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PROMOTING TRANSPARENCY AND ACCOUNTABILITY IN CLIMATE CHANGE FINANCE IN RWANDA

PART II. *Citizen Report Card survey*


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Transparency International Rwanda (TI-Rw) is a Non-Governmental Organization (NGO), registered in Rwanda as a non-profit organization according to the Rwandan law. It was created in 2004, with the mission “To contribute in the fight against corruption and promoting good governance through enhancing integrity in the Rwandan society”. TI-Rw is a leading anti-corruption actor in Rwanda; it is increasingly being seen as a reliable partner by the government of Rwanda, the private sector, development partners and other fellow CSOs. Furthermore, since 2011, TI-Rw is a national chapter of Transparency International, the global movement fighting corruption with over a hundred national chapters worldwide and a coordinating Secretariat located in Berlin, Germany

Author: Transparency International Rwanda, March 2018

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FEMVAL

LIST OF ABBREVIATIONS

CCF: Climate Change Finance

CCOAIB: Umbrella Organization of Rwandan Local NGOs in development

CRC: Citizen Report Cards

EDCL: Energy Development Corporation Limited

EICV: Integrated Household Living Conditions

FGDs: Focus Group Discussions

CSOs: Civil Society Organizations

FONERWA: National Fund for Environment and Climate Change

GHG: Greenhouse Gas Emission

GCF: Green Climate Fund

GoR: Government of Rwanda

IPCC: Intergovernmental Panel on Climate Change

IDP: Integrated Development Programme

JADF: Joint Action Development Forum

M&E: Monitoring and Evaluation

NGOs: Non Government Organizations

PSC: Project Steering Committees

RBI: Rwanda Bribery Index

REG: Rwanda Energy Group

RWF: Rwandan Franc

SNV: Netherlands Development Organization

BACKGROUND

The effects of climate change are increasingly impacting the lives of Rwandan citizens. Climate change mitigation strategies and actions are needed, for instance by reducing Green House Gas emissions (GHG) or increasing the capacity of carbon sinks (e.g. reforestation). At global level, one of the primary mitigation activities is linked to the energy sector. According to the IPCC report (2012)¹, the use of fossil fuels accounts for the majority of global GHG emissions. Renewable energy, that include biomass, hydroelectric, wind, solar and hydrothermal systems, is considered as carbon-neutral and thus holds a large potential to reduce GHG. The IPCC report (2012) further undelines the positive impacts of promoting renewable energy, that can contribute to secured energy access, reduced negative environmental impacts and improve economic and social development.

Rwanda, with its growing economy and demand for energy, aims at improving the renewable energy sector, including hydro, methane, and solar power. Generally, Rwanda is well endowed with renewable energy resources, but most potential still remains untapped. A so called Green Fund, with more than US\$ 89 Million, has been mobilized through the government of Rwanda and its bilateral and multilateral development partners to finance among others, climate change mainstreaming projects. Overall, this fund contributes of about 80 % to support renewable energt development. The Fund for Environment and Climate Change in Rwanda is managed by FONERWA and can be accessed by the private sector, civil society, public sector and mostly the decentralized entities namely the districts.

Though the government of Rwanda is making an effort to fight corruption and ensure transparency and accountability in all its institutions and programs, the misuse of public funds for private gain is still visible as pointed out by the Auditor General's reports, TI-Rw's Rwanda Bribery Index and complaints from Advocacy and Legal Advices Centers.

The nature of activities financed through the climate change funds in Rwanda as in other countries² present intrinsic management challenges that can lead to corrupt behaviours. With the project on *Promoting Transparency, Accountability and Good Governance in Climate Change Finance in Rwanda*, Transparency International Rwanda (TI-Rw) wants to engage in monitoring the effectiveness of the funds allocated to prevent, reduce and mitigate the effect of climate change in Rwanda. The aim is to increase integrity in climate policy-making and in climate finance decision making and delivery at all levels.

¹ Intergovernmental Panel on Climate Change (2012) Special Report on Renewable Energy Sources and Climate Change Mitigation. Cambridge, New York. Available at: https://www.ipcc.ch/pdf/special-reports/srren/SRREN_FD_SPM_final.pdf.

² See U4 publication, number 2014:02

This project has started in 2017 with the financial support from German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear safety and channelled through the Transparency International – Secretariat in Berlin. This project is meant to identify the Green Climate Fund (GCF) stakeholders in Rwanda and understand their inter-linkages, take stock of the existing climate change financial flows in Rwanda and the level of integrity of the key GCF stakeholders for a sound management as well as a monitoring and evaluation of some identified climate change financed projects to assess at what level they respond to their intended objectives.

Evidence based data on transparency and accountability in the management of climate change funds was generated using Citizen Report Card (CRC). The CRC allowed evaluating the awareness of citizens/beneficiaries about the financed climate projects and their satisfaction about the implementation of those projects in 4 selected districts.

1.1. Study objectives

Within the frame of the project, the overall objective of the study is to contribute to promoting transparency, accountability and good governance in Climate Change Finance (CCF) in Rwanda.

This report, considered as one considerable part of the project, specifically aims to:

- Evaluate the awareness of citizens/beneficiaries on different aspects of climate change undertaken by the Government of Rwanda
- Assess the status quo of renewable energy projects from a beneficiaries' perspective
- Analyse the level of transparency, accountability and participation in the management of climate change funds
- Determine the perceived level of citizens'/beneficiaries' satisfaction with regard to the efficiency and effectiveness of climate change financed projects implementation at the grassroots level by implementing agencies
- Measure the incidence of corruption occurred during the implementation of climate change financed projects
- Formulate key recommendations for effective use of climate change finance in the selected districts

1.2. Indicator framework

The table below captures indicators to be measured through questionnaire, FGDs and Interviews as well as the sources of data and target population.

Table 1 Indicator framework

Objectives	Indicator	Method	Target audience
To evaluate the awareness of citizens/beneficiaries on different aspects of climate change	-level of citizens awareness of citizens/beneficiaries on different aspects of climate change	Questionnaire	Renewable energy users (electricity, solar, Stoves , biogas)
To assess the level of access to renewable energy by users	-Level of access to renewable energy by users	Questionnaire FGDs	Renewable energy users (electricity, solar, Stoves , biogas)
To examine the level of satisfaction with regard to the usage of renewable energy	- level of satisfaction with regard to the usage of renewable energy	Questionnaire FGDs	Renewable energy users (electricity, solar, Stoves , biogas)
To assess the level of affordability of renewable energy among users	level of affordability of renewable energy among users	Questionnaire Interviews, FGDs	Renewable energy users (electricity, solar, Stoves, biogas) District officials
To analyse the extent of transparency and accountability in the management of climate change funds by users	Proportion of citizens who are satisfied with transparency and accountability in the management of climate change funds by users	Questionnaire Interviews , FGDs	Renewable energy users (electricity, solar, Stoves, biogas) District officials
To examine the extent of responsiveness of public authorities vis-à-vis the grievances among beneficiaries	Level of responsiveness of public authorities vis-à-vis the grievances among beneficiaries	Questionnaire Interviews , FGDs	Renewable energy users (electricity, solar, Stoves, biogas) District officials
To measure the incidence of corruption occurred during the implementation of climate change financed projects	Level of corruption Forms of corruption Size of corruption Reporting corruption	Questionnaire Interviews , FGDs	Renewable energy users (electricity, solar, Stoves, biogas) District officials
To determine the perceived level of citizens'/beneficiaries' satisfaction with regard to the efficiency and effectiveness of climate change financed projects implementation at the grassroots level by implementing agencies.	Level of citizens'/beneficiaries' satisfaction with regard to the efficiency and effectiveness of climate change financed projects implementation at the grassroots level by implementing agencies.	Questionnaire, interviews, FGDs	Renewable energy users (electricity, solar, Stoves, biogas) District officials
Determine the level of Participation of stakeholders in renewable energy projects cycle at district level	level of Participation of stakeholders in renewable energy projects cycle at district level	Questionnaire, interviews, FGDs	Renewable energy users (electricity, solar, Stoves, biogas) District officials

METHODOLOGY

2.1. Approach

In this section, the study approaches, procedures, and methods, sources of data, data collection tools, and data analysis methods are explained. The survey combined quantitative and qualitative methods. The core target population of this study consists of the Rwandan citizens aged 18 above. These are users of renewable energy facilities (hydropower energy, solar energy, cooking stoves, biogas) offered by FONERWA. In addition to this category of the target population, other key stakeholders of governance such as local authorities, CSOs and representatives of the private sector were approached to provide information on this study.

2.2. Sampling frame and sample size

This study was conducted in 4 districts³ (one per province). For feasibility reasons, the selection of districts was done purposively based on the size of renewable energy related projects implemented in the district in the last 3 years. The sample in each district reached at least 400 heads of households as determined by the formula below:

The sample for the survey is calculated using the formula below.

$$n = \frac{N(zs/e)^2}{N-1+(zs/e)^2}$$

Where:

z = 1.96 for 95% level of confidence

s = p(1-p) p = estimated proportion

e = desired margin of error

N = population size

³ Musanze, Nyanza, Karongi and Rwamagana

In this estimation the confidence level is taken as 95% with a margin of error of 5%. As a result, a sample size of 377 was obtained and was rounded to 400 respondents in the survey for each district . The sample provided an adequate figure for undertaking statistical analysis that falls within the defined confidence levels. The table below presents the sample allocation by Province and District.

Tabel 1 Sample Size

PROVINCE	District	Sample size
Nothern	Musanze	400
Southern	Nyanza	400
Western	Karongi	400
Eastern	Rwamagana	400
Total		1600

2.3. Data collection

From a quantitative perspective, the study involved a structured questionnaire to collect citizens' opinions and experience on all dimensions of the renewable energy funding projects. Exact location of households subjected to questionnaire survey was facilitated by local leaders in the selected districts.

For the purpose of data triangulation key informant interviews (KIIs) and FGDs were conducted. Those key informants included experts in climate change finance, local leaders and members of private sector involved in this domain. FGDs were used to explore the meanings of survey findings that cannot be explained statistically, the range of opinions/views on a topic of interest and to collect a wide variety of information. In this study, FGDs were organized with citizens, who benefited from renewable energy facilities to discuss service delivery, transparency and accountability issues and get meaning behind numbers, and identify qualitative problems experienced by service users and service providers.

Before starting the data collection process a pilot survey was organized in a sector other than those which were covered by the actual survey. The pilot survey allowed testing the research tools with regard to the clarity, wording, coherence and consistency of the questions. It also served as an opportunity for interviewers and supervisors to get used to the tools they were using during the actual survey. In a bid, to ensure data quality, the data collection activity was supervised by skilled team leaders. The overall supervision of data collection was performed by the consultant and TI-Rw researchers.

For data quality control purposes, the following measures were taken:

- Assessment and approval of the research tools and methodology by the NISR;
- Recruitment of skilled interviewers and supervisors
- Training of interviewers and supervisors
- Testing of the questionnaires
- Supervision of data collection activity
- Overall coordination of the field work
- Use of SPSS software for data analysis
- Data cleaning prior to analysis

PRESENTATION OF FINDINGS

3.1. Respondents' demographics

This section describes the socio-demographic characteristics of the people that participated in the research survey in the capacity of respondents. Characteristics such as age, sex, and type of residence, education, employment and marital status as well the category of Ubudehe were considered. The table below displays the extent of distribution of respondents according to the selected demographic variables.

Tabel 2 Demographic characteristics

Demographic variables	Frequency	Percentage (%)
Residence		
Urban	123	7.7
Rural	1477	92.3
Gender		
Male	625	39.1
Female	975	60.9
Age Groups		
18-24	70	4.4
25-29	141	8.9
30-34	187	11.8
35-39	243	15.3
40-44	234	14.8
45-49	183	11.5
50-54	141	8.9
55-59	137	8.6
60+	249	15.7

Employment status		
Unemployed	187	11.7
Farmer	1176	73.8
Self-employed	137	8.6
Employed by government	50	3.1
Employed in CSO/NGO/Private sector	8	0.5
Retired	7	0.4
Others	29	1.8
Education		
None	438	27.8%
Primary only	835	53.1%
Vocational training	78	5.0%
Secondary	182	11.6%
University	40	2.5%
Income per month		
Less than 35,000	1526	97.2%
More than 35,000	44	2.8%
Marital status		
Married	1092	68.9%
Single	142	9.0%
Widow/er	286	18.0%
Divorced/separated	65	4.1%
Ubudehe Category		
Category 1	464	30.1%
Category 2	462	30.0%
Category 3	611	39.6%
Category 4	5	0.3%

Source: CRC primary data, October, 2017

The above demographic distribution reveals that women represent the majority of respondents (60.9%) who participated in this study, which substantiates the climate change financed project's target. Here, women are the primary users and managers of energy resources in the districts concerned by the study.

With regard to the age structure, the data shows that around 60 % of respondents belonged to people between 40 years and beyond, while the youth was only represented at 13. 3%. , especially youth are targeted by the climate change finance projects. The low representation of youth in the sample is due to the fact that the survey targeted the heads of households whose majority are most likely aged beyond 30 years. Moreover, the elderly was also among the targeted category of beneficiaries.

The findings further show that 68.9% of respondents in four districts were married, while 18.0% were widow/er and another 9% were single while (4.1%) was divorced/separated.

With regard to the type of residence, the majority of respondents were in rural (92.3%) as the majority of them are farmers (75 %). Other occupation status includes those who are unemployed (11.7%) and small proportional found in categories of those employed by government, CSO/NGO/Private sector and retired.

As far as the education level is concerned, the majority of respondents (53.1%) have completed the primary school with 27.8% of respondents who never attained school, 11.6% with a secondary education level and only 2.5% of respondents who hold a higher learning/university degree.

The majority of respondents (97.2%) belonged to the population with a monthly income of less than 35,000 RWF. This corroborates the EICV4⁴ findings whereby the median annual consumption for households in Rwanda as a whole stands at RWF 187,027 (meaning RWF 15,500 per month) per adult equivalent per year.

The survey showed that the majority of respondents (60.1%) are in the category one and two of Ubudehe⁵ while (30.1%) were found in third category and only (0.3 %) reported that they were in fourth category of ubudehe. The high proportion of respondents in the category 1 and 2 is in accordance with the climate change financed projects' selection criteria of beneficiaries in the concerned districts where most of the households fall into Ubudehe categories 1 and 2 and include women and orphan headed households as well as the elderly⁶.

4 NISR, 2014: Integrated Household Living Conditions Survey (EICV4), p3

5 Ubudehe Category 1: This includes those without shelter and cannot easily afford rent as they are very low income earners, and those with difficulties in getting food

Ubudehe Category 2: It covers masons, those who can rent a simple house and those who have their own houses but not decent, etc

6 National Climate Change and Environment Fund (FONERWA)
Full Project Document (PD) for Musanze district, p5

3.2. Awareness on climate change & climate change funds projects

This section assessed the awareness of respondents on climate change effects, stakeholders and implemented projects in their respective districts.

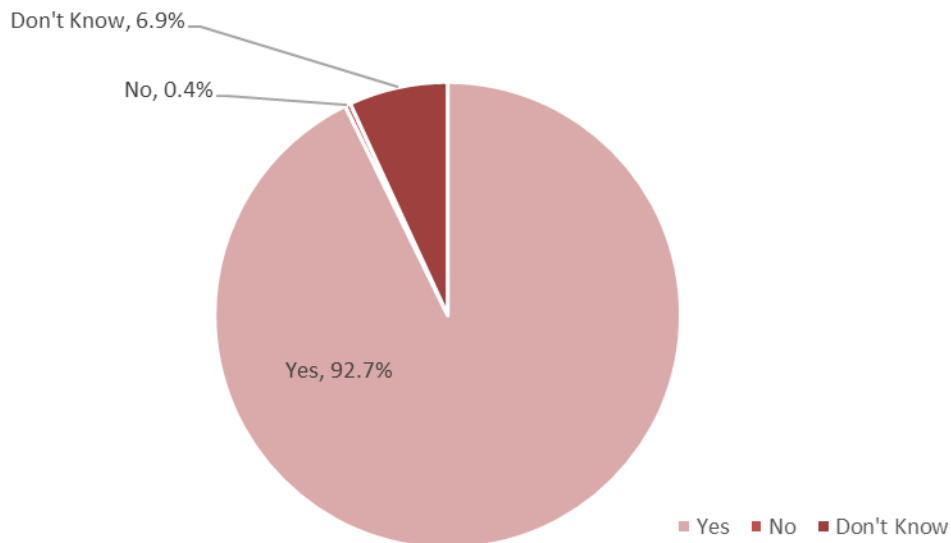


Figure 1 Awareness of climate change effects on individuals (N=1571)
Source: CRC primary data, October, 2017

As shown above in the Figure 1, almost all respondents (92.7 %) are aware of climate change effects in general and only a mere proportion (7 %) do not have information about the effects of climate change. This is a good indication that any effort to reduce climate change effects within this community would yield positive results. Figure 2 provides details on the respondents' awareness on specific climate change effects. Of all respondents, 80.4% attributed the effect of climate change to droughts and famine followed by reduction in agriculture productivity (47.3%). Floods (36.9%), illness (30%) and destructive rains (30.0%) are also perceived to have effects on person's livelihood. This finding is supported by a similar study conducted by Nile Basin Discourse Forum (NBDF)⁷ where respondents rated drought as top effect of climate change in the Eastern province.

7 NBDF-EU CBCCA Project Baseline Study: Nyagatare, Kirehe, Gatsibo and Bugesera districts Rwanda (n.d), p26

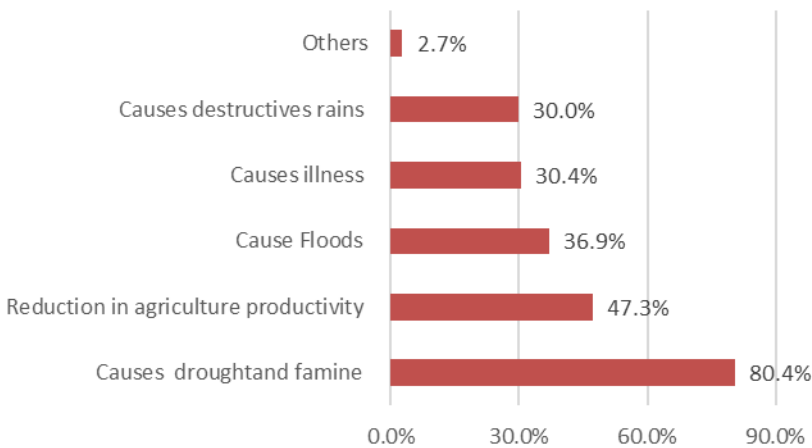


Figure 2 Effects of climate change (N=1457)

Source: CRC primary data, October, 2017

The next findings focus specifically on renewable energy and resource efficient practices, as this is one of the main mitigations strategies, which is also underlined by the Green Economy Sectoral Study on Energy, conducted by the Rwanda Environmental Management Authority⁸, stipulating that opportunities for improved environmental management exist through more efficient and renewable energy use. In Figure 3, the extent to which respondents perceive the contribution of renewable energy in reducing climate change effects is shown. The study reveals that cumulatively 80.6 % of respondents agree that renewable energy sources contribute to the prevention of climate change. As highlighted above, this opinion is shared by many authors such as Winrock International (2007), Bond and Masera (2004). As Winrock International (2007)⁹ put it, improved cooking stoves are estimated to reduce charcoal consumption by 33 per cent. According to the report, this would imply that households using the improved stoves would reduce their charcoal consumption by about one bag per month. Bond and Masera¹⁰ advised that cooking with biomass has been estimated to contribute at 18% of global black carbon because black carbon only stays in the atmosphere for a couple of days implying that any reduction in these emissions would have an immediate ameliorating effect on the climate.

⁸ REMA, 2014, Green Economy Sectoral Study on Energy, p13.

⁹ Winrock International (2007). "Implementation Plan for Increasing the Adoption and Use of Efficient Charcoal Cook Stoves in Urban and Peri-urban Kigali. Available at: <http://www.scribd.com/doc/54889270/8/ANNEX-1-CHARCOAL-STOVESELECTION-FOR-A-PROJECT-IN-RWANDA>

¹⁰ In Transitioning towards Sustainable Cooking Systems: With a Case Study of Improved Cookstoves in Rural El Salvador by Aaron Redman, 2010, p22.

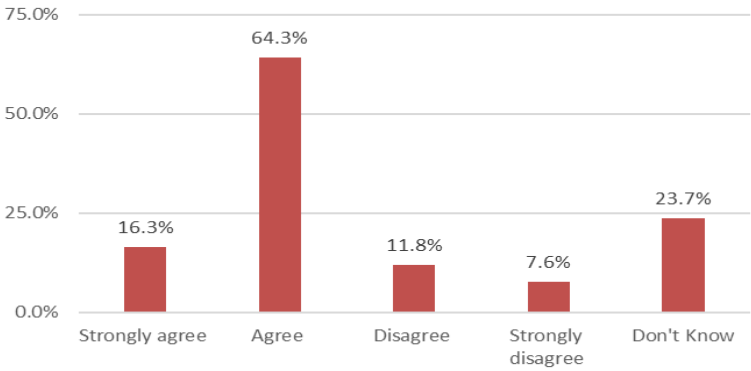


Figure 3 Respondents' opinion on the contribution of renewable energy sources to the prevention of climate change (n=1231)
 Source: CRC primary data, October, 2017

As there are different stakeholders that supply renewable energy, it is important to gather information, in how far people are aware of these stakeholders. Figure 4 shows that the majority of respondents surveyed (39.4%) said district was the main stakeholder in the sector under review followed by the Government of Rwanda (25.6%). This may be due to the fact that the majority of respondents accessed their energy through a grant from the district as implementers of FONERWA projects. A small proportion of respondents mentioned CSOs, Citizens, Cooperatives and financial institutions/banks, yet, fund proposals related to climate change projects including renewable energy submitted by district to FONERWA highlight the role of CSOs in the implementation of climate change financed projects such as training and technical support. Likewise, CSOs and the private sector are part of the Rwandan architecture of the climate change finance as project implementers.

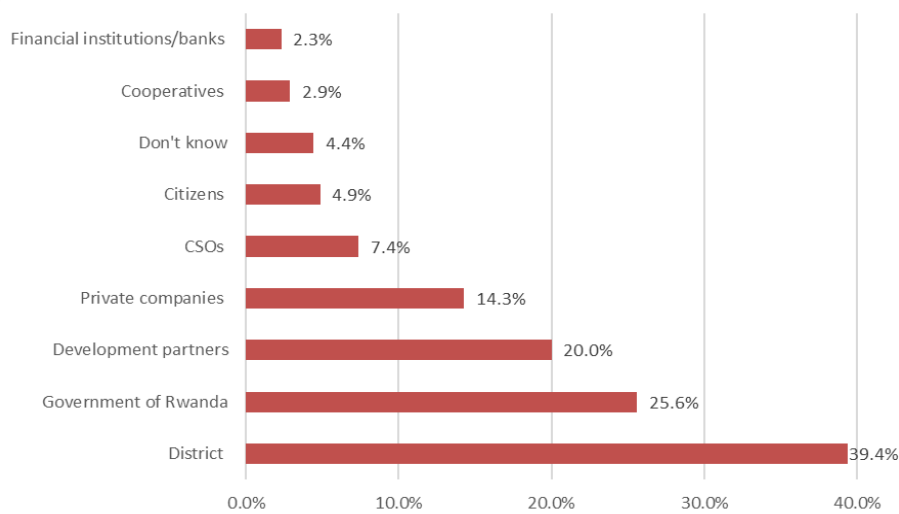


Figure 4 Key stakeholders in the energy sector (n=1520)
 Source: CRC primary data, October, 2017

3.3. Accessibility to renewable energy and resource efficient practices

As described in the beginning, one climate change mitigation strategy is to focus more on renewable energy, or in general to improve resource efficiency. Usually, firewood is mostly used by many households and the collection of firewood is mainly considered as a female task. However, firewood is becoming a scarce resource in Rwanda. To address this issue, many programs focus on other alternative source of energy, more efficient, which include fuel-efficient cooking stoves. Although the use of cooking stoves is not affordable to the majority of Rwandans, this allows to use less firewood which leads to a decrease of deforestation and at the same time, the use of improved cooking stoves leads to the emission of less smoke. Both, less deforestation and less CO₂ output contribute to climate change degradation

Energy policies of the GoR give special attention to the use of modern, clean and energy efficient technologies as most of electricity in Rwanda comes from renewable sources¹¹. The table below presents details on how respondents accessed \ renewable energy such as hydropower, biogas, solar and cooking stoves.

Table 3 Source of funding for renewable energy and resource-efficient practices

		Grant	Self-funded	Loan	Others	Total
Hydropower via grid	N	64	396	54	2	516
	%	12.4%	76.7%	10.5%	0.4%	100.0%
Bio Energy	N	73	28	13	3	117
	%	62.4%	23.9%	11.1%	2.6%	100.0%
Solar Energy	N	441	76	61	1	579
	%	76.2%	13.1%	10.5%	0.2%	100.0%
Resource efficient practices: Improved Cooking stoves	N	414	41	1	3	459
	%	90.2%	8.9%	0.2%	0.7%	100.0%

Source: CRC primary data, October, 2017

The above findings indicate that of all the surveyed households getting/ accessing hydropower, 76.7% relied on their own financial means, followed by 10.5% who entered into credit facility to access hydropower while only 12.4% relied on grant. This implies that in the community, the access to electricity is still challenging as most of them belong to the Ubudehe category 1 and 2 and can only rely on VUP direct support for their subsistence. However, the 2016 Rural Electrification Strategy¹² stipulates in its to ensure that “each household will be able to access the most appropriate form of electricity based on their

¹¹ Journal of Energy and Natural Resources 2016; 5(6): 92-97, Current Overview of Renewable Energy Resources in Rwanda , p93 <http://www.sciencepublishinggroup.com/j/jenr>

¹² MINISTRY OF INFRASTRUCTURE, 2016 : RURAL ELECTRIFICATION STRATEGY, p16

income levels and usage patterns". This explains the fact that more grants are provided to beneficiaries using other sources of energy such as biogas (62.4%), solar (76.2%) and improved cooking stoves (90.2%), which seem to be cheaper for a consumer than to connect to the grid. The table below highlights the time taken for accessing renewable energy set-up after submission of the application.

Table 4 Time taken to access renewable energy or resource efficient set-up after the submission of application

		Less than one week	Between one week and two weeks	Between two weeks and one month	Between one month and three months	Between three months and six months	Beyond six months	Total
Hydropower	N	29	97	126	114	58	81	505
	%	5.7%	19.2%	25.0%	22.6%	11.5%	16.0%	100.0%
Bio Energy	N	27	37	27	22	5	4	122
	%	22.1%	30.3%	22.1%	18.0%	4.1%	3.3%	100.0%
Solar Energy	N	179	115	129	69	11	18	521
	%	34.4%	22.1%	24.8%	13.2%	2.1%	3.5%	100.0%
Resource efficient practices: Improved Cooking stoves	N	260	72	55	23	19	31	460
	%	56.5%	15.7%	12.0%	5.0%	4.1%	6.7%	100.0%

Source: CRC primary data, October, 2017

It is shown from the table above that time taken to access renewable energy set-up/technology after the submission of application differs by type of energy. With electricity, the majority (47, 6%) said it took between two weeks and 3 months while the large majority (74.5%) of those having biogas said that the waiting time took below one month. Likewise, this is the time limit for accessing solar and cooking stoves set-up as revealed by more than 80% of beneficiaries of both source of energy respectively.

Notably, a non negligible proportion of respondents (27.5%) with access to electricity declared that the waiting time for being connected to this source of energy can vary between 3 months, 6 months or beyond. This again is due to the fact that the majority of beneficiaries of renewable energy set-up fall in the category 1 and 2 where solar and biogas are most encouraged by the GoR as to much to usage of energy with the affordability of the consumers. The table below displays the range of amount paid by beneficiaries to acquire renewable energy.

Table 5 Amount paid to acquire renewable energy or an improved cooking stove

		FREE	1,000 - 50,000 RWF	51,000 - 100,000 RWF	100,001 - 150,000 RWF	150,001 - 200,000 RWF	Greater than 200,000 RWF	Total
Hydropower	N	67	75	257	30	16	15	460
	%	14.6%	16.3%	55.9%	6.5%	3.5%	3.3%	100.0%
Bio Energy	N	24	8	6	1	0	8	47
	%	51.1%	17.0%	12.8%	2.1%	0.0%	17.0%	100.0%
Solar Energy	N	228	37	13	17	22	0	317
	%	71.9%	11.7%	4.1%	5.4%	6.9%	0.0%	100.0%
Resource efficient practices: Improved Cooking stoves	N	15	20	1	0	1	0	37
	%	40.5%	54.1%	2.7%	0.0%	2.7%	0.0%	100.0%

Source: CRC primary data, October, 2017

The majority of respondents (55.9%) paid between RWF 51,000 and RWF 100,000 to be connected to an hydropower to get electricity. The amount paid for this source of energy is closer to the total connection fee of Rwf 56,000 according to MININFRA¹³. However, another portion of respondents (16.3%) reported to have paid the electricity connection fee that is below RWF 50,000. This proves true as there is also an arrangement for low income families whereby they are allowed to pay connection fees in instalments with an option of paying in first instalment of RWF15, 000. Based on the fact that the median monthly consumption for households in Rwanda as a whole stand at RWF 15. 500 per month per adult, it is not easy for at least 50% of Rwandan citizens who fall in this category to afford this price especially because they have to use this income for various needs of their daily life. As a matter of fact, the national target for Rwanda is to increase the share of households with electricity to 35% by 2015; 50% by 2017 (1.2 million connections) and 60% by 2020, seven times the rate in 2005.¹⁴

With regard to the amount paid to access to biogas, the majority of respondents (51.1%) said that they got it free of charge while about 17% of them ascertain that they paid more than RWF 200,000. It is worth noting that according to IOB Evaluation in 2014¹⁵, the selling price of a 6m3 digester was estimated at RWF 800,000, or roughly twice the price in real terms calculated in the SNV feasibility study. Additionnaly, the 2010 EnDev internal monitoring mission observed that the price of a digester was a

13 MININFRA, 2014: Baseline impact evaluation study for the electricity access scale-up roll-out (EARP) sub-components in Rwanda, p10

14 (National Energy Policy and Strategy 2011),

15 IOB Evaluation, 2014: Access to Energy in Rwanda, Impact evaluation of activities supported by the Dutch, Promoting Renewable Energy Programme, p74

constraint and that a smaller size could open up the market for a larger number of potential customers. In 2011, the same mission reported that “Rwanda has the highest costs for digesters in Africa, implying that the reduction of costs, and affordability of digesters would be key in developing the market.

The study revealed that around 72% of respondents acquired free solar energy. This is the highest proportion of those who said to have benefited free energy among the four sources assessed in this study. Indeed, in 2014, the Rwandan government contracted “**Ignite Power**” to pilot a solar home system, a national program with the idea of extending the agreement if the pilot is successful. In 2016 the government of Rwanda and Ignite Power agreed on the roll-out plan and arranged financing for a project to roll out 250,000 systems by 2018, implying at least \$38m of consumer financing, the largest solar project in Rwanda to date¹⁶.

Ignite Power, in collaboration with Energy Development Corporation Limited (EDCL), is offering the systems at a cost that is significantly less than similar offering in Kenya for instance according to Expo-Group. Furthermore, the systems are set to increase Rwanda's electricity coverage, as consumers can afford them, where Rwandan consumers have the possibility to acquire high quality certified solar home system worth over \$150 with four lights, a phone charger and a radio.

Finally, the majority of respondents (54.1%) using cooking stoves declared to have paid between RWF 1000 and RWF 50,000. This is the lowest price compared to other 4 sources of energy under review. This finding is in line with the alignment of the Ministry of Infrastructure’s 2020 goal to reduce the use of biomass by 50%. In fact, “**Inyenyeri**”, a Rwandan fuel-utility company, has developed a “Made in Rwanda” cooking system that reduces the amount of wood needed to cook with by 80-90%. The Inyenyeri cook stove is worth 100 USD but will be free of charge in Rwanda in bid to reduce biomass and charcoal usage¹⁷.

16ExpoGroup,2016:http://www.expogr.com/rwanda/solarexpo/detail_news.php?newsid=3934&pagei=2

17 MINIFRA.n.d Inyenyeri launches its improved cooking stove System to reduce 50% of Biomass Usage in Rwanda.http://mininfra.gov.rw/index.php?id=19&tx_ttnews%5Btt_news%5D=247&cHash=b920ebe8ff88343199a97cb00b423345

This study sought to examine whether respondents have been asked to pay extra-payment to acquire renewable energy. The table below looks at the proportion of participants having electricity, biogas, solar and cooking stoves who paid extra-money to acquire renewable energy.

Table 6 Respondents who have been asked to pay extra-payment to acquire renewable energy

	Yes(N)	No(N)	Total	Yes (%)	No(%)
Hydropower	96	366	462	20.8%	79.2%
Biogas	2	72	74	2.7%	97.3%
Bio Energy	15	347	362	4.1%	95.9%
Cooking stoves	14	181	195	7.2%	92.8%

Source: CRC primary data, October, 2017

The study shows that the majority in the category of those using electricity (79.2%), biogas (97.3%), solar (95.9%) and cooking stoves (92.8%) have not been asked to pay extra-payment. Unlike, 20.8% using hydropower as source of energy affirm to have paid extra-money to acquire it. The study indicates that the reasons behind the extra-payment include transport of technicians, purchase of electrical cables, and purchase of electrical pillar, installation and purchase of other electrical equipments. On the other hand, reasons for extra-payment with the remaining source of energy include loan interest charges, paying for materials, transport charges and installation cost.

The table below looks at the satisfaction of participants with overall cost to access the renewable energy set-up.

Table 7 Satisfaction with overall cost to access the renewable energy set-up

		Very satisfied	Satisfied	Not satisfied	Not satisfied at all	Total	Score
Hydropower	N	140	246	97	18	501	3.01
	%	27.9%	49.1%	19.4%	3.6%	100.0%	75.3%
Bio Energy	N	49	37	31	7	124	3.03
	%	39.5%	29.8%	25.0%	5.6%	100.0%	75.8%
Solar Energy	N	119	87	66	11	283	3.11
	%	42.0%	30.7%	23.3%	3.9%	100.0%	77.7%
Resource efficient practices: Improved Cooking stoves	N	144	64	30	7	235	3.55
	%	61.3%	27.2%	12.8%	3.0%	100.0%	88.8%

Source: CRC primary data, October, 2017

Overall, the study reveals a high level of respondents' satisfaction with costs to access energy set-up. This is due to the fact that majority of respondents acquired energy free of charge. A high level of satisfaction is reached for improved cooking stoves, with around 89%. However, a significant proportion of respondents proved to be dissatisfied with the cost of accessing biogas (30.6%) and solar energy (27.2%). The interviews with Key informants revealed that the portion of respondents who acquired solar energy through loan or by self-funding were the only to complain about the cost of this facility.

On the other hand, participants in FGDs conducted with beneficiaries indicated that the main reason behind dissatisfaction with biogas is the cost required to buy a biogas digester. Other reasons mentioned by the latter are the increase of the workload (taking manure from the shed to the house, fetching water to feed the digester and transporting the slurry from the house back to the field) as compared to buying or collecting firewood. Furthermore, in some cases the fields and cowsheds are at some distance from the houses. In hilly Rwanda, carrying manure, water and slurry up and down is heavy physical work.

3.4. The use of renewable energy set-up

The survey indicated that the majority of respondents who use hydropower electricity and solar as source of energy often consume them for lighting whereas the majority of those using biogas affirm that they rarely use it for lighting due to its frequent breakdown. Qualitative data collected through interviews with Rema staff at district level confirmed that most of biogas provided to citizens were not functioning at the time of the survey, which explain the fact that majority (60%) of recipients of biogas said that they no longer use it for the above purpose. This is corroborated by the findings from the 2015-2016 Auditor general report¹⁸ whereby an amount of **RWF 217.007.601** which was allocated to biogas funds was considered as idle meaning not utilized for the intended purpose.

However, it is also worth noting that significant proportion of respondents who are connected to electricity (28.9%) and solar (36.6%) rarely or never use these utilities for lighting. According to participants in FGDs, the rare usage of electricity for lighting was due to the lack of financial capacity for a regular consumption.

Although Rwanda is well benefited has abundandwith solar energy (potential), even during the months of the rainy seasons, where there is daily and sufficient sunshine, participants in FGDs revealed that more often when the sun is not shining (during night and rain season), solar panels do not generate energy to be used for lighting. The table below shows the frequency of using renewable energy for cooking.

Table 8 Frequency of using renewable energy for lighting

		Always	Very often	Often	Rare	Never	Total	Score
Hydropower Electricity	N	158	90	116	147	1	512	2.50
	%	30.9%	17.6%	22.7%	28.7%	0.2%	100.0%	62.5%
Biogas	N	14	21	11	14	55	115	1.35
	%	12.2%	18.3%	9.6%	12.2%	47.8%	100.0%	33.7%
Solar	N	134	121	148	198	35	636	2.19
	%	21.1%	19.0%	23.3%	31.1%	5.5%	100.0%	54.8%

Source: CRC primary data, October, 2017

Frequency of using renewable energy for cooking.

¹⁸ Office of the Auditor General: Analysis of the Auditor General's reports of the decentralised entities for the fiscal year that ended 30th June, 2016

The survey indicates that the large majority of respondents (86.1%) in the four district use improved cooking stoves as a source of energy for food cooking while hydropower electricity is not used at the same proportion (86%).

Tabel 9 Frequency of using renewable energy for cooking

		Always	Very often	Often	Rare	Never	Total	Score
Electricity	N	9	12	15	33	424	493	0.27
	%	1.8%	2.4%	3.0%	6.7%	86.0%	100.0%	6.8%
Biogas	N	18	32	21	19	28	118	1.94
	%	15.3%	27.1%	17.8%	16.1%	23.7%	100.0%	48.5%
Cooking stoves	N	223	114	72	33	33	475	2.97
	%	46.9%	24.0%	15.2%	6.9%	6.9%	100.0%	74.3%

Source: CRC primary data, October, 2017

Usage of renewable energy for business creation.

It is apparent from the findings that for all the sources of energy in the four districts the vast majority of them (beyond 80%) never used this energy for business creation. Interestingly, the core objective of the climated change financed project was to increase productivityand diversify of livelihoods of beneficiaries beyond agriculture, to reduce their vulnerability to climate change effects by providing support by creating employment opportunities and income generation activities especially for the poorest households.

Tabel 10 Usage of renewable energy for business creation

		Always	Very often	Often	Rare	Never	Total	Score
Hydropower	N	14	31	11	23	419	498	0.39
	%	2.8%	6.2%	2.2%	4.6%	84.1%	100.0%	9.7%
Bio Energy	N	3	6	3	2	76	90	0.42
	%	3.3%	6.7%	3.3%	2.2%	84.4%	100.0%	10.6%
Solar Energy	N	16	20	12	15	500	563	0.29
	%	2.8%	3.6%	2.1%	2.7%	88.8%	100.0%	7.2%
Resource efficient practices: Improved Cooking stoves	N	35	20	3	7	330	395	0.54
	%	8.9%	5.1%	0.8%	1.8%	83.5%	100.0%	13.5%

Source: CRC primary data, October, 2017

It emerged from this survey that 59.0% participants having renewable energy received trainings on how to use renewable energy equipments provided to them. However, 41.0 % were not trained. This result implies a limitation for respondents to effectively use the energy in case of damage or malfunctions of the equipments. Yet, for the district of Karongi, according to its full project document submitted FONERWA, the project was built on awareness and provides training to each committee so that it can effectively oversee the interventions and liaise with local people. Indeed, potential roles of partners were discussed during the consultative meetings of the project in Karongi district such as to facilitate and support required trainings which was tasked to Tubibe Amahoro, a local Civil Society operating in this district as well as a training on agricultural cooperatives to be performed by ADRA-Rwanda.

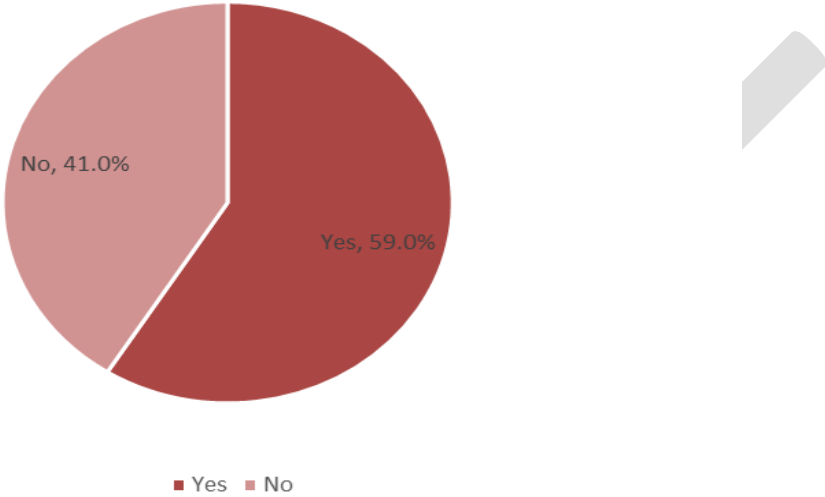


Figure 5 Respondents who got trained on the usage of renewable energy equipment (N=1548)
 Source: CRC primary data, October, 2017

3.5. Transparency and accountability in the management of climate change projects

The majority (70.8%) of beneficiaries of renewable energy funded projects reported that there are no channels through which they can get information on the management of the funded projects in their district while another 21.8% said that they do not know any channel of the kind.

Suprisingly, districts’ climate change projects documents submitted to FONERWA envisaged touse a participatory approach in the design and implementation of these projects. For example, again in Karongi District, the Integrated Green Village Project documents stipulates that participatory approach was used including consultations with stakeholders affected by the climate change problem, namely: Sector Executive Secretary; **JADF** President at Sector level; Cell executive secretary; Imidugudu leaders; **Cell**

advisory council president; **Youth and women representatives**; Religious leaders; **Representative of people with disabilities**; Representative of Umurenge Sacco; Schools representative; Representative from Health Centers; IDP Coordination representative; Representative from security organs and **Community households**.

Moreover, while designing the project documents, it was recommended to set up a **control committee** where all members will contribute with a minimal fee to ensure maintenance the equipment set-up, establish **cooperatives** at village levels. **Project Steering Committees** (PSC) comprising of representatives of the main district actors in the project, to coordinate and guide its implementation, and to look after the policy and programme matters related to project implementation.

It is therefore obvious that channels through which respondents get information on the management of the funded projects were planned but seemingly not operational as a vast majority of community households are not aware of their existence.

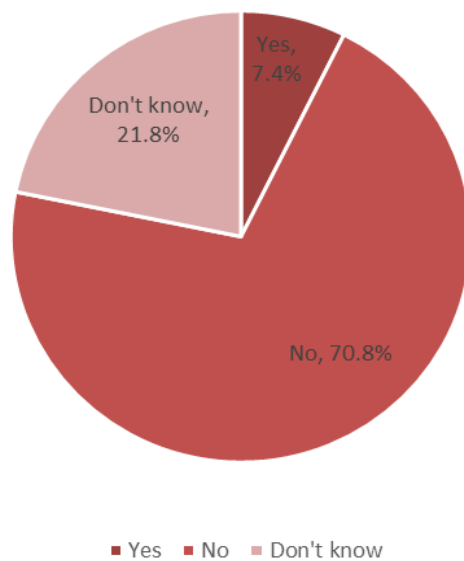


Figure 6 Existence of channels through which respondents get information on the management of the funded projects (N=1600)
Source: CRC primary data, October, 2017

The survey findings show that the majority (63.4%) have never been consulted to take part in decisions of acquiring renewable energy equipment. Only 36.6% of respondents said they have been consulted. In Rwanda, the issue of involving citizens in the planning and decision making process has been evoked by many other studies including a research conducted by CCOIAB in 2012 which revealed that only 39.47% of citizens have been consulted by the government to use radical terracing to address the challenges of soil erosion while according to 48.7% of them said that the decision was taken by the government unilaterally.

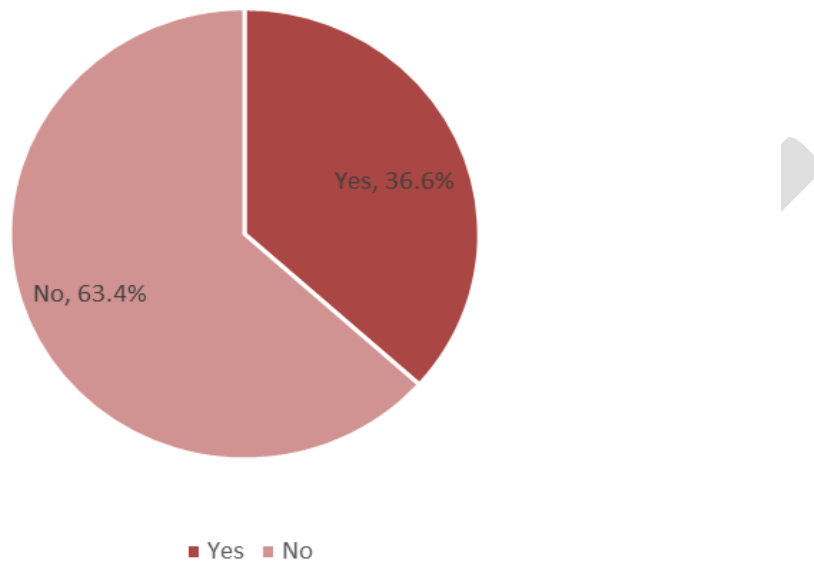


Figure 7 Beneficiaries of the renewable energy set-up who have been consulted to take part on the decision of acquiring such equipment (N=1575)

Source: CRC primary data, October, 2017

It appears from the findings that the involvement of beneficiaries, CSOs and local leaders in monitoring the management of funds allocated to renewable energy projects in their district stands low. Overall, there is a low level of frequency of involvement of CSOs (20.3%) followed by beneficiaries (24.7%) and local leaders (33.9%) in monitoring the management of funds allocated to the renewable energy funded projects in their district.

Surprisingly, again, it was clearly indicated in the project documents submitted to FONERWA for funding that all stakeholders will participate in the M&E through the General Assembly and validation of monitoring reports and that the multi-disciplinary team from different stakeholders such as government agencies and private sector will annually assess the implementation and achievements and recommend further steps after report validation by all stakeholders. Likewise, according to the project documents,

CSOs were also involved in offering technical support like the management of established cooperatives in the villages and Biogas set up where needed and provide required trainings.

This proves that the existing structure implicated in the project management exist but less engaged in the implementation of funded projects.

The table below shows the extent to which renewable energy beneficiaries, CSOs and local leaders were involved in the monitoring and evaluation of funds allocated to climate change funded projects in their districts.

Tabel 11 Frequency of involvement of beneficiaries, CSOs and local leaders in monitoring the management of funds allocated to renewable energy projects in their district

		Very often	Often	Rare	Very rare	Never	Total	Score
Beneficiaries	N	66	163	227	160	769	1385	0.99
	%	4.8%	11.8%	16.4%	11.6%	55.5%	100.0%	24.7%
CSOs	N	53	89	181	185	755	1263	0.81
	%	4.2%	7.0%	14.3%	14.6%	59.8%	100.0%	20.3%
Local leaders	N	96	226	231	209	517	1279	1.35
	%	7.5%	17.7%	18.1%	16.3%	40.4%	100.0%	33.9%

Source: CRC primary data, October, 2017

Overall, the level of satisfaction of beneficiaries with the performance of stakeholders's responsibility during the implementation of projects proves to be moderate (43.6%), It is worth noting that the project technician hired to support the beneficiaries received the lowest score with only 20% of beneficiaries who were satisfied with the responsibility assigned to the technician which is to supervise the works at the field at each site.

The members of the district project steering committee (PSC) were also among the stakeholders who scored low. The latter are often elected by the community where a project is being implemented. Technical staffs experienced in financial management and Monitoring & Evaluation have the responsibility to provide monthly and quarterly progress report preparation and report to the Mayor of the District in addition to a daily coordination of field activities. However, the committees elected in each area to represent the local communities may lack the legal power to demand accountability from senior officials working on a project at the national or district level which leads to not perform properly the assigned responsibilities.

The lack of power to demand for accountability was observed during the FGDs conducted with beneficiaries of biogas where participants reported that most of their biogas digesters were not functioning since one year ago and the elected committee never made any effort to report the problem and advocate for handling the case.

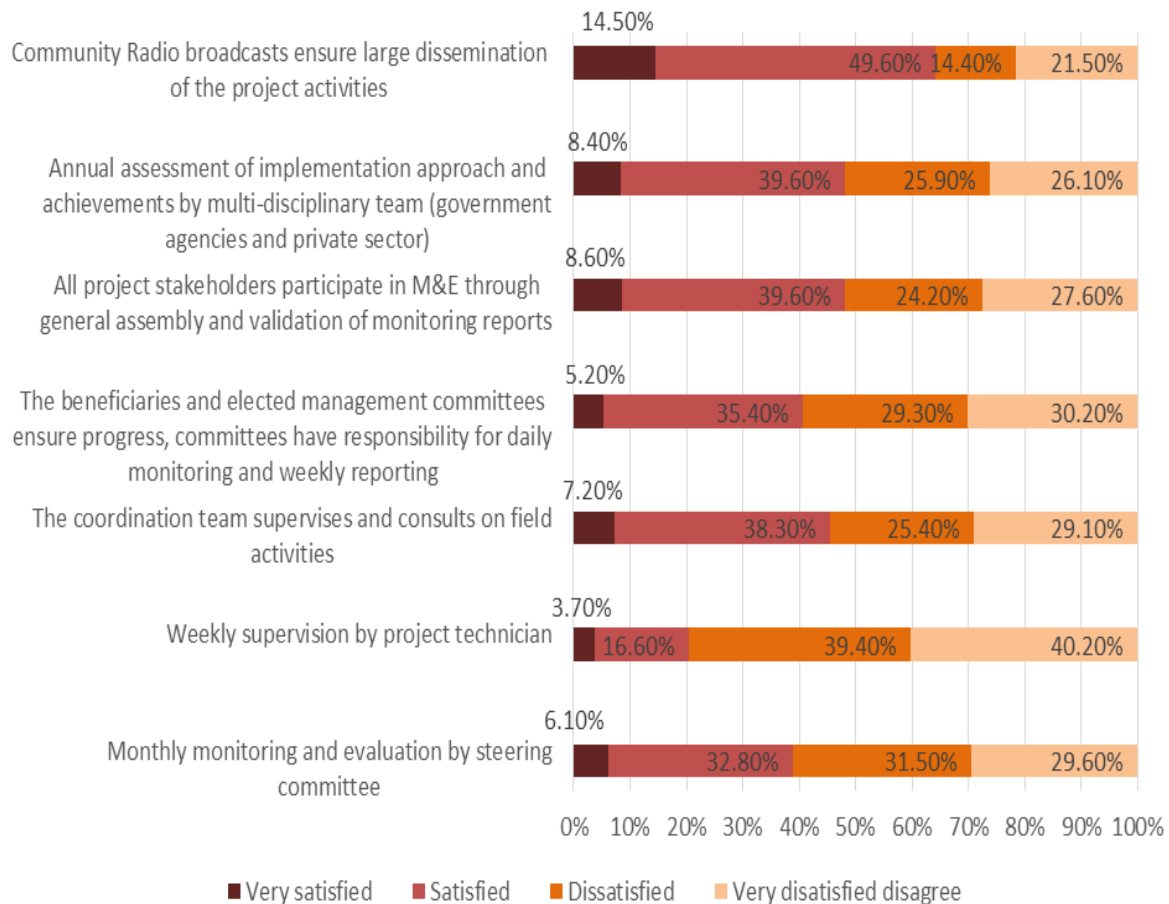


Figure 8 Respondents' satisfaction with the performance of stakeholder's responsibility during the projects' implementation

3.6. Corruption related to climate change finance

The low level of transparency and accountability in the management of climate change financed projects as pointed out in the section above constitute a corruption opportunity that can prevail during the implementation of climate change projects in the selected district.

The most perceived forms of corruption in this area include the nepotism in project approval and selection (19%), and misuse of funds by project decision making authorities (12.7%). This finding is supported by TI-RW annual survey, RBI 2017, which indicated that Rwanda Energy Group Ltd (REG), which has a number of subsectors for electricity distribution and connectivity, has been in the spotlight over reckless expenditure of public monies, flouting tendering and procurement procedures, breaching recruitment policies and mismanagement of projects.

Other forms of corruption that affect the climate change projects consist of recruitment of casual laborers, outsourcing specialists, select project beneficiaries and community representatives.

The study showed that electricity beneficiaries were most affected by bribe demand compared to other type of renewable energy concerned by this study. Project hired technicians and implementing agency officials were reportedly most corrupt, the main reasons being to install a connection within a short time repair or replace a damaged material and get a favorable treatment during the distribution of equipment.

Moreover, the Auditor General report of 2015-2016 showed that In Nyanza District, some beneficiaries were given cows under the GIRINKA program, a pro-poor program meant among others to make functional the Biogas set-up, yet they were not on the approved and validated list of the programme

It is worth noting that corruption undermines development and particularly reduces the ability to respond to climate change mitigation and adaptation initiatives. FONERWA’s core mission was to contribute to sustainable wealth creation and poverty reduction in Rwanda through sustainable management of natural resources, climate resilient and green economic growth. If nothing is done toward the prevention and the fighting against corruption among the projects funds managers that indulge in corrupt practices, FONERWA’s mission is likely to not successfully achieve its intended objectives.

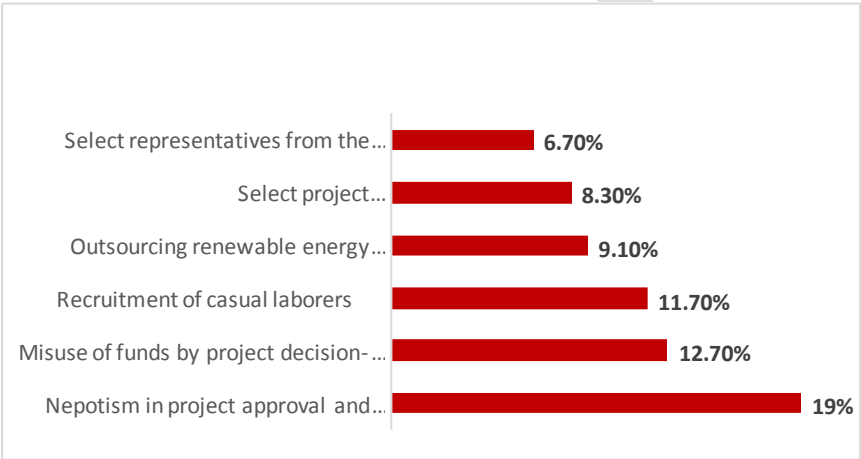


Figure 9 Perceived corruption levels during the implementation of climate change projects in the selected district

OUTLOOK AND RECOMMENDATIONS

In Rwanda, climate change mitigation strategies and actions are needed, for instance by reducing green house gas emissions (GHG) or increasing the capacity of carbon sinks (e.g. reforestation). Generally, Rwanda is well endowed with renewable energy resources, but most potential still remains untapped. Therefore, investing in renewable energy can largely contribute to mitigate climate change effects. The Green Fund (FONERWA), with an estimated amount of US\$ 89 Million mobilized until the end of 2017 through the government of Rwanda and its bilateral and multilateral development partners to finance among others, climate change mainstreaming projects, needs strong transparency and accountability mechanisms to ensure that the expected results are adequately achieved..

This study, carried out in four districts (one in each province), collected data on 1600 people using questionnaire to assess:

- 1. The citizen's awareness of climate change effects and the importance of renewable energy.**

In this regard, the survey has shown that citizens are in general well informed a) about climate change, b) climate change effects, c) as well as about the contribution of renewable energy on mitigating climate change, as e.g. 80.6 % of respondents agree that renewable energy sources contribute to the prevention of climate change.

- 2. The status quo of renewable energy projects from a beneficiaries' perspective**

Overall, the access to electricity of many households, especially in the rural areas, is still challenging and the objectives of the GoR are not reached yet. For Rwanda, it is less an aim of changing to renewable energy; it is more the aim to make renewable energy accessible and the most reliable source in the countryside. When it comes to financing renewable energy or resource efficient technologies for energy, most of the grants are received for improved cooking stoves as well as solar power. For both set-ups, also the time between the applications until the approval/installation is shortest. In general, solar powers as well as cooking stoves demand the lowest levels of technological input, infrastructure and knowhow to install, but also in terms of maintenance it seems easiest/affordable to use. In contrast, 27.5% with access to electricity/hydropower declared that the waiting time for being connected to this source of energy can vary between 3 months, 6 months or beyond. In addition, the payment schemes still need to be revised, as it seems challenging to afford for the largest part of the population. Among different renewable energy sources, biogas seems to be most challenging and a large share of technologies provided to citizens was not functioning at the time of the survey.

Another challenge limiting the positive development of renewable energy is related to the capacity of using and maintaining renewable energy equipment, as the survey has shown, 41 % of people using renewable energy, were not trained at all. This result implies a limitation for respondents to effectively use the energy in case of damage or malfunctions of the equipments.

3. The level of transparency, accountability and participation in the management of climate change funds

When it comes to upward accountability and transparency of these projects, the study has shown that there are still some major gaps in planning and monitoring. Especially, information channels of the funded projects are seemingly not operational. The majority (63.4%) have never been consulted to take part in decisions of acquiring renewable energy equipment, which is contradicting also the aim of the FONERWA in general. In addition, the involvement of beneficiaries, CSOs and local leaders in monitoring the management of funds allocated to renewable energy projects in their district stands low. Overall, there is a low level of frequency of involvement of CSOs (20.3%) followed by beneficiaries (24.7%) and local leaders (33.9%) in monitoring the management of funds allocated to the renewable energy funded projects in their district. This can be also considered as a reasons for only a moderate level of satisfaction of the implementation of the projects.

4. The incidence of corruption occurred during the implementation of climate change financed projects

The figures above point to some gaps of climate change finance and with it to possibilities of corruption that can prevail during the implementation of climate change projects in the selected district. However, the level of corruption seems to be low. The highest level of corruption is considered for nepotism in project approval and selection.

Recommendations

Based on the findings from the study, the following recommendations can be made:

- The funds should be made accessible to all Rwandas; this also includes to focus on projects that are more sustainable. E.g. the survey has shown, that improved cooking stoves as well as solar power are more likely to be used, also due to the lower costs. However, a lot of effort is made towards promoting biogas, which might contradict the needs or applicability. This for instance also related to the resources/inputs needed for biogas, as there are regulations for getting the inputs, some people might hesitate of installing bioenergy plants.
- To make the technologies being used for a long time, more training would be needed for renewable energy technologies. This does not include to train all the users, but to have a technician available in the community.
- One of the most important recommendations is to ensure upward accountability and transparency in the planning and monitoring of the projects to ensure that the climate change funds are used efficiently and according to the citizens' needs
- The committees to manage the project funds are established at local level, however, it should be ensured that they fulfill their responsibility. For this, a proper mechanism to follow up on project implementation is needed, that also considers for instance, why the committees are not properly working.