EIB GROUP EVALUATION

PLANNING AN IMPACT EVALUATION: WATER PROJECT IN MADAGASCAR

LESSONS FROM PRACTICE

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Planning an impact evaluation: Water project in Madagascar
Lessons from practice

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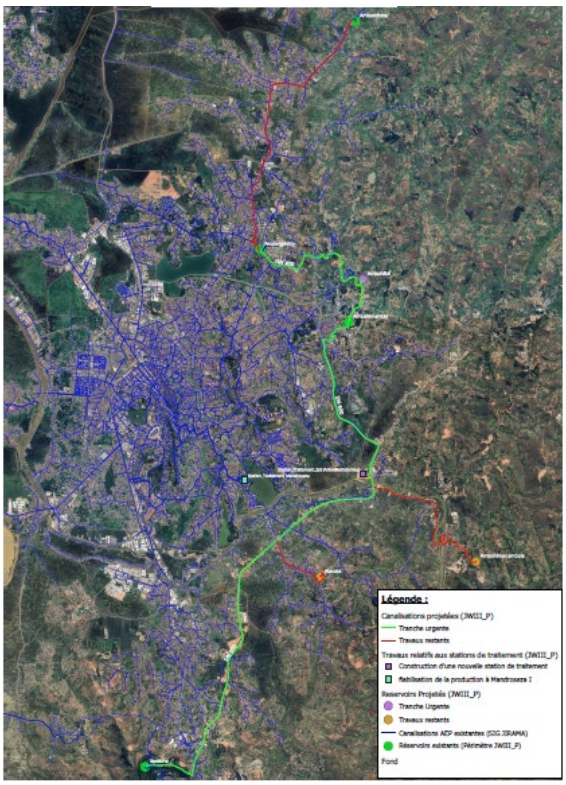
BACKGROUND, DESIGN AND OBJECTIVES OF THE IMPACT EVALUATION

Since 2021, the Evaluation Division of the European investment Bank has been running an impact evaluation of a water project in Madagascar.[1] The division collaborated closely with the impact evaluation research team to ensure that the evaluation design and baseline measurements are optimally suited to assess the impact the project will have once complete – expected for 2030. The Social Policy Unit of the European Investment Bank (EIB) was also involved in this research, reflecting their interest in understanding the effects of gender mainstreaming in water infrastructure projects. The baseline stage of the impact evaluation was completed in late 2024, and those results were published in a report.[2]

The Jirama Water III-Prioritaire (JWIII-P) project seeks to address critical challenges to drinking water access in the Greater Antananarivo region, targeting 87% coverage. Co-financed by the EIB, the European Commission and other partners, the project is being implemented by Madagascar's state-owned utility provider, Jirama. Works under the JWIII-P project encompass the renovation of the existing water treatment plant, the construction of a new treatment facility, the refurbishment of the existing water pipeline network and the development of a new pipeline network. The project also includes the installation of new water tanks, water booster pumps, around 400 water kiosks and some 5 000 private water connections. The highest priorities (*tranche urgente*) are the construction of the new treatment facility and the development of the new water network in the eastern part of the city of Antananarivo (highlighted in green on the map). Complementary initiatives led by the World Bank and organisations like Water and Sanitation for the Urban Poor (WSUP) further enhance the project's intended impact by strengthening community capacity and extending water services to underserved populations.



The decision to focus this study on the JWIII-P drinking water project in Antananarivo was motivated by several factors. First, the EIB invests heavily in infrastructure projects worldwide[3] and, as a long-term, technically challenging project involving international and national partners, JWIII-P exemplifies the complexity typical of EIB interventions. Second, the results of this impact evaluation are expected to build capacity for making the EIB's contribution to gender

[1] This research is financed by the EIB University Research Sponsorship Programme (EIBURS).
[2] The final baseline report can be accessed here.
[3] From 2010 to 2021, the EIB supported 131 projects in over 50 countries outside the EU, with total financing of €7.2 billion.

equality as effective as possible. The JWIII-P project has a significant gender dimension: Most of the responsibility for water collection falls to women (~85% of households, UNICEF 2019[4]), and ease of collection has far-reaching implications for time allocation, mental well-being and physical health. Additionally, since work on JWIII-P has not yet started, it was feasible to collect baseline data and take pre-project indicator measurements in this case. Most importantly, all stakeholders involved are committed to collaborating on this impact evaluation and are highly interested in its findings.

The impact of JWIII-P on final beneficiaries, particularly women and girls, will be assessed using a quasi-experimental evaluation design. While expected results are typically estimated during the project appraisal phase, an impact evaluation offers a unique opportunity to thoroughly analyse real outcomes. Given the realities in the field, researchers chose a difference-in-differences approach combined with matching. This method precisely measures a project's effects by comparing outcome changes over time with and without the intervention, ensuring a clear understanding of its impact. Unlike previous EIB impact evaluations that predominantly rely on secondary data, this study uses primary data collected in Antananarivo, broadening the scope for selecting and measuring specific indicators.

The evaluation combines quantitative and qualitative data to measure key results indicators and interpret their values, to shed light on the mechanisms that drive change and to identify factors that may foster or hinder the expected impact. At the baseline stage, a total of 2 520 households were surveyed, targeting the family water manager. From a total of 550 *fokontanies*, a sample of 210 was selected, and within each of these, 12 households were randomly chosen. Additionally, various focus group discussions were held in these *fokontanies*, involving 255 individuals. The participants were divided into groups based on gender and water access, including men and women fetching water from kiosks, individuals with private tap connections, water carriers and members of water associations.

The sampling approach was designed around the unique challenges and uncertainties in this project. To address implementation challenges – such as uncertain timing, unpredictable location of components (like private tap connections), and downstream effects[5] – a robust sampling frame was established at the lowest administrative level (the *fokontany*). The beneficiary group (treatment group) is located in the areas directly impacted by the intervention, and in regions influenced by potential downstream effects. The non-beneficiary group (comparison group) is selected from similar areas that are neither directly affected by JWIII-P nor exposed to downstream effects. The sampling approach therefore maximises the likelihood of capturing areas with private tap connections and water kiosks alongside areas without these facilities.

The objectives of this knowledge piece are threefold:

1

Demonstrate the value of the baseline phase in refining the project's Theory of Change[6] in terms of expected results and causal pathways within the context of Antananarivo.

2

Present key baseline findings that offer insights into the potential impacts of JWIII-P.

3

Illustrate how the baseline phase helps validate the design of the impact evaluation and plan the next stages.

[4] UNICEF (2019). Madagascar. Water, Sanitation and Hygiene (WASH) Sectoral and OR+ (Thematic) Report. January – December 2018. Prepared by: UNICEF Madagascar. March 2019.

[5] A downstream effect in a water infrastructure project refers to the impact that occurs in areas located downstream of the project site due to changes in water quality or availability.

[6] A Theory of Change (ToC) is a structured framework that outlines how a project is expected to achieve its intended results. It maps the causal pathways from inputs and activities to output, outcomes and impacts, identifying key assumptions and external factors that may influence success.

ACHIEVING IMPACT THROUGH A CAUSAL PATHWAY OF RESULTS TAILORED TO THE LOCAL CONTEXT

Developing a theory of change is a crucial step in designing an impact evaluation, as it helps align stakeholders on measurable outcomes, as well as on the timing and methods for assessing them. A theory of change provides a clear visual representation of the entire causal chain showing how a programme is expected to achieve its goals. This step facilitates discussions between researchers and implementing partners on what to measure, when and how.

The JWIII-P theory of change was created through an iterative and participatory process conducted throughout the baseline phase. This process drew upon multiple sources, including project documentation, relevant existing literature, discussions with various categories of water users from different parts of Antananarivo, consultations with representatives of implementing institutions, field observations and baseline data analysis. These diverse inputs provided valuable insights into the current challenges people face regarding water access, the potential benefits they anticipate from the project and the technical aspects of the JWIII-P initiative.

- **The JWIII-P appraisal documents** outline the project's expected contribution to improving access to safe drinking water, enhancing the overall well-being of the population, reducing poverty, increasing gender equality and supporting inclusive growth. They also emphasise strengthening the institutional framework through partnerships with Jirama and a local NGO working in the water and sanitation sector to ensure effective and sustainable implementation, along with building community capacity. The economic rate of return considers benefits from time and productivity gains, lower health expenditure and reduced water loss.

  Not all of the elements mentioned in the appraisal documents are included in the theory of change, such as inclusive growth or strengthening institutions. This is a conscious decision, as impact evaluation design is not well suited to assessing macroeconomic effects or institutional changes. However, at the endline stage, the evaluation design could incorporate complementary approaches in order to evaluate these broader dimensions, in addition to measuring the project's direct impacts on the population.

- **The literature review** played a crucial role in identifying the potential outcomes of water infrastructure interventions in similar African and urban contexts, with a particular emphasis on their effects on women and girls. It also helped structure the causal mechanisms linking these interventions to the relevant Sustainable Development Goals (SDGs). The literature review also highlighted the robust evidence linking access to clean water to improved health outcomes. However, it underscored the complexity and high costs associated with testing water quality, leading researchers to exclude water quality testing as a primary objective for the baseline.

While the theory of change greatly benefited from insights gained through the literature, it was essential to validate these findings by comparing them to the realities of the local context. For example, understanding the dynamics of gender relationships on the ground was critical to assessing the intervention's potential for empowering women, just as recognising the role of youth in water fetching was essential to understanding the JWIII-P project's potential impact on education.

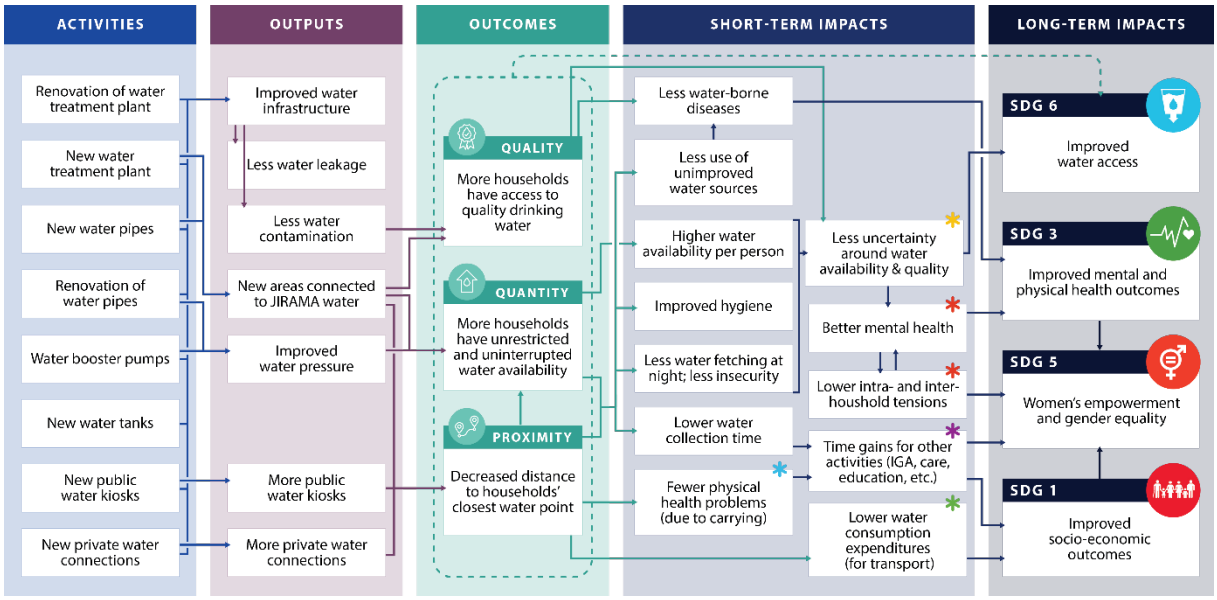
- **Focus group discussions, key informant interviews and field observations** conducted during the exploratory mission in November 2022 provided valuable insights to refine the causal pathways leading to potential outcomes and impacts of the JWIII-P project. They enabled the research team to tailor the theory of change to the specific context of urban and peri-urban Antananarivo. First, all of the stakeholders consulted emphasised that there is a critical need to improve water availability, quality and access in the city, confirming the relevance of the project. Water shortages are frequent, and issues related to pressure and quality persist irrespective of the water source used, even among those with access to private taps. Second, while the individuals primarily responsible for household water management or fetching water are usually women, men are also highly involved in these tasks. Respondents noted that improved water infrastructure would have some impact on the jobs of water carriers, and might also influence the price of water. Third, household tensions related to water uncertainty appeared to be rare, as did insecurity associated with fetching water at night. Fourth, youth (irrespective of gender) occasionally participate in water-related activities, but this involvement does not seem to interfere with their school attendance. Finally, improved physical and mental health is highlighted as a potential benefit of the project; however, the reduction in waterborne diseases may not be as substantial as anticipated, despite better quality of water from Jirama and reduced reliance on unimproved water sources. This is because waterborne diseases are exacerbated by various factors, including poor hygiene practices and inadequate food safety measures. While better water quality and accessibility could help address these challenges, it will take time to achieve significant improvements.

  The theory of change was refined to reflect the realities on the ground. The current version still emphasises the causal link between better water access and quality, and women's empowerment. However, the effect on gender equality appears as a more indirect and longer-term effect, as this intervention is also meant to positively impact men as well. Reduced intra- and inter-household tensions still appear as a potential impact, despite a lack of reports to this effect, as people have lived under these conditions for so long that they may not realise how much their lives could improve with such interventions. Time savings remain a clear expected outcome, not only from shorter distances between households and water sources, but also thanks to better water pressure, which reduces the time required to fill containers. Both women and men could reallocate this time saved to income-generating and/or caring activities, although youth school attendance is unlikely to be affected. Socioeconomic effects warrant special attention, as they may be positive for certain segments of the population – such as those who can reallocate time to income-generating activities or those who rely on water carriers. However, these effects could also be negative or remain uncertain for water carriers, women providing laundry services, and others. Additionally, potential increases in water prices might also influence water consumption habits and the socioeconomic effects.

- **The analysis of baseline qualitative and quantitative data** helps validate the JWIII-P project's theory of change. More importantly, though, it provides a basis for managing expectations regarding the magnitude of the impact that water infrastructure interventions are likely to have on certain indicators in this context. The baseline values of the main indicators are presented in the next section, providing some insight into the potential magnitude of the impact.

The figure below illustrates the final version of the JWIII-P project's theory of change, taking into account the specific features of the local context.[7] This theory of change served as the foundation for identifying the relevant indicators to measure the project's intended outcomes and impact, and to design relevant and practical data collection tools, such as survey questionnaires and focus group discussion guides.

Theory of Change for the JWIII-P project



Source: Baseline report 2024.

[7] A full description of the theory of change can be found in the final baseline report, accessible here.

BASELINE MEASUREMENTS TO MANAGE EXPECTATIONS OF IMPACT MAGNITUDE

Based on the baseline data for JWIII-P, approximately 20% of households in Antananarivo rely on unimproved water sources, including unprotected wells, rainwater and surface water. Access varies between urban and peri-urban areas. Use of unimproved sources is more prevalent in peri-urban areas (24%). Urban households are more likely to have private taps (23%), compared to just 7% in peri-urban areas. For many urban households (56%), water kiosks serve as the main source of water. In contrast, peri-urban households primarily rely on protected wells (40%). The JWIII-P project is expected to lead to less use of unimproved water sources and more use of water kiosks and private taps.

WATER FETCHING IS PREDOMINANTLY A TASK FOR WOMEN.

In Antananarivo, the burden of water collection is gendered, as 79% of water fetchers are women. Most water fetchers have education levels below high school. Professional water carriers are utilised by approximately 11% of households, with a slightly higher prevalence in urban areas (16%) compared to peri-urban areas (9%). Notably, children are rarely involved in water collection, with less than 2.5% of fetchers aged 17 or younger, and minimal gender differences among those who do participate.

PROXIMITY TO WATER SOURCES REMAINS A CHALLENGE FOR HOUSEHOLDS IN ANTANANARIVO THAT MUST DEVOTE PRECIOUS TIME TO ACCESSING WATER.

Households spend approximately one hour per day fetching water, making an average of three round-trips daily, with no significant difference between urban and peri-urban areas. Each round-trip takes about 10 minutes, with most completed in under 20 minutes. On average, the nearest water kiosk is 124 metres from a household's dwelling, with most households located within 750 metres. Fetching times and distances to improved water sources are expected to decrease significantly thanks to JWIII-P, particularly for the households that gain access to private water connections.

WATER QUANTITY USED BY HOUSEHOLDS FALLS BELOW RECOMMENDED LEVELS DUE TO FREQUENT WATER CUTS AND LOW PRESSURE.

The average daily water consumption per household member is 21.3 litres (for households without private taps), well below the "water poverty" threshold of 40 litres per person per day and the EU average of 100 litres per person per day. Predictable and unpredictable water cuts are common, affecting half of the sampled households (25.2% and 24.8%, respectively). Additionally, 22.1% of households reported rationing water due to limited availability, while 13% rationed water frequently due to financial constraints. Expanding private connections and improving water pressure in the Jirama network could greatly enhance access to water, increasing daily consumption, reducing time spent fetching water and ensuring a more reliable supply.

PERCEIVED WATER QUALITY BEFORE JWIII-P IS RELATIVELY HIGH, BUT REPORTS POINT TO AREAS FOR IMPROVEMENT.

As noted earlier, no water testing was conducted by the researchers. Instead, water quality was assessed by respondents based on colour, taste and smell. While 73% of households reported that their water appeared clean and free of sediment, 20% described it as brackish. Additionally, 79% reported that their water was odourless, while 16% reported that it smelled of chlorine. Similarly, most households (87%) stated that their water was tasteless, while 9% noted a chlorine taste. These perceptions may be underestimated, as households have become accustomed to these conditions over time and may not fully recognise the deficiencies.

Storage practices that influence water quality are common, even among households with private taps, due to frequent water cuts. To improve water quality, 57% of households treat their water before drinking, with boiling being the most common method. Treatment practices are more common in urban areas than in peri-urban regions, which corresponds to the finding that water quality is generally rated lower in urban areas than in peri-urban regions. Moreover, quality was reported to worsen significantly during the rainy season, likely due to flooding. Water quality is expected to significantly improve thanks to the JWIII-P intervention, as it aims to improve water treatment at the source by renovating and building new treatment plants. It also seeks to prevent water contamination by upgrading pipes and improving water pressure, reducing the need for water storage practices.

HOUSEHOLDS WITH PRIVATE TAPS EXHIBIT SIGNIFICANTLY BETTER HYGIENE PRACTICES.

At baseline, around 87% of residents surveyed in Antananarivo reported washing themselves at least once a day. However, approximately 25% of households continue to do laundry in rivers, lakes or rice fields, underscoring the lack of reliable water access. Greater water availability is expected to improve hygiene, particularly for households that gain access to private water connections. The causality of this relationship, as well as its implications for related health outcomes, will be tested in subsequent phases of the impact evaluation.

MOST HOUSEHOLDS SURVEYED (87%) COLLECT WATER EARLY IN THE MORNING TO TAKE ADVANTAGE OF BETTER WATER AVAILABILITY.

Sexual harassment during water collection is rarely reported (1%), largely because women often implement safety strategies, such as never going to fetch water alone in the late night or early morning. By improving water availability, the JWIII-P project aims to let households access water as needed throughout the day, potentially reducing the perceived insecurity associated with water fetching.

WATER FETCHING POSES PHYSICAL HEALTH RISKS.

Approximately 82% of respondents report experiencing at least one physical health problem related to carrying water from the source to their dwelling. These challenges are strongly correlated with the distance to water sources, highlighting the need to reduce the burden through improved access and infrastructure.

BASELINE FINDINGS INDICATE THAT A RELATIVELY SMALL SHARE OF THE POPULATION (15%) SUFFERS FROM SEVERE WATER INSECURITY.

However, reliable water availability could alleviate mental stress caused by uncertain access (particularly for women), reduce intra-household tensions related to water issues, and thus improve overall well-being. The average Household Water Insecurity Experience (HWISE) score in the project area is relatively low, at 4.72, with a score of 15 indicating severe water insecurity. This score is significantly higher for residents of central Antananarivo than for those in peri-urban areas, consistent with the more frequent water cuts and pressure issues reported in urban neighbourhoods, where the population relies more heavily on Jirama's water services.

MENTAL HEALTH AND GENERAL WELL-BEING INDICATORS ARE RELATIVELY HIGH IN THE JWIII-P PROJECT AREA,

with a depression score (Andresen 1994) of 0.506, a self-esteem score (Rosenberg 1965) of 0.751, 68.8% of respondents reporting being rather or very happy on the happiness scale, and a life satisfaction level of 5.869 out of 10. Approximately 10% of respondents reported experiencing intra-household tensions related to water issues. These indicators show significant correlation with water proximity and availability. Increased water reliability and improved quality through the JWIII-P project have the potential to reduce anxiety, depression and intra-household tensions, thereby enhancing overall well-being. However, causality will need to be demonstrated at a later stage of this evaluation, considering that water access is just one of many factors that influence overall well-being.

THE OCCURRENCE OF WATERBORNE DISEASES WAS NOT MEASURED IN THE EVALUATION DESIGN,

as numerous external factors would make it challenging to attribute changes directly to JWIII-P. Furthermore, the causal relationship between access to safe drinking water and the reduction of waterborne diseases is well established in existing literature. Consequently, the evaluation design prioritises assessing water quality.

BASELINE FINDINGS SUGGEST THAT HOUSEHOLDS TRANSITIONING FROM FETCHING WATER AT KIOSKS TO HAVING PRIVATE WATER CONNECTIONS AT HOME COULD SAVE UP TO 30 HOURS PER MONTH.

This time gain is particularly relevant for women, who are primarily responsible for fetching water. For households continuing to use public kiosks, time savings will likely be smaller, but still significant, due to increased water availability, shorter distances, reduced waiting times and quicker filling of water containers. These time savings are expected to be reinvested in income-generating activities or paid employment, with some households using the additional time for caregiving or rest. As self-reported data shows that the time allocations for caregiving and sleeping are currently high, the primary impact is likely to be on economic activities. As previously noted, no significant effect on education is expected, as water chores are not a major reason for which children and youth miss school.

THE EXPECTED IMPACT OF THE JWIII-P PROJECT ON WATER CONSUMPTION EXPENDITURE COULD FOLLOW MULTIPLE TRAJECTORIES.

One the one hand, water transport costs may decrease as households no longer rely on water carriers. However, this effect might only benefit a minority, as most households relying on water carriers (11% of the households using water kiosks) do so when members of the household are not available to fetch water (68%) or are physically unable to (16%), and JWIII-P is unlikely to change this situation. For households gaining access to private taps, a significant reduction in water expenditure is anticipated. This is because these households will no longer require water carriers, and because the cost of water from kiosks is up to six times higher than water from private taps, particularly for those benefiting from the social tariff. On the other hand, even if Jirama is expected to benefit financially from reduced water losses facilitated by the project, the price of water supplied by Jirama may increase significantly after the project in order to ensure the financial sustainability of its infrastructure. The impact of a potential price increase is likely to vary depending on households' socioeconomic status and willingness to pay. Additionally, water consumption may increase overall as households meet their basic needs, which could also affect expenditure, especially as Jirama water becomes a preferred source over unsafe alternatives. Finally, the baseline measure of water costs significantly exceeds the UN-recommended threshold of 3% of household income, highlighting both the poverty level of the targeted population and potential biases in measuring income and costs during household surveys. In impact measurement, what ultimately matters is the magnitude of change, rather than the absolute value.

DRIVING PROGRESS ON MULTIPLE SUSTAINABLE DEVELOPMENT GOALS WITH JWIII-P

Contributing to SDG 6: Improved access to water

The JWIII-P project is set to make a significant contribution to achieving SDG 6 by improving water access for Antananarivo's population. This initiative aligns with the UN's basic water access requirements[8] (Adequate Water Supply: 50-100 litres per person per day; Safety and Quality: water must be safe and acceptable; Affordability: costs should not exceed 3% of household income; Accessibility: sources within 1 000 metres of households; Efficiency: collection time under 30 minutes).

Contributing to SDG 3: Improved mental and physical health outcomes

The JWIII-P project contributes to both mental and physical health outcomes. Reliable access to clean water reduces the prevalence of waterborne diseases, improving physical health. Additionally, reduced water insecurity alleviates the mental stress often associated with uncertain water access, particularly for women. Time saved from water collection can also be reinvested in self-care and caregiving, further boosting overall well-being. As mentioned earlier, well-being indicators are already relatively high at baseline, raising questions about the potential for a significant impact of the JWIII-P project on these dimensions, even though these indicators show a significant correlation with water proximity and availability.

[8] Sustainable Development Goals. Goal 6: Ensure access to water and sanitation for all. Accessible at: Water and Sanitation - United Nations Sustainable Development and Water | United Nations.

Contributing to SDG 5:
Women's empowerment and gender equality

Women's empowerment is already relatively high in the project area prior to the intervention. However, as women remain the primary water fetchers and managers, the JWIII-P project has the potential to promote greater gender equality and empower women to take on more active roles in their households and communities. Empowerment is measured in terms of three dimensions: resources (like time and revenue), achievements (like seeing one's well-being improved) and agency. By reinvesting time savings into business, caregiving or personal development, women can increase their self-confidence and bargaining power within households, thereby strengthening their agency. Baseline findings related to the agency measurement show that women exhibit strong autonomy in setting goals (measured by the Relative Autonomy Index) and place great importance on participating in household and personal decision-making (98-99%). They also demonstrate confidence in achieving desired outcomes, as reflected by the scores for internal locus of control (0.762) and self-efficacy (0.818). Furthermore, women actively pursue their goals, participating in most household and personal decision-making (90-98%), although their involvement is lower in decisions related to work outside the dwelling (74%).

Contributing to SDG 1:
Improved socioeconomic outcomes

The JWIII-P project also plays a more indirect role in improving socioeconomic conditions. Time saved from water collection – up to 30 hours per month for households that gain access to a private connection – can be reallocated to income-generating activities or paid employment, benefiting women in particular. Additionally, reduced water expenditure improves financial resilience, especially for households benefiting from social tariffs and those gaining access to a private tap. Access to reliable and affordable water minimises reliance on costly alternatives, easing financial burdens and helping reduce poverty in Antananarivo. Socioeconomic outcomes will be measured through wealth proxies collected in the household survey, such as dwelling conditions, asset indices and self-reported monthly revenue, as well as the proportion of households limiting daily water consumption due to financial constraints. Furthermore, the intervention may have indirect impacts on jobs, potentially reducing the demand for water carriers, while benefiting laundry services by making water more available.

VALIDATING THE EVALUATION DESIGN WITH BASELINE DATA

Baseline data are used to validate the design of the impact evaluation in two steps: balance checks and power calculations.

Balance checks assess whether the treatment and control groups are comparable across key baseline characteristics. This ensures internal validity by confirming that observed impacts can be attributed to the JWIII-P project rather than pre-existing differences. For JWIII-P, balance checks indicate that household and respondent characteristics are largely similar, with minor differences in dwelling conditions. Outcome variables also show normalised differences, supporting the assumption of comparability.

Power calculations are used to assess whether the evaluation design has a sufficient sample size to detect meaningful changes in key indicators. The minimum detectable effect (MDE) represents the smallest effect size that can reliably be detected with a given statistical power (for example, 80% or 90%), significance level (for example, 5%) and sample size. For JWIII-P, based on baseline measurements, the evaluation design is able to detect small to medium effects across most dimensions of change. These calculations ensure that the evaluation is realistic for the context, drawing on evidence from other studies and budget constraints. Post-project power calculations can further confirm robustness by accounting for sample attrition rates, ensuring reliable detection of expected effects.

PLANNING THE NEXT DATA COLLECTION PHASE TO MEASURE THE IMPACTS OF JWIII-P

Insights from the baseline phase play a crucial role in shaping the subsequent stages of evaluation. Ensuring high-quality data collection at the endline is essential to rigorously evaluate the impact of the JWIII-P project and generate credible, actionable insights for future interventions. The following section outlines key guidelines and best practices for the next data collection phase.

Gather relevant post-intervention data. Before starting endline data collection, conduct a field mission to document the scope of work performed (for example, for every *fokontany*, gather the number and GPS locations of public kiosks built and private connections established). Verify that the infrastructure is operational and that services are functioning effectively, in order to avoid running premature assessments that may not capture the full impact of the intervention. To do so, use secondary monitoring data from Jirama on water access and availability, alongside qualitative information from interviews and focus group discussions. Additionally, include information on other donors' infrastructure projects in the area to account for external influences.

Carefully confirm whether the initial control and treatment group classifications still hold. If discrepancies are identified, consider variations in treatment intensity and apply ex-post econometric techniques (such as matching) to address imbalances.

Reflect on the theory of change and related assumptions based on post-intervention documentation to ensure the relevance of causal links and the observability of specific outcomes and impacts, before collecting new survey data.

Adapt qualitative data collection tools to explore mechanisms of change, complementing quantitative findings.

Review the baseline questionnaire.

1) Exclude time-invariant variables (education, gender of household head, marital status, etc.) from the endline survey.
2) Remove variables with low variation (for example, 99% of households collect water on foot) unless they are essential to the analysis.
3) Revise ambiguous questions to address issues encountered during the baseline (for example, water collection time should include waiting).
4) Introduce improvements to measure change (higher granularity for time spent collecting water, water costs for those with private connections, household income, etc.). For new variables, use recall data or secondary sources to reconstruct baseline values.

Timing. Plan data collection immediately after the urgent work is completed to capture short-term impacts, ensuring attribution. However (as already mentioned), first confirm that services are fully operational. Make sure to schedule the endline data collection during the same season as the baseline (during the dry season, etc.) to minimise the influence of seasonal variations on measured outcomes. While a midterm survey can provide valuable insights into progress, it should only be conducted if resources permit, and if it is expected to inform mid-course adjustments. Otherwise, efforts should focus on ensuring the rigour of the baseline and endline phases.

Field and enumerator guidelines. Use GPS codes to identify and follow up with the same households surveyed at baseline. Retain the same enumerators or survey firm, where possible, to ensure continuity and familiarity with the process.

Endline data analysis. After collecting the data, evaluate the magnitude and nature of attrition to identify whether it is systematic. Confirm that the sample size is sufficient to detect meaningful changes in the key indicators. Determine relevant matching variables using baseline characteristics unaffected by the programme, combining *fokontany*-level and household-level variables if treatment variation exists within a *fokontany*.

THE EVALUATION DIVISION OF THE EIB GROUP

The Evaluation Division of the EIB Group conducts independent evaluations of the EIB Group's activities. It assesses the relevance and performance of these activities in relation to their objectives and the evolving operating environment. It also helps the EIB Group draw lessons on how to continuously improve its work, thereby contributing to a culture of learning and evidence-based decision-making.

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