添付資料-9 終了時評価概要

I. Outline of the Project	
Country : Republic of Mozambique	Project Title : The Project for Sustainable Rural Water Supply, Sanitation and Hygiene Promotion in Niassa Province
Sector : Water Resources Management	Cooperation Scheme : Technical Cooperation Project
Department in Charge : Global Environmental Department	Cooperation Amount (At the time of evaluation) : Approximately 918million yen (1US\$=\103.4 as of June 30, 2016)
Cooperation Duration :	Counterpart Organizations : MOPH (Ministry of Public Works and Housing) /
January 2013 – February 2017	DNAAS (National Directorate of Water Supply and Sanitation), formerly called DNA DPOPHRH (Provincial Directorate of Public Works, Housing and Water Resources), formally called DPOPH SDPI (District Infrastructure and Planning Service) in 4 Districts (Mavago, Mandimba, Majune, Muembe) *The names of counterpart organizations were changed due to organization reform in December 2015. Relevant Japanese Organizations : Japan Techno Co., Ltd. Relevant Assistances : N/A

Summary of the Results of Terminal Evaluation Survey

1-1 Background and Outline of the Project

Mozambique has shown political stability since the end of sixteen years' civil war in 1992 and has seen steady economic growth, with annual economic growth rate of more than 6% since 2000. The Government of Mozambique and development partners have been engaged in the reconstruction of the basic infrastructures that were devastated during the civil war but the development of social infrastructure is still one of priority areas in Mozambique. Niassa Province, the target area of the Project, is located in the north west of Mozambique and the largest province in the country, with 129,000km² area and 1,170,000 of population, equivalent to 5.8% of the total population (Census 2007). In the rural area of Niassa Province, the rate of population with access to safe water is 36.45% (2014), far below the national average, 52%. In addition, Niassa province has not been implemented large-scale assistance by development partners and the Province is the solitary region out of ten that shows downtrend in the rate of drinking water coverage. The needs for rural water supply and sanitation is still high.

In Nacala Corridor, which passes from the Nacala Port in northern Mozambique to Malawi and Zambia via Nampula and Niassa Provinces, is expected that the development of economic growth and distribution. The support for the development of Nacala Corridor is the highest priority in the Japanese assistance policy toward Mozambique. Major development partners, such as the World Bank, the African Development Bank, and UNICEF, have been implementing assistance programs in Nampula Province, while large-scale assistance is limited in Niassa Province.

With this backdrop, the Government of Mozambique asked the Government of Japan for Technical Cooperation Project on water supply and sanitation in Niassa Province with four districts (Mavago, Mandimba, Majune, and Muembe) as target area. The Project aims for improvement of water and sanitation through development of institutional capacity in planning, operation, and monitoring of related organizations of Mozambique.

education using local resources as well as institutional capacity development of province and districts (1) Overall Goal: Improve the situation of water supply and sanitation in Niassa Province. (2) Project Purpose: Improve the situation of water supply and sanitation in target districts through institutional capacity building of DPOPH/DAS and SDPIs. (3) Outputs : Output 1: Improve the capacity of planning and preparation for water supply, sanitation and hygiene activities in the target districts. Output 2: Construct new water points and latrines for school in the target district Output 3: Enhance the capacity of operation and maintenance (O & M) of water points in the target Districts Output 4: Improve hygiene behavior of the local residence in the target Districts. Output 5: Disseminate and share the know-how and the lessons learned from the project with stakeholders of provincial and national level. (4) Inputs Japanese side: Total cost approximately 918 million yen Equipment: 27.4 million yen; Long-term Expert: 0; Short-term Expert: 10 (92.2 MM, as of August 2016); Trainees received: 7; Local Cost: 412 million yen (planned at the time of terminal evaluation) Mozambican side Counterpart: 29 (cumulative total): Office space for the Project; Cost for project: Transportation/per diem of C/P and fuel for motorbikes, and other activity cost **II.** Evaluation Team Members Japanese side 1. Mr. Akihiro MIYAZAKIDirector, Water Resources Team 2, Water Resources **Evaluation** Group, Global Environment Department, JICA Senior Consultant, SOWA Consultants Inc. Team 2. Mr. Yousuke SASAKI Special Advisor, Water Resources Team 2, Water 3. Mr. Yukihiro AIZAWA Resources Group, Global Environment Department, JICA 4. Ms. Erika TANAKA Senior Researcher, Global Link Management, Inc. 5. Mr. Alves Magassela Interpreter Mozambican side Mr. Zacarias Rafael MANGUELLE Lawyer

The Project is implemented in four target districts (Mavago, Mandimba, Majune, Muembe) in Niassa Province to realize sustainable improvement of water and sanitation through technical assistance such as design and construction of water supply and sanitation facilities and sanitary

Period 19 July 2016 – 6 August 2016 of Type of Evaluation : Terminal **Evaluation** Evaluation **III. Evaluation**

3-1 Project Performance

1-2 Contents of Cooperation

(1) Project Purpose

Project Purpose: Improve the situation of water supply and sanitation in target districts through institutional capacity building of DPOPH/DAS and SDPIs.

(Indicator)

of

1) Reduction by 10% of the number of people affected by waterborne diseases in the target Districts.

2) Increase of 33,600 beneficiaries with access to water supply in the target Districts.

3) Improve capacity of DPOPH/DAS and SDPIs in evaluation test.

(Achievement)

At the time of the terminal evaluation, there is not much effect observed in the statistical data in the Provincial Directorate of Health, as PEC activities were launched just after the completion of sanitation facilities. The repair of water points has not been completed. Therefore, the Project Purpose has not been achieved yet. However, the interview with the target communities confirmed that waterborne disease is decreasing. Also the population with access to water points is estimated to 34,500 if all the planned water points are constructed and repaired. The Project Purpose is expected to be achieved by the end of the Project.

- 1) According to the data on the number of patients who go to health center provided by the Provincial Directorate of Health, the number of patients of waterborne diseases decreased from 2013 to 2014 but increased again from 2014 to 2015. Therefore, the Indicator has not been achieved at the time of the terminal evaluation. In the target communities visited during the terminal evaluation, there is information of reduction of waterborne diseases. Water points and sanitation facilities were constructed in December 2015, so it is expected that effects of the Project will be more visible from the next year on.
- 2) After the completion of the construction and repair of water points in the target Districts, 22,500 people have newly obtained access to water supply at the time of the terminal evaluation. When all the repair work is completed, it is expected that 34,500 people will be benefitted in total.
- 3) The capacity of the staff of DPOPHRH/DAS and SDPI is evaluated based on pre-defined capacity check list. In the mid-term assessment, it is considered that 80% of the targeted level has been achieved.

(2) Output

Output 1: Improve the capacity of planning and preparation for water supply, sanitation and hygiene activities in the target districts.

(Indicator)

- 1-1) Periodical Provincial GAS meetings are held on a quarterly basis.
- 1-2) Water and sanitation issues are addressed in regular sessions of the Governments of target Districts on a quarterly basis.
- 1-3) 15 staff members of the Social Consultants who complete the training obtain the certificate.
- 1-4) SDPI in target districts receive the report from the social consultants.
- 1-5) Reports of baseline survey on conditions of water supply, sanitation and hygiene of local residents are prepared in the target Districts.
- 1-6) Hydrogeological map is updated.

(Achievement)

The Indicators of Output 1 have been achieved. It is evaluated that Output 1 has been achieved.

- 1-1) Provincial GAS meetings are held monthly. Participants at DPOPHRH (formerly called DPOPH), SDPI, development partners, and NGOs attend the meetings. Issues on water and sanitation are discussed.
- 1-2) Regular sessions of the target District Government were held periodically. At the regular District Government sessions, issues on water and sanitation are often discussed among topics in other sectors such as health and education.
- 1-3) Training for PEC activities was conducted for Social Consultants together with government staff and NGO staff. A total of 41 participants were provided with the certificate. Among them, 27 were Social Consultants and NGO staff members.
- 1-4) Each SDPI receives the report from the Social Consultants regularly.
- 1-5) The baseline survey report was completed in 2014.
- 1-6) The GIS database on water points, including hydrogeological data, has been update regularly.

Output 2: Construct new water points and latrines for school in the target district (Indicator)

2-1) 50 new water points are constructed in the targeted Districts.

2-2) Supervision is conducted by SDPIs monthly.

(Achievement)

At the time of the terminal evaluation, the repair of water points (Indicator 2-1) is not completed and it is considered that the Output 2 has not been achieved yet. However, the repair is planned to be completed by the end of August and Output 2 is expected to be achieved by the end of the Project.

- 2-1) The construction of 50 water points is completed at the time of the terminal evaluation. A part from the construction of water points, 65 water points are repaired by the Project and total 20 school latrines were constructed in four target Districts. All the planned repair of water points will be concluded by the end of August 2016.
- 2-2) SDPI conducts regular supervision of water points.

Output 3: Enhance the capacity of operation and maintenance (O & M) of water points in the target Districts

(Indicator)

- 3-1) At least the recommended amount of MZN 2000 is saved by the water committee of each water point of the target communities by the end of the Project period.
- 3-2) The down time of water points per breakdown is reduced to less than 14 days in the target communities.
- 3-3) The annual implementation plan is prepared every year by DPOPH/DAS NIASSA and District Governments/SDPIs in target Districts.
- 3-4) 11 DPOPH/DAS Staff obtain a certificate after completion of training
- 3-5) DPOPH/DAS receive the report on water and sanitation, supervision, monitoring and assessment from the 4 SDPIs on a quarterly basis.

(Achievement)

All Indicators are achieved at the time of the terminal evaluation. It is evaluated that Output 3 has been achieved.

- 3-1) At the time of the terminal evaluation, the Project conducted a survey on the amount of contribution for operation and maintenance of water point. The average amount saved by the water committee in 4 Districts is 2365.3 MZN, which is enough to usual repair. The target of the Indicator is achieved.
- 3-2) The Project conducted a survey on the down time of water points in the case of breakdown. The average down time of water points per breakdown is 2.2 days in 4 Districts, well below the indicator.
- 3-3) At DPOPHRH and SDPI, the annual implementation plan is prepared every year.
- 3-4) The Project organized a variety of training courses conducted by lecturers at CFPAS (Centro de Formação Profissional de Agua e Saneamento) on the topics such as groundwater management, GIS, PEC (Community participation and education, original in Portuguese) activities. An average of 20 staff members at DPOPHRH and SDPI attended each course and obtained the certificates.
- 3-5) DPOPHRH/DAS regularly receives the report on water and sanitation from the 4 SDPIs. In Niassa, a set of necessary equipment for SINAS (National water sector information management system) was provided by DNAAS in September 2015 and the Project has been supporting capacity development on data collection and data entry. SINAS has not been fully functioning yet as expected since some computers and softwares are still under setting by DNAAS, but the reports on water and sanitation using SINAS format are regularly sent from SDPI in 4 target Districts to DPOPHRH/DAS.

Output 4: Improve hygiene behavior of the local residence in the target Districts. (Indicator)

At the time of the terminal evaluation, the number of communities that achieved ODF is 15 and

the Indicator is not achieved yet. However, as support toward achievement of ODF is continuously implemented by consultants and PEC Activistas, there is a good prospect of achievement of this Output if the procedure of ODF evaluators is standardized.

- 4-1) At least 50 % of people who defecate in the open air in each target community abandon open defecation.
- 4-2) At least 50 % of people who do not practice appropriate hand washing in each target community practice appropriate hand washing after defecation.
- 4-3) 60 communities reach Open Defecation-Free Status (declared as ODF).

(Achievement)

- 4-1) During the baseline survey conducted in 2013, it was observed that 49 people had practiced open air defecation. In November 2015, it was confirmed that people abandoned open defecation practice in 22 communities. Also the result showed that about 29% of those 49 people belong to the above mentioned 22 communities. In the communities visited during the terminal evaluation, all the households have latrine, and there is not open defecation any more.
- 4-2) The survey in November 2015 confirmed that in 18 communities all the households had hand washing facility and soap (or ash) near the latrine. During the visit of the terminal evaluation, it is also confirmed that they had hand washing facility and soap near the latrine.
- 4-3) In the ODF evaluation conducted in November 2015, 15 target communities achieved ODF status. In the ODF evaluation conducted in November 2015, it was pointed out that the evaluation procedure was not fully understood by the evaluators. Due to this problem, it is probable that some communities which fulfilled the criteria was not declared as ODF due to the unclear procedure.

Output 5: Disseminate and share the know-how and the lessons learned from the project with stakeholders of provincial and national level.

(Indicator)

- 5-1) 3 types of manual / guidelines are prepared and shared with all districts in Niassa province.
- 5-2) The progress of the project is presented more than 3 times in National GAS (Group of water and sanitation) meetings.
- 5-3) 10 Technicians from other Provinces visit Niassa Province to see the Project activities.
- 5-4) Web site of Provincial GAS is updated more than once a month.

(Achievement)

A part of manuals has not been approved and the Indicator in regard to the presentation at the National GAS meeting has not been achieved. The manuals will be soon approved, but the National GAS meeting had not been held just before the terminal evaluation due to organizational reform, therefore, there has not been an opportunity of presentation. During the terminal evaluation, it was confirmed that the National GAS meeting was resumed but it seems difficult to achieve the Indicator, presentation more than three times, given the remaining project period. Thus, it is suggested, in Recommendation, that the Project utilize national-level occasions such as national GAS to promote the effects of the Project.

- 5-1) The Project is developing three manual/guidelines, namely, the Manual on Operation and Maintenance of School Latrine, the Manual on Establishment and Management of Spare Parts Supply Chain, and the Manual on Supervision of Construction of Water Points. Drafting has been finished for all three Manuals. The Manual on Establishment and Management of Spare Parts Supply Chain and the Manual on Operation and Maintenance of School Latrine are currently under verification by stakeholders such as C/P organizations and other development partners for comments. The remaining one (Manual on Supervision of Construction of Water Points) is expected to be presented to the stakeholders soon.
- 5-2) The National GAS of October 2015 was held in Niassa Province and the Project made

presentation and received visits from participants all over the nation. After the National GAS in 2015, the National GAS was not organized for a while due to some coordination matter and there was no opportunity for presentation.

- 5-3) Nine officials of Maputo Province visited the Project in 2013 and more than 20 officials visited the Province in 2015 at the National GAS. At these occasions, the progress of the Project was shared among those concerned.
- 5-4) Web site is updated regularly. It is expected that more information will be uploaded and updated in the web site regularly in near future.

3-2 Summary of Evaluation Results

(1) Relevance

Relevance of the Project is high.

In Mozambique, the needs of provision in safe water and sanitation are high and the Project is in line with the policy of the Mozambican government. The Project is also in accordance with the Japanese assistance policy toward Mozambique. For example, Nacala Corridor Development and human development for local resources are implemented.

(2) Effectiveness

Effectiveness is relatively high.

Indicators of the Project Purpose are partially achieved. Out of three indicators of the Project Purpose Indicator 2 and Indicator 3 are expected to be achieved by the end of the Project period. In regard to Indicator 1, it is not very clear if the Indicator is achieved by the end of the Project. The number of waterborne diseases decreased from 2013 to 2014 but increased from 2014 to 2015. Water points and sanitation facilities were constructed in December 2015, so it is probable that benefits of the Project have not been fully reflected in the statistics. Moreover, the incidence of waterborne diseases depends not only on water and sanitation but on other factors as well. These issues should be taken into consideration. Interview with target community people disclosed that there is clear decrease in waterborne diseases in the community after the construction of water points and PEC activities. Given these situations, it is considered that the Project have a certain level of effect on the reduction of waterborne disease in the target communities.

Logic from Output to the Project Purpose is appropriate in general. Five Outputs are logically related to the Project Purpose, improvement of the situation of water and sanitation. Regarding the Important Assumptions described in PDM, there was not a major change of personnel on either Mozambican or Japanese sides.

(3) Efficiency

Efficiency is high.

Outputs are expected to be achieved by the end of the project period. The inputs of the Japanese side were implemented without major problem. In regard to the Mozambican inputs, at least 2 members are assigned at each District. With this allocation, it is expected that activities are continuously implemented by the C/Ps even if one of them is transferred to some other workplace. All the inputs on both sides are appropriately utilized and contributed to the achievement of Outputs. Thus efficiency is high.

(4) Impact

The prospect of achieving impact is relatively high. As to the waterborne diseases, it may take a certain period of time to have clear impacts.

Overall Goal is likely to be achieved. One of the Indicators of the Overall Goal, that is, increase of the number of population with access to water supply, is likely to be achieved in near future, when more water points are constructed by the Districts and other development partners. Also the expansion of the spare parts supply chain established by the Project may contribute to increase number of the people with access to water points. As for the other Indicator of the Overall Goal, reduction of the number of waterborne diseases, statistically, there is no clear tendency of the reduction at the time of the terminal evaluation. However, in the target communities the incidence of waterborne diseases is clearly reduced and it is considered that after a certain period of time, it may be likely that waterborne diseases will be reduced in the Province in the future. It should be noted, however, that there are many factors affecting the incidence of waterborne diseases other than availability of water points and sanitation facilities. Dissemination of the Project benefit is important to achieve the Overall Goal. As a part of efforts for dissemination, the Project conducted training on SINAS in 5 non-target Districts based on the request of DPOPHRH. The Project also provided support on establishment of the spare parts supply chain to 3 additional Districts where no other development partners assistance. In addition, Swiss Agency for Development and Cooperation is considering introducing school latrines with the same specifications as those of the Project and applying the manuals for the spare parts supply chain to the target area.

As to the logic from the Project Purpose to the Overall Goal, in the Overall Goal, it is expected that the reduction of waterborne diseases and the increase of population with access of safe water be achieved at provincial level. This is appropriate in terms of logic of expansion of the Project benefits. In the evaluation of the achievement of Indicators, careful consideration is necessary. In regard to the first indicator, there are various external conditions affecting the number of waterborne diseases. As to the second Indicator, the increase of population with access to safe water, it is difficult to say how much the Project contribute to the increase as each District constructs water points on their own initiative and has support from other development partners.

Several positive impacts are observed. One example is school building repair as a result of collaboration promoted by the Project. In August 2016, government staff and development partners from Nampula and Cabo Delgado Provinces are planning to visit the Project. It is expected that the visit may be an opportunity to expand the Project benefits to other Provinces. In Muembe District, there was a strong wind in 2015 and three school buildings were seriously damaged. At one Project target school, where water point and school latrine were constructed and PEC activities were implemented by the Project, the constructing companies, District, and community people contributed materials and they repaired the school building among themselves.

No negative impacts were reported so far.

(5) Sustainability

Sustainability is expected if budget is secured to continue the activities introduced by the Project.

1) Policy sustainability

The Mozambican policy on water and sanitation will not be changed and the support by development partners, including support through PRONASAR (National program of water and sanitation) in collaborations among development partners, is expected to continue. Sustainability of policy aspect is expected.

2) Organizational sustainability

The institutional capacity of the C/P organizations has been improved through the Project. The monitoring system for water and sanitation, i.e., SINAS, is functioning as well as spare parts supply chain. Financial sustainability

3) Financial sustainability

The C/P organizations have disbursed necessary cost for the Project without problem during the Project period. Also, the C/P organizations are planning to secure the budget for the next fiscal year, requesting the budget in the annual implementation plan. However, due to some problem in fund utilization (interview by JICA experts), a part of development partners are suspending financial support for the common basket fund of PRONASAR. Therefore, there is possibility that activities such as PEC and spare parts supply chain monitoring may be stagnated.

4) Technical sustainability

The capacity of C/P personnel is improved although further technical improvement is necessary, for example, on GIS. The technicians at C/P organizations frequently exchange knowledge and techniques among them. Sometimes they teach each other as "peer training", which shows technical sustainability of C/P.

5) Promoting and inhibiting factors of sustainability As a promoting factor of sustainability, continuous improvement of the capacity of C/P personnel is pointed out. One possible inhibiting factor is the shortage of fund of C/P organizations and stakeholders such as water committee.

3-3 Factors Promoting Better Sustainability and Impact

(1) Factors Concerning to Planning

To promote involvement of farmers, the project adjusted the schedule of PEC activities to be off in the farming season.

(2) Factors Concerning to Implementation Process

To continuously improve capacity of the District technicians, the Project promoted peer training, where they share and teach each other knowledge and techniques among them. Another promoting factor is capacity development of local human resources in private sector, such as constructing companies, PEC consultant, and PEC volunteers called Activistas.

3-4 Factors Inhibiting Better Sustainability and Impact

(1) Factors Concerning to Planning Nothing special.

(2) Factors Concerning to Implementation Process

If water and sanitation committees fail to collect fund from the community people, there is possibility that operation and maintenance of water points is not appropriately conducted. In Mozambique, there is an increase in prices caused by change of exchange rate. It may be possible that communities will not be able to purchase spare parts due to price increase.

3-5 Conclusion

The Project is in line with the needs of the target area, the Mozambican policy on water and sanitation, and the Japanese assistance policy toward Mozambique, therefore, relevance is high. The Project Purpose is partially achieved. Out of three Indicators of the Project Purpose, two have been achieved already. As to the other Indicator, the incidence of waterborne diseases depends on several factors other than water and sanitation. Therefore, effectiveness is relatively high. As inputs were appropriately implemented and expected Outputs are achieved, efficiency is high. One of the Indicators of the Overall Goal is already achieved but it will take some time to have impacts on the incidence of waterborne disease as there are various factors affecting waterborne diseases. Thus, impact is relatively high. Sustainability is expected if the budget to continue the project activities is constantly secured. As planned Outputs are expected to be achieved and the Project Purpose is being achieved in general, the Project will be terminated as planned.

3-6 Recommendations

- (1) Through PEC activities, water committees have been activated in target communities but it is observed that some water committees in non-target communities still have difficulties in smooth operation. It is recommendable that the Districts support activation of the water committees, including the fund management, in non-target communities of the Project in the target Districts.
- (2) After the project, it is important to conduct the activities introduced by the Project with the initiative of DPOPHRH and collaboration among District. The SDPI technicians trained by

the Project are expected to conduct technical transfer to other technicians in non-target Districts.

- (3) It is expected that DPOPHRH and SDPI to continue implementation of project activities. To realize this, it is necessary for DPOPHRH and SDPI to secure the necessary budget in their annual implementation plan.
- (4) In regard to monitoring of water and sanitation, DPOPHRH and SDPI should further promote the utilization of SINAS.
- (5) DPOPHRH is advised to effectively use the vehicles supplied by JICA to continuously conduct monitoring for water points, water committees and spare parts supply chain.
- (6) To continuously promote activities in communities, it is expected that Activistas will continue to improve water and sanitation conditions in communities.

3-7 Lessons Learned

- (1) The Project contains a variety of components such as construction of water points, establishment of spare parts supply chain, activation of water committee, and promotion of hygiene and sanitation. Through the comprehensive process related to water and sanitation, in all the stages from planning, implementation, and monitoring, technical transfer was implemented. All the components, including construction and sanitation activities, are related to each other and necessary to produce the expected benefits. It can be said that the comprehensive project design is effective to produce benefits.
- (2) In the Project, local construction companies were hired to construct water points and school latrines. The Project managed the construction work of the contracted companies with local supervisors. Through the collaboration with local contractors and local supervisors, the Project contributed to the improved quality of construction works in the Province. It is effective to manage the construction process by the Project, with supervision by local experts.
- (3) The Project hired private consultant organizations and NGOs in the Province in PEC activities and conducted training for the hired social consultants. The consultants are familiar with the local situations and they conducted PEC activities very effectively. Collaboration with local private consultants with appropriate training is effective in community activities.
- (4) In regard to PEC activities, consultant teams were hired by the Project, and the consultant teams trained Activistas, who work with the team in the communities on a voluntary basis. The capacity of Activistas has been improved and they are willing to work with the community after the completion of the Project. Capacity development of volunteer activistas will contribute to continuous implementation of activities after the project. To realize this, it is necessary to conduct effective activities during the Project period to get the activistas motivated.
- (5) The Project promotes peer training where technicians learn each other. Peer training is effective in capacity building of C/P personnel and this will enhance sustainability after the project period.
- (6) In the Project, at least two technicians are allocated to each organization and the allocated technicians constantly share information and work together. Even if one personnel leaves the position, the remaining personnel will be able to implement project activities and the knowledge and skills transferred through the Project are sustained at the organization. Allocation of more than one personnel as C/P would be helpful in technical transfer and sustainability.
- (7) In the spare parts supply chain established by the Project, existing local shops are included in the chain as a key collaborator. The shops are already well known among the local community and they are willing to continue the collaboration after the Project. For sustainable spare parts supply, it is effective to involve existing local shops in the spare parts supply chain.
- (8) In the Project, various activities have been conducted, for example construction of water

points, revitalization of water committee, and establishment of spare parts supply chain. These activities were completed at the time of the terminal evaluation, and District technicians are conducting monitoring to review if these activities are appropriately implemented. In activities where some organizational structure is established, it is desirable to develop the monitoring system at the early stage of the project period and to allocate a certain time for monitoring before the end of the Project. This allows the Project to review the established system, to make modification, if necessary, and thus, to strengthen the system.

添付資料-10 人材育成・能力強化ロードマップ 関連資料

ロードマップ策定の考え方

ニアッサ州及びプロジェクト対象 4 郡のカウンターパート職員の能力強化を進めるう えで、各活動の連動性や能力強化の効果を高める目的でロードマップを策定した。ロー ドマップとは別に、個人の能力を評価する 10 項目を設定しているが、ロードマップ策 定においては実際に業務で必要となる実務能力・技能について、10 項目の指標を設定 している。業務の中で、必要な実務能力・技能を高める、プロジェクト終了時までに段 階的に各職員の能力の向上を目指す考え方である。

ロードマップは以下の要素で構成した。

- 実務能力・技能
- ② 実務能力・技能の指標(郡)
- ③ 実務能力・技能の指標(州)
- 工程表
- ⑤ 具体的な活動

①実務能力・技能においては、ニアッサ州及びプロジェクト対象4郡のカウンターパート職員の実際の実務の状況や、各職員の能力を確認したうえで、実務で必要と考えられる10項目を設定した。②③においては、州と郡で若干異なる指標を設定した。基礎自治体として実際に住民と接することの多い郡と、郡の上部機関にあたる州では職員に求められる能力は、一定程度異なるからである。

そのうえで、実務・能力の強化項目、職員の能力評価、プロジェクト目標を実現するための④工程表を策定した。各強化項目の向上を図るうえで、どんな活動が必要かを可視化した。⑤具体的な活動においては④工程表を踏まえて、4年間のプロジェクトにおけるスケジュールを設定した。

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① 強化項目の考え方(実務能力・技能)

1.政策

年間計画等を策定し、州・郡の事業を運営していくうえで、国レベルの政策と矛盾しない知識を身につける

2.給水関連の知識

計画を策定し、実施管理、モニタリングを行うときに必要な、給水に関する知識を身につける

3.ハンドポンプの維持管理

対象地域に整備された給水施設の持続性を確保するため、モニタリングに必要な維持管理の知識を身につける

4.PEC活動の知識

計画策定、実施管理、モニタリングの一連の事業運営の中で、受益者となる村落住民の教育手法を身につける

5.計画策定

計画策定に必要な能力を身につける

6.モニタリング/実施管理

モニタリング/実施管理に必要な能力を身につける

7.評価

評価業務に必要な能力を身につける

8.PC

業務全般に必要な能力を身につける

9.プレゼンテーション

計画策定、実施管理、モニタリング、評価の一連の業務の中で、必要な説明能力、プレゼンテーション能力を身につける

10.報告書作成

計画策定、実施管理、モニタリング、評価の一連の業務の中で、必要な報告書作成能力を身につける

実務能力・技能の指標「目指す姿」(郡)

1.政策	5.計画策定	9.プレゼンテーション
まったく政策の知識がない	まったく計画策定ができない	まったくプレゼンテーションが出来ない
基礎的な政策の知識がある	基礎的な計画策定ができる	基礎的なプレゼンテーションが出来る
標準的な政策の知識がある	第三者の補助があれば計画策定ができる	第三者の補助があればプレゼンテーションができる
業務遂行に十分な政策の知識がある	ほぼ独力で計画策定ができる	ほぼ独力でプレゼンテーションができる
優れた政策の知識がある	独力で計画策定ができる	独力でプレゼンテーションができる
2.給水関連の知識	6.モニタリング/実施管理	10.報告書作成
まったく給水関連の知識がない	まったくモニタリングが出来ない	まったく報告書が作成できない
基礎的な給水関連の知識がある	基礎的なモニタリングができる	基礎的な報告書が作成できる
標準的な給水関連の知識がある	第三者の補助があればモニタリングができる	第三者の補助があれば報告書が作成できる
業務遂行に十分な給水関連の知識がある	ほぼ独力でモニタリングができる	ほぼ独力で報告書が作成できる
優れた給水関連の知識がある	独力でモニタリングができる	独力で報告書が作成できる
3.ハンドポンプの維持管理	7.評価	
まったく維持管理の支援ができない	まったく評価業務ができない	
基礎的な維持管理の支援ができない	基礎的な評価業務ができる	
第三者の補助があれば維持管理の支援ができる	第三者の補助があれば評価業務ができる	
ほぼ独力で維持管理の支援ができる	ほぼ独力で評価業務ができる	
独力で維持管理の支援ができる	独力で評価業務ができる	
4.PEC活動の知識	8.PC	
まったくPEC活動の知識がない	PCを使った業務がまったくできない	
基礎的なPEC活動の知識がある	PCを使って基礎的な業務ができる	
標準的なPEC活動の知識がある	第三者の補助があればPCで業務ができる	
業務遂行に十分なPEC活動の知識がある	ほぼ独力でPCを使った業務ができる	
優れたPEC活動の知識がある	独力でPCを使った業務ができる	

③ 実務能力・技能の指標「目指す姿」(州)

1.政策	5.計画策定 9	.プレゼンテーション
まったく政策の知識がない	まったく計画策定ができない	まったくプレゼンテーションが出来ない
基礎的な政策の知識がある	基礎的な計画策定ができる	基礎的なプレゼンテーションが出来る
標準的な政策の知識がある	第三者の補助があれば計画策定ができる	第三者の補助があればプレゼンテーションができる
業務遂行に十分な政策の知識がある	ほぼ独力で計画策定ができる	ほぼ独力でプレゼンテーションができる
国、州レベルの政策を郡に指導できる	独力で計画策定ができる	独力でプレゼンテーションができる
2.給水関連の知識	6.モニタリング/実施管理 1	0.報告書作成
まったく給水関連の知識がない	まったくモニタリングが出来ない	まったく報告書が作成できない
基礎的な給水関連の知識がある	基礎的なモニタリングができる	基礎的な報告書が作成できる
標準的な給水関連の知識がある	第三者の補助があれば郡の活動をモニタリングできる	第三者の補助があれば報告書が作成できる
業務遂行に十分な給水関連の知識がある	ほぼ独力で郡の活動のモニタリングができる	ほぼ独力で報告書が作成できる
優れた給水関連の知識がある	独力で郡の活動のモニタリングができる	独力で報告書が作成できる
3.ハンドポンプの維持管理	7.評価	
まったく維持管理の支援ができない	まったく評価業務ができない	
基礎的な維持管理の支援ができない	基礎的な評価業務ができる	
第三者の補助があれば維持管理の支援ができる	第三者の補助があれば郡の活動を評価できる	
ほぼ独力で維持管理の支援ができる	ほぼ独力で郡の活動を評価できる	
独力で維持管理の支援ができる	独力で郡の活動を評価できる	
4.PEC活動の知識	8.PC	
まったくPEC活動の知識がない	PCを使った業務がまったくできない	
基礎的なPEC活動の知識がある	PCを使って基礎的な業務ができる	
標準的なPEC活動の知識がある	第三者の補助があればPCで業務ができる	
業務遂行に十分なPEC活動の知識がある	ほぼ独力でPCを使った業務ができる	
優れたPEC活動の知識がある	独力でPCを使った業務ができる	

④ 能力強化工程表

	目標レベル		
	プロジェクト開始時	中間(2014年11月)	プロジェクト終了時(2016年11月)
1.政策	国家水政策の知識が不十分	国家水政策の基礎を理解している	国家水政策の基礎を理解している
	(2013-7.行政能力強化研修=実施済)	(Done)	(Done)
	PRONASARの知識が不十分	PRONASARの基礎を理解している	PRONASARの基礎を理解している
	(2013-7.行政能力強化研修=実施済)	(Done)	(Done)
	国-州-郡の予算策定の流れが身についていない	基礎的な予算策定の流れを理解している	基礎的な予算策定の流れを理解している
	(2013-7.行政能力強化研修=実施済)	(Done)	(Done)
2.給水関連の知識	水質に関する知識がない	基礎的な水質の知識がある	基礎的な水質の知識がある
	(2013-6.水質研修=実施済)	(Done)	(Done)
	地下水に関する知識がない	基礎的な地下水の知識がある	基礎的な地下水の知識がある
	(2014-5.地下水に関する研修)	(Done)	(Done)
	井戸に関する知識がない	基礎的な井戸の知識がある	基礎的な井戸の知識がある
	(2014-5ボアホールに関する研修)	(Done)	(Done)
3.ハンドポンプの維持管理	ハンドポンプ/水源の知識がない	ハンドポンプ/水源についておおむね理解している	維持管理を支援できる
	(2013-2.PEC研修=実施済)	(実地研修)	(Done)
	パーツの名称、役割を理解していない	パーツの名称、役割を理解している	維持管理を支援できる
	(2013-2.PEC研修=実施済)	(実地研修)	(Done)
	スペアパーツの交換方法を理解していない	スペアパーツの交換方法を理解している	維持管理を支援できる
	(2013-2.PEC研修=実施済)	(実地研修)	(Done)
4.PEC活動の知識	ゾーンPECを理解していない	ゾーンPECをおおむね理解している	ゾーンPECをおおむね理解している
	(2013-2.PEC研修=実施済)	TLO)	(Done)
	PHASTを理解していない	PHASTをおおむね理解している	PHASTのモニタリングができる
	(2013-2.PEC研修=実施済)	(TLO)	(Done)
	SANTOLICを理解していない	SANTOLICをおおむね理解している	SANTOLICをおおむね理解している
	(2013-2.PEC研修=実施済)	(TLO)	(Done)
	PEC活動のモニタリングを実施していない	PEC活動のモニタリングを経験する	PEC活動のモニタリングができる
	(2013-2.PEC研修=実施済)	(TLO)	(Done)
5.計画策定	国の策定要領を踏まえた計画策定ができない	国の策定要領を踏まえた計画策定の基礎を理解して	い国の策定要領を踏まえた計画を策定できる
	(2014-2計画策定研修①=実施済)	(計画策定研修②)	(Done)

5.計画策定	国の策定要領を踏まえた計画策定ができない	国の策定要領を踏まえた計画策定の基礎を理解してい	国の策定要領を踏まえた計画を策定できる
	(2014-2計画策定研修①=実施済)	(計画策定研修②)	(Done)
	国の策定要領を踏まえた年間計画をつくっていな	策定要領に沿って簡単な年間計画を策定、実施できる	S 策定要領に沿って実現性の高い年間計画を策定できる
	(2014-2.計画策定研修①=実施済)	(計画策定研修②)	(Done)
	給水率の計算ができない	給水率を理解する	人口増などを踏まえ、簡単な給水率のモデルが組める
	(2014-2.計画策定研修①=実施済)	(個別指導等)	(一部職員は継続的なフォローが必要)
6.モニタリング/実施管理	モニタリングを実施していない	モニタリングを実施する	継続的なモニタリングを実施する
	(2014-2.モニタリング研修=実施済)	(OJTで反復)	(一部職員は継続的なフォローが必要)
	SINASに必要なデータを収集できない	SINASに必要なデータをある程度収集できる	独力でデータ収集ができる
	(2014-2.モニタリング研修=実施済)	(OJTで反復)	(マジュネ、マンディンバに課題あり)
	SINASに必要な報告書を起案できない	SINASの入力をおおむね終える	SINASを3か月に一度更新する
	(2014-2.モニタリング研修=実施済)	(OJTで反復)	(個別指導等)
	郡政府が研修計画を策定していない	郡政府が研修計画を策定していない	研修計画の策定方法を理解している
			(2016年中も継続的な指導が必要)
7.評価	5項目評価の手法を知らない	5項目評価の手法を知らない	5項目評価の基礎を理解している
		(2016下半期.評価ワークショップ)	(2016下半期.評価ワークショップ)
8.PC	パソコンが使えない	基礎的なパソコンの操作ができる	業務遂行に十分なパソコン操作を身につける
	(2013-8.PC研修=実施済)	(OJTで反復)	(ほぼ全職員につき達成)
	ワードを使って文書がつくれない	基礎的なワードの文書を作成できる	簡単な表、グラフも含むワード文書を作成できる
	(2013-8.PC研修=実施済)	(OJTで反復)	(ほぼ全職員につき達成)
	エクセルを使った経験がない	エクセルで簡単な表を作成できる	エクセルで簡単な表、グラフを作成できる
	(2013-8.PC研修=実施済)	(OJTで反復)	(一部職員は継続的なフォローが必要)

		(2013-8.PC研修=実施済)	(OJTで反復)	(ほぼ全職員につき達成)
		エクセルを使った経験がない	エクセルで簡単な表を作成できる	エクセルで簡単な表、グラフを作成できる
		(2013-8.PC研修=実施済)	(OJTで反復)	(一部職員は継続的なフォローが必要)
	9.プレゼンテーション	プレゼンテーションの経験が不足している	数回程度、公式の場でプレゼンテーションを経験する	5 自らテーマを設定、情報を集めて、プレゼンする
		(PSCでプレゼン=実施中)	(PSCでプレゼン=実施中)	(ほぼ全対象者につき達成)
		プレゼンテーションに必要な情報を収集できない	ある程度、必要な情報を収集できる	必要な情報を十分に収集できる
		(PSC前にプレゼン準備の支援=実施中)	(PSC前にプレゼン準備の支援=実施中)	(ほぼ全対象者につき達成)
		パワーポイントが使えない	簡単なスライドを作成できる	表やグラフも組み合わせたスライドを作成できる
		(PSC前にプレゼン準備の支援=実施中)	(PSC前にプレゼン準備の支援=実施中)	(一部職員は継続的なフォローが必要)
	10.報告書作成	報告書が作成できない	報告書作成に慣れる	独力で報告書を作成できる
		(2015.モニタリング研修)	(2015-5.報告書作成研修)	(一部職員は継続的なフォローが必要)
Ъ		報告書に必要な情報が収集できない	ある程度、必要な情報を収集できる	必要な情報を十分に収集できる
-		(2015.モニタリング研修)	(2015-5.報告書作成研修)	(一部の職員は継続的にフォローが必要)
21		表、グラフなどを組み合わせた報告書が作成でき	エクセルで簡単な表を作成できる	表やグラフを組み合わせた報告書が作成できる
		(2015.モニタリング研修)	(2015-5.報告書作成研修)	(一部の職員は継続的にフォローが必要)

⑤-1.能力強化に関連する具体的な活動スケジュール(2013-2014)

		郡インフラ計画課(SDPI)の活動	州給水衛生部(DAS)の活動	プロジェクトの活動	
2013	Mar				
	Apr				
	Мау	ID/OSワークショップ	ID/OSワークショップ	2013-1.ID/OSワークショップ	7-1:各機
		ゾーンPEC研修	ゾーンPEC研修	2013-2.ゾーンPEC研修	PEC⊐ン
	Jun	PCMワークショップ	PCMワークショップ	2013-3.PCMワークショップ	7-2:計画
	Jul				
	Aug				
	Sep				
	Oct	能力評価に関するワークショップ	能力評価に関するワークショップ	2013-4.能力評価に関するワークショップ	7-2:CP冬
	Nov	PDM改定に関するワークショップ	PDM改定に関するワークショップ	2013-5.PDM改定に関するワークショップ	7-2:PDN
	Dec	第2回ゾーンPEC研修/Provincial Steering Comittee(PSC) 行政能力強化研修/PC研修	第2回ゾーンPEC研修/Provincial Steering Comittee(PSC) 行政能力強化研修/PC研修	2013-6.第2回ゾーンPEC研修,水質研修/Provincial Steering Comittee(PSC) 2013-7.行政能力強化研修/2013-8.PC研修) PECコン 7-2:政策
2014	Jan				
	Feb				
	Mar	PESOD(郡社会経済計画)の策定	PESOD(郡社会経済計画)の策定		
	Apr				
	Мау				
	Jun				
	Jul	PSC(SDPI職員による発表)	PSC(DAS職員による発表)	2014-1.SDPI/DAS職員プレゼンテーション準備の支援	7-2:【強
	Aug	5か年計画案、年間計画案の策定	5か年計画案、年間計画案の策定	2014-2.5か年計画、年間計画、モニタリングに関する研修	7-2:【強
	Sep		/那モータリング超生津に対すスフィードバック	2011/-2 /取モータリング超生まに対するフィードバック	7-2.+-
	Oct				1 2
	Nov				
	Det	YSU(SUPI職員による発表)	PSU(UAS職員による発表)	2014-4.SUPI/UAS職員フレセンテーション準備の支援 2014 5 地工业、サロー関ナス理体/2014 6 2015 たった明刊売った	/-2:【強
	Dec	地下小、井戸に関9 る研修/2015年年间計画の改訂 モータリング報告書の起案 堤山 (15日)	地下小、井戸に関9 る 妍修/ 2015 年 年 间 計画の 改訂 1 取 モ - 々 ング 報 生 書 に 対 オ ス フ ィ _ ビ バ ッ ク	2014-3.地下水、井戸に関9 る研修/2014-6.2015年の年旬計画の改訂 2014.7 / 那モータリング報生書に対オスフィードバック	7-2:【強
		エースリンク 報古者の起衆、 旋出 (13日)	440 エーメリノン 牧古者に刈りるノイートハツク	2014-7.4和モーメリノン 牧古者に刈りるノイートハツク	1-2:±_

活動のアウトプット	
関の強み、弱み、研修ニーズの把握	
・サルタントの選定、給水セクター関係者の能力強化【強化項目1,2,3,4	
i策定の能力強化【強化項目5,6】	
各職員の能力評価についての説明	
A改定内容を議論、合意形成【強化項目5,6】	
アサルダントの選走、紹水セクダー関係者の能力強化【強化項日1,2,3,4 等に関すて知識の白上、基礎的なDCスキル【没化項日1,156.9】	
束に関する和戚の向上、 奉旋的なPCスイル 【強化項日1,4,3,0,6】	
2 4 项目6 9	
全化項目5,6,8,10】	
タリング能力の向上、実施【強化項目6,10】	
2.4 项目6.0	
(10次日 0,5)	

タリング能力の向上、実施【強化項目6,10】

⑤-2.能力強化に関連する具体的な活動スケジュール(2015-2016)

		郡インフラ計画課(SDPI)の活動	州給水衛生部(DAS)の活動	プロジェクトの活動	活動のアウトプット
2015	Jan				
	Feb				
	Mar	PESOD(郡社会経済計画)の策定	PESOD(郡社会経済計画)の策定	2015-1.計画策定の進捗確認、計画案の内容確認	7-3:計画策定、モニタリングに関する助言【強化項目1,5,6】
		モニタリング報告書の起案、提出(15日)	4郡モニタリング報告書に対するフィードバック	2015-2.4郡モニタリング報告書に対するフィードバック	7-3:モニタリング能力の向上、実施【強化項目6,10】
	Apr				
	Mav				
	·	2015年の年間計画の実施状況についてのワークショップ	2015年の年間計画の実施状況についてのワークショップ	2015-3.2015年の年間計画の実施状況についてのワークショップ	7-3:計画策定、モニタリング、実施管理に関する助言【強化項目6,7】
	Jun	2016年の年間計画の策定、5か年計画の改訂	2016年の年間計画の策定、5か年計画の改訂	2015-4.2016年の年間計画の策定、5か年計画の改訂ワークショップ	7-2:計画策定、モニタリング能力の向上【強化項目6,10】
		モニタリング報告書の起案、提出(15日)	4郡モニタリング報告書に対するフィードバック	2015-5.4郡モニタリング報告書に対するフィードバック	7-3:モニタリング能力の向上、実施【強化項目6,10】
	Jul	PSC(SDPI職員による発表)	PSC(DAS職員による発表)	2015-6.SDPI/DAS職員プレゼンテーション準備の支援	7-2:【強化項目6,9】
	Aug				
	Sep				
	Oct	モニタリング報告書の起案、提出(15日)	4郡モニタリング報告書に対するフィードバック	2015-7.4郡モニタリング報告書に対するフィードバック	7-3:モニタリング能力の向上、実施【強化項目6,10】
	Nov	PESODの策定作業開始	PESODの策定作業間始		7-2-計画等定 モニタリング能力の向上【強化項目5.6】
	Dec	PSC(SDPI職員による発表)	PSC(DAS職員による発表)	 2015-9.SDPI/DAS職員プレゼンテーション準備の支援	7-2:【強化項目6.9】
		モニタリング報告書の起案、提出(15日)	4郡モニタリング報告書に対するフィードバック	2015-10.4郡モニタリング報告書に対するフィードバック	7-3:モニタリング能力の向上、実施【強化項目6,10】
2016	Jan				
	Feb				
	Mar	PESODの策定	社会経済計画の策定	2016-1.計画策定の進捗確認、計画案の内容確認	7-3:計画策定、モニタリングに関する助言【強化項目1,5,6】
	Apr	モニタリング報告書の起案、提出(15日)	4郡モニタリング報告書に対するフィードバック	2016-2.4郡モニタリング報告書に対するフィードバック	7-3:モニタリング能力の向上、実施【強化項目6,10】
	Мау	2016年の年間計画の実施状況についてのワークショップ	2016年の年間計画の実施状況についてのワークショップ	2016-3.2016年の年間計画の実施状況についてのワークショップ	7-3:計画策定、モニタリング、実施管理に関する助言【強化項目5.6】
	Jun				
		モニタリング報告書の起案、提出(15日)	4郡モニタリング報告書に対するフィードバック	2016-5.4郡モニタリング報告書に対するフィードバック	7-3:モニタリング能力の向上、実施【強化項目6,10】
	Jul	PSC(SDPI職員による発表)	PSC(DAS職員による発表)	2016-6.SDPI/DAS職員ブレゼンテーション準備の支援 	7-2:【強化項目6,9】
	Aug				
	Sep				
	Oct	モーダリング報告書の起条、提出(15日)	4部モーダリング報告書に対するフィートハック	2010-7.4郡モーダリング報告書に対するフィートハック	7-3:モーダリンク能力の向上、美施【強化項目6,10】
	UGL				
	Nov	評価ワークショップ、PESODの策定作業開始	評価ワークショップ、PESODの策定作業開始	2016-10.評価ワークショップ	7-2:計画策定、モニタリング、評価能力の向上【強化項目7】
		PSC(SDPI職員による発表)	PSC(DAS職員による発表)	2016-7.SDPI/DAS職員プレゼンテーション準備の支援	7-2:【強化項目6,9】
	Dec	まとめワークショップ	まとめワークショップ	2016-9.まとめワークショップ	7-2,7-3:この時点での課題について補足的な研修、振り返り
		モニタリング報告書の起案、提出(15日)	4郡モニタリング報告書に対するフィードバック	2016-10.4郡モニタリング報告書に対するフィードバック	7-3:モニタリング能力の向上、実施【強化項目6,10】

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添付資料-11 深井戸構造図







添付資料-12 学校用手洗い施設付き トイレ設計図

学校用手洗い施設付きトイレ設計図

- 12.a 女子トイレ用設計図
- 12.b 男子トイレ用設計図
- 12.c 教師用トイレ設計図

LATRINA PARA MENINAS

女子トイレ




















-











































LATRINA PARA MENINOS

男子用トイレ




























































LATRINA PARA PROFESSORES

教師用トイレ






















A-210

DESENHOS TÍPICO













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400cm



添付資料-13 エンドライン調査結果概要







Project to Promote the Sustainability of Water, Hygiene and Sanitation in the Districts of Majune, Mandimba, Mavago and Muembe in Niassa Province-*(PROSUAS-Niassa*)



Final Project Socio – Economic Evaluation November 2016



Projecto de Promoção da Sustentabilidade de Abastecimento de Água, Higiene e Saneamento Rural na Província do Niassa (PROSUAS – Niassa)

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Executive Summary

The update survey of November 2016 seeks to monitor baseline indicators established in 2013 on the current status of knowledge, attitudes and practice relating to water supply, sanitation and hygiene in four districts of Niassa province in Mozambique. This is to assist in assessing change in knowledge, attitudes and practice over the period of the programme. To this effect a team of 23 interviewers were recruited to implement a questionnaire survey in these areas. The content of the questionnaire was updated from the 2013 version by the implementing institution Japan Techno (JAT), in conjunction with, the Direcção Provincial das Obras Publicas in Niassa. . The districts targeted by the study were Mandimba, Majune, Mavago, and Muembe. The last three of these are considered logistically difficult for active facilitation of development strategies. The survey is centred on a questionnaire for use amongst households and a further questionnaire for use in schools. The household questionnaire is divided into three sections, for a household respondent, and for community leaders . The schools questionnaire is divided into a section for use with a key informant, such as the teacher or director, and then a further section for use with a sample of the children attending the school. Additionally, a questionnaire on Knowledge Attitude and Practice on water sanitation and hygiene was used in focus group discussion with with primary school children in grades 1-7.

The survey is quantitative though some qualitative observation has been included on the basis of survey personnel observations whilst carrying out of the study. More specific qualitative inquiry is the Focus Group Discussion carried out with school children to compliment the information provided by this survey

A good set of data has been derived from this update survey and stored into the AkvoFlow database. From this format it can be transferred instantly to almost any software for use according to individual preferences of different user groups. Survey supervisors also carried out interviewing with experience gained from working with other development baseline surveys in Niassa. The lead consultant carried out analysis of the database in relation to the 2013 data to faciliate the production of this report. Data analysis was assisted by statistical software some of the results being disseminated in advance of the writing of the full report.

The data achieved by this survey is sufficient to monitor most of the indicators suggested by the implementing institution as needing to be addressed through this means.

The sample size has been made sufficient to detect significant changes in data between districts and between 2013 and the 2016 survey.

Respondents were adults at households selected on the basis of availability of someone to respond at the house. The interviews at schools covered primary schools from grades 1 to 7. The school head or their designate was interviewed at each school and schoolchildren ranging between school levels 1 to 7 being individually interviewed using a separate questionnaire. Additionally, focus group discussion was conducted with school children in garde 1 to 7.

Project Impact

The data suggests the project has had an impact in that the indicators selected for the 2013 baseline survey show change that represents improvement in water, sanitation and hygiene in the areas sampled. There is overall increase from 37 percent to 72 percent of use of bore holes with pumps. The 2013 baseline showed that the most frequent source of drinking water is the unprotected well with little variation between the districts. The usage of this category is however down from 41.4 percent in 2013 to 15.6 percent in 2016. These overall percentages and improvements in the usage of bore hole water are significantly greater across districts and especially so at Mavago (49%) and Mandimba (35%) and Muembe. There is an overall decrease in water taken directly from the river or streams from 20.3 percent to 9.4 percent. The persistent use of this water for drinking remains high at Majune and Mandimba where it has nonetheless dropped from 25.8 and 16.6 percent of households in 2013 to 17.2 and 10.3 percent respectively in 2016.

Overall, 71 percent of respondents indicated that their household used the same water source, bore hole with pump throughout the year with a higher percentage in Mavago (74) and Majune (88.4) and may represent improvement in the quality of a regularly used supply. The problem of sources drying up was not reported which means that by project end, water was always available for drinking and utility in the target districts.

The results on distance to the drinking water source show relatively little difference between the sample districts in the wet and dry season. There is significant difference between the respondents in 2013 and 2016 where a lower percentage of respondents in 2016 reported going longer distances. Apart from the difference in sample sizes in 2013 and 2016, this is also because the principal source of water in 2013 was the traditional well which usually is in the backyard of either the household or the neighbour. Also, this may mean that there are certain distances people are prepared to travel to collect water, before they opt for the best water source available at a shorter distance. However, from a different question in this survey it was possible to establish that on average people were taking 13 minutes to get to and from their water supply in 2013 and 12 minutes in 2016 to get to their drinking water supply. There is relatively little difference between the other three districts. (Table 10). It is likely that improvement in water supply in terms of bore hole still leaves many households with a distance to travel to get it.

One indicator, the percentage of Schools with water source on the school grounds changed tremenduously in three districts. In Muembe, whereas some water points were not on the school grounds, they were less than 200 metres from the school precinct and located either in the health centre or in the community. Furthermore, schools focus group discussions and interviewers reported that the drinking water source was well or reasonable well looked after in terms of its sanitary condition. Despite improvements, the water management implication remains however that in many cases where school children do not have access to a water supply in the school, they have access relatively nearby, but those alternative sources are not under the supervision of the school.

One further indicator, schoolchildren's attitude to hand washing shows impact as an important achievement of the project where it increased significantly ranging from one percent in Mandimba to 16 percent in Muembe in 2013 to a range of 52.7 percent to 85 percent in Muembe in 2016. However, limited use of soap remains an item for concern associated with this indicator.

There was significant increase in sanitary infrastructure from 2013 to 2016 from a low 8.3 percent in Mavago and Majune in 2013 to 31 and 40.6 percent respectively in 2016. Overall, there was over fifty percent increase in sanitary infrastructure in all communities as a result of project intervention.

Interviews at schools with the director or other representative of the school indicated in 2013 that just under half of the schools had latrines in use, variable from one area to the next. This increased overall in 2016. There was evidence of available water for hand washing and evidence of use of soap.

Knowledge about the causes and prevention of disease amongst the school children show that about three quarters of the children generally tend to respond correctly.

The survey was also oriented toward finding out the principle sources of information from which children hear about hygiene. Parents and teachers were indicated as the main sources, there being an increase in hearing about it from teachers.

The survey was difficult to carry out in terms of the logistics involved, the duration of the study and the fact that it was carried out at the end of the school year. This made it necessary to work with a large field team which was a challenge to manage Nonetheless, data has been achieved in all the areas intended and this will serve its function of programme learning and monitoring into the future. The willingness of people to be interviewed on this topic was very high and suggested that the residents of these areas are keen to discuss this topic as something of significant local concern. Interviewers also reported their impressions from observations beyond the data collection exercise. Generally these conclude that the areas they visited are very receptive to water, santiation and hygiene project work and that improvements since the 2013 visits were very evident. There was a recommendation that this type of work must continue as a priority standing item into the future.

The report concludes that the data collection, entry and subsequent analysis has been carried out to a good standard and that a good range of research data and data for monitoring and evaluation purposes has been established in easily manageable formats. Some suggested conclusions that can be drawn from this set of data are offered but often require further in depth research work and triangulating before they could fully drive more mainstream policy making. The data in itself will become increasingly more meaningful if taken alongside other information available within the project and potentially as subsequent rounds of update data is collected in future years from these areas. From the data achieved it is suggested that the impact of the project has been positive in all areas it aimed to address, but possibly at this point has as yet only had limited success in driving down ill-health. It is difficult to guage over such a short time period the extent to which some changes in ill-health are more a fluctuation in relation to climate or other external

economic factors. Either way, much remains to be completed in the long term task of securing adequate water, sanitation and hygiene practice for Niassa. Several of the hygiene data suggest that in addition to the 2013 - 2016 infrastructural development activities, which should continue, that a lot more could be done in imposing clean sanitation facilities and use of soap.

An overall conclusion is that the project has demonstrated that significant impacts on water, sanitation and hygience issues can be achieved in the remotest parts of Niassa province. The project is popular with the population and the future demands a long term water, sanitation, hygiene and related public health strategy that builds on the initial successes that have been achieved. A few additional areas of concern need to be addressed in future programming and these are indicated in the report.

1 Introduction

1.1 Main aim and specific objectives of the socio-economic survey

The 2016 socio-economic Study assesses change in Knowledge, Attitudes, and Practice (KAP) for sanitation, hygiene and use of safe drinking water in project areas of Mandimba, Majune, Mavago and Muembe districts, in Niassa Province.

This survey is both tools to assist in the evaluation of impact and a source of primary research data. Both of these functions feed into cyclical (reflective) project planning.

The specific baseline survey objectives conducted at the start of the project in 2013 were to;

- Establish baseline impact indicators for measuring the effectiveness of hygiene practice, sanitation, and interventions in water supply.
- Define indicators for monitoring the suitability of interventions relating to water supply, sanitation, and hygiene behaviour.
- Reinforce capacity of provincially based staff at Niassa in understanding the use of techniques used.

The main purpose of this survey which forms the basis of this current report was specifically to gather and present information that contributes to monitoring the nature of change in the programme area between 2013 and 2016. The report provides this alongside basic information and analysis on other circumstances in these zones at the end of 2016, with additional observations concerning the link between hygiene, sanitations and water supply in schools in the target districts.

2 Methodology

Interviews for the survey were based on questionnaires designed by the client, Japan Techno (JAT) prior to the selection of the survey implementing team. Data input from field interviews was carried out on site in the field using smartphones and uploading to AkvoFlow The survey approach was set up in such a way as to gather information from household representatives, community leaders, school leaders and school children.



Figure 1 Survey districts, Niassa

2.1 Survey design

The field survey work took place in November 2016. The interviews based around the questionnaires (Appendix) were carried out with households in 109 Communities in four districts, namely; Mandimba, Majune, Mavago and Muembe (Table 1, Figure 1). The survey approach was that of a structured household and school based survey. Numbers for the sample and the areas were in this instance already decided by the project prior to its implementation by the consultants. Key informant interviews were also conducted in the communities with community leaders and other key members who provided information that included, basic data on the community, basic social infrastructures, access to communication and more. The distribution of schools sampled is shown in Table 2.

District	Administrativ e Posts		Communities/ povoado	No. of households interviewed		
		Planned	Interviewed	Planned	Realized	Percentage
Mandimba	2	35	34	700	600	100
Majune	3	29	29	580	534	99
Mavago	2	24	24	480	365	83
Muembe	2	22	22	440	380	96
Total	9	110	109	2020	1879	94.5

 Table 1 Location and size of survey sample for households

District	Administrative Post	Category of Schools sampled		No. of Schools		% pupils interviewed
		EP 1	EPC	Planned	Interviewed	2016
Mandimba	2	14	3	18	17	94
Majune	3	8	2	10	10	100
Mavago	2	8	6	15	14	93
Meumbe	2	12	4	17	16	94
Total	9	42	15	60	57	95
*						

 Table 2 Location and size of survey sample for schools

Table 3 Sex and age of of School children interviewed

Distrito	Ma	ajune	Mandimba		Ма	Mavago		Muembe		Total	
Distrito	Ν	%	Ν	%	Ν	%	Ν	%	Ν	%	
Genero dos alun	OS										
Feminino	22	41.5	107	46.9	70	48.3	92	48.2	291	47.2	
Masculino	31	58.5	121	53.1	75	51.7	99	51.8	326	52.8	
Idade dos alunos	6										
5 a 6	6	10.9	10	4.4	9	6.1	13	6.8	38	6.1	
7 a 8	14	25.5	34	14.9	18	12.2	31	16.2	97	15.6	
9 a 10	13	23.6	31	13.6	20	13.6	30	15.7	94	15.1	
10 a 11	11	20.0	27	11.8	24	16.3	29	15.2	91	14.7	
11 a 12	3	5.5	47	20.6	27	18.4	35	18.3	112	18.0	
13 a 14	3	5.5	37	16.2	31	21.1	27	14.1	98	15.8	
15 a 16	5	9.1	42	18.4	18	12.2	26	13.6	91	14.7	
Total	53	100.0	228	100.0	145	100.0	191	100.0	617	100.0	

Fig. 2 Student population from grade 1 to 7 in schools interviewed (%)



2.2 Training

The survey team consisted of 13 men and 10 women who speak Portuguese, and the local languages.

A three day training which included a pilot survey was conducted by Akvo.

2.3 Survey questionnaire and interviewing

The household and schools questionnaires are included as Appendix II and III of this document. The questionnaire is mainly made up of easy to process entering of question responses. The questionnaire-based interview took between 25 and 35 minutes to complete depending on the pace of the interview and the quantity of information the informant was able to provide.

The group of 23 enumerators and supervisors workd together for a day with the team leader in the district of Majune. Following that, the team was split in two, and one team to specifically conduct the school surveys was dispatched to Mavago. This was necessary because it was the end of the school year and the survey had to be concluded before the students dispersed.

2.4 Presentation of results

The data tables contained in this report were made available in Portuguese within the agreed time frame for this consultancy. It is also possible to subsequently generate further summary data to specification using the database stored in the Akvo Flow system. The tables mainly refer to percentages of households by location, and by category of reply (independent variable). Tests to assess levels of statistically significant difference are generally not used for this report as sample size provides a readily observable indication of visible trends in the data. However, statistics for significance testing can be easily applied to the data where required.

3 Results and Analysis

3.1 Main Demographics of the survey

Households were sampled by area in clusters and composition of respondents is presented in Table 4.

Table 4 Mean Con	nposition of H	louse holds and	civil status of	heads of	f families/district
------------------	----------------	-----------------	-----------------	----------	---------------------

Distrito	Majune	Mandimba	Mavago	Muembe	Total
Composicao do agregado familiar (%)					
Criança de sexo masculino (menor que 5 anos)	58.1	60.2	57.3	60.5	59.1
Crianças de sexo feminino (menor que 5 anos)	38.0	42.8	46.0	36.3	40.8
Rapazes em idade escolar (5 - 17 anos)	36.3	26.7	35.3	31.8	32.1
Raparigas em idade escolar (5-17 anos)	34.8	33.7	41.6	28.9	34.6
Adultos de sexo masculino (18 anos ou mais)	33.0	32.3	66.3	16.8	36.0
Adultas de sexo feminino (18 anos ou mais)	37.1	43.5	71.2	21.1	42.5
Estado civil do chefe (%)					
Casado/Uniao marital	81.6	91.0	84.4	93.7	87.6
Solteiro/nunca casado	12.0	4.3	9.0	4.2	7.4
Viúva/viúvo	3.2	3.7	3.8	1.3	3.1
Divorciado	1.9	0.8	0.8	0.5	1.1
Separado	1.3	0.2	1.9	0.3	0.9
Número de pessoas que vivem juntas em sua casa					
Criança de sexo masculino (menor que 5 anos):	1.4	1.0	1.0	1.5	1.2
Crianças de sexo feminino (menor que 5 anos)	0.7	0.6	0.7	0.6	0.7
Rapazes (5 - 17 anos)	0.8	0.4	0.7	0.7	0.6
Raparigas (5-17 anos)	0.7	0.5	0.8	1.4	0.8
Adultos de sexo masculino (18 anos ou mais)	0.4	0.4	0.9	0.2	0.5
Adultos de sexo feminino (18 anos ou mais)	0.5	0.5	0.9	0.3	0.6

Table 5 presents the age of the interviewees and the sample ended up with 35 percent men. Over half (66%) of the population surveyd fall between ages 18 to 39 which shows that the population pyramid for the areas is the classic bell shaped pyramid associated with developing world contexts in which there is a swell in population amongst the young. Meanwhile, the percentage of households with members between 50 and 59 at 11 percent, reinforces the view of the population being heavily skewed toward a very high proportion of the young.

Table 5. Dello	graphics of h	ouscholus sul ve	zycu			Table 5. Demographics of nousciolus surveyed												
District	Majune	Mandimba	Mavago	Muembe	Total													
Men: %	41.9	32.0	36.4	29.7	35.2													
Age (yrs)																		
18-19	11.6	7.2	12.6	10.0	10.1													
20-29 anos	30.3	29.3	28.8	26.1	28.8													
30-39 anos	24.9	29.3	26.3	25.8	26.8													
40-49 anos	15.4	19.0	17.5	18.9	17.7													
50-59 anos	9.7	12.2	8.8	13.7	11.1													
60-69 anos	5.1	2.0	4.4	3.9	3.7													
70+ anos	3.0	1.0	1.6	1.6	1.8													

Table 5 : Demographics of households surveyed



Fig. 3. Household members in the study

There are three mobile phone service providers in the area and Figure 4 shows that MOVITEL had the most extensive coverage and was present in all communities surveyed. This facilitated the digital methodology used for data collection.



Figure 4 Mobile Telephone Coverage (%)

The communities surveyed are very stable in that 93 percent had never moved and therefore have participated in the project since its incetion (Figure 5). The 7 percent in the 'resettled' category have moved between 1 to over three times



Figure 5: Community Resettlement Frequency (%)

Note; Nenhuma = *never, Uma vez* = *once, Duas vezes*=*twice, Très vezes*=*three times, Mais de 3 vezes* = *over 3 times*

The data on infrastructures show that there are more churches than mosques in the communities. The district of Mavago has the highest number of Christians, with a Church in 94 percent of the communities (Fig.6)



Figure 6: Religious Infrastructures: Curch and Mosque (%)

Note: Igreja = Church, Mesquita = Mosque

	Majune		Mandimba		Mavago		Muembe		Total	
Distrito	Avaliacao	Estudo de								
	Final	Base								
Possui unidade sanitaria	40.6	8.3	37.9	20.7	31.3	8.3	37.5	22.7	37.6	15.0
Possui escola	78.1	70.8	89.7	72.4	75.0	70.5	91.7	90.9	84.2	76.2

Table 6; Schools and Sanitary Infrastructures in the communities (%)

The Table shows significant increase in sanitary infrastructure from 2013 to 2016 from a low 8.3 percent in Mavago and Majune in 2013 to 31 and 40.6 percent respectively in 2016. Overall, there was over fifty percent increase in sanitary infrastructure in all communities as a result of project intervention. The Table also show a difference from the sample of 2013 in school infrastructure with an orerall 8 percent more schools.

Of the 617 school children interviewed at the schools the final sample ended up with 52.8 percent boys and 47.2 percent girls.

Figure 7 shows that there is no significant difference between the number of girls and boys that attened school in all districts. However, enrolment is low in Muembe compared to the other three districts.



Figure 7: School enrollement of children by sex and ages 5 to 17 (%)

There is also no difference among the group of school age children that do not attend school. Lack of money was the main reason for not attending school in Mandimba and Mavago (Table 7). Parents cited various other reasons that were not listed in the questionnaire, such as: ignorance on the part of mothers that a seven year old child should be registered in school, illness and refusal to go to school.

District	Majune	Mandimba	Mavago	Muembe	Total							
Boys												
House/farm work	2.4	13.3	13.3	15.8	10.5							
School too distant	12.2	20.0	0.0	10.5	12.1							
Financial difficulties	7.3	36.7	20.0	5.3	15.3							
School with insufficient capacity	12.2	6.7	0.0	7.9	8.1							
Girls												
House/farm work	6.0	15.8	4.2	16.7	10.8							
School too distant	8.0	23.7	0.0	2.8	9.5							
Financial difficulties	8.0	36.8	33.3	8.3	19.6							
School with insufficient capacity	2.0	7.9	0.0	8.3	4.7							

Table 7 Principal reasons for not attending school (%)

3.2 Monitoring of project indicators

The rest of the results section reports the findings from the water sanitation and hygiene questions, providing the basis for evaluation of any change in knowledge, attitudes and practice between 2013 and 2016. As this is the second of the project's socio-economic surveys carried out at the end of an implementation phase an overall impact assessment has been provided in the conclusion and executive summary.

3.3 Household water supply

3.3.1 Access to drinking water supply:

Figure 8 shows changes in access to secure water supply from between 30 and 56 percent in 2013 to between 60 and 91 percent by project end in 2016.



Figure 8 Households with access to secure water supply (%)

HH with secure water source	Base Line 2013		Final Evaluation 2016			
	No.	%	No.	%		
Mandimba	202	34	420	71		
Majune	167	34	309	60		
Mavago	145	30	242	73		
Muembe	249	56	322	91		
Mean of 4 districts	763	38	1293	72		

 Table 8 Households with access to secure water source

3.3.2 Source of drinking and non-drinking water

Table 8 shows that in 2013 the unprotected well was the principal source of drinking water in all of the districts ranging from 37.7 in Majune to 43.3 percent of households at Mandimba.

		0						<u> </u>				
District		Majune		Mandimba		Mavago		Muembe		Total (%)		
	Yr	2013	2016	2013	2016	2013	2016	2013	2016	2013	2016	
Bore hole with pump		30.5	60.9	34.9	70.0	26.7	75.6	56.7	87.6	37.2	72.1	
Bore hole without pump			0.7		0.5		0.3		0.3		0.5	
Unprotected well		37.7	19.7	43.3	14.2	41.2	17.8	43.3	10.3	41.4	15.6	
River/Lake/Stream Other including unprotected spring		25.8	17.2	16.6	10.3	25.8	5.2	12.9	1.8	20.3	9.4	
		5.8	1.5	5.3	5.0	8.6	1.1	-	0.0		2.3	
		99.8	100	100	100	102	100	113	100	104	99.6	

 Table 8 : Source of Drinking Water before and after Project (%)

The second most frequent source of drinking water was the category 'Borehole with pump followed by the category 'lake, river or stream'. However, by 2016 the data indicates significant changes, with increases in the use of bore holes particularly in Mandimba and Mavago (Table 8) with over 50% increase by 2016. Consequently the use of unprotected well water is significantly down in all districts in the study from an average 41.4 to 15.6 percent, representing a reduction by more than a half of interviewees when compared with the 2013 survey. The use of lake, river or stream is also down in all districts. However, at Majune 37 percent (19.7% unprotected well and 17.2% river/lake/stream) still indicate use of those sources.





Unprotected well

Bore hole with manual pump

Protected well

Results show that non-drinking water sources are generally the same as drinking water sources. Also the increased use of bore hole water for drinking is accompanied by an increase in the use of that supply for non-drinking purposes such as cooking, laundry and washing hands. (Tables 9-12)

3.3.3 Continuity of water supply throughout the year

Tables 9-12 also show that household respondents indicate they use the same water source throughout the year. However, this varies significantly between the districts sampled.

The problem of sources drying up was not reported which means that by project end, water was always available for drinking and utility in the target districts.

Distrito	Majune (%)		Mandim	ıba (%)	Mavag	go (%)	Muemb	oe (%)	Total (%)	
Distrito	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca
Furo com bomba manual (BM)	59.2	59/	69.0	69.0	723	73 7	88 /	88 /	70.8	71 1
dentro da aldeia	55.2	55.4	03.0	03.0	12.5	15.1	00.4	00.4	10.0	11.1
Furo com bomba manual (BM)	0.2	0.7	15	15	1.6	1 1	0.3	0.0	0.9	0.0
fora da aldeia	0.2	0.7	1.5	1.5	1.0	1.1	0.5	0.0	0.9	0.9
PP (poço protegido) com	0.6	0.2	0.0	0.0	0.5	05	0.3	0.0	0.3	0.2
bomba manual	0.0	0.0 0.2	0.0	0.0	0.5	0.5	0.5	0.0	0.5	0.2
Poço com revestimento e	19	1 0	0.0	0.2	27	27	0.0	0.0	1 1	1 1
sistema de balde e corda	1.5	1.5	0.0	0.2	2.1	2.1	0.0	0.0	1.1	1.1
Nascente protegida	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.1
Poço tradicional	20.0	19.5	14.3	14.2	16.4	15.9	9.7	10.3	15.4	15.2
Nascente não protegido	1.3	1.1	5.2	4.8	1.1	1.1	0.0	0.0	2.2	2.1
Lago, riachos/rios, lagoa	16.3	16.5	9.8	10.0	5.2	4.9	1.3	1.3	9.0	9.1
Água da chuva	0.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Vendedor da água	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table10:Cooking Water Sources

Distrito	Majune (%)		Mandim	Mandimba (%)		şo (%)	Muembe (%)		Total (%)	
Distrito	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca
Furo com bomba manual (BM) dentro da aldeia	59.4	59.6	68.5	68.8	72.3	74.0	88.2	87.4	70.6	70.9
Furo com bomba manual (BM) fora da aldeia	0.6	0.6	1.5	1.3	1.4	0.8	0.0	0.3	0.9	0.8
PP (poço protegido) com bomba manual	0.2	0.2	0.0	0.0	1.4	0.5	0.0	0.3	0.3	0.2
Poço com revestimento e sistema de balde e corda	2.4	2.1	0.0	0.2	2.5	2.7	0.0	0.0	1.2	1.2
Nascente protegida	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.1	0.1
Poço tradicional	19.3	19.5	14.7	15.5	16.2	15.9	10.5	10.5	15.4	15.7
Nascente não protegido	1.3	1.1	5.0	4.5	1.1	1.1	0.0	0.0	2.2	2.0
Lago, riachos/rios, lagoa	16.3	16.1	10.2	9.2	4.9	4.9	1.3	1.3	9.1	8.7
Água da chuva	0.6	0.7	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.3
Vendedor da água	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1

Distrito	Majun	e (%)	Mandim	ıba (%)	Mavag	go (%)	Mueml	oe (%)	Total	(%)
DISTILO	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca
Furo com bomba manual (BM) dentro da aldeia	59.0	58.1	68.3	67.7	73.2	72.1	87.9	87.9	70.6	69.9
Furo com bomba manual (BM) fora da aldeia	0.4	0.4	1.5	2.0	1.1	0.8	0.5	0.3	0.9	1.0
PP (poço protegido) com bomba manual	0.4	0.4	0.0	0.0	0.5	0.5	0.0	0.0	0.2	0.2
Poço com revestimento e sistema de balde e corda	2.1	2.1	0.2	0.0	3.3	3.0	0.0	0.3	1.3	1.2
Nascente protegida	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.1
Poço tradicional	18.9	19.1	15.0	14.8	15.6	16.7	10.0	10.3	15.2	15.5
Nascente não protegido	1.1	1.3	5.3	5.5	1.1	1.1	0.3	0.0	2.3	2.3
Lago, riachos/rios, lagoa	17.2	17.6	9.5	9.5	5.2	5.5	1.3	1.3	9.2	9.4
Água da chuva	0.6	0.9	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.3
Vendedor da água	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1

Table 11: Water Sources for Washing Clothes/laundry

Table 12: Water Sources for washing hands

Distrito	Majun	e (%)	Mandim	ıba (%)	Mavag	go (%)	Mueml	oe (%)	Total (%)	
Distrito	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca
Furo com bomba manual (BM) dentro da aldeia	57.9	59.6	68.5	68.8	72.3	73.4	87.6	87.9	70.1	70.9
Furo com bomba manual (BM) fora da aldeia	0.6	0.4	1.5	1.5	1.1	1.1	0.3	0.3	0.9	0.9
PP (poço protegido) com bomba manual	0.6	0.2	0.2	0.0	0.3	0.3	0.0	0.0	0.3	0.1
Poço com revestimento e sistema de balde e corda	2.2	2.4	0.0	0.2	3.0	3.0	0.0	0.0	1.2	1.3
Nascente protegida	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.2	0.1
Poço tradicional	19.9	19.9	15.3	14.5	16.2	15.6	10.8	10.5	15.9	15.4
Nascente não protegido	1.3	1.1	4.8	5.0	1.1	1.1	0.0	0.0	2.1	2.1
Lago, riachos/rios, lagoa	16.7	15.9	9.2	9.5	5.2	5.2	1.3	1.3	8.9	8.8
Água da chuva	0.7	0.4	0.2	0.2	0.3	0.3	0.0	0.0	0.3	0.2
Vendedor da água	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0

3.3.4 Distance to principal water source

Rgarding the distance covered to get to the principal water source, there is little difference between the wet and dry season and between districts (Tables 13, 14). There is significant difference between the respondents in 2013 and 2016 where a lower percentage of respondents in 2016 reported going longer distances. Apart from the difference in sample sizes in 2013 and 2016 (Table 15), this is also because the principal source of water in 2013 was the traditional well which usually is in the backyard of either the household or the neighbour.

Table	13: Distance	to the	principal	water source in	the wet season ((%)
						,

	Maju	ne (%)	Mandii	mba (%)	Mava	go (%)	Muem	ıbe (%)	Tota	al (%)	
Distrito	Avaliacao	Estudo de									
	Final	Base									
Dentro de 500m	57.3	76.3	55.5	71.7	75.1	81.3	66.6	77.3	62.1	76.7	
500m-1km	18.4	18.5	19.7	23.1	18.9	15.1	10.5	16.6	17.3	18.3	
1km-1.5km	5.2	4.7	5.8	3.8	1.1	1.9	2.9	3.9	4.2	3.6	
1.5km-2.0km	2.1	0.2	2.7	0.3	0.0	1.1	5.8	1.6	2.6	0.8	
2.0km- 2.5km	2.2	0.0	0.2	0.2	0.3	0.2	3.4	0.5	1.4	0.2	
2.5km-3.0km	0.7	0.0	0.0	0.9	0.0	0.4	0.8	0.2	0.4	0.4	
Mais de 3.0km	0.6	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0	
Não sabe	13.5	0.2	15.3	0.0	4.7	0.0	10.0	0.0	11.7	0.1	

	Majune (%)		Mandir	Mandimba (%)		go (%)	Muembe (%)		Total (%)	
Distrito	Avaliacao	Estudo de	Avaliacao	Estudo de	Avaliacao	Estudo de	Avaliacao	Estudo de	Avaliacao	Estudo de
	Final	Base	Final	Base	Final	Base	Final	Base	Final	Base
Dentro de 500m	57.5	73.6	55.2	70.9	74.5	78.6	65.3	76.9	61.6	75.0
500m-1km	18.4	20.0	19.5	24.0	19.2	16.8	11.3	16.8	17.5	19.4
1km-1.5km	5.4	5.6	7.0	3.8	1.4	1.9	5.3	3.9	5.1	3.8
1.5km-2.0km	1.5	0.4	2.2	0.3	0.0	0.6	5.8	1.6	2.3	0.7
2.0km- 2.5km	2.2	0.2	0.2	0.2	0.0	0.8	1.6	0.7	1.0	0.5
2.5km-3.0km	0.7	0.2	0.0	0.9	0.3	0.0	0.5	0.2	0.4	0.3
Mais de 3.0km	0.7	0.0	0.5	0.0	0.0	0.2	0.3	0.0	0.4	0.1
Não sabe	13.5	0.0	15.5	0.0	4.7	1.1	10.0	0.0	11.7	0.3

Table 14: Distance to the principal water source in the dry season (%)

Table 15	Distance to	the Princi	pal Water	Source
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Within 500 m	Baseline st	udy (2013)	Final Evaluation (2016)			
	No.	%	No.	%		
Mandimba	411	71.7	329	55.5		
Muembe	341	77.3	241	66.6		
Mavago	387	81.3	254	75.1		
Majune	371	76.3	294	57.3		

Perception of distance by people in rural communities is relative. However, from a different question in this survey it was possible to establish that on average people were taking much less time to get to and from their secure water supply with relatively little difference between the sample districts. It is likely that improvement in water supply in terms of bore hole still leaves many households with a distance to travel to get it. Also, since a regular supply of quality water is associated with some form of financial transaction, this could be a limitation for water collection for some families.

3.3.5 Time spent collecting water

Overall, the final evaluation shows that there is no difference in the time taken from the residence to the source of water in the wet season and the dry season but with a small difference between the baseline and the final survey results for example at Mavago, in 2016 it took about half the time than in 2013 (Table 16).

Whereas this item has been selected as a key indicator by the client, unlike most of the other indicators there is no apparent improvement in it since 2013 except in the time it takes to wait to get water in the dry season which is much longer than the time it takes in the wet season. This is an indication of the source of drinking water

	Majune		Man	dimba	Ma	vago	Muembe		Total	
Distrito	Avaliacao	Estudo de								
	Final	Base								
Tempo (Minutos) é necessário para										
chegar a fonte de água na Epoca	14.7	12.0	12.7	12.6	8.5	15.6	10.3	12.0	12.0	13.1
Chuvosa										
Tempo (Minutos) é necessário para										
chegar a fonte de água na Epoca	15.2	12.0	13.5	12.6	8.3	14.2	10.9	12.0	12.4	12.7
Seca										
Tempo (Minutos) que tem que										
esperar para obter a água - Epoca	15.2	10.0	25.3	14.0	13.7	19.0	20.7	14.0	19.2	14.3
Chuvosa										
Tempo (Minutos) que tem que										
esperar para obter a água - Epoca	19.6	32.0	29.3	44.0	20.8	38.0	24.7	37.0	24.0	37.8
Seca										

Table 16 : Time taken to get to drinking water source and collecting water

3.3.6 Water supply groups and paying for water

Figure 10 shows that water committees exist in a high percentage in all four districts. Membership in water committees and participation in PEC increased in 2016 compared to 2013 with more men than women participating. (Tables 17 & 18)



Figure 10 Existence of water committee (%)

Table 17 Participation in PEC

	Majune		Mandimba		Mavago		Muembe		Total	
Distrito	Avaliacao	Estudo de								
	Final	Base								
Não	45.7	72.5	18.7	74.2	27.1	59.9	35.0	67.9	31.3	68.6
Sim	37.8	24.0	32.0	25.3	58.4	26.5	33.7	30.9	39.1	26.7
Não sabe/recorda	16.5	1.2	49.3	0.5	14.5	0.4	31.3	1.2	29.6	0.8
Não aplicável	0.0	2.3	0.0	0.0	0.0	13.2	0.0	0.0	0.0	3.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Distrito	Majune	Mandimba	Mavago	Muembe	Total
Chefe de agregado familiar (sexo masculino)	66.8	68.8	84.5	55.5	70.5
Chefe de agregado familiar (sexo feminino)	29.7	20.8	24.4	34.4	26.7
Esposo do chefe de agregado familiar	16.8	13.0	11.3	15.6	14.0
Esposa do chefe de agregado familiar	2.5	0.5	0.0	3.9	1.5
Crianças (rapaz)	0.5	0.5	0.0	4.7	1.1

Table 18 Family Members who participate in PEC

We can note from Figure 11, that most households pay for water which is an increase from the baseline study. It is likely that this progress in payment for water is related to the significant investment in water source infrastructure that has taken place. This has brought some clear benefits to the user such that they are more willing to pay than previously. Monitoring of the percentage of families paying for water and the percentage of water points with a functioning water committee with a paying scheme will remain important sustainability indicators for this initiative into the future.



Figure 11 Percentage households that pay for water

Figure 12 shows that the most frequent level of payment cited for water was between 19.47 and 29.78 Meticais. The objective of the payment was most frequently cited as to pay for operating costs and maintenance. Payment in connection with water supply is made at different periods. Table 19 shows that payments may be monthly, annually, or when there is a break down..



Figure 12 Average amount paid for water (Meticais)

Table	19 Fre	equency	of pa	ayament	for	water.
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Distrito	Majune	Mandimba	Mavago	Muembe	Total
Mensal	82.7	81.9	97.3	85.3	86.1
Bi-mensal	0.3	0.8	0.8	0.0	0.5
Trimestral	0.0	1.9	0.8	0.9	1.0
Annual	11.6	9.9	0.8	11.3	8.8
Por avaria	5.1	5.6	0.0	2.5	3.5
Espécie	0.3	0.0	0.4	0.0	0.2
Total	100.0	100.0	100.0	100.0	100.0

3.4 Household Sanitation

3.4.1 Access, ownership and use of latrines

The study (Fig.13) shows that access to a latrine in 2016 is not different from the baseline and remains the same at about 96 percent across districts. Where households have access to latrines they also own the latrine to which they have access. The results confirm that the use of latrines is a reflection more or less exactly of the pattern of access and ownership of latrines.

3.4.2 Reasons for not having a latrine and main benefits of having one

Where households do not own latrines, the principal reason given was technological, where 41 to 52 percent of respondents cited lack of construction skills. The next category was economic as indicated by 2 to 19.5 percent of huseholds. Based on the baseline data, the project embarked on a training program on construction of latrines for community members.





By the end of the project, there was an increase in construction of latrines by community members. (Figure 14)



Figure 14: Families that built their own latrine (%)


Figure 15 Community members trained in construction of latrines (%)

The benefits of having a latrine are clearly understood by the population. The majority indicated that it was for better health and much of the remainder indicating for a cleaner environment. There was no reason to believe that people do not understand something of the link between the two as shown in Table 20 on the frequency of cleaning the latrines which shows that the majority of households (55%) clean every day. This is an increase from an overall 23 percent in 2013.

District	Majune	Mandimba	Mavago	Muembe	Total
Daily	55.8	55.9	51.9	53.6	54.6
4-6 vezes por semana	3.1	18.0	9.2	7.7	10.0
2-3 vezes por semana	22.4	7.6	19.2	6.8	13.9
Uma vez por semana	6.7	0.7	5.7	14.2	6.1
Somente quando a sujeira é reconhecida	12.0	17.8	14.0	17.8	15.4
Total	100.0	100.0	100.0	100.0	100.0

Table 20	: Frequency	of cleaning	the latrine ((%)
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However, as would be expected circumstances are completely different for the case of the under five years age group. For this age group there is almost no usage of latrines at all. This is partly because households are fearful of children in this age group falling into the latrine, and as this has been know to occur, it is considered better to prevent them from using it.

Overall there is not a clear association between rates of incidence of diarrhoea and household access to a latrine in light of the high access to latrines in all districts studied. Whilst latrines are off course crucially important as an underlying basic need, the overall prescence and condition of

latrines and other secondary transmission factors need to continue to be considered for the entire age cohort to begin to explain the results on dairrhoea as shown in Tables 21-23. The results show that diarrhoea followed by colera are high for all ages during the wet season. There is some evidence of variation between areas for this indicator but overall, diarrhoea is high (91 percent) for all ages during the wet season, followed by cholera 15.2 percent for school age children, 20 percent for adults and 23 percent for children under five. Evidence of associations with hygiene practice and diarrhoea involving the under five group in any event is known to be more associated with care-takers hygienic behaviour such as hand washing after cleaning children, bathing children regularly after defecation, disposal of faeces and cleaning the household environment.

Distrito	Majune (N=208)		Mandimba (N=276)		Mavago (N=247)		Muembe (N=85)		Total (N=816)	
	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca
Diarreia	90.4	62.5	89.1	85.1	97.6	78.1	84.7	78.6	91.5	76.6
Cólera	22.6	8.2	22.1	9.4	19.8	11.3	4.7	2.4	19.7	9.0
Malária	84.1	77.9	90.9	93.1	95.6	79.8	95.3	97.6	91.1	85.6
Feridas do corpo	17.8	27.9	21.7	6.2	21.5	23.1	3.5	2.4	18.8	16.4
Bilharziose	14.9	11.5	8.3	19.6	12.6	24.7	2.4	1.2	10.7	17.2
Sarna	7.2	24.0	5.8	25.4	4.1	34.0	1.2	1.2	5.2	25.2
Tracoma (Doença de vista)	7.7	7.7	2.5	5.8	5.7	6.1	0.0	1.2	4.5	5.9

 Table 21 : Most Common Water Borne Diseases among adults/district (%)

Note: Chuvosa = wet season, Seca = dry season

Table 22 · Most	Common Wat	er Borne Disease	s among School a	ae children/district ((%)
Table 22 : Wlost	Common wa	er Dorne Diseases	s among School ag	ge chnuren/uistrict (70)

Distrito	Majune (N=254)		Mandimba	Mandimba (N=259)		Mavago (N=177)		Muembe (N=138)		=828)
	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca
Diarreia	88.2	66.9	92.3	80.3	87.0	64.4	93.5	84.8	90.1	73.6
Cólera	13.8	7.5	18.2	8.5	14.7	11.3	13.0	3.6	15.2	8.0
Malária	83.9	81.1	91.1	94.6	96.6	76.3	92.8	93.5	90.3	86.4
Feridas do corpo	16.1	18.1	20.1	10.0	19.2	29.9	2.9	5.8	15.8	16.1
Bilharziose	19.7	15.8	17.0	17.0	21.5	32.8	0.7	0.0	16.1	17.2
Sarna	7.9	26.4	13.9	19.3	10.7	37.3	0.7	5.8	9.2	23.1
Tracoma (Doença de vista)	4.3	7.9	3.1	3.9	4.5	7.3	1.5	2.2	3.5	5.6

Table 23: Most Common Water Borne Diseases among children (<5 years)/ district</th>

							(
Distrito	Majune (N=365)		Mandimba (N=414)		Mavago (N=235)		Muembe (N=263)		Total (N=1277)	
	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca	Chuvosa	Seca
Diarreia	91.0	70.8	91.6	88.9	89.8	74.9	93.5	66.2	91.5	76.4
Cólera	18.6	6.3	32.1	22.8	10.2	8.5	24.3	8.4	22.6	12.5
Malária	77.5	83.6	94.0	93.2	94.5	87.7	71.1	93.2	84.7	89.4
Feridas do corpo	12.1	12.0	11.4	9.2	17.0	18.7	6.1	5.7	11.5	11.0
Bilharziose	9.9	8.7	12.3	15.0	11.9	17.5	1.1	1.1	9.2	10.8
Sarna	8.5	16.9	8.7	12.4	5.5	26.4	1.5	4.6	6.6	14.6
Tracoma (Doença de vista)	3.3	3.8	1.5	2.9	2.1	6.4	0.0	0.8	1.8	3.4

3.4.3 Type of Sanitation System Used and Hand Washing at Households.

Households for which water is available to wash hands in the area of the latrine increased overall between 2013 and 2016. There was litte evidence of use of (and to some extent difficulty to observe its presence) soap, ash, or other material in the vicinity of the latrines at households and further studies required to confirm reports in the baseline of a high percentage of household using running water and soap to wash hands after use of the latrine.

4 School Sanitation, Water supply and Hygiene reported by school directors, teachers and school children

This section of the report provides commentary on the results of the questionnaire for schools, for which the respondents are the directors of the school, or school teachers and students. Summary details about the schools sample is provided in Table 2. One immediate observation from the sample is that the average number of boys attending an EP1 or an EPC school is greater than the average number of girls.

4..1 School latrines and accompanying facilities

Figure 16 shows that all of the schools sampled had latrines however it was not clear if all were in use. Although the overall survey sample size in 2013 was 35% less than schools sampled in 2016 there was marked increase in the number of latrines by project end. In Mavago only six (6) schools were sampled in 2013 compared to 14 schools in 2016. Latrines designed and built by PROSUAS funded by JICA contributed to the increase and were evenly divided between girls and boys latrines. Table 25 shows that 58 percent of improved latrines in schools were built with JICA funding. There was also increase in the provision of latrines for teachers. This resulted in a decrease in schools using traditional latrines. Latrines built by the project were secure and equipped with running water for washing hands (Fig. 17). This was possible because all 19 schools that benefitted had water in the school compound or within 200 metres from the school. Albeit progress made, it should be noted that a significant percentage of the sample of schools did not appear to have the improved latrines. Very degraded latrines were noted at seven schools especially those that are precarious (Fig. 18).



Fig. 16 : School children with access to sanitation units at school



Figure 17. Improved Latrine designed and built by the project, funded by JICA

All latrines built by the project had easy to observe facilities for washing hands, and ash was available. It was reported that sometimes soap was available, this however was rare because of financial constraints to purchase soap. The question of school sanitation in many instances in the non-project schools is clearly a very serious one indeed. With such a poor state of sanitation it can only be concluded that some children and sometimes staff are defecating in the open air with all of the health hazards associated with that. Latrines in some schools were not in use and interviews with the children themselves reported in a subsequent section do reveal that school children are using home latrines.

District	Majune	Mandimba	Mavago	Muembe	Total				
Improved Latrine	62.5	100.0	54.6	65.0	63.4				
VIP Latrine	0.0	0.0	9.1	0.0	2.4				
Latrine with a water system	12.5	0.0	9.1	5.0	7.3				
Ecological Latrine	0.0	0.0	9.1	15.0	9.8				
Traditional Latrine	25.0	0.0	18.2	15.0	17.1				

Table 24 Type of latrine in schools per district (%)

Figure 18. Precarious schools in Muembe and Mandimba Districts with no latrines



Tuble 20 sponsors to build improved school futilities									
District	Majune	Mandimba	Mavago	Muembe	Total				
Members of the	20.0	25.0	50.0	21.4	27.3				
Community	20.0	23.0	50.0	21.4	27.5				
JICA	60.0	75.0	50.0	50.0	57.6				
School Professores	20.0	0.0	0.0	28.6	15.2				
Local contractors	0.0	0.0	0.0	0.0	0.0				
Other	0.0	0.0	0.0	0.0	0.0				

Table 25 Sponsors to build improved School latrines

4.2 School water supply

Baseline information reported seven schools with a secure water supply inside the precinct with the only one in Mavago inoperational. This rose from 12.5 percent in 2013 to 61.5 percent in 2016, and is particularly well accounted for (Fig. 18). When there is no water supply at the school water is available within 200 metres of the school. However, whilst this does mean the children are not stuck without any supply, there is a management problem in these circumstances in that it is difficult for a school to monitor and control the quality of the water collection site when it is not part of the school. Also it may be for many of the schools that the children will

Fig. 19. PROSUAS Water point in a school in Mandimba (school & improved latrines in background)



look in a range of different places for water and a place to defecate such that prevention and control through knowledge, attitudes and practice related programmes become more complicated than if the school was in control. Nonetheless, All boreholes within the school precincts are 90 percent functional with the exception of mavago (Table 26)



Figure 20 Acess to water points in schools/district (%)

Table 26 Type of Water Points in Schools with water on the precinct (%)

District	Majune (N=9)	Mandimba (N=20)	Mavago (N=13)	Muembe (N=20)	Total (N=62)
Piped Water	0.0	0.0	0.0	0.0	0.0
Bore hole with manual pump	100.0	90.0	83.3	100.0	93.6
Protected Well with manual pump	0.0	0.0	0.0	0.0	0.0
Well with bucket	0.0	0.0	16.7	0.0	3.2
Traditional well	0.0	10.0	0.0	0.0	3.2
Other	0.0	0.0	0.0	0.0	0.0
Não aplicável	0.0	0.0	0.0	0.0	0.0



Figure 21 Functional water points in schools (%)

4.3 Schoolchildren's hygiene practice

Hand washing

The baseline study show that there was no system for washing hands in the school latrines with the exception of one school in Majune (Fig. 22). Since then, the project has made significant progress in creating awareness and by project end, up to 69 percent of school children washed their hands after using the latrine. While the schoolchildren say they wash their hands and reveal a high level of knowledge about when this should be done, it cannot be assumed that this translates into actual practice in all instances.



Figure 22 System of hand washing in schools (%)

Description with part demonstration of hand washing

The children who participated in the focus group discusion indicated they carried out hand washing. Explanation was accompanied by observations of the way in which they wash their hands. Ninety-seven percent of respondents verified that this is by washing both hands at the same time, through rubbing or scrubbing. They indicated use of soap or ash when washing their hands, and this is an improvement on 2013 when use of soap was not indicated. These results suggest there is still much that could be done in improving hygiene through more rigorous hand washing through use of soap. Although it is not evident that practice is particularly bad, further attention to detail in this practice as a genuine way of intervening in transmission in higher risk contexts would almost certainly have an impact in improving health.

4.4 Schoolchilren's source of information about hygiene

Given the difference in location where the schoolchildren spend their time, it is perhaps not surprising that their main source of information is via the teachers. Household respondents had indicated the radio in lead position. Hearing it from parents ranks second and Radio features in third position. This might also be interpreted as revealing that teachers play the role of the health services in providing information to school children. A further point is that children are excellent

transmitters of information themselves and it is recommended that they be consider a resource for the project rather than simply the intended beneficiaries. Information fed to the schoolchildren is likely to efficiently find its way back into the households.

5 Conclusions, and Recommendations

Data for monitoring a number of specific project impact indicators has been achieved as intended. In addition, a range of wider survey information of interest for assessing knowledge, attitudes, and practice for water supply, sanitation, and hygiene is also available in this study. This should be used to help guide the longer term programme planning process, not just to monitor impact of project activities over the past period, as a guide on how best to target ongoing activities and resourcing.

Note may be taken of the following main findings relating to change in baseline indicators used for monitoring the current programme together with additional information collected during the 2016 survey analysis:

General

Access to sanitation and water facilities

- Access to improved water supplies has increased and is readily more available in project areas than it was in 2013.
- Access to improved sanitation facilities has increased at households and in schools it was generally not present in 2013.
- The survey also supports the likelihood of children's risks of ill health through poor water and sanitation infrastructure as having decreased as a result of this project.
- However, despite these substantiated improvements the survey shows that successful increases in standards and consequent decreases in health risks need to increase much further. It would need to be sustained for much longer to achieve overall improvement for more households and schools over the longer time frame.
- One risk area which remains in question regarding initial improvement over the last three years concerns the use of soap application. It inclusion in basic hygiene practice only seems to have improved marginally in some instances.

Hygiene promotion

- Consistent with the 2013 survey basic general knowledge about water, sanitation and hygiene risks is on the whole good across the wider community.
- There is evidence that the level of specific detailed knowledge on health risks and prevention of disease amongst schoolchildren is still not complete. An example of lack of knowledge that is particularly important is that of the need to wash both hands with soap and clean water to reduce the risk of diarrhoea, particularly after cleaning a child's bottom or after clearing away children's faeces.
- Attitudes to water supply, sanitation and hygiene issues remain generally very good However, uses of the best strategies for preventing ill health are inadequate, such as not using soap when washing hands.
- Despite improvements since 2013, the gap in achieving total coverage of knowledge and practice for hygiene risks is highest amongst children, confirming that they are a particularly high-risk group in terms of water, sanitation, and hygiene related diseases.

Community participation

• The communities participated readily in this survey and indicated that they welcomed the overall project. Interviewers reported that the community seemed enthused about the project and felt it had made a significant contribution. The interviewers also observed that circumstances looked better just in terms of what they could see and felt rather than relying on the databases alone. There was no resistance from any households, schools or other institutions in offering information for this survey. Individuals being interviewed repeatedly volunteered additional comments about their need for a water supply, and other basic needs. There is a readiness for these on the whole isolated communities to collaborate with each other and with any facilitating institution that can assist in improving basic water, sanitation, and hygiene to reduce ill health. There is expectation from the communities that just as the baseline survey of 2013 had been followed by visibly beneficial activities that the 2016 survey would be followed by at least more of the same.

This survey should be considered a substantive achievement in terms of the information gathered from a difficult and varied sample. The survey was a challenge in survey terms on three accounts. These are firstly that it has been measuring knowledge, attitudes and practice, three contrasting types of data for which it is notoriously difficult to establish exact and quantitative information. Secondly, the survey was carried out in a number of isolated communities for which working to a detailed location based sample was logistically complicated. Thirdly, the survey has involved interviewing children and issues relating to children, which is also a notoriously complex boundary to cross in terms of information generation and ethical codes of conduct, particularly in quantitative approaches. Nonetheless, a good base of data has been achieved for which it is possible through cross checking to suggest a high level of confidence in terms of its accuracy.

One of the keys to continued community participation in taking the progress made to date forward is that they continue to feel a part of the process of dealing with these health risks. After all a large part of the improvements depends on changes in behaviour. It is therefore recommended that a summary of the information in this report be compiled that can be delivered back to the communities from where the information was extracted. This could be done using a small team of the original interviewers holding brief meetings with community leaders and presenting them with a short summary document. To not do this would be to fail to complete the cycle of information gathering and of using information for change, the information in the report in itself being an agent for improvement in terms of motivating people.

The schedule for this survey was very efficient in terms of the fieldwork component, data entry and checking, analysis and production of this report, completing within the timeframe agreed with the client. The speed within it has been completed is unusually quick for studies of this type inidicating the intensive manner that it was implemented.

Inevitably acquisition of new information generates many new questions that ideally require an ongoing research process. Furthermore, the view of the population who are the intended beneficiaries of the project has been very much that the project has been a success but is just a start. It has demonstrated that clear progress can be achieved and therefore the expectation is now that this type of improvement process should continue many years into the future to fully address the water, sanitation and hygiene issues of the province.

APPENDICES



Distribution Map of Water Points in the target ditricts.