MINAGRI)			2,719,273	2,032,038	2,719,273	2,032,038	75%
Animal resources policy, strategy development (MINAGRI)			104,307	103,895	104,307	103,895	100%
Crop policy and strategy development (MINAGRI)			100,957	390,556	100,957	390,556	387%
TOTAL	**139,460,930**	**96,522,407**	**218,913,311**	**144,348,587**	**358,374,241**	**240,870,994**	
Budget execution rate		69.2%		65.9%		67.2%	

Source: Compiled from MINECOFIN budget reports

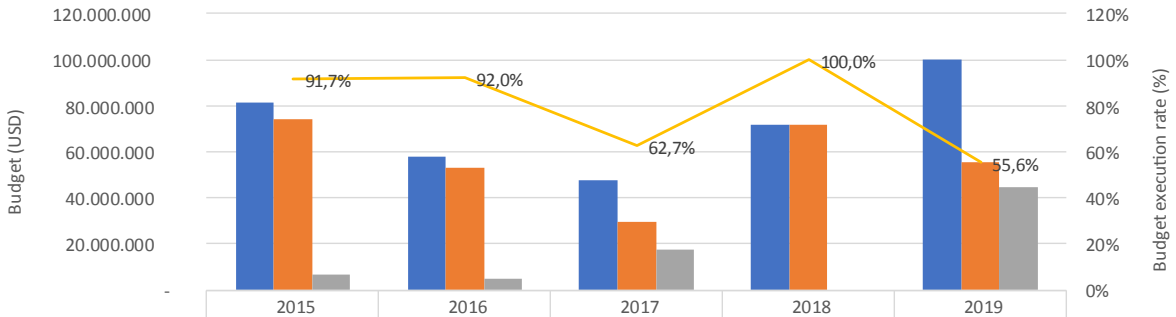
In terms of the institutional share of TonF funding, 73% of the TonF budget was allocated as follows: RAB (23.8%), MINAGRI (15.6%), MINIRENA (14.8%) and districts (18.8%). The remaining 27% was shared among several other agencies, most of them directly in charge of environment management, such as NAEB (7.7%), RWFA (5.5%), FONERWA (4.8%), RNRA (4.6%), REMA (1.7%), RLMUA (1.8%) and MoE (0.7%). (See Table 19.)

Table 19: Allocation of TonF financing among institutions

Institutions	Direct	Indirect	Total	Share (%)
RAB	33,784,243	51,684,400	**85,468,643**	**23.8%**
Districts	18,222,187	49,168,497	**67,390,684**	**18.8%**
MINIRENA	-	55,916,381	**55,916,381**	**15.6%**
MINAGRI	49,944,065	2,924,537	**52,868,602**	**14.8%**
NAEB	-	27,771,292	**27,771,292**	**7.7%**
RWFA	15,233,958	4,655,545	**19,889,504**	**5.5%**
FONERWA	-	17,046,813	**17,046,813**	**4.8%**
RNRA	16,380,875	203,970	**16,584,845**	**4.6%**
RLMUA	-	6,372,402	**6,372,402**	**1.8%**
REMA	5,820,795	410,194	**6,230,988**	**1.7%**
MoE	23,737	2,647,856	**2,671,593**	**0.7%**
MINILAF	51,070	111,423	**162,493**	**0.05%**
TOTAL	**139,460,930**	**218,913,311**	**358,374,241**	**100%**

Source: Compiled from MINECOFIN revised budgets

A significant amount (47.1%) was allocated to the three institutions in the agriculture sector, while the remaining budget went to the multiple institutions in the environment sector, including forestry, meaning the share of TonF financing to every institution was not significant, apart from the allocation to MINIRENA (14.8%). Districts received 18.8% of the allocation, which was shared among the 30 districts. This resulted in a small budget for individual districts, insufficient to make a significant impact on the ground.

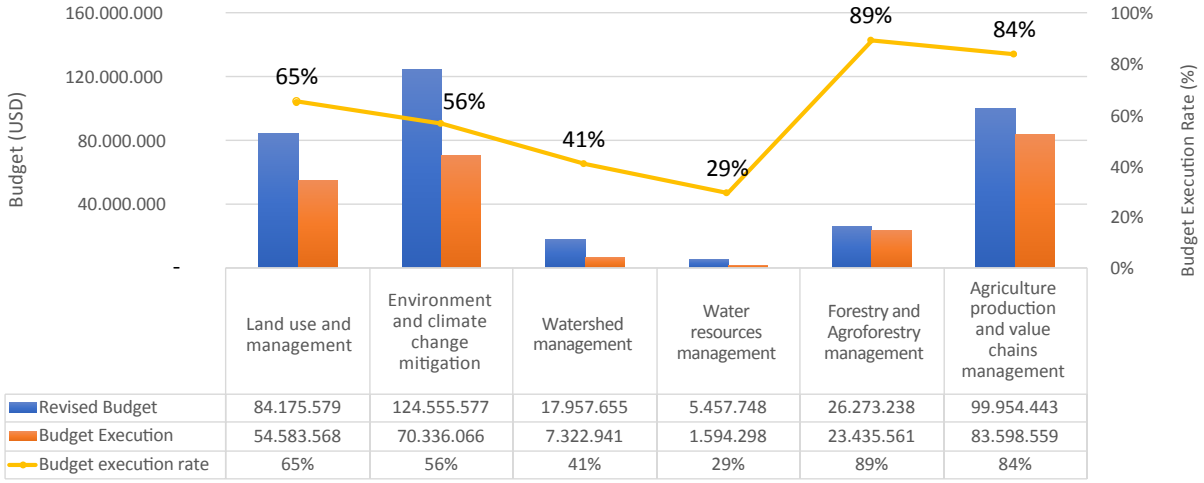


	2015	2016	2017	2018	2019
Revised Budget	81.136.012	57.833.057	47.583.188	71.610.303	100.211.681
Budget Execution	74.369.801	53.208.748	29.827.984	71.610.303	55.724.673
Balance	6.766.212	4.624.309	17.755.204	-	44.487.007
Execution rate	91,7%	92,0%	62,7%	100,0%	55,6%

Figure 28: Budget execution for TonF-allocated funds

Source: Compiled from MINECOFIN revised budgets

The budget utilization rate was 67.2% – only USD 240,870,994 was spent out of USD 358,374,241 allocated to TonF. Budget underspending was noted in FY 2017 (62.7%) and FY 2019 (55.6%). For the other fiscal years, the budget execution rates were above 90% (see Figure 28). Underspent budgets included funds allocated to: (i) Water resource management (only 29% spent); (ii) Watershed management (41% spent); (iii) Environment and climate change mitigation (59% spent); and to some extent (iv) Land use and management (65%). However, the budget for forestry and agroforestry was utilized at a rate of 89%.



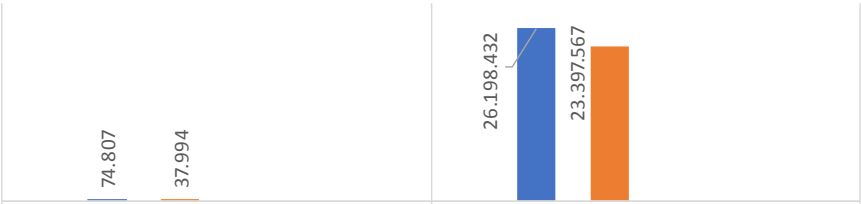
	Land use and management	Environment and climate change mitigation	Watershed management	Water resources management	Forestry and Agroforestry management	Agriculture production and value chains management
Revised Budget	84.175.579	124.555.577	17.957.655	5.457.748	26.273.238	99.954.443
Budget Execution	54.583.568	70.336.066	7.322.941	1.594.298	23.435.561	83.598.559
Budget execution rate	65%	56%	41%	29%	89%	84%

Figure 29: Budget execution for TonF – Focus areas for funding

Source: Compiled from MINECOFIN revised budgets

1) Forestry and agroforestry management

"Forestry and agroforestry management" received USD 26,273,238 in direct budget allocations, of which USD 23,435,561 was effectively spent (89%).



	Forestry Policy Development (MoE & MINELA)	Forestry Plantation management and agroforestry (RNRA + RWFA + Districts)
Direct Revised Budget	74.807	26.198.432
Direct Budget Execution	37.994	23.397.567
Indirect Revised Budget		
Indirect Budget Execution		

Figure 30: Forestry and agroforestry management

Source: Compiled from MINECOFIN budgets

This budget comprised allocations for (i) "Forestry policy development" under MoE and MINILAF – with USD 74,807 allocated, of which USD 37,994 was spent; and (ii) "Forestry plantation management and agroforestry" (RNRA + RWFA + districts), allocated USD 26,198,432, of which USD 23,397,567 was spent (see Figure 30).

Though there is no detailed data to dissociate forestry and agroforestry, there are some details on the financing of agroforestry in RAB and RNRA in 2014/15 to 2015/16.

Table 20: Agroforestry activities in 2014/15 to 2015/16 (USD)

Budget lines	2014/2015			2015/2016			TOTAL		
	Revised budget	Budget execution	Balance	Revised budget	Budget execution	Balance	Revised budget	Budget execution	Balance
Training (RNRA)	4,301	4,301	-	-	-	-	4,301	4,301	0
Seedling production and distribution (RNRA)	-	-	-	6,587	2,626	3,961	6,587	2,626	3,961
Research (RAB)	216,749	147,571	69,178	197,283	115,868	81,416	414,032	263,438	150,594
Total	**221,050**	**151,872**	**69,178**	**203,870**	**118,494**	**85,377**	**424,920**	**270,365**	**154,555**

Source: Biofin Excel data

As can be seen, the activity areas expressly tagged as agroforestry are very few, and the funding was insignificant (USD 154,555) given the overall funds allocated to forestry and agroforestry management (USD 26,273,238). This is one indication that far more resources were used for forestry management than for agroforestry.

2) Watershed management

The "Watershed rehabilitation and management" budget line was allocated to RNRA and later taken over by RWFA. Over the period FY 2015–2019, it was allocated USD 17,957,655, of which only USD 7,322,941 was spent, producing a budget execution rate of 41%.

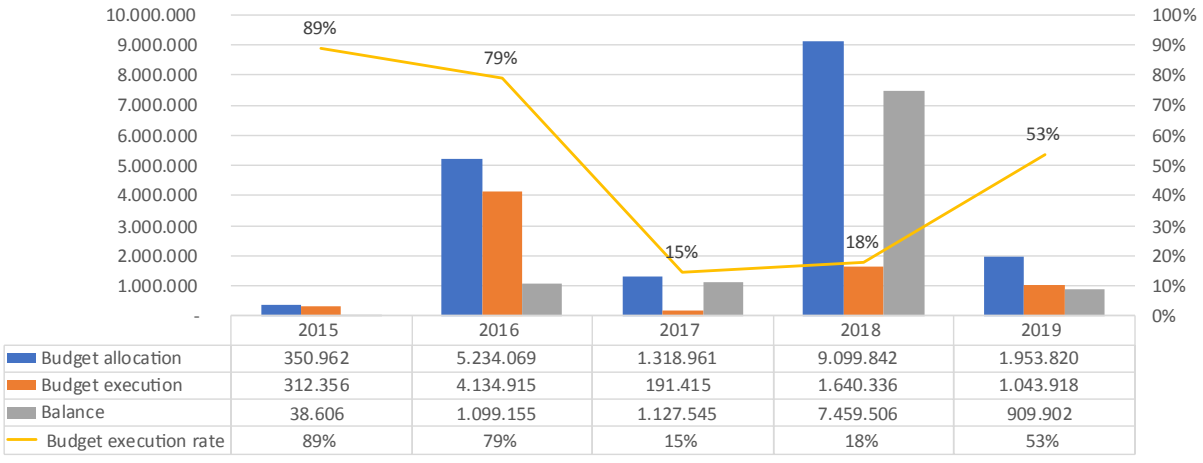


Figure 31: Watershed rehabilitation and management (RNRA + RWFA)

Source: Compiled from MINECOFIN budgets

Allocations fell from USD 5.2 million in FY 2016 to USD 1.3 million in FY 2017. Despite this reduction in funding, the implementation rate plummeted to just 15%. In FY 2018, the budget allocation rose again to USD 9.1 million, but these funds were not used as the budget utilization rate remained at only 18%. This led to a new cut in budget to USD 1.9 million in FY 2019, and a slight increase in budget execution rate to 53% (see Figure 31). Here, it is worth recalling that RWFA took over this budget line in 2017, and that difficulties in using allocated resources started from this period.

3) Water resources management

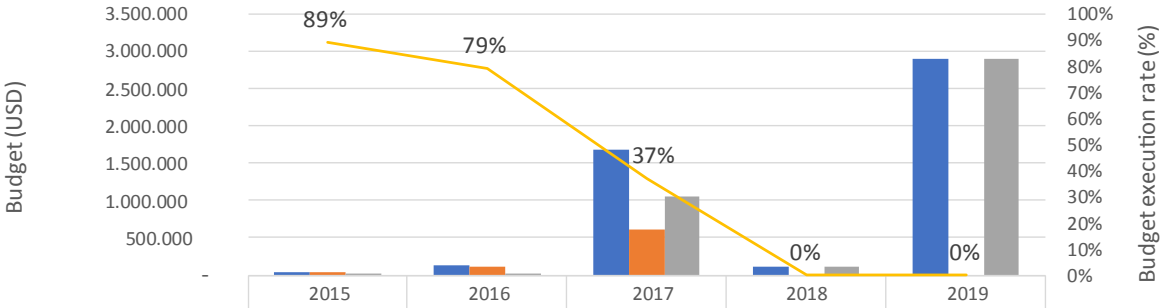
Water resources management comprised budget lines for: (i) "Water resources management" at district level, with USD 598,233 in direct funding; and (ii) "Water resources monitoring" – funds were allocated to RNRA and reverted to RWFA on RNRA's closure, with a budget of USD 4,859,515 in indirect funding (see Figure 32).

	Water resources Management (district)	Water resource monitoring (RNRA + RWFA)
Direct Revised Budget	598.233	
Direct Budget Execution	838.310	
Indirect Revised Budget		4.859.515
Indirect Budget Execution		755.988

Figure 32: Water resources management

Source: Compiled from MINECOFIN budgets

The analysis of budget implementation again shows that until FY 2016 – i.e. prior to the closure of RNRA – the budget execution rate was higher, but it dropped to 37% in FY 2017 and 0% in subsequent periods, despite the allocation of funds for water resources monitoring. It is worth noting here that water resources management has been the responsibility of the new Rwanda Water Resources Board (RWB) since 2020.



	2015	2016	2017	2018	2019
Budget allocation	38.960	134.389	1.674.266	118.318	2.893.582
Budget execution	34.675	106.167	615.146	-	-
Balance	4.286	28.222	1.059.120	118.318	2.893.582
Budget execution rate	89%	79%	37%	0%	0%

Figure 33: Water resource monitoring (RNRA + RWFA)

Source: Compiled from MINECOFIN budgets

The budget line for water resources management that appears in the districts' budgets for FY 2015 (USD 203,792) was almost fully used, and in FY 2019 (USD 394,441) was overused (USD 635,293), representing overspending of 61%, as shown in Figure 34.

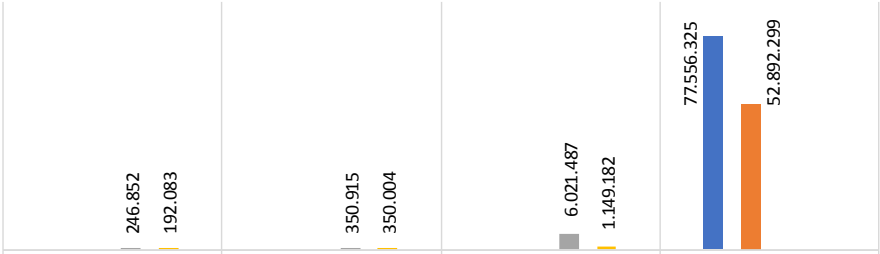
	2015	2016	2017	2018	2019
Budget allocation	203.792				394.441
Budget execution	203.018				635.293
Balance	774				-240.852
Budget execution rate	100%				161%

Figure 34: Water resources management (districts)

Source: Compiled from MINECOFIN budgets

4) Land use and management

Land use management comprised: (i) Land policy development, a budget line that was managed under MoE and MINILAF with USD 246,852, of which USD 192,083 was spent; and (ii) Land use planning and management in RLMUA with a budget allocation of USD 6,021,487, of which only USD 1,149,182 was utilized. Both budget lines were indirectly allocated to TonF. The only budget line considered direct to TonF activities was related to (iii) Soil conservation and land husbandry, originally under MINAGRI and which reverted later to RAB, with a total budget allocation of USD 77,556,325, of which USD 52,892,299 was effectively utilized (see Figure 35).

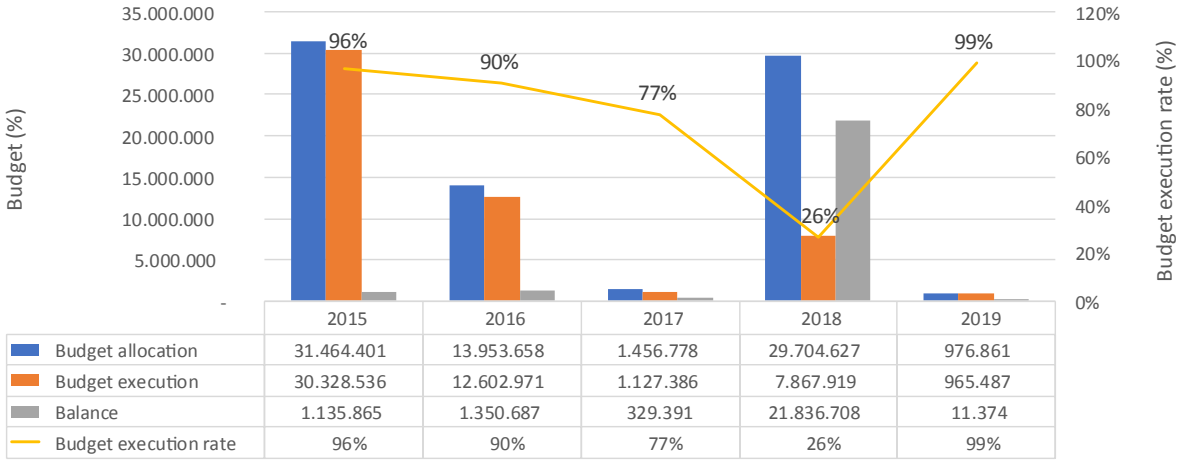


	Land Policy Development (MoE + MINILAF)	Land use planning and management (RALMUA)	Land tenure regularisation (RALMUA)	Soil conservation and land husbandry (MINAGRI + RAB + Districts)
Direct Revised Budget				77.556.325
Direct Budget Execution				52.892.299
Indirect Revised Budget	246.852	350.915	6.021.487	
Indirect Budget Execution	192.083	350.004	1.149.182	

Figure 35: Land use and management

Source: Compiled from MINECOFIN budgets

A closer look at "Soil conservation and land husbandry" budget execution reveals that budget allocations declined from USD 31.5 million in FY 2015 to USD 13.9 million in FY 2016 and USD 1.5 million in FY 2017.



	2015	2016	2017	2018	2019
Budget allocation	31.464.401	13.953.658	1.456.778	29.704.627	976.861
Budget execution	30.328.536	12.602.971	1.127.386	7.867.919	965.487
Balance	1.135.865	1.350.687	329.391	21.836.708	11.374
Budget execution rate	96%	90%	77%	26%	99%

Figure 36: Soil conservation and land husbandry (MINAGRI + RAB + districts)

Source: Compiled from MINECOFIN budgets

But the budget implementation rate during this period was high until FY 2017 before falling to 26% in FY 2018. This is despite a sharp increase in fund allocation to USD 29.7 million, which was not matched by the same rate in budget spending. This was also the fiscal period when much of the budget shifted from MINAGRI to RAB. The budget allocation was slashed in the following fiscal period to only USD 976,871, with a utilization rate of 99%.

5) Environment and climate change mitigation

"Environment and climate change mitigation" direct and indirect allocations amounted to USD 124,555,577, of which only USD 70,336,066 was utilized (56%).

Table 21: Environment and climate change mitigation

Budget line	Revised budget	Budget execution	% budget execution
Sector policy development (MINIRENA)	29,432,652	25,996,665	88%
Sector planning and coordination (MINIRENA + MoE + FONERWA)	44,763,297	14,492,572	32%
Environment policy development (MoE)	1,279,673	55,705	4%
Environmental education and mainstreaming (MINILAF)	3,023,095	1,474,438	49%
Climate change vulnerability (MINILAF)	2,797,699	57,656	2%
Terrestrial ecosystem management (RNRA + RWFA)	2,277,426	1,421,576	62%
Environmental research and planning (REMA)	410,194	264,021	64%
Sustainable, diversified and climate-smart crop production and productivity (RAB)	40,571,541	26,573,431	65%
Total	**124,555,577**	**70,336,066**	**56%**

Source: Compiled from MINECOFIN budgets

Some budget lines were not expensed, including: (i) "Environment policy development (MoE)" with an execution rate of only 4%, (ii) "Climate change vulnerability (MINILAF)" at 4%, (iii) "Sector planning and coordination (MINIRENA + MoE + FONERWA)" at 32%, and (iv) "Environmental education and mainstreaming (MINILAF)" utilized at only 49%. The budget implementation rates for other budget lines remained between 62% and 65%, meaning that much of the allocated resources was not used.

6) Agricultural production and value-chain management

Agricultural production and value-chain management comprised indirect budgets to TonF, apart from "Nutrition-sensitive agriculture and resilience mechanisms" (RAB), for which the budget implementation was very low (3%). Its allocation amounted to USD 11,112,858, but only USD 303,932 was spent. The other spending lines were in acceptable ranges of budget execution (see Table 22).

Table 22: Agricultural production and value-chain management

Budget line	Revised budget	Budget execution	% budget execution
Animal resources policy, strategy development (MINAGRI)	104,307	103,895	100%
Agriculture sector planning, coordination, financing and information systems (MINAGRI)	2,719,273	2,032,038	75%
Crop policy and strategy development (MINAGRI)	100,957	390,556	387%
Nutrition-sensitive agriculture and resilience mechanisms (RAB)	11,112,858	303,932	3%
Development of priority value chains – export (NAEB)	27,771,292	25,164,763	91%
Sustainable crop production (district)	49,168,497	46,523,751	95%
Nutrition and household vulnerability (RAB)	8,977,258	9,079,625	101%
Total	**99,954,443**	**83,598,559**	**84%**

Source: Compiled from MINECOFIN budgets

3.5 Alignment of spending with stated government policies and priorities

The major policies on SMNR and TonF, as highlighted in the section on national policies and strategies for SMNR and TonF, are summarized in Table 23. Though this is not a full policy analysis assessment, a reclassification of the different budget lines under SMNR and TonF along the policy lines below was made in order to assess trends in the financing of policy implementation.

Table 23: SMNR and TonF policy summary

"Develop eco-friendly policies and strategies in all sectors of the economy and promote green growth." (Vision 2020)
"To achieve a carbon-neutral and climate-resilient economy" (Vision 2050)
"Sustainable Management of Natural Resources and Environment towards a green economy" with focus on "improving cross-sectoral coordination to ensure the smooth implementation of environmental policies and regulations," especially in the sectors of agriculture, urbanization, infrastructure and land use management. (NST1)

SMNR	TonF
"To have a clean and healthy environment resilient to climate variability and change that supports a high quality of life for its society" (National Environment and Climate Change Policy), through: 1. Greening economic transformation 2. Enhancing functional natural ecosystems and managing biosafety 3. Strengthening meteorological and early-warning services 4. Promoting climate change adaptation, mitigation and response 5. Improving environmental well-being for Rwandans 6. Strengthening environment and climate change governance 7. Promoting green foreign and domestic direct investment and other capital inflows	"Adoption of Agroforestry and Trees Outside Forest (TOFo) techniques to be enhanced to contribute to overall forest resources and agriculture productivity." (National Forestry Policy 2018) 1. Integrating into agroforestry techniques specific measures to maintain and enhance protected tree species 2. Putting in place and supporting joint-sector / inter-ministry Agroforestry Committees 3. Implementing agroforestry strategy through its integration into relevant sectoral policies and strategic plans 4. Disseminating and implementing agroforestry techniques 5. Increasing diversity and access to seedlings of forest tree species suitable for agroforestry

Some of the useful findings relating to implementation include:

1. The "Implementation of Agroforestry Strategy through its integration into relevant sectoral policies and strategic plans" was financed indirectly through institutions such as (i) RLMUA and MoE (and its predecessor ministries) as part of the development of land policy and regulations, as well as land use planning and management; (ii) MoE and MINIRENA as part of environment policy development, research and planning; and (iii) MINAGRI through "Agriculture sector planning, coordination, financing and information systems" and "Animal resources policy, strategy development." The financing amounted to USD 85.4 million, of which 23.8% was allocated to TonF. Opportunities to finance the integration of TonF into relevant sectoral policies and strategic plans were therefore available. However, the question is whether TonF were given the necessary attention in those sectors during implementation of these policies.
2. "Increasing diversity and access to seedlings of forest tree species suitable for agroforestry" was another policy resolve. This was directly financed through the development of "forestry policy" and "forestry plantation management and agroforestry" (MoE, RFA and districts). About USD 26.3 million was allocated to the implementation of this policy, of which 7.3% was allocated to forestry. Yet forestry contributed USD 234.7 million to national GDP during the same period. More reinvestment in the sector would therefore be appropriate, and TonF could receive special attention.
3. "Disseminate and implement agroforestry techniques" was again financed indirectly through (i) RAB (Sustainable, diversified and climate-smart crop production and productivity; Nutrition and household vulnerability; Soil conservation and land husbandry; Nutrition-sensitive agriculture and resilience mechanisms); (ii) MoE, RFA and Meteo Rwanda (Terrestrial ecosystems management; Climate change vulnerability; Environmental education and mainstreaming; Watershed rehabilitation and management); and (iii) Districts (Sustainable crop production; Water resources Management). Total financing was USD 113.2 million, of which 68.8% was indirect financing of TonF.

4. “Putting in place and supporting joint-sector / inter-ministry Agroforestry Committees” does not appear anywhere in the financing. The committees are not in place, yet this is the tool that could ensure coordination of TonF funding and implementation, catalysing synergies among all players in the sector.

A National Agroforestry Strategy (2018–2027) was developed, but officially approved and released for use by the MoE in 2020. It embeds the following strategies:

1. Creating a policy and institutional framework for agroforestry
2. Innovative research and knowledge for agroforestry development
3. Strengthening communication and extension for agroforestry adoption and upscaling
4. Promotion of priority agroforestry practices
5. Marketing of agroforestry products and development of their value chains
6. Empowering women and youth through agroforestry development

As the implementation of these strategies fell outside the period relevant to this study, links with financing from the national budget are to be found in subsequent analysis of TonF financing. However, the lessons drawn from previous fiscal periods, as discussed above, may be useful.

4 Conclusion

The budgetary analysis has shown that funding for SMNR and TonF remains low. Their allocations in the national budget are 6.8% and 2.8%, respectively, yet their parent sectors – agriculture and environment (forestry) – contribute significant amounts to national GDP: 19.3% for agriculture, of which only 1.6% of national GDP was reinvested in agriculture; and 5.5% for environment (forestry), of which only 0.5% was reinvested in environmental management.

Both sectors are also largely affected by instabilities and frequent restructuring of institutions in charge of SMNR and TonF implementation. The situation is exacerbated by a lack of national mechanisms for the coordination and monitoring of TonF activities. This means most TonF financing is indirect, as the budgets are largely earmarked for other activities and not for TonF directly.

On the other hand, sustainable management of natural resources and TonF, in particular, happen on the ground, and especially on farms for TonF. This is why working with farmers in the districts and integrating the districts' development strategies for agriculture and environment are key determinants for TonF. This calls for greater proximity to the local administration through increased resources and visibility in the planning of TonF at local level.

Finally, the tracking of expenditure in the national budget requires that related budget lines in the coding have proper definitions that are clear enough to enable utilization monitoring. Important work is to be carried out in this regard by engaging budget agencies in charge of TonF implementation, as well as MINECOFIN, so that TonF visibility in the national budget is improved. This is part of the work for coordination mechanisms as well as agriculture and environment institutions in charge of TonF.

5 Policy recommendations

1. Increase funding for SMNR and TonF in the national budget to at least 10% and 5%, respectively.
2. Promote visibility of activities and funding of TonF in the budget of relevant institutions (especially RAB in agriculture and RFA in environment) as well as at district level with clearly defined and monitorable budget lines.
3. Ensure that there are containment measures to limit the impact of institutional reforms on budget allocations and utilization for both SMNR and TonF. This includes:
   a. setting up a national cross-sector coordination mechanism for TonF
   b. decentralizing resources to districts from the central government, as they have the responsibility for implementation of national policies and are shielded from frequent reform setbacks due to their autonomy.
4. Put in place strong monitoring and evaluation measures (clear indicators and dedicated analytical budget-tracking mechanisms) to ensure optimum utilization of resources allocated to SMNR and TonF.

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Annexes

Annex 1: Budget allocation and execution source documents

Period	Source of data		Institutions
	Budget allocation	Budget execution	
2015	Revised budget, Annex II-1: revised 2015 detailed expenditure by budget Agency, pp. 140–145	JSR report p. 8	MINIRENA & agencies
	Revised budget, Annex II-1: revised 2015 detailed expenditure by budget Agency, pp. 53–60	JSR pp. 43–44 and MINAGRI annual report 2015, p. 143	MINAGRI & agencies
2016	Revised budget, Annex II-1: revised 2016 detailed expenditure by budget Agency, pp. 165–173	MINECOFIN, 2015–2016 Budget Execution by Programs, pp. 17–18	MINIRENA & agencies
	Revised budget, Annex II-1: revised 2016 detailed expenditure by budget Agency, p. 81–90	MINECOFIN, 2015–2016 Budget Execution by Programs, pp. 6–7	MINAGRI & agencies
2017	Revised budget, Annex II-1: revised 2017 detailed expenditure by budget Agency, pp. 185–196	MINECOFIN, 2016–2017 Budget Execution by Programs, p. 5	MINIRENA & agencies
	Revised budget, Annex II-1: revised 2017 detailed expenditure by budget Agency, pp. 89–99	MINECOFIN, 2015–2016 Budget Execution by Programs, p. 2; MINAGRI Annual Report, p. 87–88	MINAGRI & agencies
2018	Revised budget, Annex II-1: revised 2018 detailed expenditure by budget Agency, pp. 194–205 and 248–251	MINECOFIN, 2015–2016 Budget Execution by Programs, p. 20	MoE & agencies
	Revised budget, Annex II-1: revised 2018 detailed expenditure by budget Agency, pp. 86–98	MINECOFIN, 2017–2018 Budget Execution by Programs, pp. 7–8	MINAGRI & agencies
2019	Revised budget, Annex II-1: revised 2018 detailed expenditure by budget Agency, pp. 204–208	MINECOFIN, 2018-2019 Budget Execution by Programs, p. 15	MINIRENA & agencies
	Revised budget, Annex II-1: revised 2018 detailed expenditure by budget Agency, pp. 78–87	MINECOFIN, 2018-2019 Budget Execution by Programs, pp. 5–6	MINAGRI & agencies

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Trees on Farms (TonF) or agroforestry is central to achieving the objectives of the UN Convention on Climate Change and the Paris Agreement. TonF are pivotal in mitigation actions to reduce greenhouse gas emissions that lead to climate change as they protect ecosystems by sequestering carbon. In 2011 the Government of Rwanda pledged to restore 2 million hectares of deforested and degraded land, as part of the Bonn Challenge. Increasing TonF is one of the strategies that can contribute to meeting this pledge. Under this framework the Government of Rwanda has recognized the importance of Trees on Farms and has set up a task force to coordinate the implementation of agroforestry activities.

The objective of this study was to track Rwanda's public expenditure flows towards TonF priorities; their share in the national budget and how much is spent. Being able to reconcile expenditures on specific activities such as TonF requires reliable mechanisms that can be used to monitor and track funds allocated and spent on initiatives such as the climate ambition of nations that have pledged to restore landscapes and conserve biodiversity during the UN Decade on Ecosystem Restoration. Agroforestry tends to cut across the mandates of the Ministries of Agriculture and Environment and their agencies. As the two ministries have different mandates, there is not much coordination of agroforestry-related activities. This makes it difficult to track and monitor the actual expenditures.

The study estimated that over USD 358 million was allocated to TonF from national budgets between 2015 and 2019. More specifically, the national budget allocations to Sustainable Management of Natural Resources (SMNR) and TonF were approximately 6.8 percent and 2.8 percent, respectively, over the five-year period. Yet their parent sectors – agriculture and environment (forestry) – contributed significant amounts to Rwanda's gross domestic product (GDP), i.e. 19.3 percent for agriculture, of which only 1.6 percent was reinvested in agriculture; and 5.5 percent for environment (forestry), of which only 0.5 percent was reinvested in environmental management. An estimated USD 358 million was allocated to TonF from national budgets in this period. Frequent institutional mergers and a lack of coordinating mechanism also had a restrictive impact on funding for land restoration, the study found.

Two key recommendations were made by the study. First, budget allocations need to be made more visible in the national expenditure system by labeling them as 'planting trees on farm' or 'agroforestry.' This should then enable a critical assessment of whether the allocated funds are sufficient to contribute to broader national targets, while consideration should be given to how donor budgets can be best used to supplement national activities. Second, the authors proposed the allocations for SMNR and TonF in the national budget to be increased to at least 10 percent and 5 percent, from the current levels of 6.8 percent and 2.8 percent, respectively. They also called for an improved visibility of TonF activities and funding in the budgets of relevant institutions and at district level, by clearly labelling them as 'planting trees on farm' or 'agroforestry' for better monitorable allocations to TonF and their contribution to the realisation of the country pledge to climate change as part of the Bonn Challenge.

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety