# RANO WASH

## RURAL ACCESS TO NEW OPPORTUNITIES IN WATER, SANITATION, AND HYGIENE

## PROJECT FUNDED BY USAID

Baseline Study

Final Report

Submitted by:

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# Table of contents

# List of tables

## List of figures

# ACRONYMS

| | |
|---|---|
| BC | : Behavior Change |
| BMH | : Bureau Municipal d'Hygiène |
| CDC | : Communal Development Committee |
| CDP | : Communal Development Plan |
| DWS | : Drinking Water Supply |
| EPM | : Enquête Périodique auprès des Ménages |
| FG | : Focus Group |
| GDP | : Gross Domestic Product |
| INSTAT | : Institut National de la STATistique |
| JIRAMA | : JIro sy RAno Malagasy |
| LB | : Laundry Blocks |
| MEEH | : Ministry of Water, Energy and Hydrocarbons |
| MHM | : Menstrual Hygiene Management |
| SNEAH | : National Strategy on WASH |
| NGO | : Non-Governmental Organization |
| PNAEPA | : Programme National d'Accès à l'Eau Potable et a l'Assainissement |
| PwD | : Persons with Disabilities |
| SEPAH | : Secteur de l'Eau Potable, de l'Assainissement et de l'Hygiène |
| SSPA | : Sector Strategy and Action Plan |
| SE&AM | : Suivi de l'Eau et Assainissement à Madagascar - WASH Monitoring System in Madagascar |
| SDG | : Sustainable Development Goal |
| SIMS/MSIS | : Système d'Information Multi-Sectorielle / Multi-Sector Information System |
| USG | : United States Government |
| VSLA | : Village Savings and Loan Association |
| WSP | : WASH Service Provider |
| WASH | : Water, Sanitation, and Hygiene |
| WRIM | : Water Resources Integrated Manageement |
| WUA | : Water Users Association |

# TABLE OF INDICATORS

| N° | Performance Indicators | VALUES | | | | | | | Sources | Page & Section |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | Std error | Lower limit | Upper limit | Alt Mgr | Ats | Vv7V | | |
| **GOAL** | **Increase equitable and sustainable access to water, sanitation, and hygiene services to maximize their impact on human health and nutrition and the preserve environment in 250 rural communes in Vatovavy Fitovinany, Antsinanana, Amoron'i Mania, Haute Matsiatra, Vakinankaratra, and Alaotro Mangoro.** | | | | | | | | | |
| 0.1 | % GPD to WASH budget | 0,18% | n/a | n/a | n/a | n/a | n/a | n/a | Track-fin BM and Fiscal law | P16 S31 |
| 0.2 | % of households with year-round access to basic drinking water source and safely managed drinking water services | 11,31% | 1,86% | 7,61% | 15,00% | 5,98% | 14,08% | 13,89% | Household survey | P 51 S34323 |
| 0.3 | % of households in target areas with access to a household latrine, and a handwashing station with soap and water commonly used by family members | 2,92% | 0,59% | 1,75% | 4,09% | 4,78% | 3,61% | 0,75% | Household survey | P74 S3533 |
| 0.4 | % people gaining access to basic drinking water services as a result of USG assistance (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 0,56% | 0,40% | -0,24% | 1,35% | 0,00% | 1,36% | 0,49% | Household survey Secondary data : Intervention zones (districts, communes, Fokontany) of USAID on WASH | P51 S34324 |
| | *Poorest* | 0,08% | | | | | | | | |
| | *Poor* | 0,10% | | | | | | | | |
| | *Medium* | 0,06% | | | | | | | | |
| | *Wealthy* | 0,25% | | | | | | | | |
| | *Wealthiest* | 0,08% | | | | | | | | |
| | ***Total*** | **0,56%** | | | | | | | | |
| | *Men* | 0,33% | | | | | | | | |
| | *Women* | 0,23% | | | | | | | | |
| | ***Total*** | **0,56%** | | | | | | | | |
| | *PwD* | 0,00% | | | | | | | | |

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| | *0 - 5 years* | 0,05% | | | | | | | | |
| | *5 - 10 years* | 0,06% | | | | | | | | |
| | *10 - 12 years* | 0.03% | | | | | | | | |
| | *12 - 15 years* | 0.04% | | | | | | | | |
| | *15 - 19 years* | 0.09% | | | | | | | | |
| | *19 - 25 years* | 0.07% | | | | | | | | |
| | *25 - 60 years* | 0.23% | | | | | | | | |
| | *Over 60 years* | 0,00% | | | | | | | | |
| | ***Total*** | **0,56%** | | | | | | | | |
| 0.5 | % people gaining access to safely managed drinking water services as result of USG assistance (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 0,25% | 0,20% | -0,15% | 0,64% | 0,00% | 0,18% | 0,49% | Household survey | P53 S34325 |
| | *Poorest* | 0,00% | | | | | | | | |
| | *Poor* | 0,00% | | | | | | | | |
| | *Medium* | 0,00% | | | | | | | | |
| | *Wealthy* | 0,25% | | | | | | | | |
| | *Wealthiest* | 0,00% | | | | | | | | |
| | ***Total*** | **0,25%** | | | | | | | | |
| | *Men* | 0,16% | | | | | | | | |
| | *Women* | 0,09% | | | | | | | | |
| | ***Total*** | **0,25%** | | | | | | | | |
| | *PwD* | 0,00% | | | | | | | | |
| | *0 - 5 years* | 0,01% | | | | | | | | |
| | *5 - 10 years* | 0,04% | | | | | | | | |
| | *10 - 12 years* | 0,00% | | | | | | | | |
| | *12 - 15 years* | 0,05% | | | | | | | | |

| N° | Performance Indicators | VALUES | | | | | | | Sources | Page & Section |
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| | *15 - 19 years* | 0,04% | | | | | | | | |
| | *19 - 25 years* | 0,02% | | | | | | | | |
| | *25 - 60 years* | 0,07% | | | | | | | | |
| | *Over 60 years* | 0,02% | | | | | | | | |
| | ***Total*** | **0,25%** | | | | | | | | |
| 0.6 | % of people gaining access to a basic sanitation service as a result of USG assistance (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 0,12% | 0,10% | -0,08% | 0,32% | 0,06% | 0,39% | 0,00% | Household survey Secondary data : Intervention zones (districts, communes, Fokontany) of USAID on WASH | P77 S3544 |
| | *Poorest* | 0,00% | | | | | | | | |
| | *Poor* | 0.08% | | | | | | | | |
| | *Medium* | 0,00% | | | | | | | | |
| | *Wealthy* | 0,00% | | | | | | | | |
| | *Wealthiest* | 0.04% | | | | | | | | |
| | ***Total*** | **0,12%** | | | | | | | | |
| | *Men* | 0.061% | | | | | | | | |
| | *Women* | 0.062% | | | | | | | | |
| | ***Total*** | **0,12%** | | | | | | | | |
| | *PwD* | 0,00% | | | | | | | | |
| | *0 - 5 years* | 0.01% | | | | | | | | |
| | *5 - 10 years* | 0.01% | | | | | | | | |
| | *10 - 12 years* | 0,00% | | | | | | | | |
| | *12 - 15 years* | 0.02% | | | | | | | | |
| | *15 - 19 years* | 0.01% | | | | | | | | |
| | *19 - 25 years* | 0.02% | | | | | | | | |
| | *25 - 60 years* | 0.05% | | | | | | | | |

| N° | Performance Indicators | VALUES | | | | | | | Sources | Page & Section |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | Std error | Lower limit | Upper limit | Alt Mgr | Ats | Vv7V | | |
| **GOAL** | **Increase equitable and sustainable access to water, sanitation, and hygiene services to maximize their impact on human health and nutrition and the preserve environment in 250 rural communes in Vatovavy Fitovinany, Antsinanana, Amoron'i Mania, Haute Matsiatra, Vakinankaratra, and Alaotro Mangoro.** | | | | | | | | | |
| | *Over 60 years* | 0.01% | | | | | | | | |
| | ***Total*** | **0,12%** | | | | | | | | |
| 0.7 | % of households with children under age 5 reporting an incidence of diarrhea within two weeks before the survey | 7,25% | 0,008 | 0,056 | 0,089 | 6.69% | 9.86% | 5.73% | Household survey | P17 S312 |
| 0.8 | % of households with year-round access to a basic drinking water source | 10,38% | 1,79% | 6,83% | 13,93% | 5,91% | 13,57% | 11,87% | Household survey | P50 S34321 |
| 0.9 | % of households with year-round safely managed drinking water services | 1,09% | 0,57% | -0,04% | 2,22% | 0,07% | 0,85% | 2,18% | Household survey | P51 S34322 |
| 0.11 | % people gaining access to safely managed drinking water services (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 0,99% | 0,54% | -0,09% | 2,07% | 0,08% | 0,66% | 1,97% | Household survey | P54 S34323 |
| | *Poorest* | 0,07% | | | | | | | | |
| | *Poor* | 0,00% | | | | | | | | |
| | *Medium* | 0,00% | | | | | | | | |
| | *Wealthy* | 0,71% | | | | | | | | |
| | *Wealthiest* | 0,21% | | | | | | | | |
| | ***Total*** | **0,99%** | | | | | | | | |
| | *Men* | 0,55% | | | | | | | | |
| | *Women* | 0,44% | | | | | | | | |
| | ***Total*** | **0,99%** | | | | | | | | |
| | *PwD* | 0.003% | | | | | | | | |
| | *0 - 5 years* | 0,03% | | | | | | | | |
| | *5 - 10 years* | 0,07% | | | | | | | | |
| | *10 - 12 years* | 0,08% | | | | | | | | |
| | *12 - 15 years* | 0,16% | | | | | | | | |
| | *15 - 19 years* | 0,16% | | | | | | | | |

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| | | Baseline | Std error | Lower limit | Upper limit | Alt Mgr | Ats | Vv7V | | |
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| | *19 - 25 years* | 0,06% | | | | | | | | |
| | *25 - 60 years* | 0,37% | | | | | | | | |
| | *Over 60 years* | 0,05% | | | | | | | | |
| | ***Total*** | **0,99%** | | | | | | | | |
| 0.13 | % of people gaining access to a basic sanitation service (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 0,23% | 0,12% | 0,00% | 0,46% | 0,19% | 0,62% | 0,00% | Household survey | P76 S3543 |
| | *Poorest* | 0,00% | | | | | | | | |
| | *Poor* | 0.08% | | | | | | | | |
| | *Medium* | 0,00% | | | | | | | | |
| | *Wealthy* | 0.02% | | | | | | | | |
| | *Wealthiest* | 0.13% | | | | | | | | |
| | ***Total*** | **0,23%** | | | | | | | | |
| | *Men* | 0.12% | | | | | | | | |
| | *Women* | 0.11% | | | | | | | | |
| | ***Total*** | **0,23%** | | | | | | | | |
| | *PwD* | 0,00% | | | | | | | | |
| | *0 - 5 years* | 0.01% | | | | | | | | |
| | *5 - 10 years* | 0.01% | | | | | | | | |
| | *10 - 12 years* | 0.02% | | | | | | | | |
| | *12 - 15 years* | 0.02% | | | | | | | | |
| | *15 - 19 years* | 0.02% | | | | | | | | |
| | *19 - 25 years* | 0.03% | | | | | | | | |
| | *25 - 60 years* | 0.10% | | | | | | | | |
| | *Over 60 years* | 0.01% | | | | | | | | |
| | ***Total*** | **0,23%** | | | | | | | | |

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| 0.14 | % of stunted children aged 6-59 months | 52,73% | n/a | n/a | n/a | 56,50% | 44,60% | 57,10% | ONN – National office of nutrition (2012-2013) | P16 S312 |
| 0.15 | % of underweighted children aged 0-59 months | 36,50% | n/a | n/a | n/a | 36,70% | 34,60% | 38,20% | ONN - National office of nutrition (2012-2013) | P16 S312 |
| **SO 1: Governance and monitoring of water and sanitation strengthened for delivering sustainable WASH services** | | | | | | | | | | |
| 1.1 | % of Communes targeted by RANO WASH increasing its WASH budget | 5,15%[1] | n/a | n/a | n/a | 7,55% | 5,26% | 2,22% | Visit at the Commune Office and discussion with the mayor and / or the chairman of the communal council. | P29 S3321 |
| 1.2 | % communes with public private partnerships operational in the water and sanitation sector | 14,07% | n/a | n/a | n/a | 2,23% | 12,22% | 22,00% | Secondary data collection from MEEH and its Regional Department | P31 S3322 |
| **IR1.1 Strengthened government and stakeholder commitment and accountability to sector development** | | | | | | | | | | |
| 1.1.1 | % completion of a Sector Development Action Plan at national level | 27,5% | n/a | n/a | n/a | n/a | n/a | n/a | MEEH | P. 32 S3331 |
| 1.1.2 | # of budgets submitted to the MoF based on joint five-year sector plans | 0 | n/a | n/a | n/a | n/a | n/a | n/a | | P.34 S3332 |

(1) Sample of communes in the 3 regions

| N° | Performance Indicators | VALUES | | | | | | | Sources | Page & Section |
|---|---|---|---|---|---|---|---|---|---|---|
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| 1.1.3 | % of annual commune budget allocated to WASH | 4,67% | n/a | n/a | n/a | 5,47%[2] | 3,75% | 4,28% | Visit at the Commune Office and discussion with the mayor and / or the chairman of the communal council. | P.34 S3333 |
| 1.1.1.1 | National Platform for the Promotion of WASH sector (PNPEAH) operational | Rouge (Red) | n/a | n/a | n/a | | | | MEEH | P35 S3334 |
| 1.1.1.2 | # of development and update of sustainable sector financing strategies | 0 | n/a | n/a | n/a | | | | MEEH | P35 S3335 |
| **IR1.2 Improved sector monitoring, analysis and learning, influencing policy** | | | | | | | | | | |
| 1.2.1 | % of communes using national WASH monitoring system (SE&AM) | 0% | n/a | n/a | n/a | | | | MEEH - Visit at the Commune Office and discussion with the mayor and / or the chairman of the communal council. | P36 S3341 |
| 1.2.1.1 | # of national WASH monitoring system using gender sensitive indicators and able to track WASH Service Provider (WSP) performance, service quality | 0 | n/a | n/a | n/a | | | | MEEH - SE&AM | P36 S3342 |
| 1.2.1.2 | # of Joint Sector Reviews conducted | 0 | n/a | n/a | n/a | | | | MEAH | P36 S3343 |
| 1.2.1.3 | # of standard models for performance-based WSP contracts endorsed by the Ministry in charge of WASH | 2 | n/a | n/a | n/a | n/a | n/a | n/a | MEAH | P36 S3344 |
| **IR1.3 Strengthened sub-national systems** | | | | | | | | | | |

[2] Non considération of the exceptional situation or extreme value of Ambohibary mining commune

| N° | Performance Indicators | VALUES | | | | | | | Sources | Page & Section |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | Std error | Lower limit | Upper limit | Alt Mgr | Ats | Vv7V | | |
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| 1.3.1 | % of communes demonstrating 20% increase in institutional strength (Coordination - Institutional arrangement - Financial Mechanism - Integrated Plan - Monitoring/Evaluation) | n/a | n/a | n/a | n/a | | | | Visit at the Commune Office and discussion with the mayor and / or the chairman of the communal council. *It is the assessment of the T0 capacities which is calculated. The applications of measurement for the year T + 1 and after will give how many communes will exceed the 20% increase.* | P38 S3351 |
| 1.3.1a | Score in terms of Institutional capacity (Coordination – Institutional Arrangement – Financial mechanism – Integrated plan – Monitoring and evaluation) : Score maximum =3 | | | | | | | | | |
| | Coordination | 0,93 | n/a | n/a | n/a | 1,08 | 0,91 | 0,82 | | |
| | Institutional Arrangement | 0,88 | n/a | n/a | n/a | 1,19 | 0,82 | 0,64 | | |
| | Financial mechanism | 0,73 | n/a | n/a | n/a | 0,92 | 1,27 | 0,00 | | |
| | Integrated plan | 1,17 | n/a | n/a | n/a | 0,77 | 1,55 | 1,18 | | |
| | Monitoring and evaluation | 0,70 | n/a | n/a | n/a | 1,00 | 0,64 | 0,45 | | |
| 1.3.1.1 | # of regional BPORs costed with PPP water supply models, and integrating gender, community diversity, climate vulnerability dimensions | 0 | n/a | n/a | n/a | | | | MEEH | |
| 1.3.1.2 | # of communes contracting with private sector for WASH service delivery | 46 | n/a | n/a | n/a | 2 | 11 | 33 | Secondary data collection from MEEH | P31 S3322 |

| N° | Performance Indicators | VALUES | | | | | | | Sources | Page & Section |
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| | | | | | | | | | and its Regional Departments. | |
| 1.3.1.2a | % of WSP paying taxes to communes | 7% | n/a | n/a | n/a | n/a | 11% | 0% | Secondary data collection from MEEH and its Regional Departments and Communes | P39 S3352 |
| **IR1.4 Increased community control over WASH services** | | | | | | | | | | |
| 1.4.1 | % of fokontany WASH committees that are functional | 17,22% | n/a | n/a | n/a | 20,31% | 26% | 10,89% | Visit at the Commune Office and discussion with the mayor and / or the chairman of the communal council. | P40 S3361 |
| 1.4.1.2 | # of communes with formal complaints mechanisms from users and effectively and timely treated on | 0% | n/a | n/a | n/a | 0% | 0% | 0% | Visit at the Commune Office and discussion with the mayor and / or the chairman of the communal council. And WASH infrastructure managers | P41 S3362 |
| | % of municipalities reporting verbal complaints to managers, Fokontany Chiefs, community meetings and / or Communal Officers | 30,16% | n/a | n/a | n/a | 25,93% | 30,77% | 38,42% | | |

| SO2 - Private sector engagement in WASH service delivery increased and improved | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.1 | % of households satisfied with WASH services provided by enterprises | | | | | | | | | P60 S3452 |
| | *Not satisfied* | 8,33% | | | | n/a | 13,04% | 0,00% | | |
| | *Little satisfied* | 50,00% | | | | n/a | 56,52% | 38,46% | | |
| | *Satisfied* | 36,11% | | | | n/a | 21,74% | 61,54% | | |
| | *Very satisfied* | 5,56% | | | | n/a | 8,70% | 0,00% | | |
| 2.2 | % of marginalized respondents who reported improvements in their access to WASH services during the year | 2,48% | 0,20% | 2,08% | 2,88% | 2,68% | 2,27% | 2,49% | Household survey-WASH infrastructures inventory – Community Focus group | P50 S3433 |
| 2.3 | # of people gaining access to basic drinking water services as a result of USG assistance (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 29 065[3] | n/a | n/a | n/a | - | 18 785 | 10 280 | Household survey-WASH infrastructures inventory | P51 S34324 |
| | *Poorest* | 3 981 | n/a | n/a | n/a | | | | | |
| | *Poor* | 5 077 | n/a | n/a | n/a | | | | | |
| | *Medium* | 3 046 | n/a | n/a | n/a | | | | | |
| | *Wealthy* | 12 899 | n/a | n/a | n/a | | | | | |
| | *Wealthiest* | 4 062 | n/a | n/a | n/a | | | | | |
| | ***Total*** | **29 065** | | | | | | | | |
| | *Men* | 17 284 | n/a | n/a | n/a | | | | | |
| | *Women* | 11 781 | n/a | n/a | n/a | | | | | |
| | ***Total*** | **29 065** | | | | | | | | |
| 2.4 | # of people receiving improved service quality from an existing basic drinking or safely managed water service as a result of USG assistance | 66 077 | | | | 0 | 25 893 | 40 184 | Household survey | |

[3] For all population in the 3 regions

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.6 | % of community water systems with functioning management committee (or other management structures) | 19,38% | n/a | n/a | n/a | 36,90% | 18,75% | 5,56% | WASH infrastructure Inventory | Infras report |
| 2.7 | Liters of water used per capita per day | 32,78 | 1,45 | 29,90 | 35,66 | 30,12 | 35,84 | 32,79 | Household survey | P51 S3441 |
| | Fountain, Lake, River | 33,36 | 1,93 | 29,54 | 37,19 | 30,75 | 36,90 | 32,28 | | |
| | Unimproved Wells | 27,20 | 1,71 | 23,80 | 30,60 | 27,39 | 29,12 | 26,83 | | |
| | Unprotected public taps | 26,77 | 2,56 | 21,70 | 31,85 | 23,27 | 27,97 | 55,00 | | |
| | Protected public taps | 39,86 | 5,97 | 28,01 | 51,72 | 30,73 | 31,62 | 46,28 | | |
| | Shared connection | 48,16 | 8,74 | 30,81 | 65,50 | 0,00 | 48,76 | 25,60 | | |
| | Individual connection | 39,46 | 4,96 | 29,61 | 49,32 | 0,00 | 31,50 | 42,83 | | |
| | Improved Wells | 28,01 | 3,42 | 21,22 | 34,80 | 33,41 | 27,14 | 16,33 | | |
| | Drilling | 34,15 | 8,16 | 17,95 | 50,34 | 32,75 | 23,77 | 40,00 | | |
| | impluvium | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | | |
| | Others (rainwater, bottled water ...) | 32,37 | 3,34 | 25,74 | 39,00 | 32,37 | 0,00 | 0,00 | | |
| 2.8 | % commune [4] with 65% water supply coverage | 79,97% | 2,18% | 75,65% | 84,28% | 86,72% | 80,96% | 73,21% | WASH infrastructure Inventory | Infras report S3443. |
| 2.9 | % HH using water for productive livelihood purposes | 26,85% | 2,75% | 21,38% | 32,31% | 30,46% | 34,85% | 17,48% | Household survey | P56 S3442 |
| | All types of water | | | | | | | | | |
| | *Agriculture/livestock* | 24,10% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Trade* | 1,65% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Handcraft* | 0,42% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Seasonal activity* | 0,40% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *(small scale) Mining* | 0,19% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Others* | 0,08% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | All types od water except rivers/lakes and boreholes | | | | | | | | | |
| | *Agriculture/livestock* | 23,45% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Trade* | 2,49% | n/a | n/a | n/a | n/a | n/a | n/a | | |

[4] The calculation of this indicator is based on the beneficiary populations of the water points in the infrastructure inventory, regardless of the type of sources, the quality and / or the duration of the access.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Handcrafting* | 0,39% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Seasonal activity* | 0,32% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Mining (small scale)* | 0,12% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| | *Other* | 0,08% | n/a | n/a | n/a | n/a | n/a | n/a | | |
| 2.10 | Time spent collecting water from a basic or improved source ***(mn)*** | | | | | | | | Household survey | P49 S3431 |
| | *Basic*[5] | 13 | 1 | 10 | 13 | 12 | 10 | 13 | | |
| | *Improved* | 14 | 2 | 12 | 17 | 17 | 13 | 13 | | |
| **IR2.1 Improved WASH products, technologies, services and business models** | | | | | | | | | | |
| 2.1.1.5 | # of communes with at least one enterprise offering consumer WASH products and/or services that is also linked to or directly offering credit services | 4 | n/a | n/a | n/a | 0 | 3 | 1 | Key informers: *Atsinanana/Brickaville/Brickaville (Action&Développement) *Atsinanana/Brickaville/Ambinaninony (Diontotolo) *Atsinanana/Vatomandry/Vatomandry (St Gabriel) *Vatovavy Fitovinany/Ikongo/Tolongoina (Bushproof) | |
| 2.1.1.6 | % of households using savings and loans mechanisms | 6,08% | 1,30% | 3,50% | 8,66% | 0,96% | 10,27% | 7,39% | Household survey-Secondary data from Mada_MFI and VSLA | P61 S3461 |
| 2.1.1.7 | # of health and WASH providers using financing mechanisms | 0 | n/a | n/a | n/a | n/a | n/a | n/a | WASH stakeholders and MFI partners | P63 S3462 |
| 2.2.1 | % of functional, sustainably managed water systems and sanitation facilities | 11,13% | n/a | n/a | n/a | 11,46% | 8,36% | 13,57% | WASH infrastructure Inventory | P75 S3451 |

[5] A basic water service is a water service from an improved source with a collection time of less than 30 minutes.
However, our indicator for basic drinking water services, and as discussed during meetings, also emphasized the year-round availability of water.
Some communes have improved water sources with average collection times of less than 30 minutes, but water availability is only 10 or 11 months per year.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.2.2 | # of of people gaining access to basic drinking water services as a result of USG assistance (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 29 065 | n/a | n/a | n/a | - | 18 785 | 10 280 | Household survey | P51 S34324 |
| | *Poorest* | 3 981 | n/a | n/a | n/a | | | | | |
| | *Poor* | 5 077 | n/a | n/a | n/a | | | | | |
| | *Medium* | 3 046 | n/a | n/a | n/a | | | | | |
| | *Wealthy* | 12 899 | n/a | n/a | n/a | | | | | |
| | *Wealthiest* | 4 062 | n/a | n/a | n/a | | | | | |
| | ***Total*** | **29 065** | | | | | | | | |
| | *Men* | 17 284 | n/a | n/a | n/a | | | | | |
| | *Women* | 11 781 | n/a | n/a | n/a | | | | | |
| | ***Total*** | **29 065** | | | | | | | | |
| 2.2.3 | # of people gaining access to safely managed drinking water services as a result of USG assistance (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 12 818 | 10 261 | - 7 549 | 33 186 | - | 2 538 | 10280 | Household survey-WASH infrastructure Inventory | P53 S34325 |
| | *Poorest* | 0 | 0 | 0 | 0 | | | | | |
| | *Poor* | 0 | 0 | 0 | 0 | | | | | |
| | *Medium* | 0 | 0 | 0 | 0 | | | | | |
| | *Wealthy* | 12 818 | 10 261 | - 7 549 | 33 186 | | | | | |
| | *Wealthiest* | 0 | 0 | 0 | 0 | | | | | |
| | ***Total*** | **12 818** | | | | | | | | |
| | *Men* | 8 064 | 6 508 | - 4 854 | 20 984 | | | | | |
| | *Women* | 4 754 | 3 754 | - 2 698 | 12 205 | | | | | |
| | ***Total*** | **12 818** | | | | | | | | |
| | *PwD* | 0 | 0 | 0 | 0 | | | | | |
| | *0 - 5 years* | 508 | 494 | - 473 | 1 488 | | | | | |
| | *5 - 10 years* | 1 869 | 1 811 | - 1 725 | 5 463 | | | | | |
| | *10 - 12 years* | 0 | 0 | 0 | 0 | | | | | |
| | *12 - 15 years* | 2 804 | 2 716 | - 2 588 | 8 195 | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *15 - 19 years* | 1 950 | 1 340 | - 710 | 4 610 | | | | | |
| | *19 - 25 years* | 935 | 905 | - 863 | 2 732 | | | | | |
| | *25 - 60 years* | 3 819 | 2 890 | -1 918 | 9 556 | | | | | |
| | *Over 60 years* | 935 | 905 | - 863 | 2 732 | | | | | |
| | ***Total*** | **12 818** | | | | | | | | |
| 2.2.4 | # of institutional settings gaining access to basic drinking water services as a result of USG assistance | 28 | n/a | n/a | n/a | 0 | 21 | 7 | WASH infrastructure Inventory and data from USG funded projects | |
| 2.2.1.1 | # of water systems constructed or rehabilitated that are designed to program criteria for environment, climate resilience, sustainable operation costs, gender responsiveness | 392 | | | | 127 | 83 | 182 | WASH infrastructure Inventory | Rapp. Infras. |
| 2.2.1.2 | # of basic sanitation facilities provided in institutional and Public settings as a result of USG assistance | 34 | n/a | n/a | n/a | 0 | 28 | 6 | WASH infrastructure Inventory | Rapp. Infras. |
| **SO 3 : Adoption of healthy behaviors and use of WASH services accelerated** | | | | | | | | | | |
| 3.1 | % of households with soap and water at a hand washing station used by all family members (disaggregated by wealth quintile; by gendered household; by households with a person with disability) | 16,08% | 1,95% | 12,21% | 19,95% | 16,16% | 23,75% | 10,11% | Household survey | P72 S3532 |
| 3.2 | # of communities verified as open defecation free (ODF) as a result of USG assistance | 241 | n/a | n/a | n/a | 4 | 8 | 229 | MIKOLO, MEAH, FARARANO, ASOTRY | P77 S3545 |
| 3.3 | % of people (male and female) with access to improved sanitation facilities | 0,43% | 0,23% | -0,02% | 0,89% | 0,50% | 1,01% | 0,00% | Household survey | P75 S3541 |
| | *Men* | 0,23% | 0,11% | 0,01% | 0,46% | 0,30% | 0,48% | 0,00% | | |
| | *Women* | 0,20% | 0,12% | -0,03% | 0,43% | 0,20% | 0,52% | 0,00% | | |
| 3.4 | % of households with children 0-59 months using an improved sanitation facility | 0,16% | 0,09% | -0,02% | 0,34% | 0,29% | 0,23% | 0,00% | Household survey | P75 S3541 |
| 3.5 | % of households citing the four WASH messages | 1,29% | 0,58% | 0,14% | 2,44% | 0,10% | 0,37% | 3,14% | Household survey | P70 S3522 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Hand washing* | 25,36% | 2,44% | 20,51% | 30,20% | 25,20% | 30,30% | 21,69% | | |
| | *Use of washable latrines*[6] | 23,50%[7] | 2,42% | 18,69% | 28,31% | 7,07% | 31,47% | 31,93% | | |
| | *Preserving water potability from the water point to consumption* | 3,24% | 0,83% | 1,60% | 4,88% | 1,56% | 5,21% | 3,20% | | |
| | *Menstrual hygiene* | 11,01% | 1,76% | 7,52% | 14,51% | 9,76% | 11,92% | 11,43% | | |
| **IR3.1 Improved hygiene and sanitation BC solutions through applied research** | | | | | | | | | | |
| 3.1.2 a) | % of caretakers of children 7-23 months that reported using soap for HW at least two critical junctures | 3,59% | 0,59% | 2,43% | 4,76% | 4,40% | 3,53% | 2,92% | Household survey | P72 S3533 |
| 3.1.2 b) | % of caretakers of children 7-23 months that reported using soap for HW during the five critical junctures | 0,51% [8] | 0,21% | 0,09% | 0,94% | 0,92% | 0,56% | 0,12% | Household survey | P72 S3533 |
| | ***Distribution by critical junctures (one by one)*** | | | | | | | | | |
| | *Before eating* | 4,52% | 0,66% | 3,21% | 5,83% | 4,42% | 5,95% | 3,51% | | |
| | *Before preparing and cooking food* | 2,32% | 0,49% | 1,35% | 3,29% | 3,19% | 2,58% | 1,34% | | |
| | *Before breastfeeding* | 1,20% | 0,29% | 0,63% | 1,77% | 1,90% | 1,26% | 0,53% | | |
| | *After going to latrines* | 2,90% | 0,50% | 1,91% | 3,89% | 3,34% | 2,64% | 2,71% | | |
| | *After changing the child's diaper or washing their backsides* | 1,78% | 0,39% | 1,01% | 2,55% | 2,28% | 1,71% | 1,39% | | |
| 3.1.3 | % of households practicing safe water storage | 4,67% | 1,31% | 2,06% | 7,27% | 4,18% | 1,97% | 7,17% | Household survey | P79 S3551 |
| 3.1.4 | % of households with sanitary facilities to dispose of child feces hygienically | 34,49% | 2,87% | 28,79% | 40,18% | 51,57% | 19,47% | 31,41% | Household survey | P76 S3542 |
| 3.1.5 | % of households using soap for washing hand | 25,36% | 2,44% | 20,51% | 30,20% | 25,20% | 30,30% | 21,69% | Household survey | P72 S3532 |

[6] A washable and cleanable latrine must still meet the requirements (with cover, tile / floor without hole, with ventilation, washable, door can be closed, with roof) to be categorized as an improved latrine.
[7] Knowing and able to cite the message without necessarily having access to this type of latrine (washable and cleanable)
[8] Using soap during all the 5 crictical junctures

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **IR3.2 Improved implementation of WASH BC at all levels: communities, government and private sector** | | | | | | | | | | |
| 3.2.1 | Rates of ODF slippage in villages | 27,28% | n/a | n/a | n/a | 8,20% | 1,98% | 78,39% | BPOR - MEEH | P78 S3545 |
| 3.2.2 | % of girls practicing safe, private MHM in WASH-friendly schools (+10 years) | ND | n/a | n/a | n/a | | | | Ministry of education | P82 S3563 |
| 3.2.3 | # of people gaining access to a basic sanitation service as a result of USG assistance (disaggregated by wealth quintile; by sex; by age, by persons with disability) | 6 362 | 5 281 | - 4 121 | 16 845 | 1033 | 5329 | 0 | | |
| | *Poorest* | 0 | 0 | 0 | 0 | | | | | |
| | *Poor* | 4 099 | 3 988 | -3 818 | 12 016 | | | | | |
| | *Medium* | 0 | 0 | 0 | 0 | | | | | |
| | *Wealthy* | 0 | 0 | 0 | 0 | | | | | |
| | *Wealthiest* | 2 263 | 1 562 | -838 | 5 363 | | | | | |
| | ***Total*** | **6 362** | | | | | | | | |
| | *Men* | 3 148 | 2 485 | -1 784 | 8 081 | | | | | |
| | *Women* | 3 214 | 2 812 | -2 368 | 8 795 | | | | | |
| | ***Total*** | **6 362** | | | | | | | | |
| | *PwD/PMI* | 0 | 0 | 0 | 0 | | | | | |
| | *0 - 5 years* | 410 | 399 | -382 | 1 202 | | | | | |
| | *5 - 10 years* | 410 | 399 | -382 | 1 202 | | | | | |
| | *10 - 12 years* | 0 | 0 | 0 | 0 | | | | | |
| | *12 - 15 years* | 820 | 798 | -764 | 2 403 | | | | | |
| | *15 - 19 years* | 754 | 521 | -279 | 1 788 | | | | | |
| | *19 - 25 years* | 820 | 798 | -764 | 2 403 | | | | | |
| | *25 - 60 years* | 2 738 | 2 103 | -1 437 | 6 914 | | | | | |
| | *Over 60 years* | 410 | 399 | -382 | 1 202 | | | | | |
| | ***Total*** | **6 362** | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.2.4 | # of basic sanitation facilities provided in institutional settings as a result of USG assistance | 28 | n/a | n/a | n/a | 0 | 21 | 7 | | |
| 3.2.7 a) | % of health centers achieving WASH-friendly status | 5,43% | n/a | n/a | n/a | 1,01% | 11,16% | 3,60% | Ministry of health | P81 S3561 |
| 3.2.7 b) | % of schools achieving WASH-friendly status | 0% | n/a | n/a | n/a | 0% | 0% | 0% | Ministry of education | P81 S3562 |
| 3.2.1.2 | # of VSLA members who reported investing in WASH services or products (latrine, water connection, …) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | FAA, FARARANO, ASOTRY, MAHEFA MIARAKA, UNICEF, BLUE VENTURES, MIKOLO, CRS, CARE | |
| | % of household members of VSLA | 11,46% | 2,04% | 7,42% | 15,51% | 1,88% | 14,76% | 17,42% | | |
| | # of household members of VSLA | 118 383 | 20 973 | 76 750 | 160 014 | 6 472 | 44 384 | 67 727 | | |
| | % of households investing in WASH, excluding members of VSLA | 0,30% | 0,23% | -0,17% | 0,76% | 0,19% | 0,82% | 0,00% | | |
| | # of households investing in WASH, excluding member of VSLA | 3 083 | 2 418 | -1 717 | 7 882 | 638 | 2 444 | - | | |
| 3.2.1.3 | # of gender sensitive marketing communications developed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| **IR 3.3 Evidence-based WASH BC and hygiene promotion shared to influence policy and practice** | | | | | | | | | | |
| 3.3.1 | # of MoWEH-endorsed “how-to” guides for implementing evidence-based, community-led WASH and health initiatives | 0 | | | | | | | Ministry of education, Minstry of health, Ministry in charge of water | |
| 3.3.1.1 | # of joint reviews of current WASH BC approaches | n/a | | | | | | | Ministry in charge of water | |

# Chapter 1. Introduction

## 1.1 Overview of the RANO WASH Project

Madagascar is known for its wealth of freshwater resources, yet water supply and access to sanitation remain serious issues throughout the country. More than 60 percent of the island's 23 million people do not have access to an improved water supply, and this rate is over 70 percent for the most vulnerable people living in rural areas. Limited access to clean water, the widespread practice of open defecation, poor management of child feces, and poor hygienic practices make water-related diseases, such as diarrhea, the second most common cause of child mortality in Madagascar. In 2012, national access to clean drinking water was only 46% (42% in rural areas and 62% in urban areas). A similar situation can be seen with access to basic sanitation. These figures do not take into account the various barriers to basic water and/or sanitation access, such as quality of infrastructure, price, distance, time allocated, etc., faced by communities.

Since July 2008, WATER 8 in Stockholm, the water, sanitation, and hygiene (WASH) sector has grown in importance and gained a full ministry. In 2013, the Ministry of WASH prepared the Strategy and Planning Document for Sanitation and Hygiene. Five axes were developed, namely:

Axis 1: Development of Drinking Water

Axis 2: Development of Sanitation

Axis 3: Development of Public-Private Partnerships

Axis 4: Private Sector Development

Axis 5: Integrated Water Resources Management (IWRM)

In 2005, the National Program for Access to Drinking Water and Sanitation (PNAEPA)'s 3-year plan was validated. It was then updated and extended to cover another 3-year period (2008-2012). This plan served as a tool for the operationalization of water and sanitation sector policy, monitoring and evaluation of sector activities, and also as a key document for negotiations within the WASH sector, as well as with technical and financial partners.

The Strategic Orientation Note, issued in January 2012, was established to frame the different strategic objectives concerning the Drinking Water, Sanitation and Hygiene Sector (SEPAH) and all interventions in the SEPAH, in accordance with the major regional and global strategies (Sustainable Development Goals, etc.). These framework documents have been consolidated into the 2015-2019 WASH sector roadmap, further strengthening the country's commitment to universal access to drinking water, sanitation and hygiene infrastructure.

In response to this situation, CARE, in partnership with Catholic Relief Services (CRS), WaterAid, and local partners Bushproof and Sandandrano, presented an innovative approach under the Rural Access to New Opportunities in Water, Sanitation, and Hygiene (RANO WASH). The consortium capitalized on strong existing relationships with the Ministry of Water, Energy and Hydrocarbons (MEEH), municipalities and key stakeholders, and worked in close coordination with other USAID programs to address critical gaps in the WASH sector.

According to the MEEH's Water and Sanitation Sector 2013 Yearbook, water and sanitation statistics in Madagascar are among the worst in the world and the country is far from achieving universal access to WASH services in 2030. The challenges to accelerate and expand the use of improved, sustainably managed WASH services are three-fold: Weak WASH governance, monitoring, and management capacities; Weak private sector/WASH supply; and Unhealthy behaviors/low demand for WASH. RANO WASH aims to increase equitable and sustainable access to WASH services to maximize the impact on human health and nutrition and preserve the environment in 250 rural communes in Vatovavy Fitovinany, Atsinanana, Amoron'i Mania, Haute Matsiatra, Vakinankaratra, and Alaotro Mangoro. The project posits the following development hypothesis: (1) if WASH governance and systems, and capacities to manage WASH services accountably are

strengthened; (2) if quality WASH products and services are reliably available and affordable for all; and (3) if demand for improved WASH behaviors and services grows in an expanded consumer market; then the incidence and prevalence of childhood diarrhea, exposure to environmental enterothopy, and under five mortality rates will decrease. The project catalyzes on the system-wide changes and learning needed to accelerate the delivery of sustainable and inclusive WASH services to achieve the 2030 development goals.

## 1.1. Objectives and Scope of the Baseline Study

The overall objectives of this study are to (i) identify project sub-indicators and accompanying definitions and propose methodologies to measure them (ii) establish baseline values of the impact, outcome, and results indicators in accordance with the project's logical framework, including detailed information on household behaviors, attitudes and practices, (iii) inventory existing public water points using the forms adopted in the National Procedures Handbook, and (iv) inventory water and sanitation infrastructures at all public schools and health centers (CSB) in the project intervention zones.

This baseline study will establish the starting point of the various indicators and will be compared with the situation at the end of the project. This will allow qualitative and quantitative assessments to me made about the contribution of each component in achieving project objectives.

The specific objectives of the study are as follows:

a. Identify project sub-indicators and accompanying definitions and propose methodologies to measure them;
b. Determine the baseline values of the project indicators, conduct in-depth analysis for each indicator, and confirm / revise the related annual objectives for the project life and validate the assumptions (see list of indicators in Annex II);
c. Describe in a structured and analytical manner the current situation in the targeted regions in relation to the types of activities planned by the Project and establish trends in the areas of governance, improvement of public-private partnership (PPP), Behavior Change and Gender or the place and roles played by women and persons with reduced mobility within the WASH sector, at home, at the level of community structures, in decision-making process at local / regional level ...;
d. Carry out a baseline of socio-economic profiles of target communities in order to identify the typology of all direct and indirect beneficiaries and identify the "Wealth Quintile" with their characteristics; Design data collection tools allowing periodic measure of changes in key indicators throughout the duration of the Project;
e. Identify opportunities and potential threats for the implementation of the project in each of the target areas;
f. Inventory existing water points using forms in the National Procedures Handbook;
g. Inventory water and sanitation infrastructures at public schools, health centers/CSBs and public infrastructures in the project's intervention zones.
h. Propose the method of implementation for the establishment of the baseline.

In consultation with the donor, the project decided to limit the initial study to the Alaotra Mangoro, Atsinanana and Vatovavy Fitovinany regions, as the interventions are being implemented in these 3 regions in Year 1.

## 1.3. Socio-economic, topographical and climatic contexts of the three intervention regions

Alaotra Mangoro[9] - Located between latitude 17 ° 19 'and 19 ° 90' S and longitude 48 ° 12 'and 48 ° 39' E, elongated in a sub-meridian direction of 400 km in length and an average width of 85 km. Alaotra Mangoro, has a surface area of 33.054 km$^2$, comprises 5 districts, 3 of which include the Lake Alaotra basin, and 79

[9] CREAM – Monograohical survey

municipalities. It has an average density of 33.66 inhabitants/km$^2$, unequally distributed (The district of Andilamena with its 12 inhabitants/km$^2$ has the lowest density). The majority of the population comes from the Sihanaka tribe in the north and Bezanozano and Betsimisaraka tribes in the south and east. The Merina and Betsileo tribes arrived in the last series of migration. The latter are a minority, but present throughout the region. Significant seasonal migration events occur during the rice planting and harvesting period. Parts of Alaotra Mangoro are isolated during the rainy season. Nevertheless, Ambatondrazaka is connected to the National Road (NR-44) and railway.

The northern part of the Region is occupied by lacustrine basins of Alaotra, Andilamena and Didy, which alternate with vast intermediate plateaux which have an average altitude of 700 meters. Low areas are composed of marshes called '' Zetra '' and the open waters of Alaotra and Antsomangana. The watersheds are weakened by frequent bush fires and significant erosion is noticeable in the region, which are characterized by "lavakas". In the southern zone called Mangoro (districts of Moramanga and Anosibe An'ala), cliff formations mixed with marshy depressions can be seen.

Characterized by warm and humid tropical climate, with the influence of trade winds all year long and average temperatures between 18 and 20 ° C, the southern part is characterized by high pluviometry while that of the North sometimes suffers from temporary droughts and waits for the passage of tropical depressions in order to meet the water needs for crops.

The region is the main rice basin of Madagascar, with approximately 120,000 ha of rice fields. The other main crops are cassava, potatoes, maize and sugar cane. Cattle breeding, fish farming and sheep farming have developed in response to the ravages of the African porcine fever epidemic, as well as poultry farming and palm farming. This region is characterized by its economic dynamism and presents enabling conditions for a stronger integration of the farmer community with the agroindustrial sector. Some households in the Ambatondrazaka and Amparafaravola districts collect substantial income from fishing.

The Region includes areas with high value of biodiversity and timber. Alaotra Mangoro has 350.000 hectares of protected areas (Integral Nature Reserves, Special Reserves, National Park, Forest Reserve, Classified Forests, ...). A forest plantation of 60.000 ha for industrial use is managed by the company Fanalamanga. They hold particular interests in hydro-climatic regulation (water source, carbon capture, etc.), research, the wood industry and ecotourism. These areas are rich in mineral resources, such as Andasibe and Moramanga where graphite can be found and nickel and cobalt are seen in Ambatovy and Analamay of Moramanga.

Atsinanana[10]- With a significant economic and touristic vocation, the Atsinanana Region is located in the province of Toamasina. It is located 365 Km from the capital of Madagascar. Its length extends over 285 km and its width 75 km. It covers an area of 22,382 km$^2$ and represents 3.78% of the surface area of Madagascar. It is limited on the north by the Analanjirofo region, on the west by the Alaotra Mangoro, Vakinankaratra and Amoron'i Mania regions; on the South by the Vatovavy Fitovinany region and on the East by the Indian Ocean. It is composed of 7 districts namely Toamasina I, Toamasina II, Brickaville, Vatomandry, Antanambao Manampotsy, Mahanoro, and Marolambo.

The region of Atsinanana differs from the surrounding areas by an altitude which varies according to the zones: (i) the littoral, the altitude is from 0 to 300 m- (ii) the eastern part and ombrophilous cliff, 300 to 800m- (iii) the eastern part with an altitude of 900 to 1200m.

Its specificity is also marked by the juxtaposition of varied forms of relief and landscape namely the narrow coastal plain which have a huge agricultural potential due to the quality of its soils allowing various crops to grow. Large fertile plains occupy almost all of the coastal strip, which is favorable to irrigated cultivation but requires large hydro-agricultural development works. The hilly terrain is noticeable when moving from the coast westward and is located in the western part of Vatomandry and in the center part of Mahanoro.

The region of Atsinanana is served by many rivers, most of them flowing fast on the middle part of their courses. River worthiness is limited by the presence of numerous rocky sills when moving to the mainland. The

[10] CREAM, Monographic survey

water flow is directly linked to rainfall and the rivers and water levels are affected. Floods are unexpected and violent during the rainy season. The entire coastal zone includes a multitude of ferries and bridges, often destroyed during floods. The most important lakes are: Rasoabe Lake, Rasoamasay Lake, Ihosy Lake and Andranobe Lake which are located along the Pangalanes Canal.

The Atsinanana region is known for its quality and quantity of natural forests and high biological diversity of plant formations, which are greatly diverse depending on climatic and soil conditions. These forests are the home of endemic species at risk of disappearing as a result of land clearing and overexploitation.

Mangroves also exist in the Atsinanana region, but at a relatively low density. They are mainly found in the North, and only fragments of mangrove adorn the coast.

Due to its geographical position delimited by the Indian Ocean in the East, the climate of the Atsinanana region is part of the tropical humid climate with a high annual rainfall but decreasing from the East/coastal to the interior mainland. The influence of the trade wind throughout the year maintains moderate temperatures with an average temperature between 18 and 28 ° C.

Vatovavy Fitovinany[11]- The Vatovavy Fitovinany Region is part of the former province of Fianarantsoa and is located in the southeastern part of Madagascar. It is delimited in the North by the Atsinanana Region, in the South by the Atsimo Atsinanana Region, in the East by the Indian Ocean and in the West by the regions of Haute Matsiatra and Amoron'i Mania. It extends geographically between longitudes 47 ° 23 'and 48 ° 34' and latitudes 20 ° 20 'and 22 ° 30', with an approximate length of 246 km (coastline), a width ranging from 75 km to 100 km and a surface area of 20.183 $km^2$ and composed of six districts: Ifanadiana, Ikongo, Manakara, Mananjary, Nosy Varika and Vohipeno. The capital city of the region is Manakara, about 720 km from the capital Antananarivo.

The Vatovavy Fitovinany Region is constituted, from West to East, by a succession of mountains, cliffs, hills and coastal plain. The districts of Ifanadiana and Ikongo in the West of the region are characterized by a succession of mountains and cliffs. Those of Nosy Varika, Mananjary, Manakara and Vohipeno, on the coast and in the East of the region, are characterized by a landscape of low hills and coastal plains.

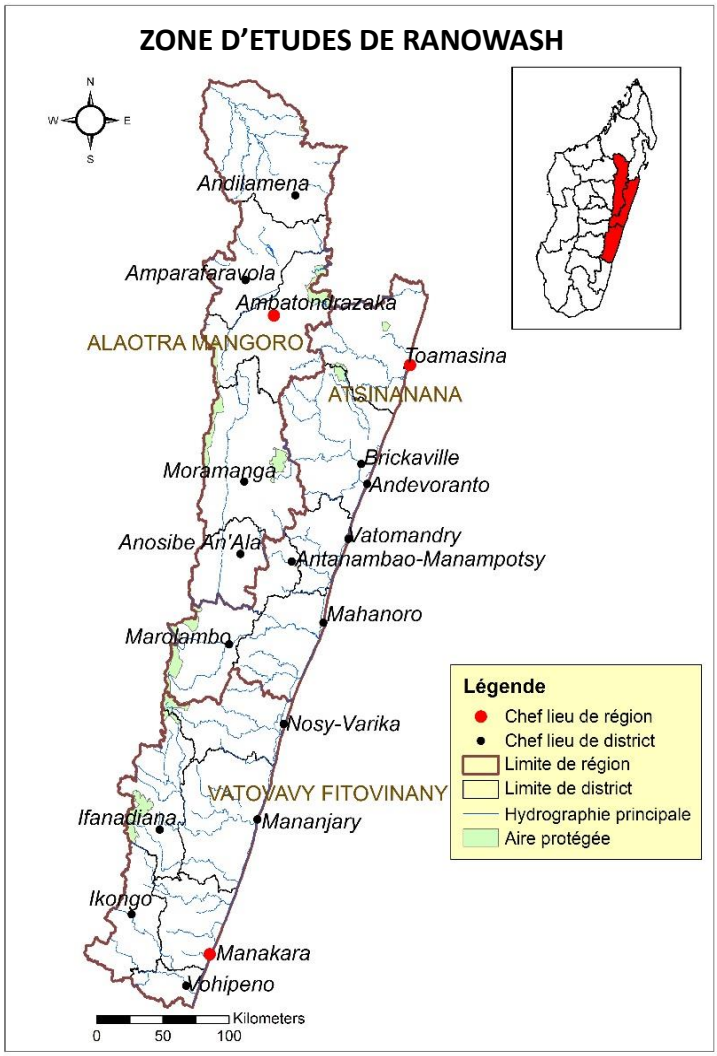
The main rivers of the region are, from north to south, Sakaleona, Mananjary, Namorona, Faraony and Matitanana. They are short rivers that spring up from cliffs where there are strong and fast currents, sometimes with more or less "long" falls. They then cross the hills on moderately fast currents before shooting into the sea. This fast profile at the source, then broad spread on the plains has enabled the formation of lagoons behind a dune bar on the littoral. The pangalane canal connects the different lagoons with each other. It runs along the east coast, from Toamasina to Vohipeno. It crosses the districts of Nosy Varika, Mananjary, Manakara and Vohipeno. The canal can be navigated but is sometimes only partially operational.

As for plant formation, deforestation has greatly changed the landscape of the region, like that of the entire south-east of the island. Thus, degraded vegetation gradually takes the place of natural forests after slash and burn practices, and flora and fauna diversity are lost. Current vegetation in the region can be described in five categories: shrinking primary forest, secondary (or savoka) forest, savannah, swamp vegetation, and agriculture zones.

There are many best-known conservation areas in the region: (i) Ranomafana National Park, established in 1991- (ii) Fandriana-Vondrozo Corridor- (iii) Marolambo Forest.

The Vatovavy Fitovinany Region, like the entire eastern part of Madagascar, can be described as having a tropical (hot and humid) climate, with, nevertheless, a certain difference between the climate of the coastal zone and that of the mountainous zone in its interior mainland.

[11] CREAM, Monographic survey


ZONE D'ETUDES DE RANOWASH
N
W
E
S
Andilamena
Amparafaravola
Ambatondrazaka
ALAOTRA MANGORO
Toamasina
ATSINANANA
Brickaville
Moramanga
Andevoranto
Vatomandry
Anosibe An'Ala
Antanambao-Manampotsy
Mahanoro
Marolambo
Nosy-Varika
VATOVAVY FITOVINANY
Ifanadiana
Mananjary
Ikongo
Manakara
Vohipeno
Kilometers
0
50
100
Légende
Chef lieu de région
Chef lieu de district
Limite de région
Limite de district
Hydrographie principale
Aire protégée

# Chapter 2. Methodology

For the identification of sub-indicators, in addition to the literature review, the consultant worked closely with the RANO WASH project team as well as MEEH representatives. Several working sessions were organized for in-depth review of key project indicators. The description of the indicators and sub-indicators were based on the definitions of the technical terms specific to the WASH (JMP definitions) sector and the RANO WASH project document.

For the field survey, the consultant's field data collection team was divided into three teams according to the type of data to be collected. One part of the team was in charge of the systematic inventory of WASH infrastructures at the commune level. Another part dealt with the household survey, while the remaining part ensured the secondary data collection and conducted focus group with communities. The fieldwork was expected to be conducted between March 10 and 25, 2018 but due to constraints (cyclone, floods, etc.) it has been extended until the beginning of April 2018. The household survey and the infrastructure inventory used both paper and tablet/smartphone survey forms to directly capture photographs and GPS coordinates. This also helped to rapidly perform the data entry in the database.

For data processing and analysis, researchers primarily used SPSS and STATA software. The required calculations to reach the indicator/ sub-indicators values were programmed and tested beforehand.

The Consultant team has encountered a number of constraints during the execution of this mandate: (i) The use of NTIC (Smartphone, Tablet, etc.) survey in remote areas especially when capturing GPS coordinates, requiring high quality devices (tablet smartphone)[12] and internet networks for greater data accuracy (ii) the lack or shortage of electricity faced in these remote/isolated areas and breakdowns inherent to NTIC device failures (iii) the passage of cyclones during the field data collection period, making access to some localities more difficult than it is already in normal times, (iv) some localities classified as red zones in terms of insecurity, such that local authorities had forbidden our teams to enter the area.

This section helps to understand the scope and limitations of the study and to understand the reasons behind the results presented in the other chapters. This chapter successively presents the methods for (i) the identification of sub-indicators, (ii) the inventory of water points and public wash facilities and (iii) the baseline study

## 2.1 Identifying sub-indicators

The identification of sub-indicators was based on the list of key project indicators, the projects logical framework and the description of the expected results stipulated in the RANO WASH project document. The notion of sub-indicators may vary from one indicator to another:

The sub-indicators are the breakdown of the indicators. This is the case, for example, for indicator 3.2.7 Number of WASH Friendly institutions; which consists of two sub-indicators, namely 3.2.7a Number of wash friendly health facilities and 3.2.7b Number of wash friendly schools.

Sometimes the sub-indicators help to better explain the indicators. This is the case, for example of indicator 1.4.1 Percentage of functional Fokontany WASH committees. A sub-indicator is generated to know already the existence of WASH committee at the Fokontany level without knowing if they are functional or not. This is sub-indicator 1.4.1a Percentage of Fokontany with WASH Committee.

It is also possible that the sub-indicators are the elements needed to calculate the indicator. For example, indicator 2.2.1. Percentage of water systems and sanitation facilities that are functional and sustainably managed has been obtained from four sub-indicators: (i) Number of functional sanitation facilities- (ii) Number of functional water systems- (iii) Number of sustainably managed sanitation facilities- (iv) Number of water systems sustainably managed.

[12] High quality devices mean expensive cost and adequate budget

## 2.2 Baseline study

The baseline study includes a quantitative study, consisting of collecting data from a sample of households; and a qualitative study, consisting of interviewing key informants and conducting focus group discussions for the collection of additional secondary data that cannot be obtained from either the infrastructure inventory or the quantitative survey. In addition, qualitative data enrich the relevance and interpretation of quantitative data.

### 2.2.1 Qualitative study

#### 2.2.1.1 Interview of key informants

The interview with key informants is done at different levels. At the central level, the team met with Responsibles from the RANO WASH project and those within the Minstry in charge of water and other projects such as Mikolo, Fararano and FAA. At the regional level, the concerned institutions were the Regional Bodies of the Ministry of water, those from the Ministry of Health and/or the National Office of Nutrition, key actors working in the WASH sector including development NGOs and projects/programs, as well as microfinance institutions. At the commune level, the team interviewed the municipal executive office and the local service providers. At the Fokontany level, the targeted individuals were local authorities such the Head of the Fokontany and local community leaders. This is a semi-structured interview; therefore, the interview guides have been developed according to the visited institutions. Some of the requested information was presented in electronic version, thus they have been collected directly in a data storage device (CD, USB) or sent by e-mail.

It should be noted that some information is unavailable due to a lack of data archiving system, and data privacy concerns for others. The list of key informants interviewed is annexed in this report.

#### 2.2.1.2 Focus group

Focus groups were organized at the community level. In addition to the other baseline data collection tools, the focus group provided a better understanding of local communities' perceptions of WASH sector issues, their proposal and their willingness to move forward in order to improve the situation. The focus group organized in each community was formed by a heterogeneous group, but our team of surveyors tried to ensure that women and youth were well represented among the participants. The focus group facilitation guide covers the following five topics:

- Achievements and problems in the WASH
- The complaint mechanism
- Open defecation
- Village Saving Loan Assocation
- Possible marginalization

### 2.2.2 Quantitative study

For this survey, respondents were households living among the Fokontany in the project intervention area, focusing on the heads of households. The quantitative method used a two-step cluster sampling method. The first step consists of selecting the clusters (primary sampling unit) based on the probability proportional to size (PPS) method. In the second step, households within the selected clusters are identified as a secondary sampling unit using the random sampling technique. A cluster corresponds to a Fokontany.

Households to be interviewed were selected using the "simple random walk" technique.

$$n = \frac{D * (Z_\alpha + Z_\beta)^2 * (P_1 x (1 - P_1) + P_2 x (1 - P_2))}{(P_2 - P_1)^2}$$

n = Minimum required size of the sample.

D = Sampling effect (set at 2 since we will use cluster sampling).

$P_1$ = Estimated level of an indicator measured as a proportion during the Baseline

$P_2$ = The expected level of the indicator at either the final assessment or the project area so that the quantity (P2- P1) is the order of magnitude of the change it is desired to detect.

$Z_\alpha$ = Z-score corresponding to the degree of confidence expected to conclude that an observed change in size (P2- P1) would not have happened by chance (α- level of statistical significance). For a 95% confidence interval, Zα is 1.645)

$Z_\beta$ = Z-score corresponding to the degree of confidence that one wishes to have to detect with certainty a change in size (P2- P1) if such a change has actually taken place (β- statistical power = 0.80, Zβ = 0.84).

Indicators of interest are the number of people with access to water and latrines. The sample size found is 1,747 responding households. According to the PPS method,

- 33 clusters (Fokontany) per Region were selected and the number of households surveyed by Fokontany was proportional to the number of population within the Fokontany resulting in 1,747 responding households

The principle is that the greater the number of clusters, the better the quality of the collected information. By maximizing the distribution for better representativeness, this number of 33 clusters per region was regularized. This is the threshold at which the number of households to be surveyed in each selected Fokontany will be representative, helping to better organize data collection (dispersion and inter-regional mobilization) and incurring affordable financial costs. Therefore; the final size of the sample was 593 for Alaotra Mangoro, 617 for Atsinanana and 537 for Vatovavy Fitovinany.

For all RANO WASH impact and effect indicators, the following statistical elements have been calculated: Frequencies or averages, Standard error and Confidence interval.

#### 2.2.2.1 Survey protocol

##### *2.2.2.1.1 Survey frame*

The survey frame used for the realization of this survey comes from the administrative delimitation of the BPOR in December 2017. This database provides for each commune retained for the study, the list of Fokontany, as well as the number of population by Fokontany which have been used in the sample selection procedure.

##### *2.2.2.1.2 Size of the households sample*

As stated in the ToRs, the total sample size and the number of people to be surveyed per region have been set so that changes in the variables of interest can be detected (population access rate to water and latrines) with a predefined confidence level. The total sample size for the 3 regions is 1,747 responding households, including 593 for Alaotra-Mangoro, 617 for Atsinanana and 537 for Vatovavy Fitovinany.

##### *2.2.2.1.3 Sampling procedures*

Choice of primary sampling units:

33 clusters (Fokontany) were drawn using the probability proportional to size (PPS) method. The size in question is the population of Fokontany.

Drawing procedure:

- For each line, representing a Fokontany, calculate the cumulative population size

- $\sum_{k=1}^{i} X_k$

- For each Fokontany i, assign the interval

- Calculate the drawing step (K= $\sum X_k/33$ )

- Generate a random number A according to a uniform law U (0, K)
- Select in the sample, the Fokontany who will understand in their associated intervals, the numbers A, A+K, A+2K, ..., A+59K

So, the clusters (Fokontany) have been drawn according to the PPS method. Each cluster retained in the sample has a probability of inclusion proportional to its population size.

Choice of secondary units:

After selecting the clusters, the second step consisted of distributing the population into households by using the average size 4.8 population per household set by INSTAT[13] (number of households per Fokontany = number of population per Fokontany / 4.8).

Households surveyed have been selected using the random walk method. The number of households surveyed in each Fokontany are proportional to the population of the Fokontany.

Let S be the set of Fokontany selected in the sample for a region

$n_i$ : The number of households to survey for Fokontany **i**

$X_i$ : Households of the Fokontany i

Nreg : Total number of households to be surveyed in the region

$$n_i = \frac{X_i}{\sum_{k \in S} X_k} Nreg$$

Replacement method:

In the event that a Fokontany is inaccessible or isolated, it will be replaced by another Fokontany of the same commune whose population size is more or less equal to the initial Fokontany. A replacement Fokontany will then be assigned for each drawn Fokontany.

Households to be surveyed were selected as follows:

- Calculate the ratio between the total number of households of the Fokontany (with the Head of the Fokontany) and the number of households in the sample (a = nbr Fokontany households / nbr Sample households)
- Choose a random number "d" between 1 and a
- Set the number "d" as a standard starting point (eg the house of the Head of Fokontany)
- The drawing step that will serve as a selection of the households to be investigated will then be: d, d + a, d + 2a, d + 3a ...
- The chosen direction is clockwise
- In the case where a household is not cooperative, choose the household preceding the selected household, if necessary, the next household and so on ...

Survey weight (for the household survey only)

The use of survey weights will ensure unbiased estimators for the variables of interest.
Let U be the set of Fokontany in a region
$X_i$: Population of Fokontany i
Let $P_{1i}$ be the the probability that Fokontany i belongs to the sample
$P_{1i} = \frac{X_i}{\sum_{k \in U} X_k}$x33

[13] INSTITUT NATIONAL DES STATISTIQUES

Let : $P_{k \vee i}$ be the probability that the household k is drawn in the Fokontany i
H : the average household size in the region

$$P_{k|i} = \frac{n_i}{X_i} H$$

$n_i$ is the number of households to survey in the Fokontany i as above defined.
The probability of inclusion of household k in the sample is: $P_k = P_{1i} x P_{k \vee i}$
The sampling weight attached to an observation is then given by:

$$W_k = \frac{1}{P_{1i} x P_{k \vee i}}$$

An unbiased estimator of a total for a Y variable of interest will be obtained by

$$\hat{T}_y = \sum_i \sum_k W_{ik} y_{ik}$$

#### 2.2.2.2 Statistical validity of the sampling

*Table 1 - Validity of the sampling*

| Region | Nb respondants | Expected Nb respondants |
|---|---|---|
| Alaotra Mangoro | 596 | 593 |
| Atsinanana | 618 | 617 |
| Vatovavy Fitovinany | 537 | 537 |
| **Total** | **1 751** | **1 747** |
| Rounding Error | 4 | |

*Source : Household survey– Etude baseline, SIMS/MSIS 2018*

The table below summarizes the distribution of the sample by Region and District. Since the calculation of the sample size is based on households, the disaggregations (by gender of the head of household, by region) are not statistically representative, because the sample size for each sub-group is not enough.

*Table 2 - Sample Distribution by Region and District*

| REGION or DISTRICT | Number of Fokontany | Number of households | % |
|---|---|---|---|
| **ALAOTRA MANGORO** | **33** | **576** | **33%** |
| AMBATONDRAZAKA | 8 | 154 | 9% |
| AMPARAFARAVOLA | 9 | 170 | 10% |
| ANDILAMENA | 2 | 15 | 1% |
| ANOSIBE AN'ALA | 4 | 39 | 2% |
| MORAMANGA | 10 | 198 | 11% |

| | | | |
|---|---|---|---|
| **ATSINANANA** | **33** | **625** | **33%** |
| ANTANAMBAO MANAMPOTSY | 1 | 18 | 1% |
| BRICKAVILLE | 4 | 50 | 3% |
| MAHANORO | 10 | 189 | 11% |
| MAROLAMBO | 4 | 85 | 5% |
| TOAMASINA II | 7 | 139 | 8% |
| VATOMANDRY | 7 | 144 | 8% |
| **VATOVAVY FITOVINANY** | **34** | **550** | **31%** |
| IFANADIANA | 5 | 52 | 3% |
| IKONGO | 6 | 100 | 6% |
| MANAKARA | 6 | 105 | 6% |
| MANANJARY | 7 | 108 | 6% |
| NOSY VARIKA | 5 | 97 | 6% |
| VOHIPENO | 5 | 88 | 5% |
| **Total** | **100** | **1 751** | **100%** |

*Source: Household survey- Baseline study, SIMS/MSIS 2018*

Some Fokontany were declared inaccessible and replaced by other Fokontany of the same selected Commune, keeping the expected initial sample sizes in these Fokontanys. Most of the reasons for inaccessibility were due to flooding with an impossible or dangerous river crossing when traveling to the target Fokontany due to the cyclone ELIAKIM. The Fokontanys replaced due to flooding are:

- Region ALAOTRA MANGORO - District Moramanga - Rural Commune of Lakato - Fokontany Sahamadio replaced by Fokontany Lakato
- ATSINANANA Region - Mahanoro District - Ambinanidilana Rural Commune - Fokontany Ambodinivato replaced by Fokontany Ampasimadinika
- ATSINANANA Region - Mahanoro District - Manjakandriana Rural Commune - Fokontany Ampitakilaka replaced by Fokontany Mahatsara
- Region VATOVAVY FITOVINANY - District Ikongo - Rural Commune of Manampatrana - Fokontany Ambohitsara Manambato replaced by the Fokontany Manampatrana

A Fokontany has been replaced because of insecurity.

- Region VATOVAVY FITOVINANY - District Ikongo - Rural Commune of Maromiandra - Fokontany Ambohimahasoa replaced by Fokontany Maromiandra

#### 2.2.2.3 Data Quality Control

Several mechanisms and procedures have been put in place to ensure the quality of the data.

- The entire process of designing the data collection tools was supervised and checked by the RANO WASH team before being validated.
- The questionnaire has been designed to minimize the risk of error and bias. The sequence and the organization of the questions follow a logic that putting in confidence the person interviewed, before tackling the sensitive questions. Filters and Goto were included to help administer questions and control responses.
- The training of the data collection team was organized according to the location of enumerators recruitment, facilitating the translations in local dialect.
- A pre-test session in Antananarivo helped to refine and finalize the tools.
- Supervisors checked the data at the end of each day before validation.

#### 2.2.2.4 Data entry, cleaning, analysis and processing

##### *a. Data Collection and Entry*

A mixed method was used from inspiration of the Computer Assisted Personal Interviewing (CAPI) method for collecting and entering data, which consists of equipping the enumerators with digital devices (tablets) by questioning face-to-face the identified targets and using survey forms to avoid data loss. The data was recorded in the tablet at each completed survey (one record). Each enumerator has a login to observe, add or delete records. Supervisors have logins of administrators allowing them to control the quality of the data and to correct the data collected.

The input mask was designed using “CSPro".

##### *b. Data cleaning, analysis, processing*

Due to the lack of permanent access to internet connections in the field and the lack of network coverage in almost half of the areas surveyed, the online database management was not possible, so the data was attached after carrying out the collection.
The data clearance was done on "Stata".

- Checking and correction of the identifiers of each observation to avoid duplicates (coded identifier from: region code, district code, commune code, fokontany code, household order number)
- Consistency test of the number of persons in the household and the disaggregation of the persons composing the household by age group;
- Consistency test between the existence of children under 5 in the household and the response for children under 5 with diarrhea during the two weeks preceding the survey;
- Consistency test between the water consumption and the number of people in the household;
- Checking the household expenses if they are zero;
- Reformulation of the answers obtained from open questions (ex: expenses for oil, insecticide, oil and soap, soap and sugar ...);
- Correction of aberrant or non-logical responses (intervention of enumerators and supervisors);
-

Data processing and analysis were done under the following software:

- Stata: calculation of indicator values and descriptive statistics (Mean/Average, standard deviation, confidence interval ...)
- MS Excel: formatting results and design graphs

## 2.3 Inventory of water points and Wash facilities

On the one hand, some indicators are fed by data on existing infrastructure and already used by communities to access WASH services. On the other hand, RANOWASH must ensure a good distribution of its potential infrastructures building and take into account the situations already in place. Inventory of water points and WASH infrastructures in the project intervention area, such as (i) improved wells - (ii) boreholes - (iii) standpipes - (iv) sanitation blocks and (v) impluvium, was thus need and has been realized.

The results were used to calculate several indicators such as:

- Institutions benefiting from basic sanitation facilities or having access to drinking water services.
- The management mode of infrastructures such as private or community management or the functionality of the management committees.
- Other indicators that are calculated from the combination of household survey data and those from the inventory, such as households with access to services through US government assistance requiring the identification of infrastructures benefiting from assistance by and intervention areas of projects funded by the US Government

It is a comprehensive inventory of "public" infrastructures in all the project's communes, including infrastructure in schools and health facilities. To this end, dedicated teams for the inventory visited all communes and carried out surveys of a responsible person (authority at the level of the Fokontany or other person responsible for overseeing the infrastructures at the level of the Fokontany for example infrastructure managers: users' associations or private manager mandated under leasing contract by the Fokontany or the Communes). These surveys were reinforced by observations and photos of the visited infrastructure.

## 2.4 Limitations of the methodology and constraints

- The quality of this method of collection is mainly due to enumerators: they are the ones who collect or receive contacts and administer the questionnaire. They had to tactfully probe respondents on partially answered questions in order to ensure they could register all details with transparency and objectivity.
- Rain during the start-up and the data collection period had a slight impact on the improvement of the data collection tools and the effective organization of the field mission.
- The data collection phase was disturbed by the passage of the cyclone ELIAKIM making some selected communes and Fokontany inaccessible. This is the case for the Andilamena District - Alaotra Mangoro Region and also some communes in the Atsinanana and Vatovavy Fitovinany regions. Due to the cyclone, data collection was extended by a few days in the three regions and some Enumerators had to continue to work while others returned with the data already collected.
- Given the difficult accessibility of certain areas/districts (Anosibe An'ala - Alaotra Mangoro, Marolambo - Atsinanana Region, Nosy Varika and Ikongo - Vatovavy Fitovinany Region), it was necessary to carry out local enumerator recruitment followed by local training knowing that the time for data collection was quite limited.
- Insecurity was a variable on its own. Banditry in Maromiandra Commune - Ikongo District - Vatovavy Fitovinany Region required survey zone replacements. In the district of Andilamena, the team was prohibited by district authorities to visit six Communes because of insecurity.
- Indicators related to the number of people having access to certain services (basic drinking water service or managed safely, basic sanitation service ...) are estimates and projections.

# Chapter 3. Results

The results developed in this section combine both the exploitation of quantitative and qualitative data as well as secondary data illustrated in the form of figures and/or tables. Sources are also mentioned at the bottom of the tables/figures.

In 2013, according to the Human Development Index (HDI), more than half of the Malagasy population lives in extreme poverty (56.5%) measured across the national threshold (374 941 Ariary) and nearly three quarters (77%) if the threshold is $ 1.25/day, following the World Bank 2005 Purchase Power Parity (PPP).

There is a dual causal relationship between poverty and undernutrition. On the one hand, undernutrition affects children's cognitive development, learning abilities and their academic performance and, in adulthood, their productivity. On the other hand, there is evidence that adults who have suffered from undernutrition in their childhood are at higher risk of developing chronic diseases (Lancet 2013). Nationally, the effects of under-nutrition can lead to economic losses equivalent to 2% or even 3% of gross domestic product (GDP) (Source: INSTAT, ENSOMD 2012).

## 3.1 Initial situation of results and expected effects of RANO WASH

### 3.1.1 Definition of indicators

| Indicators | Definition |
|---|---|
| % budget allocated to WASH in relation to GDP | Proportion of GDP allocated to Water, Sanitation and Hygiene. |
| % of households with access to basic drinking water services and safely managed drinking water services all year round. | Proportion of households meeting the following conditions:<br>Condition 1- Basic drinking water services: Drinking water from an improved water point, with a round trip for water collection not exceeding 30 minutes, including waiting time;<br>Condition 2- Safely managed drinking water services: drinking water from an improved water source ie home-based, available as needed and free of faeces and chemical contamination; |
| Percentage of households with under 5 children [2]with diarrhea in the two weeks preceding the survey | Proportion of diarrhea incidence among under five children in the two weeks preceding the survey. |
| Percentage of population with access to basic sanitation service | Proportion of populations in project areas with and using improved facilities not shared with other households.<br>Improved facilities include manual or mechanical flush toilets to the sewer system, septic tanks or pit latrines; improved pit latrines with ventilation, composting toilets or pit latrines with slabs. |

| Indicators | Definition |
|---|---|
| Percentage of stunted children aged 6 to 59 months | A child is considered stunted when their weight or height is below that of children of their age.<br>Stunting is defined as a weight and/or size less than -2DS related to the reference curves of the population from which it is derived. (A standard deviation is a difference between two parallel growth curves: the curve considered normal, and that of the child).<br>Proportion of children aged 6 to 59 months who are stunted, ie. With a weight or height below that of children of their age (less than-2 SD). |
| % underweight among under five children | Underweight is a measure of the child's weight in relation to his age. Proportion of children 0-59 months with underweight cases. |

### 3.1.2 Baseline of RANO WASH impact indicators

In Madagascar, malnutrition remains a major public health and socio-economic issue affecting a large part of the population, particularly children and pregnant and lactating women.

Low birth weight is a major cause of mortality and morbidity in early childhood. During the survey, women who had a live birth in the last five years were asked about the birth weight and size of their child.

In the case of the RANO WASH project intervention area, **52.73% of all households in the three regions had children under 5 suffering from malnutrition and stunting**, compared with 47% at the national level. The Region of Vatovavy Fitovinany had an alarming rate of 57% of children under 5 suffering from malnutrition and stunting. In terms of underweight, **36.5% of children aged 0 to 59 months (under 5 years) are affected in the three regions with a slightly serious issue/rate of 38.2% in Vatovavy Fitovinany**. This data will serve as a benchmark throughout the life of the project and even years after. A relationship of interdependence, going in different directions of progress, should be verified between child health indicators and access to drinking water indicators directly influenced by RANO WASH project activities.

According to the study results, **the percentage of the budget allocated to WASH relative to GDP varies from 0.13% to 0.18% in the last five years.** The commitment during the D'eThekwini's declaration in 2008, of 0.5% of GDP to devote to sanitation and hygiene has not yet been achieved. **In 2017, the percentage of GDP devoted to water and sanitation was only 0.18%**, which is then still less than half of the commitment nine years ago.

**Household access to basic drinking water services and to year-round safely managed drinking water services is 11.31%** for all three project intervention areas, compared to 48%[14] nationally. This situation is aggravated by the low rate of **population access to basic sanitation services of 0.23%** for the RANO WASH intervention zones.

Moreover, lack of access to water and sanitation have negative consequences on health (especially that of children), education, poverty but also on the environment, and affect directly and especially the poor[15]. In Madagascar, diarrheal diseases represent the second leading cause of death and affect 51% of under 5 children. As a result, 14,000 children under 5 years old, die each year due to lack of access to water[16].

In the RANO WASH Project intervention area, **7.25% of all households had cases of children under 5 years old with diarrhea during the two weeks preceding the survey.** An alarming rate of 9.86% has been noted in Atsinanana, which is also the region with the most open defecation practice. However, it is encouraging to note the rather low rate of diarrhea cases at 5.73% in Vatovavy Fitovinany and 6.69% for Alaotra Mangoro. These indicators are presented in the following table:

[14] PDSS, septembre 2015

[15] Road map of WASH sector of the Ministry of Water (MEEH)

[16] Idem, Road map of WASH sector of the Ministry of Water (MEEH)

*Table 3 – Project Outcome and Impact Indicators*

| N° | Indicators | Baseline | Std error | Lower limit | Upper limit | Alaotra Mangoro | Atsinanana | Vatovavy Fitovinany |
|---|---|---|---|---|---|---|---|---|
| 0.1 | % GPD to WASH budget | 0,18% | n/a | n/a | n/a | n/a | n/a | n/a |
| 0.2 | % of households with year-round access to basic drinking water source and safely managed drinking water services. | 11,31% | 1,86% | 7,61% | 15,00% | 5,98% | 14,08% | 13,89% |
| 0.7 | % of households with children under age 5 reporting an incidence of diarrhea within two weeks before the survey | 7,25% | 0,008 | 0,056 | 0,089 | 6.69% | 9.86% | 5.73% |
| 0.13 | % of people gaining access to a basic sanitation service | 0,23% | 0,12% | 0,00% | 0,46% | 0,19% | 0,62% | 0,00% |
| 0.14 | % of stunted children aged 6-59 months | 52,73% | n/a | n/a | n/a | 56,50% | 44,60% | 57,10% |
| 0.15 | % of underweighted children aged 0-59 months | 36,50% | n/a | n/a | n/a | 36,70% | 34,60% | 38,20% |

*Source: Household survey- Baseline study, SIMS/MSIS 2018 ; ENSOMD Survey 2012-2013*

## 3.2 Socio-economic profile of households

This section describes the main demographic and socio-economic characteristics of the sample, and by extrapolation of the potential beneficiary households of the RANO WASH project. These elements should differentiate households from one another and based on which profiles and typologies were established. These characteristics can help to understand the living conditions and livelihood strategies of households in the project intervention area and offer elements of analysis and disaggregation where relevant. For example, to detect links between access to water and household size or standard of living, links between the level of education of the head of household and the use of saving services, or correlations between the sex of the head of household and the practice of WASH key messages. All of these elements can be useful in refining the project strategy, such as the establishment of criteria for the selection of beneficiaries, or the adaptation of training contents according to the targeted beneficiaries' needs.

### 3.2.1 Household demographic profile

In collecting the data, particular attention has been drawn to recording the age of all household members in order to analyze the demographic profile and its links to various aspects of food security, access to WASH services, as well as the health and the environment of the concerned population. In addition, knowing these age characteristics is essential in the implementation of community development activities especially in the determination of strategies and types of activities to adopt. The age structure also provides a glimpse of the population's productive ability.

Studies and analysis previously conducted at the national level (Demographic and Health Survey 2008-2009 and Household Permanent Survey 2010) have shown that, regardless of gender, the Malagasy population is young. According to the 2010 HPS, nearly two-thirds are under 25 years of age (64%) and nearly half of the Malagasy population is under 15 years of age (47%). This observation has been confirmed by our survey at the level of the three (3) RANO WASH intervention regions.

Based on projections from MSIS household surveys and confronted with INSTAT databases, the total population of the three RANO WASH intervention regions is 5,201. 213 inhabitants.

*Table 4- Population size of targeted regions of RANOWASH*

| Regions | # Communes | # Fokontany | Population size | Women | Men |
|---|---|---|---|---|---|
| Alaotra Mangoro | 86 | 700 | 1 738 031 | 859 628 | 878 403 |
| Atsinanana | 89 | 941 | 1 380 429 | 707 141 | 673 288 |
| Vatovavy Fitovinany | 145 | 1 298 | 2 082 753 | 1 050 837 | 1 031 916 |
| **Total** | **320** | **2 939** | **5 201 213** | **2 617 606** | **2 583 607** |

*Source: Population size estimated from Household survey - SIMS/MSIS 2018*

The proportion of households headed by women is 19.59% for the sample against 18.5% at the national level. This rate is higher in Alaotra Mangoro and Vatovavy Fitovinany, with proportions of 22.65% and 21.04% respectively compared to 15.37% in Atsinanana.

*Table 5 - Household head gender and region*

| Regions | Women | Men |
|---|---|---|
| Alaotra Mangoro | 22,65% | 77,35% |
| Atsinanana | 15,37% | 84,63% |
| Vatovavy Fitovinany | 21,04% | 78,96% |
| **All regions** | **19,59%** | **80,41%** |

*Source: Household survey, SIMS/MSIS 2018*

This proportion of female-headed households is largely explained by the tradition of men mobility, by seasonal migration or transhumance, which involves moving with livestock to seek better pastures. There are also cases where men work temporarily in the fields during the vanilla harvest season (Vatovavy Fitovinany and Atsinanana).

In addition, there is long term migration, where men go to work in other regions or districts of the same region, while providing financially for their families. Among others, there is the case of men working in the mines of Didy in Alaotra Mangoro.

According to data from the 2010 HPS, the most common age group of household heads in rural areas is 30 to 39 years of age, equivalent to 26.6% of households.

*Table 6 - Household head average age and zone (%)*

| HH head age (years) | Urban | Rural | Overall |
|---|---|---|---|
| Less than 20 | 1,8% | 2,2% | 2,1% |
| 20- 29 | 17,1% | 19,3% | 18,8% |
| 30- 39 | 27,7% | 26,6% | 26,8% |
| 40- 49 | 23,5% | 23,0% | 23,1% |
| 50- 59 | 17,1% | 17,3% | 17,2% |
| 60- 69 | 7,6% | 7,1% | 7,2% |
| 70 and over | 5,3% | 4,6% | 4,7% |
| **Total** | **100,0%** | **100,0%** | **100,0%** |

*Source : EPM 2010*

The average household size is 4.88 individuals which is almost equivalent to the national average of 4.9 individuals according to the most recent INSTAT data. Household size is usually correlated with vulnerability, according to the INSTAT analysis: Larger households are more vulnerable to shocks. On the other hand, to the extent that family members are the main labor force in agricultural production or even in other economic activities, a larger number of family members can be an advantageous.

*Table 7 - Household average size*

| Measure | Average size |
|---|---|
| Average | 4,88 |
| Median | 5 |
| Standard error | 0,05 |

*Source: Household survey, SIMS/MSIS 2018*

Household headed by men have more individuals. Household size in Vatovavy Fitovinany is significantly larger than those in the other two regions.

*Table 8 - Distribution of Household by size and household head sex*

| Regions | Women | Men | Overall |
|---|---|---|---|
| Alaotra Mangoro | 4,36 | 5,01 | 4,86 |
| Atsinanana | 3,74 | 4,72 | 4,57 |
| Vatovavy Fitovinany | 4,19 | 5,54 | 5,25 |
| **3 Régions** | **4,13** | **5,06** | **4,88** |

*Source: Household survey, Baseline study, SIMS/MSIS 2018*

*50% of households with a female head has a size of 4, while for men this median is 5. With an average size of 4.13 for households headed by women and 5.06 headed by men for all three regions.*

*Table 9 – Distribution of the household members by age group*

| Age | Women | Men | Overall |
|---|---|---|---|
| 0-5 | 11,78% | 12,59% | 12,19% |
| 5-10 | 11,22% | 12,84% | 12,03% |
| 10-12 | 7,11% | 8,15% | 7,63% |
| 12-15 | 8,75% | 9,08% | 8,92% |
| 15-19 | 9,90% | 10,67% | 10,29% |
| 19-25 | 11,80% | 9,79% | 10,79% |
| 25-60 | 33,79% | 30,43% | 32,11% |
| Over 60 | 5,63% | 6,45% | 6,04% |
| **Total** | | | 100% |

*Source: Household survey, Baseline study, SIMS/MSIS 2018*

From a demographic sense, the dependent population consists of people under 15 and over 60 years of age. Although this definition does not necessarily reflect the reality, it is a reference for comparing households with one another and the population of the project area in comparison to other regions. It should be noted that male-headed households have a statistically higher proportion of dependents. In our case, the proportion of under-15 in male-headed households is 42.67% compared to 38.86% in female-headed households while the proportions in the age group of over 60 years of age are respectively 6.45% and 5.63% for male-headed households and female-headed households.

*Table 10 - Rate of households with persons with disabilities*

| REGIONS | Rate (%) |
|---|---|
| Alaotra Mangoro | 7,21% |
| Atsinanana | 5,34% |
| Vatovavy Fitovinany | 7,45% |
| **All regions** | 6,62% |

*Source: Household survey, Baseline study, SIMS/MSIS 2018*

The Atsinanana Region has a significantly lower rate than the other two regions, ie 5.34% for an average of 6.62% in the three regions.

### 3.2.2 Level of education

Similar to many developing countries, Madagascar has a large population that are not educated. According to the DHSM 2008-2009, 62% of the total combined population of Madagascar did not attend school or only attended primary school.

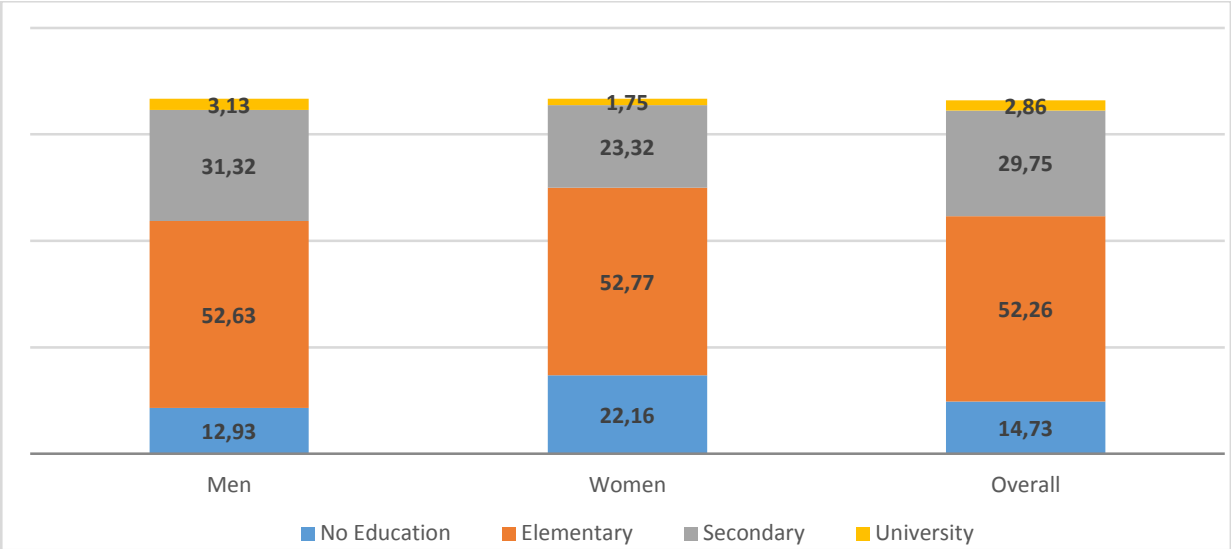
The level of education of the heads of household, and particularly women in the family or female heads of household, is analyzed here because it is one of the main factors influencing their WASH behavior, family planning and child health behavior, and even more, their ability to become economic agents for their family.

The baseline survey of RANO WASH presents the population according to their level of education from one region to another. In fact, according to the HPS 2010, the level of education depends on the standard of living

of the population, and therefore varies from one region to another, particularly relating to their place of residence (urban, rural). The RANO WASH project is focusing on rural areas.

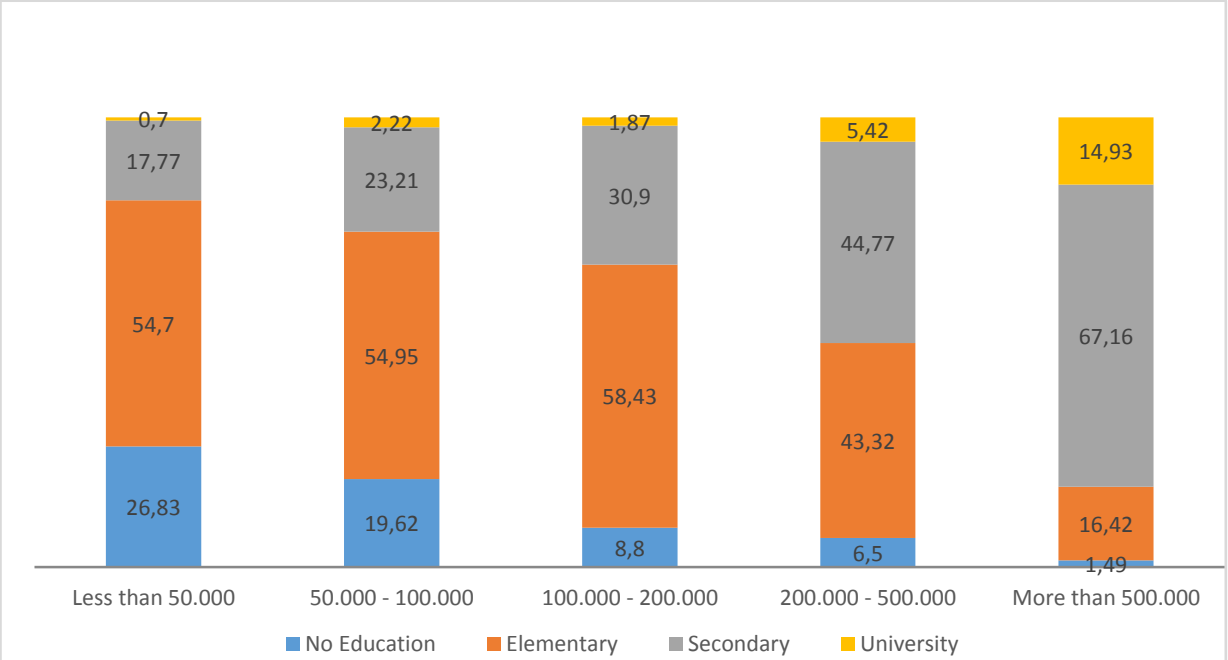
The level of education corresponds to the highest level of education reached by the surveyed individual. Heads of household are classified into four levels according to the cycle reached. The respondent is categorized in the highest level he has reached even though the cycle has not been completed. According to the survey results, more than half (52.26%) of the heads of household have reached the primary school level, and less than one-third (29.75%) have reached secondary school level. In terms of proportion, male heads of household are seen to have attended more school than women. Moreover, a higher proportion of male heads of household have reached secondary school compared to women. Therefore, women heads of household are clearly more disadvantaged with regards to education.

*Figure 1 - Household head educational level disaggregated by sex*




*Source: Household survey – SIM/MSIS 2018*

*Figure 2 - Household income disaggregated by household head educational level*




*Source: Household survey – SIM/MSIS 2018*

The level of monthly income of the household also depends on the level of education of the household heads with a causality probability of 0.92 (Granger[17]). In fact, the higher the head of the households' level of education attained, the more income he earns. However, exceptional cases exist, especially in rural areas, where the level of income of a household depends little on their level of education of the head of the household, such as suppliers and producers of fuelwood and carrier businessman.

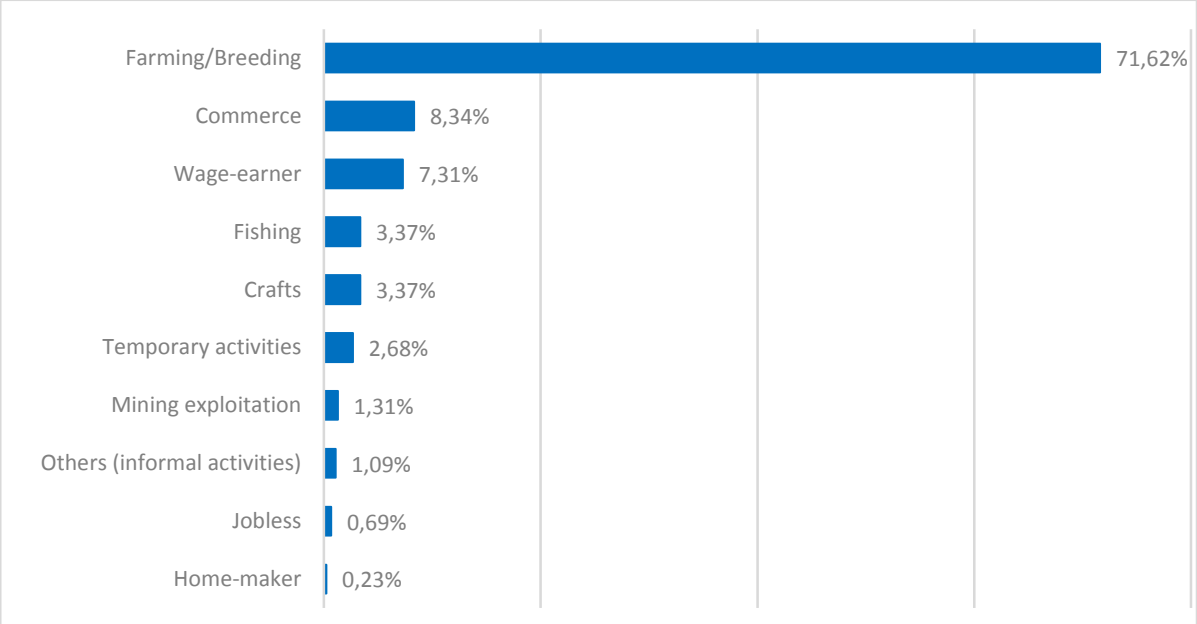
### 3.2.3 Main economic activities and expenditures

Agriculture and livestock are the main activities of the population. According to the survey results, 71.82% of households practice agriculture and livestock as a main economic activity. Among other economic activities, trade plays an important role and concerns about 8.34% of households. Most households have more than one activity.

Mining activities, as a main activity, represents only 1.31% of households, yet it should be known that this activity is also considered as temporary and / or labeled as an informal activity by the surveyed households.

Other activities have also been identified, such as "mpivarotra hani-masaka" (fruit and food vendors), suppliers and resellers of "taoka gasy" local rum.

*Figure 3 - Practice rate of main livelihood activities*



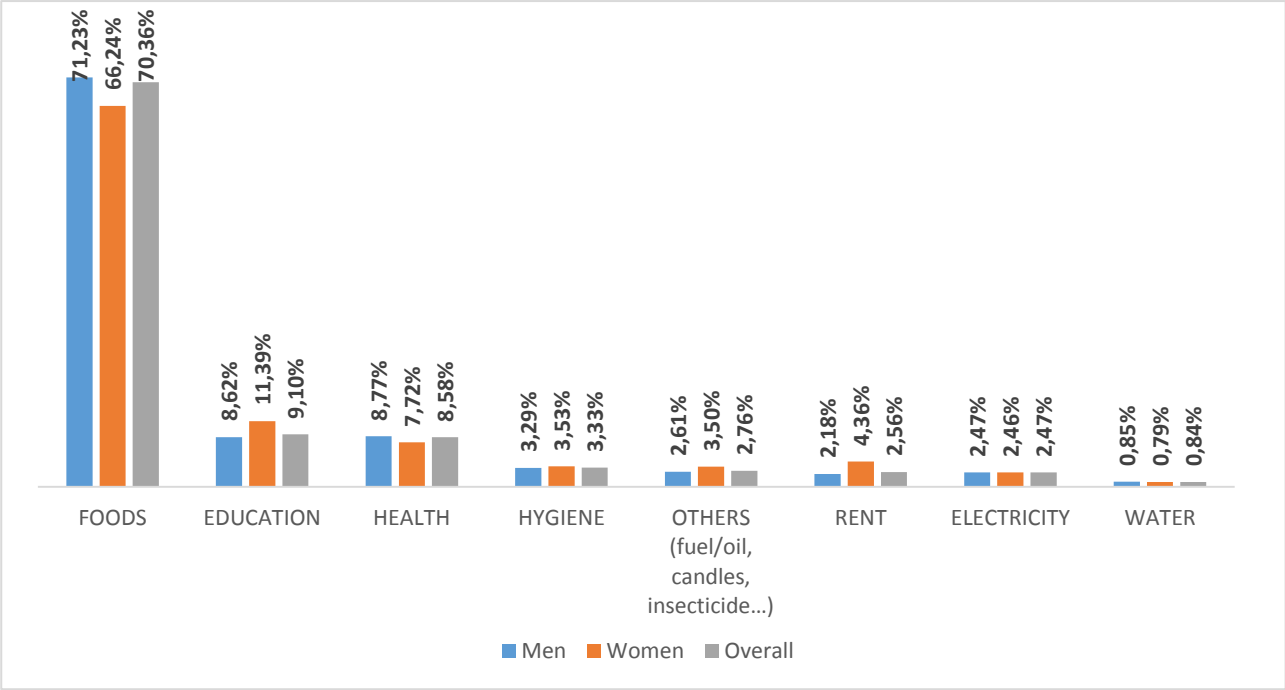

*Source: Household survey – SIMS/MSIS 2018*

When examining the expenditure structure highlights can be made to the main needs of households as well as their prioritization. It is generally accepted that the higher the proportion of a household's basic expenditure, the more vulnerable it is. It must be emphasized that this is monetary expenditure meaning that self-consumption is not taken into account. Households were asked to rank expenditure items by amount. The results show that the purchase of food is the first expense for the vast majority of households. The frequency is even higher among male-headed households. Secondly, school expenditure which can be seen higher in female-headed households.

Water expenditures come in sixth. For male-headed households, they represent 0.85% of total expenditures compared to 0.79% for female-headed households for a total of 0.84%. This can be explained by the fact that water is almost free of charge, except for privately-managed water connections.

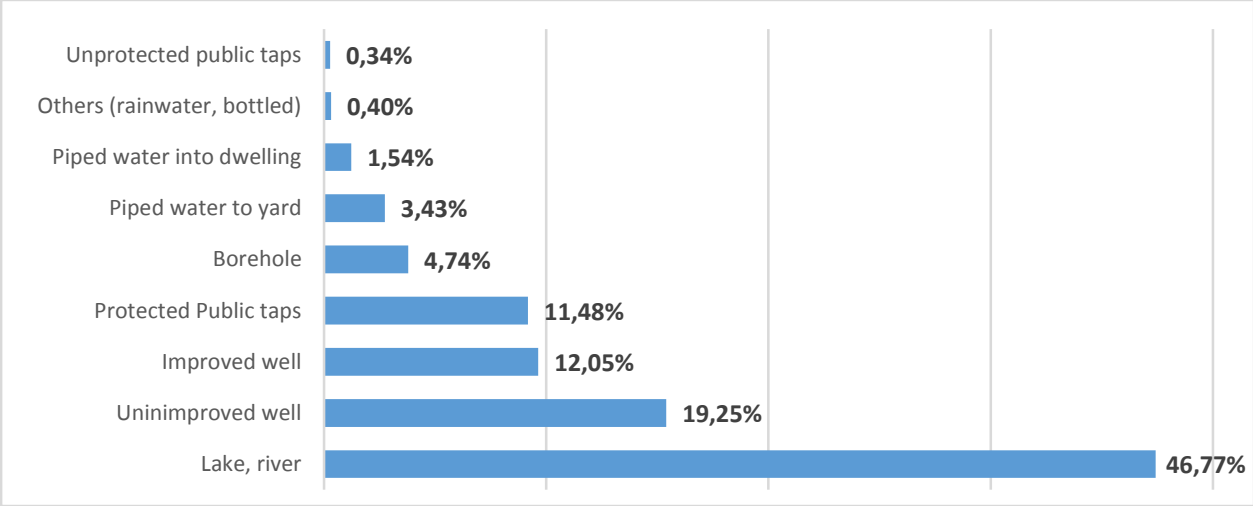
[17] *Granger causality test, 1969*

*Figure 4 - Main household expenditures disaggregated by household head sex*




*Source: Household survey – SIM/MSIS 2018*

*Figure 5 - Main household drinking water sources*




*Source: Household survey – SIM/MSIS 2018*

Household surveys revealed that only 0.84% of their income goes to water. This is justified by the near-free nature of water as 46.77% of the surveyed households collect drinking water from fountains, lakes or rivers while 19.25% collect drinking water from unimproved wells and only 12.05% use improved wells.

### 3.2.4 Household by wealth quintile

Like all studies concerning people's access to basic socio-economic services, certain demographic and socio-economic characteristics of the surveyed population are very important analysis variables. The notion of "wealth"[18] is one of them and for this study, the distribution of households by wealth quintile. Quintile means the theoretical sharing of observations into 5 groups of equal size. In practice, during categorizations, the distribution operators (lower, lower or equal, higher, higher or equal) make the difference in the distribution.

[18] Cf. Annexe 4 : Methodology of wealth quintile

The methodology was based on a compromise between "traditional wealth" and "modern wealth" in Michel GARENNE's sense[19]. This approach thus combines the "household income" and "its wealth" or its possession of certain goods, signs of wealth in the region / locality concerned.

*Table 11 – Possesion ownership rates by wealth quintile*

| GOODS | Ownership Rate | | | | |
|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q5 |
| Livestock | 1,50% | 14,95% | 2,42% | 17,89% | 56,83% |
| Cart | 0,00% | 0,27% | 1,61% | 0,18% | 9,56% |
| Plow | 0,00% | 1,09% | 2,42% | 0,89% | 15,85% |
| Harrow | 0,30% | 1,63% | 2,42% | 3,22% | 19,13% |
| Tiller | 0,00% | 0,00% | 0,00% | 0,36% | 10,11% |
| Husker | 0,30% | 0,00% | 0,00% | 0,72% | 3,01% |
| Pirogue | 1,20% | 3,26% | 18,55% | 6,08% | 11,75% |
| Bicycle | 9,88% | 12,23% | 82,26% | 25,40% | 57,38% |
| Bike | 0,00% | 1,90% | 1,61% | 3,40% | 22,40% |
| Car | 0,00% | 1,36% | 0,81% | 0,54% | 7,38% |
| House | 54,49% | 93,75% | 97,58% | 98,39% | 98,36% |
| Sewing machine | 4,19% | 4,35% | 4,84% | 7,33% | 19,95% |

*Source: Household survey, Baseline study, SIMS/MSIS 2018*

In this study, the quintiles were categorized as follows:

- Very Poor - Q1: These are households with a monthly income less than 50,000 Ariary and with a combined score less or equal to 0.0120 (see Annex 4).
- Poor - Q2: These are households with a monthly income between 50,000 and 100,000 Ariary and with a combined score between 0.0120 <score ≤ 0.0222 (see Appendix 4).
- Medium - Q3: These are households with a monthly income between 100,000 and 200,000 Ariary and with a combined score between 0.0222 <score ≤ 0.0308 (see Appendix 4).
- Rich - Q4: Monthly income from 200,000 to 500,000 Ariary with a combined score between 0.0308 <score ≤ 0.0462 (see Appendix 4)
- Very Rich - Q5: Monthly income above 500,000 Ariary with a combined score greater than 0.0462 (see Appendix 4).

Wealthier households have more valuable assets (home, car, motorcycle, livestock, etc). Indeed, over 98% of wealthy quintiles have their own home, 7% of them have a car and 22% own a motorcycle, on the contrary only 54% of the poorest quintiles have a home, and less than 2% of them own a motorcycle and none own a car. Bicycles are the most common mode of transportation among middle quintiles at 82%, compared to other quintiles.

[19] Article of *GARENNE.M, (2014) « Indicateurs de richesse des ménages : Implications pour l'étude des relations avec les paramètres démographiques et la mesure des inégalités » Ed. FERDI p 4-5.*

*Distribution of the sample by wealth quintile*

| Quintile | Total | Distribution | Income (Ariary) | Mixed score |
|---|---|---|---|---|
| Poorest- Q1 | 334 | 19,07% | Less than 50.000 | Less than or equal to 0,0120 |
| Poor- Q2 | 368 | 21,02% | 50.000 -100.000 | 0,0120 < score ≤ 0,0222 |
| Medium- Q3 | 124 | 7,08% | 100.000-200.000 | 0,0222 < score ≤ 0,0308 |
| Weatlhy- Q4 (*) | 559 | 31,92% | 200.000-500.000 | 0,0308 < score ≤ 0,0462 |
| Wealthiest- Q5 | 366 | 20,90% | Over 500.000 | Over 0,0462 |
| Total | 1751 | **100%** | | |

(*)The rich quintiles "Q4" are simply more observed than other categories because households have assets that after valuation, allow them to be classified among the rich, despite low incomes (see Annex 4- definition of modern wealth and traditional wealth). In other words, households with valuable assets but whose incomes are low or moderate.

ADVANTAGES:

- This method integrates both wealth and income of each household because a household can have a considerable wealth but low income.
- It is suitable for rural areas.

LIMITS:

- This method includes in the same category households having a luxury house and a hut as well as households with luxury cars and those with commercial vehicles.

## 3.3 Governance and monitoring of the WASH sector

Governance and monitoring of the sector is linked to the Project Strategic Objective 1, which is based on four outcomes: (1) The ministry leadership in the sector, the government and stakeholder engagement, and the accountability to achieve sector performance are strengthened; (2) monitoring, analysis and learning are strengthened to influence policy, with a greater focus on WASH service delivery; (3) improved tools, resources and capacities are available at the decentralized level for the DirEAH (Regions) and the communes for the planning, management, monitoring and regulation of WASH services; and (4) communities and members of civil society are empowered to claim their rights to safe, sufficient and affordable WASH services and have greater control over the services they use. RANO WASH's approach is to develop and step-by-step transform the sector, by testing assumptions and examining possible changes and the best way to achieve them, allowing learning for better advancement. The project builds on WaterAid's partnership with the MINEAH and sectoral leadership such as the DIORANO WASH Secretariat; and the experience of CARE and CRS in promoting PPPs as part of the pioneering RANO HP project.

### 3.3.1 Definition of indicators

| Indicators | Definitions |
|---|---|
| % of communes targeted by RANO WASH increasing their budget | Percentage of communes targeted by RANO WASH having integrated budget lines for WASH in year N-1 and N with at least an increase of more than 5% of the budget allocated to WASH between last year and current year. It helps to determe the level of budget allocated by the commune to its WASH activities.<br><br>Compared to the primitive budget available. The budget therefore concerns the tax revenues collected by the communes and the investment funds granted by the government and any other funds provided for in the budget. Thus, the funds for projects which are not directly managed by the Communes and not included in their budget are not considered in this definition. |
| Percentage of communes with public-private partnerships operating in the water, sanitation and hygiene sector | Proportion of Communes having public-private partnership relationships (Private companies) in carrying out or financing WASH related activities (management delegation contracts, financing contract or construction/financing of WASH services and related infrastructures, etc.)<br><br>- For drinking water, this concerns partnerships concerning the implementation and management of the water system, excluding JIRAMA and the managers of water points, whether private, NGO or community-based.<br><br>- For sanitation, these are Communesthat establishing contracts with the private sectors (companies, private contractor,) in the implementation or financing of sanitation activities (Maintenance contracts, financing with their own funds in carrying out activities included in the PCDEAH, construction of WASH related facilities. This includes partnerships for the management of the WASH blocks but excluding partnership with local communities and associations as well as the small traders of sanitary napkins, DLM, accessories ..., registered at the commune level. |

| Indicators | Definitions |
|---|---|
| Percentage of achievement of the WASH Development Action Plan at national level | Proportion of implementation of the WASH sector strategy objectives at national level. The RANO WASH project in its activities to support the development of a strategy and sectoral plan considers strict criteria such as (i) Multi-year planning with detailed activities; (ii) CSMART Objectives and activities planned over time with clear responsibilities, (iii) based on existing funds and resources that can be mobilized as well as (iv) can serve as an advocacy tool. |
| Number of budgets submitted to the Ministry of Finance on the basis of five-year joint sector plans | Number of annual budgets submitted to the Ministry of Finance on the basis of five-year joint sector plans developed in accordance with the quality criteria listed above. |
| Percentage of the annual budget of the communes allocated to WASH | Percentage of the annual budget of the communes allocated to access to water, sanitation and hygiene in relation to their total budget. |
| National platform for the promotion of the WASH sector (PNPAH) operational | Platform gathering all stakeholders and actors (Government / State, Private, Civil Society, International Organizations) working for the development of the WASH sector. The national platform must pass the following stages to be operational:<br>- national platform established and existence of meeting: RED<br>- regional platform set up and existence of meeting and national sectoral review: AMBER<br>- regional platform set up and existence of meeting, conduct of three (03) successive national sectoral reviews: GREEN |
| Number of sustainable financing strategies for the WASH sector developed and updated | Number of sustainable financing strategies developed and updated for the WASH sector:<br>- Established which means defining medium and long-term priorities; and<br>- Updated, ie updating the medium and long-term priorities. |
| Percentage of communes using the national WASH monitoring system (SE & AM) | Proportion of communes meeting the following conditions:<br>- having structures and tools for collecting, processing and sending data<br>- having received capacity building<br>- periodically send update reports to the national SE & AM system and periodically share the data in the system within their commune |

| Indicators | Definitions |
|---|---|
| Number of monitoring systems incorporating gender sensitive indicators and able to measure service provider performance and the quality of their services | Level of integration of gender and social inclusion indicators in SE & AM and the ability to measure performance and the service qualities of service providers.<br>- Gender Sensitive: disaggregated data by women, men, girls, boys,<br>- Social inclusion: disaggregated data considering the needs of the marginalized, vulnerable, PMI, pregnant women<br>- Need: Water, Sanitation and Hygiene service including menstrual hygiene<br>Level of integration in the SE & AM of indicators capable of measuring the performance of service providers.<br>- Product availability: daily during the year- no shortage<br>- Accessibility: in terms of costs- payment via VSLA or other type of payment facility<br>- Quality of services and products |
| Number of joint sector reviews conducted | Number of joint sector reviews conducted with the active participation of stakeholders.<br>A Joint Sector Review is defined as a periodic process that brings together different stakeholders (development actors, civil society, the private sector, etc.) from a particular sector to engage in a dialogue, assess the situation, progress and challenges. performance, and to decide on a series of priority actions for the concerned sector. |
| Number of model for WSP performance-based standard contracts approved by the MEEH | Number of standard contract template developed for private sectors in WASH based on performance and then approved by the MEEH. |
| Percentage of communes with a 20% increase in institutional capacity | Proportion of communes with a 20% increase in institutional capacity, i.e. in terms of coordination- institutional arrangement- financial mechanism - integrated plan- monitoring and evaluation |
| Number of regional BPORs assessed with water supply models in PPP, and integrating gender, community diversity, climate vulnerability dimensions | Number of budgeted BPORs with drinking water supply models adopting PPP and incorporating the gender, community diversity and the vulnerability to climate change dimension. |
| Number of Communes contracting with the private sector for the provision of WASH services | Number of communes having contracts with the private sectors (companies, private contractors, local associations) in the realization or financing of activities related to water and sanitation. Maintenance |

| Indicators | Definitions |
|---|---|
| | contracts, financing with their own funds in carrying out activities included in the PCDEAH, construction of related WASH facilities. |
| Percentage of WSPs paying taxes to communes | Percentage of water service providers paying royalties / taxes for Communes.<br>Royalties/Fee: The collection for the benefit of the State and national sectoral institutions, which is due on the value of the products at their first sale.<br>There are two types of fees for the water sector:<br>- Levy for collection and overflow<br>- Water resources royalties |
| Percentage of functional Fokontany WASH committees | Proportion of Fokontany having WASH facilities with committees and action plan, conducting regular meetings, mobilizing resources to ensure effective, efficient and transparent management of resources, and reporting regularly to community and the authorities. |
| Number of Communes with socially inclusive WASH committees and implementing a social accountability mechanism | Number of communes with socially inclusive WASH committees (i.e. taking into account the mobilization and the collective willingness of social, political and economic bodies to rethink their ways of working for the integration of the most vulnerable) and a social accountability mechanism (i.e. to monitor and evaluate services, to provide feedback from users to service providers, policymakers and oversight bodies, to promote transparency, promote monitoring and evaluation, or facilitate participation in decision-making).<br>The accountability mechanism can be:<br>- Complaint review mechanisms (suggestion boxes or complaint forms;<br>- Public control processes (social audits, community score card...);<br>- User surveys (citizen report cards, service delivery surveys ...);<br>- Representation mechanisms of users (user associations, representatives of citizens ...);<br>- Planning, management, and participatory monitoring of projects, including community-based project management approaches; ... |
| Percentage of communes with mechanisms for collecting WASH service users' complaints and for their efficient and timely treatment. | Number of Communes with a system of collection, analysis and effective and timely treatment of complaints from WASH service users |

### 3.3.2 Expected outcomes of improved governance and sector monitoring (WASH)

RANO WASH plans to implement several initiatives to improve governance and monitoring of the WASH sector. Ultimately, the bottom line is that citizens and communities can benefit from adequate investments to build and maintain WASH facilities and that when these facilities are functional, they are sustainably managed. RANO WASH activities therefore support the communes to allocate more budgets for the WASH sector. The establishment or the promotion of an effective public-private partnership mechanism is one of the most effective means of ensuring the sustainability of undertaken efforts.

#### 3.3.2.1 Increase of annual WASH budget in targeted communes (IND.11)

A specific indicator is defined to identify the part of the total annual budget of the communes allocated for WASH on the one hand and to note thereafter the corresponding annual increase. To obtain the value of this increase, the numerator used is the number of targeted communes increasing their WASH budget; while the denominator is the total number of targeted communes. These values have been obtained from the communes through interviews and secondary data collection with the commune authorities and considering the budgets of the past year (2017) and comparing them with those of the current year (2018). To measure the increase, two criteria are considered:

- An increase demonstrates that a commune has a positive difference greater than 5% between the WASH 2018 budget and the WASH 2017 budget.
- As well as if a commune has consecutively included a WASH budget during the two successive years.

The table below shows the results obtained from 136 communes which could provide data on their overall budget and their WASH budget.

*Table 12 - Rate of Communes targeted by RANO WASH increasing its WASH budget*

| **Regions** | **# Consulted Communes** | **# Communes allocating budget for WASH in 2018** | **% Communes allocating budget for WASH in 2018** | **# Communes increasing** *its WASH budget in 2018* | **% Communes increasing** *its WASH budget in 2018* |
|---|---|---|---|---|---|
| Alaotra Mangoro | 53 | 26 | 49,06% | 4 | 7,55% |
| Atsinanana | 38 | 16 | 42,11% | 2 | 5,26% |
| Vatovavy Fitovinany | 45 | 29 | 64,44% | 1 | 2,22% |
| **Total** | **136** | **71** | **52,21%** | **12** | **5,15%** |

*Source: Communes survey (sample) - SIMS/MSIS/2018*

The baseline indicates that *only 5.15% of the Communes have increased their budget allocated to WASH between the years of 2017 and 2018*. Alaotra Mangoro has the best ratio with 4 communes out of 53, or 7.55% having increased their WASH budget, while Vatovavy Fitovinany has a mere 2.22% (i.e. 1 commune out of 45) and is still relatively far behind. The Ambohibary Commune of Moramanga District expects the largest increase in the WASH budget in anticipation of the huge amount of money they should receive from the Ambatovy mining royalty in 2018.

Here is the list of communes that have submitted and increased their WASH budget.

| Region | District | Commune | WASH Budget 2017 | WASH Budget 2018 |
|---|---|---|---|---|
| Alaotra Mangoro | Amparafaravola | Amparafaravola | 2 000 000 | 30 000 000 |
| Alaotra Mangoro | Moramanga | Ambohibary | 4 000 000 | 300 000 000 |
| Alaotra Mangoro | Moramanga | Andasibe | 300 000 | 1 000 000 |
| Alaotra Mangoro | Moramanga | Anosibe Ifody | 2 000 000 | 3 600 000 |
| Atsinanana | Brickaville | Ambinaninony | 500 000 | 2 000 000 |
| Atsinanana | Brickaville | Brickaville | 500 000 | 2 000 000 |
| Vatovavy Fitovinany | Manakara | Marofarihy | 600 000 | 780 000 |

On the other hand, it should be noted that several communes have started to enter a WASH budget line only in 2018. In this respect, the Vatovavy Fitovinany region holds the record with 64% of its communes. The qualitative survey administered with the Commune Mayors or Technical Managers revealed that prior to 2018, they integrated the WASH budget into other budget lines. In terms of amount, Alaotra Mangoro far outstrips the other two regions, raising their WASH budget to over 361 million Ariary between 2017 and 2018. As previously stated, the Ambohibary commune only plans to allocate 300 million Ariary for WASH in 2018 compared to 4 million Ariary in 2017. The details on these amounts by region are presented in the following two tables.

*Total annual WASH budget of Communes (2017 – 2018)*

| REGIONS | Total of WASH budget 2017 | Total of WASH budget 2018 |
|---|---|---|
| Alaotra Mangoro | 222 559 797 | 583 822 326 |
| Atsinanana | 31 000 000 | 138 175 000 |
| Vatovavy Fitovinany | 3 100 000 | 82 222 173 |
| **Overall** | **256 659 797** | **804 219 499** |

*Source: Commune survey (sample) - SIMS/MSIS/2018*

Since communes do not yet have this practice of systematically allocating each year's specific budgets for WASH (or for investments in general), especially from their own funds, it would be interesting to monitor whether these communes who have planned to allocate or increase a WASH budget for 2018, will be able to achieve the corresponding WASH investments. In general, the Mayors or Commune Managers affirmed that if they are not sure of having the necessary amount of money from donors, they will abstain from budgeting amounts for investments including the WASH sector. In other words, Communes will only integrate a WASH budget if there are partners ready to invest in the WASH activities. If financial partners are established the Communes only will then handle the projects management as well as organize a community contribution if required. However, these contributions made directly by the beneficiary communities, often in-kind contributions (local materials, labor, etc.) are sometimes not included in the commune budget.

It is therefore highly predictable that when RANO WASH will be fully operational, the intervention communes will increase their WASH budget. The greatest challenge would be to maintain and sustain the practice and to keep this commitment that the well-being and health conditions of the population depends on their access to quality water and sanitation facilities. On the other hand, it should also be noted that the inexistence or the low WASH budget does not necessarily mean the absence of this commitment. Some communes that have reduced their WASH investments were forced to do so. According to some commune officials, this reduction was inevitable when the overall revenue has been reduced. Despite their recognition of the importance of WASH investments for the population, the payment of the operating expenses is always the first priority for all communes. Additionally, many of these communes, especially the least efficient (see indicator 1.3.1 on institutional capacities), simply do not have the capacity to establish their budget and to control their achievements for the 2017 and 2018 years.

#### 3.3.2.2 Commune having Public-Private Partnership/PPP on WASH services delivery (IND.12)

The study wants to assess the proportion of communes that solicit public-private partnership in the WASH sector. The indicator is the ratio between the number of communes with operational public-private partnerships in WASH sector and the total number of communes in the three regions. Three types of partnership agreements are considered, including the management contract, the lease contract and the concession contract.

*Table 13 - Percentage of Communes with Operational PPPs in WASH Sector*

| REGION | Commune # | Commune with PPP # Enterprises in Wash | Commune with PPP (%) | Commune with PPP in Drinking Water (#) | Commune with PPP in Drinking Water (%) | Commune with PPP in Sanitation and Hygiene (#) | Commune with PPP in Sanitation and Hygiene (%) |
|---|---|---|---|---|---|---|---|
| Alaotra Mangoro | 87 | 2 | 2,30% | 0 | 0,00% | 2 | 2,30% |
| Atsinanana | 90 | 11 | 12,22% | 9 (*) | 10,00% | 6 | 6,67% |
| Vatovavy Fitovinany | 150 | 33 | 22,00% | 5 | 3,33% | 32 | 21,33% |
| **Overall** | **327** | **46** | **14,07%** | **14** | **4,28%** | **40** | **12,23%** |

*Source: Department of Water – Sanitation – Hygiene in Ministry of Water, Energy and Hydrocarbon, SIMS/MSIS 2018*
*(*) Enterprises operation in 3 of those 9 communes for WASH services supply are on the way of regularization*

There are 46 communes out of 327 or 14.07% that have partnerships on WASH services with private companies in the three regions and there is a clear advantage of the Vatovavy Fitovinany region with 22.00% of the communes compared to only 2, 30% and 12.22% of communes in the respective regions of Alaotra Mangoro and Atsinanana. The situation in Vatovavy Fitovinany is explained by the recent interventions of the RANO-HP project in this area in the region.

In terms of partnership with the private sector for drinking water services, the Atsinanana region has the best score with 9 communes or 10%, even if these partnerships remain restricted in the districts of Brickaville and Toamasina II/Foulpointe. Followed by the region of Vatovavy Fitovinany with 5 communes which is about 3.33% of communes. The Alaotra Mangoro region has no public-private partnership in water system management. Nevertheless, a pilot is being implemented in the commune of Tanambe, Amparafaravola district.

Regarding partnerships for sanitation and hygiene services, for the Atsinanana region, we can highlight their existence in the communes or cities of Vatomandry and Mahanoro. Very often in the three regions, sanitation partnerships consist of managing the wash blocks thus affecting both the management of drinking water points and the sanitation and hygiene services.

Nevertheless, it is important to underline that the Communes, in most cases, do not directly manage the water points and sanitation and hygiene blocks. Managers are often local or community associations, particularly in the communes of the Alaotra Mangoro and Atsinanana regions that still favor this type of partnership. However, the national experience confirmed by results from the WASH facility inventory have shown that community management often leads to poorly maintained and unsustainable WASH facility. We must therefore help them evolve to be more professional. Among the strategies adopted, in addition to the call for private entrepreneurs or specialized NGOs investments, Community associations or some group members can be assisted and professionalized to create small businesses to manage the WASH services. For example, the Association AFA (Association of the Fountains of Ambatondrazaka) is currently being transformed from its status to an NGO in order to manage the water points and Wash blocks located in the urban Commune of Ambatonandrazaka.

With regards to the co-financing of WASH facilities between the communes and the private sector, only the communes of Foulpointe in the Atsinanana region and Tolongoina in the Vatovavy Fitovinany region have experienced this type of PPP. This therefore remains a huge opportunity that RANO WASH could promote by consolidating from current achievements.

### 3.3.3 Strengthening commitment and accountability at the national level (central government) for the development of the sector (WASH)

#### 3.3.3.1 Percentage of achievement of the sectoral development action plan at national level (IND.111)

The RANO WASH project expects to support the development of a strategy and sector plan based on quality criteria such as (i) Multi-annual planning with detailed activities; (ii) Objectives with SMART indicators and Activities planned over time with all responsibles, (iii) based on existing or available funds and resources (iv)serving as an advocacy tool. This is still inexistent but the Ministry in charge of water (MW) has already initiated several efforts to develop various sectoral plans and programs, among others:

- In 2013, the MW has established from the Ministry's strategic document the Planning Document or DOCPLAN from 2013 to 2018. This DOCPLAN has shown the sectoral development action plan at national level by year of exercises. Due to lack of financial resources, the implementation of the DOCPLAN was not effective.
- Then, by declaring the year 2015, as the year of Sanitation and Hygiene, the Ministry published its new strategy in the "WASH Sector Guidelines 2015-2019". It presents the Department's priorities, objectives and strategy for the next five years. It gives a summary overview of the different official reference documents such as the National Development Program (NDP 2015 - 2019), the Presidential Emergency Program (PEP 2015-2016), the General State Policy, the Prime Minister's speech and the Synthetic Document of the 2015-2016 Ministerial Program. It is also intended to be an advocacy tool used for all partners in the WASH sector.

  Target 2019:

  By 2019, the objectives in the 2015-2019 WASH sector guidelines are to achieve:
  - 68%, access rate of access to drinking water facility
  - 67%, access rate to sanitation and hygiene facility
  - 99% of the population living in an ODF (open defecation free) environment;
  - A concept of Integrated Water Resource Management (IWRM) effectively adopted by all stakeholders involved in the WASH sector.

  The table below shows the details of these indicators by year:

*Table 14 - Annual WASH Objectives*

| Key Indicators | 2017 | 2018 | 2019 |
|---|---|---|---|
| Access in drinking water technologies | 59% | 64% | 68% |
| Access in sanitation and hygiene technologies | 58% | 62% | 67% |
| Rate of population living in ODF environment | 84% | 99% | 99% |

*Source: General guidelines in WASH 2015-2019*

Currently, the effective implementation or not of the WASH sector guidelines 2015-2019 has not been clearly observed while a national investment plan for the sector is already being prepared based on the BPOR (Budget Program by Regional Objective) within the MW.

The team then took into consideration the report of the MW to evaluate the achievements of these plans, including guidelines for the WASH sector 2015-2019. Following is the situation of these key indicators at the end of 2017.

*Table 15 – Action plan completion rate*

| Key Indicator | Objectives 2017 (A) | Completion 2017* (B) | Rate =(B/A) |
|---|---|---|---|
| Access in drinking water technologies | 59% | 25% | 42% |
| Access in sanitation and hygiene technologies | 58% | 26% | 45% |
| Rate of population living in ODF environment | 84% | 19% | 23% |
| GIRE Concept adopted | 1 | 0 | 0% |
| Arithmetic mean (unweighted) | | | 27,5% |

*Source: Database MEEH*

Following the analysis of the action plan achievements in relation to these 4 key indicators, the sector's objective was not achieved. In fact, the "Percentage completion of a sectoral development action plan at the national level" is only 27.5% at the end of 2017. The completion rates vary from 0% for the IWRM implementation to a 45% completion rate slightly below the average for access to sanitation and hygiene facility. The achievement rate for the indicator "population living in an ODF environment" with only 23% is also quite low. The main causes of the non-realization mentioned by various actors are the lack of available financial resources but also the frequent change of leadership. The incoming Minister and his team want to lead a new strategy in the sector and undermine the continuity of previous efforts. But these frequent changes in leadership and/or the lack of resources also demonstrates that despite the commitments made and the associated official declarations, there is still a lack of political will to make quality access to WASH services among the priorities in the country.

#### 3.3.3.2 Budget submitted to the Ministry of Finance based on five-year joint sector plans (IND.112)

Since 2015, the budget preparation has used a Document for economic orientation of the Budget (DEOB/DOEB) issued by Institutions and Ministries. This is expected to provide more information for a better rational allocation of resources, and to outline a draft of sectoral strategic plans as well as the coherence between all budget preparation documents. It is from the DEOB that the performance plans of Ministries and Institutions were developed.

To better support the results-based budget management, programming tools namely the Medium-Term Macro-Budgetary Framework (MTMBF), the Medium-Term Budget Framework (MTBF), were introduced from the preparation of the 2016 Finance Law. In addition, a Medium-Term Expenditure Framework (MTEF) 2017-2019, which describes the multi-year expenditures per action and by nature at the ministerial level, was piloted in six ministries (Ministry of Finance and Budget, Ministry of Public labor and Administration Reform, Ministry in charge of Agriculture and Livestock, Ministry of Public Works, Ministry of Public Health, Ministry of National Education). The Directorate General of Budget (DGB) intends, subsequently, to extend this process to cover other ministries.

Thus, the program budget of the Ministry in charge of Water for the WASH sector is given in volume 3 of the medium-term budget framework of the 2018 Finance Law, but it has not yet been based on the joint sectoral plan as defined in the RANO WASH strategy. Also, **the number of budgets submitted to the Ministry of Finance based on five-year joint sectoral plans is still considered zero.**

#### 3.3.3.3 Annual Commune Budget Allocated to WASH (IND.113)

This indicator assesses the proportion of the WASH budget in relation to the overall annual budget of the communes. It is calculated by the ratio between (numerator) the annual WASH budget of the Commune and (denominator) its total annual budget. The calculation is done based on the original budget. The administrative accounts of the communes which materialize the budget execution are not yet available and the ONCD (National Office on Concertation and Decentralization) is in the process of compiling them.

The results were calculated from data of 80 communes which provided both their WASH budget and their overall budget in 2018.

*Table 16 – Part of annual commune budget allocated in WASH*

| Region | # Communes having WASH Budget 2018 | Total of forecast in WASH budget 2018 (Ariary) | Total of Forecast Budget 2018 (Ar) | Part of WASH Budget (%) | # Communes demonstrating more than 5% of allowance in WASH/annual budget | Median (%) |
|---|---|---|---|---|---|---|
| Alaotra Mangoro | 31 | 583 822 326 | 8 916 553 214 | 6.55 | 18 | 5,34 |
| Atsinanana | 18 | 138 175 000 | 3 686 982 220 | 3.75 | 5 | 2,47 |
| Vatovavy Fitovinany | 31 | 82 222 173 | 1 920 942 659 | 4.28 | 12 | 2,50 |
| **Total** | **80** | **804 219 499** | **14 524 478 093** | **5.54** | **35** | **3,88** |

*Source: Communes Survey – Budget data - SIMS/MSIS/2018*

We note that in 2018, the Communes have prioritized WASH projects and activities in their budgets. Of the 31 communes that submitted their budget in Alaotra Mangoro, the WASH budget rate in relation to the total

budget is greater than 5% (6.55%) whereas in Vatovavy Fitovinany and Atsinanana, these rates are still below the threshold of 5%, respectively 4.28% and 3.75% of their total budget.

As stated in the following section, several communes have started to allocate a specific budget line for WASH services this year, 2018. These results demonstrate the gradual interest of the local government (CTDs) in providing access to quality WASH services to their population. Of the 80 communes, 35 communes or 44% allocated more than 5 percent of their budget to the WASH sector. It must be emphasized, however, that in the communes of Vatovavy Fitovinany and Atsinanana regions, this willingness to invest in WASH is still a challenge, as more than half of the communes in these two regions were unable to allocate more than 2.5% of their budget for WASH.

But if we remove the exceptional budget allocated by the rural Commune of Ambohibary, which constitutes 90% of the budget allocated for WASH in Moramanga district, the proportion of the WASH budget for the Alaotra Mangoro region would decrease to 5.47% of the total budget and that for all three regions would then become slightly lower than 4.67%. Still, the proportion of WASH budget of communes receiving mining tax and royalties from large mining investments, like Ambatovy or others may increase in the coming years.

#### 3.3.3.4 National Platform for the Promotion of the WASH Sector (IND.1111)

Order No. 2474/2018 establishing, organizing and operating the National Platform for the WASH sector promotion (PN-EAH) was signed by His Excellency the Minister of MW on February 7, 2018. During the conduct of this study (March-April 2018), the platform has not yet been set up, however later it was created and the launching workshop for its implementation took place on May 24 and 25, 2018.

Compared to the PMP scale, the current situation of the indicator is therefore red (national platform set up and existence of meeting).

#### 3.3.3.5 Sustainable financing strategy of the WASH sector (IND.1112)

The sustainable financing strategies of the sector do not yet exist and the value of this indicator is zero. We expect the effective implementation of the FNRE (National Fund for Water Resources) in Article 73 of the Water Code to establish a document of sustainable financing strategies for the sector which should guarantee the availability of financial resources according to investment needs within this sector.

### 3.3.4 Improved monitoring, analysis, learning and influence mechanisms for the WASH sector

#### 3.3.4.1 Use of the Monitoring, Analysis and Learning System at commune level (IND.121)

The only existing monitoring system within MW and at the national level is the "SE&AM" (Monitoring Water & Sanitation in Madagascar). This tool established by the Ministry of Water in 2014, is accessible to all users of the WASH sector. It consists of improving the data collection system for water supply and the sanitation facility for better analysis and exploitation. Among other things, it aims to guide and coordinate interventions in the sector.

It provides a single system that can plan, monitor and evaluate Madagascar's efforts and interventions in the WASH sector. It aims to have real-time situations in WASH at all levels Commune, District, Region and Madagascar according to the recorded data. It will be used for decision-making and facilitates the coordination of the sector through data and cartography.

However, currently, no commune has used the national WASH monitoring system- SE & AM. This system is not yet functional at the commune level.

#### 3.3.4.2 Monitoring system incorporating gender sensitive indicators (IND.1211)

For gender aspect consideration, this SE&AM tool is not yet intended for monitoring integrating gender-sensitive indicators and capable of measuring the performance of service providers and their quality of services.

#### 3.3.4.3 WASH sector Joint Review (IND.1212)

The official joint review is the annual sectoral review led by the MW, and is conducted once a year, usually in December. In 2016, a biannual review project was decided by the Ministry but not implemented. As needed, the MW tries to take advantage of other organized events to conduct the joint review. For example, a WASH stakeholder mobilization workshop held on 13-14 July 2017 was used as an opportunity to carry it out.

For the 2018 year, no sectoral review has yet been conducted. Therefore, the value of this indicator is labeled zero.

#### 3.3.4.4 Standard model for performance-based contract (IND.1213)

Two standard contract templates have been developed by the M-WASH

- A leasing contract model for the AEPG or AEPP systems that was finalized in October 2017.
- A model of community water point management agreement (BF, PPMH, FPMH) for the association of water users or water point committee.

A third contract model for the management of the Ampotaka pipeline in the South is currently under development with a final date for the final version in June 2018.

At the M-WASH level, 46 service provider contracts according to the standard models are registered. These are leasing contracts for gravity or pumping drinking water supply systems. 38 contracts were registered in 2017 and 8 other contracts registered this year. These contracts concern the regions of Vatovavy Fitovinany, Atsinanana, Sofia, Boeny, Analanjorofo, Vakinakaratra, Haute Matsiatra, Androy and Anosy.

According to MEEH, the leasing contract managers have struggled to meet their following obligations for the first two years of their operation:

- Maintenance of the infrastructures;
- The production of documents/deliverables, namely: a half-year technical report on the results of the past fiscal year, and a half-year financial report with the operating account and the program of expected activities, including a proposal for investment program (renewal, extension...).
- The payment of various taxes and royalties to be deducted at the price of the water in accordance with the decision made by the Communal council.

The M-WASH also has a template for Tender File (DAO) for the recruitment of leasing contract Manager.

In addition, this type of service is not yet well known by national companies. So, when tenders are issued for the management of the AEP system, the received proposals are always less than five.

### 3.3.5 Commitment and Accountability of Subnational Institutions / Commune for the Development of the WASH Sector

#### 3.3.5.1 Institutional capacity of communes (IND.131)

In addition to their willingness to allocate more resources and budget in the development of the WASH sector, the commitment and accountability of Communes are also highly dependent on their own institutional and organizational capacity. So, RANO WASH plans to provide institutional and organizational governance support to its intervention communes. The team has therefore developed and applied a simplified tool[20] to make a rapid qualitative appraisal through a "score card" system in 51 Communes to have prior knowledge on their institutional capacity.

Five main areas of capacity were assessed including: coordination capacity, institutional arrangement capacity, financial mechanism, planning capacity, especially strategic and integrated planning, and monitoring and evaluation capacity. This is a self-assessment system carried out by the Commune Managers themselves (Mayors and their teams) but with the facilitation from our qualitative data collection team. In each area of

[20] Tool based on WATER AID practice on organizational and institutional capacities (Annex 4)

capacity, they were asked to answer a questionnaire and to situate their level according to 4 scales of abilities / skills including 0: Very low capacity; 1: Low Capacity; 2: Acceptable capacity; 3: Excellent capacity. When the Commune scores are close to 3, these communes are more autonomous in deploying capacity and mobilizing/ adequately using resources to achieve development goals in general and the WASH objectives in particular.

*It is an analysis of the institutional capacity of the Communes, and therefore the regional capacity aspects, such as the existence of the BPOR, have not been considered.*

The results in the following table show the capacities of the communes by calculating the averages of the scores obtained in each region.

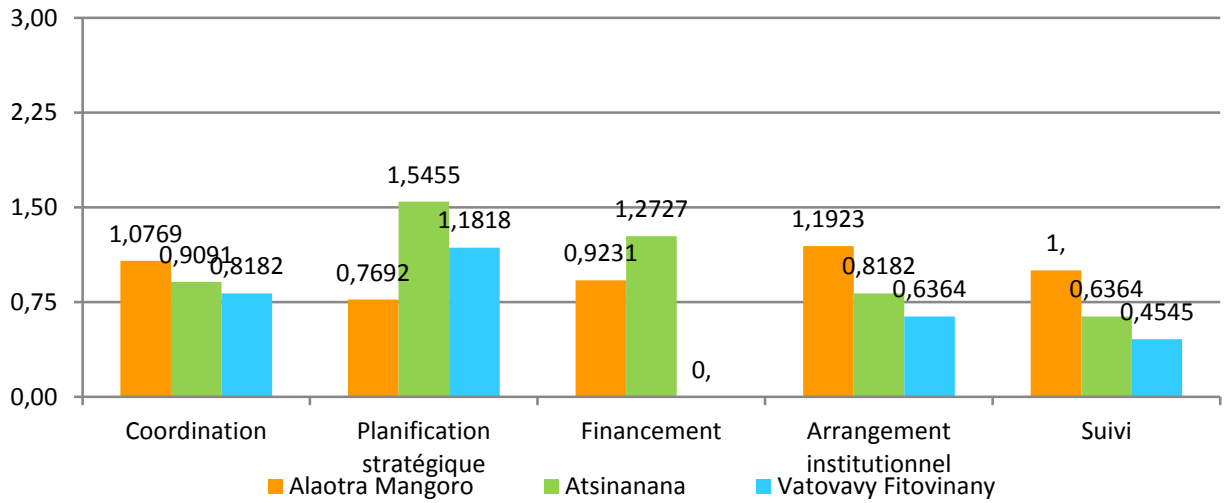
*Table 17 – **Institutional capacity** (Coordination – Institutional arrangement - Financial mechanism - Strategic and Integrated Plan – Monitoring / Assessment)*

| Scores in institutional strength criteria | Mean of 3 regions (Score/3) | Alaotra Mangoro (Score/3) | Atsinanana (Score/3) | Vatovavy Fitovinany (Score/3) |
|---|---|---|---|---|
| Coordination | 0,93 | 1,08 | 0,91 | 0,82 |
| Institutional arrangement | 0,88 | 1,19 | 0,82 | 0,64 |
| Financial mechanism | 0,73 | 0,92 | 1,27 | 0,00 |
| Strategic and Integrated Plan | 1,17 | 0,77 | 1,55 | 1,18 |
| Monitoring / Assessment | 0,70 | 1,00 | 0,64 | 0,45 |
| **Overall score** | **0,88** | **0,99** | **1,04** | **0,62** |

*Source: Communes Qualitative Survey – SIMS/MSIS/2018*

*Legend:* 2<Score<=3 *Excellent* | 1,5<=Score<=2 *Acceptable* | 1<=Score<1,5 *Low* | 0<=Score<1 *Very low*

*Figure 6 – Score Card Result*




In general, if all criteria are considered, all communes do not have the required institutional capacity to drive their own development with scores for all areas of capacity well below **the average 1.5/3.**

If an analysis is made by capacity area, here are the overall results:

- Capacity in "Coordination": The communes of the three regions had low and very low scores which mean respectively, communes overwhelmed by everyday problems and having no intention to coordinate actions or communes having coordination mechanisms but do not apply them.
- Capacity in “Institutional vision/arrangement": The scores of all the communes of the three regions are also very weak or weak which mean that these communes have no vision and do not intend to have any or they have visions, but these are not considered and applied.
- Capacity in "Financial Mechanism": Still very low or low scores for Communes in the three regions equivalent to communes unable to collect their local taxes and totally dependent on external funds (Very low) or communes with local revenues or taxes but still highly dependent on external funds (Low).
- Capacity in "Strategic and Integrated Planning": Very low Scores for both regions of Alaotra Mangoro and Vatovavy Fitovinany meaning Communes prioritizing water supplies during difficult and short-term times instead of having long term strategies with sustainable management. The Atsinanana region scored satisfactory, because among the 11 Communes that responded, 7 Communes responded that they have plans for water services delivery and started to become accountable and transparent with their actions/partners, but the sharing of responsibilities among stakeholders is still lacking and unclear. However, the commune of Ambinaninony affirmed that this sharing of responsibilities between them and the private sector managing the water services delivery is quite clear.
- "Monitoring an evaluation" capacity: The three regions obtained very low and low scores, which assume that Communes are satisfied with the actions taken by partners without conducting any monitoring-evaluation nor asking for reports (Very Low) or Communes requesting and obtaining reports from their partners, yet they are still have difficulties in using them for their monitoring and evaluation.

If we conduct an analysis by region, the following observations should be made:

- Alaotra Mangoro Region: Below average for all criteria but the weakest and most demanding capacity areas are strategic and integrated WASH planning, diversification and mobilization of adequate financing mechanisms to achieve the plan thus affecting investments in the WASH sector. Additionally, the capacity for monitoring and evaluation of achievements is lacking.
- Atsinanana Region: The region has a fairly good base in strategic and integrated planning. On the other hand, there is a need for huge capacity building in terms of coordination, institutional arrangement and monitoring and evaluation.
- Vatovavy Fitovinany Region: All 5 areas of capacity need to be strengthened, especially in the capacity for funding mechanism development and monitoring and evaluation.

As this is an indicator of progress, these baseline values will serve as benchmarks for capacity building and assessments to be conducted in the coming years to reach the increase of capacity by 20% targeted by RANO WASH. A detailed of the applied tool is provided in the appendix to enable the RANO WASH team to replicate the same capacity assessments.

#### 3.3.5.2 Percentage of WSPs paying royalties /taxes to the Communes (IND.1312a)

The governance capacity of Communes and the quality of their collaboration with the private sector are also appreciated by their ability to collect their water services taxes and royalties. In the three regions, according to data obtained from the regional departments of the Ministry in charge of WASH, there are 9 water service providers (WSPs). Only 1 Operator paid its fees to the Commune of Vohitranivona, Brickaville District, in Atsinanana Region. All other private service providers operating in the other Communes have not paid their tax liabilities to the Communes. The following table shows the percentage of WSPs paying royalties and taxes to the Communes.

*Table 18 – percentage of WSPs paying royalties and tax to the Communes*

| Région | Number WSP | WSP paying taxes | % |
|---|---|---|---|
| Alaotra Mangoro | 0 | | |
| Atsinanana | 9 | 1 | 11% |
| Vatovayy Fito Vinany | 5 | 0 | 0% |
| Total | 14 | 1 | 7% |

*Source: Regional department of the Ministry and Concerned Communes*

Very few operators (one operator), only 7% pay their tax fees of 150,000 MGA to the commune of Vohitranivona, a small and derisory amount; even if in most contracts with these private service providers, they must pay 8% of their sales to the communes. For the Atsinanana region, most private companies stated that they prefer to reinvest the corresponding tax amounts in the extension of water and sanitation services and/or in the maintenance of existing WASH facilities instead of paying cash to Communes. For the two regions, the Regional Departments complain about the risks of mismanagement because the private service providers do not provide them with any activity or operating report. For the Vatovavy Fitovinany region, according to discussions with key informants, these failures are also due to the fact that decision-makers of these service providers are not based in the communes, but in Antananarivo or other big cities.

### 3.3.6 Communities commitment and control of WASH services

#### 3.3.6.1 Functional WASH Committees for Local Community/CSOs participation and control on WASH Services (IND.141)

The commitment and accountability of institutions for the development of WASH is not limited to the commune level but must also reach and empower local actors at the Fokontany level such as local CSOs and communities through the WASH Committees. It is therefore essential to have assessments of the existence and level of functionality of these WASH committees in the project intervention regions. This WASH committees' functionality is verified by the existence of meetings and their ability to take decisions concerning the maintenance and management of WASH public facilities. This functionality is thus essential to ensure the daily access of communities to WASH services, but especially for the sustainability of these services. It should be noted that in addition to their contribution and roles in facility management, the WASH Committee organizes community participation in improved access to and long-term ownership of WASH services.

- In the 165 Fokontany consulted and distributed in the 51 Communes, only 32 WASH committees were identified, that is, only 19% of the consulted Fokontanys. The presence of WASH committees is therefore very weak. A deplorable case in Moramanga district with almost no WASH committees in the 28 Fokontanys consulted. On the other hand, in Tamatave II, only 2 Fokontanys' out of 9 do not have a WASH committee.
- However, when WASH committees exist, they are in most cases and almost in all Fokontany functional (rate> 90%) except in the region of Vatovavy Fitovinany where the WASH committee's functionality rate is still at 77.78% (<90%). In Atsinanana, the 10 existing Fokontany WASH Committees are all functional.

Combining both the existence and functionality sub-criteria, overall, **17.58% of Fokontany have functional WASH committees.** In the region of Atsinanana, WASH Committees are more dynamic with 25.64% of Fokontany compared to 10.61% in Vatovavy Fitovinany where more efforts should be made to put them in place and / or revitalize them.

The table below shows the existence and functionality of WASH Committees in the 51 consulted communes.

*Table 19 – Percentage of functioning WASH committees*

| REGIONS | # Consulted Fokontany | # WASH Committee | % of Fokontany with WASH Committee | # functioning WASH committees | % functioning WASH committees | % of Fokontany with functioning WASH committees |
|---|---|---|---|---|---|---|
| **Alaotra Mangoro** | 60 | 13 | 22% | 12 | 92.31% | 20,00% |
| **Atsinanana** | 39 | 10 | 26% | 10 | 100.00% | 25,64% |
| **Vatovavy Fitovinany** | 66 | 9 | 14% | 7 | 77.78% | 10,61% |
| **Overall** | **165** | **32** | **19%** | **29** | **90.63%** | **17,58%** |

*Source: Communes Qualitative Survey – SIMS/MSIS/2018*

#### 3.3.6.2 Mechanisms for the collection and effective treatment of WASH services users' grievances and proposals (IND.1412)

On the one hand, it is important that communities and users can address their complaints directly to local managers and authorities (Fokontany and Commune) about the dissatisfaction they notice, and secondly, as an accountability mechanism, these managers and authorities have the duty to effectively respond to these grievances. This indicator therefore counts communes with mechanisms for collecting users' grievances and proposal on WASH services, and the proportion of these communes effectively treating them. The Commune has a mechanism for collecting grievances, as soon as the persons consulted know the steps to follow, rules duly established by the related local bodies. The effective responsiveness of a mechanism is established by the satisfaction of users with regard to the consideration of their grievances and suggestions.

Generally, complaints or grievances from WASH service users are addressed to the facility managers. The decision for their treatment depends on the difficulty and importance of the raised grievances: either these managers can directly treat the grievances, or they should be reported at the Fokontany level before being transmitted to the commune level. Thus, the response time is sometimes based on the good will and the technical and financial capacity of the manager. Grievances are often expressed as direct verbal reactions to manager or Fokontany heads, or during community meetings and/or through third parties (community, traditional leaders, associations, etc.).

"Written" grievance mechanisms, such as the use of idea boxes or dedicated notebooks for registering complaints, are still very rare and none of the consulted communes have this kind of mechanisms or practices put in place yet. The grievance objects are, on the other hand, very diverse and can concern at the same time the bad governance in the management of the facilities (wrongdoing, conflict of interests, non-equitable application of the rules, lack of consultation in the decision making process, etc.) and the poor quality of service delivery (opening hour, low flow/pressure, sufficiency/shortage, insalubrity, etc.).

*Table 20 - Communes with mechanisms for the collection and effective treatment of WASH services users' grievances and proposals*

| REGIONS | Consulted Communes | # Communes with formal and written mechanisms | # Communes with grievance mechanisms | % Communes with grievance mechanisms (A) | Effective responsiveness to grievances (n) | Effective responsiveness to grievances (%) (B) | Grievance mechanism existence and treatment of grievances (%) = (A*B) |
|---|---|---|---|---|---|---|---|
| Alaotra Mangoro | 27 | 0 | 17 | 62,95% | 7 | 41,18% | 25,93% |
| Atsinanana | 13 | 0 | 10 | 76,92% | 4 | 40,00% | 30,77% |
| Vatovavy Fitovinany | 13 | 0 | 9 | 69,23% | 5 | 55,5% | 38,46% |
| **Overall** | **53** | **0** | **36** | **67,92%** | **16** | **44,4%** | 30,19% |

*Source: Communes Qualitative Survey – SIMS/MSIS/2018*

During the qualitative data collection in 53 communes of the 3 intervention regions, the Communal Managers were asked if they had grievance mechanisms in case of users and communities' dissatisfaction with regards to WASH services. In 2/3 (67.92%) of these communes, they confirmed to having mechanisms allowing the communities and users to complain at the level of the managers and/or at the Fokontany or commune level. This proportion of 2/3 of the communes is similar in Alaotra Mangoro and Vatovavy Fitovinany compared to 3/4 of the communes in Atsinanana.

However, out of these 36 Communes having grievance mechanisms, only less than half (44.4%) have established processing capacities which mean that these managers and/or communes respond to the received grievances. Moreover, the proportion of Communes with accountability and grievance mechanisms can therefore **be considered relatively low (30.16%) in the three regions. In Vatovavy Fitovinany, these mechanisms are more functional (38.46% of communes) compared to 25.93% and 30.77% for the other two regions of Alaotra Mangoro and Atsinanana.**

Overall, even if the proportion of communes with grievance mechanisms is acceptable, in general, these mechanisms do not effectively benefit users. The effectiveness of treatment means that the grievances have received answers without ensuring that the problems or complaints have been really solved. Finally, grievance mechanisms written or formalized like the idea box or dedicated grievance/complaint notebooks do not exist yet if we take the data collected from the 53 consulted communes.

## 3.4 Delivery and access to WASH services

The activities proposed for private sector engagement in WASH services delivery will build on the previous experience of the Consortium in implementing approaches for the structured engagement of private sector in providing market-oriented WASH services and products. The approach will combine private sector supply with users' demand by adopting evidence-based approaches to scale up and test a range of new/reinvented business models and products as well as to scale up if succeeding. Each initiative will be documented for learning and further development to provide an analysis of the resources and capabilities required and economic sustainability for consumers and private sector actors.

The approach will be based on best practices and learnings from recent USAID water focused projects. The WASH market assessment in year 1 will define the characteristics of WASH private sector and will enable the development of regional WASH market development plans (WMDPs) and appropriate WASH financial products, laying a foundation for increased engagement of the private sector. Over the years, the project will diversify the model of construction and operation of water systems and increase opportunities for private sector in sanitation through sanitation marketing. The project will also provide targeted capacity building for private sector actors and support the development of professional associations or unions. These combined activities will lead to an increase of private sector actors working in the WASH sector and improve business models for WASH services.

The analysis of indicators related to these approaches and private sector engagement in WASH services related objectives is presented in this section. For this purpose, all main actors involved in WASH services delivery were consulted, including end-users. The purpose is to build a better understanding of the mechanism currently practiced and to identify its strengths and weaknesses as a basis for developing the future strategic and operational approaches of the Project. The study has focused mainly on household access to water and services provided by existing system managers.

Over the entire project intervention area, *the results of the study showed a low rate of household access to basic drinking water services and safely managed drinking water services throughout the country, about 11.35% compared to 35% at national level in rural areas.* Despite this, just under half of households, about 42% reported being satisfied with the water services provided by supply system managers.

In terms of strategic or operational frameworks, the results of the study showed that no comprehensive gender-sensitive assessment of the WASH market was conducted in the three project areas. The same applies for the availability of gender sensitive development strategy documents or sector-specific action plan.

In total, for this Strategic Objective, thirty (30) indicators were processed, of which nineteen (19) were considered as processes. All these indicators are included in the table of indicators at the very beginning of this document. The majority of them are disaggregated by wealth quintile, sex and person with mobility impairment. Data are also presented by region accompanied by comparative and descriptive analysis to provide key information for the development of the project's operational approach.

The following concepts will be useful for understanding the results:

| Labels | Definition / Meaning |
|---|---|
| *Mean* | Average value of each indicator (rate and / or number) for the three regions |
| *Median* | Value that divides the observations into two groups of the same size |
| *Standard error* | Dispersion value around the mean |
| *Confidence interval (95%)* | Interval of variation of the mean. The lower limit can take negative values although it is not necessarily obvious (number of people). Indeed, it depends on the variance. The larger it is, the wider the interval |

| | |
|---|---|
| *[Lower limit; Upper limit]* | |
| *Distribution of ratio* | Distribution of the "average" value according to the breakdown criteria (Age, sex, wealth quintile, PwD/PMI) |
| *Rate* | The "Ratio / Distribution" value transformed to the scale of 100% to facilitate understanding |

### 3.4.1 Definition of indicators

| Indicators | Definitions |
|---|---|
| % of households satisfied with water services provided by businesses | Proportion of households satisfied with WASH services provided by businesses in terms of accessibility, availability and quality of services, i.e.: sufficient supply, physically accessible and affordable cost, safe water and acceptable quality for personal and domestic use.<br>- the installation must be accessible at home (located in the building, the yard).<br>- Secondly, water should be available as needed (enough water in the previous week or available for at least 12 hours a day);<br>- water must be free from all contamination (in accordance with standards for fecal contamination and priority chemicals).<br>Source: IRC International Water and Sanitation Center, WashCost |
| % of marginalized respondents who reported having improved their access to WASH services during the year | Proportion of marginalized (vulnerable, women, children, poor, disabled, etc.) who regularly improved their access to WASH services.<br>The potentially marginalized groups and individuals identified include women, children, people from rural (remote) areas or disadvantaged urban areas, as well as other people living in poverty, refugees or internally displaced persons within their own locality, minorities, indigenous peoples, non-sedentary communities and travelers, the elderly, people with disabilities, people living with HIV / AIDS or other diseases, people living in regions affected by drought, etc. These marginalized are:<br>- excluded from the use of water, sanitation and hygiene facilities and cannot have adapted or adequate access according to their specificities<br>- Excluded from the assembly of users' associations when making decisions.<br>- lack of adequate hygiene facilities in a household during periods of menstruation (shower with door, roof, clean water)<br>Improved access to water (for marginalized groups) is equivalent to collecting water from an improved and safely managed source. |

| | |
|---|---|
| Number of people with access to basic drinking water services through US Government assistance (disaggregated by wealth quintile, sex, age, people with mobility impairment) | Basic drinking water services, according to the Joint Monitoring Program, are defined as improved sources or delivery points which, by nature or by active intervention, are protected from external contamination, in particular external contamination by feces, and water collection does not exceed 30 minutes for a round trip including the queue.<br>Sources of drinking water that meet these criteria include:<br>- the supply of drinking water in the premises;<br>- public tap / stand post; tubular well / borehole;<br>- dug well protected; protected spring;<br>- rainwater; and or<br>- bottled water (when another basic service is used for hand washing, cooking or other basic personal hygiene purposes).<br>All other services are considered "unimproved".<br>The following criteria must be met for those considered to have access to basic drinking water services through the assistance of the United States Government:<br>1. The total collection time must be 30 minutes or less for a round trip (including waiting time). Given this definition, the number of people considered to have "access" to a basic service will be limited by the physical distance from the service to the house of the beneficiaries, the time spent queuing for service and the production capacity of the service.<br>2. The service must be capable of regularly providing (i.e., all year) 20 liters per day for each person considered as "having access". This quantity is considered the daily minimum required to effectively meet the needs of drinking water, sanitation and hygiene.<br>3. The service is newly established or previously nonfunctional buy has been rehabilitated during the current fiscal year with the assistance of the US Government.<br>4. Individuals who count for the indicator should not have had similar "access" to basic drinking water services before the establishment or rehabilitation of the US government supported basic service. Note: Although USAID expects all USG-supported drinking water services to be tested for fecal coliforms and arsenic during the program cycle, compliance with the quality standards is not required for allocation to this indicator.<br><br>Providing "access" does not necessarily guarantee the "use" of a basic drinking water service, and the potential health benefits are not guarantee by mere "access". This indicator does not reflect the reliability and the affordability of the service- two other important factors affecting the likelihood that those defined as having "access" will actually use the service. |

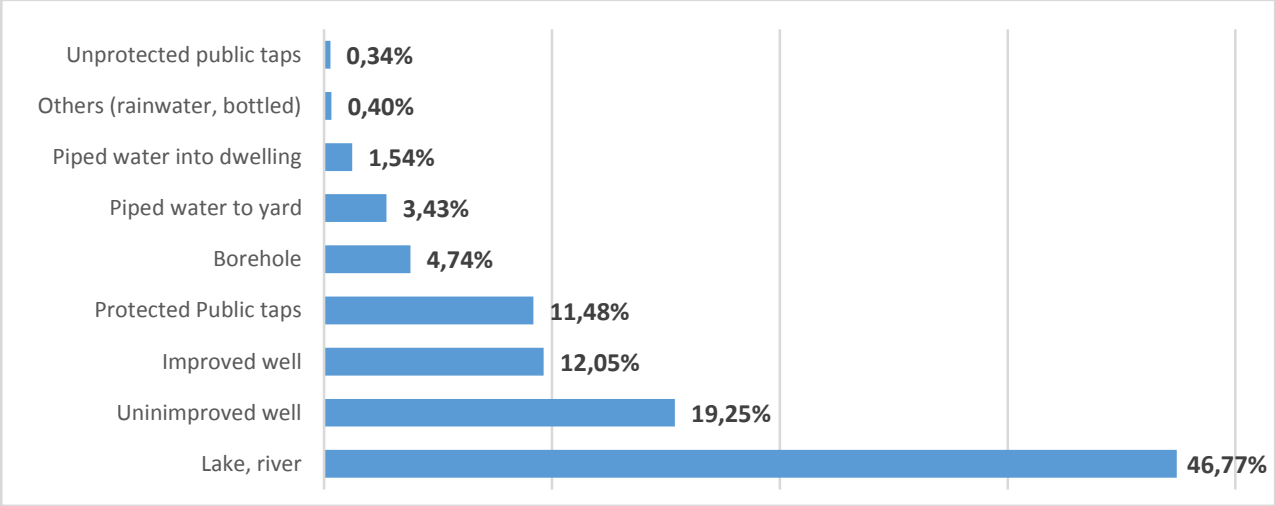
| Indicators | Definitions |
|---|---|
| % of community water systems with a functional management committee (or other management structures) | Percentage of community water system (existence of a distribution network) with a functional management committee, i.e. a committee with a President, a Treasurer and whose members carry out at least one assembly/meeting a year. |
| Daily water consumption per person | Quantity of water consumed per person per day. The consumption in question here is related to the basic needs of hydration and personal hygiene but also for the daily use of water (kitchen, dishes, laundry, ...) except irrigation |
| % of households using water for livelihood activities | Proportion of households using water for their production systems, i.e. the combination of their productive activities and their means of production such as agriculture, livestock, services sector, mining ... |
| Typical time to search for water from an improved or basic source | Time needed for the round trip for water collection and time for the queue<br>Improved: protected source<br>Basic: improved with a collection time of 30 minutes or less |
| Percentage of households using savings and credit mechanisms | Percentage of households using savings and credit mechanisms, including all interest-bearing loan services (bank, MFI, VSLA, etc.) |
| Number of health providers and WASH using funding mechanisms | Number of health providers and WASH using funding mechanisms<br>- Health Providers: Health Mutual, Community Managed Pharmacy (Community Health Mutual Financing mechanism or using Insurance)<br>- WASH service provider: WSP (AEP system manager, WASH block manager) |
| Percentage of water systems and sanitation facilities, functional and sustainably managed | Percentage of water systems and sanitation facilities, functional and sustainably managed<br>- water systems: all installations and facilities intended to provide drinking water and / or collective sewage treatment services in a given geographical area: collection and treatment of water assimilated to the production of water, transport, distribution and connection facilities for drinking water, facilities for transportation, treatment and purification for sanitation (sewers and collectors).<br>- sustainably managed with a management committee, a maintenance fund, an access to the maintenance and repair service (repair technician) |

### 3.4.2 Source of water collection

The main sources of drinking water supply are surface water, streams and rivers that are used by 47% of surveyed households. Impluvium, unprotected standpipes (BF), rainwater and bottled water are almost non-existent. About 2/3 of households use unprotected and unhealthy water sources compared to 1/3 for secure water sources. About 16% of households collect water from improved wells or public protected covered with pumps boreholes, while 19% use unprotected public wells.

*Only 1.54% of households have access to an individual connection*, *3.43% have shared connections (private connection but shared by several households)* and *11.48% for public protected standpipes* often located in the center of villages. More than 72% of households use the same main source of drinking water supply year-round.

*Figure 7 - Main household drinking water sources*




*Source: Household survey – SIMS /MSIS 2018*

*Table 21- Count of water technologies*

| Water point technologies | Count | Beneficiaries counts* | Mean |
|---|---|---|---|
| 1-Unprotected well | 439 | 176 198 | 401 |
| 2-Protected well | 419 | 177 066 | 423 |
| 3-Tubewell | 357 | 164 702 | 461 |
| 4-Borehole | 254 | 65 405 | 258 |
| 5-Public tap | 2 164 | 789 931 | 365 |
| 6-Impluvium | 86 | 20 446 | 238 |
| **Overall** | **3 719** | **1 393 748** | **375** |

**Count derived from Water Infrastructures Inventory*

*Source: WASH Infrastructures Inventory - SIMS/MSIS 2018*

The average number of beneficiaries per water point is 375, which is much higher than the standard of 250 individuals per water point. In total, the number of people having access to these water points is 1,393,748, about 26.80% of the total population within the three regions.

From a geographic point of view, 41% of water points in Vatovavy Fitovinany region are no longer functional compared to 28% in Alaotra Mangoro and 21% in Atsinanana for various reasons.

Depending on the types of water points, the rates of functionality vary from 57% to 84%. The highest rate is for the covered well without pump and uncovered well, respectively 84% and 74%. These two types of water points do not require a lot of maintenance on the one hand, and on the other hand, if needed, the maintenance can easily be done by beneficiaries, hence the strong ownership by users.

By contrast, it is found that covered pump wells (PPMH) and boreholes with pump (FPMH) are the most damaged. Generally, the main causes of breakdowns are the community type of management, the lack of suppliers of locally available necessary equipment and the absence of specialized technicians to repair and maintain the equipment. Yet the majority of water points in the three regions are managed by the community. The management is carried out with Water Point Committees (WPC) and village artisans. The intervention is on a volunteer basis. Beneficiaries living near the water points monitor the use of infrastructure and report to the Committee the anomalies or damage found. The recovery is usually made by a lump sum contribution and by family. However, the frequency of these contributions depends, in most cases, on the need for infrastructure maintenance or repair. The regular / systematic contribution is observed in very rare cases and the amount cannot even cover the expenses necessary for the infrastructure maintenance. That is why many infrastructures have become non-functional.

*Table 22 – Functioning water technologies disaggregated by types and regions*

| Water technologies | Alaotra Mangoro | Atsinanana | Vv7V | Count of functional water technologies | Count of water technologies | Functioning rate |
|---|---|---|---|---|---|---|
| 1-Unprotected well | 83% | 63% | 72% | 326 | 439 | 74% |
| 2-Protected well | 87% | 81% | 82% | 350 | 419 | 84% |
| 3-Tubewell | 71% | 54% | 56% | 202 | 357 | 57% |
| 4-Borehole | 83% | 72% | 64% | 175 | 254 | 69% |
| 5-Public tap | 77% | 81% | 50% | 1448 | 2 164 | 67% |
| 6-Impluvium | 100% | 48% | 83% | 53 | 86 | 62% |
| **Functionality rate** | **79%** | **72%** | **59%** | **2 554** | **3 719** | **69%** |
| **Total général** | **1 055** | **508** | **991** | | | |

*Source : WASH Infrastructures Inventory - SIMS/MSIS 2018*

*Figure 8 - Functional water technologies disaggregated by types*

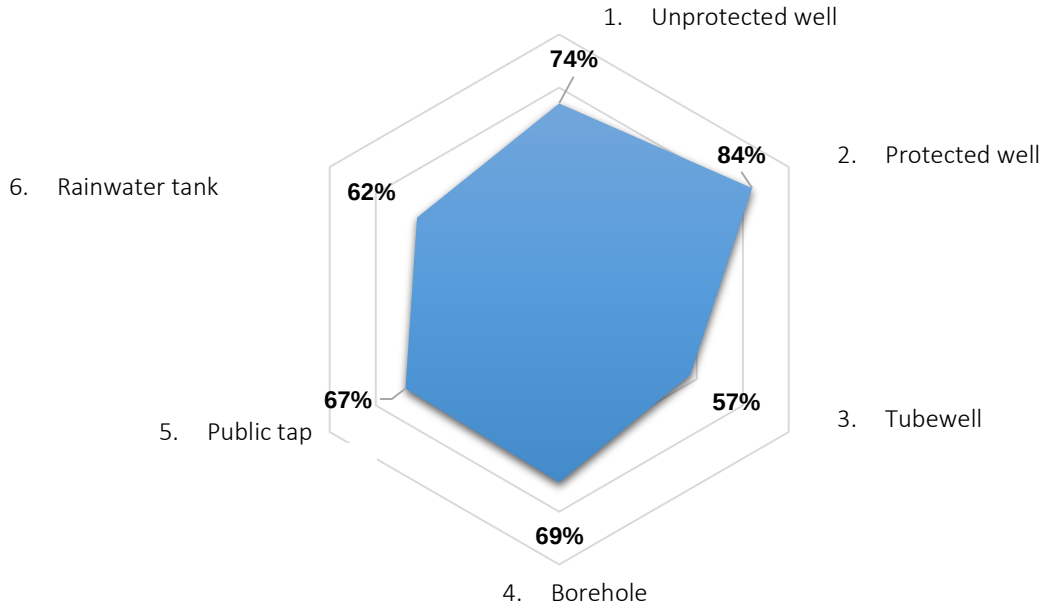
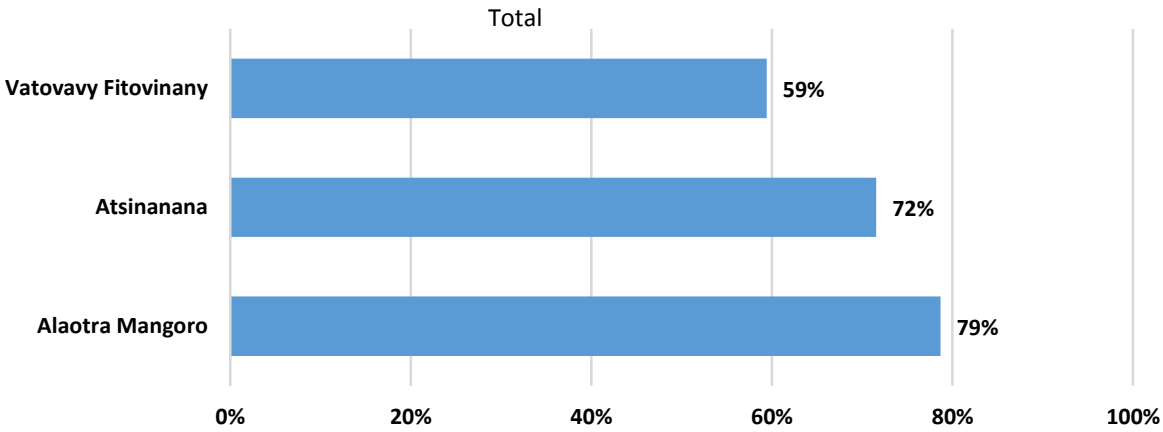



*Figure 9 - Rate of Functional water technologies disaggregated by region*




*Source: WASH infrastructures inventory*

### 3.4.3 Access to drinking water

The indicator values presented in this section are obtained through the results of the household survey, the WASH infrastructure inventory and possibly the combination of these two data sources. Values obtained are systematically compared to national references if available as well as data from other projects working in the same intervention area as RANO WASH. The starting point for the calculation of all indicators was the definitions provided by the Project which generally refer to those described in the JMP- Joint Monitoring Plan.

#### 3.4.3.1 Typical duration for water collection (IND.210)

The results are also presented according to the travel time and the person responsible for the water collection. The calculation includes the time of the round trip and the queue.

Overall, in 3.20% of cases, it takes at least 30 minutes to collect drinking water. The maximum duration of 115 minutes for unimproved drinking water collection is observed in Anosibe An'Ala. On the other hand, in 61% of

cases, women aged 15 and over are usually responsible for collecting drinking water. In addition, in 10% of cases, girls under the age of 15 are responsible for this task.

For basic drinking water services, the average time required for the collection in Atsinanana region is 10 minutes while that of Alaotra Mangoro is about 12 minutes and 13 minutes for Vatovavy Fitovinany. The maximum duration of 30mn is observed in the Fokontany of Marozevo / rural commune of Beforona / Alaotra Mangoro and the Fokontany of Ambohimanga /rural commune of Didy / Alaotra Mangoro.

For improved water services, the average duration in Alaotra Mangoro is 17 minutes while those of Atsinanana and Vatovavy Fitovinany are approximately 13 minutes. The maximum duration of 60 minutes is recorded in Anjiro Tsimialonjafy Fokontany/rural commune of Sabotsy Anjiro/Alaotra Mangoro, in the Fokontany of Ambatosoratra/ rural Commune Ambatosoratra / Alaotra Mangoro and Fokontany Ambodivomanga / CR Sahavato / Vatovavy Fitovinany.

Approximately, the average time for water collection for the three regions is 13 minutes for basic drinking water services and 14 minutes for improved water services.

*Table 23 - Time spent collecting Water from basic or improved source (minutes)*

| REGIONS | Basic (mn) | Improved (mn) |
|---|---|---|
| Alaotra Mangoro | 11.79 | 17.24 |
| Atsinanana | 10.49 | 13.26 |
| Vatovavy Fitovinany | 13.41 | 12.75 |
| **Total** | **12.82** | **13.96** |
| **Maximum duration** | **60** | **30** |

*Source: Household survey, SIMS/MSIS 2018*

*For safely managed water services, the average duration of water collection is about 6.37 mn.* In the Atsinanana region the collection time from safely managed water services is the lowest with only 3 minutes on average, three times less than the average duration in Vatovavy Fitovinany region. For Alaotra Mangoro, only 1 surveyed household said they had access to a safely managed water service (individual connection) with 4 minutes of water collection time.

*Table 24 – Time spent collecting Water from safely managed source*

| REGIONS | Time (mn) | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 4 | - | - | - |
| Atsinanana | 3 | 0,45 | 2,08 | 3,92 |
| Vatovavy Fitovinany | 9 | 1,40 | 6,13 | 11,87 |
| **Overall** | **6,37** | **0,97** | **4,37** | **8,37** |

*Source: Household survey–baseline study, SIMS/MSIS 2018*

#### 3.4.3.2 Rate of access to water services

The results presented in this section come from quantitative household surveys, which will be disaggregated by region, wealth quintile, sex, age and person with mobility impairment. Information such as water sources, types of water services and the source of funding through which beneficiary households had access to them will also be presented.

#### *3.4.3.2.1 Household access to basic drinking water services all year round*

Based on the JMP- Joint Monitoring Plan definition, basic drinking water services include the following criteria: (i) Free of fecal and / or chemical contamination- (ii) Protected- improved water point, (iii) Available year-round- (iv) Water collection duration considering round trip and queue not exceeding 30 minutes.

*Table 25 - Percentage of households with year-round access to basic drinking water source*

| REGIONS | Mean | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 5,91% | 1,95% | 2,04% | 9,79% |
| Atsinanana | 13,57% | 4,21% | 5,21% | 21,94% |
| Vatovavy Fitovinany | 11,87% | 3,00% | 5,91% | 17,83% |
| **Overall** | **10,38%** | **1,79%** | **6,83%** | **13,93%** |

*Source: Household survey – baseline study, SIMS/MSIS 2018*

The average value for the three regions is 10.38% distributed to 5.91% for the Alaotra Mangoro region, 13.57% for Atsinanana and 11.87% for Vatovavy Fitovinany.

This indicator calculates exclusively households with access to basic drinking water services and does not include households with access to safely managed drinking water services.

#### 3.4.3.2.2 *Household access to safely managed drinking water services all year round*

In accordance with the JMP definition, safely managed drinking water services must be free from contamination and fecal and / or chemical matter, protected water point, improved, available year-round, water collection time (round trip travel and waiting time within 30 minutes) and located on site making access possible at all times, if necessary.

For the three regions, *the average percentage value of households with access to safely managed drinking water services is 1.09%*, distributed as follow: 0.85% for Atsinanana region by Toamasina II district and 2.18% for Vatovavy Fitovinany region by the Ikongo district. The rate of 0.07% observed in Alaotra Mangoro corresponds to the individual connection built by the household itself without any intervention from donors.

*Table 26 – Percentage of households with year-round safely managed drinking water services*

| REGIONS | Mean | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 0,07% | 0,07% | -0,06% | 0,20% |
| Atsinanana | 0,85% | 0,40% | 0,05% | 1,65% |
| Vatovavy Fitovinany | 2,18% | 1,47% | -0,75% | 5,11% |
| **Overall** | **1,09%** | **0,57%** | **-0,04%** | **2,22%** |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

#### 3.4.3.2.3 *Household having access to basic and safely managed drinking water services (IND.02)*

Summarizing the results of these two types of services (basic drinking water services and safely managed water services), we obtain the following results:

*Table 27 – Percentage of households with year-round access to basic drinking water source and safely managed drinking water services*

| REGIONS | Mean | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 5,98% | 1,97% | 2,06% | 9,90% |
| Atsinanana | 14,08% | 4,24% | 5,66% | 22,50% |
| Vatovavy Fitovinany | 13,89% | 3,27% | 7,40% | 20,37% |
| **Overall** | **11,31%** | **1,86%** | **7,61%** | **15,00%** |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

The average for the three regions is 11.31%. The Alaotra Mangoro region has a low rate of 5.98% compared to 14.08% for Atsinanana and 13.89% for Vatovavy Fitovinany. The reason for this gap in Alaotra Mangoro, according to the field agents and confirmed by focus group results, is the large quantity of unimproved wells. Indeed, the access rate for the entire Alaotra Mangoro region for individual connections (AEPG, AEPP) is very low, only 0.26%. In addition, the results of the household survey revealed that the most used water sources are surface water for 41.95% of households and unimproved wells for 30.03%.

#### 3.4.3.2.4 *Access to Basic Drinking Water Services from US Government support (IND.04 and 23)*

This indicator calculates the percentage of people whose access to basic drinking water services comes from USG assistance, with improved water points, protected and free from feces and / or chemicals and that sufficient quantities meeting people basic needs.

*Table 28 - Percentage of people having access to basic drinking water services because of USG support*

| REGIONS | Mean | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 0,00% | | | |
| Atsinanana | 1,36% | 1,33% | -1,28% | 4,01% |
| Vatovavy Fitovinany | 0,49% | 0,48% | -0,45% | 1,44% |
| **Overall** | 0,56% | 0,40% | -0,24% | 1,35% |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

The average for the three regions is 0.56% knowing that the Alaotra Mangoro region does not have any. On the other hand, the region of Atsinanana has a rate of 1.36% represented specifically by the district of Brickaville whereas the Vatovavy Fitovinany region has a rate of 0.49% by the district of Ikongo.

Wealth Quintile

| Wealth Quintile | Ratio | Rate | Total | Std. Error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| **Poorest** | 0,08% | 13,70% | 3981 | 3098,953 | -2170,64 | 10132,1 |
| **Poor** | 0,10% | 17,47% | 5077 | 4939,588 | -4728,01 | 14882 |
| **Medium** | 0,06% | 10,48% | 3046 | 2963,753 | -2836,8 | 8929,201 |
| **Wealthy** | 0,25% | 44,38% | 12899 | 9691,429 | -6338,12 | 32136,55 |
| **Wealthiest** | 0,08% | 13,97% | 4062 | 3951,67 | -3782,41 | 11905,6 |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

The analysis of WASH support agencies or donors in the project area showed that *29,065 people, including 18,785 for Atsinanana and 10,280 for Vatovavy Fitovinany*, *have access to basic drinking water services from the USG support*. The result is obtained through the household survey, cross-checked by data provided by USAID-funded projects in the three regions. It is worth noting the high proportion of female beneficiaries at 40%. All categories of households and individuals benefited from this privilege illustrated is in the table below. The highest number of people in the rich quintiles (Q4 and Q5) are 16,961 compared to 9,058 for the poor quintiles (Q1 and Q2) while the middle class has 3,046 people. Regarding the individuals with mobility impairment (PMI), no record was observed.

Age

| AGE | Ratio | Rate | Total | Std. Error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| **0-5** | 0,05% | 8,73% | 2538 | 2469,794 | -2364 | 7441,001 |
| **5-10** | 0,06% | 10,20% | 2965 | 2173,385 | -1348,81 | 7279,467 |
| **10-12** | 0,03% | 5,24% | 1523 | 1481,876 | -1418,4 | 4464,601 |
| **12-15** | 0,04% | 6,43% | 1869 | 1810,724 | -1725,2 | 5463,322 |
| **15-19** | 0,09% | 16,91% | 4915 | 3473,118 | -1978,82 | 11809,35 |
| **19-25** | 0,07% | 11,67% | 3392 | 2339,803 | -1252,31 | 8036,635 |
| **25-60** | 0,23% | 40,81% | 11861 | 8693,542 | -5395,22 | 29117,87 |
| **Over 60** | 0,00% | 0,00% | 0 | 0% | 0% | 0% |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

More than half (59.2%) of people having access to basic drinking water services from US government support, are children and under 25 youth while 40, 81% of people are between 25 and 60 and zero among people over 60.

| SEX | Ratio | Rate | Total | Std. error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| Men | 0,33% | 59,47% | 17284 | 12592,93 | -7712,49 | 42281,06 |
| Women | 0,23% | 40,53% | 11780 | 8265,293 | -4626,02 | 28186,93 |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

59.47% of men have access to basic drinking water services through USG support, compared to 40.53% of women.

Person with mobility impairment (PMI)

The value of this indicator for the PMI category is zero.

#### 3.4.3.2.5 *Access to safely managed drinking water services from the US Government support (IND.05))*

This indicator calculates the percentage of people having access to safely managed drinking water services from USG assistance, meaning with improved, protected, free of feces and / or chemicals water points and located and available on site when needed and with adequate quantities meeting human basic needs.

*Table 29 - Percentage of households gaining access to basic drinking water services as a result of USG assistance*

| REGIONS | Mean | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 0,00% | | | |
| Atsinanana | 0,18% | 0,18% | -0,17% | 0,54% |
| Vatovavy Fitovinany | 0,49% | 0,48% | -0,45% | 1,44% |
| All regions | 0,25% | 0,20% | -0,15% | 0,64% |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

The average value for the three regions is 0.25% and for Alaotra Mangoro it is zero because of the non-intervention of USAID or other US Government Agencies in this region. This value thus comes from the regions of Atsinanana with a rate of 0.18% by the district of Brickaville II against 0.49% in the region of Vatovavy Fitovinany by the district of Ikongo.

The rate of 0.25% corresponds to households among the wealthy quintiles and is distributed among the people within the ages of 25 to 60 years, of which 63% are men against 37% women. For PMI, no records were observed.

Wealth Quintile

| Quintile | Ratio | Rate | Total | Std error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| Poorest | | | | | | |
| Poor | | | | | | |
| Medium | | | | | | |
| Wealthy | 0,25% | 100% | 12 818 | 10260,66 | -7548,904 | 33185,6 |
| Wealthiest | | | | | | |

Age

| AGE | Ratio | Rate | Total | Std error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| Age 0-5ans | 0,01% | 3,96% | 508 | 493,9588 | -472,8006 | 1488,2 |
| Age 5-10ans | 0,04% | 14,58% | 1 869 | 1810,724 | -1725,195 | 5463,322 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Age 10-12ans | 0,00% | 0,00% | - | - | - | - |
| Age 12-15ans | 0,05% | 21,87% | 2 804 | 2716,086 | -2587,792 | 8194,983 |
| Age 15-19ans | 0,04% | 15,21% | 1 950 | 1340,023 | -709,9929 | 4609,856 |
| Age 19-25ans | 0,02% | 7,29% | 935 | 905,3619 | -862,5974 | 2731,661 |
| Age 25-60ans | 0,07% | 29,79% | 3 819 | 2890,174 | -1917,954 | 9555,944 |
| Age > 60ans | 0,02% | 7,29% | 935 | 905,3619 | -862,5974 | 2731,661 |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

Sex

| Sex | Ratio | Rate | Total | Std error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| Men | 0,16% | 62,92% | 8 065 | 6508,478 | -4854,405 | 20984,05 |
| Women | 0,09% | 37,08% | 4 754 | 3753,78 | -2697,668 | 12204,72 |

*Source: Household Survey - Baseline Study, SIMS / MSIS 2018*

The number of *people having access to safely managed drinking water services from USG support is 12,818 persons, including 2,538 for Atsinanana and 10,280 for Vatovavy Fitovinany*. Moreover, since these are essentially individual connections with relatively expensive costs required to have them, these people are generally among the rich quintiles. No PMI benefited from these services. The value of the indicator is derived from the results of the household survey, cross-checked with data provided by USAID-funded projects in the three regions.

#### 3.4.3.3 Equity principle: Access of the marginalized groups to WASH services during the year (IND.22)

A specific indicator is considered to highlight the equity in access to WASH services. This is the percentage of marginalized households reporting improved access to WASH services during the year.

There are two kinds of marginalized people,

- On the one hand, households are categorized as marginalized if they feel excluded from the use of the infrastructure and have not adapted or facilitated access according to their specific needs (People with disabilities barriers). Another marginalization criteria is exclusion from participation in decision making during users' association meetings.
  - ➢ Improved access to water (for marginalized groups) is equivalent to collecting water from a protected and improved source.
- On the other hand, the lack of adequate hygiene facilities in a household during periods of menstruation has also been considered as a kind of marginalization (including the case of girls going to school).
  - ➢ For sanitation and hygiene, an improved access corresponds to women and girls access to suitable and adequate infrastructures for their specificities protecting their privacy by use of latrines and/or showers with closed doors, roofs and running water.

*Table 30 - Percentage of Marginalized Respondents who reported Improved Access to WASH Services During the Year*

| Mean | Std error | Lower limit | Upper limit | Alaotra Mangoro | Atsinanana | V7V |
|---|---|---|---|---|---|---|
| 2,48% | 0,20% | 2,08% | 2,88% | 2,68% | 2,27% | 2,49% |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

Among the households surveyed, out of a total of 1,751 households, there were 210 women-headed households who felt excluded from the use of water infrastructure because they cannot participate in decision-making at users' association meetings concerning their water facility or that their participation was not well appreciated. Despite this, 82 of them have access to improved and protected water points, i.e. 39.05%.

Indeed, in some villages and for certain ethnic groups in the south-eastern part of Madagascar, during community meetings, women have no rights during decision-making.

*Table 31 - Percentage of Marginalized Women Headed Households (Water Services)*

| Women headed households | Number | Rate |
|---|---|---|
| Marginalized | 128 | 60,95% |
| Marginalized but having access to improved and protected water points | 82 | 39,05% |
| **Total** | **210** | **100** |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

*For example, thanks to the information gathered by the team, an entire Fokontany of "Antanantsara" in Vohitrindry Commune - Vohipeno District - Vatovavy Fitovinany Region has been identified as having marginalized groups. Indeed, few households have been excluded by the community because of violation of ancestral customs and incestuous families are living in this Fokontany. No WASH infrastructure was found in the Fokontany, so access to water comes from a river, showering is done on the riverside and open defecation is practiced in the bush/coffee fields.*

### 3.4.4 Water use

#### 3.4.4.1 Quantity of water used per day (IND.27)

An individual's daily use of water is 32.78 liters per day for all three regions. The use or consumption includes any use of water except irrigation of crop fields, i.e. drinking water, cooking, personal hygiene, and laundry. This quantity is 30.12 liters for the region of Alaotra Mangoro compared to 32.79 liters for Vatovavy Fitovinany and 35.84 liters for Atsinanana. According to WHO, a minimum of 20 liters per person per day is recommended to meet the basic needs of hydration and personal hygiene. However, WHO stresses that in order to live decently, a person needs 50 liters of water a day.

*It should be noted that water is not available throughout the year in sufficient quantity and often the quality in the coastal areas is not desirable. Indeed, these areas are vulnerable to cyclones, thus, the water becomes a yellowish color. During winter, the level of water in wells (improved or not) drops sharply and sometimes water mixes with seawater.*

*Table 32 – Liters of water used per capita per day*

| REGIONS | Mean (litres) | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 30,12 | 1,78 | 26,57 | 33,66 |
| Atsinanana | 35,84 | 2,57 | 30,75 | 40,94 |
| Vatovavy Fitovinany | 32,79 | 2,91 | 27,02 | 38,57 |
| **Overall** | **32,78** | **1,45** | **29,90** | **35,66** |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

The highest water consumption per person per day comes from shared connections and public wells, which are respectively 48.16 liters and 40 liters. The lowest consumption comes from unprotected boreholes[21] and other water points such as rainwater or bottled water.

*Table 33 - Quantity of water used per capita per day by type of water point*

| Type water point/technology | Mean (liters) | Std error | Lower limit | Upper limit |
|---|---|---|---|---|
| Lake, river | 33,36 | 1,93 | 29,54 | 37,19 |
| Unimproved well | 27,20 | 1,71 | 23,80 | 30,60 |
| Unprotected public tap | 26,77 | 2,56 | 21,70 | 31,85 |
| Protected public tap | 39,86 | 5,97 | 28,01 | 51,72 |
| Piped water to yard | 48,16 | 8,74 | 30,81 | 65,50 |
| Piped water into dwelling | 39,46 | 4,96 | 29,61 | 49,32 |
| Improved well | 28,01 | 3,42 | 21,22 | 34,80 |
| Borehole | 34,15 | 8,16 | 17,95 | 50,34 |
| Impluvium | 0,00 | 0,00 | 0,00 | 0,00 |
| Others (rainwater, bottled) | 32,37 | 3,34 | 25,74 | 39,00 |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

#### 3.4.4.2 Water Use for Productive livelihood and Income Generating Activities (IGA) (IND.29)

Apart from household and individual hygiene use, on average 79.97% of households in the three regions use water for subsistence or livelihood activities on a regular and permanent basis. The Alaotra Mangoro region holds the highest rate of 86.72% of households using water for IGAs compared to 80.96% for Atsinanana and 73.21% for Vatovavy Fitovinany. From the data collected and by excluding households collecting water from rivers and lakes or fountains, the percentage of households using water for productive purposes for any type of water (from protected or non-protected sources, improved or non-improved water points) could be calculated.

Temporary activities, such as small restaurants set up at markets (mpivarotra hani-masaka, mofo voahendy) also use water. Local alcohol producers are grouped in the other category.

[21] The unprotected boreholes here are free access boreholes, open to the public, without fences, without opening and closing hours (unlike public BF protected or shared connections that have regulations, for example require contributions financial, with enclosures/fences ...).

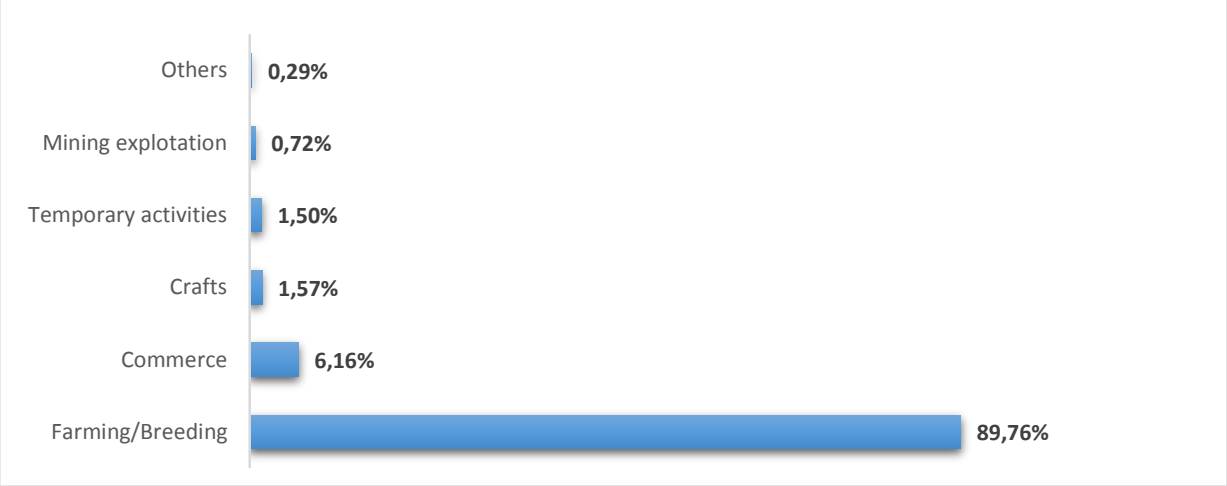
*Table 34 - Rate of households using water for productive livelihood purposes*

| REGIONS | Mean | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 86,72% | 2,59% | 81,58% | 91,86% |
| Atsinanana | 80,96% | 4,20% | 72,62% | 89,31% |
| Vatovavy Fitovinany | 73,21% | 4,22% | 64,84% | 81,58% |
| **Total** | 79,97% | 2,18% | 75,65% | 84,28% |

*Source: Household survey, SIMS/MSIS 2018*

Disaggregated by type of income generating activity, the rate of 26.85% is distributed as follows, all types of water combined.

*Figure 10 - Rate of household using water for productive livelihood purposes*




*Source: Household survey – SIMS/MSIS 2018*

*Table 35 - Rate of households using water for productive livelihood purposes disaggregated by water technologies*

| Activities | Water sources/ water technologies (improved and unimproved) | Water technologies (excluding water bodies: Lake, River…) |
|---|---|---|
| *Farming/Breeding* | 89,76% | 87,35% |
| *Commerce* | 6,16% | 9,26% |
| *Crafts* | 1,57% | 1,47% |
| *Temporary activities* | 1,50% | 1,18% |
| *Informal activities (mostly mining)* | 0,72% | 0,44% |
| *Others* | 0,29% | 0,29% |
| ***Overall*** | **100%** | **100%** |

*Source: Household survey, SIMS/MSIS 2018*

Agriculture and livestock hold the highest rate of water use at 89.76% and trade at 6.16%. It should be noted that the trade sector, here, integrates any non-temporary activity of the service sector (tavern, vegetable and fruit sellers, groceries ...). The lowest rate recorded in the informal mining sector is 0.72%.

Depending on the gender of the household head, the main livelihood activities vary substantially. Women headed households tend to opt for trade activity and handicrafts respectively of 14% and 8% compared to 7% and 2% for men headed households.

#### 3.4.4.3 Coverage in water supply / infrastructure (IND 28)

According to the results of the WASH infrastructure Inventory, the average number of beneficiaries per water point is 375. This number is much higher than the applicable norm of 250 people per water point. In all, the number of people having access to these water points is 1,393,748, which means a water supply coverage of 26.80% for the three regions.

### 3.4.5 Management of water supply sources

#### 3.4.5.1 Sustainable management of WASH services (IND.221)

In general, *11.37% of the water systems and functional sanitation facilities in the three regions are sustainably managed*. A water system is considered functional and sustainably managed if the system has a maintenance dedicated fund, a functional management committee and whose infrastructures are maintained and repaired in the event of a breakdown.

The highest rate is in Vatovavy Fitovinany, with 13.57% and the lowest in Atsinanana region with 8.36%. Additionally, water systems are better managed than sanitation facilities with respective rates of 33.18% (Water System) and 6.90% (sanitation facility) sustainably managed. On the other hand, if compared with indicator 2.6 - percentage of community water systems with a functional management committee (or other management structures) which is for example 36.90% in Alaotra Mangoro, the proportion of 11.46% sustainably managed is quite weak and alarming. The reason is that even if the Management Committees are functional especially for community management, very often, there is no sufficient maintenance fund, regularly provisioned or systematically guaranteeing the financial means required for the maintenance and the repair in case of breakdown.

This indicator and its four sub-indicators were obtained from the infrastructure inventory: (i) Number of functional sanitation facilities- (ii) Number of functional water systems- (iii) Number of sustainably managed sanitation facilities- (iv) Number of sustainably managed water systems.

*Table 36 – Number and Percentage of functional, sustainably managed water systems and sanitation facilities*

| REGIONS | Water systems | | | Sanitation facilities | | | % of functional, sustainably managed water systems and sanitation facilities |
|---|---|---|---|---|---|---|---|
| | # Functional | # and % sustainably managed | | # Functional | # and % sustainably managed | | |
| **Alaotra Mangoro** | 96 | 40 | 41,67% | 375 | 14 | 3,73% | 11,46% |
| **Atsinanana** | 23 | 7 | 30,43% | 324 | 22 | 6,79% | 8,36% |
| **Vatovavy Fitovinany** | 98 | 25 | 25,51% | 359 | 37 | 10,31% | 13,57% |
| Overall | 217 | 72 | 33,18% | 1 058 | 73 | 6,90% | 11,37% |

*Source : WASH infrastructures Inventory - SIMS/MSIS 2018*

*Table 37 – Number and Percentage of functioning, sustainably private managed water systems and sanitation facilities*

| REGIONS | Water systems | | | Sanitation facilities | | |
|---|---|---|---|---|---|---|
| | # and % sustainably managed | | # privately managed | # and % sustainably managed | | # privately managed |
| **Alaotra Mangoro** | 40 | 41,67% | 0 | 14 | 3,73% | 2 |
| **Atsinanana** | 7 | 30,43% | 6 | 22 | 6,79% | 6 |
| **Vatovavy Fitovinany** | 25 | 25,51% | 5 | 37 | 10,31% | 32 |
| Overall | 72 | 33,18% | 11 | 73 | 6,90% | 40 |

*Source: WASH infrastructures Inventory - SIMS/MSIS 2018 and Statistics from the Department of Water*

In the case of community-managed water systems and water infrastructure, user associations or beneficiary communities make regular contributions for maintenance and repair in the event of a breakdown. However, in most cases these contributions are not sufficient to cover maintenance or repair costs, in which case additional contributions are required from beneficiaries. If the beneficiaries manage to cover the costs, the infrastructure is repaired; otherwise, it is abandoned. This second case is very common in Vatovavy Fitovinany Region.

Privately managed water systems are all sustainably managed (apart from three cases in Atsinanana where managers are being replaced / recruited), but unfortunately, they are still few: only 6 in Atsinanana and 5 in Vatovavy Fitovinany. It is therefore essential to continue to promote this type of management under RANO WASH and to change the management of certain water systems / infrastructures currently under community management into private management.

For sanitation facilities, almost all households, especially in Atsinanana and Vatovavy Fitovinany regions, are reluctant to contribute financially or participate in the maintenance and repair of these facilities. As soon as the costs seem quite expensive (emptying service, roof repair or metal door installation), these facilities will be abandoned and in fact, the population prefers to build unimproved latrines (without slab or slab without cover) and those who cannot afford it go back to open defecation practices.

The private management of sanitation facilities is further increasing especially in Vatovavy Fitovinany thanks to the contribution of USAID-funded projects such as RANO-HP. The other two regions of Atsinanana and especially Alaotra Mangoro are still vulnerable and deserve more attention by RANO WASH.

*Photo 1: Public toilets of Tataho Primary school – Manakara – Vatovavy Fitovinany Region*

*Photo: SIMS/MSIS 2018 –Infrastructure inventory*

Even if the rules are established and accepted, most beneficiaries of community-managed water systems do not pay their regular contributions to the maintenance fund. Some are reluctant to pay due to lack of trust to treasurers because of mismanagement, or even misappropriation suspicion. Since the purchasing power of most of these beneficiaries is low, there are cases where fund is only provisioned in the event of a breakdown. But the bills are often quite heavy in case of failure, therefore beneficiaries prefer to collect water in other places, leaving the unrepaired non-functional infrastructures.

*Photo 2 : Public Toilets of Tanambe Manakara Be Primary School – Manakara – Vatovavy Fitovinany Region*

*Photo : SIMS/MSIS 2018 – Infrastructure inventory*

#### 3.4.5.2 Household / user satisfaction with the water services provided by private company (IND.21)

This indicator aims to assess the overall satisfaction level of the population related to WASH services provided by companies. It is the ratio between households satisfied with WASH services provided by private companies and the total number of households using WASH services provided by companies. All private operators and EPICs (other than JIRAMA) providing and/or managing WASH services, for profit, paying taxes, are considered as enterprises.

Despite the situation experienced, in particular the lack of management of infrastructures, 42% of households are satisfied by the water services provided by private companies compared to 58% of households who are still not satisfied. Satisfied households are found in Vatovavy Fitovinany particularly in the Ikongo district and in Atsinanana region, in the districts of Brickaville and Foulpointe.

*Household satisfaction is assessed according to the following criteria and in order of importance:*

- Quality of infrastructures and services
- Water quality
- Price of water
- Water pressure

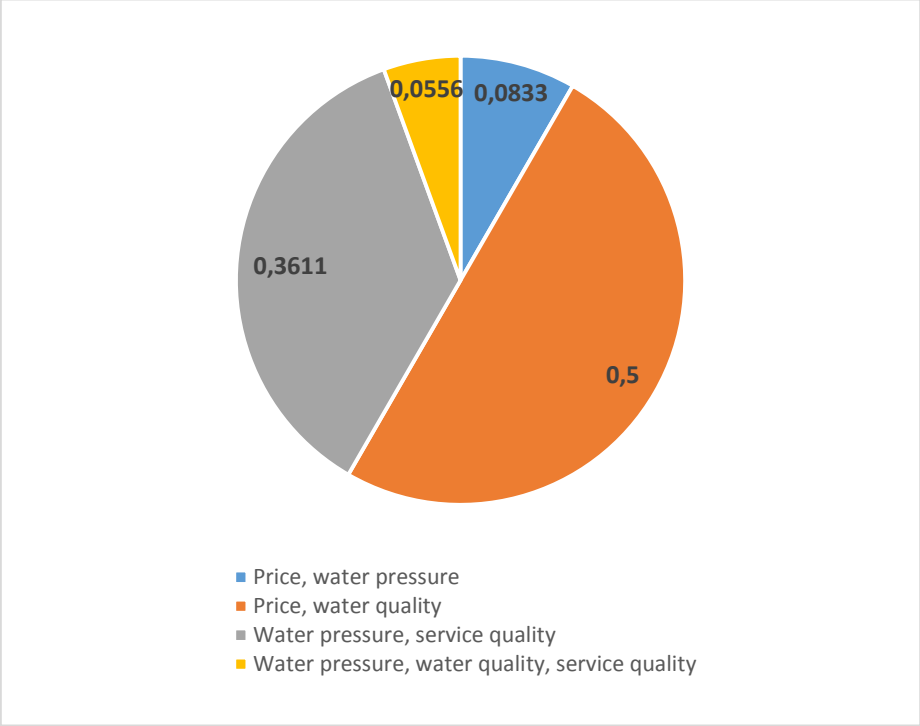
*Table 38 - Percentage of households satisfied with water services provided by enterprises*

| REGIONS | Not satisfied | Medium | Satisfied | Very satisfied |
|---|---|---|---|---|
| Alaotra Mangoro | n/a | n/a | n/a | n/a |
| Atsinanana | 13,04% | 56,52% | 21,74% | 8,70% |
| Vatovavy Fitovinany | 0,00% | 38,46% | 61,54% | 0,00% |
| **Overall** | **8,33%** | **50,00%** | **36,11%** | **5,56%** |

*Source: Household Survey - SIMS/MSIS 2018*

The non-satisfaction of the population is generally associated with the price of the liter, the poor physical status of the infrastructure and the quality of the water which may have a slightly salty taste. According to focus group results, the majority of non-functional infrastructures are due to the lack of maintenance, the absence of managers and the lack of local authority empowerment.

*Figure 11- Rate of households satisfied with water services provided by enterprises*




*Source: Household survey – SIM/MSIS 2018*

### 3.4.6 Financing mechanisms for WASH services

#### 3.4.6.1 Access to savings and credit mechanisms (IND.2116)

This indicator calculates the percentage of households using savings and credit mechanisms. Once a household has made a simple deposit, borrowed or loaned money with interest, it is considered whether at a bank, micro finance institution or VSLA (Village Saving Loan Association) or in rare cases, from neighbors.

*Table 39 - Percentage of households using savings and loans mechanisms*

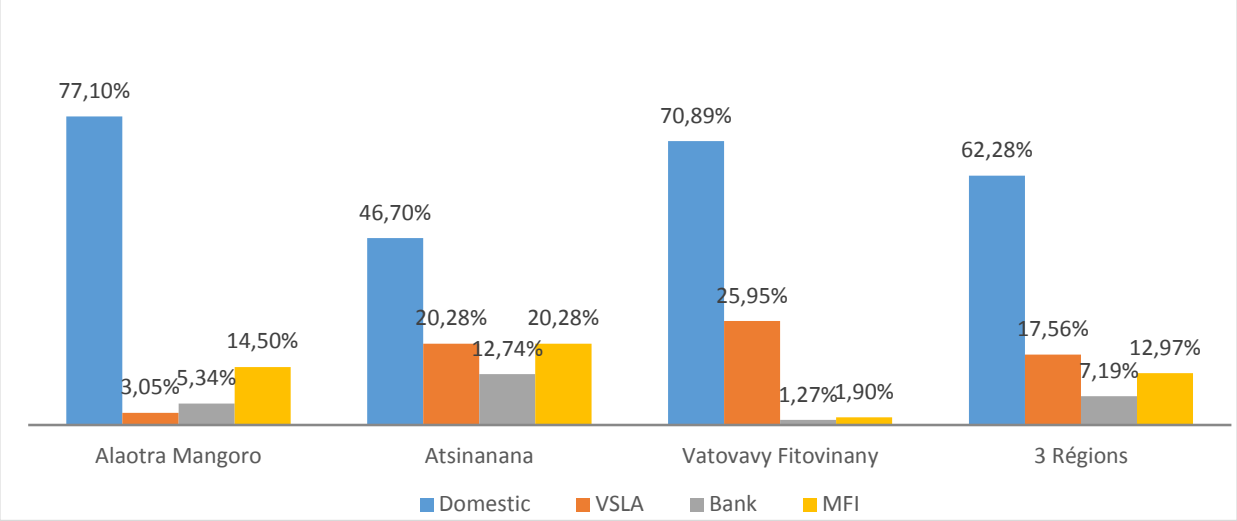
| Region | Mean | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 0,96% | 0,47% | 0,04% | 1,89% |
| Atsinanana | 10,27% | 3,40% | 3,52% | 17,01% |
| Vatovavy Fitovinany | 7,39% | 2,22% | 2,98% | 11,80% |
| **Overall** | **6,08%** | **1,30%** | **3,50%** | **8,66%** |

*Source: Household Survey - SIMS/MSIS 2018*

The average rate in the three regions is quite low about 6.08% distributed at 0.96% for Alaotra Mangoro, 10.27% for Atsinanana and 7.39% for Vatovavy Fitovinany. The relatively high values in Atsinanana and Vatovavy Fitovinany result from the intervention of different Projects promoting the VSLA or Savings and the SILC Savings

and Internal Lending Community / SILC mechanisms[22]. In addition, actors in the traditional MFI sector find suitable context to reduce the investment risk in Atsinanana with a fairly acceptable rate of 20.28% of households. Indeed, from an economic perspective, the standard of living in Atsinanana is better than other regions. In addition, the reluctance of households resulting from the lack of understanding of these mechanisms also contributes to this small proportion.

*Figure 12 – Household Saving Preferences*

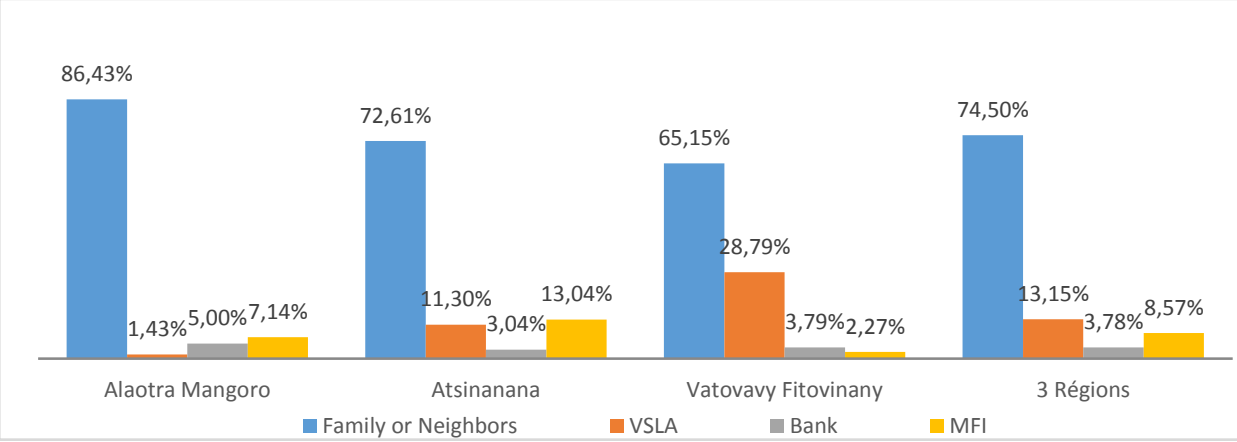



*Source: Household survey – SIMS/MSIS 2018*

In the 3 regions, the proportion of households keeping their savings at home, better known as "hoarding", is high at 62.28%.

The preference for VSLA / SILC as a savings mechanism is stronger in Atsinanana and Vatovavy Fitovinany regions with relatively high rates of 20.28% and 25.95% respectively. It is mainly due to the intervention of several projects and organizations promoting these community saving and credit mechanisms. For Vatovavy Fitovinany, the failure / bankruptcy of the TIAVO microfinance institution in the region also played a role. However, the microfinance institutions (MFIs) for savings and credits are more frequent in Alaotra Mangoro (14.50%) compared to that of Vatovavy Fitovinany (1.90%). Households in Atsinanana region seems to be indifferent between the use of VSLA or IMF (20.28%).

*Figure 13 – Household Loan Preferences*




*Source: Household survey – SIMS/MSIS 2018*

[22] Région Atsinanana et Vatovavy Fitovinany- FAA, CRS : Promotion de VSLA ; MIKOLO USAID : Promotion SILC ou Savings and Internal Lending Community

The preference of borrowing money from neighbors or family members is stronger, at 74.50% distributed to 86.43% for Alaotra Mangoro, 72.61% for Atsinanana and 65.15% for Vatovavy Fitovinany. However, these are generally loans with no interest.

The VSLA loan is more preferred in Vatovavy Fitovinany than in the other two regions. And alternatively, borrowing from MFIs is much higher in both regions compared to households in Vatovavy Fitovinany.

Compared to the national use of microfinance services in Madagascar which is approximately 5%, only Alaotra Mangoro has a lower rate access. In this region, family and community support is still important, although the rate of 1.43% is not really low as it includes rural areas and microfinance services remain the preserve of urban cities' households.

The following data was collected to support the information collected during the household survey. The household microfinance penetration rate is 31.60%[23].

*Table 40 – Microfinances penetration rate in Madagascar*

| Consolidated statistics | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|
| Number of service points | 820 | 890 | 937 | 969 |
| Households integration rate | 24,61% | 28,10% | 29,60% | 31,60% |
| Number of members/customers | 1 098 075 | 1 288 428 | 1 395 868 | 1 528 741 |
| Female members/customers rate | 47,03% | 48,33% | 48,51% | 49,13% |
| Outstanding loans (millions in MGA) | 387 682 | 444 144 | 506 021 | 599 757 |
| Outstanding saving and/or loans (Millions in MGA) | 309 434 | 382 182 | 487 462 | 590 289 |

*Source : www.madamicrofinance.mg*

#### *3.4.6.2* Health and WASH service providers using funding mechanisms (IND.2117)

A specific section was assigned to the census of health and WASH service providers who used financial services for their WASH activities. These health and WASH service providers are usually health mutuals, community-managed pharmacies, wash and sanitation block managers. They participate in the supply, service management, storage, maintenance of products and services. Data is collected from providers and MFIs. According to the latter, WASH and health service providers in the three regions are not yet using their funding mechanisms. This indicator then takes the value zero (0).

[23] Consumer survey FinScope in Madagascar 2016 – INSTAT-MFB-PNUD

## 3.5 Adoption of health-promoting behaviors and acceleration of WASH services use

In order to increase the adoption of health-promoting behaviors and use of WASH services, three actions will be conducted: 1) better understanding and addressing the multi-level and multi-dimensional behaviors influencing the adoption demand and ownership of sanitation and hygiene behaviors among target populations; 2) Develop specific CBC strategies targeting the key determinants of sustained adoption of health-promoting behaviors and use of WASH services, integrate these strategies into implementation and harmonize CBC approaches among multiple actors; and 3) inform national policies and programs that shape at the macro level the determinants of sanitation and hygiene behaviors.

Existing multidimensional and multilevel initiatives on WASH behaviors are limited at local or communal levels. RANO WASH project provides an opportunity to link more explicitly the individual, community and macroeconomic determinants in order to work on the factors favoring better WASH behaviors and the use of WASH services in rural areas of Madagascar. Its intermediate results reflect these principles, through a commitment to applied research and innovation, improved implementation and equity, and influence on policy and programs.

Recent studies have drawn attention to the interactions between gender, health and hygiene / sanitation in Madagascar. RANO WASH considers gender norms as enabling factors in WASH outcomes and recognizes the impact of WASH interventions on gender equality.

This means that RANO WASH prioritizes (1) a context-specific gender analysis to appropriately inform program approaches; (2) community participation and inclusion of women's and girls' voices in dialogue and planning; (3) promoting the shared responsibility of WASH between men and women; and (4) an ecological approach to CBC WASH (Communication for Behavior Change) activities and gender empowerment that recognizes interconnections. The project's approach is based on the establishment of RANO WASH as the Learning Center for Hygiene and Sanitation with two roles: 1) as the coordinating body for the programs funded by USAID and partners implementing CBC WASH programs in the six RANO WASH intervention regions; and 2) as a platform for translating nationally-defined learning priorities into contextualized action-research at the subnational level, addressed through the implementation of RANO WASH in collaboration with other USAID-funded programs and the Sanitation Support Fund (FAA). The Learning Center, in addition to better implementation at the regional level, contributes to the objectives of improving sector governance by informing and engaging established WASH networks and influencing policies, practices and national investments.

So, in addition to hygiene and sanitation, particular importance was given to gender analysis during the survey. A gender section is included in the household questionnaire and the results will help the project to better understand (i) the context, community participation and inclusion of women's and girls' voices in dialogue and planning and (ii) the promotion of shared responsibility on access to WASH services between men and women.

### 3.5.1 Definition of indicators

| Indicators | Definitions |
|---|---|
| Percentage of households citing the four WASH messages | Percentage of households citing the four WASH messages:<br>- Hand washing<br>- Use of washable and cleanable latrines<br>- Preservation of the drinkability of the water from the water point to the consumption<br>- Menstrual hygiene |
| Percentage of households with a hand-washing station with water and soap used by family members (broken down by wealth quintile, by household by sex, by People with Mobility Impairment/PMI) | A handwashing station is a place where family members wash their hands. In some cases, these are fixed locations where handwashing devices are integrated and permanently placed. But they can also be mobile devices that can be placed in a convenient place for family use. The measurement was taken place by observation by an enumerator during the household visit. The enumerator must see soap and water at this station. The soap can be in the form of bar, powder or liquid. The shampoo will be considered as liquid soap. The cleaning product must be at the handwashing station or accessible by hand when in front of it.<br>A "commonly used" handwashing station, including soap and water, is easily observable by the enumerator during the household visit and when interviewee/respondent indicates that family members generally wash themselves hands.<br>Numerator: Number of households where soap and water are found at the regularly used hand washing station.<br>Denominator: Total number of households.<br>Limitations: The measurement of handwashing is difficult and should preferably be done by objective measures that are not based on self-assessments. The existence of a hand washing station does not guarantee the use. However, it has been shown that this indicator is related to actual hand washing behavior and, as such, is a useful proxy. |
| Percentage of households using soap to wash their hands | Proportion of households using soap to wash their hands |
| Percentage of caretakers of children 7-23 months that reported using soap for HW at least two critical junctures | Proportion of caretakers of children aged 7 to 23 months who reported using soap for handwashing at least in two critical moments or in the five critical moments. |

| Indicators | Definitions |
|---|---|
| Percentage of caretakers of children 7-23 months that reported using soap for HW at least five critical junctures | The 5 critical moments for hand washing: (1) before eating, (2) before breastfeeding; (3) before feeding the child; (4) before preparing the meal, (5) after defecation / after cleaning a child after defecation or after changing the child's diaper |
| Percentage of people (men and women) with access to improved latrines | Percentage of people with access to improved latrines<br>(Unimproved latrine: pit latrine without slab or platform, suspended latrines and bucket latrines) |
| Percentage of households with under 5 children (0-59 months) having access to improved latrines | Proportion of households with under 5 children (0-59 months) with improved latrines that are not shared with other households.<br>Improved latrines include manual or mechanical flush toilets to the sewer system, septic tanks or pit latrines; improved pit latrines with aeration, composting toilets or pit latrines with slabs. |
| Percentage of households with sanitation facilities for the hygienic disposal of child feces | Proportion of households with sanitation facilities (chamber pot + improved latrine) for the hygienic disposal of child feces.<br>Improved facilities include manual or mechanical flush toilets to the sewer system, septic tanks or pit latrines; improved pit latrines with ventilation, composting toilets or pit latrines with slabs. |

| Indicators | Definitions |
|---|---|
| % of the population with access to basic sanitation (disaggregated by wealth quintile, by sex, by age, and PMI) | Basic sanitation service defined by the Joint Monitoring Program (JMP), is a latrine that hygienically separates human excreta from human contact and is not shared with other households. Latrines meeting these criteria include:<br>- washable installation connected to a sewer system;<br>- a septic tank or pit latrine with slab;<br>- composting toilets;<br>- or improved latrines with ventilated pit (with slab).<br>All other latrines not meeting this definition are considered "unimproved". Unimproved sanitation facilities include: flush or flush toilets without a sewer connection; pit latrines without slab / open pit; latrines with bucket; or suspended toilets / latrines. Households that use a shared facility with other households are not counted as using a basic sanitation system. A household is defined as a person or group of people who usually live and eat together.<br>Individuals are considered to have access to an improved, newly established or rehabilitated sanitation facility from a non-functional or unimproved condition, with the assistance of the USG if their household did not have a similar "access" in other words, improved sanitation. The facility was not available for domestic use until the completion of an improved sanitation facility assisted by US Government support. This support can take the form of hygiene promotion to generate demand. They may also include programs to facilitate access to the supplies and services needed to install improved facilities or improve the supply chain. |
| Number of people gaining access to a basic sanitation service as a result of USG assistance (disaggregated by wealth quintile, sex, age, persons with reduced mobility)<br><br>Number of basic sanitation facilities provided in institutional settings (schools, health centers, etc.) as a result of USG assistance | Limitations: It is important to note that providing access does not necessarily guarantee the beneficiaries' use of a basic sanitation system and that the potential health benefits are not provided by mere access. All members of the household cannot use basic sanitation. In particular, in many cultures, young children are often left to defecate in open areas and create health risks for all members of the household, including themselves. The measurement of this indicator does not take into account disadvantageous and unequal sanitation behaviors within a household.<br>The additional limitations of this indicator are that it does not fully measure the quality of services, i.e. accessibility, quantity and affordability, or the issue of facilities for adequate menstrual hygiene management. |

| Indicators | Definitions |
|---|---|
| Number of communities verified as open defecation free (ODF) as a result of USG assistance | The status of open defecation free zone in a community requires that everyone in the community has a designated location for sanitation (whether a basic sanitation facility, a shared or unimproved facility).<br>According to the MEEH ATPC, an ODF site is defined by the following three criteria: (1) use of latrines by all members of the community (adults and children), i.e. no feces around latrines, no open defecation area, old open-air defecation areas cleaned and / or transformed; (2) use of clean and covered latrines with floors without holes, covered holes that do not let flies through, undocumented or soiled and scattered; (3) Handwashing with soap with a handwashing station (HWS) next to the latrine with proof of use and accessible to everyone (including children).<br>However, where higher national standards exist, ODF status should be defined in accordance with national regulations and / or an established national system. If a national policy does not exist, implementing partners must agree on a definition with USAID when developing the Project Monitoring and Evaluation Plan (PMEP). Open defecation status should be verified through an established certification process, reviewed by a third party or reviewed by the implementing partner.<br>By the term "verified ODF", it is meant by the "completeness of a verification process by the Local Monitoring Committee (LMC) and the Audit Committee (AC) of Fokontany." The audit committee is composed of at least 5 people who attended the institutional trigger, the fokontany leader and possibly the neighboring fokontany, and the natural leaders in the village, and possibly the neighboring village ". At the end of this verification step, an official report is established and will be given to the commune and DREEH. |
| Rate of ODF slippage | Rate of open defecation slippage of villages already certified "ODF"<br>CLTS steps: 1-DAL; 2-Triggered; 3-Self-proclaimed ODF;<br>4-Verified ODF; 5-Certified ODF; 6- Open defecation slippage<br>ODF slippage possible from step 4- 5 |

| Indicators | Definitions |
|---|---|
| Percentage of Households practicing Safe Drinking Water Storage | Proportion of households practicing water safe storage including the transportation of water from the water collection to storage in a closed container free of contamination, this also included the storage of water in a visually clean and sealed closed container with lid protecting the stored water against any external contamination.<br>Drinking water: water intended for human consumption which, by treatment or naturally, meets organoleptic, physico-chemical, bacteriological and biological standards set by decree (implementing decree Annex II, art 6 decree 635-2004). |
| Number of health centers receiving WASH -friendly status | WASH friendly health center: The WASH Friend status is in line with the definition and procedures established by the Ministry of Public Health. (Health facility that has received the "WASH friendly training", with adequate WASH facilities (with separate latrines for men and women and PMI) managed by a WASH committee at commune level (There are representatives of the municipality, Fokontany, health facility ...), with incinerator for disposal of medical waste, with drinking water infrastructures) |
| Number of schools receiving WASH-friendly Status | WASH friendly school: The WASH friendly status is consistent with the definition and procedures established by the Ministry of National Education. (School that has received training, has integrated WASH in their school curriculum, has adequate WASH facilities (with separate compartments for girls and boys and people with reduced mobility) managed by a WASH committee at school level (student parent, school administration, ...) |
| Percentage of girls (10 years and older) who practice safe and private menstrual hygiene management at WASH-friendly schools | Percentage of girls having access to appropriate sanitation facility to practice safe and private menstrual hygiene management at WASH friendly schools.<br>Appropriate infrastructure at WASH friendly schools means private showers (with inside closure) with access to water and equipment that allows for hygiene (bucket, cup, or tap water) |

### 3.5.2 WASH Key Messages

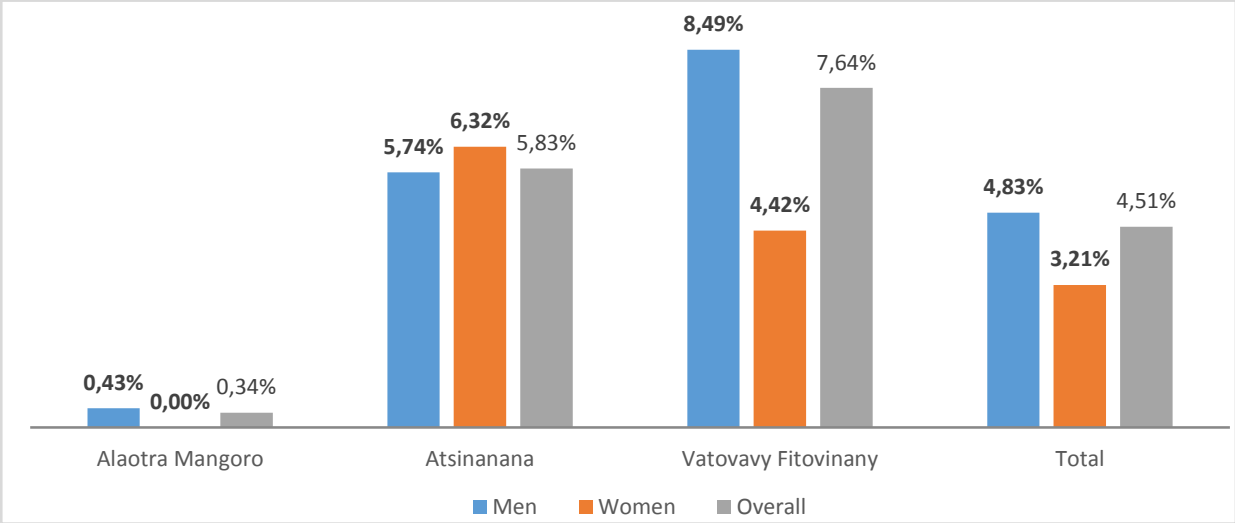
#### 3.5.2.1 Knowledge of messages

The four WASH messages are:

(i) Washing hands with soap and water
(ii) Use of washable latrines: improved latrine use
(iii) Preserving water potability from the water point to consumption: refers to the collection of water from a protected source, the safe transportation and storage of the collected water (cf. water storage)
(iv) Menstrual hygiene: access of women and girls to safe and appropriate facilities during menstruation.

In terms of knowledge of the "four key WASH messages", *the percentage of households able to cite the four messages is about 4.51% for all three regions*. The highest proportion of 7.64% is in Vatovavy Fitovinany followed by Atsinanana with a rate of 5.83%. Alaotra Mangoro seems to differ from these findings with only 0.34% of households who knew the messages. This is probably due to the lack of organizations and actors as well as projects intervening in the sector in this region. Indeed, projects with WASH activities such as the RANO HP or FAA WASH projects, the USAID/Mikolo community health projects, as well as the projects focused on improving nutrition, such as FARARANO or ASOTRY, provided a lot of outreach and education on these key messages through several channels, including the media, community agents, health workers, and leaders working directly within grassroot communities.

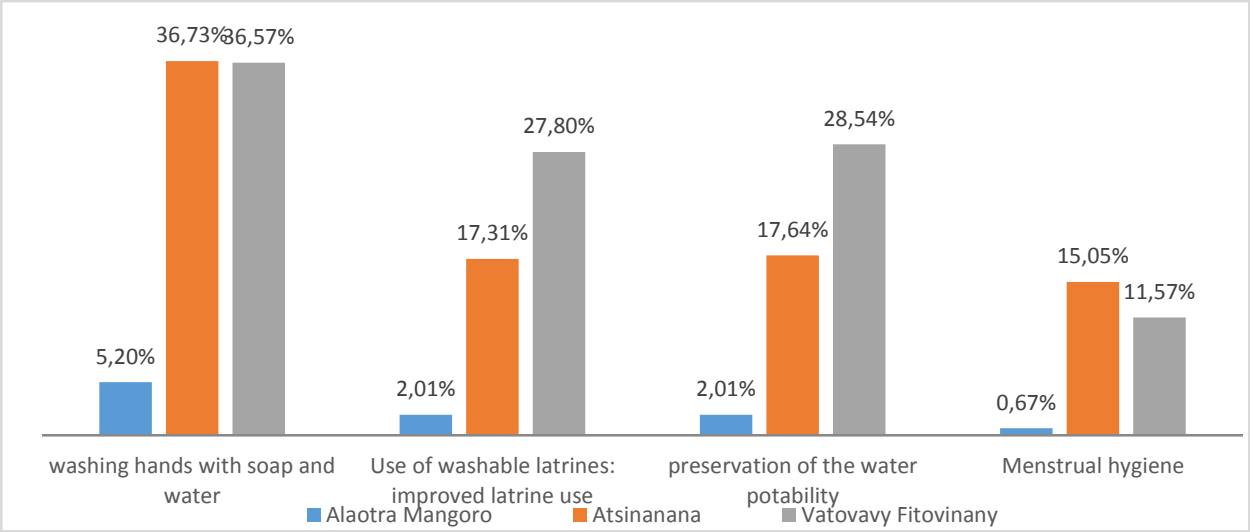
*Figure 14 - Knowledge of four WASH messages by sex of household head*




*Source: Household survey - SIMS/MSIS 2018*

Analyzing the messages individually, washing hands with soap and water is the most cited message with a rate of 25.93%, followed by the preservation of water potability at a rate of 16%. The two figures illustrate the comparison between the knowledge of messages according to the regions.

*Figure 15 – Knowledge of four WASH messages by region*




*Source: Household survey - SIMS/MSIS 2018*

### 3.5.2.2 Application / practice of WASH key messages (IND.35)

On average, *1.29% of households cite the four key WASH messages in the three intervention regions.* The highest rate is observed at Vatovavy Fitovinany (3.14%) and the lowest proportion at 0.10% for Alaotra Mangoro. This is explained by the insufficient number of WASH projects or organizations, especially those supported by USAID, which intervene in Alaotra Mangoro in contrast to the other two Regions.

*Table 41 - Percentage of household applying the Four WASH key Messages*

| | Mean | Standard Error | Lower limit | Upper limit | Alaotra Mangoro | Atsinanana | Vatovavy Fitovinany |
|---|---|---|---|---|---|---|---|
| Percentage of household applying the Four WASH Messages | ***1,29%*** | ***0,58%*** | ***0,14%*** | ***2,44%*** | ***0,10%*** | ***0,37%*** | ***3,14%*** |
| Washing Hands with soap and water | 25,36% | 2,44% | 20,51% | 30,20% | 25,20% | 30,30% | 21,69% |
| Use of washable latrines | 23,50% | 2,42% | 18,69% | 28,31% | 7,07% | 31,47% | 31,93% |
| Preservation of the water potability | 3,24% | 0,83% | 1,60% | 4,88% | 1,56% | 5,21% | 3,20% |
| Access to menstrual hygiene facilities | 11,01% | 1,76% | 7,52% | 14,51% | 9,76% | 11,92% | 11,43% |

*Source: Household survey – baseline study, SIMS/MSIS 2018*

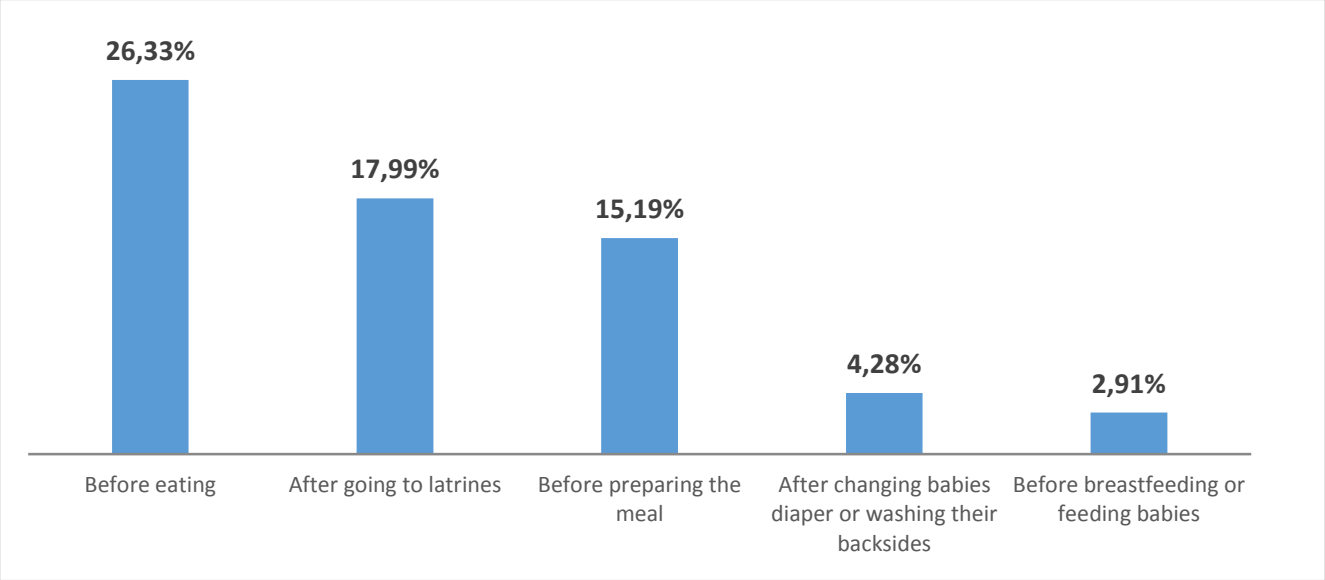
Compared to the 4.51% household knowledge of key messages, the percentage of household applying the Four WASH key message is only 1.29%. In other words, only one-third (1/3) of the households that know the messages practice them. The weakness lies mainly in the preservation of the water potability from the water point to consumption which, on average in the three regions, reaches only 3.24% of practitioners; if 11.01% of households have access to devices allowing menstrual hygiene and 23.50% use washable latrines and finally 25.36% apply the handwashing with water and soap message.

### 3.5.3 Hand Washing with soap

#### 3.5.3.1 The Five Critical Junctures

In all RANO WASH intervention areas, only 4.51% of households know the five critical times for handwashing. The variation between the Regions is remarkable with a maximum of 8.49% for Vatovavy Fitovinany and a minimum of 0.48% for Alaotra Mangoro as well as in the middle of the two extremes the proportion of 5.74%. for Atsinanana. On average, 26.33% of households know that they should wash their hands with soap before eating, 17.99% after going to latrines and 15.19% before preparing a meal. However, only 4.28% know that it is also essential to wash their hands after changing babies or washing their backsides and 2.91% before giving them food. No significant variation is observed according to the sex of the household head.

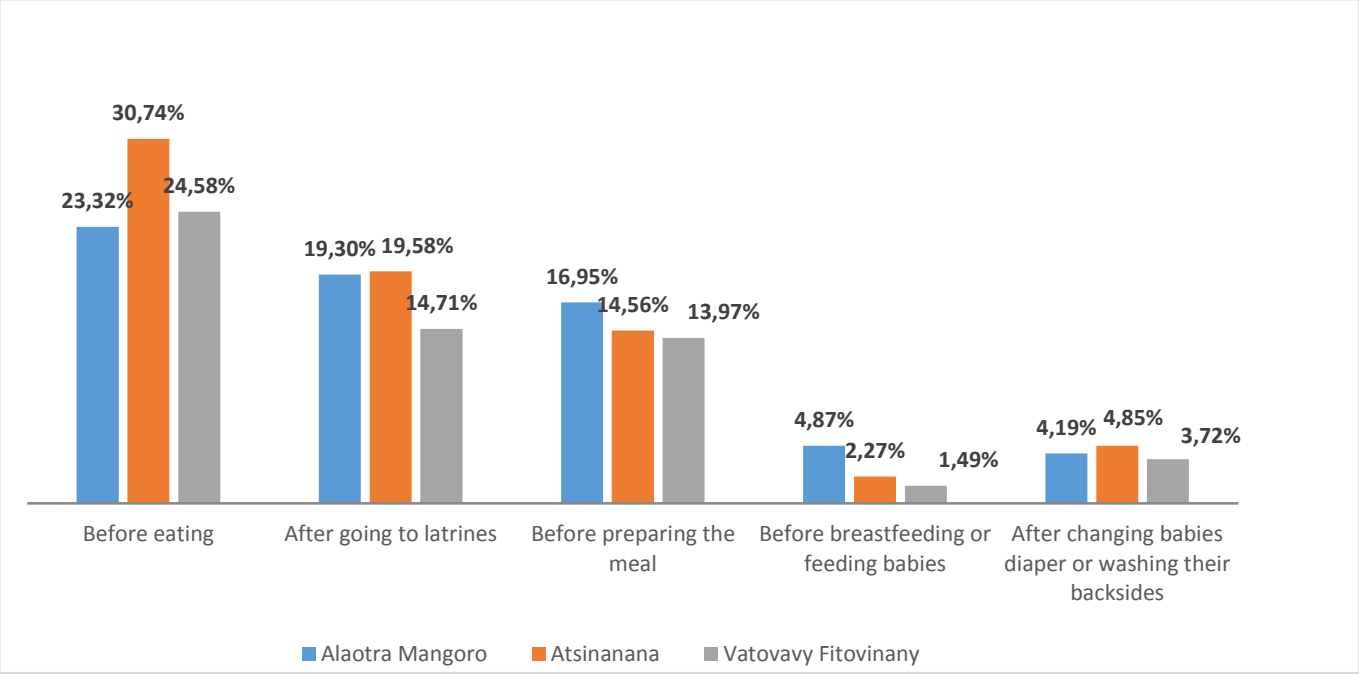
*Figure 16 - Rate of hand washing with water and soap at critical junctures*




*Source: Household survey – SIM/MSIS 2018*

Disaggregated by region, the results highlight that households in Atsinanana Region have a higher a rate of handwashing with soap and water before eating, 30.74% of households, compared to the other two regions of Alaotra Mangoro and Vatovavy Fitovinany who have respectively the rates of 23.32% and 24.58%. On the other hand, handwashing with soap and water before breastfeeding or feeding babies is low in the Vatovavy Fitovinany Region, i.e. 1.49% and the rates in Atsinanana and Alaotra Mangoro are about 2,27% and 4.87% respectively. There is no significant variation in the case of the other three critical moments for these regions (after going to latrines, before preparing the meal and after changing babies or washing their backsides).

*Figure 17 - Rate of hand washing with water and soap at critical junctures disaggregated by region*




*Source: Household survey – SIM/MSIS 2018*

### 3.5.3.2 Hand washing stations or devices (HWD) (IND.31)

In terms of practice, the average in the three regions on hand washing with soap is 25.36%. The variation between regions is insignificant. However, in the three study areas, *only 16.08% of surveyed households have hand washing stations with soap and water regularly used by family members.* The Vatovavy Fitovinany region is the most disadvantaged in terms of access and regular use of HWD with only 10.11% of surveyed households against 16.16% for Alaotra Mangoro and 23.75% for Atsinanana. The available water was either in plastic bottles using Tippy taps (1.9%), recipients/buckets (15%), zinga / kaopy (59%) and tap 1%.

| Ménages avec DLM, eau et savon | Ecart-Type | Borne Inf. | Borne Sup. | **Alaotra Mangoro** | **Atsinanana** | **Vatovavy Fitovinany** |
|---|---|---|---|---|---|---|
| 16,08% | 1,95% | 12,21% | 19,95% | 16,16% | 23,75% | 10,11% |

Indeed, the availability of HWD is generally related to the use of latrines and the availability of water. However, the Vatovavy Fitovinany region has relatively poor access to basic sanitation services, and collecting water is more difficult with a water collection time for basic services averaging at about 14 minutes compared to 12 minutes for the other two regions of Alaotra Mangoro and Atsinanana.

*Table 42 - Percentage of households with a hand washing station (HWS) by wealth quintile*

| Quintile | Ratio | Rate | Std error | Lower limit | Upper limit | Alaotra Mangoro | Atsinanana | Vatovavy Fitovinany |
|---|---|---|---|---|---|---|---|---|
| Poorest | 7,81% | 9,92% | 2,15% | 3,54% | 12,08% | 8,43% | 8,50% | 7,19% |
| Poor | 12,80% | 16,26% | 2,83% | 7,18% | 18,41% | 20,13% | 15,19% | 6,61% |
| Medium | 13,66% | 17,35% | 4,14% | 5,45% | 21,88% | 19,99% | 12,33% | 9,11% |
| Wealthy | 16,68% | 21,18% | 2,92% | 10,88% | 22,48% | 10,99% | 35,91% | 9,03% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Wealthiest | 27,79% | 35,29% | 4,00% | 19,86% | 35,73% | 21,98% | 41,71% | 26,30% |

*Source : Household survey – Baseline study, SIMS/MSIS 2018*

In all three regions, the results of the survey showed that this indicator of availability, access and use by families of HWD with water and soap is strongly correlated with the household wealth. The wealthier households are, the more they have HWDs with soap and water and their family members regularly use them. Indeed, for all households in the 3 regions, 7.81% of the poorest households only have a HWD with water and soap regularly used by family members against 27, 79% for the wealthiest households.

*Table 43 - Availability and regular use of HWS by sex of head of household*

| SEX | Ratio | Rate | Std. error | Lower Limit | Upper Limit | Alaotra Mangoro | Atsinanana | Vatovavy Fitovinany |
|---|---|---|---|---|---|---|---|---|
| Men | 17,78% | 67,40% | 2,23% | 13,36% | 22,20% | 17,34% | 24,94% | 11,76% |
| Women | 8,60% | 32,60% | 1,86% | 4,91% | 12,29% | 11,47% | 13,65% | 4,59% |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

Lack of access to HWD is particularly detrimental to female-headed households as compared to men-headed households. This could be explained by the fact that female-headed households are generally economically more precarious.

However, on behavioral aspect, hand hygiene is a social issue differently perceived by men and women, especially within a couple. Even though both are convinced of the importance of washing their hands enough during the day, women actually wash their hands twice as often a day as men. Women would be "more concerned" about their personal hygiene at an early age.

Men's jobs are often also associated with manual work (agriculture, breeding livestock, etc.) which can favor the negligence of hand washing.

*Table 44 - Availability and Regular Use of HWS disaggregated by People with Mobility Impairment*

| PMI | Std. error | Lower limit | Upper Limit | Alaotra Mangoro | Atsinanana | Vatovavy Fitovinany |
|---|---|---|---|---|---|---|
| 16,79% | 4,01% | 8,83% | 24,74% | 18,12% | 10,58% | 18,58% |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

In the three targeted regions, 16.79% of surveyed households with people with mobility impairment have hand-washing devices with soap and water used by family members. The Atsinanana region hast the weakest score in terms of access and regular use of people with mobility impairment to HWD with only 10.58% of households surveyed against 18.12% for Alaotra Mangoro and 18.58% for Vatovavy Fitovinany.

#### 3.5.3.3 Households having access to latrines equipped with a handwashing station with soap and water commonly used by family members (IND.31)

For all three regions, *the percentage of households with improved or non-improved family latrines equipped with a hand-washing device with soap and water commonly used by family members is 2.92%* of which 4,78% for Alaotra Mangoro, 3.61% for Atsinanana and the lowest proportion of 0.75% for Vatovavy Fitovinany.

#### 3.5.3.4 Caretakers of children aged 7 to 23 months (IND.312a)

Given this situation, the percentage of households with children under the age of two using soap for hygiene remains very low. Only 0.51% of caretakers use soap during the five critical times for hand washing and about 4% practice at least two. The following table illustrates the results of the household survey.

*Table 45- Percentage of caretakers of children 7-23 months that reported using soap for handwashing in critical junctures*

| Indicator | Mean | Standard Error | Lower limit | Upper limit | Alaotra Mangoro | Atsinanana | V7V |
|---|---|---|---|---|---|---|---|
| Percentage of caretakers of children 7-23 months that reported using soap for handwashing at least two critical junctures | 3,59% | 0,59% | 2,43% | 4,76% | 4,40% | 3,53% | 2,92% |
| Percentage of caretakers of children 7-23 months that reported using soap for handwashing in the five critical junctures | 0,51% | 0,21% | 0,09% | 0,94% | 0,92% | 0,56% | 0,12% |
| Before eating | 4,52% | 0,66% | 3,21% | 5,83% | 4,42% | 5,95% | 3,51% |
| Before preparing the meal | 2,32% | 0,49% | 1,35% | 3,29% | 3,19% | 2,58% | 1,34% |
| Before breastfeeding or feeding babies | 1,20% | 0,29% | 0,63% | 1,77% | 1,90% | 1,26% | 0,53% |
| After going to latrines | 2,90% | 0,50% | 1,91% | 3,89% | 3,34% | 2,64% | 2,71% |
| After changing baby's diaper or washing their backsides | 1,78% | 0,39% | 1,01% | 2,55% | 2,28% | 1,71% | 1,39% |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

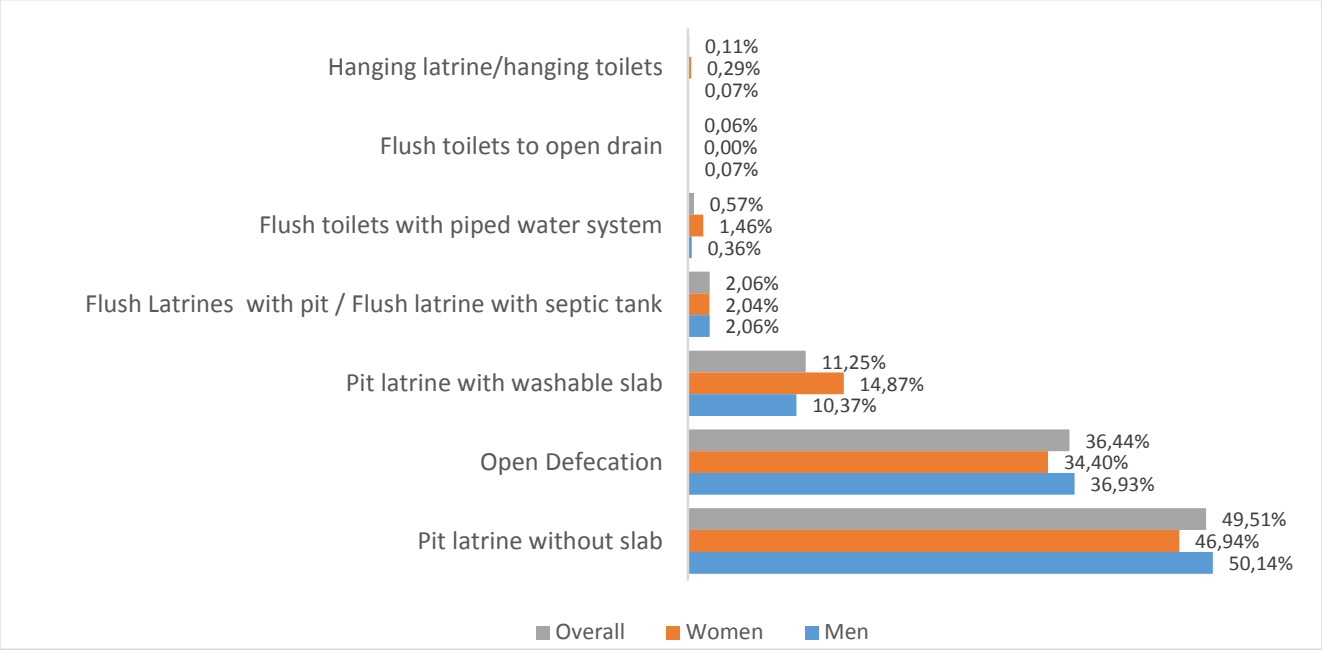
### 3.5.4 Use of latrines

According to the figure below, *open defecation is currently practiced by more than 36% of households and 49.51% are using holes without cover preventing feces transmission by flies.* Only 14.05% of households use latrines with walls made with local materials. Yet gender analysis of the household head shows that 14.87% of female-headed households have latrines with covered pit and washable slab compared to 10.37% for men-headed latrines. According to the results of the qualitative survey, women are more sensitive to hygiene and pay more attention to it than men and act positively in order to protect their children against diarrhea.

Among households using latrines, 41.78% are using family latrines[24], 51.71% using latrines shared with other neighboring households and 6.51% are using public latrines in a public sanitation facility available at the commune offices, health facilities, markets and schools.

[24] The categorization "family", "public" or others is based on the use of latrines and not on its quality (improved or not improved).

*Figure 18 - Types of latrines used by households disaggregated by sex of household head*




*Source: Household survey – SIM/MSIS 2018*

### 3.5.4.1 Improved Latrines (IND.33 and 34)

Regarding the type of latrine used, *the percentage of people with access to improved latrines*[25] *is 0.43%*. In Atsinanana, 0.48% of men and 0.52% of women have access to improved latrines; this statistic is the highest rate found in all the regions, even though the figures seem very low for hygiene friendly family behavior. The situation in Vatovavy Fitovinany is the worst where all surveyed households do not have improved latrines.

The results also show that, on average, in the 3 intervention regions, *0.16% of households with under five children have improved latrine facilities*. All surveyed households with children under five in Vatovavy Fitovinany said they do not have improved latrine facilities, only 0.29% and 0.23% for Alaotra Mangoro and Atsinanana.

### 3.5.4.2 Hygienic disposal of children's excreta (IND.314)

Only *0.15% of households with children under 5 have sanitation facilities for the hygienic disposal of child feces,* i.e. after Children's excrement is ultimately thrown into improved latrines. It is only in the Atsinanana and Alaotra Mangoro regions that households with children under 5 years of age have and use these types of facilities with rates of 0.41% and 0.11%, respectively, compared to 0 % for Vatovavy Fitovinany.

Nevertheless, it must be emphasized that the use of child toilets, diapers, etc. for children under 5 years of age begin to be practiced because 34.49% of households with children under 5 reported using them, but only the vast majority of these households do not have improved latrines, which means that the excrements of children are not hygienically eliminated.

### 3.5.4.3 Access to a basic sanitation service (IND.31)

For all three regions, *the percentage of people with access to basic sanitation services is 0.23%, and those with access generally belong to the wealthy quintiles*. The value of the three regions is almost zero. According to the JMP- Joint Monitoring Program definition, a basic sanitation service refers to improved latrines, not shared by

[25] An unimproved latrine is a pit latrine without slab or platform, suspended latrines and bucket latrines. See JMP - WASH in the 2030 Agenda

many families where there is no human contact with excreta (by flies, conditions of hygiene) and whose infrastructures follow the standards (with door and roof, standard of surface area ...).

As for the relationship between the socio-economic well-being and the household access to a basic sanitation service, the more the household belongs to the poorest quintile, the less access it has to the latrine. Thus, the value of the highest proportion is allocated to households in the wealthy and wealthiest quintile.

*Table 46 - Percentage of population with access to a basic sanitation service*

| REGIONS | Average | Std error | Lower limit | Upper limit |
|---|---|---|---|---|
| Alaotra Mangoro | 0,19% | 0,14% | - 0,08% | 0,46% |
| Atsinanana | 0,62% | 0,40% | - 0,18% | 1,43% |
| Vatovavy Fitovinany | 0,00% | | | |
| **3 REGIONS** | **0,23%** | **0,12%** | **0,00%** | **0,46%** |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

Wealth quintile

| Wealth Quintile | Ratio | Rate | Total | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| **Poorest** | 0,00% | 0,00% | 0 | | | |
| **Poor** | 0,08% | 34,53% | 4099 | 3988,381 | - 3817,54 | 12016,2 |
| **Medium** | 0,00% | 0,00% | 0 | | | |
| **Wealthy** | 0,02% | 9,56% | 1135 | 830,2639 | - 512,892 | 2783,23 |
| **Wealthiest** | 0,13% | 55,91% | 6637 | 3346,168 | -4,73447 | 13279,45 |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

Age

| AGE | Ratio | Rate | Total | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| **0-5** | 0,01% | 6,56% | 779 | 536,3051 | -285,725 | 1843,389 |
| **5-10** | 0,01% | 6,56% | 779 | 536,3051 | -285,725 | 1843,389 |
| **10-12** | 0,02% | 7,22% | 857 | 601,0718 | -335,909 | 2050,327 |
| **12-15** | 0,02% | 9,18% | 1090 | 832,0304 | -561,536 | 2741,599 |
| **15-19** | 0,02% | 9,96% | 1183 | 592,4235 | 6,867471 | 2358,77 |
| **19-25** | 0,03% | 11,46% | 1360 | 941,5122 | -508,691 | 3229,083 |
| **25-60** | 0,10% | 45,60% | 5414 | 2594,456 | 264,0498 | 10563,96 |
| **Over 60** | 0,01% | 3,45% | 410 | 398,8381 | -381,754 | 1201,62 |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

The rate of 0.23% is distributed equitably from 0.01% to 0.02% among the age groups except for the 25 to 60 age group which is 0.1 representing the active, productive and professionally engaged portion.

Sex

| SEX | Ratio | Rate | Total | Std error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| Men | 0,12% | 51,22% | 6 081 | 2964,273 | 197,0199 | 11965,09 |
| Women | 0,11% | 48,78% | 5 791 | 3146,648 | - 455,246 | 12036,85 |

*Source: Household survey – Baseline study, SIMS/MSIS 2018*

Person with mobility impairment (PMI)

The value of this indicator for PMI is zero.

#### 3.5.4.4 Access to sanitation facility with the support of the United States Government (IND.06)

Support from the United States Government may include infrastructure construction, promotion of sanitation services, awareness activities, assistance programs for facilitating access to improved sanitation services and / or basic services.

For all three regions, *the percentage of people with access to basic sanitation as a result of government assistance is 0.12%*, well distributed between men and women. The distribution by region is 0.06% for Alaotra Mangoro, 0.39% for Atsinanana and none for Vatovavy Fitovinany. The rate of 0.12% is distributed to 0.08% for the poor and 0.04% for the rich according to the wealth quintile and all age groups are affected. For the PMI, the value is zero.

In total, there are 9 basic sanitation blocks in the institutions thanks to the assistance of the United States Government. These blocks are all in the districts of Moramanga and Vatomandry. In addition, assistance from the United States Government enabled the institutions to have 22 compartments, including 18 in the region of Alaotra Mangoro and 4 in Atsinanana.

#### 3.5.4.5 Open defecation free verified villages and ODF slippage (IND 32 and 321)

Data obtained from the MWASH show 1,153 ODF certified villages, including 217 at Alaotra Mangoro, 566 at Atsinanana and 370 at Vatovavy Fitovinany.

The OD return rate of the ODF villages according to the CLTS approach is at 27.28% according to the data provided by the M-WASH. In the region Vatovavy Fitovinany that the OD return is strongly noted with a rate of 78.36%.

Most of visited communities still practice OD, despite actors' intervention through the CLTS approach. Even after being declared ODF, the return to the bad practice is noted. The factors behind the failures lie in several reasons, especially in its implementation where some of the CLTS steps have been neglected and / or have been "burned". Pre-triggering is a step that must be taken seriously. It must be performed only by trained agents on CLTS approach. The selection criteria for the first village to be triggered determined the success of the next steps. In most cases, the triggering is at the level of head of the Fokontany but not at the level of households which must be at the center of the action. The sensitization carried out by the Fokontany leaders and/or other leaders (mothers/ fathers) are confusing with the real triggering. This hampers implementation and is a major obstacle in achieving objectives. This finding is generally observed in the District of Manakara where the return to the bad practice of DAL is alarming, precisely 188 out of 650 villages. The flaws are also caused by the non-respect of implementation detailed activities, the next day follow-up and the post-training follow-up of the CLTS approach. This situation is exacerbated by the poverty in the three intervention areas, blocking compliance with the jointly agreed construction deadline. Moreover, the lack of a local monitoring committee, harmonization of actions within the sector, the lack of leadership of the Commune- hinder local initiatives.

Considering the interventions through the United States Government support, 241 villages are certified ODF, the vast majority of which (about 229) in the Vatovavy Fitovinany region. This is the result of recent support from USAID-funded WASH projects in the region.

#### 3.5.4.6 Location for Open Defecation practice

Regarding the place for defecation, most of the population, both men and women, is outdoors in nature. The preferred place varies by community. The survey showed that the most frequently used locations for open defecation are bushes, cultivated fields and the seaside. These usual locations are described as "dirty" by over 80% of the surveyed households, more than 50% told they are "very far", 25% "dangerous" and 25% "cumbersome". However, more than 75% of them say that these places still provide privacy.

#### 3.5.4.7 Means of wiping

80% of men usually use leaves of plants or pieces of wood to wipe, 10% have access to ordinary papers, 7% use water and 3% are using toilet paper. As for women, more than 60% prefer using water and the remaining use leaves of plants or pieces of wood.

### 3.5.5 Storage and treatment of drinking water

#### 3.5.5.1 Storage method (IND.313)

Observations on surveyed households revealed the following categories of storage methods:

- Safe storage: with lid and covered (A)
- Storage with lid but not covered (B)
- Storage without cover (C)
- Storage at risk of contamination (without lid, dirty, and unwashed) (D)
- No storage (E)

In general, the practice of water storage depends on the households' standard of living, their level of education, their access to information and especially the distance between the household and the water point. The more the household lives far from the water point, the more likely this household practices safer storage of drinking water.

According to the conventional standards developed for the storage of drinking water to be suitable for health, all the containers used must have a narrow opening, whether a tap, a screw lid or fixed lid and a tank with a lid[26].

*Table 47 - Percentage of Households practicing safe water storage*

| Mean | Standard Error | Lower limit | Upper limit | Alaotra Mangoro | Atsinanana | Vatovavy Fitovinany |
|---|---|---|---|---|---|---|
| **4,67%** | 1,31% | 2,06% | 7,27% | 4,18% | 1,97% | 7,17% |

*Source : Household survey – baseline study, SIMS/MSIS 2018*

[26] The Safe Water System: Safe Storage of Drinking Water : It is preferable, especially when using treatment options that do not leave residual protection, to store treated water in plastic, ceramic, or metal containers with the following characteristics, which serve as physical barriers to recontamination:

- A small opening with a lid or cover that discourages users from placing potentially contaminated items such as hands, cups, or ladles into the stored water;
- A spigot or small opening to allow easy and safe access to the water without requiring the insertion of hands or objects into the container; and,
- A size appropriate for the household water treatment method, with permanently attached instructions for using the treatment method and for cleaning the container.

CDC: www.cdc.gov
OMS : www.who.int

Compared to the total number of households surveyed by region, *4.67% of households practice "safe" drinking water storage methods,* with the lowest rate of 1.97% of households practicing safe water storage in Atsinanana region, while the highest rate of 7.17% is in Vatovavy Fitovinany.

By wealth quintile, for all categories, less than 1/3 of households use safe storage. However, rich households practice them more than medium or poor households. Rich people can afford safe water storage and water treatment and are generally more educated, so they are also more receptive to awareness messages about the importance of water storage and water treatment.

| QUINTILE | Safe storage |
|---|---|
| Poorest | 16,05% |
| Poor | 17,89% |
| Medium | 8,21% |
| Wealthy | 32,35% |
| Wealthiest | 25,49% |

*Source: Household study - SIMS/MSIS 2018*

Among households with water collection and queue time equal or longer than 30 minutes (238 households), 144 (about 60.50%) practice safe storage of drinking water.

Concerning the containers used for water storage, 81.5% are wide-mouthed containers, of which only 46.60% are covered, 11.76% with cover but not covered and 30% without cover. Tap does not exist in almost all surveyed households. 75% of households store water in the collection containers while 25% use other containers in addition.

*Table 48 - Practice of safe water storage*

| Water storage | Rate |
|---|---|
| Container with cover and covered | 46,60% |
| Container with cover and not covered | 11,76% |
| Uncovered container | 30,38% |
| Container with high risk of contamination | 4,40% |
| No container | 6,85% |

*Source : Household survey – baseline study, SIMS/MSIS 2018*

*Note: Having storages with lids and covered is not enough to fulfill the conditions of safe water storage. The water must be safe or made safe by a treatment (see Water treatment in the section below).*

#### 3.5.5.2 Use of stored water

As stated above, faucets were not found in almost all surveyed households. For water intake, more than 89% of households use a "zinga" (little recipient usually 1 liter), a glass or a cup directly introduced inside the storage containers while 11% use to pour water into their cups.

As for equipment maintenance, 85% of households clean their water storage containers daily and 15% of them use soap when cleaning. 65% of households have never used soap for cleaning storage containers generally because of the cost but also a soap smell can reside and be tasted when using or drinking water from these containers.

#### 3.5.5.3 Water treatment

In general, 61.45% of households apply a specific water treatment before drinking among which 65.04% of households in Alaotra Mangoro, 77.30% in Atsinanana and 57.53% in Vatovavy Fitovinany.

*Table 49 - Water treatment by wealth Quintiles*

| Water treatment | Rate | Ratio | Total | Standard Error | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| **Poorest** | 18,71% | 11,50% | 127 080 | 19 482 | 88 408 | 165 751 |
| **Poor** | 20,90% | 12,84% | 141 973 | 15 052 | 112 096 | 171 850 |
| **Medium** | 7,58% | 4,66% | 51 454 | 9 242 | 33 110 | 69 799 |
| **Wealthy** | 31,85% | 19,57% | 216 305 | 14 829 | 186 869 | 245 742 |
| **Wealthiest** | 20,97% | 12,88% | 142 410 | 14 769 | 113 095 | 171 726 |

Rich (31.85 per cent) and richest (20.97 per cent) households treat more water than poor and poorest households and even medium households. For daily use of water (drinking and all-purpose water), boiling remains the most used treatment practiced by households. In fact, in rural areas, boiling does not incur any expense (only cooking pot and firewood). Rural households do not buy firewood but collect it around their dwelling house. Nevertheless, Sur'eau treatment is starting to become a household practice. On the other hand, Sur'eau is easy and quick. It inspires confidence and, even they should pay, it is also more or less affordable by households' purchasing power.

*Table 50 - Water treatment technologies by wealth Quintiles*

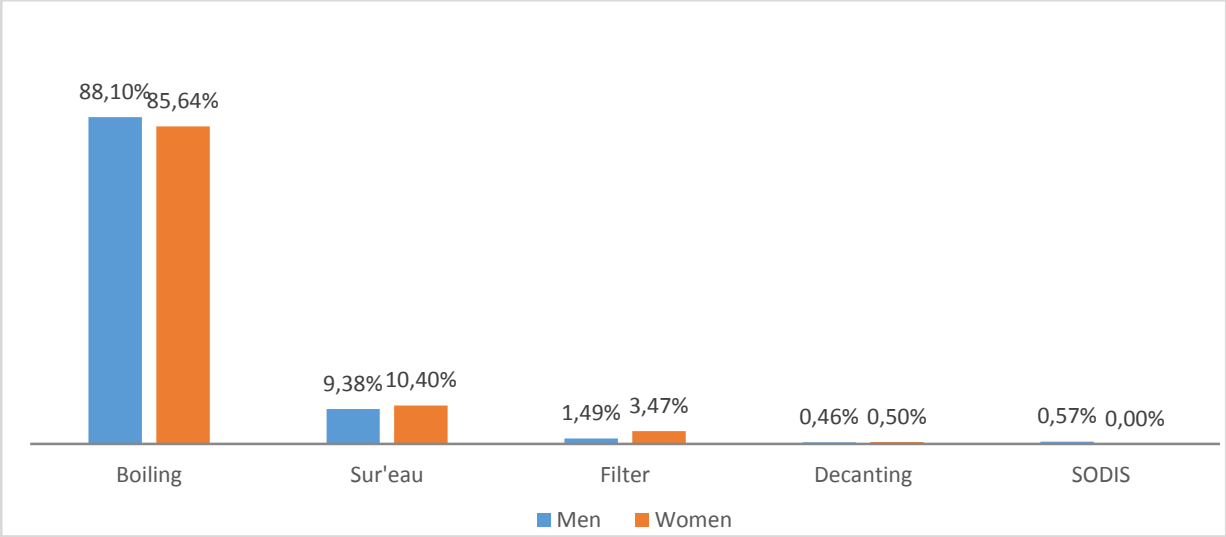
| Quintile | Boiling | Sur 'eau | Filtering | Decanting | SODIS |
|---|---|---|---|---|---|
| Poorest | 91,96% | 7,54% | 0,00% | 0,50% | 0,00% |
| Poor | 91,71% | 7,37% | 0,92% | 0,00% | 0,00% |
| Medium | 88,00% | 9,33% | 2,67% | 0,00% | 0,00% |
| Wealthy | 86,21% | 10,63% | 2,01% | 0,57% | 0,57% |
| Wealthiest | 82,28% | 11,81% | 3,80% | 0,84% | 1,27% |

*Source: Household survey – baseline study, SIMS/MSIS 2018*

*Table 51 - Water treatment technologies by sex of the household heads*

| Sex of HH | Ratio | Rate | Number | Std dev | Lower limit | Upper limit |
|---|---|---|---|---|---|---|
| **Men** | 81,83% | 50,28% | 555 804 | 24 498 | 507 177 | 604432 |
| **Women** | 18,17% | 11,17% | 123 418 | 13 634 | 96 356 | 150481 |

*Figure 19 – Water treatment by sex of household head*




*Source: Household survey – Baseline study, SIMS/MSIS 2018*

Male-headed households treat water more compared to women-headed households that are more economically fragile (almost 60% in poor and poorest quintiles).

But among households that treat water, boiling as a method of treatment is more prevalent in male-headed households compared with those headed by women. On the other hand, the women-headed households use the Sur'eau compared to households led by men. This may be related to the difficulty or constraints of looking for firewood in women-headed households.

### 3.5.6 WASH-friendly health centers and schools

#### 3.5.6.1 WASH-Friendly Health centers (IND.327a)

A Wash friendly health center[27] is contributing to the national health education campaign by (i) ensuring regular maintenance of its water, sanitation and hygiene facilities, (ii) having health workers and users implementing the 3 key WASH practices on a daily basis, (iii) with trained health workers on hygiene practices related to water and sanitation and (iiii) promoting good health and hygiene practices within communities, including the network of community health workers.

According to the information collected from the Ministry of Public Health, in three project intervention areas, 5.43% of the Health center have a "WASH friendly" status, including 2 health facilities (HF), i.e. 1.01% in Alaotra Mangoro, 27 health facilities representing 11.16% of HF in Atsinanana and 8 health facilities or 3.60% of HF in Vatovavy Fitovinany.

#### 3.5.6.2 WASH-friendly Schools (IND.327b)

A WASH Friendly School[28] is a school that offers a clean and safe environment:

- Sufficient and well-maintained toilets or latrines for boys, girls and teachers, with water, paper or other means of wiping;
- Have a hand washing device with soap / ash and water to be used after using the toilet;
- Has sufficient drinking water appropriately treated and stored for the school community.

[27] Minister of public health – Guideline for WASH friendly health centers, 2016

[28] Training manuall for wash friendly schools WASH- HIP/USAID, 2010

A WASH friendly school is a school where :

- Teachers teach lessons on good hygiene practices in the classroom;
- Students take an active part in the process of making and keeping their school WASH-friendly;
- Teachers, students, parents and the wider community work together to promote good hygiene, including ensuring that facilities and conditions for improved hygiene are available and brought together at school and at home;
- More girls continue their schooling because they have separate, privacy and clean sanitation facilities and do not have to leave school during their menstrual period.

Given this definition, no school has the WASH-friendly status in the project intervention areas. Only the Boeny region has WASH friendly schools.

However, during the WASH infrastructure inventory, 142 schools including 14 schools in Alaotra Mangoro, 102 in Atsinanana and 26 in Vatovavy Fitovinany with WASH facilities declared having WASH school committee being sensitized on WASH. These schools are currently classified as "Initiated" within the WASH-friendly certification process. It requires a certification process led by the School Health Division from the Ministry of National Education to be truly "certified" as a WASH-friendly school by meeting all required criteria.

#### 3.5.6.3 Girls safely and privately managing their menstruation at WASH-friendly schools (IND.322)

No WASH-friendly schools in the three regions have been identified. Thus, the value of this indicator of percentage of girls safely and privately managing their menstruation at WASH-friendly schools is also zero.

### 3.5.7 Gender and Vulnerability

Gender is an essential aspect of RANO WASH program and an integral part of its strategy, especially in the SO3. The issues analyzed here relate to the power relations between men and women within households and in the community, decision-making, control over the main resources, as well as the social norms regulating the male or female relationship; it was conducted to identify the place of women in households and the society in the three targeted regions.

#### 3.5.7.1 Sexual division of labor

All households were asked to report the distribution of current tasks between household members and their obligations within the community. We were able to identify household perceptions according to three main responsibilities of each member: (i) household and domestic tasks such as water and firewood supply, children education, health, making meal, etc.; (ii) work related to agriculture and livestock and any other income-generating activity; (iii) representation in the community (participation in community activities, traditional and customary ceremonies, and membership of associations).

Using the information in the 24-hour grid from the male and female focus groups, a household's workday starts at 6am and ends around 9pm

By combining the data collected during the qualitative and quantitative analysis, the distinct divisions of labor among household members are as follows:

- Men are generally engaged in productive activities: agriculture and livestock
- women are more dedicated to housework: preparing meals, maintaining and cleaning the house
- Outside school hours, children help parents by gender-related work. Generally, boys go with their fathers to keep and care for livestock and look for firewood. The father begins to instill in them the roles and responsibilities of a household head. While the girls help their mother take care of animals in the farmyard (chicken farm), look water for household and to participate for the whole housework. However, it should be noted that women are also beginning to take care of small ruminants (in the preparation of food, keeping, watering) and water distribution in the village.
- Almost all the members of the family help each other on farming activities because these activities follow a defined schedule and require a large workforce during a few steps (sowing, harvesting ...)

Specifically, for women head of households, in addition to daily household activities, the activities are mainly concentrated on agriculture and chicken farming. For single women or widows, the development of economic activities largely depends on the availability of other members of the family: they can count on extended family members (brother, sister, niece, nephew, etc.) for the single women and the children working age for widows (higher the number of economically active children, the economic activity is important and diversified).

It is usually men who participate in the construction of WASH infrastructure. When these infrastructures are built, women use them.

For water management, women / girls collect water, do laundry and give water to animals. They also maintain vegetable gardens. For latrines, men build them and women maintain and clean them.

#### 3.5.7.2 Decision making

Decision-making is analyzed on two levels: within the household and at the community. The results of the survey show that there are areas where women are considered in decision-making. Overall, decision-making within the household depends on the subject.

Interviews and group discussions show that household management issues are for women and everything about tradition and customs is for men. However, hey make the decision together on several aspects of the household life. Even if the social domains are strictly reserved traditionally to men (for example the land management), they still consider women point of view. According to the participants in the focus group, women remain the best advisers of men in household management.

For income management, women keep all financial resources from economic activities: sale of agricultural or livestock products, trade, agricultural wage, etc. Women do not need to consult men for daily and regular household expenses or even small investments. In other cases, using a large sum, a larger investment or social obligations, the couple consults but men often have the power of final decisions.

The information contained in the survey shows the participation of women in decision-making. Both women and men still note the low participation of women in decision-making for investments or social obligations. According to focus groups, this low participation is caused by the level of schooling that makes it impossible to change mentality and behavior; there is also the predominance of tradition, the insufficient number of organizations/actors involved and actions targeting the improvement of equity between men and women. However, some positive signs of change are beginning to appear in some households.

Decisions on the construction of latrines that require the mobilization of a large sum, choice of water infrastructure, construction of wells are reserved for men because these are investments for the household. For hygiene, the decision is up to women (for example the choice of HWD). However, source of decisions has no impact on the use because all members of the household benefit without restriction.

In the community, women's participation is assessed through aspects of social life: taking responsibility for traditional ceremonies, elective functions, membership of community associations and organizations. Data analysis indicates that gender equity is out of balance. The cause of this situation is the importance of social organization based on a patriarchal regime. The management of customary traditional ceremonies is strictly reserved for men, specifically the lineage leader or clan leader and confirms this trend. Women are still excluded in some community groups (for example: in Dina/community regulation associations). As a result, women are not yet well represented in the members of the WASH Infrastructure Management Committees / Managers.

#### 3.5.7.3 Control and management of resources

According to the qualitative data, the management and control of the common property of the household generally belongs to men.

The management of property including real estate is for men as the head of household except for financial management.

For this financial management, women manage daily expenses but the most important are discussed together or in some cases, it is decided by the husband alone. Land management, crop selection, livestock management, housing construction and maintenance, land purchase or sale, and investment are all areas reserved for men.

Traditionally, property rights belong to the husband. The low rate of civil marriage and the absence of a marriage contract mean that women do not have the right to property. Divorced women are the most affected by this situation because they find themselves with nothing after separation.

According to the focus group in Vatovavy Fitovinany, women heads of households, especially widows, have difficulties in accessing land. Once married, they no longer have the right to inherit the fortune of their parents. Or the agriculture fields used by the couple still belong to the husband's parents. Widows or separated women must do daily farm work to cover household expenses.

In some communes in the three regions, women participating in focus groups have raised some changes to the management of family assets. Women no longer accept the decisions that men benefit alone. These behavioral changes are caused mainly by the increase in school enrollment rate in some communes but also by actions initiated by human rights NGOs, which aim to improve women's access to their rights despite the fact that they are culturally vulnerable.

#### 3.5.7.4 Social standards

These findings indicate that some social norms that have negative effects on gender equity and also on community access to WASH services are still relevant in all three RANO WASH regions.

- Rivers with abundant water used for several generations by communities are often considered "clean". This is blocking the need for improved drinking water sources and investing in appropriate WASH infrastructure.
- It is forbidden or "fady" to keep the excrement and some Malagasy do not want to live with their own excrement.
- The major decisions whether family (large investments) or community decisions (traditions, obligations, land, etc.) are mostly reserved for men because they are heads of households. In order to not to be accused of taking responsibility for their husbands, and to not dishonor them, women often do not participate in community meetings related to traditions, community work, etc. This tradition of not involving women is more pronounced in some ethnic groups in the Vatovavy-Fitovinany region. Women holding leadership positions in communities (Mayor, Chief Fokontany, members of WASH Committees, Infrastructure Managers and WASH services, etc.) are still rare.
- The needs of women in menstrual hygiene, pregnant women and those who have recently given birth are still neglected or completely ignored by men when they build WASH infrastructure.

#### 3.5.7.5 People with disabilities or persons with mobility impairments

Even though Madagascar has ratified the International Convention on the Rights of Persons with Disabilities (PwD) in 2014, their access to fundamental rights is still very weak.

According to the PFPH-MAD the nationwide PwD Federations Platform, only 1% of school-age PWDs are in school and 1% of working-age PWDs have jobs.

This situation is also valid for the WASH sector where the access of people with disabilities to various safely managed WASH services is very alarming. The baseline survey confirmed this observation with almost zero values for all indicators of access to WASH services. The family and community integration of PWDs always considered as “dependent” remain among the challenges to be overcome.

# Chapter 4. General considerations

This chapter presents relevant information found or collected during the study, which should be mentioned even if it does not necessarily concern specific key indicators. These information deal with trends analysis and underlying contexts that may influence the implementation of the project.

## 4.1 Trend Analysis

### 4.1.1 Trend in Infrastructure and WASH Services Management

Mismanagement or lack of management is the main cause of non-functionality of WASH infrastructures. Due to unclear sharing of responsibilities and assignments between local representatives of the MEEH, territorial constituencies, private partners and communities, the sustainability of infrastructure often faces a wait-and-see attitude. Several Communes especially in Vatovavy Fitovinany, have abandoned infrastructures where WASH facilities built by successive projects, located in the same site are not functioning anymore.

Communes have very little experience on PPP. Their ability to manage or delegate management requires intensive and continued capacity reinforcement. Their budgets are generally very low, with the exception of some Communes in Alaotra Mangoro benefiting from mining companies' funding. Good management is not yet embraced by the heads/mayors of Communes in these three regions.

### 4.1.2 Trend in behavior change

In Vatovavy Fitovinany Region, traditional authorities have a strong reputation for local community behavior change. The Ampanjaka have a lot of influence on public opinion. Stakeholders from legal authorities and NGOs often require the support of these Ampanjaka in order to encourage people to participate in different projects. Seeking progress, the Ampanjaka interviewed are all open to advance the WASH development goals, and they are keen to offer their support to RANO WASH activities.

In Atsinanana and Alaotra Mangoro regions, behavior change is based on the free will of people and stakeholders. Generally, local authorities and people are aware of the importance of sanitation and access to drinking water for their well-being. There is no major culture or traditional beliefs against the sanitation and hygiene practices conveyed in the WASH sector. Apart from this, some localities in Alaotra Mangoro, such as Anororo resist to use latrines, despite the pungent odor of the area. According to the population of this locality, the shallow depth of the water tables does not allow to dig hole for latrines.

### 4.1.3 Gender trends, roles of women and PMI

There is a social perception that assigns WASH to women, including water collection, laundry, dishes, and under aged children cleaning. Generally, in all three regions, decision-making power rests with men (often at the head of water point management committees) and all other WASH activities at household and community levels are carried out by women. Yet, women can demonstrate much more rigor in infrastructure management than men. The team's observations during the field study showed that when the school principal is a woman, the WASH infrastructure is better maintained.

PMI were not very visible during the field study. Almost all infrastructures have not been designed to facilitate their access to. Association advocating for and defending the access of PMI to quality WASH services is also lacking.

## 4.2 Elements that may affect the implementation of the project

| Region | Opportunity | Threat |
|---|---|---|
| Vatovavy Fitovinany | - Abundance of water resources throughout the region<br>- All cities served by paved roads<br>- Presence of functional rail traffic<br>- Existence of waterway transportation throughout Pangalana<br>- Presence of many non-functional infrastructures, requiring only rehabilitation and the establishment of a management structure<br>- Presence of several WASH specialized partners<br>- Presence of many community mutuals and local financing, savings and credit mechanisms (VSLA) | - Cyclonic zone<br>- High risk of flood, especially during rainy season<br>- Society traditionally organized into castes; strong influence of the Ampanjaka; presence of several "fady/Taboo"<br>- The isolation of certain localities<br>- Among the poorest regions of Madagascar |
| Alaotra Mangoro | - Abundance of water resources in some parts of the region (districts of Nosibe An'Ala, Moramanga)<br>- Accessibility of all cities along the main roads<br>- Communal budgets relatively higher compared to other regions<br>- Economic zone (agricultural productions, mining extractions)<br>- Presence of many non-functional infrastructures<br>- Presence of some partners specialized in WASH<br>- Presence of many MFIs<br>- Economic zone (agricultural productions, mining extractions) | - Cyclonic zone<br>- Insecurity, some localities classified as red zones<br>- The isolation of some communes in the districts of Andilamena, Anosibe An'Ala and the southern part of Moramanga district |
| Atsinanana | - Abundance of water resources throughout the region<br>- Accessibility of all big cities<br>- Presence of many non-functional infrastructures<br>- Presence of several partners specialized in WASH<br>- Presence of many MFIs<br>- Economic zone (presence of cash crops, port area, high density of businesses) | - Cyclonic zone<br>- Insecurity, some localities classified as red zones<br>- The isolation of several rural communes |

## 4.3 Recommendations

Based on the findings from the results of this baseline study, the following points are formulated as recommendations to be considered during the planning and implementation of RANO WASH project activities. Moreover, some of these points confirm and provide more explanation on the rationale behind the approaches and activities already planned.

### 4.3.1 Strengthening governance and organizational capacity within WASH sector

- Several Communes have just realized the importance of improving their communities' access to WASH services and have allocated budgets for funding of new infrastructure or rehabilitation of the existing ones. However, they cannot yet do this in a systematic and sustained way because of the budgets dedicated to cover operating expenses; therefore, they strongly depend on donors and partners. Capacity building to diversify funding sources is therefore among key activities, in particular: (i) through the mobilization of their own resources via local taxes and fees, particularly those resulting from existing WASH infrastructures, (ii) by promoting partnerships with private sectors especially small businesses willing to increase their business and invest in the WASH sector, (iii) mobilizing regular community contributions, and (iv) promoting the availability and access to new financing, savings and credit mechanisms, through VSLA/SILC and/or MFIs. RANO WASH funding and support activities should thus be a means to boost this capacity. They must be degressive and associated with indicators of capacities to mobilize additional funds.

- The institutional and organizational capacities of Communes, community structures/Committee and managers are still very weak and almost all areas of capacity require tremendous efforts. This must begin with the development of a common vision to be translated into participatory strategic plans integrating the WASH sector; and reinforced by a good monitoring and evaluation system capable of optimizing the use of resources and assessing the results obtained. All these technical fields could be obtained by the support and/or the facilitation by RANO WASH to draw up the Commune Development Schemes (SAC) or, if several nearby Communes are interested and concerned, the Inter- Communal Development Scheme(SAIC)[29].

- However, the most important governance aspect for capacity building is the improvement of transparency and social accountability mechanisms of local authorities and WASH service providers/managers towards local communities and users of their services. Social accountability could be established through a voluntary process initiated by these authorities and their service providers / providers, such as the use of grievance books and/or suggestion boxes followed by regular community meetings to respond to them. It can also be done by applying already proven tools such as the Community Score Card (CSC). The advantage of the CSC mechanism is that it takes lessons from the current practices where grievances are often expressed and addressed during community meetings. The CSC only improves, systematizes and formalizes these existing mechanisms.

### 4.3.2 Improving WASH service delivery

- Some WASH projects have already intervened in these three regions and many infrastructures have become non-functional due to management failures and a lack of maintenance and sustainability strategy. It is therefore wise to start by rehabilitating these non-functional infrastructures and then to establish and/or revitalize their management committees. Only localities that have never been able to benefit from other projects deserve the construction of new infrastructures.

- Ensuring the sustainability of WASH infrastructure and services means ensuring sufficient funding for their maintenance. This assumes more professional and long-term models implying good business plans, strong cash balances with the necessary rolling capital capacities. These requirements reinforce the strategy privileging the private management for WASH infrastructures and services. This strategy

[29] Several donors currently support the establishment of SAC and SAIC (Spatialized Commune development plan)

can be done by: (i) launching tenders to hire new private companies to invest in the sector or old ones to expand their business in the WASH sector; (ii) through entrepreneurship training for community structures / groups and assist them to create and run local private structures/enterprises; (iii) there is also the possibility of transforming community structures/groups into NGOs and/or cooperatives to manage social enterprises.

- With regard to sanitation and hygiene services, to ensure a higher rate of return, promote an economy of scale by combining various WASH services/products (WASH and sanitation blocks, management/sales of WASH equipment and supplies, etc.) and also by grouping and managing several infrastructures together would be an appropriate strategy, for example, only one or two private managers for all WASH services in one Commune.

### 4.3.3 Promoting health-friendly behaviors and accelerating the use of WASH services

- Household-level entry points for behavior change, especially for sanitation and hygiene, are often women, girls and children. But these two groups are more easily reached from their practices in health centers and/or schools. It is also more difficult to mobilize local communities to adopt healthy hygiene behaviors if within these key institutions these behaviors are not practiced. Strengthening activities at the health centers and school levels by pushing them to obtain a WASH-friendly status is therefore a good strategy.

- The second biggest challenge in behavior change is to sustain ODF villages as several factors favor their return to OD. In addition to regular follow-up and supervision, mobilizing local leaders (traditional, religious, youth, women) as well as institutional triggers at the Fokontany and Commune levels to create a spirit of competitiveness and local pride among local stakeholders and localities are among the recommended strategies.

- Once the villages/communities live in a ODF environment, the project should reinforce the practices of other key messages including a hand washing station with soap and water as well as safe storage of drinking water. The behaviors considering women / girls' sanitation and hygiene concerns should mobilize all members of the households. Sensitization and education tools should therefore consider the predominant roles of women/girls, but also the roles of community leaders in improving access to water, sanitation and hygiene services.

# ANNEXES

## Annex 1 - Terms of Reference

**Rural Access to New Opportunities in Water, Sanitation and Hygiene**

**RANO WASH Program**

'Étude de référence et Inventaire des infrastructures WASH du Programme RANO WASH'

Ce document contient les Termes de Reference (TDR) pour effectuer l'étude de référence du Programme RANO WASH d'une durée de cinq ans, financé par l'USAID et mis en œuvre par un Consortium des cinq organisations sous le lead de CARE International. Le Projet sera mis en œuvre au niveau des 250 communes des six Régions de Madagascar à savoir Vatovavy Fitovinany, Atsinanana, Alaotra Mangoro, Amoron'i Mania, Haute Matsiatra, et Vakinankaratra. Pour la première année de mise en œuvre du programme, les interventions de RANO WASH seront menées dans trois premières Régions. Ce document comprend des informations générales sur Programme RANO WASH, la méthodologie d'évaluation souhaitée, le calendrier pour la conduite de l'évaluation et une liste des produits livrables requis.

### 1. CONTEXTE DU PROJET

Madagascar est reconnu par sa richesse en ressources en eau douce pourtant plus de 60% des 23 millions d'habitants de l'île n'ont pas accès à un approvisionnement amélioré en eau et ce taux est de plus de 70% pour les plus vulnérables vivant en zones rurales. L'accès limité à l'eau propre, la pratique très répandue de défécation à l'air libre et une mauvaise gestion des excréments d'enfants ainsi que les mauvaises pratiques d'hygiène font que les maladies hydriques telles que la diarrhée constituent la deuxième cause de mortalité infanto-juvénile à Madagascar.

En réponse à cette grave situation, CARE, en partenariat avec Catholic Relief Services (CRS), WaterAid et les partenaires locaux Bushproof et Sandandrano, sont en consortium pour le programme « Accès rural aux nouvelles opportunités en matière d'eau, d'assainissement et d'hygiène » (RANO WASH). A travers RANO WASH, nous avons pour objectif d'accroître l'accès équitable et durable aux services d'eau, d'assainissement et d'hygiène afin de maximiser leur impact sur la santé et la nutrition humaines et préserver l'environnement dans 250 communes rurales dans les régions de Vatovavy Fitovinany, Atsinanana, Amoron'i Mania, Haute Matsiatra, Vakinankaratra et Alaotra Mangoro. Le projet a fixé trois objectives stratégiques et (1) si la gouvernance et les systèmes WASH et les capacités de gestion des services WASH sont renforcés de manière responsable; (2) si les produits et les services WASH de qualité sont fiables et accessibles à tous; et (3) si la demande pour des comportements et des services WASH améliorés augmente dans un marché de consommation élargi; alors l'incidence et la prévalence de la diarrhée infantile, l'exposition à l'entérothyme environnementale et le taux de mortalité des enfants de moins de cinq ans diminueront.

Les communes cibles représentent des zones où les taux de couverture en termes d'approvisionnement en eau et d'assainissement sont parmi les plus faibles à Madagascar.

Les zones cibles se superposent à celles de projets en cours financés par l'USAID, notamment Mikolo, Fararano et FAA.

Dans le cadre du projet, 140 systèmes d'approvisionnement en eau seront construits selon diverses technologies appropriées, offrant à quelques 300 000 personnes un accès durable à un meilleur approvisionnement en eau, sur les cinq ans que durera le projet. Le changement de comportement induit durant le projet amènera 375 000 individus à utiliser correctement des installations d'assainissement hygiéniques construites à partir d'investissements personnels.

### 2. PORTEE DE L'ETUDES

Les objectifs globaux du mandat sont d'**(i)** établir les **valeurs de référence des indicateurs** d'impacts, d'effets et de résultats conformément au cadre logique du Projet intégrant des informations détaillées sur les comportements, attitudes et pratiques des ménages et- **(ii) inventorier les points d'eau** existants à l'aide des

formulaires pris dans le Manuel de Procédures National - **(iii) inventorier les infrastructures d'eau et d'assainissement** au niveau de toutes les écoles et de tous les CSB de la zone d'intervention du Programme.

Cette situation de référence établira le point de départ des différents indicateurs et sera comparée avec la situation en fin du Projet. Cela permettra d'apprécier qualitativement et quantitativement la contribution de chaque composante à l'atteinte des objectifs du Projet visant à accroître l'accès équitable et durable aux services d'eau, d'assainissement et d'hygiène dans 250 communes.

## 3. OBJECTIFS SPECIFIQUES

a. Déterminer les valeurs de référence des indicateurs du Projet, faire des analyses approfondies pour chaque indicateur et confirmer/réviser les objectifs annuels y afférents pour la durée de vie du Projet et valider les hypothèses (voir la liste des indicateurs figurant à l'annexe II) ;

b. Décrire de manière structurée et analytique la situation actuelle dans les zones ciblées par rapport aux types d'activités prévus par le Projet et établir les tendances dans les domaines de la Gouvernance – l'amélioration du PPP – le Changement de comportement et le Genre/Place et rôles joués par les femmes et les personnes à mobilité réduite par rapport au secteur EAH, à domicile, au niveau des structures communautaires, dans la prise de décision au niveau local / régional…) ;

c. Réaliser un profilage socio-économique de référence des communautés cibles afin d'identifier la typologie de tous les bénéficiaires directs et indirects et de faire sortir le « *Wealth Quintile* » avec les caractéristiques ; Concevoir des outils de collecte des données pour mesurer périodiquement les changements dans les indicateurs clés pendant toute la durée du Projet ;

d. Identifier les indicateurs communautaires avec les définitions et proposer des méthodologies pour les mesurer.

e. Identifier les opportunités et les menaces potentiels pour la mise en œuvre du Projet dans chacune des zones cibles suivant les trois composantes ;

f. Inventorier de manière exhaustive les points d'eau existants à l'aide des formulaires pris dans le Manuel de Procédures National ;

g. Inventorier les infrastructures d'eau et d'assainissement au niveau des écoles, des CSB et les infrastructures Publiques de la zone d'intervention du Programme.

## 4. METHODOLOGIE

### A. BASELINE SURVEY

En termes de méthodologie, il est demandé au consultant de développer la méthodologie la plus appropriée pour chaque type d'indicateur et les sources des données respectives.

La méthodologie devra considérer les différentes méthodes de collecte de données par type de milieu, par genre et par catégorie des interlocuteurs (autorités locales, dirigeants traditionnels, OSC, secteur privé citoyen lambda, acteur de développement, acteur EAH, acteur dans les domaines liés, partenaires techniques et financiers...).

La préparation, le déroulement et les conclusions de cette étude de base doivent faire l'objet d'échanges réguliers avec l'équipe de RANO WASH.

L'étude de base collectera en même temps des données qualitatives et quantitatives. Les données quantitatives issues des enquêtes auprès des ménages aideront à établir le niveau de référence des différents indicateurs du programme. Les données qualitatives, d'autre part, serviront quant à elles d'expliquer les résultats obtenus lors de l'enquête auprès des ménages et d'aider l'équipe du Projet au développement des

stratégies et approches techniques appropriées par rapport au contexte existant dans les zones d'intervention. La conception de l'évaluation se base sur le principe de l'adéquation (type I) : cela suppose une comparaison entre les valeurs finales et initiales des indicateurs sans pourtant pouvoir attribuer le changement de façon scientifique au Projet. Toutefois, d'autres informations qualitatives et/ou quantitatives comme les données météorologiques, niveau d'éducation, socio-économiques etc qui pourront affiner l'interprétation des résultats seront collectées dans le but d'améliorer la qualité de l'analyse et identifier les facteurs qui peuvent expliquer les changements souhaités.

Les informations à collecter peuvent être classées selon quatre niveaux :

- Au niveau national pour la composante « Gouvernance – Engagement des secteurs privés »
- Au niveau des Régions, Districts et communes d'intervention
- Au niveau des communautés (Fokontany)
- Au niveau des ménages

Les méthodes de collecte et de traitement de l'information, le plan d'échantillonnage, le planning de toute descente sur terrain, tous les outils de collectes d'informations quantitatives et qualitatives ainsi que tous autres documents relatifs à l'évaluation doivent être validés préalablement par l'équipe du Projet avant leur mise en œuvre.

## B. QUANTITATIVE

### Type de répondant

Les répondants de l'enquête quantitative sont les ménages habitant les Fokontany d'intervention du Projet RANO WASH, incluant le chef de ménage et les mères/nourrices avec des enfants de moins de 5 ans. Il s'agit ici d'une enquête ménage.

### Méthode d'échantillonnage

La méthode quantitative utilisera une méthode d'échantillonnage par grappes en deux étapes. À la première étape, il s'agit de sélectionner les grappes (unité primaire d'échantillonnage) en se basant sur la méthode de probabilité proportionnelle à la taille (PPT). Dans la deuxième étape, les ménages au sein des grappes sélectionnées sont identifiés comme unité d'échantillonnage secondaire à l'aide de la technique d'échantillonnage aléatoire. Une grappe correspond au Fokontany.
Les ménages à interviewer seront choisis en se servant de la technique de « parcours aléatoire simple ».

$$P_k = P_{1,i} \times P_{k|v\ i}$$

n = Taille minimale requise de l'échantillon.

D = Effet d'échantillonnage (fixé à 2 puisque nous utiliserons l'échantillonnage en grappe).

P1 = Niveau estimé d'un indicateur mesuré en tant que proportion au moment du Baseline

P2 = Niveau escompté de l'indicateur soit à l'évaluation finale, soit pour la zone du projet de sorte à ce que la quantité (P2- P1) soit l'ordre de grandeur du changement que l'on souhaite qu'il détecte.

**Zα** = Score-Z correspondant au degré de confiance que l'on souhaite avoir pour conclure qu'un changement observé de la taille (P2- P1) n'aurait pas eu lieu par hasard (α – niveau de signification statistique). Pour un intervalle de confiance de 95%, Zα est de 1.645)

**Zβ** = Score-Z correspondant au degré de confiance que l'on souhaite avoir pour dépister avec certitude un changement de la taille (P2- P1) si un tel changement a effectivement eu lieu (β – puissance statistique = 0.80, Zβ = 0,84).

Les indicateurs d'intérêt sont le taux d'accès de la population à l'eau et aux latrines. La taille de l'échantillon trouvée est de 1 747 ménages répondants. Comme 1 sur 2 ménages ont un enfant de moins de 5 ans, la taille de l'échantillon devient 3 494 ménages pour être sûr d'avoir le nombre minimal des ménages ayant des enfants de moins de 5 ans nécessaire (*Source : EDS 2008 – 2009*). Se référant à la méthode PPT, 60 grappes (Fokontany) par Région seront sélectionnées et le nombre de ménages à enquêter par Fokontany sera proportionnel au nombre de population du Fokontany aboutissant à **1 747 ménages répondants,** la taille finale de l'échantillon.

### C. QUALITATIVE

#### Focus Groupe et Interview Informarteurs-clés

Collecter des informations qualitatives en mesure d'élargir la compréhension du contexte, d'affiner la stratégie d'intervention du projet et d'aider à la prise de décision. Les informations qualitatives seront à recueillir auprès des CTD, communautés, tenants de pouvoir traditionnel, services techniques, associations, AUE, ONG etc. Les outils à utiliser seront l'entretien pour les informateurs-clés (niveau institutionnel) et le focus group au niveau communautaire. Les participants aux discussions de focus groups sont les futures bénéficiaires du Projet RANO WASH, incluant le chef de ménage et les mères/nourrices des enfants de moins de 5 ans.

### D. INVENTAIRES DES POINTS D'EAU et INFRASTRUCTURES WASH au niveau des ECOLES et CENTRES DE SANTE

La présente étude consiste à inventorier de manière exhaustive les infrastructures d'eau existant à savoir (i) les puits améliorés – (ii) les forages – (iii) les bornes fontaines – (iv) les blocs sanitaires et (v) les impluviums. Les infrastructures concernées par cette étude sont uniquement les infrastructures qualifiées « PUBLIQUES » au niveau de toutes les communes d'intervention du Projet. Les infrastructures se trouvant au niveau des centres de santé et écoles seront aussi considérées durant cette étude. Il s'agit de :

- Connaitre le nombre des infrastructures d'eau par commune, Fokontany et par localité selon les 5 types sus mentionnés y compris les infrastructures au niveau des écoles et centres de santé ;
- Définir les caractéristiques de chaque infrastructure : type du système d'eau, nature du système, moyen d'exhaure… ;
- Déterminer la fonctionnalité de chaque infrastructure ;
- Identifier les différentes modes de gestion existantes et l'efficacité du système de gestion existant ;
- Définir le nombre de personnes qui utilisent chaque point d'eau et la distance de chaque point d'eau par rapport au village.

Le Projet fournira l'outil d'inventaire à utiliser mais qui sera mis à jour par la firme sélectionnée.

## 5. ZONE D'INTERVENTION

Le Tableau ci-dessous résume les informations sur les zones d'intervention du Projet.

| PROVINCE | REGION | DISTRICT | Nombre Communes | Nombre Fokontany |
|---|---|---|---|---|
| FIANARANTSOA | VATOVAVY FITOVINANY | IFANADIANA | 13 | 195 |
| | | IKONGO | 15 | 176 |
| | | MANAKARA ATSIMO | 44 | 304 |
| | | MANANJARY | 28 | 234 |
| | | NOSY-VARIKA | 18 | 250 |
| | | VOHIPENO | 19 | 134 |
| | VATOVAVY FITOVINANY | | 137 | 1,293 |
| TOAMASINA | ALAOTRA MANGORO | AMBATONDRAZAKA | 19 | 165 |
| | | AMPARAFARAVOLA | 20 | 189 |
| | | ANDILAMENA | 8 | 59 |
| | | ANOSIBE-AN'ALA | 10 | 96 |
| | | MORAMANGA | 20 | 161 |
| | ALAOTRA MANGORO | | 77 | 670 |
| | ATSINANANA | ANTANAMBAO MANAMPONTSY | 5 | 56 |
| | | BRICKAVILLE | 17 | 179 |
| | | MAHANORO | 11 | 193 |
| | | MAROLAMBO | 14 | 170 |
| | | TOAMASINA II | 17 | 165 |
| | | VATOMANDRY | 18 | 162 |
| | ATSINANANA | | 82 | 925 |
| Grand Total | | | 296 | 2,888 |

## 6. TACHES CLES

Le cabinet d'études va se charger des tâches/activités suivantes :

Examen des documents relatifs au Programme RANO WASH et d'autres documents pertinents disponibles, entre autres :

- Le Proposal, document de Projet
- Le PMP – Performance Management Plan incluant le tableau des Indicateurs
- Les rapports et documents cadres pertinents du gouvernement de Madagascar pour les informations de base entre autres les différents plans sectoriels, Santé, WASH et Nutrition.

Élaborer un rapport initial ou rapport de démarrage : le bureau d'études, en étroite collaboration avec l'équipe Suivi-Évaluation et l'équipe technique de RANO WASH, soumettra un rapport de démarrage comprenant les éléments suivants sans être exhaustifs :

- Compréhension du mandat avec le déroulement global de l'étude ;
- Protocole d'enquête incluant (i) la méthodologie détaillée, le cadre et technique d'échantillonnage pour les enquêtes quantitatives et qualitatives respectant les normes énumérées dans la section de la méthodologie d'évaluation- (ii) les drafts d'outils de collecte de données quantitatives et qualitatives- (iii) les outils pour les inventaires des points d'eau et infrastructure WASH au niveau des écoles et centres de santé - (iv) Guide d'interview- (v) Une description complète du processus d'apurement des données ; analyse des données incluant la pondération de l'échantillon et l'estimation des indicateurs avec des caractéristiques liées à l'estimation (intervalle de confiance, écart type/erreur type de la moyenne et valeur du facteur d'effet de conception) ;
- Calendrier finalisé (activités, responsable, livrables (outputs) et chronologie)
- Sur la base d'une lecture des documents du Projet, proposer des sujets supplémentaires ou des questions à analyser avant de procéder à l'évaluation.

Ce rapport de démarrage doit être approuvé par RANO WASH avant que la collecte de données ne commence.

Recrutement des enquêteurs : Fournir les ressources personnelles qualifiées pour la conduite de l'enquête :

- Recruter et prendre en charge les enquêteurs, les recenseurs et les superviseurs qualifiés ;
- Former et orienter les recenseurs et l'équipe de collecte de données.

Collecte de données sur le terrain

- Planifier et coordonner l'équipe nécessaire pour collecter les données conformément à la méthodologie proposée ;
- Pré-test, éditer, traduire, finaliser et reproduire les instruments d'enquête ;
- Assurer et organiser l'aspect logistique sur le terrain afin d'assurer le bon déroulement de l'enquête (transport, hébergement, etc.).

Saisie, analyse et rapportage des données

- Soumettre le rapport de collecte de données ;
- Produire l'ensemble de données de l'enquête déjà apurées et sous format CSV et/ou SPSS. Toutes informations pouvant identifier le répondant au sondage devrait être supprimée, comme le nom, les dates de naissance, le sexe, les géocodes ;
- Présenter la table de données et l'ensemble de données de sondage ;
- Soumettre le draft du rapport comprenant deux section (i) le baseline incluant le tableau des estimations d'indicateurs, la procédure et le résultat de la pondération d'échantillonnage - (ii) l'Inventaire des points d'eau et infrastructure WASH ;
- Présenter le rapport détaillant les résultats de l'étude et soumettre une présentation sur PowerPoint à RANO WASH et aux parties prenantes ;
- Préparer un rapport final, en français et en anglais, considérant les commentaires émis sur le rapport draft ;
- Présenter les résultats finaux de l'étude.

## 7. DUREE ET PLANNING

L'étude de référence ne devraient pas dépasser huit (08) semaines à partir de la date de signature du contrat dont deux (02) semaines pour les préparatifs, trois (03) semaines sur le terrain et 03 trois (03) semaines au bureau pour le rapportage. Le calendrier indicatif de l'étude de référence est indiqué ci-dessous. Tout écart anticipé par rapport à ce calendrier devrait être justifié dans le cadre de la proposition de consultation.

| Jalons | Activités de l'étude de référence | Responsable | Durée | Date due |
|---|---|---|---|---|
| 1 | Validation et Signature des TDR | RANO WASH Team | | 21 déc 2017 |
| | Envoi demande de proposition technique et financière | CARE | 1 jour | 04 janv 2018 |
| | Date limite soumission offre technico-financière | Bureau d'Etudes | 12 jours | 19 janv 2018 |
| | Analyse des offres techniques | CARE et RANO WASH Team | 1.5 jours | 22- 23 janv 2018 |
| | Élaboration du rapport d'évaluation des propositions techniques et sortie de la liste des candidats ayant obtenu la note requise pour l'ouverture des offres financières | CARE et RANO WASH Team | 0.5 jour | 23 janv 2018 PM |
| | Ouverture des offres financières | CARE- RANO WASH Team | 1 jour | 24 janv 2018 |
| | Élaboration du rapport d'évaluation combiné et sélection de la firme retenue. | CARE | 1 jour | 24 janv 2018 |
| | Notification du Bureau d'Études sélectionnée | CARE | 1 jour | 26 janv 2018 |
| 2 | Signature du Contrat | CARE et Bureau d'Etudes | 1 jour | 30 janv 2018 |
| | Rencontre avec RANO WASH pour discuter du protocole, de la méthodologie, de l'échantillonnage, des outils et de la chronologie (inception meeting) | CARE- RANO WASH Team et Bureau d'Etudes | 1 jour | 30 janv 2018 |
| | Élaboration et présentation du rapport de démarrage selon les détails susmentionnés pour feed-back, commentaires et propositions d'amélioration | Bureau d'Etudes | 5 jours | 06 fév 2018 |
| | Préparation des travaux sur le terrain et finalisation les outils en fonction des commentaires de RANO WASH | Bureau d'Etudes | 4 jours | 09 fév 2018 |

| Jalons | Activités de l'étude de référence | Responsable | Durée | Date due |
|---|---|---|---|---|
| 3 | Formation des enquêteurs et recenseurs, prétest | RANO WASH Team et Bureau d'Etudes | 2 jours | 12-13 fév. 2018 |
| | Duplication et finalisation du développement des outils | Bureau d'Etudes | 3 jours | 14-16 fév. 2018 |
| 4 | Descente sur le terrain pour la collecte de données | Bureau d'Etudes | 3 semaines | 17 fév. – 10 mars 18 |
| 5 | Soumission du rapport provisoire avec le rapport sur le déroulement de l'enquête | Bureau d'Etudes | 5 jours | 16 mars 2018 |
| | Présentation du rapport provisoire | Bureau d'Etudes | 1 jour | 20 mars 2018 |
| 6 | Soumission de tous les livrables finaux (rapport final en français et en anglais, données propres, photos et présentation PPT) | Bureau d'Etudes | 7 jours | 27 mars 2018 |
| 7 | Atelier de dissémination des résultats de l'étude à toutes les parties prenantes. | RANO WASH Team et Bureau d'Etudes | 1 jour | TBD |

## 8. LIVRABLES

Le Bureau d'Etudes devrait produire les livrables suivants dans le cadre de cette mission :

| N | LIVRABLES | DATE DUE |
|---|---|---|
| 1 | Rapport de démarrage | 06 fév 2018 |
| 2 | Rapport de formation des enquêteurs et recenseurs succinct | 14 fév. 2018 |
| 4 | Données finales nettoyées sous microsoft-Excel et tout autre format utilisé (SPSS, STATA, etc.) avec les tableaux des indicateurs | 14 mars 2018 |
| 5 | Rapport provisoire avec le rapport sur le déroulement de l'enquête | 16 mars 2018 |
| 6 | Soumission de tous les livrables finaux (rapport final en français et en anglais, données propres, photos et présentation PPT) | 27 mars 2018 |
| 7 | Atelier de dissémination des résultats de l'étude à toutes les parties prenantes. | TBD |

## 9. COMPOSITION DE L'EQUIPE

Le Bureau d'études doit aligner une équipe de trois personnes-clés qui sera coordonnée par un Chef de mission : à savoir (i) Un statisticien – (ii) Un Ingénieur Hydraulicien ou hydrogéologue – (iii) Socio-organisateur.

- **Chef de mission** : Responsable de la coordination globale et de l'assurance qualité de toutes les activités confiées au bureau d'Etudes mentionnées dans ces TdR. Être titulaire d'un diplôme d'Ingénieur ou Master dans le domaine scientifique ou sciences sociales ; Ayant conduit au moins trois missions en tant que Chef de mission.
- Un **statisticien** : Être titulaire d'un diplôme universitaire (Ingéniorat ou Master) en statistiques, démographie ; disposant d'une expérience probante d'au moins trois ans (i) en conduite de recherche quantitative et qualitative – (ii) en traitement et analyse des résultats d'enquête. Le statisticien devrait maîtriser des logiciels spécifiques de traitement des données statistiques (SPSS, STATA, CS Pro, etc.).
- Un Ingénieur **Hydraulicien** ou **hydrogéologue** : ayant une bonne connaissance du secteur et disposant au moins de 3 ans d'expérience dans ce domaine.
- Un **Socio-organisateur** : Être titulaire d'un diplôme universitaire (Master) en sciences sociales ; ayant une bonne connaissance du secteur et disposant au moins de 3 ans d'expérience dans ce domaine.

Les trois personnes-clés proposées par le consultant doivent remplir les conditions suivantes :

- Ayant au moins deux ans d'expériences pertinentes dans le secteur EAH.
- Disposant d'une capacité et une aisance relationnelle en communication au niveau communautaire en milieux rural.
- Très bonnes capacités d'analyse et de rédaction.
- Maîtrisant le français oral et écrit, comprenant l'anglais professionnel
- Maîtrisant les outils informatiques de base.

- Une **équipe d'enquêteurs** et **recenseurs** qui doit remplir les conditions suivantes
  - Connaissance des Régions et des dialectes locaux ;
  - Une forte expérience dans la conduite d'enquêtes par questionnaire auprès des ménages ;
  - Une grande disponibilité et de capacité à se déplacer à pied sur les terrains ;
  - Avec un bon équilibre hommes/femmes pour faciliter la collecte des données au sein des communautés, représentativité des <35 ans ;
  - Nombre suffisant conformément à taille de l'échantillon.

## Annexe 2 - Budget alloué à l'EAH par rapport au PIB

Le pourcentage du budget alloué à l'EAH par rapport au PIB pendant les cinq dernières années est donné dans le tableau ci-après :

| | ANNEE | | | | |
|---|---|---|---|---|---|
| **DESIGNATION** | **2014** | **2015** | **2016** | **2017** | **2018** |
| | | | | | |
| PIB ($ US courants) - source : BM | 10 673 516 673 | 9 744 243 420 | 10 001 193 420 | | |
| PIB Nominal (milliards Ar) - source : lois des finances | 25 774,5 | 28 618,3 | 31 769,2 | 35 730,8 | |
| Taux de change de la BM ($ US to MGA) | 2 414,8116667 | 2 933,5083333 | 3 176,5391667 | | |
| | | | | | |
| PIB (Milliers d'Ariary) - source : BM | 25 774 532 586 | 28 584 819 276 | 31 769 182 613 | | |
| PIB Nominal (milliers Ar) - source : lois des finances | 25 774 500 000 | 28 618 300 000 | 31 769 200 000 | 35 730 800 000 | |
| | | | | | |
| Budget Eau LFI (Milliers d'Ariary) | 17 834 161 | 34 642 492 | 46 335 591 | 99 063 549 | 104 584 493 |
| Budget Eau et Assainissement LFR (Milliers d'Ariary) | 36 048 661 | 44 060 440 | 42 050 170 | 76 059 099 | |
| Budget Devéloppement de l'accès à l'eau et aux infrastrucutres d'assainissement LFR (Milliers d'Ariary) | 32 589 076 | 39 974 509 | 36 112 755 | 64 169 416 | |
| | | | | | |
| **Pourcentage Budget Eau et Assainissement (LFR)/PIB** | **0,14%** | **0,15%** | **0,13%** | **0,21%** | |
| **Pourcentage Budget Devéloppement de l'accès à l'eau et aux infrastructures d'assainissement (LFR)/PIB** | **0,13%** | **0,14%** | **0,11%** | **0,18%** | |

*Source : TrackFin, Loi des Finances 2018 - TOME2*

Les sources prises en compte par TrackFin pour le PIB dans ce tableau sont la Banque Mondiale (BM) et les lois de finances.

La loi de finance considérée couvre le budget global Eau et Assainissement. Si on descend à la rubrique « Développement d'accès à l'eau et aux infrastructures d'assainissement » le pourcentage du budget alloué à l'EAH par rapport au PIB % allant de 0.13% jusqu'au 0,18% (cf. dernière ligne du tableau)
De surcroît, en matière d'Assainissement et d'Hygiène, la déclaration de D'eThekwini nous donne les informations suivantes :

| N° | Engagements | Progression |
|---|---|---|
| 1 | Ont-ils signé eThekwini et qui l'a signée ? | 0 |
| 2 | Y a-t-il une politique nationale sur l'assainissement ? | 2 |
| 3 | Y a-t-il un plan national pour atteindre la cible des OMD ? | 2 |
| 4 | Quel profil est accordé à l'assainissement dans le DSRP ? | 1 |
| 5 | Y a-t-il une institution faîtière responsable qui assume le leadership ? | 2 |
| 6 | Y a-t-il un organe de coordination impliquant tous les acteurs ? | 1 |
| 7 | Y a-t-il une ligne budgétaire distincte dans le secteur public pour l'assainissement ? | 0 |
| 8 | 0,5 % du PIB est-il consacré à l'assainissement ? | 0 |
| 9 | Y a-t-il un système de suivi et d'évaluation (S&E) de l'assainissement ? | 1 |
| 10 | Les programmes institutionnels d'assainissement comprennent-ils une composante genre | 1 |
| | | |
| **Echelle de progression** | | |
| 2 | Progrès satisfaisants (2 points) | |
| 1 | Quelques progrès (1 point) | |
| 0 | Progrès insuffisants (0 points) | |

## Annexe 3 – Score Card

| Masontsivana | Kaominina miankina betsaka amin'ny fanampiana [D] | Kaominina miankina amin'ny ampahany fa mbola sahirana [C] | Kaominina an-dalam-pahazoana fahaleovantena [B] | Kaominina mahaleotena [A] |
|---|---|---|---|---|
| Fandrindrana ny tetikasa rehetra eo anivon'ny kaominina | Kaominina setry amin'ny famahana olana akaiky Mampandefitra ny ezaka fandrindrana sy ny fitsinjovana alavitra | Kaominina mahatsapa ny lanjan'ny fahaiza-mandrindra tetikasa, saingy tsy mbola nanao ezaka fandrindrana | Kaominina miezaka mandrindra ny tetikasa atao sy mety hatao, Tohanan'ny mpiara-miombonantoka | Kaominina mametraka paikady fandrindrana izay arahin'ny mpiara-miombonanatoka |
| Fananana Vina | Kaominina tsy mbola resilahatra amin'ny fananana vina manokana Mionona amin'ny vinam-pirenena sy ny mpamatsy vola | Kaominina nandrafitra vina niainga avy tamin'ny lahara-pahamehan'ny mpiara-miombonantoka, Vina tsy mbola manan-kery ara-dalàna sy tsy maharitra | Kaominina manana vina avy amin'ny ankolafy maro Vina manan-kery ara-dalàna, saingy mihatra amin'ny ampahany ihany ary tsy maharitra | Kaominina manana vina avy amin'ny ankolafy maro, manan-kery, mihatra, maharitra ary toavin'ny mpiara-miombonantoka |
| Fahafahana ara-bola | Kaominina tsy mbola matotra ny fidiran-ketra Avy amin'ny mpamatsy vola ny vola rehetra anaovana fampandrosoana | Kaominina manana fidiran-ketra fa tsy mbola ampy anaovana fampandrosoana Avy amin'ny mpamatsy vola ny ampahany betsaka ny vola anaovana fampandrosoana | Kaominina manana fidiran-ketra matanjaka sy tahirim-bola anaovana fampandrosoana Fa mbola mila fanampiana ihany avy any ivelany amin'ny fampandrosoana | Kaominina afaka mamatsy manontolo tetikasa fampandrosoana ho azy, avy ao amin'ny tahirim-bolany |
| Fandrafetana Paikady | Kaominina manao ho zava-dehibe ny asa fanomezan-drano fisotro amin'ny fotoana sarotra, noho ny famatsian-drano maharitra sy tsara tantana | Kaominina miasa miaraka amin'ny mpiara-miombonantoka amin'ny famatsian-drano. Saingy tsy ampy fanatanterahana sy tsy misy tamberin'andraikitra any amin'ny mponina. Mifanitsaka ihany koa ny asa tanterahina sy ny andraikitra. | Kaominina manao tamberin'andraikitra momban'ny asa nataony sy nataon'ny mpiara-miombonantoka. Saingy tsy mbola mazava ny fizaran'adraikitry ny tsirairay | Kaominina mametraka fizarana andraikitra mazava, sy miasa amin'ny mangarahara (tamberin'andraikitra). |
| Famatsiana ny filàna rano | Kaominina miankina amin'ny mpiara-miombonantoka ny fahafaha-manao rehetra, indrindra raha misy fahamehana | Kaominina misy tetikasa famatsiana rano fa tsy mbola mahenika ary tsy tena maharitra ny zava-bita | Kaominina saika heniky ny famatsian-dranon'ny mponina, fa tsy ampy ezaka fampaharetana ny zava-bita | Kaominina manana rano fisotro ho an'ny mponina rehetra ao aminy, sy mampaharitra ny zava-bita. |
| Fanjohina sy tombanezaka | Kaominina mionona amin'ny vitan'ny mpiara-miombonantoka, ary tsy mbola resy lahatra amin'ny fanjohina sy tombanezaka | Kaominina resy lahatra sy maharay tatitra fanjohina sy tombanezaka maro avy amin'ny mpiara-miombonantoka Saingy sahirana amin'ny fampiasana ireny tatitra ireny | Kaominina mamohy tanjona lehibe iraisan'ny mpiara-miombonantoka, mahasahana sehatra maro Saingy sahirana mandrafitra tahirin-kevitra voarindra sy manao fanjohina sy tombanezaka | Kaominina manao fanjohina sy tombanezaka marina sy mirindra, mahaseaka sehatra maro. Afaka mamatsy ara-potoana ny tahirin-kevi-panjakana fohibe, ka manampy amin'ny fanatsarana ny paikadim-pirenena |

Source: SIMS/MSIS 2018

## Annexe 4 – Méthodologie quintile de richesse

Comme l'étude cible la population rurale mais qu'elle recourt à des échanges monétaires faibles et dispose des services de microfinance, la notion de « richesse » utilisée dans cette étude sera un compromis entre la « richesse traditionnelle » et la « richesse moderne » au sens de Michel GARENNE.

[30]Par **richesse moderne** on entend des biens et services modernes qui nécessitent un revenu monétaire pour leur acquisition. Ce sont des biens et services qui sont acquis sur un marché économique moderne, quel que soit leur prix. Il peut s'agir d'une caractéristique de l'habitat (ciment, carrelage, tuiles), d'un équipement (électroménager, appareil électronique), d'une source d'énergie (électricité, fioul), d'un moyen de transport (motocyclette, automobile), d'un service (internet, compte en banque) ou de tout autre bien ou service moderne. Plus le ménage sera riche au sens moderne, plus il aura la capacité d'acquérir des biens et services modernes, et plus on s'attend à ce qu'il ait un comportement moderne au sens démographique.

Par **richesse traditionnelle** on entendra des biens et services produits par le ménage dans le cadre d'une économie traditionnelle. Ces biens et services sont produits en général sans échange monétaire. Il peut s'agir de production agricole vivrière, d'élevage, de construction de bâtiments à partir d'éléments trouvés dans la nature (terre, bois, branchages), de production artisanale à partir d'éléments naturels, de services non rémunérés au sein du ménage (cuisine, garde des enfants, organisation de fêtes, etc.). Ces biens et services sont produits dans le cadre d'échanges non-monétaires complexes, qui sont la base de l'économie traditionnelle. Ils font partie du système économique et social traditionnel, dont le fonctionnement est radicalement différent des systèmes modernes fondés sur l'échange monétaire. Dans les systèmes traditionnels, les biens produits n'ont pas pour but premier d'être vendus ou échangés. Ils servent non seulement à la consommation du ménage, mais aussi à assurer la stabilité du système et à définir le statut social du ménage et son prestige dans la société locale.

Ainsi la méthode de catégorisation des ménages sera la suivante, en tenant compte de la collecte de données auprès des ménages échantillonnés :

| REFERENCES QUESTIONNAIRES | | | |
|---|---|---|---|
| F1 | PATRIMOINE | SCORE | POIDS |
| A | Trano | 12 | 0,154 |
| B | Fiara | 11 | 0,141 |
| C | Kibota | 10 | 0,128 |
| D | Décortiquerie | 9 | 0,115 |
| E | Charrette | 8 | 0,103 |
| J | Moto | 7 | 0,090 |
| H | Bétails | 6 | 0,077 |
| F | Charrue | 5 | 0,064 |
| G | Herse | 4 | 0,051 |

[30] GARENNE.M, (2014) « Indicateurs de richesse des ménages : Implications pour l'étude des relations avec les paramètres démographiques et la mesure des inégalités » Ed. FERDI p 4-5
. JAMES B. DAVIES, (2008) « The World Distribution of Household Wealth » Ed. United Nations University – World Institute for Development Economics Research (UNU – WIDER) p 2-3
. INSTAT (2010) « Enquête Démographique et de Santé Madagascar 2008-2009 »
. WORLD HEALTH ORGANISATION (2017) « WASH dans l'agenda 2030, les nouveaux indicateurs mondiaux pour l'eau, l'assainissement et l'hygiène- Joint Monitoring Program » p 3

| REFERENCES QUESTIONNAIRES | | | |
|---|---|---|---|
| I | Lakana | 3 | 0,038 |
| K | Bicyclette | 2 | 0,026 |
| L | Machine à coudre | 1 | 0,013 |
| | TOTAL SCORE | 78 | 1,000 |
| | | | |
| F2 | revenu (ARIARY) | SCORE | pondération |
| 5 | sup à 500.000 | 5 | 0,333 |
| 4 | 200.000/500.000 | 4 | 0,267 |
| 3 | 100.000/200.000 | 3 | 0,200 |
| 2 | 50.000/100.000 | 2 | 0,133 |
| 1 | inf à 50.000 | 1 | 0,067 |
| | TOTAL SCORE | 15 | 1,000 |

La richesse d'un ménage s'obtient en faisant le produit de F1- Patrimoine et de F2- Revenu sachant que F2 s'obtient en sommant par les poids de F1- Patrimoine.

Richesse (ménage) = Score F1 x Score F2

Score F2 (ménage) = Σ poids F2

Exemple :

Ménage 1

| | PATRIMOINE | POIDS |
|---|---|---|
| A | Trano | 0,154 |
| E | Charrette | 0,103 |
| H | Bétails | 0,077 |
| K | Bicyclette | 0,026 |
| | poids F1 | 0,359 |
| | REVENU | POIDS |
| 200.000/500.000 ar | 4 (poids F2) | 0,571 |
| | | |
| | RICHESSE (poids F1 * poids F2) | 0,205 |

Les ménages seront ensuite répartis en fonction de leur richesse respective en 5 catégories :

| Quintile | Nombre | Revenus (Ariary) | Score combiné |
|---|---|---|---|
| Plus pauvre- Q1 | 334 | Inférieur à 50.000 | inférieur ou égal à 0,0120 |
| Pauvre- Q2 | 368 | 50.000 à 100.000 | 0,0120 < score ≤ 0,0222 |
| Moyenne- Q3 | 124 | 100.000 à 200.000 | 0,0222 < score ≤ 0,0308 |
| Riche- Q4 | 559 | 200.000 à 500.000 | 0,0308 < score ≤ 0,0462 |
| Plus riche- Q5 | 366 | Supérieur à 500.000 | supérieur à 0,0462 |
| Total | 1751 | | |

## Annexe 5 – Liste des Fokontany et Communes cibles des Focus Group

| Region | Distrika | Kominina | Fokontany |
|---|---|---|---|
| Alaotra mangoro | Ambatondrazaka | Ambatondrazaka | Ampasambazimba |
| Alaotra mangoro | Ambatondrazaka | Ambatondrazaka | Atsimondrova |
| Alaotra mangoro | Ambatondrazaka | Ambatondrazaka | Antanifotsy |
| Alaotra mangoro | Ambatondrazaka | Ambatondrazaka | Anosindrafilo |
| Alaotra mangoro | Ambatondrazaka | Ambatondrazaka | Ambodimanga |
| Alaotra mangoro | Ambatondrazaka | Ambohitsilaozana | Ambohimanga |
| Alaotra mangoro | Ambatondrazaka | Ambohitsilaozana | Mahatsinjo |
| Alaotra mangoro | Ambatondrazaka | Bejofo | Bejofo |
| Alaotra mangoro | Ambatondrazaka | Ilafy | Ilafy |
| Alaotra mangoro | Ambatondrazaka | Suburbaine | Andrarabary |
| Alaotra mangoro | Amparafaravola | Ambohimandroso | Tanambao |
| Alaotra mangoro | Amparafaravola | Amparafaravola | Amparafaravola |
| Alaotra mangoro | Amparafaravola | Ampasikely | Ampasikely |
| Alaotra mangoro | Andilamena | Andilamena | Ambatolampy |
| Alaotra mangoro | Andilamena | Bemaintso | Bemaintso |
| Alaotra mangoro | Anosibe anala | Anosibe anala | Anosibe anala |
| Alaotra mangoro | Anosibe anala | Anosibe anala | Anosibe kely |
| Alaotra mangoro | Anosibe anala | Anosibe anala | Vohibola |
| Alaotra mangoro | Anosibe anala | Anosibe anala | Ampasimadinika |
| Alaotra mangoro | Anosibeanala | Ambatoaranana | Ambatoaranana |
| Alaotra mangoro | Anosibeanala | Ambatoaranana | Ambatoaranana |
| Alaotra mangoro | Anosibeanala | Anosibeanala | Andranomaria |
| Alaotra mangoro | Moramanga | Ambohibary | Befotsy |
| Alaotra mangoro | Moramanga | Ampasimpotsy | Ampasimpotsy |
| Alaotra mangoro | Moramanga | Ampasimpotsy gara | Tsiazopody |

| | | | |
|---|---|---|---|
| Alaotra mangoro | Moramanga | Andaingo | Andaingo 2 |
| Alaotra mangoro | Moramanga | Andasibe | Ampangalatsary |
| Alaotra mangoro | Moramanga | Anosibe ifody | Anosibe ifody |
| Alaotra mangoro | Moramanga | Morarano gara | Marovohay |
| Alaotra mangoro | Moramanga | Sabotsy anjiro | Ambodimanga |
| Atsinanana | Antanambao Manampotsy | Antanambao Manampotsy | Antanambao |
| Atsinanana | Antanambao Manampotsy | Antanambao Manampotsy | Ampasinambo |
| Atsinanana | Antanambao Manampotsy | Antanambao Manampotsy | Ampasimadinika |
| Atsinanana | Brickaville | Ambinaninony | Ampasimadinika ranofotsy |
| Atsinanana | Brickaville | Ambinaninony | Savahalaina |
| Atsinanana | Brickaville | Ambinaninony | Ambodivandrika |
| Atsinanana | Brickaville | Antsapanana | Antsapanana |
| Atsinanana | Brickaville | Brickaville | Cyzano |
| Atsinanana | Brickaville | Brickaville | Menagisy |
| Atsinanana | Mahanoro | Betsizaraina | Tsangabato |
| Atsinanana | Mahanoro | Betsizaraina | Betamotamo |
| Atsinanana | Mahanoro | Tsaravinany | Sahamanandra |
| Atsinanana | Tamatave II | Antetezambaro | Antetezambaro |
| Atsinanana | Tamatave II | Antetezambaro | Vohitsara ifontsy |
| Atsinanana | Tamatave II | Antetezambaro | Vohidrotra |
| Atsinanana | Tamatave II | Antetezambaro | Analamalotra |
| Atsinanana | Tamatave II | Tamatave suburbaine | Ambalamanasy |
| Atsinanana | Tamatave II | Tamatave suburbaine | Tanandava |
| Atsinanana | Tamatave II | Tamatave suburbaine | Ambodisaina |
| Atsinanana | Vatomandry | Ampasimadinika | Ampasimadinika |
| Atsinanana | Vatomandry | Niarovana caroline | Niarovana caroline |

| | | | |
|---|---|---|---|
| Atsinanana | Vatomandry | Niarovana caroline | Bonaka |
| Atsinanana | Vatomandry | Vatomandry | Ampandranety |
| Atsinanana | Vatomandry | Vatomandry | Vohitsara |
| Vatovavy fitovinany | Ifanadiana | Ifanadiana | Ambodifilahina |
| Vatovavy fitovinany | Ikongo | Manampatrana | Ambatofaritana |
| Vatovavy fitovinany | Ikongo | Manampatrana | Ambohimalaza |
| Vatovavy fitovinany | Ikongo | Tolongoina | Iladitra |
| Vatovavy fitovinany | Manakara | Ambila | Ambila |
| Vatovavy fitovinany | Manakara | Ambila | Tamboro ouest |
| Vatovavy fitovinany | Manakara | Marofarihy | Marofarihy |
| Vatovavy fitovinany | Manakara | Marofarihy | Mideboky |
| Vatovavy fitovinany | Manakara | Mizilo | Mizilo gara |
| Vatovavy fitovinany | Manakara | Mizilo | Analamiditra |
| Vatovavy fitovinany | Mananjary | Antsenavolo | Ambatofaritana |
| Vatovavy fitovinany | Mananjary | Kianjavato | Ambalaosy |
| Vatovavy fitovinany | Mananjary | Mananjary | Mahatsinjo |
| Vatovavy fitovinany | Mananjary | Mananjary | Analanjavidy |
| Vatovavy fitovinany | Mananjary | Mananjary | Ambonaramena |
| Vatovavy fitovinany | Nosy varika | Ambahy | Ampasimaneva |
| Vatovavy fitovinany | Nosy varika | Ambahy | Fenoarivo |

| | | | |
|---|---|---|---|
| Vatovavy fitovinany | Nosy varika | Nosy varika | Ambohitsara i |
| Vatovavy fitovinany | Nosy varika | Nosy varika | Andonaka |
| Vatovavy fitovinany | Nosy-varika | Ambahy | Ambodisandroy |
| Vatovavy fitovinany | Nosy-varika | Ambahy | Ambahy |
| Vatovavy fitovinany | Nosy-varika | Nosy-varika | Ambodisana |
| Vatovavy fitovinany | Nosy-varika | Nosy-varika | Fenoarivo |
| Vatovavy fitovinany | Nosy-varika | Nosy-varika | Masondranokely |
| Vatovavy fitovinany | Vohipeno | Anoloka | Vohitramba |
| Vatovavy fitovinany | Vohipeno | Anoloka | Vohitsivalana |
| Vatovavy fitovinany | Vohipeno | Ivato | Voasary |
| Vatovavy fitovinany | Vohipeno | Ivato | Ivato |
| Vatovavy fitovinany | Vohipeno | Vohitrindry | Vohitrindry |
| Vatovavy fitovinany | Vohipeno | Vohitrindry | Fenoarivo be |

| REGION | DISTRICTS | COMMUNES | FOKONTANY (REALISATION) | FOKONTANY (PREVISION) | Echantillon |
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| Alaotra mangoro | Ambatondrazaka | Ambatosoratra | Ambatosoratra | Ambatosoratra | 12 |
| Alaotra mangoro | Ambatondrazaka | Ambohitsilaozana | Ambohitsilaozana | Ambohitsilaozana | 29 |
| Alaotra mangoro | Ambatondrazaka | Andilanatoby | Ambodinonoka | Ambodinonoka | 70 |
| Alaotra mangoro | Ambatondrazaka | Bejofo | Bejofo | Bejofo | 36 |
| Alaotra mangoro | Ambatondrazaka | Didy | Ambohimanga | Ambohimanga | 39 |
| Alaotra mangoro | Ambatondrazaka | Manakambahiny est | Analavory | Analavory | 7 |
| Alaotra mangoro | Ambatondrazaka | Soalazaina | Soalazaina | Soalazaina | 24 |
| Alaotra mangoro | Ambatondrazaka | Tanambao besakay | Tanambao besakay | Tanambao besakay | 37 |
| Alaotra mangoro | Amparafaravola | Ambatomainty | Sampananefatra | Sampananefatra | 16 |
| Alaotra mangoro | Amparafaravola | Ambohijanahary | Ambatovola | Ambatovola | 8 |

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|---|---|---|---|---|---|
| Alaotra mangoro | Amparafaravola | Ambohitrarivo | Ambohitrarivo | Ambohitrarivo | 31 |
| Alaotra mangoro | Amparafaravola | Amparafaravola | Ampasimbola | Ampasimbola | 15 |
| Alaotra mangoro | Amparafaravola | Anororo | Anororo betafo | Anororo betafo | 13 |
| Alaotra mangoro | Amparafaravola | Beanana | Beanana | Beanana | 25 |
| Alaotra mangoro | Amparafaravola | Morarano chrome | Anosiboribory | Anosiboribory | 14 |
| Alaotra mangoro | Amparafaravola | Sahamamy | Besarety | Besarety | 7 |
| Alaotra mangoro | Amparafaravola | Vohimena | Antohodava | Antohodava | 4 |
| Alaotra mangoro | Andilamena | Andilamena | Antsiradava | Antsiradava | 11 |
| Alaotra mangoro | Andilamena | Bemaintso | Bemaitso | Bemaitso | 16 |
| Alaotra mangoro | Anosibe an'ala | Ambatoharanana | Mahavelona | Mahavelona | 10 |
| Alaotra mangoro | Anosibe an'ala | Ampandroantraka | Ampandroantraka | Ampandroantraka | 18 |
| Alaotra mangoro | Anosibe an'ala | Anosibe an'ala | Tsaratampona | Tsaratampona | 6 |

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| Alaotra mangoro | Anosibe an'ala | Tsaravinany | Tsaravinany | Tsaravinany | 9 |
| Alaotra mangoro | Moramanga | Ambohibary | Ambohitrakanga | Ambohitrakanga | 15 |
| Alaotra mangoro | Moramanga | Ambohibary | Soavinorona | Soavinorona | 11 |
| Alaotra mangoro | Moramanga | Andaingo | Ambodiampalibe | Ambodiampalibe | 7 |
| Alaotra mangoro | Moramanga | Andasibe | Andasifahatelo | Andasifahatelo | 30 |
| Alaotra mangoro | Moramanga | Antanandava | Sahalemaka | Sahalemaka | 4 |
| Alaotra mangoro | Moramanga | Beforona | Ambatoharanana | Ambatoharanana | 22 |
| Alaotra mangoro | Moramanga | Beforona | Marozevo | Marozevo | 11 |
| Alaotra mangoro | Moramanga | Lakato | Lakato | Sahamadio | 9 |
| Alaotra mangoro | Moramanga | Sabotsy anjiro | Anjiro tsimialonjafy | Anjiro tsimialonjafy | 45 |
| Alaotra mangoro | Moramanga | Vodiriana | Andranobe | Andranobe | 7 |

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| Atsinanana | Antanambao manampotsy | Antanambao manampotsy | Ant/ manampontsy centre | Ant/ manampontsy centre | 60 |
| Atsinanana | Brickaville | Ambinaninony | Ambodirafia | Ambodirafia | 6 |
| Atsinanana | Brickaville | Andevoranto | Ianakonitra | Ianakonitra | 8 |
| Atsinanana | Brickaville | Anivorano est | Anivorano est | Anivorano est | 18 |
| Atsinanana | Brickaville | Brickaville | Sahamorona | Sahamorona | 14 |
| Atsinanana | Mahanoro | Ambinanidilana | Ampasimadinika | Ambodinivato | 14 |
| Atsinanana | Mahanoro | Ambodibonara | Beloha | Beloha | 10 |
| Atsinanana | Mahanoro | Ambodiharina | Ambodiharina | Ambodiharina | 32 |
| Atsinanana | Mahanoro | Ankazotsifantatra | Ankazotsifantatra | Ankazotsifantatra | 33 |
| Atsinanana | Mahanoro | Befotaka | Befotaka | Befotaka | 18 |
| Atsinanana | Mahanoro | Betsizaraina | Betamotamo | Betamotamo | 9 |
| Atsinanana | Mahanoro | Mahanoro | Androrangambo | Androrangambo | 17 |
| Atsinanana | Mahanoro | Manjakandriana | Mahatsara | Ampitakilaka | 12 |

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|---|---|---|---|---|---|
| Atsinanana | Mahanoro | Masomeloka | Ampanotoana | Ampanotoana | 17 |
| Atsinanana | Mahanoro | Tsaravinany | Ampitakihosy | Sahanomby | 16 |
| Atsinanana | Marolambo | Andodabe sud | Ambatofaritana | Ambatofaritana | 3 |
| Atsinanana | Marolambo | Marolambo | Antanambao | Antanambao | 62 |
| Atsinanana | Toamasina II | Amboditandroho | Ambalasaona | Ambalasaona | 10 |
| Atsinanana | Toamasina II | Ampasimbe onibe | Ampasimbe onibe | Ampasimbe onibe | 22 |
| Atsinanana | Toamasina II | Ampasimbe onibe | Tanamena | Tanamena | 20 |
| Atsinanana | Toamasina II | Antetezambaro | Antetezambaro | Antetezambaro | 17 |
| Atsinanana | Toamasina II | Foulpointe | Foulpointe | Foulpointe | 57 |
| Atsinanana | Toamasina II | Sahambala | Manamandrozana | Manamandrozana | 10 |
| Atsinanana | Toamasina II | Tamatave suburbaine | Anjahamarina | Anjahamarina | 10 |
| Atsinanana | Vatomandry | Ampasimadinika | Fenoarivo | Fenoarivo | 6 |
| Atsinanana | Vatomandry | Ilaka est | Andranomadio | Andranomadio | 11 |

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|---|---|---|---|---|---|
| Atsinanana | Vatomandry | Maintinandry | Maintinandry | Maintinandry | 29 |
| Atsinanana | Vatomandry | Niarovana caroline | Ambinanindrano | Ambinanindrano | 11 |
| Atsinanana | Vatomandry | Niherenana | Niherenana | Niherenana | 26 |
| Atsinanana | Vatomandry | Sahamatevina | Marovintsy | Marovintsy | 4 |
| Atsinanana | Vatomandry | Tsarasambo | Ambodivontaka | Ambodivontaka | 14 |
| Vatovavy fitovinany | Ifanadiana | Androrangavola | Ambodifontsina | Ambodifontsina | 5 |
| Vatovavy fitovinany | Ifanadiana | Antaretra | Antaretra | Antaretra | 49 |
| Vatovavy fitovinany | Ifanadiana | Ifanadiana | Antafotenina | Antafotenina | 5 |
| Vatovavy fitovinany | Ifanadiana | Kelilalina | Kelilalina | Kelilalina | 18 |
| Vatovavy fitovinany | Ifanadiana | Ranomafana | Ampasipotsy | Ampasipotsy | 9 |
| Vatovavy fitovinany | Ikongo | Ambatofotsy | Ambatofotsy | Ambatofotsy | 15 |
| Vatovavy fitovinany | Ikongo | Ikongo | Mangarivotra | Mangarivotra | 13 |

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|---|---|---|---|---|---|
| Vatovavy fitovinany | Ikongo | Manampatrana | Manampatrana | Ambohitsara Manambato | 13 |
| Vatovavy fitovinany | Ikongo | Maromiandra | Maromiandra | Ambohimahasoa | 25 |
| Vatovavy fitovinany | Ikongo | Tolongoina | Tolongoina | Tolongoina | 19 |
| Vatovavy fitovinany | Manakara | Ampasimanjeva | Tsarandrano | Tsarandrano | 18 |
| Vatovavy fitovinany | Manakara | Bekatra | Ambalafary | Ambalafary | 15 |
| Vatovavy fitovinany | Manakara | Mahamaibe | Anorombato | Anorombato | 6 |
| Vatovavy fitovinany | Manakara | Mangatsiotra | Valovahy | Valovahy | 15 |
| Vatovavy fitovinany | Manakara | Marofarihy | Alakamisy anivosoa | Alakamisy anivosoa | 11 |
| Vatovavy fitovinany | Manakara | Nosiala | Nosiala | Nosiala | 35 |
| Vatovavy fitovinany | Mananjary | Ambohimiarina ii | Manakana tsiangaly | Manakana tsiangaly | 14 |
| Vatovavy fitovinany | Mananjary | Antsenavolo | Ambodimanga | Ambodimanga | 16 |
| Vatovavy fitovinany | Mananjary | Mahela | Nosibe | Nosibe | 6 |

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| Vatovavy fitovinany | Mananjary | Marokarima | Ambaladara | Ambaladara | 19 |
| Vatovavy fitovinany | Mananjary | Namorona | Ambinany namorona | Ambinany namorona | 5 |
| Vatovavy fitovinany | Mananjary | Tsiatosika | Ankatrognana | Ankatrognana | 6 |
| Vatovavy fitovinany | Mananjary | Vohilava | Ampasinambo nord | Ampasinambo nord | 42 |
| Vatovavy fitovinany | Nosy varika | Ambodirian'i sahafary | Manakana | Manakana | 13 |
| Vatovavy fitovinany | Nosy varika | Angodongodona | Antrobaka | Antrobaka | 4 |
| Vatovavy fitovinany | Nosy varika | Sahavato | Ambodiroranga | Ambodiroranga | 70 |
| Vatovavy fitovinany | Nosy varika | Vohilava | Tsarahonenana | Tsarahonenana | 17 |
| Vatovavy fitovinany | Vohipeno | Andemaka | Andemaka centre | Andemaka centre | 26 |
| Vatovavy fitovinany | Vohipeno | Ankarimbary | Ambaibo | Ambaibo | 7 |
| Vatovavy fitovinany | Vohipeno | Anoloka | Mahavelo | Mahavelo | 3 |
| Vatovavy fitovinany | Vohipeno | Mahabo | Vohilava | Vohilava | 16 |

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| Vatovavy fitovinany | Vohipeno | Vohilany | Vohilany | Vohilany | 2 |