Final Evaluation Report

“Transboundary Wastewater Management in Attil/Tulkarem Governorate” Project

Final Report

Contract Ref: 10135945 RFP-UNDP-PAL-00130

22 May 2024

PROJECT AND EVALUATION INFORMATION DETAILS

Project/outcome Information		
Project/outcome title	**Transboundary Wastewater Management in Attil/Tulkarem Governorate**	
Project Number	00123704	
Project outcomes and outputs	The project has sought to achieve/contribute to the following results: **Outcomes:** - Pollution control is strengthened; environment is protected and public health with a focus on women and girls is enhanced - Transboundary wastewater management in the West Bank is improved through enhancing data measurements and verifications **Outputs:** - Residents of Attil (Women, men, girls, and boys) have increased access to environmentally sound municipal wastewater services. - Improved cross border wastewater flow measurements and management mechanism. - Water tariff and revenue collection system revised and applied to ensure sustainable wastewater service.	
Country	State of Palestine	
Region	Arab States	
Date project document signed	15 September 2020	
Project dates	**Start**	**Planned end**
	4 September 2020	31 March 2024
Project budget	USD 5,719,454.64	
Project expenditure at the time of evaluation	USD 4,491,785.00	
Funding source	Netherlands	
Implementing party[1]	UNDP	

[1] The implementing party is the entity that has overall responsibility for implementation of the project (award), effective use of resources and delivery of outputs in the signed project document and workplan.

Evaluation information		
Evaluation type (project/ outcome/thematic/country programme, etc.)	Project	
Final/midterm review/ other	Final Evaluation	
Period under evaluation	**Start**	**End**
	10 NOVEMBER 2023	31 JANUARY 2024
Evaluators	PILLARS CONSULTING Evaluation Team: - **Team Leader**: Eng. Emil Abdo - **Co-Team Leader**: Dr. Khaled Rajab - **Evaluation and Gender Expert**: Eng. Khawla Abed - **Environmental and wastewater expert**: Dr. AbdelFattah Hasan - **Evaluation Coordinator**: Eng. Yasmeen Shehab	
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LIST OF ABBREVIATIONS

DAC	Development Assistance Committee
ESIA	Environmental and Social Impact Assessment
ET	Evaluation Team
FGDs	Focus Groups Discussions
GRES	Gender Results Effectiveness Scale
IWA	Israeli Water Authority
LFA	Logical Framework Approach
LGU	Local Government Unit
M&E	Monitoring and Evaluation
MCM	Million Cubic Meters
MOF	Ministry of Finance
MOLG	Ministry of Local Government
NRO	Netherlands Representative Office
OECD	Organization for Economic Cooperation and Development
PA	Palestinian Authority
PB	Project Board
PAPP	Programme of Assistance to the Palestinian People
PSTC	Project Steering Technical Committee
PWA	Palestinian Water Authority
SDGs	Sustainable Development Goals
SOPs	Standard Operating Procedures
ToC	Theory of Change
ToR	Terms of Reference
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme

US$	United States Dollar
WSRC	Water Sector Regulatory Council
WWTPs	Wastewater Treatment Plants

1. EXECUTIVE SUMMARY

This report details the evaluation of the project "Transboundary Wastewater Management in Attil/Tulkarem Governorate," the construction of wastewater collection systems in Attil and Deir Al-Ghsoun. The construction project started in September 2021 and was expected to be completed by the end of February 2023. However, due to various factors, including project complexities, the timeline was extended first to the end of 2023 and finally to the end of March 2024.

The primary aim of this report is to document the evaluation exercise's outcomes, providing insights into project performance, achievements, challenges, and lessons learned. The report intends to inform and guide future interventions by sharing knowledge, best practices, and recommendations with project partners, including UNDP/PAPP, national ministries, and local authorities.

Aligned with the assignment's Terms of Reference (ToR), the evaluation objectives were to assess the project's performance, determine the extent to which the project has achieved its planned goals and outputs, as set in the results and resource framework, and identify factors contributing to or hindering its success.

In addition to evaluating contextual factors and benchmarking against national and international standards, particular attention was given to the project's strategic political dimensions and the sustainability of its outcomes. Furthermore, the assessment examined how enhanced wastewater management systems contribute to women's rights and gender equality within the communities where they are implemented. Given the project's location in areas bordering Israel, its transboundary nature received special attention during the review and evaluation process to address any unique challenges and opportunities associated with cross-border cooperation and coordination.

The evaluation team (ET) employed a participatory mixed approach that utilized the logical framework approach (LFA) to identify key intervention elements through a logical framework matrix. The overall methodological approach adopted by the ET consisted of two UNDP accredited methodologies, namely, evaluation parameters (criteria) and questions and contribution analysis (CA). The ET gathered evidence from both primary and secondary sources to enquire whether the project interventions have contributed to the desired change. The ET also ensured a democratized evaluation process by incorporating tools and techniques that amplified the voices of stakeholders. The data collection methods included desk reviews, key informant interviews, focus group discussions, and field visits. The ET reviewed the project's existing Theory of Change (TOC) to understand the assumption underlying the interventions and their intended outcomes, and to design a criteria-based evaluation matrix depicting indicators and achievement levels of outcomes, outputs, and processes.

The evaluation adhered to ethical rules, international norms, and standards for assessing development projects and programmes. Guidelines such as the "UNDP Handbook on Planning, Monitoring, and Evaluating for Development Projects" and the Organization for

Economic Cooperation and Development/ Development Assistance Committee (OECD/DAC) standards were followed. The evaluation assessed impact, sustainability, effectiveness, coherence, efficiency, and relevance based on these standard criteria.

The Main findings of the evaluation can be summarized as follows:

Relevance:

The project is clearly strongly aligned with national policies and Palestinian Authority (PA) initiatives, fostering sector reform through infrastructure development and capacity building. Despite challenges posed by political tensions, the project remains adaptable, adjusting its timeline and scope to sustain relevance and momentum. The project ensures financial viability via transparent tariff structures by addressing critical needs through wastewater infrastructure and mitigation of environmental concerns. Project activities closely align with stakeholder needs and priorities, with periodic reviews ensuring ongoing effectiveness. The outputs closely correspond to objectives, affirming the project's potential for positive impact on promoting sustainable wastewater management and cooperation in the region.

Despite recent complexities in the political landscape between Israel and Palestine following the Israeli war in Gaza since October 2023 which has impacted cooperation, maintaining communication channels and stakeholders' understanding and responsive capabilities are vital for the project's resilience and relevance. Analysis of the evaluation data illustrates how the project maintained effective engagement with national stakeholders, by adhering to the project's engagement plan to keep open communication lines and facilitating prompt decision-making. The project's iterative approach has thus enabled adjustments to project activities, while ensuring alignment with evolving stakeholder needs within a volatile political context. Reviews of completed activities indicated that the ensuing circumstances have not caused the project any significant deviations from the expected outputs, therefore maintaining the project's relevance amidst changing stakeholder needs and operational environments.

The project aimed to benefit the entire community, yet women emerged as primary beneficiaries due to their traditional roles in managing household water supply. The establishment of wastewater collection systems has directly benefited around 10,000 residents, with half being women and girls, addressing issues such as contamination of drinking water from cesspits. Women participants highlighted that the project reduced their burdens in household cleaning and caregiving responsibilities, while also easing inter-household conflicts related to cesspit maintenance. The evaluation concludes that the project has demonstrated a commitment to gender mainstreaming through awareness campaigns tailored for women. Despite challenges in data disaggregation, the project demonstrated that proactive efforts were made to ensure fair access to project benefits for all demographics, and enhance gender responsiveness.

Coherence:

The evaluation concluded that ***the project's coherence*** stems from many factors such as its integration with adopted wastewater sector strategies, its participatory approach for involving

diverse stakeholders, and its reliance on feasibility studies to inform solutions. The evaluation also acknowledges the project's strategic alignment with the scientific literature on scalability and its potential to effectively address the transboundary wastewater issue. Overall, the project has offered a valuable learning experience and crucial insights for future initiatives in similar contexts, highlighting the added value of the UNDP's approach.

Effectiveness:
In terms of ***effectiveness,*** the project has primarily achieved its intended outputs, laying the groundwork for realizing its overarching goals. Output One, aimed at "enhancing access to environmentally sustainable municipal wastewater services for approximately 8,200 individuals in Attil and Deir Al-Ghosoun", has been successfully completed, albeit with some delays. Once completed, the construction of a 25.6 km collection system exceeded initial plans, benefiting 10,000 residents. In contrast, Output Two, "enhancing cross-border wastewater flow measurements and management mechanisms", has faced some challenges nevertheless has made significant strides in meter installation, which is expected to be completed by February 2024. Civil work for Attil and Wadi Al Moqatt'a-Jinen flow-meters has concluded, with electro-mechanical installation currently in progress. Output three, concerning implementing a revised water tariff in Attil, has been accomplished following thorough review and approval processes, with implementation starting in 2024.

Furthermore, awareness and training workshops for the community and local government units were successfully conducted on schedule. The project's partnership strategy with national stakeholders, including governmental entities and local municipalities, has proven effective in fostering collaboration and achieving desired outcomes. Stakeholder engagement mechanisms, such as workshops and training sessions, have been instrumental in advancing project objectives within local communities. While capacity development efforts have notably enhanced the capabilities of national partners and beneficiary municipalities, *there is a recognized need for additional advanced training to bolster technical expertise even further*. Since the project also aimed to improve access to sustainable wastewater services, it has led to direct benefits for women and girls through a reduction of workload and waterborne diseases which contributed to the improvement of health conditions. The project's training and awareness workshops targeting women and the entire community, has empowered women with knowledge and active participation in water management. By fostering partnerships and enhancing capacity of various stakeholders, the project has succeeded in advocating for gender equality at the local level, in alignment with relevant global sustainable development goals.

Efficiency:
Efficiency was assessed across various critical areas, beginning with the project's management and communication framework. Despite its relatively small size compared to the project's budget, the management team adeptly engaged stakeholders through well-structured communication channels and inclusive decision-making processes. The project fostered trust and collaboration among communities and municipalities by incorporating stakeholder feedback mechanisms. Leveraging local contractors and resources streamlined

implementation and invigorated the local economy. Furthermore, strategic segmentation of construction efforts ensured optimal efficiency.

Moreover, the project prioritized the utilization of local resources, thus reinforcing its connection to the community and minimizing environmental impact. Engaging local contractors and utilizing locally manufactured materials supported the economy and instilled a sense of ownership within the community. The deliberate allocation of resources and division of construction tasks further enhanced project efficiency. Additionally, the project effectively managed both anticipated and unforeseen challenges through meticulous feasibility studies and transparent procurement procedures. Adaptation to changing circumstances, such as political complexities, was facilitated through budget reallocation and adaptive planning processes, ensuring resilience and successful completion of most planned activities within the allocated budget.

Impact:

Regarding the ***impact*** of the project, the project has shown significant progress in addressing environmental challenges and fostering regional cooperation through infrastructure development, outreach efforts, and capacity building. Once completed, the 25.6 km wastewater collection system will directly benefit approximately 10,000 residents, surpassing initial targets and impacting women who traditionally manage water within households. The project's capacity-building initiatives empower stakeholders for sustainable service delivery, while the revised tariff system ensures financial viability. Employment opportunities and inclusive community engagement, especially for women, have positive social impacts. The project's role in cross-border wastewater management environmentally contributes to pollution control, public health improvements, and climate change resilience, ensuring long-term sustainability and financial savings. Overall, the project demonstrates significant impacts across environmental, social, economic, and governance dimensions, enhancing community well-being and fostering regional collaboration.

Sustainability:

The potential for ***sustainability*** of the project's outcomes beyond its designated timeframe hinges on several factors. Notably, the project has achieved significant progress in establishing wastewater collection systems spanning 25.6 km across Attil and Deir Al-Ghosoun communities, promising enduring benefits that transcend its original schedule. These systems offer considerable environmental, economic, and social advantages, notably improving community well-being and fostering long-term stability. Despite encountering challenges in implementing new tariff systems and optimizing flow meters, ongoing efforts seek to secure funding for crucial feasibility studies and project designs, exemplifying an adaptable approach to surmounting obstacles and achieving common goals in wastewater management.

Moreover, the project's investment in training initiatives and expert assistance has bolstered institutional capacity within municipalities and the Palestinian Water Authority (PWA), ensuring the sustainable management of wastewater systems beyond the project's stipulated duration. By emphasizing the utilization of local talents and resources, the project has

stimulated the local economy and instilled a sense of ownership within the community. Nevertheless, few hurdles persist in effectively harnessing data from flow meters (due to several reasons explained by the Palestinian Water Authority, including the interruption of communication with the meter at one of the sites due to the cables being cut by the Israelis during work, in addition to the accumulation of dirt, stones and other materials at the screen before the flow meter) and in obtaining funding for subsequent project phases amid political uncertainties. Nonetheless, ongoing discussions with donors and strategic reassessment of project scope(s) are underway, aiming to align future interventions with the evolving priorities of stakeholders and the dynamic landscape following recent events.

Several lessons learned could be highlighted from the evaluation, including:

- Investment in human capital and expert support to strengthen municipal and national wastewater systems are essential for long-term sustainability.
- Maintaining adaptability and expertise is crucial in unstable political environments. Developing skills in wastewater management and utilization of advanced technologies like Venturi and Doppler radar is important for efficient operations and maintenance. Establishing water utilities or joint services councils can also improve management capabilities and promote sustainability.
- UNDP's project approach addresses gender equality, environmental sustainability, and climate resilience with cross-border wastewater management. It reduces pollution, safeguarding water resources in line with the Sustainable Development Goals. The project emphasizes gender equality, promoting gender-sensitive water management and addressing the needs of women and girls. The project emphasized the importance of gender mainstreaming in water development projects as the primary beneficiary and target group by involving women residents and women's organizations in the soft components of the project, such as in training and public awareness activities. The project is also commended for using gender-sensitive tools, and promoting inclusivity for womenaudience of the awareness campaigns, utilizing gender-sensitive and culturally appropriate tools such as women-led preachers' meetings tailored specifically for women. The evaluation also stresses the need for gender-disaggregated data to assess intervention impacts and address specific community needs
    1. Engaging municipal staff, beneficiaries, and partners is crucial. Effective communication and participatory decision-making build trust and collaboration. Feedback ensures inclusive problem-solving.o
- Local commitment and collaboration ensure sustainable wastewater services through funding and tariff enforcements by municipalities.
- Community engagement and public awareness are crucial for project sustainability and transformative change.

The report offers immediate operational recommendations derived from the analysis, lessons learned, and insights gained throughout the evaluation. These recommendations include:

For UNDP:

1. Assist specific municipalities in developing detailed training programs for staff responsible for project operation and maintenance during its initial phase. This will

involve organizing visits facilitated by PWA with a focus on enhancing technical expertise and promoting efficient management practices for wastewater systems.

2. Assist both municipalities in approaching MoLG for the implementation of a road paving project between both villages linked by the newly-installed connecting pipe. This crucial step will facilitate future maintenance and repair activities, ensuring the infrastructure's longevity.
3. Enhance the gender mainstreaming elements in project progress reporting by the inclusion of more detailed data to show how the project affects various social groups, including a thorough evaluation of women's participation in project phases, which are essential in shaping the project's development and catering to all societal groups. Gender analysis should be integrated into the project's planning and design phase in order to identify women's needs prior to implementation.

For PWA:

1. To effectively monitor the installed flowmeters, the Palestinian Water Authority (PWA) is recommended to implement capacity building program for its employees including training of staff members on data collection, analysis, and interpretation to ensure accurate monitoring of wastewater flow and quality.
2. Conduct a thorough assessment of the infrastructure after the winter season of 2023/2024 to identify any damages, particularly focusing on manholes that may have been affected. Addressing these issues promptly will ensure the continuous functionality of the wastewater network.
3. The PWA needs to consistently focus on repairing faulty flowmeters to achieve the project's goals and guarantee accurate data collection for efficient wastewater management. It is important to include regular maintenance and troubleshooting in the project's continuous activities, as well as ensuring the operational sustainability of flow measurement meters through maintenance, monitoring, and using the data for verifying invoices and improving financial accuracy and accountability.
4. PWA needs to establish and follow-up with formal short- and long-term agreements with Israeli Water Authority (IWA) to utilize their knowledge and resources for sustainable water management practices when the situation allows.
5. The shift towards a catchment approach in the future interventions marks a pivotal step in advancing water resource management, therefore adopting integrated strategies is crucial for ensuring the sustainability of water sources, improving efficiency, and preserving ecosystems. This holistic approach not only benefits municipal services but also promotes sustainable development and resilience. Moving forward, a comprehensive framework will drive to positive change for both current and future generations.
6. Awareness campaigns should take into consideration the needs of PWDs and use proper tools to reach them.

In conclusion, this evaluation indicates that the Transboundary Wastewater Management project realized substantial progress in reaching its goals, improving access to environmentally sustainable municipal wastewater services for Attil and Deir Al-Ghosoun communities. Despite encountering challenges, such as delays in network operation pending Israeli approval for connection points and installation of the transboundary flowmeter, the

project accomplished essential infrastructure tasks, surpassing initial beneficiary targets by including road crossings and preparing the network for household connections.

The project has also demonstrated alignment with national policies, financial viability, stakeholder engagement, and effective output delivery, thus highlighting its coherence, impact, and potential sustainability. The commitment to gender mainstreaming and the project's overarching achievements underscores its pivotal role in addressing wastewater management issues. Operational recommendations have been put forth, emphasizing the need for ongoing support and collaboration to ensure the project's lasting impact. Moving forward, it is crucial to prioritize gender-responsive assessments, enhance stakeholder representation, and foster collaboration to drive sustainable positive change in the water and sanitation sector. By leveraging the insights gleaned from this evaluation, the project implementing agency and other partners can refine their approaches and continue striving for excellence in their initiatives, ultimately contributing meaningfully to broader national and international development objectives.

ملخص تنفيذي

يعرض هذا التقرير تفاصيل تقييم مشروع "إدارة المياه العادمة العابرة للحدود في عتيل/محافظة طولكرم"، وإنشاء أنظمة تجميع المياه العادمة في بلدتي عتيل ودير الغصون. بدأ تنفيذ المشروع في سبتمبر 2021 وكان من المتوقع أن يتم الانتهاء منه بحلول نهاية شباط/ فبراير 2023. ومع ذلك، نظرًا لعوامل مختلفة، بما في ذلك تعقيدات المشروع، تم تمديد الجدول الزمني أولاً حتى نهاية عام 2023 وأخيراً حتى نهاية أذار/ مارس 2024.

يهدف التقرير إلى توثيق نتائج عملية التقييم، وتقديم رؤى حول أداء المشروع والإنجازات والتحديات والدروس المستفادة أضافة إلى إعلام وتوجيه التدخلات المستقبلية من خلال تبادل المعرفة وأفضل الممارسات والتوصيات مع شركاء المشروع، بما في ذلك برنامج الأمم المتحدة الإنمائي/برنامج مساعدة الشعب الفلسطيني، والوزارات الوطنية، والسلطات المحلية. تماشيًا مع الشروط المرجعية،

يركز هذا التقرير على تقييم أداء المشروع، والتأكد من مدى تحقيقه لأهدافه ومخرجاته وفقًا لإطار النتائج والموارد، وتحديد العوامل التي تساهم في نجاحه أو تعيقه. وبالإضافة إلى تقييم العوامل السياقية ومقارنتها بالمعايير الوطنية والدولية، تم إيلاء اهتمام خاص للأبعاد السياسية الاستراتيجية للمشروع واستدامة نتائجه. علاوة على ذلك، تعرض التقييم الى الكيفية التس تساهم فيها أنظمة إدارة مياه الصرف الصحي في تعزيز لحقوق المرأة والمساواة بين الجنسين داخل المجتمعات التي يتم تنفيذ المشروع فيها. ونظرًا لموقع المشروع في المناطق المتاخمة لإسرائيل، فقد حظيت طبيعته العابرة للحدود باهتمام خاص خلال عملية المراجعة والتقييم لمعالجة أي تحديات وفرص فريدة مرتبطة بالتعاون والتنسيق عبر الحدود.

استخدم فريق التقييم نهجا تشاركيا مختلطا عتمادا على الإطار المنطقي للمشروع لتحديد عناصر التدخل الرئيسية من خلال مصفوفة إطار منطقي ضمن منهجية شاملة للتقييم ارتكزت إلى منهجيتين معتمدتين من قبل برنامج الأمم المتحدة الإنمائي، وهما معايير التقييم وتحليل الأسئلة والمساهمات). وقد قام فريق خبراء التقييم بجمع الأدلة من المصادر الأولية والثانوية للمعلومات لدعم الاستنتاجات حول مساهمة المشروع وبيان الاسباب التي أدت الى هذه المساهمة\

تم جمع البيانات المستخدمة في هذا التقييم عن طريق اربعة اجوات بحثية وهي: المراجعة المكتبية لوثائق المشروع، وإجراء المقابلات المعمقة، و المجموعات المركزة، والزيارات الميدانية لمناطق المشروع. كذلك عكف فريق التقييم على دراسة نظرية التغيير الحالية للمشروع بغرض فهم الافتراضات الأساسية للمشروع والنتائج المرغوبة ، ووضع مصفوفة تقييم قائمة على معايير التقييم المختلفة. كما التزم التقييم بالقواعد الأخلاقية والأعراف والمعايير الدولية لتقييم مشاريع وبرامج التنمية. من خلال اتباع المبادئ التوجيهية مثل "دليل برنامج الأمم المتحدة الإنمائي بشأن التخطيط والرصد والتقييم لمشاريع التنمية" معايير منظمة التعاون الاقتصادي والتنمية/لجنة المساعدة الإنمائية (OECD/DAC) والتي تم تبنييها فيتقييم المشروع من حيث الأثر والاستدامة والفعالية والتناسق والكفاءة والصلة باحتياجات الفئة والمناطق المستهدفة والسياسات الوطنية الناظمة لم

ويمكن تلخيص نتائج التقييم على النحو التالي:

فيما يتعلق **بالصلة والأهمية**، يتماشى المشروع وبقوة مع السياسات الوطنية ومبادرات السلطة الفلسطينية، ويعزز إصلاح قطاع المياه الصرف الصحي من خلال تطوير البنية التحتية وبناء القدرات. وعلى الرغم من التحديات التي تفرضها التوترات السياسية، يظل المشروع قابلاً للتكيف مع الظروف المستجدة من حيث تعديل نطاق المشروع وجدوله الزمني مع الحفاظ على أهدافه الأساسية . أما الجدوى المالية للمشروع فقد تم العمل عليها من خلال وضع هياكل تعرفة شفافة قادرة على تلبية الاحتياجات الحيوية المستقبلية من خلال إنشاء البنية التحتية لمياه الصرف الصحي وتخفيف الاثار البيئية. ويمكن القول بشكل عام بأن أنشطة المشروع كان متوافقةبشكل وثيق مع احتياجات وأولويات أصحاب المصلحة، مع القيام بإجراء مراجعات دورية لضمان الفعالية المستمرة للمشروع

كذلك تتوافق المخرجات بشكل وثيق مع الأهداف، مما يؤكد إمكانية المشروع على التأثير في تعزيز الإدارة المستدامة لمياه الصرف الصحي والتعاون في المنطقة.

وعلى الرغم من التعقيدات الأخيرة في المشهد السياسي بين إسرائيل وفلسطين في أعقاب الحرب الإسرائيلية على غزة منذ تشرين أول/ أكتوبر 2023 والتي أثرت على التعاون، كان من المهم الحفاظ على قنوات الاتصال لتعزيز إدراك أصحاب المصلحة وقدراتهم على الاستجابة وكلاهما ضروريانلمرونة المشروع وأهميته. وتبين من التقييم أن الأساليب التي اعتمدها المشروع للمشاركة والتفاعل مع أصحاب المصلحة المحليين كانت ناجحة للغاية ، حيث بدا جليا أن الالتزام بخطة مشاركة المشروع ساهم في الحفاظ على خطوط الاتصال المفتوحة وتسهيل اتخاذ القرار فورا عند الحاجة بما في ذلك إجراء تعديلات على أنشطة المشروع في ظل التغير السريع في الظروف السياسية . ألا أن هذه التعديلات لم تمس كثيرا بالمخرجات المتوقعة من المشروع، الامر الذي يدل على قدرة المشروع على الحفاظ على اهميتة ودورة في تلبية الاحتياجات المتغيرة لأصحاب المصلحة المتغيرة والبيئة التشغيلية للمشروع في المناطق المستهدفة.

بسبب طبيعة المشروع، من البديهي استفادة جميع السكان من أنشطة المياة والصرف الصحي، إلا أن النساء برزن كمستفيدين رئيسيين بسبب أدوارهن التقليدية في إدارة إمدادات المياه المنزلية. وقد بلغ عدد المستفيدين المباشرين من إنشاء أنظمة جمع مياه الصرف الصحي لعلاج قضايا مثل مياه الشرب الملوثة من الحفر الامتصاصية حوالي 10,000 مواطن، نصفهم من النساء والفتيات. وبدا ذلك واضحا من خلال تسليط النساء المشاركات في التقييم الضوء على أثر المشروع الايجابي على النساء من حيث تخفيف أعباء النظافة تقديم الرعاية، والنزاعات المتعلقة بصيانة الحفر الامتصاصية. لذا يمكن القول أن المشروع أظهر التزاما بتعميم مراعاة منظور النوع الاجتماعي من خلال حملات التوعية المصممة خصيصا للنساء. وعلى الرغم من استمرار التحديات المتعلقة بالحصول على معلومات وبيانات مفصلة حسب الجنس . ، فقد بُذلت جهود لضمان الوصول العادل إلى فوائد المشروع لجميع الفئات السكانية، وتعزيز الاستجابة للمساواة بين الجنسين.

أما بالنسبة **لمعيار التناسق الداخلي المشروع** فقد خلص التقييم إلى أن هذا التناسق نابع في الاساس من تكامل المشروع مع الاستراتيجيات المعتمدة في قطاع الصرف الصحي، ومن اعتماد المشروع على النهج التشاركي الذي يشمل أصحاب المصلحة، ودراسات الجدوى لتسهيل النوصل الى الحلول المناسبة عند الحاجة. كما يتميز المشروع بالمواءمة الإستراتيجية مع الأدبيات العلمية من حيث قابلية المشروع على التوسع إلى مناطق جديدة وقدرته على المعالجة الفعالة لمشكلة مياه الصرف الصحي العابرة للحدود. وبشكل عام، من الممكن اعتبار المشروع تجربة تعليمية قيمة ويقدم رؤى حاسمة للمبادرات المستقبلية في سياقات مماثلة، مما يسلط الضوء على القيمة المضافة للنهج المتبع من قبل برنامج الأمم المتحدة الإنمائي في هذا القطاع.

أما من حيث معيار **الفعالية**، فقد حقق المشروع مخرجاته المقصودة، مما أرسى الأساس لتحقيق أهدافه الشاملة وقد تمكن المشروع من إنجاز المخرج الأول بنجاح بالرغم من بعض التأخير في التنفيذ، الذي يهدف إلى تعزيز الوصول إلى خدمات الصرف الصحي المستدامة بيئيًا لنحو 8,200 مواطن في بلدتي عتيل ودير الغصون.كذلك تم إنشاء نظام تجميع للمياه بطول 25.6 كيلومتر تجاوز الطول المحدد في المخططات الأولية يستفيد منه حوالي 10000 مواطن.

أماالمخرج الثاني، والذي يركز على تعزيز قياسات تدفق مياه الصرف الصحي عبر الحدود وآليات إدارتها، فقد واجه العديد من التحديات ولكنه رغم ذلك تمكن من قطع خطوات كبيرة في مجال تركيب العدادات، والذي من المتوقع أن يكتمل بحلول شهر شباط 2024 حيثتم الانتهاء من الأعمال المدنية للعدادت في عتيل ووادي المقاطعة–جنين، ويجري حاليًا تركيب الاعمال الكهربائية والميكانيكية. أما المخرج الثالث، المتعلق بتنفيذ تعرفة المياه في عتيل، فقد تم انجاز هذه التعرفة بنجاح وحصلت على الموافقة الحكومية لبدء التنفيذ بعد اجراء بعض التعديلات على بنودها، توقع قيام البلديات بتطبيق التعرفة الجديدة خلال عام 2024.

علاوة على ذلك، تم تنظيم ورش عمل توعوية وتدريبية للمجتمع المجالس البلدية بنجاح وفقا لخطة المشروع. وقد أثبت المشروع أن تبنيه لاستراتيجية خاصة بالشراكة مع أصحاب المصلحة المحليين، بما في ذلك الهيئات الحكومية والبلديات ، قد اثبت فعاليته في تعزيز التعاون وتحقيق النتائج المرجوة من المشروع وتعزيز أهدافه في التجمعات المستهجفة من خلالآليات المشاركة ، مثل ورش العمل والدورات التدريبية . وفي حين نجحت جهود تنمية القدرات عبشكل ملحوظ في تعزيز قدرات البلديات المستفيدة والشركاء على المستوى الوطني مع وجود حاجة لتقديم المزيد من التدريبات المتقدمة لتعزيز الخبرة الفنية للبلديات والشركاء.

أما من حيث معيار مراعاة المشروع الاحتياجات المختلفة لشرائح الاجتماعية المختلفة للمستفيدين، فقد تماشت انشطته مع أهداف التنمية المستدامة العالمية المتعلقة بالمساواة بين الجنسين وتسهيل مشاركة النساء والرجال من خلال التركيز على تعزيز الشراكات وبناءز= القدراتز وقد تبين من التقييم وجود العديد من الفوائد المباشرة للنساء والفتيات و الاشخاص ذوي الاعاقة من خلال تحسين وصول هذه الشرائح إلى خدمات الصرف الصحي المستدامة، وتحسين الظروف الصحية، وانخفاض الأمراض المنقولة بالمياه كما أن ورشات العمل التدريبية والتوعوية قد استهدفت السكان عموما والنساء بشكل خاص الامر الذي يساهم في تمكين النساء من خلال المعرفة والمشاركة الفعالة في إدارة المياه..

أما من حيث معيار **الكفاءة** في مختلف المجالات الحيوية للمشروع، فقد نجح فريق الإدارة في إشراك أصحاب المصلحة ببراعة من خلال قنوات اتصال جيدة التنظيم وعمليات صنع القرار الشاملة على الرغم من صغر حجم المشروع نسبيًا مقارنة بالموازنة، وقد تمكن المشروع من تعزيز الثقة والتعاون بين السكان والبلديات في التجمعات المستهدفة من خلال إدراج آليات للحصول على التغذية الراجعة من أصحاب المصلحة. من جانب أخر اتبع المشروع أليات اخرى لتعزيز الكفائة والفاعلية مثلل الإعتماد على المقاولين المحليين والاستفادة من الموارد المحلية المتوفرة والتقسيم الاستراتيجي لعمليات البناء بين الشركاء الامر الذي أدى إلى تحقيق نتائج ايجابية على صعيد تبسيط عملية التنفيذ المشروع وتنشيط الاقتصاد المحلي في المناطق المستهدفه وتحقيق الكفاءة المثلى وتخفيف الاثر البيئي للمشروع.إن أعطاء المشروع الأولوية لاستخدام الموارد المحلية،. من إشراك المقاولين المحليين واستخدام المواد المصنعة محليًا ساهم وبسكل كبير في تعزيز ارتباط المشروع بالمجتمع المحلي وغرس الشعور بالملكية لدى المواطنين. بالإضافة إلى ذلك، تمكن المشروع من إدارة التحديات المتوقعة وغير المتوقعة بشكل فعال من خلال دراسات الجدوى الدقيقة وإجراءات التوريد الشفافة والتكيف مع الظروف المتغيرة، مثل التعقيدات السياسية، من خلال إعادة تخصيص الميزانية وعمليات التخطيط الامر الذي ساهم في مرونة التنفيذ والإنجاز الناجح لمعظم الأنشطة المخطط لها في حدود الميزانية المخصصة.

وفيما يتعلق **بمعيار أثر المشروع**، فقد أظهر المشروع تقدما كبيرا في مواجهة التحديات البيئية وتعزيز التعاون الإقليمي من خلال تطوير البنية التحتية، وجهود التوعية، وبناء القدرات. وعند انتهاء التنفيذ بشكل كامل من المتوقع الانتهاء من بناء نظام جمع مياه الصرف الصحي الذي يبلغ طوله 25.6 كيلومترًا والذي يعود بالنفع المباشر على حوالي 10,000 مواطن، وهو ما يتجاوز الرقم المتوقع لعدد المستفيدين في خطة المشروع خاصة النساء اللاتي يقع على كاهلهن المهمة التقليدية لادارة موارد المياة ا المنزلية الامر الذي يدل على أن المشروع كان له أثار اجتماعية ايجابية على الفئات المهمشة من خلال توفير فرص العمل والمشاركة المجتمعية الشاملة. كذلك تعمل مبادرات بناء القدرات في المشروع على تمكين أصحاب المصلحة من تقديم الخدمات المستدامة في حين يضمن نظام التعرفة الجدوى المالية لهذه الخدمات.. وقد تبين أن للمشروع أثار ايجابية على إدارة مياه الصرف الصحي عبر الحدود الامر الذي يساهم من الناحية البيئية في مكافحة التلوث، وتحسين الصحة العامة، والقدرة على التكيف مع تغير المناخ، مما يضمن الاستدامة على المدى الطويل ووالاستخدام الامثل للموارد المالية المحدودة في هذه التجمعات. بشكل عام، يُظهر المشروع تأثيرات كبيرة عبر الأبعاد البيئية والاجتماعية والاقتصادية والمتعلقة بالحوكمة، مما يعزز رفاهية المجتمع ويعزز التعاون الإقليمي.

أما بالنسبة لممعيار **آفاق الاستدامة،** فقد تبين من التقييم تحقيق المشروع لتقدمً كبير في إنشاء أنظمة لجمع مياه الصرف الصحي تمتد لمسافة 25.6 كيلومترًا عبر بلدتي عتيل ودير الغصون، مما يعد بفوائد دائمة تتجاوز الجدول الزمني الأصلي لكن تتوقف إمكانية **استدامة** نتائج المشروع بعد الإطار الزمني المحدد له على عدة عوامل بالرغم من قدرة هذه الأنظمة على توفير مزايا بيئية واقتصادية واجتماعية كبيرة، ولا سيما تحسين رفاهية المجتمع وتعزيز الاستقرار على المدى الطويل. من جانب آخر هناط جهود حثيثة لمواجهة التحديات في تنفيذ أنظمة التعرفة الجديدة وتحسين عدادات التدفق، من خلال السعي المستمر لتأمين التمويل لدراسات الجدوى الحاسمة وتخطيط المشاريع، الامر الذي يعبر عن استخدام قابلاً للتكيف للتغلب على العقبات وتحقيق الأهداف المشتركة في إدارة مياه الصرف الصحي.

علاوة على ذلك، أدى استثمار المشروع في مبادرات التدريب ومساعدة الخبراء إلى **تعزيز القدرات المؤسسية داخل البلديات وسلطة المياه الفلسطينية،** الأمر الذي يعزيز آفاق الإدارة المستدامة لأنظمة مياه الصرف الصحي بعد المدة المحددة للمشروع خاصة من حيث تكامل هذه القدرات مع نهج المشروع في مجال التركيز على الاستفادة من المواهب والموارد المحلية ودعم الاقتصاد المحلي وغرس الشعور بالملكية داخل المجتمع. ومع ذلك، لا تزال هناك العديد من العقبات الفنية وعيرها والتي تعوق الاستفادة بشكل فعال من بيانات عدادات التدفق (لعدة أسباب ذكرتها سلطة المياه الفلسطينية، بما في ذلك انقطاع الاتصال بالعداد في أحد المواقع بسبب قطع الكابلات من قبل الطرف الإسرائيلي أثناء التنفيذ) بالإضافة إلى تأثر هذه البيانات بالبيئة المحيطة للعدادت (مثلا نتيجة لتراكم الأوساخ والحجارة وغيرها من المواد على شاشة مقياس التدفق) و عدم توفر التمويل لتنفيذ مراحل جديدة المشروع في ظل عدم الاستقرار السياسي . ومع ذلك، يبدو الاهتمام بالتواصل مع الجهات المانحة بشكل مستمر لغرض تشجيع المانحين على إعادة التقييم الاستراتيجي لنطاقات المشروع، بهدف مواءمة التدخلات المستقبلية مع الأولويات المتطورة لأصحاب المصلحة والمشهد الديناميكي في أعقاب الأحداث الأخيرة.

ويمكن تسليط الضوء على العديد من الدروس المستفادة من التقييم، بما في ذلك:

- الاستثمار في رأس المال البشري ودعم الخبراء لتعزيز أنظمة الصرف الصحي البلدية والوطنية لتحقيق الاستدامة على المدى الطويل.
- يعد الحفاظ على القدرة على التكيف والخبرات المكتسبة أمراً بالغ الأهمية في البيئات السياسية غير المستقرة. كما أنتطوير المهارات في إدارة مياه الصرف الصحي واستخدام التقنيات المتقدمة يعتبر أمرًا مهمًا لعمليات التشغيل والصيانة الفعالة بالاضافة إلى أنإنشاء مرافق المياه أو مجالس الخدمات المشتركة من شأنه تحسين القدرات الإدارية وتعزيز استدامة الخدمات.
- يعالج النهج المتبع من قبل برنامج الأمم المتحدة الإنمائي في تخطيط وتنفيذ المشروع عدة مسائل منها ، والاستدامة البيئية، والقدرة على التكيف مع تغير المناخ من خلال إدارة مياه الصرف الصحي العابرة للحدود بما له من أثار ايجابية على تقليل التلوث البيئي والخفاظعلى موارد المياه بما يتماشى مع أهداف التنمية المستدامة. كذلك يركز المشروع بشكل خاص على المساواة بين الجنسين، وتعزيز إدارة المياه التي تراعي الفوارق بين الجنسين وتلبية احتياجات النساء والفتيات والاسخاص ذوي الاعاقة.
- أكد المشروع على تعزيز الشمولية وأهمية تعميم مراعاة منظور النوع الاجتماعي/الجندر في التنمية من خلال إشراك المنظمات النسائية، واستخدام أدوات تراعي الفوارق بين الجنسين والاعتبارات الثقافية في المناطق المستهدفة ،. وشددت أيضًا على الحاجة إلى تعزيز الحصول على بيانات النوع الاجتماعي لتقييم آثار التدخل ومعالجة الاحتياجات المجتمعية المحددة ضمن اطار المشروع.
- يعد إشراك موظفين البلديات والمستفيدين والشركاء أمرًا بالغ الأهمية حيث أنالتواصل الفعال وصنع القرار التشاركي يبني الثقة والتعاون الحلول الفعالة والدائمة للمشكلات.

- الالتزام والتعاون على المستوى المحلي يضمنان توفير خدمات مستدامة لمياه الصرف الصحي من خلال التمويل وإنفاذ التعرفة الجديدة من قبل البلديات.
- تعتبر مشاركة المجتمع والوعي العام أمرين حاسمين لاستدامة المشروع والتغيير.

يقدم **التقرير توصيات تشغيلية فورية** مستمدة من التحليل والدروس المستفادة والأفكار المكتسبة خلال التقييم منها:

بالنسبة لبرنامج الأمم المتحدة الإنمائي:

1. مساعدة بلديات محددة في تطوير برامج تدريب مفصلة للموظفيها المسؤولين عن تشغيل وصيانة المشروع خلال مرحلته الأولية بما يشمله ذلك من تنظيم زيارات تيسرها سلطة المياه الفلسطينية وسيركز على تعزيز الخبرة الفنية وتعزيز ممارسات الإدارة الفعالة لأنظمة الصرف الصحي.
2. مساعدة البلديتين في التواصل مع وزارة الحكم المحلي لتنفيذ تعبيد الطرق الرابطة بين القريتين المستفيدتين من المشروع والمرتبطتين بأنابيب التوصيل التي تم تركيبها حديثًا ضمن المشروع وهذه خطوة حاسمة نحو تسهيل أنشطة الصيانة والإصلاح المستقبلية، مما يضمن طول عمر البنية التحتية.
3. تعزيز جوانب تعميم مراعاة منظور النوع الاجتماعي في تقارير التنفيذ والانجاز من خلال توفير بيانات مفصلة تبين كيفية تأثير المشروع على مختلف فئات المجتمع خاصة النساء، من خلال القيام بالتقييم الشامل لمشاركة النساء وتحديد إحتياجات هذ الفئةودمج تحليل النوع الاجتماعي في مرحلة تخطيط وتصميم للمشروع بما ييضمنلتلبية احتياجات كافة الفئات المجتمعية.

بالنسبة لسلطة المياه الفلسطينية:

1. مراقبة عدادات التدفق بشكل فعال،حيث يمكن لسلطة المياه الفلسطينية تنفيذ برنامج لبناء قدرات موظفيها يشمل تدريب الموظفين على جمع البيانات وتحليلها وتفسيرها لضمان مراقبة دقيقة لتدفق مياه الصرف الصحي وجودتها.
2. إجراء تقييم شامل للبنية التحتية بعد فصل الشتاء 2024/2023 لتحديد أضرار طرأت على النظام، وخاصة التركيز على غرف التفتيش التي قد تكون تأثرت بموسم الامطار لأن معالجة هذه المشكلات على الفور يضمن استمرارية تشغيل شبكة الصرف الصحي.
3. تحتاج سلطة المياه الفلسطينية إلى التركيز باستمرار على إصلاح عدادات التدفق المتوقفة او التي تحتاج الى صيانة لتحقيق أهداف المشروع وضمان جمع بيانات دقيقة لإدارة مياه الصرف الصحي بكفاءة. ومن المهم إدراج الصيانة الدورية واستكشاف الأخطاء وإصلاحها في الأنشطة المستمرة للمشروع، بالإضافة إلى ضمان الاستدامة التشغيلية لأجهزة قياس التدفق من خلال الصيانة والمراقبة واستخدام البيانات للتحقق من الفواتير وتحسين الدقة المالية والمساءلة.
4. تحتاج سلطة المياه الفلسطينية إلى إنشاء ومتابعة اتفاقيات رسمية قصيرة وطويلة الأجل مع سلطة المياه الإسرائيلية للاستفادة من معرفتها ومواردها في ممارسات الإدارة المستدامة للمياه عندما يسمح الوضع بذلك.
5. يمثل التحول نحو نهج مستجمعات المياه في التدخلات المستقبلية خطوة محورية في النهوض بإدارة موارد المياه. إن اعتماد استراتيجيات متكاملة أمر بالغ الأهمية لضمان استدامة مصادر المياه، وتحسين الكفاءة، والحفاظ على النظم البيئية. ولا يعود هذا النهج الشامل على الخدمات البلدية فحسب، بل يعزز أيضًا التنمية المستدامة والقدرة على الصمود كما أن المضي قدماً بإطار شامل سيقود إلى التغيير الإيجابي للأجيال الحالية والمستقبلية.
6. يجب أن تراعي حملات التوعية احتياجات الأشخاص ذوي الإعاقة واستخدام الأدوات المناسبة للوصول إليهم.

قي الختام، يشير تقييم مشروع إدارة مياه الصرف الصحي العابرة للحدود إلى تقدم كبير في تحقيق أهدافه، وتحسين الوصول إلى خدمات الصرف الصحي البلدية المستدامة بيئيًا فيبلدتي عتيل ودير الغصون. وعلى الرغم من مواجهة المشروع لبعض التحديات

مثل التأخير في تشغيل الشبكة في انتظار موافقة إسرائيل على نقاط الربط وتركيب عدادات التدفق للصرف العابر للحدود، فقد نجح المشروع في إنجازمهام البنية التحتية الأساسية، متجاوزًا أهداف المستفيدين الأولية من خلالإضافة معابر الطرق الى المشروع وإعداد الشبكة للتوصيلات المنزلية. وقد أثبت المشروع مستويات عالية من التوافق مع السياسات الوطنية، والجدوى المالية، وإشراك أصحاب المصلحة، والتنفيذ الفعال للنواتج، مع تسليط الضوء على تماسكه وتأثيره واستدامته المحتملة. ويؤكد الالتزام بتعميم مراعاة منظور النوع الاجتماعي والإنجازات الشاملة للمشروع على دوره المحوري في معالجة قضايا إدارة مياه الصرف الصحي. وقد تم تقديم توصيات تشغيلية فورية، مع التركيز على الحاجة إلى الدعم والتعاون المستمرين لضمان التأثير الدائم للمشروع. ومن الضروري في المراحل المستقبلية إعطاء الأولوية للتقييمات المراعية للنوع الاجتماعي، وتعزيز تمثيل أصحاب المصلحة، وتعزيز التعاون لدفع التغيير الإيجابي المستدام في قطاع المياه والصرف الصحي. ومن خلال الاستفادة من الأفكار المستفادة من هذا التقييم، يمكن للأطراف المشاركة في المشروع تحسين نهج العمل لديها ومواصلة السعي لتحقيق التميز في مبادراتها، والمساهمة في نهاية المطاف في تحقيق أهداف التنمية الوطنية والدولية الأوسع.

2. DESCRIPTION OF THE INTERVENTION

3.1 Introduction

This report presents the results of the final evaluation of the project "Transboundary Wastewater Management in Attil/Tulkarem Governorate" implemented by the UNDP between September 2020 and March 2024. The evaluation was carried out between Nov 2023 to January 2024 a few months before the actual end of the project implementation period in order to assess the project's performance and determine whether it has achieved the planned goals and deliverables in relation to the results and resources framework and identify the factors that affected its overall success in terms of relevance, coherence, effectiveness, efficiency, sustainability, and impact, including its contributions to transboundary wastewater management and environmental and public health protection. The evaluation also assessed the project's contributions to a rights-based approach, gender equality, women's rights, and disability inclusion in the wastewater sector. The report describes how gender equality, vulnerability, and social inclusion were addressed in the approach, including the integration of gender considerations into data collection and analysis, the use of disaggregated data, and outreach to various stakeholder groups. These explanations will help evaluate the usefulness and reliability of the evaluation and its findings

After a brief description of scope, main goals, and questions of this evaluation, this report explains the methodological approaches, methods, and analysis and the reasoning behind their selection taking inti consideration the evaluation's time and financial constraints. It describes the various phases and procedures of the analysis, including verification of data's accuracy and examining the outcomes for different stakeholder groups in addition to discussing the suitability of the analysis for the evaluation questions and the potential limitations in the data collection and analysis that could have impacted how the findings and conclusions are reached and interpreted. The findings are presented in term of the evaluation questions to facilitate reference with explanations of the factors influencing the intended results or whether a variation is noted between the planned and actual results, including how the project assumptions and design affected implementation.

The lessons learned section covers new information gleaned from the specific situation, such as the intervention, context outcomes, and evaluation techniques that can be applied to a comparable context. The section provides insights on which interventions worked and which did not work, how the contextual changes influenced the intervention, and what measure can be undertaken to improve the intervention's outcomes and effectiveness. Overall, the section provides actionable insights that can be applied to similar situations to enhance success and increase effectiveness.

Major evidence-based conclusions and recommendations are proposed to help inform the design and implementation of future phases of the project and similar interventions. These recommendations are addressed to UNDP, the donor, national stakeholders, the PWA, and targeted municipalities to inform future transboundary water and wastewater management initiatives. The evaluation report provides impartial and comprehensive conclusions that emphasize the intervention's advantages, disadvantages, and results alongside practical and realistic recommendations for intended users. Overall, the report presents a clear and actionable plan based on its conclusions to help improve the intervention and maximize its effectiveness.

3.2 Project Background

The project under evaluation was designed and executed in partnership with the Palestinian Water Authority (PWA) based on previous cooperation efforts between the UNDP and PWA to improve transboundary water management between the Palestinian Authority and Israel. The PWA and the Israeli Water Authority (IWA) do not currently have enough guidance in their regulatory framework regarding transboundary wastewater management to reach a mutual agreement when it comes to managing transboundary wastewater that crosses the green line. A framework protocol on transboundary wastewater was attempted to be created by UNDP in 2012; however, in 2013, the effort was abandoned due to disagreements about the framework protocol's specifics. Thus, in lieu of a comprehensive framework agreement, a site-specific agreement has been created in which both parties have agreed to accept the suggested site-specific solution in principle for the interim period. UNDP and IHE prepared a position paper on transboundary wastewater management, and a baseline data set was created in May 2020 to aid PWA and IWA in negotiations. The paper also suggested cooperative ways to improve transboundary wastewater in severely affected areas. The focus is on PWA's actions to minimize financial burden and improve access to data and information, facilitating the development of a widely accepted mechanism for enhancing transboundary wastewater management.

According to the Project Document, the International Water Agency (IWA) disclosed in September 2019, that 10 wastewater treatment facilities in Israel are presently managing 22 MCM of wastewater originating from 21 Palestinian communities in the West Bank. The estimated expenditure for the entirety of 2019 was approximately US$ 28 million[2]. Israel directly deducts the cost of treatment from the Palestinian Authority's tax revenue stream. As per the provided data, treatment costs fluctuate depending on the region, ranging from US$ 0.4/m3 to US$ 1.94/m3. This cost encompasses overheads, varying between 5 to 15 percent of the total cost, and the utilization of treated wastewater. In cases where a precise measurement method is lacking, quantities have been approximated using data on the water consumption of each locality. While the exchange of comprehensive data is generally beneficial, it also highlights disparities in the calculation of quantities, treatment expenses, and wastewater usage between the two parties[3].

In this context, a position paper on transboundary wastewater management was prepared by UNDP and the IHE. In May 2020, a baseline dataset detailing transboundary wastewater movement across the Green Line was established to aid the PWA and the IWA in their negotiations. Additionally, recommendations were provided to explore collaborative approaches for enhancing transboundary wastewater management in heavily impacted areas. The primary focus will be on actions undertaken by the PWA to mitigate financial burdens in the immediate future and to enhance access to pertinent data and information, thereby facilitating the development of a widely accepted mechanism for improving transboundary wastewater management.

[2] Project Document, page 3

[3] Ref. UNDP-PAL-00130 – Lot 1- ToR-Final Evaluation of the “Transboundary Wastewater Management in Attil/Tulkarem Governorate” Project

3.3 The Project

Based on the previous background, the UNDP has assisted the PWA in enhancing transboundary wastewater management in the North West Bank since 2009 starting with eight communities spanning the governorates of Jenin, Qalqilia, and Tulkarem, with donations from the Netherlands and Japan. These villages include An-Nazla Al-Sharqia, An-Nazla Al-Westah, An-Nazala Al-Gharbyah, Zeita, Habla, Baqa Al-Sharqia, and Nazlat Issa. Furthermore, to enhance data collection efforts, six wastewater flow measurement devices have been installed along the primary trunk lines responsible for transporting wastewater to treatment facilities in Israel.

Continuing these efforts, the PWA identified the community of Attil in Tulkarem Governorate as one of its priority areas for 2020-2024 support. This community was selected as one of the primary priorities for the installation of a sound wastewater collection system and a wastewater flow measurement system, (the latter of which will also be implemented in Hebron and Beit Jala, both of which are not included in the project under evaluation).At the request of the PWA, a segment of Deir Al-Ghosoun has been incorporated into the project, where it will benefit from installing a portion of the wastewater collection system.

Aligned with the PWA's strategic goals for 2032 and its Water and Sewerage Master Plan for the northern and north-western West Bank, the UNDP project seeks to improve transboundary wastewater management and pollution control in these communities by delivering the following outputs:

1. By 2022, around 8,200 persons (women, men, girls, and boys) living in Attil, and part of Deir Al-Ghosoun have increased access to environmentally sound municipal wastewater services
4. Improved cross border wastewater flow measurements and management mechanism in Attil, Hebron, and Beit Jala
2. A revised water tariff in Attil is applied to ensure sustainable wastewater service.

A review of project progress showed that:

- The construction of a collecting system in Attil and portion of Deir Al-Ghosoun commenced on July 2, 2021, with the major completion of the collection system achieved by August 31, 2023. The overall length of the collection system is 25.6 km, slightly shorter than the initial projection of 28 km, with segments spanning 4.5 km in Deir Al-Ghosoun and 21.05 km in Attil. This infrastructure expansion enables connection for approximately 10,000 individuals, encompassing 7,800 residents of Attil (65% of the population) and 2,200 individuals from Deir Al-Ghosoun (20% of the current population).

- During the data collection phase of this evaluation, two flowmeters were being implemented in Attil and Deir Al-Ghosoun, as per an agreement with PWA. Civil work was completed by June 2023, and installation is scheduled for completion in February 2024. The PWA and the relevant municipalities have signed agreements to monitor, operate, and maintain the flowmeters, with UNDP providing assistance in

creating standard operating procedures. The PWA executed written agreements with relevant municipalities (Attil, Deir Al-Ghosoun, Baqa, Qalqilia, Jenin, and Bir Nabala) for monitoring, operating, and maintaining the flowmeters. UNDP supported PWA and the municipalities in developing standard operating procedures (SOPs) for the use and maintenance of the flowmeters. Per the agreement with the PWA, the civil works for the measurement points (flowmeters) for Attil and Wadi Al moqatt'a-Jinen was completed. Civil work was completed by the end of June 2023, with installation scheduled for completion by February 2024

- In December 2021, the Water Sector Regulatory Council (WSRC) cleared the proposed new tariff proposal for water and wastewater in Attil and Deir Al-Ghosoun and subsequently submitted to for Cabinet approval. On August 7, 2023, and after two revisions, the proposed new tariff was authorized and notified to PWA, WSRC, and the municipalities, following two revisions. The municipalities have prepared a strategy to implement the new tariff in 2024.

- A draft legal framework based on the previously prepared Site-Specific Contracts (SSC) for transboundary wastewater treatment in Israel was created, prepared by PWA and IWA, along with terms of reference for constructing wastewater treatment plantsin Israel[4]. Terms of reference (ToR) for the construction of wastewater treatment plants were also prepared.

2.1. Theory of Change

Reconstructing the project's Theory of Change (ToC), which outlines the logical flow from activities to results and long-term goals, was one of the evaluation team's efforts. In order to achieve the intended project goals, the ToC explicitly illustrates how various project components interact with one another. The evaluation questions that the assignment's ToRs first suggested were checked against this draft ToC and updated as necessary. The ToC responds to stakeholders' priorities and interests for the project. The evaluation team gathered these priorities and interests through documentation analysis, interviews, focus groups, and site visits. The documents reviewed, the interviews held, Site Visits, the focus groups held, and the suggested questions for KIIs and Focus groups, can be found in Annex 4, Annex 5, Annex 6, Annex 7, and Annex 8 respectively.

The interviews indicated two broad, long-term objectives for the Project, as presented in Figure 1 below:

5. Objective 1: which aims to enhance pollution control, environmental protection, and

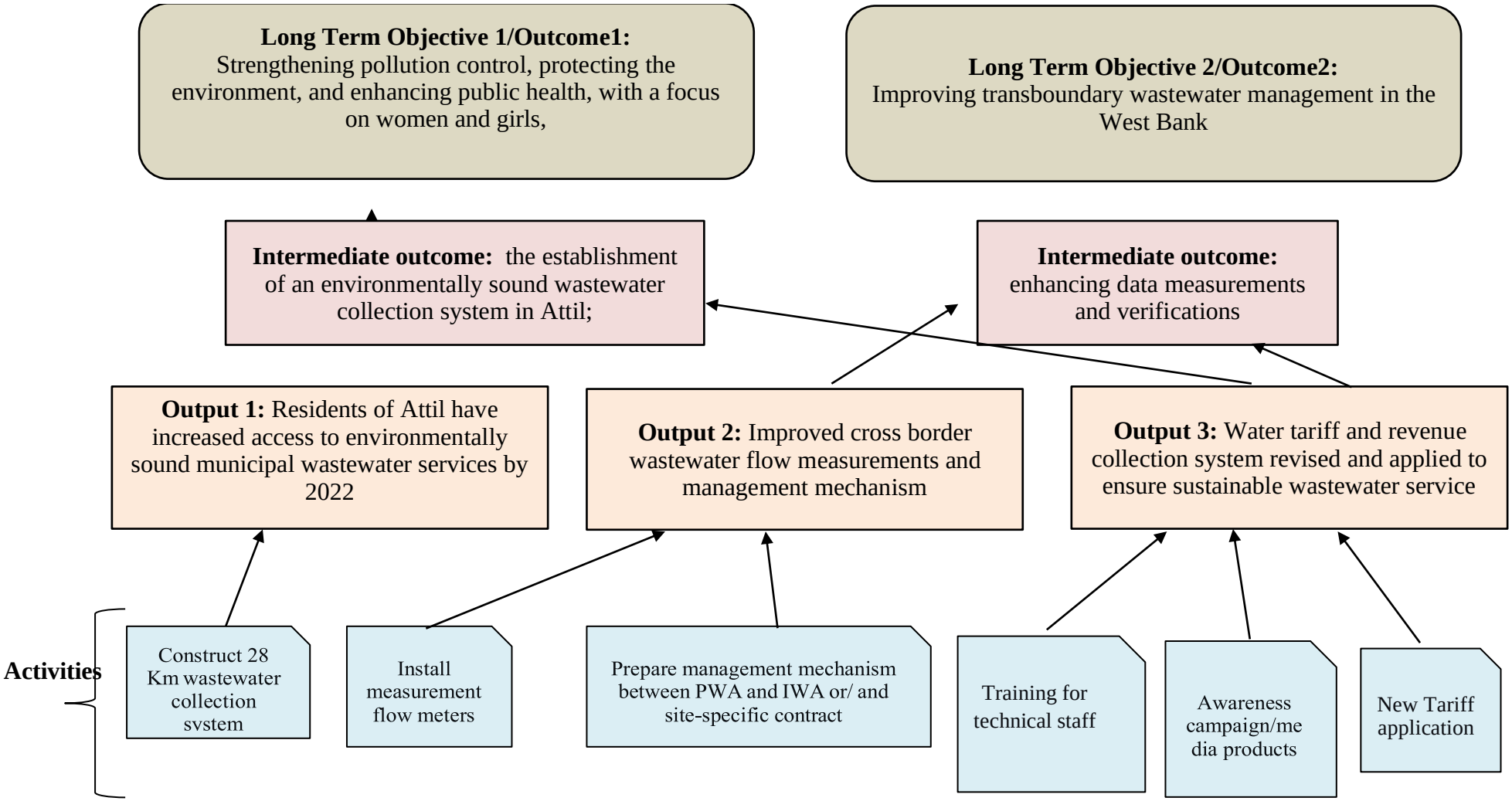
[4] Based on interviews with representative of several stakeholders, particularly the PWA, the Ara Valley Union – which is the body responsible for operating WWTPs on adjacent communities in the Israeli side-and the UNDP, it appeared that the agreement was on the verge of being signed. However, information gathered from PWA, and UNDP reports suggests that the delay may be attributed to disagreements between the parties on certain agreement details, rather than solely due to the current political situation and the conflict in Gaza. Most stakeholders were optimistic that the agreement would be signed, even if this caused a delay in the project timeline, given the mutual interest between the parties in service provision and pollution mitigation.

public health in the targeted areas, with a specific focus on women and girls, by establishing an environmentally friendly wastewater collection system.

- Objective 2: which aims to improve transboundary wastewater management in the West Bank through enhanced data measurements and verifications.

To accomplish these goals, the project needs to implement various outputs and activities, including increasing access to environmentally sound municipal wastewater services for residents of the targeted areas, improving cross-border wastewater flow measurements and management mechanisms, and revising the water tariff and revenue collection system to ensure sustainable wastewater services.

Figure 1: Project Theory of Change



3. Evaluation Scope and Objectives

3.1. Evaluation Scope

The Transboundary Wastewater Management project was initiated in the Attil and Deir Al-Ghosoun/Tulkarem Governorate on September 4, 2020, and was expected to be completed by March 2024, underwent a final evaluation. According to the Terms of Reference, the final evaluation encompasses the following aspects:

1. **Technical Assessment:** This entails examining functionality, design, technical specifications, and operational requirements of the infrastructure and equipment provided, such as wastewater collection systems and a wastewater flow measurement station, both of which were covered by this evaluated.

2. **Effectiveness and Implementation Assessment**: covering the awareness and training initiatives in Attil and Deir Al-Ghosoun within the Tulkarem area.

3. **Contribution to National Policies and Strategies** concerning transboundary wastewater management was evaluated. This entailed a comprehensive examination of the impact at the national level.

4. **Transboundary governance:** Special attention was paid to strategic political aspects, sustainability of achieved outcomes, and future commitments in transboundary wastewater management, relevant to the national component of the project.

5. **Financial implications:** mainly the financial considerations, specifically Israel's deductions from Palestinian tax transfers to coverwastewatertreatment costs.

After a review of the project documentation and discussion of each of the project's three outputs, an assessment matrix was devised of evaluation questions and instruments created especially for examining each output:

Output 1: greater access to ecologically friendly municipal wastewater services for Attil residents— including men, women, girls, and boys.

Output 2. Better methods for managing and measuring the flow of wastewater across borders.

Output 3: A re-designed and implemented water tariff and revenue collection mechanism to provide a sustainable wastewater service.

To effectively engage key stakeholders, the evaluation's geographic scope encompassed the pertinent project intervention sites in Attil, Deir Al-Ghosoun in Tulkarem Governorate, and various other localities across the West Bank.

3.2. Rationale and Objectives of the Evaluation

According to the ToRs[5], the objective of the evaluation was to assess the project's performance and ascertain the extent to which it had achieved its goals and deliverables within the results and resources framework. Additionally, it aimed to identify factors that had either impeded or facilitated the project's success. Specifically, the final evaluation examined the following aspects:

- Assess the *relevance, coherence, effectiveness, efficiency, sustainability, and likely impact of the project results*. This included assessing the project's contribution to strengthening transboundary wastewater management and strengthening control and protection of environment and public health in the region.
- *Identify evidence-based conclusions and* recommendations to inform the design and implementation of future project phases and similar interventions.
- Focus on the project's *strategic political aspects* and analyze the results' *sustainability*.
- Furthermore, the evaluation provided insights on *how improved wastewater control and management systems contribute to gender equality and women's rights* in the communities where they were implemented.
- Explore *macro-level policy-related issues and recommendations to support the PWA and other national stakeholders* in formulating and adapting national policies and measures to enhance transboundary wastewater management.
- Outline *lessons learned, best practices*, and *difficulties* encountered, and suggest *actionable recommendations for future interventions.*

3.3. Evaluation Criteria

The assessment was conducted per the globally accepted OECD/DAC norms, standards, and ethical principles for reviews and evaluations which guided the analyses of collected data.

- **Relevance:** The degree to which the project's goals align with the interests and needs of the following stakeholders: targeted communities, national requirements, UNDP-related policies, and donor priorities.
- **Coherence:** The extent to which various project elements fit together logically and effectively.
- **Efficiency:** The degree to which the project resources or inputs—cash, labor, human capital, etc.—have been converted into outputs.
- **Effectiveness:** The degree to which the development intervention's goals have been met.
- **Sustainability:** The likelihood that an intervention will continue to have positive effects over time.
- **Cross-cutting issues** include gender equality and human rights.

3.4. Evaluation Questions

[5] Annex 1 contains the assignment's Terms of Reference

The ToR provided a set of indicative evaluation questions to guide the evaluation of the Project. These questions proved relevant and insightful in establishing connections between the project's rationale and its context. Additionally, the evaluation team developed and utilized an Evaluation Matrix[6] , comprised of suggested questions, indicators, and data sources to steer the data collection and analysis process, thereby enhancing the utility of these questions.

[6] Annex 2 contains the Evaluation Matrix

4. EVALUATION METHODOLOGY

4.1 Methodological Approach

As was detailed in our technical proposal, and the endorsed Inception report, the evaluation team has employed Participatory Mixed Approach that benefited from the framework of the Logical Framework Approach (LFA) and facilitated the identification of key intervention elements through a logical framework matrix, which delineated the project's goals, objectives, activities, inputs, outputs, and indicators to evaluate its coherence, logic, and achievement of objectives On this basis, the overall methodological approach of this evaluation relied on various methods including:

1. **Contribution Analysis** (CA) that examines and tests the theory of change against logic, observed results, the various assumptions behind the theory of change, and other influencing factors. The ET has reviewed the project's existing Theory of Change (TOC), which illustrates the causal pathway linking activities, outputs, outcomes, and impact. This review aimed to grasp the underlying assumptions of the intervention, intended outcomes, and to design an evaluation criteria-based matrix depicting indicators and the achievement of outcomes, outputs, and processes. The theory of change is represented in section 2.2 as a series of intermediate outcomes, linked by assumptions that need to hold and risks that need to be avoided based on the available data, specially; the progress reports project document and.

2. **Evaluation Parameters** (Criteria) and Questions that address the standard OECD-DAC evaluation criteria: effectiveness, efficiency, sustainability, impact, relevance and coherence. Simultaneously, The ET also gathered evidence from both primary and secondary data sources on the implementation of the intervention g to facilitate building the argument for whether or not the intervention made a contribution.

4.2 Data Collection Methods

A Participatory Mixed Approach was applied to ensure a democratized evaluation process by incorporating tools and techniques that amplified the voices of stakeholders involved in the project, whether they are primary or secondary stakeholders. The following summarizes the data collection methods utilized for this evaluation:

- **Desk review:** entailing review and analysis of relevant documents such as the project document, progress reports, and other official reports issued by the stakeholders, as listed in Annex No. 3.

- **Structured Interviews:** Eight key informant interviews (KIIs) were held with representatives of primary and secondary stakeholders, as detailed in Annex No.4.

- **Focus groups Discussions** (FGDs): Two FGDs were held for participants from different community categories from both communities (Attil and Deir Al-Ghosoun).

- **Field Visits**: Three field visits were conducted by evaluation team for first-hand

observations of the constructed wastewater physical components and direct interaction with beneficiaries.to verify information and provide insights into the actual implementation of the intervention.

4.3 Data Analysis

After completing the data collection phase, the ET commenced the analysis and consolidation of data to derive findings for this evaluation report. This process involved integrating quantitative and qualitative data to achieve a comprehensive understanding and enable triangulation, utilizing various methods and sources to enhance the reliability and validity of findings through cross-verification, leading to more robust conclusions. The evaluation questions outlined in the evaluation matrix guided the analysis, structured according to the OECD/DAC criteria.

The evaluation matrix, outlined in Annex 2, meticulously lays out the primary criteria and associated questions. It incorporates themes, or indicators, related to these criteria and suggests a variety of mixed methods tools. Where possible, analysis used secondary quantitative data, including metrics like the percentage of beneficiaries and coverage, along with links to qualitative aspects. These qualitative aspects encompass "themes and indicators" derived from questions related to criteria, supported by quotes and excerpts from various tools such as desk reviews, interviews, and focus groups. To validate the credibility of the initial evaluation findings and observations, consultations were also conducted with stakeholders such as UNDP, PWA, WSRC, and Deir Al-Ghosoun and Attil municipalities.

Cross cutting issues such as gender, environmental impact, human rights were considered in the evaluation (sub) questions across the project's three components. The analysis of cross-cutting issues, disseminated into the respective evaluation criteria, relied on the Gender Results Effectiveness Scale (GRES) to identify the type and level of gender results that the project has achieved or will likely to achieve.

4.4 Limitation and Mitigation

6. The ET reached out to the two beneficiary municipalities to arrange the necessary focus groups. A consensus was achieved regarding the composition of these groups to ensure adequate representation of various community segments. However, only 5 women participated in Attil focus group alongside men. Regrettably, the composition of the Deir Al-Ghosoun focus group did not align with the agreement made with the municipality, as only one female councilor attended. This discrepancy prompted the team to request planning for another focus group to ensure better representation of women in the community. Unfortunately, due to the prevailing security situation at the time, it was not possible to hold this additional FG, and there was a need to adhere to the report submission deadline. Consequently, the team resorted to alternative methods, such as conducting a follow-up interview with the female councilor and informal discussions with women who were present during site visits.

7. Despite the lack of adequate field data, resulting from insufficient participation of women and persons with disabilities, needed for the proper application of the Gender-Responsive Evaluation Scale, the team successfully gathered information from

various alternative sources such as holding interviews with a female councilor from Deir Al-Ghosoun municipal council, as well as interviews with PWA and WSRC. Additionally, the desk review project document annual progress reports provided a general understanding of the project's gender responsiveness based on the GRES scale.

4.5 The Ethical Considerations

The ET adhered to ethical considerations aligned with the Ethical Guidelines for Evaluation-Pledge of the UNDP throughout all activities related to this assignment. These ethical considerations ensured ethical data collection, protected the rights and well-being of participants, and contributed to the credibility of the evaluation.

5. FINDINGS

Based on comprehensive analysis and analytical insights drawn from collected data collected, this chapter is structured according to the OECD/DAC standards for examination of the key evaluation criteria of relevance, effectiveness, efficiency, coherence, and sustainability. Additionally, it incorporates cross-cutting dimensions such as human rights and gender equality and an assessment of the project Results Framework, as outlined in Annex 2. The following sections provide a detailed analysis breakdown within each of these criteria.

5.1. Relevance

Under this criterion, several questions and issues were examined in relation to the relevance of project interventions to the needs and priorities of several stakeholders at the national, local and international levels.

5.1.1 Alignment with Sustainable Development Goals and Donor Priorities

This evaluation concludes that throughout the project lifecycle, from planning to implementation, the project was clearly aligned with the Development and strategic frameworks of the United Nations Development Programme (UNDP) for the Palestinian People. Discussions with UNDP staff confirmed the project's relevance to UNDP's strategies and plans, incorporating lessons learned from previous experiences in similar Palestinian contexts into this project and future interventions

The project is also aligned with the United Nations Development Assistance Framework (UNDAF) for the state of Palestine, which outlines the cooperation framework between the UN and the Government of Palestine for 2018-2022. Specifically, it supports the idea that ***Palestine's infrastructure and natural and cultural resources are more sustainably used and managed.*** In the meantime, the project aligns with development objectives of Palestine and the UN Sustainable Development Cooperation Framework (UNSDCF) 2023-2025, the UNDP/PAPP Palestinian Programmatic Framework (PPF) 2023-2025 specifically; in Enhancing democratic governance and improving the quality of services, and promoting sustainable management of natural resources. The project therefore contributes to several UN Sustainable Development Goals as stated in the UNSDCF such as SDG 1 (No Poverty), SDG

3 (Good Health and Well-Being), SDG 5 (Gender Equality), SDG 6 (Clean Water and Sanitation), SDG 11 (Sustainable Cities and Communities) and SDG 13 (Climate Action)

In terms of donor priorities, particularly in the water sector, focusing on service delivery to marginalized communities, the project is aligned with the priorities of the Government of the Netherlands, the project donor, as part of its development cooperation portfolio in Palestine, aiming to create a conducive environment for conflict resolution and achieve a two-state solution. Moreover, the project corresponds to the priorities and recommendations of major other donors. According to the World Bank report regional collaboration, particularly with Israel, is significant in achieving water security in the Palestinian Territories through enhancing access to adequate water supply and laying the groundwork for future water resource availability and risk management. The World Bank suggests the creation of a platform by donor communities to moderate dialogue and cooperation between Palestinians and Israelis, the activation of the Joint Water Committee to devise reasonable solutions for increasing water supply and improving wastewater and reuse services for Palestinians. The World Bank also sets the framework for transboundary water and wastewater negotiations[7].

5.1.2 Alignment with Palestinian Context, National Laws and Policies

In order to examine the degree of alignment with the national Palestinian context, the analysis focused on the pertinent key strategies and policies delineating the Palestinian strategic development framework for the water and sanitation sector. This analysis was informed by the relevant project documents and consultations with and feedback from key stakeholders against the following strategies, policies, laws, and by-laws that were included in the analysis:

- PWA's Sector Strategy
- PWA's Short-Term Strategy
- UNDAF 2-18-2022 for the State of Palestine
- UNDP/PAPP's Palestine Programme Framework (PPF 2023-2025)
- United Nations Sustainable Development Cooperation Framework (UNSDCF 2023-2025)
- Netherlands Development Co-Operation Strategy in Palestine regarding Water and Wastewater

Additionally, the ET considered relevant laws and regulations, including:

- Law No. 18 of 2019 amending Law No. 14 of 2014 regarding water
- The Amended Basic Law of 2003
- Law No. 14 of 2014 regarding water
- Law No. 1 of 1997 Regarding Local Authorities and Its Amendments
- The Unified Water and Sewage Tariff System Law No. 4 of 2021 and its regulations.

[7] World Bank. 2018. "Securing Water for Development in West Bank and Gaza." World Bank, Washington, DC.

It appears to the evaluation team that the project has rom inception been well aligns with national policies and laws, particularly in the (waste)water and environment sectors, and the PA reform efforts since 2009 for the improvement of water governance, water management , and wastewater management to protect natural water resources from pollution. The project design is clearly guided by the Water Sector Strategic Plan and Action Plan (2017-2022) which emphasizes improving (waste)water services and structures, addressing transboundary issues, and adhering to the Palestinian vision concerning transboundary water management. Although it has yet to establish a singular entity for managing wastewater services, the PA plays a significant role in capacity development and enhancing wastewater infrastructure in local governments; a foundational step toward sector reform and the regional utility bodies as stressed by the National Strategy. Moreover, it is worth noting that the stakeholder participation plan and their designated roles, as specified in the project core document and implemented during its execution, align with the law's specific provisions delineating the responsibilities of each entity. This pertains to the roles of the PWA, WSRC, Ministries of Local Government and Finance, as well as the targeted municipalities and joint councils.

The project is found to have contributed strongly to enhancing wastewater services at the local level by supporting infrastructure based on the needs of the targeted communities, through building wastewater networks, installing flow meters, community awareness raising, and capacity building for the stakeholders for better wastewater management and financing, in addition to setting a site-specific agreement that regulates transboundary wastewater between the Palestinian and the Israeli sides.

Alignment with Environmental Stipulations of Pertinent Laws[8]

The project has significantly addressed environmental factors alongside wastewater issues, and tariff considerations per a broad spectrum of ratified Palestinian laws and by-laws. The project design and implementation incorporated several measures aimed at reducing adverse environmental impacts, including pollution prevention and habitat protection. The design and implementation of the wastewater collection interventions took into account several measures to, ensure compliance with relevant laws and minimize negative environmental impacts through the adoption of sustainable practices since reducing projects' negative impacts on the environment is a critical concern for the UNDP.

One of the primary ways the project aimed to minimize negative environmental impacts is by preventing pollution, through specific measures to prevent the release of untreated wastewater into watercourses, which could cause water pollution and affect the aquatic ecosystem adopted in tandem with other measures to safeguard public health and safety. Prior to the project, the targeted communities primarily relied on cesspits for sewage management which lead to contamination of existing water wells in the project area. The project also focused on promoting best practices in (waste)water management such as water conservation and minimization of water usage, which can help reduce the amount of wastewater generated

[8] The amended Basic Law of 2003 and the Law No.14 of 2014 regarding water, the environmental aspects mentioned in these laws.

and, in turn, the impact on the environment. Another key environmental aspect was habitat protection as the project aimed to protect sensitive habitats and mitigate any disturbances to them caused by the project interventions.

Tariff based on endorsed policy and by-law

Regarding tariff considerations, document review and interviews with key stakeholders, including the WSRC and the targeted municipalities, highlighted several relevant social and economic factors that were considered by the project in setting tariff. These factors were based on the endorsed tariff policy and its pertinent by-law, focusing on ensuring the affordability and accessibility of wastewater services for local communities while taking into account the local economic conditions in the targeted area.

Resource Recovery and Reuse of Treated wastewater based on the law;

The project design involves the transfer of wastewater across the borders between the Israeli and Palestinian sides of the green line for treatment in Israeli wastewater plants, which has associated financial costs often deducted from the taxes remittances to the Palestinian Authority. Additionally, these costs are magnified by the ***Pollutant Pays Principle (PPP)*** employed by the Israeli side, also deducted from the Palestinian tax revenue transfers. Given this scenario, there is a strategic imperative for thorough consideration based on the intent of Palestinian law and PWA strategy.

Wastewater treatment cost deductions from Palestinian taxes occurs without accounting for the value of treated wastewater reuse, which is not returned to the Palestinian side for agricultural or other purposes. The current practice of deducting from Palestinian taxes may be accepted as an interim phase for the next 3 to 5 years, it is not sustainable in the long term, and a roadmap is required to ensure, and it must be situated within a roadmap that ensures the realization of the Palestinian vision and thus achieves mutually desired gains for all parties. This includes environmental benefits for both Israeli and Palestinian territories, ensuring compliance with legal requirements regarding the reuse of treated wastewater, and addressing the urgent need for water by adopting non-conventional water sources in line with the PWA's strategy. Even with adopting a site-specific policy for each location between the Israeli and Palestinian sides as an interim measure, the intended roadmap may entail conducting a comprehensive nationwide study to address each site's requirements effectively. This would enhance the negotiation position of the PWA, drawing on the long history that contextualizes transboundary water and wastewater issues between both sides. This approach aims to promote integrated (waste)water transboundary management and enforce related Palestinian laws.

Therefore, it can be said that the project approach was relevant to the realities on the ground and the complicated political relations between the two sides, as the project tried to address the specific needs of the Palestinian communities effectively, in tandem with supplying the Palestinian side with tools and capacities to negotiate from a stronger position. To determine whether the project has succeeded or failed to promote (waste) water transboundary integrated management and enforce Palestinian laws, more information is needed on the project's outcomes, and impacts after operation. Although the project has not been operated

during the time evaluation was carried out, it can be concluded that UNDP pursued good project planning and implementation principles to enable the project achieve this important approach. Post-operation, the new facilities and system will offer more opportunities for non-conventional water sources, as envisioned by the PWA strategy. The project successfully implemented wastewater transboundary management mechanisms through enhanced data measurements and national verifications, which contributed to protecting shared water resources.

Addressing Identified Needs*:*
Findings reveal that the establishment of a sound wastewater system in the targeted areas would result in improved access to safe, clean water and adequate sanitation services thus positively impacting the population's well-being and reducing environmental pollution. The project has also successfully addressed the particular requirements of women in the communities by improving the water and wastewater situation within their households. This has resulted in a reduced burden on women and a positive impact on individual households. Therefore, the project has effectively addressed the identified community needs related to water and wastewater management.

As the project was still at the closure during the evaluation period, the analysis of limited available data suggests that future accomplishments will be higher given that the system encompasses a wide range of components necessary for effective transboundary management. These components include hardware, software, and organizational structures essential for meeting the expressed needs of the primary beneficiaries. For the time being, it could be said that the project, to a large extent, had succeeded in responding to the following needs at the local and national levels:

- ***The need for hard-ware components*** of the intended system, i.e., the collection network spanning about 26 KM[9] , which serves 10,000 people from both targeted towns[10]
- ***The need for soft-ware components;*** i.e., the awareness and capacity building of the stakeholders, including Attil Municipality and Al-Sharawiyyeh Joint Council, enable

[9] This represents 93% of the planned output, but 100% of the real needed length based on the field circumstances and amendments of the collection system which could serve 122% (10,00 residents, while the planned target was 8200 residents) of the targeted residents. Based on data derived from project documents, the plan was to implement a 28-KM for the collection system. However, changes in routes, increased depth in some areas, and optimization based on shop drawings led to a reduction in total length. Despite this, the number of houses able to connect to the collection system increased, accommodating 10,000 people, surpassing the original plan. In Attil, 65% of the population (7,800 out of 12,000) can connect to the system, while in Deir Al-Ghosoun, 20% of the population (2,200 out of 11,000) can connect

[10] Arrangements for house connections are in place, awaiting infrastructure readiness on the Israeli side. The targeted municipalities had fulfilled large portion of their financial commitment by providing financial support of US$ 450K, which will enable the start of house connection installations. Construction of civil works for the measurements points (flowmeters) for Attil and Wadi Al moqatt'a-Jinen is completed. Electromechanical works started in August 2023 and are planned for completion by February 2024. The procurement and supply of flow meters, as essential hardware components of the transboundary waste water management system, are in the advanced stage and will be in place by (the end of February) based on the last updates from the UNDP.

the system's operation and maintenance, hence improving its financial and environmental sustainability.[11]

- ***The need for org-ware components***, i.e., the site-specific agreement are ready and expected to be signed between the Palestinian and Israeli sides to manage transboundary arrangements for the project targeted areas. The agreement template was developed during previous phases implemented by UNDP and its partners. These previous phases focused on transboundary management mechanisms and were supported by the Netherlands through the trilateral committee. In addition, implementing the endorsed tariff system, accompanied by adjusted fees collection and payment mechanisms in the specified municipalities, both of which will ensure adequate funding for system operation and maintenance and treatment costs. This approach will ultimately foster the financial sustainability of the service.[12]

Adaptation of Project Strategies to Political Developments in Palestine*:*
The examination of data from various sources indicated that the project did not experience significant shifts in the political landscape or broader socio-economic environment that could have influenced its operations, objectives, and outcomes. These factors include changes in government policies, socio-economic conditions, technological advancements, or geopolitical events. At the outbreak of war in Gaza in October 2023, many of the project's activities were already in their final stages, therefore, it cannot be concluded that the war has directly impacted the attainment of the project's primary results. However, the unexpected war affected the relationship and coordination between the Israeli and Palestinian sides and delayed the signing of the site-specific agreement between the two parties, setting the mechanism for wastewater transboundary management issues. However, the project tried to overcome these challenges through a reasonable extension of the project timeline.

The project's challenges could be divided into two categories. The first category comprises changes or challenges that could have been anticipated based on previous experiences of the project partners. Thus deemed less significant than fundamental changes, but still required adjustments to both the timeline and scope. Many of these challenges were addressed early in the planning phase, incorporating a Risk Log outlining potential risks, their impacts, and underlying assumptions. The project's core documentation also included measures to address these risks. The resulting impacts were reasonable amendments to the project timeline and scope to adapt to such changes. The second category includes changes resulting from the general political situation (e.g., escalations in violence in the North West Bank, closures, and restrictions imposed by the Israelis) and coordination between various parties (mainly with the Israeli side), which were unforeseeable and beyond the control of the project's main partners. These were not based on the previous similar experiences which in turn had caused substantial delays. However, these were all mitigated by timely decisions to adjust the project timeline and modify some of the project's activities and scope.

[11] Agreements have been formalized through MOU between PWA and the targeted Municipalities for the operation and maintenance of flow measurement stations. (Attil and Deir Al-Ghosoun, Baqa, Qalqilia, Jenin and Bir Nabala).
[12] The Cabinet's endorsement of water and wastewater tariffs in August 2023 marked a significant milestone. Active preparations are underway for their implementation in Attil and Deir Al-Ghosoun municipalities in 2024, following the completion of house connections.

The Project Technical Steering Committee (PTSC) regularity reviewed he aforementioned Risk Log is part of the project's core document, and alongside a review of workflow by, .Based on this review, coupled with stakeholders insights expressed during interviews (including with UNDP, PWA, and WSRC), it can be inferred that the project has managed, to some degree, to adjust its plan in response to the challenges on the ground including: escalation of violence and the Israeli restrictions on movement. To overcome that, UNDP has requested the extension of project timeline which was approved by the donor.

If the consequences linked to the security and the political climate in the West Bank were anticipated in the Risk Log mitigated by extending the project's timeline. The project also successfully dealt with unexpected challenges ensuing from the economic, social, technological, and political domains that also necessitated adjustments in the project's timeline, scope and costs to ensure continued alignment with objectives while maintaining effectiveness and relevance. For example, currency exchange rate fluctuations between the US dollar and the Israeli Shekel were proactively addressed through a variation order, duly accounted for within the project's budget, and incorporated into the in-built contingency provisions.

However, unforeseeable delays also occurred in the procurement and supply of pipes[13] and flowmeters[14] due to the excessive time needed to obtain approvals from the Israeli side, in addition to the delays in constructing the main trunk on the Israeli side, which is necessary to complete the collection system. The prolonged duration was unwarranted, given the absence of available data from the Israeli side regarding the required procedure and timeline related to flow meter installation. This process spanned approximately a year from when the PWA submitted a request to the Israeli side to approve flow meter installation in the Beit Jala and Hebron areas. Ultimately, the Israeli side rejected the request. This decision was not anticipated as it was not based on past experience. Consequently, this necessitated modifying the project plan, and a relocation of the flow meters to the Jenin area at the PWA request.

The analysis revealed that, aside from the recent intricate political situation between the Israeli and Palestinian sides, which hindered viable cooperation across various domains and requires a strategic conflict resolution process beyond the scope of this project, the understanding of key stakeholders and their effective response to these changes and challenges, along with the maintenance of communication channels, were crucial for ensuring the project's relevance, resilience, and alignment with its intended goals.

Relevance to Women's Needs and Priorities:

While the Project's by defaults benefits the entire population of the communities, women emerged as key beneficiaries of its diverse activities and results. Traditionally, women in

[13] The procurement process ook seven months and caused a substantial delay in the work on site

[14] Will be supplied by the beginning of March-2024 which means around 1 year of delay.

these communities carry the responsibility of managing household water supplies, and tasked during periods of scarcity, with water storage, quality assurance, hygiene monitoring within households, and caregiving for the sick. The establishment of the wastewater collection system in the targeted areas will directly benefit over 10,000 residents, with approximately 50% being women and girls, from both towns. Local community representatives noted that prior to the Project, drinking water sources were contaminated due to pollution from cesspits and improper sewage disposal, resulting in various diseases, especially affecting infants and children.

Women interviewees and focus group participants stressed that expectations for improved cleanliness levels has consequently reduced the overall burden of cleaning overall caregiving responsibilities on women. Furthermore, women participants confirmed that the Project addresses their needs and that its outputs should contribute to mitigating cesspit pumping and cleaning caused conflicts within the community, which typically impact the attitudes and mindset of both men and women in households. One woman interviewee simply summarized this by saying, “women have been the most affected by this system because they are responsible for managing household affairs and sanitation. Odors emanating from these cesspits and the psychological pressure associated with cesspit maintenance expenditures were particularly burdensome for women due to their family responsibilities”.

To a medium extent, the project demonstrated a commitment to gender mainstreaming during its training and public awareness activities. As reported by representatives of the local communities, women's organizations and groups from both communities actively participated as a primary target audience for the awareness campaigns, utilizing gender-sensitive and culturally appropriate tools such as women-led preachers' meetings tailored specifically for women. This was confirmed by women FG participants who stated that “the awareness campaigns conducted supported women's knowledge and created a sense of ownership of the project, as it is expected to alleviate many problems once fully operational.”

The absence of sex-disaggregated data regarding the targeted beneficiaries from reliable sources was the main challenge evaluation faced in accurately portraying the effectiveness and relevance of the intervention for each demographic category and analyzing its gender impact. This was also notable in project progress reports where gender-disaggregated data and analyses were generally lacking. However, cross-validating data from various sources, particularly from interviews, the evaluation was able to form a reasonable understanding that the intervention, through an iterative process, strived to benefit a wide range of individuals from different categories and aims to provide fair access to its benefits without any discrimination. This effort contributes to enhancing the gender responsiveness of the intervention. In addition, the project also implemented gender-sensitive approaches to ensure that the intervention is beneficial to all genders. The project team has worked towards eliminating gender-based barriers and providing equal opportunities for both men and women in accessing project benefits. The project has also provided capacity-building opportunities and awareness raising activities, which have helped empower women and enhance their participation in the project.

Relevance of The Project's Theory of Change

The evaluation of the project's Theory of Change (ToC) previously resented in section 2.2 of this report yielded the following observations:

- The logical connections within the ToC are robust and well-founded. The intervention effectively addresses the clear need for improved sewage management in the targeted transboundary areas, through offering a comprehensive approach encompassing infrastructure development, capacity building, and community engagement. The hypothesis that enhanced sanitation infrastructure leads to improved health outcomes and environmental protection is supported by existing research and best practices in sanitation management, drawing from lessons learned in previous interventions implemented by UNDP/PPP.

- The development of the intervention's ToC adhered to fundamental principles and the relevant quality standards, as outlined in UNDAF's published guidance on Theory of Change (UNDAF Companion Guidance).

- To assess the effectiveness of the ToC, the evaluation utilized the proposed indicators for its components to ensure alignment with the planning. As explained in relevant sections, achieving the expected outputs outlined in the ToC is highly probable based on the set indicators. As the project is still in the closure phase during the evaluation, these outputs are expected to pave the way for realizing the intended outcomes and contributing to the desired impact.

- The assumptions underpinning the ToC were deemed relevant and realistic for projects of this nature under the specific conditions of Palestine. The inclusion of capacity building activities ensures that local communities possess the necessary skills and knowledge to operate and maintain the infrastructure effectively. Additionally, the awareness sessions enhanced understanding and fostered a sense of ownership among targeted citizens, especially women, as expressed during focus groups.

Project's Communication with National Stakeholders on Political Dynamics*:*

At first, the project's Stakeholder Engagement Plan was designed based on Stakeholders Analysis performed at an early stage of the project and was incorporated in the Project's core document. According to the engagement plan, holding regular meetings with various managerial levels are essential to ensure that stakeholders remain connected, maintain a cohesive understanding of the project workflow, and make timely, informed decisions. The main committees were the Project Board (PB) and the Project Technical Steering Committee (PTSC), both of which including representatives of PWA, MOLG, WSRC, UNDP, and the donor. Both of these entities have different roles and decision-making powers. The data shows that a reasonable number of meetings were held by both PB and PTSC, which facilitated close monitoring of the project's progress and timely decision-making.

At the local level, workshops and consultations involving the main beneficiaries and their communities were also conducted to address various issues. Additionally, continuous communication relies on various channels, including phones, emails, and official memos. Communication and visibility activities have been successfully executed, such as producing a documentary, motion graphic video, and interview spots. These efforts aimed to improve visibility, raise public awareness, and foster community engagement.

Data collected during the evaluation process provided a good picture of how the project partners and national stakeholders engaged throughout the project cycle. It could be concluded that the project has maintained a high level of engagement and communication with stakeholders as outlined in its engagement plan. This demonstrates the project's commitment to maintaining open channels of communication whereby this approach has ensured that partners remain actively engaged and stay well informed about its project activities and milestones while positively influenced timely decision-making. Such efforts have been crucial in sustaining project momentum within its defined framework.

Alignment of Project Activities with Stakeholder Needs and Priorities*:*

The alignment of project activities with national stakeholders and partners' evolving needs and priorities has been clearly noticed throughout the project lifecycle. As discussed previously, the project followed a strategy of regular engagement sessions through different-level meetings consultations, workshops, and feedback mechanisms, all of which were employed to assess and respond to changing circumstances and requirements.

The Main instances of such alignment with the changing needs of the national stakeholders include; the installation of the flowmeter in Wadi Al moqatt'a-Jinen following the Israeli side's rejection of such installation in Beit Jala and Hebron. These also include the construction of main street laterals to facilitate the implementation of house connections in Attil and Deir Al--Ghosoun; and the preparation of set of TORs for high priority WWTPs in the West Bank for the benefit of PWA using project budget savings, among many other instances.

The project's iterative approach facilitated adjustments in project activities to ensure they remained closely aligned with the evolving landscape of stakeholder needs and priorities within a special political context that is unstable and has its shadow on the project timeline and scope. Furthermore, periodic reviews were conducted to gauge these alignments' effectiveness and make necessary adaptations to optimize project outcomes and keep its effectiveness and relevancy.

Relevance of Program Activities and Results*:*

As the project approaches its closure phase, several outputs have become apparent, resulting from a series of activities primarily executed according to the project plan. The analysis carried by the evaluation, based on progress report review and stakeholders' feedback reveals a strong alignment of activities and outputs with objectives, indicating a high degree of

alignment between the intended future impact and objectives, assuming no fundamental changes in the context occur to create unintended or negative impacts.

It can be concluded on the basis of collected data that the evaluation has neither observed significant deviations between the planned and executed activities, nor between the intended and actual outputs and the outcomes achieved so far, or in their output indicators. Reviews of key informants' perspectives from UNDP, PWA, and site engineers, drawing from their extensive experience, indicate that the actual project outputs resulting from the implemented activities will likely lead to the achievement of the intended objectives. Furthermore, beneficiary and community feedback underscores that these outputs and intended objectives remain highly aligned with their needs. Additionally, the amendments made to project scope s, as discussed in previous paragraphs, have contributed to maintaining the project's relevance occurred in response to changing contexts causing shifts in the operating environment and stakeholder needs,

5.2. Coherence

Under this criterion, the evaluation examined the coherence of the project addressing several issues, including:

The Context of the Project and its Objectives:
In the broader context of Wastewater and Transboundary Wastewater Management, both at the national and local scales, several critical points must be addressed to provide a comprehensive overview. Firstly, inadequate treatment and disposal of wastewater present significant environmental challenges in the West Bank and Gaza[15]. According to national and international reports, only 30 percent (or 21 MCM) of the 69 MCM of West Bank wastewater is collected, with a mere 9.5 MCM treated. Consequently, 25MCM of untreated sewage is discharged annually from 350 locations, with approximately 21.4 m3 flowing into Israel. This has led to Israel billing the Palestinian Authority $31 million in 2017 for necessary treatment[16].

Secondly, approximately 20% of the Palestinian population served by central sewer networks resides in urban communities with transboundary wastewater discharge into Israel. Among Israel's fifteen major streams, only five originate in the West Bank, namely Wadi Mugata (Jenin district), Wadi Zaimer (Nablus-Tulkarm districts), Wadi Zhor (Qalqilia district), Wadi An-Nar (Hebron district), and Wadi Mahbas (Ramallah district) [17]. Additionally, ongoing deductions from the PA's tax revenue transfers by Israel further exacerbate the issue. The bill for wastewater the PA received from the Israeli Water Authority) encompasses both wastewater treatment and pollution cleansing costs due on sewage water from PA areas.

[15] World Bank. 2018. "Securing Water for Development in West Bank and Gaza." World Bank, Washington, DC.

[16] World Bank. 2018.

[17] Al-Sa`ed & Al-Hindi. 2012. Chapter 13. Challenges of transboundary wastewater management for Palestinian communities along the Green Line – The Israeli Palestinian border

However, discrepancies exist in estimating quantities and treatment costs, highlighting the need for monthly data sharing to effectively coordinate and manage this transboundary issue.

Through interviews and reports from various sources, including official reports from international institutions and studies funded by different donors, transboundary wastewater management has been extensively addressed as a component of a comprehensive water and wastewater system. However, these studies have predominantly been diagnostic and theoretical in nature. The current situation requires the implementation of actual solutions and projects incorporating infrastructure elements, such as collection systems and flowmeters, drawing from lessons learned from previous phases[18]and insights from endorsed studies and the PWA strategy.

At the local level, focusing on Tulkarem Governorate, Attil emerges as a border community[19] grappling with pollution stemming from inadequate wastewater treatment. It is a priority area for PWA by establishing a robust environmental system and developing mechanisms to address cross-border wastewater issues and plans to expand initiatives to Hebron and Beit Jala to enhance wastewater measurement in alignment with its own strategy. In this context the project under evaluation has aimed to achieve two major objectives. , namely a) to strengthen the wastewater environmental system's pollution control, safeguarding the environment and enhancing public health, with a particular emphasis on the well-being of women and girls, and b) to enhance transboundary wastewater management in the West Bank by improving data measurements and verifications, ensuring greater accuracy and efficacy in wastewater management practices.

In conclusion, our analysis underscores the imperative for a comprehensive environmental wastewater system with robust mechanisms for transboundary wastewater management, objectives that this project aims to address. Furthermore, the project serves as a noteworthy scale-up case and a valuable learning experience for UNDP and its key partners, offering invaluable expertise and lessons learned. It highlights the added value of UNDP's approach in the current context, providing crucial insights for future initiatives in similar settings.

To the best of the Evaluation Team's knowledge, limited information available on whether other development partners have run similar transboundary initiatives comparable objectives and soft and hard components,. This lack of data makes is challenging for scientific comparisons to ascertain whether UNDP's approach in this project in tackle this unique

[18]UNDP. 2020. “Transboundary Wastewater Pollution Control Project # “102692, Final evaluation Report”. This project is a replicable case built upon a previous initiative funded by the Government of Japan and executed by UNDP from 2009 to 2013. The project had two main phases: Phase 1, supported by the Netherlands, focused on a feasibility study conducted by UNDP in 2014-2015. Phase 2, involved the construction of wastewater systems and capacity-building activities for local communities and the PWA. The project targeted six Palestinian communities with a combined population of approximately 14,500 people: Baqa AI-Sharqieh, Zeita, and Nazlat Issa, An-Nazla AI-Sharqia, An-Nazla Alwesta, and An-Nazla AL-Gharibia. Before the project, these communities relied on cesspits and discharged untreated wastewater into Wadi Abu Nar and nearby areas, posing significant health risks and threatening the shared water aquifer. Moreover, poor wastewater management in these areas led to pollution and heightened tensions between communities.

[19] Border communities refer to Palestinian communities adjacent to the green line that represents the border between Palestine and Israel according to the United Nations and the international references.

challenge differs significantly from others. Nevertheless, UNDP has amassed extensive experience in this field since 2009, contributing to the development of the overall framework for this issue and deriving valuable lessons learned, thus enhancing their added value in addressing related issues.

Based on information collected during the evaluation process, the project's coherence stemmed from its approach to address the challenges: Firstly, the project's core strategy emphasizes integration and alignment with Palestinian wastewater strategies, as previously discussed. Additionally, the project's methodology embraces a participatory approach, initially designed based on a scientific analysis of stakeholders and their official roles as defined by law and custom, while assessing their impact and power dynamics.

Moreover, the interim-phase solutions formulated within this interim phase and the previous one relied on a feasibility study, which thoroughly examined the legal framework and the technological, financial, social, and environmental aspects of the project. While this evaluation report does not delve into technical details, such as the technical specification of flowmeters, the focus remains on assessing the benefits of such technology and the project's uniqueness in its application. Based on feedback from key informants, lessons learned from previous experiences with flowmeters and their maintenance requirements have been effectively incorporated into the design of this phase, including technology selection, reading acquisition methods, maintenance procedures, and stakeholder responsibilities to ensure system sustainability. These observations reinforce the Evaluation Team's conclusion that the approach to address the gap and contextual needs was adopted based on a sound scientific approach, thus enhancing its coherence with the current context and complementing the various efforts by stakeholders to address the transboundary wastewater issue.

Strategically, the transfer of wastewater across borders for treatment in Israeli WWTPs is deemed acceptable as an intermediate phase, potentially extending up to five years until WWTPs are established on the Palestinian side and the ability to utilize treated wastewater for non-potable purposes is developed. As discussed previously, a significant supporting aspect of this direction is the inclusion of the five-year timeframe in the site-specific agreement, which is on the verge of being dually signed. Moreover, by incorporating elements of scaling-up within the UNDP approach and strategy at an early planning stage, the project demonstrates an alignment with scientific literature on proper scalability of projects if considered early on. This underscores another key added value of the UNDP approach.

For the project’s internal coherence, the ET had reviewed and analyzed all relevant field data and documents including the project’s core document, Results Framework, work plan, and other documents such as the final evaluation report of the previous similar implemented intervention by the UNDP in the BAQAs and NAZLATs. Among the other reviewed documents are the recent strategies of the UNDP/PAPP such as the United Nations Development Assistance Framework for the state of Palestine, the UN Sustainable Development Cooperation Framework (UNSDCF) 2023-2025, and the UNDP/PAPP Palestinian Programmatic Framework 2023-2025, etc. This analysis provided the evaluation team with a comprehensive understanding of the project's goals, objectives, and activities and

generally conveyed a good picture of the satisfactory level of the project's internal coherence and its alignment with the UNDP/PAPP profile, area of expertise and strategies as illustrated in the previous sections.

Furthermore, the interventions were built on lessons learned from similar projects that the UNDP/ PAPP implemented in the recent past. There is evidence best practices, successful strategies, and insights from past experiences being incorporated into the design and implementation of the current project. This include: the stakeholder's engagement plan based on stakeholder analysis; coinciding the timing for the municipal financial contributions with project commencement phase. Moreover the responsibilities of the operation and maintenance that the project delegated to the local governments are organized on the basis of MOUs between PWA and the beneficiary local governments, and on the basis of adopting site specific agreement for the transboundary management strategy.

5.3. Effectiveness

The ET has mapped the project plan, progress reports and monitoring data and complementing them with data from the field and interviews with beneficiaries' representatives and site engineers to assess the extent to which the project has successfully delivered on its intended outputs as outlined in the project plan and whether actual progress made, has ultimately contributed towards the achievement of outcome-level results. The planned outputs were:

Output 1: By 2022, around 8,200 persons (women, men, girls, and boys) living in Attil, and Deir Al-Ghosoun have increased access to environmentally sound municipal wastewater services

It can be concluded that Output 1 has been completed, and its output target indicators being achieved to a satisfactory extent, despite the social and administrative challenges the project had confronted, which caused substantial delays. Concrete evidence of the realized indicators includes the construction of 25.6 km of a collection system, comprising 4.5 km in Deir Al-Ghosoun and 21.050 km in Attil. Although initial plans aimed for 28 km to serve 8200 residents of both communities, route changes and depth optimization reduced the total length. However, this adjustment increased the number of houses able to connect, increasing beneficiaries to 10,000, surpassing the original plan. In Attil, 65% of the 12,000 citizens can connect compared to 20% of the 11,000 citizens in Deir Al-Ghosoun.

The lack of sex-disaggregated data about the targeted beneficiaries from credible sources was a difficulty for the evaluation in appropriately portraying the effectiveness and relevance of the intervention for each demographic category and analyzing its gender responsiveness. This was also the situation with the project's different progress reports, which lacked gender-specific data and analyses. However, by cross-validating data from various sources, particularly from interviewees, the evaluation team was able to form a reasonable understanding that the intervention, through an iterative process, aimed at providing fair access to its benefits without any discrimination and strives to benefit a wide range of individuals from different categories.

The ET received confirmation from representatives of both target municipalities regarding their dedication to completing house connections and enforcing fee collection. This commitment was honored by a financial contribution, securing US$ 450K to initiate the installation of house connections. According to the second project progress report, the Municipality of Attil has established an account for collecting house connection fees and deposited approximately 100,000 NIS as an initial fund. The municipality plans to commence household fee collection once the collection system is finalized and handed over by March 2024. Similarly, the Municipality of Deir Al-Ghosoun is committed to initiating fee collection immediately after the completion of the wastewater collection network.

It is worth mentioning that an additional output was planned using budget reallocation and an additional funding whereby an amendment with NRO added USD 300,000 to carry out a feasibility study, a detailed design for the Tulkarem wastewater treatment plant, a reuse scheme, and an Environmental and Social Impact Assessment. However, this activity was cancelled following changes in the PWA strategy, and the budget savings was reallocated in agreement with both municipalities to the implementation of main street laterals for house connections, with the needed arrangements done by both municipalities as detailed in the previous section Construction works are currently ongoing and expected to be completed by March 2024.

Output 2: Improved cross-border wastewater flow measurements and management mechanism in Attil, Hebron, and Beit Jala

Despite encountering some obstacles towards achieving the milestones of this output, the indicators values suggest that significant progress in meter installation is likely to be achieved by the end of February 2024, as planned, if no significant changes (to the general political situation or otherwise) occur. Following the agreement with PWA and subsequent coordination with IWA, it was determined that only two flowmeters in Attil and Wadi Al Moqatt'a-Jinen are currently being implemented (Hebron Beit Jala meters were rejected by Israel). Civil work for these flowmeters was completed by the end of June 2023. Additionally, UNDP signed another contract on 21 August 2023 to implement electro-mechanical items, with installation expected to be completed by February 2024. The PWA has also signed a letter of agreement with concerned municipalities (Attil, Deir Al-Ghosoun, Baqa, Qalqilia, Jenin, and Bir Nabala) to oversee the operation and maintenance of the flowmeters. UNDP has supported the PWA and the municipalities in developing SOPs to operate and maintain these flowmeters.

At present, the agreed-upon draft communication plan and exchange of data between IWA and PWA is ongoing, with minimal progress achieved as discussed in the previous sections, and the added activity of preparing TORs for several urgent WWTPs in the West Bank based on the budget reallocation and the request of PWA is also ongoing, with 4 TORs (out of 7) are planned to be completed.

Other crucial considerations for discussing the effectiveness of the project's approach in addressing current needs and gaps include its potential contribution to long-term sustainability in tackling identified challenging factors such as scalability, replicability, and integration with broader sectoral goals are. Based on available data to the Evaluation confirms that the project's approach in addressing the gaps proves effective to some extent.

As from technical point, installing flow meters will significantly help achieve this output's goal by enhancing the positions of partners—particularly the PWA—and giving them access to trustworthy, mutually acknowledged data. However, to completely accomplish the target results of this output, the site -specific agreement between the Israeli and Palestinian sides needs to be concluded in order for both parties to accept and recognize the readings from the meters. At the time the evaluation (Nov 2023 -Jan 2024) the site-specific agreement has still been under development. Interviewees representing PWA and Wadi Ara confirmed that a draft agreement is ready and endorsed by PWA yet still awaiting IWA endorsement which is beyond the control of the technical-level stakeholders of the project.

It should be noted that completing the building of household connections and the main trunkline on the Israeli side is a crucial aspect of the meters' operation and the full achievement of this output and its objective. These elements are regarded as fundamental presumptions based on the logical framework of the intervention, even if they are beyond the project's scope and work plan. Nevertheless, the installation of the installation of flow meters has been enhanced at the Palestinian national/strategic level. It will continue to enhance PWA's capability to monitor and measure the volume of wastewater crossing the Green Line, which in turn, will enhance PWA's capacity to oversee transboundary wastewater management, ensuring accurate verification of quantities and invoices received from the Israeli side.

It could be concluded then that all these activities are paving the way towards achieving the intended results, and the progress on output 2 in achieving the related indicators is on the right track to reach a satisfactory level of results.

Output 3: A revised water tariff in Attil is applied to ensure sustainable wastewater service.

This output and its indicators appear to have been completed despite encountering some challenges. The actual realization time of the new tariff exceeded the estimated duration outlined in the plan. The proposed revised tariff for water and wastewater services in Attil and Deir Al-Ghosoun underwent several review and approval stages. Initially, it was reviewed by the WSRC in December 2021 and submitted to the General Secretariat of Ministers for cabinet approval. However, it was returned for inclusion in a comprehensive package involving other local government units. Subsequently, in September 2022, it was re-submitted but required further revisions based on received feedback. Finally, on 7 August 2023, the proposed revised tariff was approved and officially communicated to PWA, WSRC, and the municipalities. The municipalities have subsequently devised a plan to implement the new tariff in 2024. The planned awareness workshops targeting the

community and training workshops targeting representatives from the beneficiary LGUs were also completed as scheduled.

Based on the analysis of project progress data, it can be concluded that satisfactory progress has been made towards achieving the intended outputs. However, as this stage coincides with the closing phase of the project, where several outputs are evident but the realization of the intended outcomes is not yet fully realized, it is important to note that based on the evaluator's experience in similar initiatives, the project is on the right track to achieve the intended outcomes.

Effectiveness of Partnership Strategy and Capacity Building*:*
The analysis of the available data supports the conclusion that the rationale behind the chosen partnership strategy between the UNDP and national stakeholders, including governmental entities like PWA, WSRC, MOLG and MOF, as well as local municipalities, is based on programmatic alignment with national priorities, inclusivity, and sustainability which reinforce its appropriateness and effectiveness in fostering collaboration and achieving the desired results

The project's effective stakeholders engagement is salient in the stakeholder engagement and communication plan grounded in stakeholder analysis, and utilizing diverse communication and visibility channels and direct interaction activities with the communities and their organizations through workshops, awareness campaigns and visibility activities training sessions based on needs assessments., These efforts collectively enriched the project with robust integration mechanisms for partners, enabling timely decision-making to keep the project on course and the right path towards achieving its objectives. Notably, such engagement-oriented activities and tools played a crucial role in promoting project objectives within local communities and fostering households' acceptance of revised tariff structures and financial contributions for household connections.

Regarding capacity development, the project has significantly improved the capabilities of national partners, including PWA, and the beneficiary municipalities. Notable capacity-building activities encompass training sessions for municipal technical staff in the revised tariff system and operations and maintenance, along with technical support provided to PWA in reviewing invoices from IWA and conducting electro-mechanical works such as installing and calibrating flowmeters. Feedback obtained from interviewees and beneficiary representatives demonstrates a high level of satisfaction with these capacity-building endeavors. However, there is a demand for further advanced training to reinforce technical skills and knowledge further, as well as strategic-level sessions for the leaders of local communities and local councils.

5.4. Efficiency

Under efficiency, the evaluation addressed the following aspects:

Project management and communications structure*:*
The four-member Project management team comprises: a dedicated project manager, a full-time project site engineer, a shared M&E Specialist, and a Senior Analyst. Compared to the budget size of project, the team size remains relatively small. However, the Project Steering Technical Committee plays a pivotal role in engaging and maintaining the commitment of national stakeholders.

The engagement of project stakeholders, including partners, staff, beneficiaries, was a cornerstone of the project's management strategy to navigate challenges and devise efficient solutions. This multifaceted engagement was achieved through a series of well-structured communication channels and participatory decision-making processes, which the engineers of both municipalities highly appreciated. Additionally, a feedback mechanism initiated at both municipalities was observed during site visits, ensuring that all voices were heard and considered in the problem-solving process. Beneficiaries, the direct recipients of the project's outcomes, were also engaged through community consultations and social gatherings. These platforms allowed them to express their needs, concerns, and feedback directly to the project team, thus ensuring that the project's direction remained aligned with the community's expectations.

The interviewed staff from both municipalities highlighted the remarkable representation of women and people with disability during the public meetings. According to municipal interviewees, women, youth and PWDs comprised at least one third In several meetings. However, the evaluation could not confirm the exact percentages of each group due to the lack of documented minutes of meetings and reports about these community consultation sessions. In addition, the most interested in the project in both villages were numerous women cooperatives and associations involved mostly in food processing which explains the urgency and close relevance of the project for their operations and assurance of the prevalence of sanitary conditions. This example explains that the engagement approach enhanced the project's relevance and effectiveness in the eyes of beneficiary groups and therefore was critical in fostering a strong foundation of trust and cooperation between the communities and municipalities throughout the project activities.

Utilization of local resources
The UNDP implementation approach involves significant reliance on local contractors and consultancy firms, thus alleviating some of the workload on project site engineers. This allows engineers to dedicate their time to closely supervising contractors, addressing emerging issues, and managing beneficiary relations during infrastructure implementation. These measures have collectively contributed to an efficient management structure, enabling the team to achieve the expected results effectively.

The project also significantly bolstered the local economy and sustainability by prioritizing the engagement of local talents and resources. This strategy involved deliberately sourcing local consultants and contractors, ensuring that the expertise and labor for the project primarily came from the community it aimed to serve. Additionally, the project made a conscious effort to utilize locally manufactured materials whenever possible, such as manhole covers, thereby supporting local industries and minimizing environmental impacts associated with transporting materials from distant locations. This approach enhanced the project's efficiency and relevance to the local context while also fostering a sense of ownership and pride within the community by directly involving local stakeholders in the project's success.

Furthermore, the UNDP strategically segmented the construction efforts of the wastewater network across the two municipalities, assigning them to distinct contractors. This deliberate division catalyzed the project's momentum and optimized the execution timeline, ensuring that each phase progressed without delay. To underscore the judicious allocation of resources further, the task of supplying and installing the flowmeter in Attil was entrusted to a third contractor, specifically chosen for their expertise in this area. This approach highlights the UNDP's commitment to leveraging specialized skills for critical project components and exemplifies the efficient and targeted use of resources to enhance project outcomes.

Cost-effectiveness of the Implementation

UNDP/PAPP collaborates closely with governmental agencies such as PWA, WSRC, MoLG, and local authorities, employing the Direct Execution modality for project implementation, thereby retaining responsibility for achieving project outcomes and managing finances. At the project's inception, UNDP conducted thorough feasibility studies, assessments, and engagement plans, ensuring that implemented actions were efficient, technically feasible, economically viable, and environmentally and socially beneficial to local communities.

Even with such level of detailed implementation planning and care, the project witnessed several challenges during its implementation, which impacted both the timeline and budget. These challenges could be categorized into:

1. Foreseeable challenges: included technical issues with the design and delivery of the wastewater systems, which led to delays in implementation. The project management team was able to manage these challenges through early planning and by working closely with governmental agencies such as PWA, WSRC, and local authorities to resolve technical issues. Additionally, the team ensured that they stayed within the allocated budget by prioritizing activities and, if needed, revising the project plan.

2. Unforeseeable challenges included political and coordination issues, particularly with the Israeli side. The project aimed to establish a transboundary management mechanism with Israel, which proved to be a challenging task due to geopolitical tensions. This resulted in delays in the implementation of some project activities. The project management team worked to mitigate these challenges through active engagement and dialogue with stakeholders at both the local and national levels.

Through the use of diplomatic channels and advocacy efforts, the team was able to sustain some of the transboundary management mechanisms, though not to the extent initially planned.

Demonstrating adaptability, the Project Technical Steering Committee made adjustments in response to hurdles, such as managing currency fluctuations through variation orders and modifying project plans due to delays in procurement and approvals. Moreover, disruptions caused by the Gaza War necessitated adaptive planning processes and reasonable timeline extensions, ensuring project resilience. Transparent procurement procedures, including open and inclusive bidding involving PWA, UNDP, and local authorities' councils, facilitated cost-effectiveness, which is evident in the project's work plan. Despite political challenges, the project efficiently utilized available resources, evidenced by nearly all planned activities being achieved within the allocated budget. Modifications to project scope, such as the rejected installation of flowmeters in Hebron and Beit Jala by the Israeli side, prompted budget reallocation to implement the laterals in the main streets to facilitate the implementation of house connections in Attil and Deir Al-Ghsoun. The implementation of laterals was completed in Attil, is ongoing, and is expected to be completed by February 2024.

Planned versus actual disbursement

While providing a thorough financial audit is beyond the scope of this evaluation, the evaluation team relied on financial data contained within the various progress reports to understand the financial status of the project in terms of disbursement compared to actual budget. The analysis of the latest progress report (covering Sep 2022-August 2023) reveals significant variances between the allocated budget and actual expenditures across various project outputs.

Firstly, in Output #1, aimed at providing increased access to wastewater services for residents of Attil, expenditures closely align with the budget at 95.8%. However, it is important to note that house connections cannot be implemented until the trunk line at the Israeli side is ready, potentially causing delays in project expenditure. Secondly, Output #2, focusing on improved cross-border wastewater flow measurements, exhibits a substantial variance, with expenditures at only 22.5% of the allocated budget. This significant deviation can be justified by ongoing electromechanical works of flow meters, which commenced in August 2023 and were not completed at the time of financial data collection. Thirdly, Output #3 shows minimal variance, with expenditures almost fully matching the budget at 99.2%, indicating efficient financial management in revising and applying the water tariff and revenue collection system. However, there are noticeable variances in project evaluation, communication, audit, and quality control activities, suggesting potential cost-saving measures or delayed spending. Overall, while the project has utilized approximately 86.3% of the total allocated budget for activities and 85.5% including contingency and general management services, the variances highlight differing levels of progress and financial management across project components.

It should be noted that the budget distribution indicates an efficient allocation between the cost of project-activities and the cost related to the cost of managing the project, and the fees for General Management Services. The allocated budget for project activities (outputs and direct costs of evaluation, communication, and audit) is about 80% of the total budget, while 11% of the budget is allocated to the cost of project implementation unit, and 8% is the standard GMS of UNDP. The following table presents a summary of the financial status of the project, categorized by output.

Table 1: Summary of the Project's Financial Status

Item	Allocated Budget (USD)	Total Expenditure (as of 31 August 2023)	% Expenditure vs. Budget
1. Project implementation Unit and operations	610,132	582,684	95.5%
2. Output # 1: Residents of Attil (Women, men, girls and boys) have increased access to environmentally sound municipal wastewater services by 2023	3,810,000	3,650,321	95.8%
3. Output 2:Improved cross border wastewater flow measurements	640,000	144,262	22.5%
4. Output 3: Water tariff and revenue collection system revised and applied to ensure sustainable wastewater service	50,000	49,600	99.2%
5. Project evaluation, communication, audit, quality control	135,000	100,050	74.1%
Sub-total activities	**5,245,132**	**4,526,917**	**86.3%**
Contingency Budget	50,652	0	0.0%
General Management Services (GMS) 8%	423,663	362,153	85.5%
Gain and Loss	0	0	0.0%
Total project budget	**5,719,447**	**4,889,070**	**85.5%**

Timely implementation of project outputs:

Through a comprehensive review of project documents, reports, field visits, focus group discussions, and semi-structured interviews, the evaluation team has discerned varying levels of delivery across different project outputs. Generally, activities planned under outputs 1 and 3 have been, or are likely to be, implemented on schedule and within the allocated budget, with only a few exceptions. However, for output 2, several prerequisites remain outstanding pending proper conclusion within the project's remaining timeframe. Furthermore, greater efforts are needed from the PWA to ensure operability and scheduled maintenance, in addition to effectively utilizing flow meters data, which are still undergoing final installation stages.

Discussions with municipalities suggest their commitment to implementing house connections and enforcing fee collection; this commitment was fulfilled in terms of financial contribution by securing US$ 450K to kick start installation of house connections, in addition to a proven willingness to pay fees by end beneficiaries, especially as demonstrated in Der Al -Ghosoun where the process started before the actual connection occurs. Additionally, the

completion of the main line within the Israeli side, though a relatively small activity in size, is critical for the project's success as it ensures proper disposal and treatment of wastewater, aligning with the project's ultimate objectives. The site-specific agreement is another crucial aspect requiring continued follow-up by PWA and UNDP to facilitate the transportation and treatment of wastewater based on mutually agreed terms between the two parties.

Monitoring and Evaluation Systems

Within the annual project cycle, adherence to UNDP's programming policies and procedures ensured comprehensive monitoring through the following mechanisms:

- Regular site meetings involving the project manager, site engineer, contractors, and municipalities, as necessary, facilitated ongoing communication and oversight.
- Progress tracking, led by the site engineer, involved submitting monthly progress reports to the project manager, providing a snapshot of project advancement.
- Risk management was integral to the annual planning process initiated each year in October-November, enabling proactive identification and mitigation of potential challenges.
- Regular review and course corrections were conducted annually, with reports from site engineers, the project manager, and the Quality Assurance Leader informing discussions led by the PB, and the PTSC. Recommendations from these stakeholders guided adjustments to project strategies and activities.

The project's reporting structure encompassed various layers: monthly progress reports from site engineers to the project manager, annual reports prepared by the project manager per donor contracts, and comprehensive project reviews conducted by the PB and PTSC. The project manager meticulously compiled the minutes of these meetings, which served as crucial input for the annual review report, ensuring transparency and accountability in project management.

Assessment of the project Results Framework

An examination of the project's results framework reveals a good degree of alignment with the UNDP PPF Results Framework and the utilization of various indicators[20] to assess the achievement of results. The Assessment of Results framework is shown in annex 2. Outcome indicators were directed towards gauging improvements in pollution control, protection of public health (outcome 1), and enhancement in transboundary management through improved data measurements (outcome 2). While we believe that the suggested indicators could offer insight into progress towards these goals, they fall short of adequately measuring the changes anticipated post-completion of activities. Metrics such as the count of individuals gaining access to enhanced wastewater services, or the installation of flow meters can signal achievements at the output level but may not sufficiently gauge impacts at the outcome level.

[20] In reviewing the PFF results framework, the evaluation team noted some instances of mixing output and outcome indicators. A glance at the project document reveals a mix-up between outputs and outcomes in the way results are listed. For example, OUTPUT 1: By 2022, approximately 8,200 individuals (women, men, girls, and boys) residing in Attil have access to wastewater services. Therefore, "access" should be categorized at the outcome level rather than as an output.

Notably, there is a lack of indicators measuring pollution reduction or the efficacy of installed meters in enhancing decision-making and data management. As of the time of this evaluation and based on the latest progress report, limited information was available regarding the measurement of set outcome indicators (e.g., treated wastewater volume, frequency of data retrieval and processing from flow meters).

Regarding indicators related to wastewater system access disaggregated by gender, which is a commendable attempt at sensitivity to gender considerations, there was a noticeable absence of disaggregation for other vulnerable groups such as persons with disabilities (PWDs) or poor families.

As for output indicators, most of the suggested metrics aimed at quantifying achieved outputs/activities, including the number of individuals with wastewater access (similar to the outcome indicator), network length, flow meter installations, and the number of awareness workshops or training sessions. While these indicators are standard for this level of results, some lack appropriate disaggregation by gender or vulnerability. For instance, there is no indication of how many females benefited from the training or awareness sessions.

Most importantly, the results framework did not incorporate specific indicators (at the outcome level) to measure the intended behavioral and knowledge changes resulting from the project's awareness-raising and training activities.

5.5. Project Impact

Project Impact on Targeted Communities:
As of the evaluation date, the project remains ongoing, making it challenging to measure its real impact. Nevertheless, the project has made significant strides in addressing environmental challenges and fostering regional cooperation through a range of activities. These efforts have involved not only the development of physical infrastructure but also outreach and dialogue at various levels, including governmental entities, local authorities, and community members. Once the 25.6 km wastewater collection system is completed, it is expected to directly impact the lives and well-being of approximately 10,000 residents, with half of them being women, surpassing the initial target. While some parts of both villages may not be served by the current physical structures, outreach sessions have already benefited these areas. The installation of networks is set to improve sanitation standards, reduce environmental pollution, and mitigate health risks associated with current cesspit practices. These risks include environmental pollution, social conflicts due to overflow occurrences and odor nuisance, and increased economic burden from frequent cesspit emptying, which typically costs an average of NIS 100 for emptying the cesspit.

Impact on Capacity Building:
The project's focus on capacity building and community engagement is expected to have a lasting impact on service delivery in targeted areas. By enhancing the technical capabilities of local municipalities and the PWA, as well as raising community awareness about wastewater management, the project empowers stakeholders to sustain and build upon achievements. The

revised water tariff system ensures the financial viability of wastewater services, marking a crucial step toward self-sufficiency. Furthermore, job creation during the project's various phases, including design, construction, and maintenance, has been significant. Both municipalities have budgeted for maintenance and operation staff recruitment in 2024, demonstrating the project's ongoing benefits in terms of employment opportunities.

Impact on Women:
The project's gender-sensitive approaches and community engagement efforts have contributed to a more inclusive environment; ensuring interventions cater to diverse community segments, including women and girls who traditionally manage water within households. The improved access to wastewater services is expected to reduce their workload and health risks, as confirmed by focus groups and interviews, contributing to gender equality and empowerment. Additionally, awareness workshops have equipped local community members, especially women, with knowledge and skills in sustainable water management and conservation practices. During focus group discussions in Attil municipality, participating women expressed appreciation for such initiatives that increased their awareness about sanitation and hygiene, empowering them to make informed decisions regarding health and environmental matters.

The project will positively impact women by providing them with a better sanitary environment and reducing health risks associated with exposure to wastewater. The improved wastewater collection and treatment systems will help to prevent contamination of water sources, which can cause water-borne diseases. The project should also increase women's access to adequate water for domestic and agricultural purposes. This would help to reduce women's workload in fetching water, thereby giving them more time to focus on other economic and social activities.

Impact on Transboundary Arrangements:
The project has laid the groundwork for long-term effects by establishing a framework for cross-border wastewater management, emphasizing bilateral cooperation to address shared environmental challenges. Initiatives such as installing flow meters and expected agreements for wastewater treatment demonstrate a commitment to future collaboration between Palestinian and Israeli authorities. This cooperation not only mitigates immediate environmental hazards but also promotes peace and stability by highlighting the mutual benefits of environmental cooperation.

Environmental Impact:
Once operational, the project is expected to substantially contribute to pollution control, environmental protection, and public health improvements, benefiting women and girls who represent half of the population. By addressing untreated wastewater disposal issues, the project helps reduce environmental pollution and safeguard local water resources. Improved sanitation standards and sustainable wastewater management also contribute to a healthier ecosystem and sustainable community development. The project's role in climate change resilience and adaptation efforts is therefore significant, as it reduces vulnerabilities to

climate-induced fluctuations and indirectly supports climate change mitigation by preventing untreated wastewater release into natural bodies.

Financial Impact:
One of the project's key achievements is establishing a transparent tariff structure based on credible data and participatory processes involving various community categories, including men, women, and persons with disabilities. The approved tariff structure is expected to contribute to the financial sustainability of the wastewater management system in targeted communities, ensuring long-term viability and effective service delivery. Moreover, the project is expected to lead to substantial financial savings, primarily through the reduction of costs associated with pumping out household septic tanks.

5.6. Sustainability

The project has successfully established wastewater collection systems, spanning 25.6 km across Attil and Deir Al-Ghosoun communities, ensuring enduring benefits beyond its timeline. These systems promise substantial environmental, economic, and social advantages, significantly improving community well-being and fostering lasting peace. Training initiatives and expert support have also strengthened institutional capacity within municipalities and the Palestinian Water Authority. Despite challenges in implementing new tariff systems and optimizing flow meters, ongoing efforts aim to secure funding for critical feasibility studies and project designs. This adaptive approach underscores the commitment to overcoming obstacles and achieving shared objectives in wastewater management, emphasizing collaborative efforts for long-term sustainability.

Several factors contribute to project outcomes' potential sustainability and continuation beyond its designated timeframe. A significant accomplishment of the project is ***the establishment of wastewater collection systems*** covering 25.6 km across the communities of Attil and Deir Al-Ghosoun. These systems represent a substantial asset for both communities, with a projected lifespan extending well beyond the project's conclusion. Typically, such networks and accompanying devices endure for 20-25 years. The impact of these wastewater networks is multifaceted, yielding environmental, economic, and social benefits that enhance the well-being of residents and the environment, thus ensuring lasting results.

Feedback from municipal representatives and citizens highlights the potential for ***substantial financial savings***, primarily through the reduction of costs associated with pumping out household septic tanks. A preliminary assessment by the consulting team suggests that residents in these communities could save at least USD 240,000 annually once household connections are established and the wastewater network becomes operational[21]. This significant financial relief promises to improve the quality of life in both communities. Importantly, proper sewage disposal protects public health by eliminating pollution and

[21] This figure was estimated based on the following assumption: 10,000 residents will be benefited, divided by 5 average family size =2,000 house/family, if each pays USD 120 per year for pumping out the sewage septic tank, then the estimated saving is USD 240k.

mitigating conflicts arising from environmental hazards, fostering lasting civil peace and social cohesion.

The wastewater network's sustainability and operation rely on municipalities' ability to install household connections and secure the necessary financial resources. With support from the project, municipalities have taken critical steps in this regard, securing USD 450,000 in ***citizen contributions toward the total cost of household connections***. This demonstrates a commendable commitment at the local level to fulfilling project objectives and ensuring the sustainability of wastewater services.

While acknowledging the challenges associated with ***enforcing a new tariff system***, it is evident that additional efforts are required from local municipalities and the PWA to ensure the full implementation of the new tariff. However, the project has played a crucial role by providing valuable support and technical assistance to municipalities in collaboration with the Water Regulatory Council and the PWA. This collaborative effort resulted in preparing a new tariff system, which the Cabinet endorsed in August 2023, marking a significant milestone.

The successful implementation of the tariff system is contingent upon the ***completion of household connections*** and the commitment of municipalities to enforce it. It is anticipated that once implemented; the tariff system will improve the financial sustainability of municipalities by reducing debt and financial losses stemming from low collection rates and bill payment deficiencies. Moreover, at the national level, reducing the financial burden on these communities will support the Palestinian Government's efforts to address transboundary wastewater issues, particularly concerning the financial implications of inaccurate and conflicting data between the two sides.

The project organized training sessions and public awareness campaigns aimed at both the technical staff of municipalities and the public. These initiatives aimed to ***impart knowledge and skills*** crucial for enhancing the sustainability of project outputs. According to project progress reports, the training sessions benefited seven municipal staff members, including one female engineer.

To enhance public awareness, various activities were undertaken, including hosting two distinct workshops—one tailored for women with 11 participants and another for men with 20 participants—along with conducting three workshops in schools. Additionally, efforts involved producing and broadcasting radio spots, developing and disseminating 10,000 bulk SMS messages, implementing social media campaigns, creating and sharing two short videos and clips, and crafting communication materials. Distribution of giveaway items, including 1000 posters, 500 pencil cases, and 1000 sanitizers, was also carried out. The stakeholder workshop engaged 16 participants, with 9 males and 7 females, while the school workshops targeted 160 students, comprising 95 males and 65 females.

In addition to that, the project has conducted several training activities including financial and management training, which addressed tariff systems, fixed assets, and featured presentations and practical sessions. This training targeted accountants, with 8 participants on day 1 and 7

participants on day 2. Additionally, there was training on the operation and maintenance of sewer networks, covering the implementation, operation, and maintenance of sewer collection systems, along with technical procedures for household sewage system connections, supplemented by field visits. This session targeted 6 participants on day 1 and 7 participants on day 2, including engineers, technicians, and surveyors. Furthermore, two manuals were delivered: an Operation and Maintenance Manual and a Financial Manual.

These sessions encompassed theoretical and practical components covering financial management, cost recovery, and the operation and maintenance of water and wastewater services. Recognizing the importance of investing in human capacity and career development, the project also produced manuals during these trainings, essential for ensuring the long-term capacity of individuals and institutions to manage wastewater systems in their communities.

However, the sustainability of these capacity-building activities relies on various factors, including the ability of trained individuals to apply their knowledge and skills effectively in their work and the readiness of municipalities to utilize the outputs of the training and retain trained personnel. During the evaluation process, municipal representatives emphasized the value of the training received and called for more advanced training for technical staff and awareness and strategic thinking sessions for council members. These measures are aimed at better supporting and empowering the technical team.

In addition to training, the project provided ***communication and visibility tools*** to partners, including the Palestinian Water Authority and municipalities. These tools, such as documentaries, motion graphics videos, and interview spots, were designed to enhance visibility, public awareness, and engagement both during and beyond the project's timeframe.

During meetings with municipalities, participants noted increased citizen awareness resulting from the project's awareness activities. These initiatives played a vital role in explaining to citizens the benefits of having a wastewater network and the importance of paying associated dues and fees for wastewater services. However, the evaluation team could not verify the impact of these awareness activities on communities due to the lack of post-awareness campaign assessments. *Therefore, it would be beneficial for future awareness activities to incorporate assessment tools to measure their effect on the target group and the likelihood of ensuring lasting transformative change*.

An essential aspect of ensuring sustainability lies in the ***availability of adequately trained staff within municipalities*** tasked with managing the network and delivering services to citizens. The training provided to these staff members has significantly bolstered their capacity to fulfil their duties effectively, ensuring continuity beyond the project's duration. Furthermore, at the national level, the project has extended support to the Palestinian Water Authority by facilitating the recruitment of a wastewater expert. This strategic move addressed a critical capacity gap within the PWA, enabling the technical unit to develop Terms of Reference for top priority Wastewater Treatment Plants (WWTPs) and devise a

future framework aimed at enhancing the management of transboundary wastewater in areas such as Wadi Zumer.

By investing in the training of municipal staff and providing expert support to the PWA, the project has made significant strides in strengthening the institutional capacity necessary for the sustainable management of wastewater systems. This ensures that crucial functions, such as network oversight and service provision, can continue effectively even after the project's conclusion. Moreover, the collaboration with the PWA underscores the project's broader impact in addressing critical national-level capacity gaps, particularly in the strategic planning and management of wastewater infrastructure and resources. Overall, the investment in human capital and expert support not only contributes to the project's immediate success but also lays the foundation for long-term sustainability and resilience in managing wastewater systems at both the municipal and national levels. This approach aligns with best practices in capacity-building and institutional development, ultimately enhancing the effectiveness and longevity of wastewater management initiatives.

The ***flow meters*** currently in the final stages of installation at Attil and Wadi Al Moqatt'a-Jinen are expected to significantly enhance the PWA ability to manage transboundary wastewater effectively. These flow meters are anticipated to be pivotal in supporting the Palestinian government's efforts to manage transboundary wastewater more efficiently, thereby fostering greater transparency in financial transactions related to such wastewater. However, realizing this objective is contingent upon the PWA's capability to adequately monitor, maintain, and utilize the flow meters to obtain and analyze timely and relevant data.

During interviews with the PWA, it became apparent that there are existing technical challenges and limited data utilization from previously installed flow meters. *This situation suggests that the PWA may encounter difficulties extracting data from the new flow meters*, potentially hindering its ability to leverage the full potential of these instruments in decision-making and negotiations with the Israeli side. To address these challenges effectively, *conducting an in-depth analysis and learning exercise focused on the experiences with the flow meters is imperative*. Such an initiative should be organized in collaboration with the PWA and other stakeholders to assess the current situation comprehensively and agree on realistic measures to resolve any issues encountered.

The ***project's next phase*** was initially built upon the significant accomplishments of the current phase, closely aligning with the strategic priorities of the Netherlands Representative Office (NRO). These achievements were the basis for discussions regarding continued funding for similar initiatives with the NRO. However, the challenging political and security landscape following the events of October 7th, has impacted the NRO's previous commitment, potentially endangering anticipated funding for future phases.

Despite the political uncertainties affecting the funding landscape in the Palestinian Territories and shifting priorities between the West Bank and Gaza, the project has successfully secured funding for a feasibility study for the planned wastewater treatment plant (WWTP) in Tulkarem, along with other essential components such as cleaning

contaminated areas. This lays crucial groundwork for the Palestinian Water Authority (PWA) to seek additional funding from alternative sources, ultimately leading to the establishment of the Palestinian WWTP.

Moreover, in a scenario where the donor community contributes to a platform facilitating sustainable solutions between Israel and Palestine, the prospects for a fully integrated water cycle and comprehensive management of water and transboundary wastewater become more viable. With these changing circumstances, a reassessment of the scale and scope of the next phase has become necessary. UNDP is currently in discussions with the NRO, aiming to secure USD 300,000 for financing a feasibility study, detailed design, and Environmental and Social Impact Assessment (ESIA) for the Tulkarm wastewater treatment plant and reuse scheme. This marks a departure from the earlier envisioned larger-scale phase with a budget of USD 7 million. The feasibility study and subsequent WWTP project are contingent upon securing funding from the NRO or alternative donors. Additionally, these initiatives must align closely with the strategic priorities of the PWA, particularly considering the evolving needs and circumstances following the events of October 2023.

6. LESSONS LEARNED

Several lessons learned could be highlighted from the evaluation, including:

The Overall Project Approach: UNDP's approach to addressing cross-cutting issues such as gender equality, environmental sustainability, and climate change resilience was demonstrated through the establishment of wastewater collection systems and enhanced cross-border wastewater management. This project significantly contributes to environmental conservation and climate change mitigation by reducing pollution and safeguarding water resources. These efforts are in line with global commitments outlined in the Sustainable Development Goals (SDGs), particularly SDG 6 (clean water and sanitation), SDG 5 (gender equality), and SDG 13 (climate action). The project places a strong emphasis on gender equality and women's rights throughout its design and implementation phases. Through targeted community engagement and awareness activities, it promotes gender-sensitive water management practices, ensuring that the specific needs and rights of women and girls are effectively addressed.

Long-term Institutional Capacity Building: it is imperative to continue investing in human capital and expert support to strengthen institutional capacity within municipalities and the PWA to sustain wastewater systems and emphasize the best practices in capacity-building and institutional development to enhance the effectiveness and longevity of wastewater management initiatives at the municipal and national levels.

Consensus Building and Roadmap Development: The importance of prioritizing consensus building when developing a roadmap for complex projects. *Conducting a nationwide study to gather insights from stakeholders is crucial in addressing specific site requirements effectively*. Utilizing historical knowledge of transboundary water and wastewater issues can greatly enhance negotiation positions, ensure compliance with legal frameworks, and foster integrated management practices.

Flexibility and Expertise Development: The need to maintain high levels of adaptability and flexibility, especially in environments characterized by political instability. Developing expertise in managing wastewater networks and leveraging suitable technologies, such as venturi and Doppler radar, is vital for overcoming technical challenges and ensuring efficient operations and maintenance. Establishing Water Utilities or integrating areas into joint services councils can significantly enhance management capabilities and facilitate the adoption of sustainable practices.

Importance of Gender Mainstreaming: The project highlighted the critical role of gender mainstreaming in development initiatives. By actively engaging women's organizations and groups and utilizing gender-sensitive tools, such as tailored awareness campaigns, the project created a more inclusive environment. This underscores the necessity of considering gender dynamics in all project activities to ensure equal participation and benefit for all community

members. In addition, having reliable gender data is crucial for accurately assessing the impact of interventions on different demographic groups and ensuring targeted approaches to address specific needs.

Stakeholder Engagement and Communication Channels: The project demonstrated the significance of engaging stakeholders at various levels, including staff, beneficiaries, and partners. Establishing well-structured communication channels and participatory decision-making processes fosters trust and collaboration. Incorporating feedback mechanisms ensures that all voices are heard and considered in problem-solving, leading to more effective solutions.

Local Commitment and Collaboration: The commitment shown by municipalities in securing funding for household connections and enforcing new tariff systems demonstrates the value of local engagement and collaboration in ensuring the sustainability of wastewater services.

Awareness and Communication: The project's efforts in conducting awareness campaigns and providing communication tools underscore the importance of community engagement and public awareness in sustaining project outcomes and fostering lasting transformative change.

7. CONCLUSIONS

The evaluation of the Transboundary Wastewater Management in Attil/Tulkarem Governorate project details the significant strides and challenges encountered during its implementation. The project demonstrates alignment with national policies, financial viability, stakeholder engagement, and effective output delivery, despite political complexities. Women emerge as the primary beneficiaries, and gender mainstreaming efforts are ongoing. The project signifies coherence, effectiveness, efficiency, impact, and potential sustainability. Immediate operational recommendations highlight areas for improvement and future action and its insights underscore the project's achievements and the need for ongoing support and collaboration to ensure its lasting impact. Furthermore, the provided operational recommendations serve as a guide for enhancing the project's functionality and future endeavors.

The management of transboundary wastewater between the Palestinian Water Authority and the Israeli Water Authority has been a complex and challenging endeavor, marked by the lack of regulatory frameworks and ongoing negotiations. The efforts spearheaded by the UNDP, in collaboration with various stakeholders, have led to significant advancements, including the installation of wastewater collection systems and flow measurement devices in several West Bank communities. The completion of the main wastewater network in Attil and Deir Al-Ghosoun marks a crucial milestone in this ongoing project, providing increased access to environmentally sound municipal wastewater services for thousands of individuals. Additionally, the approval of a revised water tariff and the development of a legal framework for transboundary wastewater treatment signify progress towards sustainable wastewater management in the region. Looking ahead, it is imperative to continue fostering collaboration between the PWA, IWA, UNDP, and other relevant parties to ensure the effective implementation of these initiatives. The determination to improve transboundary wastewater management and pollution control in the region reflects a commitment to environmental sustainability and the well-being of communities. This concerted effort paves the way for a more comprehensive and integrated approach to transboundary wastewater management, laying the foundation for a more sustainable and prosperous future.

The reconstructed Theory of Change serves as a comprehensive roadmap, illustrating the logical progression from project activities to long-term goals. It effectively responds to stakeholders' priorities by aiming to enhance pollution control, environmental protection, and public health, particularly focusing on women and girls, while also addressing transboundary wastewater management in the West Bank. It is clear that the project's success will be measured by the implementation of environmentally-friendly wastewater systems and improved data measurement and verification processes.

The evaluation process encountered challenges in ensuring adequate representation of women in the focus groups, which affected the gathering of field data for a comprehensive gender-

responsive assessment. Despite these limitations, the team resorted to alternative methods, including interviews and document reviews, to gather valuable information. Furthermore, ethical considerations were strictly adhered to, ensuring the credibility and integrity of the evaluation process. Moving forward, it is imperative to prioritize strategies that guarantee the inclusion of diverse voices in such assessments to enhance the overall effectiveness and impact of development initiatives.

The comprehensive analysis conducted by the Evaluation Team has revealed the profound significance of the project's alignment with national strategies and policies, particularly within the Palestinian context. Despite challenges and unforeseeable delays, the project has continually demonstrated relevance, adaptability, and a strong focus on gender mainstreaming. The robust logical connections and stakeholder engagement have reinforced the project's impact and relevance, thus underscoring its pivotal role in driving positive change and development within the water and sanitation sector. It is imperative that we leverage the insights gleaned from this evaluation to refine our approaches and continue striving for excellence in our initiatives. By heeding the lessons learned, we can drive sustainable positive change and contribute meaningfully to broader national and international development objectives.

This project has shed light on the critical issues surrounding wastewater management, especially in the context of transboundary management between Israel and Palestine. The comprehensive analysis and proposed solutions underscore the necessity for a robust environmental wastewater system with a focus on transboundary management, aligning with the broader wastewater sector strategies in Palestine. Furthermore, the project serves as a valuable learning experience, offering expertise and lessons learned that can benefit UNDP and its partners for future initiatives in similar settings. Despite limited available data for comparison, UNDP's extensive experience in this field since 2009 has contributed significantly to addressing the challenges, emphasizing integration, participatory approach, and scalability. As the project moves forward, it aims to address the immediate needs while strategically planning for long-term sustainability. The importance of implementing actual solutions and projects, drawing from accredited studies and strategies, cannot be overstated. This project underscores the urgency and potential for positive impact in addressing transboundary wastewater issues, providing a crucial framework for future endeavors in this domain.

The comprehensive review conducted by the Evaluation Team (highlights the significant progress made towards achieving the project's intended outputs, despite encountering challenges. Output 1 and its related indicators have been satisfactorily completed, with adjustments increasing the number of beneficiaries beyond the original plan. Progress on Output 2 is on track to reach a satisfactory level of results, with significant advancements in meter installation and management mechanisms. Output 3, including the implementation of a revised water tariff in Attil, has successfully been achieved. Additionally, the partnership strategy and capacity building efforts have proven effective, fostering collaboration and improving the capabilities of national partners and beneficiary municipalities. The project's approach in addressing gaps and

its potential contribution to long-term sustainability indicate a positive trajectory towards achieving the intended outcomes. As the project approaches its closing phase, it is evident that while several outputs are realized, the full realization of intended outcomes is not yet achieved. However, based on the evaluation, the project is on the right track to achieve its objectives. Continued efforts and strategic training initiatives will be essential for reinforcing technical skills and knowledge, further ensuring the sustainability and success of the project. The dedication and commitment demonstrated by all stakeholders involved affirm the project's potential for long-term impact and sustainability within the communities. This successful collaboration serves as a compelling example of effective partnership and capacity building, offering valuable insights and lessons for future endeavors in similar initiatives.

The evaluation of efficiency in project management and communications revealed a well-structured approach, leveraging stakeholder engagement and participatory decision-making to navigate challenges and create effective solutions. The utilization of local resources and strategic segmentation of construction efforts contributed to a streamlined and efficient management structure. Furthermore, the project's cost-effectiveness was evident through adaptive planning processes and transparent procurement procedures, demonstrating its resilience in the face of challenges. Despite encountering hurdles, the project managed to effectively utilize available resources and nearly achieved all planned activities within the allocated budget. Finally, the timely implementation of project outputs, supported by comprehensive monitoring mechanisms and a structured reporting framework, underlines the project's commitment to delivering tangible results. Overall, the project's approach underscores a strong foundation of trust, cooperation, and adaptability, serving as a model for efficient and effective project management.

The project has made significant strides in addressing environmental challenges and fostering regional cooperation, impacting targeted communities in various ways. From improving sanitation standards to empowering stakeholders and promoting gender equality, the project has laid the groundwork for long-term effects in the targeted areas. Additionally, the financial and environmental impacts stand out as crucial aspects of the project, ensuring the sustainability and well-being of the communities involved. It is critical to continue supporting and monitoring the project's outcomes to ensure its lasting positive effects on the targeted communities and the environment.

The establishment of wastewater collection systems covering 25.6 km across Attil and Deir Al-Ghosoun communities underscores the project's commitment to enduring sustainability, with significant environmental, economic, and social benefits for the community. Despite challenges in implementing new tariff systems and optimizing ho, ongoing efforts aim to secure funding for critical feasibility studies and project designs, emphasizing collaborative efforts for long-term sustainability. Training initiatives and expert support have strengthened institutional capacity within municipalities and the Palestinian Water Authority (PWA), laying a solid foundation for enhanced management of wastewater systems. The project's ability to secure funding for a feasibility study for a planned wastewater treatment plant in Tulkarem signifies a crucial step

towards sustainable solutions. In light of evolving circumstances, reassessing the scale and scope of future phases while aligning closely with the strategic priorities of the PWA is critical. These initiatives, contingent upon securing adequate funding, offer promising pathways for comprehensive management of water and transboundary wastewater.

The evaluated project has exemplified several crucial lessons for sustainable development initiatives. From prioritizing gender equality and environmental conservation to emphasizing consensus building and stakeholder engagement, the project's approach has been comprehensive and impactful. Moving forward, it is imperative to continue investing in institutional capacity building, maintain flexibility in the face of challenges, and prioritize gender mainstreaming in all development endeavors. By leveraging the lessons highlighted in this evaluation, future projects can strive to create lasting and inclusive change while effectively managing complex issues such as wastewater and environmental sustainability.

In conclusion, the immediate operational recommendations outlined are crucial in ensuring the successful and sustainable management of the wastewater system. By prioritizing comprehensive training, infrastructure assessment, environmental restoration, and international collaboration, we pave the way for effective and efficient wastewater management. It is imperative to not only address technical aspects but also emphasize environmental conservation and community well-being. Additionally, the incorporation of gender analysis and disaggregated data promises a more inclusive and impactful approach. These recommendations lay the foundation for a holistic and integrated water resource management strategy, fostering long-term sustainability and societal well-being. Let's move forward with these actions to create a lasting and positive impact on the communities and the environment.

8. RECOMMENDATIONS

Key immediate operational recommendations:

For UNDP:

1. Assist specific municipalities in developing detailed training programs for municipal staff responsible for project operation and maintenance during its initial phase. This will involve organizing visits facilitated by PWA with a focus on enhancing technical expertise and promoting efficient management practices for wastewater systems.
2. Assist both municipalities in approaching MoLG for the implementation of a road paving project between both villages linked by the newly-installed connecting pipe. This crucial step will facilitate future maintenance and repair activities, ensuring the infrastructure's longevity.
3. Enhance the gender mainstreaming elements in progress reporting by the inclusion of more detailed data to show how the project affects various social groups, including a thorough evaluation of women's participation in project phases, which are essential in shaping the project's development and catering to all societal groups. Gender analysis should be integrated into the project's planning and design phase in order to identify women's needs prior to implementation.

For PWA:

1. To effectively monitor the installed flowmeters, the Palestinian Water Authority (PWA) is recommended to implement capacity building program for its employees including training of staff members on data collection, analysis, and interpretation to ensure accurate monitoring of wastewater flow and quality.
2. Conduct a thorough assessment of the infrastructure after the winter season of 2023/2024 to identify any damages, particularly focusing on manholes that may have been affected. Addressing these issues promptly will ensure the continuous functionality of the wastewater network.
3. The PWA needs to consistently focus on repairing faulty flowmeters to achieve the project's goals and guarantee accurate data collection for efficient wastewater management. It is important to include regular maintenance and troubleshooting in the project's continuous activities, as well as ensuring the operational sustainability of flow measurement meters through maintenance, monitoring, and using the data for verifying invoices and improving financial accuracy and accountability.
4. The PWA needs to establish and follow up formal short- and long-term agreements with Israeli Water Authority (IWA) to utilize their knowledge and resources for sustainable water management practices when the situation allows.
5. The shift towards a catchment approach in the future interventions marks a pivotal step in advancing water resource management, therefore adopting integrated strategies is crucial for ensuring the sustainability of water sources, improving efficiency, and preserving

ecosystems. This holistic approach not only benefits municipal services but also promotes sustainable development and resilience. Moving forward, a comprehensive framework will drive to positive change for both current and future generations.

6. Awareness campaigns should take into consideration the needs of persons with disabilities and use proper tools to reach them.