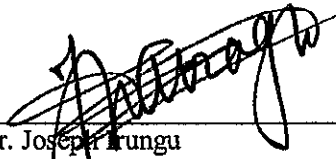


DRAFT MINUTES OF MEETING
OF
THE EIGHTH JOINT COORDINATION COMMITTEE MEETING
ON
THE PROJECT FOR
STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION IN THE
REPUBLIC OF KENYA
AGREED UPON BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MINISTRY OF WATER AND SANITATION AND IRRIGATION
THE REPUBLIC OF KENYA

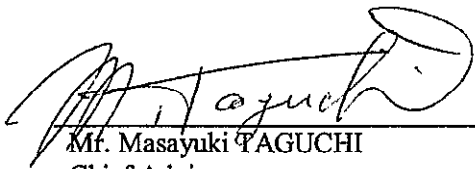
11th November 2020, Nairobi

小森 克俊

Mr. Katsutoshi KOMORI
Chief Representative
JICA Kenya Office



Mr. Joseph Irungu
Principal Secretary
Ministry of Water and Sanitation and Irrigation
The Republic of Kenya



Mr. Masayuki TAGUCHI
Chief Advisor
JICA Expert Team

In accordance with the Record of Discussion (hereinafter referred to as the "R/D") signed on 7th March, 2016 between the Ministry of Water and Irrigation, which was renamed the Ministry of Water and Sanitation in February 2018, and again reorganized as the Ministry of Water, Sanitation and Irrigation (hereinafter referred to as "MWS&I") in October 2019, and Japan International Cooperation Agency (hereinafter referred to as "JICA") on "The Project for Strengthening Capacity in Non-Revenue Water Reduction in the Republic of Kenya" (hereinafter referred to as "the Project"). The 8th Joint Coordination Committee (hereinafter referred to as the "8th JCC") of the Project was held on 11th November, 2020. All members of the 8th JCC reviewed the overall Progress and implementation of the Project, and also exchanged opinions on major issues.

The major points of discussions and agreement are summarized as follows:

1. Remarks by Eng. S. A. O. Alima, Project Manager, Water Secretary of MWS&I

Eng. SAO Alima, Project Manager, Water Secretary of MWS&I, thanked the experts for the work done in the pilot WSPs which has been bearing fruits. He said the average NRW ratio in the country was 41% and it was possible to reduce because of a good example in other countries like Japan. He also informed the members that the Ministry was committed to the project and had especially accomplished purchasing of leak detection equipment, supporting KEWI to renovate the old training platform (lay pipework) for the leak detection training platform. He added that the ministry had deployed senior officers and two young engineers in the NRW Unit. He then requested the expert team to work with the members of the NRW Unit of the ministry and especially the new young engineers so that they can gain the relevant skills and knowledge especially on the hands-on activities.

2. Approval of Project Monitoring Sheet Ver. 8

The 8th JCC confirmed the contents of the Project Monitoring Sheet Ver. 8 (covering the period from February 2020 to October 2020), which was presented to the 8th JCC (Refer to Annex-1). The JICA Expert team made a briefing about the activities that happened during this period as follows:

The COVID-19 pandemic broke out and the first case in Kenya was confirmed in Nairobi City in the middle of March, 2020. Although the pandemic was gradually spreading in the country, the national government soon imposed preventive measures in the country and several social restrictions such as night curfew, lockdown of some towns or counties and people's gatherings or festivities etc. In some of the counterpart institutions, the number of staff was reduced which caused suspension of not only the project activities but also daily works. On the other hand, the pilot WSPs fell into serious financial difficulties by complying with the strong directives issued by the national government not to disconnect water services to all the customers. There was also a great drop in water consumption caused by the closure or suspension of the large customers like factories, schools or business companies in the towns. After August the number of infections was decreasing gradually and, accordingly, restrictions to social life were lifted and the business and economic activities of the towns started recovering little by little. Under such social circumstances and also the pilot WSPs' own effort to recover their water revenue by

requesting customers to pay their water bills, the financial conditions of the pilot WSPs started recovering and also the working conditions gradually restored. Consequently, the project activities were not implemented as planned and progress and achievement during the period remained very limited.

In accordance with above mentioned circumstances, the Expert team reviewed the project activities and prepared the Monitoring Sheet Ver. 8. The JICA Expert team made a briefing of the sheet focusing on several topics on which the Counterparts in charge of the project outputs made additional explanations. The participants further discussed about the project progress and achievements.

As a result, all the C/Ps unanimously approved the contents of the Project Monitoring Sheet Ver. 8.

3. Issues discussed in the 8th JCC Meeting

1) Draft plan for rescheduling in order to recover the suspended activities of the project due to COVID-19.

Due to the COVID-19 pandemic the project activities were suspended for almost 6 months. Among the most important activities that directly influence the project implementation period and that were affected by the pandemic are the revision of the NRW Management Standards by Output 2 and supporting of various activities of NRW reduction by Output 4. After September 2020 the impact of COVID-19 pandemic had slowed down and the pilot WSPs were also gradually normalizing. Taking these situations into consideration, JICA Expert team intended to resume the project activities in collaboration with the C/Ps and the pilot WSPs. Therefore, the Expert team planned to reschedule the project and prepared a draft plan of the same as shown in annex 2 attached. The Expert team explained the plan by focusing on, especially, the activities to be implemented from October 2020 to March 2021 as follows.

Activities to be done remotely through Web meetings/e-mails/Phone

- Holding of PIC and JCC by Web system
The frequency of each meeting is every month and 6 months respectively in general.
- Completion of the new NRW management Standards by March, 2021
- More assistance through Expert involvement with WSPs
 - e.g. Exercises on physical loss reduction,
 - Consultations with the experts, etc.
- Activating the Working Group (Formulating the Work Plan)
- Producing video for sensitization of water use
- Continuing questionnaire surveys
- Conducting 2nd thematic Workshop in Jan. 2021

2) Extension of project implementation period

The Kenyan side appreciated the above activities and requested to implement them as planned above. They then explained that considering the interruption of the project activities due to the COVID-19 discussions to extend project period was necessary in order to achieve the project goals. During the meeting, the members agreed on the proposal of March 2022 as the extension that would be required

for the project to achieve its intended objectives. Both sides agreed that the appropriate extension period would be decided based on further discussions after the time of re-travel to Kenya by the Experts becomes foreseeable.

3) Timely disbursement of the budget for the project activities

The JICA Expert team requested MWS&I to implement the disbursement of the budget timely for the project activities in accordance with the annual plan. The team raised an actual experience in the project where some staff of the NRW Unit could not receive the necessary allowances or expense reimbursements on time upon dispatch to the project sites where some significant and useful project activities were being conducted by the Expert team and therefore had lost the valuable chance to improve their knowledge and capacity. Due to that incident the staff's motivation to cooperate with the project was unfortunately depressed.

In order to recover and activate the project activities in future, both sides committed to make timely disbursement for the project activities including for the editorial committee of the NRW management Standards and the Working Group.

4) Procurement of chemicals for water treatment to the pilot WSPs based on amendment of Records of Discussion (RD) and Project Design Matrix (PDM)

After the spread of COVID-19 after April 2020, the pilot WSPs had fallen into financial difficulties as mentioned above. JICA was seriously concerned whether the pilot WSPs could continue their water supply continuously and keep the citizens' lives safe from the pandemic. In response to a request from Kenyan side, JICA decided to support the pilot WSPs by procuring the essential chemicals for use in the WSPs' process of water treatment. To realize this activity, both sides agreed to add another indicator to Output 5, as "5-4 Activities for countermeasure to COVID-19" into PDM, which was renewed as PDM Ver.3; and to amend the R/D in June 2020. In collaboration with the Expert team, JICA implemented the support for three-month usage volume of the chemicals for all the pilot WSPs from July to October, 2020. MWS&I thanked JICA and appreciated saying that the assistance had contributed significantly to keeping safe the lives of the citizens of Kenya. The JICA Expert team requested each pilot WSP to submit monthly reports of the consumption records to the team through the monthly questionnaire which had been regularly circulated among the team and the pilot WSPs. All the pilot WSPs agreed to it.

5) Supporting the programme of Water Utility Regional Partnership among three countries' water entities

The activities of the Water Utility Regional Partnership had been implemented among the three countries of Kenya, Rwanda and Malawi from 2018. The member entities are: EWASCO (Kenya), WASAC (Rwanda, Kigali City) and LWB (Malawi, Lilongwe City). This activity was implemented on their own initiatives and JICA has been supporting the activity indirectly because JICA is now implementing projects of technical assistance on NRW reduction in each of these countries. The main function of the programme is to hold a workshop by gathering representatives from the entities in one

country where EWASCO was supposed to host the workshop this year. However, it was tentatively postponed to next year due to COVID-19. In the workshop, the participants present their individual project's characteristic, problems solved, challenges and ways forward, etc.; and conduct discussions, visit project sites of interest, and learn from each other the different views on political, cultural and administrative background. The Expert team will assist EWASCO to implement the workshop next year. The Expert team proposed in the meeting that the pilot WSPs would co-work and participate in the workshop voluntarily considering the valuable experience they would obtain. The members of the JCC agreed on it.

4. Schedule of the Next JCC Meeting

The 9thJCC meeting was scheduled for May 2021.

END

Annex-1: Project Monitoring Sheet Ver. 8

Annex-2: Rescheduling Plan for the Project (tentative)

Annex-3: Attendance list

TO CR of JICA Kenya OFFICE

PROJECT MONITORING SHEET Ver. 8

Project Title: THE PROJECT FOR STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION (Phase 3)

Version of the Sheet: Ver. 8 (Term: Feb. 2020 – Sep. 2020)

Name: Masayuki TAGUCHI

Title: Chief Advisor

Submission Date: Oct. 15, 2020

I. Summary

1 Progress

1-1 Progress of Inputs

Input by Japanese Side

Man Months (M/M) of the deployment of the experts are calculated from February, 2020 to September, 2020 in the table below. After Covid-19 broke out in March 2020 until today Japanese experts are supporting C/Ps or the pilot WSPs in collaboration with the local staffs by communicating through e-mail or telephone.

Table 1 M/M of the Experts and Local Staffs

Expert	In Kenya	In Japan	
Mr. Taguchi	From 12nd Jan. to 14th Mar. (2.10 M/M)	From May to Sep. (2.50 M/M)	<ul style="list-style-type: none"> ▪ Monthly Questionnaires ▪ Chemical Procurement
Mr. Saito	From 20 th Jan. to 20th Feb. (1.07 M/M)	-	-
Mr. Takahashi	From 25 th Jan. to 15 th Mar. (2.03 M/M)	-	-
Mr. Harada	-	From Jun. to Sep. (1.70 M/M)	<ul style="list-style-type: none"> ▪ Procurement of Equipm't of leak detection
Ms. Sugimoto	From Feb. to Sep. (0.90 M/M)	-	<ul style="list-style-type: none"> ▪ County Sensitizations ▪ Producing sensitization tools
Total	6.10 M/M	4.2 M/M	
Local staff: 2 Secretary:1	From Feb. to Sep.: 3P @ 8 M = 24 M/ M	-	

Annex-1 Monitoring Sheet Summary

Input by Kenyan Side

Project CPs: Number of Counterpart (CP) members that participated in the reporting period is 102 representing the following organizations.

MWS&I (6), WASREB (4), KEWI (10), WASPA (5), Meru WSP (10), Embu WSP (11) Nyahururu WSP (9), Nakuru WSP (8), Ruiru-Juja (6), Mavoko (7), Eldoret (8), Kisumu (10), Kilifi-Mariakani (10)

Facilities: Project office as well as regular meeting rooms were provided at MWS&I. Vehicles for Kenyan C/Ps' field visits were provided.

Project implementation costs: The traveling costs and per diem for MWS&I/ KEWI/ WASREB staffs were supposed to be provided by MWS&I.

1-2 Progress of Activities

Activity	Progress
Output 1	
1-1 MWS&I NRW Unit, in cooperation with WASREB, produces NRW annual reports which include NRW reduction data.	2 nd version of the annual report 2018/2019 was completed in its edition. The printing of it is ongoing as of the end of October, 2020.
1-2 MWS&I NRW Unit plans and implements NRW reduction sensitization activities for the Counties.	No function related the County sensitization has been done after the Covid-19 broke out.
1-3 MWS&I NRW Unit plans and implements NRW reduction campaigns.	No function related NRW reduction campaign has been done after the Covid-19 broke out.
1-4 MWS&I NRW Unit conducts reviews of KEWI NRW courses.	Activities for KEWI was completed in the Phase 2.
1-5 MWS&I NRW Unit conducts reviews of WASREB's NRW reduction activities.	WASREB is charged with the task of revising the NRW Managing Standards and the members of MWS&I NRW Unit are working as the members of the Editorial Committee for editing the new Standards.
1-6 MWS&I NRW Unit assures the budget for the support mechanism based on its NRW reduction mid-term vision.	Budget for the NRW related activities for 2021/2021 was approved by the MWS&I. The related activities have been almost suspended due to the Covid-19.
Output 2	
2-1 WASREB conducts survey of the usage of current NRW reduction	Completed in Phase 2.

Annex-1 Monitoring Sheet Summary

standards.	
2-2 Based on the survey result as well as Output 4 and 5, WASREB revises the NRW reduction standards.	The revision work of the Standards is on-going by the Editorial Committee. The final check on the new Handbook was conducted on 3 rd September by a web meeting and the same on the new Guideline was held on 22 nd October.
2-3 WASREB promotes revised NRW reduction standards through workshop(s).	To be implemented after the completion of the new Standards in accordance with the work plan to be formulated by the *) Working Group. (**) see in 4. of this document)
2-4 WASREB incorporates the review results of NRW reduction activities by MWS&I NRW Unit in their activities.	MWS&I NRW Unit is a party of the member for the editorial committee for the NRW Managing Standards and discussing issues raised in the meeting. WASREB should feedback the results reached in the meeting.
2-5 WASREB monitors and evaluates the usage of revised NRW standards.	Monitoring and evaluation will be conducted after dissemination of the new Standards in the country-wide. The plan of it will be formulated by the Working Group.
Output 3	
3-1 KEWI studies current status of NRW reduction courses and its challenges.	Completed in Phase 1
3-2 KEWI reviews NRW reduction training strategies and course contents.	Completed in Phase 2
3-3 KEWI, in collaboration with leading WSPs (Embu and Meru, etc.), conducts on-site NRW trainings.	KEWI is conducting the NRW reduction short training course as the one of its regular training courses.
3-4 KEWI reflects on-site NRW trainings into NRW course contents and materials.	Completed in Phase 2.
3-5 KEWI incorporates the results of review by MWS&I NRW Unit into NRW course contents.	Completed in Phase 2.
3-6 KEWI conducts trace studies of NRW reduction course participants.	Completed in Phase 2.
Output 4	
4-1 The Project team conducts a survey of Urban WSPs and selects pilot Urban WSPs.	This activity was completed in Phase 1.

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Annex-1 Monitoring Sheet Summary

4-2 Each Pilot WSP conducts analyses of current NRW reduction activities and identifies its challenges.	This activity was completed in Phase 1.
4-3 Each Pilot WSP identifies measures to solve challenges.	All the 9 Pilot WSPs have been formulating their annual NRW reduction plans every year by utilizing the templates created by the Project. Through this activity, all the Pilot WSPs assess their current capacity, recognize their challenges and identify measures to solve the challenges.
4-4 Each Pilot WSP formulates the NRW reduction plan including financial plan.	
4-5 Each Pilot WSP implements the NRW reduction plan.	Each Pilot WSP has been implementing the activities in accordance with their plan. However, the Covid-19 have not allowed them to do so from the latter half of the last fiscal year to this fiscal year.
4-6 Each Pilot WSP evaluates and analyzes implementation results and revises the plans.	Each Pilot WSP has been evaluating their activities implemented each year through their preparation of annual activity review sheets for reporting. Some Pilot WSPs, however, had difficulties to prepare their annual activity review sheets for the last fiscal year without proper support from the experts during the pandemic. The experts are currently in discussion with WASREB to simplify and improve the template used for annual activity review so that the WSPs' annual activity review process more sustainable and beneficial.
4-7 Each Pilot WSP produces the NRW reduction activity report annually.	
4-8 Each Pilot WSP holds regular NRW reduction meetings attended by relevant departments of WSP.	As recommended by the expert team, each Pilot WSP is supposed to have a monthly joint meeting of relevant departments. However, the Covid-19 is not allowing them to do so.
Output 5	
5-1 The project presents results and lessons of Output 4 and other NRW activities during WASPA meetings.	The expert team collaborated WASPA to conduct its Benchmarking seminar in April 2020. A local staff of the team took charge of a lecture for sharing some case studies realized in the Output 4 activities and it gained a good reputation from the participants.
5-2 The Project holds NRW thematic workshops in coordination with WASPA.	2 nd NRW thematic workshop was planned to hold in August 2020, however, it was postponed by the Covid-19. It is now planned again to hold it in January 2021

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Annex-1 Monitoring Sheet Summary

	through a web system.
5-3 The Project team produces brief notes.	2 nd brief note (Japanese) was completed in September, 2020.
5-4 Counter measures against Covid-19 pandemic 1) Questionnaire surveys to trace the influences by the Covid-19. 2) Urgent donation of Chemicals for the water treatment process. 3) Producing sensitization tools for the citizens for water use and washing hands. 4) Procurement of some of Equipment in Japan	1) This survey was begun in April and continued monthly to monitor the situation changes of Pilot WSPs. The all answers were edited in a table with feedback comments of the expert team. This was efficient to know real-time necessities of the WSPs and to realize urgent chemicals donation to the Pilot WSPs. 2) A 3-month volume of disinfection and chemicals for water treatment process were donated to the all Pilot WSPs in order to support the difficult situation of the WSPs under the Covid-19. This activity was implemented from July to September, 2020. 3) Banners, posters and fliers were intended to support the Pilot WSPs to sensitize the citizens in the water use, sanitary and hand washing aspects etc. The activity is completing by October, 2020. 4) Please see in 1.5 of this document.

1-3 Achievement of Output

Output 1: Promotion and coordination of NRW reduction activities by MWS&I NRW Unit are strengthened.	
1-1 All County representative participate NRW related seminar(s).	NRW Unit made an annual plan for county sensitization and tried to implement as planned. The 2 nd seminar was held in Nanyuki Town in November, 2019. (no more progress was made after Covid-19 broke out)
1-2 NRW reduction campaigns are conducted semi annually.	Embu WSP facilitated a school visit to its Water Treatment Plants in January 2020 and Muranga WSP also conducted the similar event in February 2020. (no more progress was made after Covid-19 broke out)
1-3 NRW reduction annual reports are produced.	2 nd NRW Annual report will be printed in October, 2020.

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Annex-1 Monitoring Sheet Summary

Output 2: Use of NRW reduction standards by Urban WSPs are promoted by WASREB	
2-1 NRW reduction standards are revised by 2020.	As mentioned above in Output 2, 2-2 of 1-2 Progress of Activities
2-2 Revised NRW reduction standards are disseminated to all Urban WSPs through workshop(s).	As mentioned above in Output 2, 2-3 of 1-2 Progress of Activities
Output 3: NRW related training capacity of KEWI is strengthened.	
3-1 KEWI conducts NRW reduction courses with contents incorporating on-site trainings and revised course materials.	Completed in Phase 1.
3-2 The average score of the participants on the test conducted after the NRW reduction course is higher than before the implementation.	Achieved satisfactorily in Phase 2.
Output 4: NRW planning and/or implementation capacity of Pilot WSPs is enhanced.	
4-1 More than 8 Pilot WSPs formulate NRW reduction plans.	All the 9 Pilot WSPs have formulated the annual NRW reduction plans for the financial year 2020/2021 based on their capacity self-assessment (by September 2020) with support from the expert team (although some WSPs still have minor problems with their annual plans). It was their 4 th year of preparing annual plans using the templates being upgraded repeatedly by the experts each year. The Pilot WSPs seem to be finally satisfied with the updated templates for capacity self-assessment, annual and medium-term planning and quarterly monitoring. However, some WSPs have not updated their medium-term plans using the latest template yet. As previously explained, some WSPs have not successfully prepared their annual activity reviews for the last fiscal year, and the experts are currently simplifying the template used for the annual activity review and making it more beneficial for the WSPs themselves. All the Pilot WSPs have been struggling to implement their NRW reduction activities as planned since the Covid-19 hit Kenya. But their activities are getting more active over the time.
4-2 More than 6 Pilot WSPs self-review their achievements of Previous year's NRW reduction plans and compile activity report.	
4-3 Based on 4-2, more than 6 Pilot WSPs continuously formulate annual NRW reduction plans.	
4-4 More than 6 Pilot WSPs continuously implement NRW reduction plan formulated in 4-1.	
4-5 More than 6 Pilot WSPs are able to use	All the 9 Pilot WSPs have been implementing new

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Annex-1 Monitoring Sheet Summary

skills and/or implement activities which they could not employ before the project.	activities by adopting various skills newly introduced with help of the expert team.
4-6 The amount of NRW in the selected distribution zones indicates decreasing tendency.	The leakage reduction in the pilot areas of Nakuru WSP was especially successful in Phase 2. However, since then, the leakage in these areas seems to be increasing again. The leakage reduction in the pilot areas in Nyahururu WSP was also successful in Phase 2 although the scale of these previous pilot areas was rather small. Nyahururu WSP has been expanding their leak reduction activities over other areas (including their plan to install more PRVs in hilly areas with help of the experts). Embu WSP has been struggling to reduce their leakage in their large pilot area where the inlet bulk meter procured by JICA has stopped working again.
Output 5: Experiences and knowledge of NRW reduction activities are shared among Urban WSPs.	
5-1 Results and lessons from Output 4 and NRW activities are shared during WASPA meetings at least 3 times a year.	The expert team gave lectures in WASPA's Benchmarking workshop held in November 2019 and in April 2020. The latter one was conducted with a web system.
5-2 A NRW thematic workshop is organized every year.	2 nd thematic workshop was planned in August 2020 but postponed to January 2021 due to Covid-19 pandemic.
5-3 3 Brief notes are produced during the project.	Brief note ver. 2 (Japanese) was completed in September 2021. The English one of the same is on-going.

1-4 Achievement of the Project Purpose

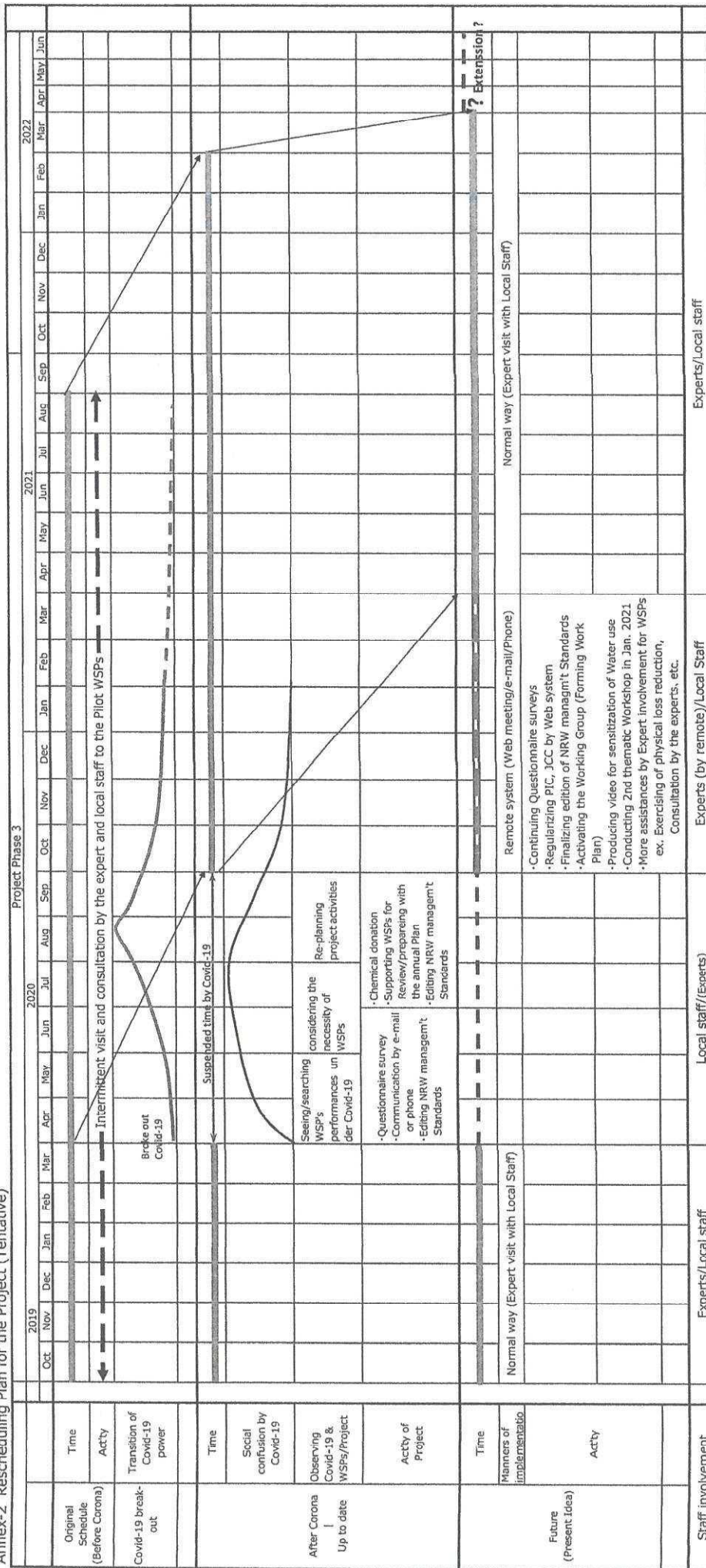
Project Purpose: A NRW reduction support mechanism is established for Urban WSPs to implement NRW reduction Activities.	
Indicator	Achievement
6 Pilot Urban WSPs continue achieving target set by the NRW reduction plan for two years.	6 Pilot WSPs have achieved 60% or higher annual completion ratio of their planned activities for two years or more by the end of June 2020. Those 6 Pilot WSPs are; Meru- 3 ys, Embu- 2 ys, Nakuru- 4 ys, Kisumu- 2 ys, Nyahururu- 4 ys, Eldoret- 3 ys. The other three WSPs such

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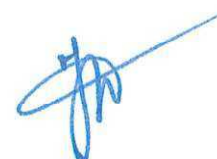
Annex-2. Rescheduling Plan for the Project (Tentative)



Annex-3. ATTENDANCE LIST

8TH JCC MEETING

S/N0.	NAME	ORGANIZATION	POSITION
1.	ENG.SAO ALIMA	MWS&I	WATER SECRETARY
2.	ENG. VICTOR NJERU	MWS&I	NRW HEAD
3.	MR. CHEPYEGON CHEMERIL	MWS&I	NRW UNIT
4.	MR. BONIFACE WAWERU	MWS&I	NRW UNIT
5.	MR. GEORGE BOKESIA	MWS&I	NRW UNIT
6.	MS. PATRICIA MUTUA	MWS&I	NRW UNIT
7.	MR. GODFREY KINGWEI	MWS&I	INTERN
8.	MR. YASUDA TOMOYUKI	JICA KENYA	SENIOR REPRESENTATIVE
9.	MS. YOSHII YUMIKO	JICA KENYA	REPRESENTATIVE
10.	MR. JOHN GITAU	JICA KENYA	PROGRAMME OFFICER
11.	MS. HATTORI YOKO	JICA TOKYO	DIRECTOR, GLOBAL ENVIRONMENT DEP.
12.	MS. SHOJI IZUMI	JICA TOKYO	DEP. DIRECTOR, -do-
13.	MR. YOKOTA YOSHIAKI	JICA TOKYO	SENIOR ADVISOR, -do-
14.	MS. MATSUNAGA TOMOKO	JICA TOKYO	TECHNICAL ADVISOR, -do-
15.	ENG. DANIEL NGUGI	WASREB	TECHNICAL OFFICER
16.	MS. EDDAH WAMBUI	WASPA	
17.	PROF. PATRICK AYOMBE	KEWI	DIRECTOR
18.	MR. WALTER MOSETI	KEWI	NRW COORDINATOR
19.	MR. JOSEPH IRUNGU	EWASCO	NRW SUP
20.	MR. CYRUS MUGENDI	EWASCO	
21.	MR. FRANKLINE THURANIRA	MEWASS	NRW OFFICER
22.	MR. PAUL MUTHAMI	NYAHUWASCO	NRW IN-CHARGE
23.	MR. JOSEPH GITAU	NYAHUWASCO	OPERATIONS ENGINEER
24.	MR. PASCAL JIRA	KIMAWASCO	TM
25.	MR. CORNERIUS MUTAI	KIMAWASCO	
26.	MR. JOSEPH MAIYO	ELDOWAS	NRW OFFICER



27.	MR. ALEX KEMBOI	ELDOWAS	NRW OFFICER
28.	MR. JOB LIECH	KIWASCO	NRW ENGINEER
29.	MS. MARY MWANGI	RUJWASCO	TM
30.	MR. GILBERT MUTAI	NAWASCO	DISTRIBUTION MANAGER
31.	MR. LEONARD MUTAI	NAWASCO	ILLEGAL USE SUP.
32.	MR. TAGUCHI MASAYUKI	JICA EXPERT	CHIEF ADVISOR
33.	MR. SAITO NABORU	JICA EXPERT	
34.	MR. MORI SHOZO	JICA EXPERT	
35.	MS. SUGIMOTO HIROKO	JICA EXPERT	
36.	MR. SEKIMOTO SHINICHI	JICA EXPERT	
37.	MR. HARADA NAOKI	JICA EXPERT	
38.	MR. GEORGE KARANJA	JICA EXPERT	
39.	MR. CHARLES MAINGI	JICA EXPERT	
40.	MS. KELLYJOY GAKII	JICA EXPERT	

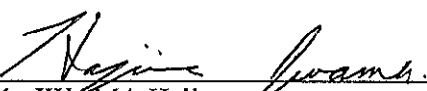
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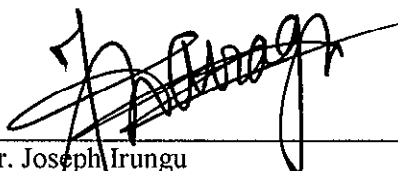
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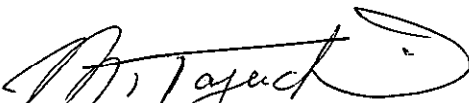


MINUTES OF MEETING
OF
THE NINTH JOINT COORDINATION COMMITTEE MEETING
ON
THE PROJECT FOR
STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION IN
THE REPUBLIC OF KENYA
AGREED UPON BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MINISTRY OF WATER, SANITATION AND IRRIGATION
THE REPUBLIC OF KENYA

9th July 2021, Nairobi


Mr. IWAMA Hajime
Chief Representative
JICA Kenya Office


Mr. Joseph Irungu
Principal Secretary
Ministry of Water, Sanitation and Irrigation
The Republic of Kenya


Mr. TAGUCHI Masayuki
Chief Advisor
JICA Expert Team

In accordance with the Record of Discussion (hereinafter referred to as the "R/D") signed on 7th March, 2016 between the Ministry of Water and Irrigation, which was renamed the Ministry of Water and Sanitation in February 2018, and again reorganized as the Ministry of Water, Sanitation and Irrigation (hereinafter referred to as "MWS&I") in October 2019, and Japan International Cooperation Agency (hereinafter referred to as "JICA") on "The Project for Strengthening Capacity in Non-Revenue Water Reduction in the Republic of Kenya" (hereinafter referred to as "the Project"). The 9th Joint Coordination Committee (hereinafter referred to as the "9th JCC") of the Project was held on 9th July, 2021. All members of the 9th JCC reviewed the overall Progress and implementation of the Project, and also exchanged opinions on major issues.

The major points of discussions and agreement are summarized as follows:

1. Opening Remarks

Eng. Mary Wamaitha, Ag. Director of Water, Sewerage & Sanitation, MWS&I, emphasized that minimizing the NRW reduction was very important because of the huge financial losses being incurred by WSPs in the water sector across Kenya. She also pointed out that the 9 pilot WSPs are expected to create a learning ground for the rest of the WSPs in the country in the fight against NRW. She also requested the JICA Experts to consider documenting the WSPs which have made commendable progress in the fight against NRW so that others can learn from them. She informed the members that the NRW Unit in the MWS&I was now a division and therefore challenged them to be up to the task in the fight against the NRW monster. She finally expressed apologies from the Water Secretary and the Principle Secretary on their absence and explained that they had been called for an abrupt official duty outside the ministry building.

2. Remarks by the Chief Representative, JICA Kenya office

Mr. Iwama, Chief Representative of JICA Kenya office, appreciated MWS&I for organizing the meeting. He further explained that JICA valued the collaboration between the two countries and the water sector was one of their priority areas in their cooperation. He further thanked the experts for their commendable job and all the counterparts and the WSPs for their efforts in implementing the project activities. He regretted the presence of the Covid-19 pandemic in the entire world and explained that this had caused delay to some project activities and, because of this, they had extended the project period by another eight months in order to recover the lost time. He therefore called for the active participation of all parties in order to accelerate the smooth implementation of the project activities as they strengthen the capacity in NRW reduction in the entire nation.

3. Approval of Project Monitoring Sheet Ver. 9

The 9th JCC confirmed the contents of the Project Monitoring Sheet Ver. 9 (covering the period from November 2020 to May 2021), which was presented to the 9th JCC (Refer to Annex-1). The JICA Expert team presented a brief on the activities implemented during this period as follows:

In mid-February when the second wave of the pandemic had subsided, the Chief advisor visited Kenya after being away for one year and stayed for about one month evaluating the pandemic situation and the possibility of the expert team resuming project activities through direct visits to each C/P institution and all the pilot WSPs and discussing with them. During the visit, he confirmed that the C/P institutions and the pilot WSPs were still struggling under the difficult situation but were also willing to re-start the project activities as before. He therefore decided that it was possible to implement the project activities if the pandemic can be curbed sustainably in future. Consequently, a consensus was reached between him and the Kenyan Counterparts to extend the original project period by about 6 months considering the suspension period of the experts' activities in Kenya and the declining project efficiency during the suspension period.

Based on the above-mentioned circumstances the Expert team reviewed the project activities and prepared the Monitoring Sheet Ver. 9. The Expert team made a briefing of the sheet focusing on several topics on which the Counterparts in charge of the project outputs made additional explanations. The participants further discussed about the project progress and achievements.

As a result, all the Counterparts unanimously approved the contents of the Project Monitoring Sheet Ver. 9.

4. Issues discussed in the 9th JCC Meeting

1) Extension of the project period

Mr. Taguchi reported to the members of the meeting regarding the extension of the project period as follows:

After returning to Japan, he discussed with JICA officials about the social situation under Covid-19 and the issues he and the Kenyan C/Ps had agreed on during his visit in Kenya and the JICA side had consequently agreed to extend the project period by 8 months considering the 3rd wave of Covid-19 had hit Kenya then. Accordingly, the third term of the project was fixed as mentioned in the table below.

Original Project Period	Extended Project Period
November 2019 – September 2021 (5 years)	November 2019 – May 2022 (5 years and 8 months)

During the extension period, implementation of the following critical activities shall be prioritized to ensure sustainability of NRW reduction after the end of the project:

- Authorization of the Non-Revenue Water Management Standards through stakeholders' participation and their publishing by WASREB,
- Regularization of the Water Service Providers licensing conditions by WASREB based on the revised Standards and notification to the public,
- Formulation of the following 4 new training courses to disseminate newly developed contents of

the revised Standards: 1) NRW annual planning and review template, 2) Universal NRW monitoring template, 3) Meter reading and billing analysis and, 4) Use of kobo collect software for data collection and mapping.

- Conducting training for at least two batches of trainees on each of the above courses. This includes carrying out review and improvement of the curriculum for each course.

It was also confirmed that if there are occasions in which the expert team is not able to work in Kenya due to the fiercely spreading Covid-19 waves, the experts may change the method of their works to remote working. The re-planned working schedule of the experts during the third phase of the project in Kenya is attached as Annex 2.

2) Revision of PDM

The JICA expert team proposed to revise the “Indicator on Project Purpose” of the PDM of the project. The expert team also explained that the indicator concerned had been decided in advance before the beginning of the project and hence this idea was found unsuitable based on the achievements of Output 4 activities. The proposal for revision was as follows:

The current Indicator of Project Purpose: “6 of pilot Urban WSPs continue achieving targets set by the NRW reduction plan for two years.” is to be changed to “6 of the pilot Urban WSPs continue achieving above 60% overall achievement of the self-assessment in the NRW reduction planning template.”

With regard to this, there were opinions that it was necessary to explain further to clarify the justification and, thereafter through discussions, it was agreed that the expert team would reword the proposed indicator for ease of understanding by the members.

3) Revision of the NRW reduction Standards

MWS&I NRW Unit reported that revision of the NRW reduction standards was in the stage of collecting public opinion through Stakeholder meetings and the 1st meeting was held in Nakuru in May 2021 while the 2nd was planned to be held in Machakos on 29th and 30th July 2021. The Unit also promised to complete the revision of the Standards within the 2021/22 financial year.

4) Formulation of new training courses by KEWI

Based on the revised NRW reduction Standards, KEWI was charged with formulating new training courses targeting the management and supervisors of WSPs. The new training courses are in 4 areas as follows:

- NRW planning template
- Universal monitoring sheet
- Meter reading and billing analysis
- Kobo collect tool box

Formulation of the new training courses is to be completed by this year end and followed by the implementation of such training courses twice within the Project period.

5) Institutionalizing the project activities

Mr. Iwama, Chief Representative of JICA Kenya office, indicated that it was important to institutionalize the project activities so as to utilize the efforts of the project nationally. He then enquired from the MWS&I on how they planned to institutionalize the project activities by giving examples from some other countries he had visited earlier. Eng. Wamaitha, responded to the members as follows:

- The ministry through WASREB committed to ensure that they achieve acceptable new NRW management standards
- The ministry has the water policy to reduce NRW in the country by employing the appropriate technology.
- The county governments had taken over some of the water sector functions while the rest were taken over by the national government. The Council of Governors was actively participating in the matters of the WSPs in a positive way.
- The NRW levels had captured the attention of the senate which is a policy forming body in the counties and the issue of the NRW ratio was being discussed in senior levels of governance in Kenya
- MWS&I had also elevated the NRW Unit to a division to show its commitment.

Eng. Wamaitha also committed that MWS&I would continue engaging JICA to ensure that all the agreed matters would be achieved as mentioned in the current PDM including the production of the NRW annual reports.

6) 2nd donation of chemicals for water treatment process of the pilot WSPs

Mr. Taguchi informed members that JICA was planning to give some chemical donations to the pilot WSPs and therefore requested for their comment on the same.

WSPs appreciated the donation received from JICA in the previous year and pointed out that their revenue collection efficiency was still down due to the pandemic. They also regretted that the Covid's negative effect was still increasing since customers were not able to pay their bills promptly. They therefore hoped that JICA would kindly extend a similar donation and reiterated that it would help in managing their water production and providing quality water to the citizens in their towns.

7) Timely disbursement of the budget for the project activities

The MWS&I expressed that the budget in the previous year had not been released to KEWI & WASREB due to budget reduction in the ministry, but the ministry would take up the matter in the

current financial year in order to recover and activate the activities of the two important partners of the project including the revision of the NRW management Standards and the formulation of the new training course of NRW reduction as mentioned in this minutes of meeting.

5. Remarks by JICA headquarters in Tokyo

Ms. Hattori, Director of Water Resources Team2, Global Environment Department, JICA headquarters, appreciated the ministry for their efforts to set up the JCC meeting despite the pandemic. She also appreciated the efforts in revising the standards despite the interruptions by the Covid-19. She said it would be a great accomplishment to finalize the standard. She confirmed that the project was extended for another 8 months and hoped that the standards would be availed to the WSPs country wide before the period lapses. She pointed out that the 9 pilot WSPs were expected to be role-models to the rest of the WSPs in the country in accordance with the standards. She also pointed out that there would be many difficulties under the Covid-19 but it was expected that there will be continuous effort so as to achieve project purpose and overall project goal.

JICA was concerned that the NRW ratio had increased and that the WSPs were not able to collect revenue due to the pandemic. She therefore confirmed that JICA would consider their request for the donation of the chemicals.

6. Closing remark

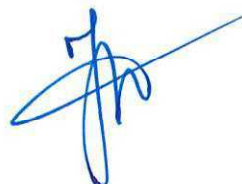
Eng. Wamaitha thanked Ms. Hattori for her encouraging remarks and assured JICA of the ministry's continuous efforts to ensure that the standards would be institutionalized and that the 9 pilot WSPs would share the knowledge acquired through the project with the rest of the WSPs in the country. She also apologized for the absence of the Water Secretary and informed members of his strong commitment to ensure the project's success and sustainability by the WSPs.

END

Annex-1: Project Monitoring Sheet Ver. 9

Annex-2: Extension plan of the third term of the project

Annex-3: Attendance list



TO CR of JICA Kenya OFFICE

PROJECT MONITORING SHEET Ver. 9

Project Title: THE PROJECT FOR STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION (Phase 3)

Version of the Sheet: Ver. 9 (Term: Oct. 2020 – May. 2021)

Name: Masayuki TAGUCHI

Title: Chief Advisor

Submission Date: June. 25, 2021

I. Summary

1 Progress

1-1 Progress of Inputs

Input by Japanese Side

Man Months (M/M) of the deployment of the experts are calculated from October, 2020 to May, 2021 as mentioned in the table below. As Covid-19 pandemic was being dominant in this period, JICA experts have not been allowed to deployed to Kenya except a visit of the Chief advisor from the middle of February 2020 for about one month while 2nd wave of Covid-19 declined temporarily. Therefore, the experts have been carrying out their works through a remote system from Japan or Canada where Mr. Mori, engineer in charge of pipe network planning lives. The local staff of the expert team have been working in collaboration with the experts for supporting C/Ps or the pilot WSPs by communicating through e-mail or telephone.

Table 1 M/M of the Experts and Local Staffs from Oct. 2020 to May 2021

Expert	In Kenya	In Japan/Activities	
Mr. Taguchi Chief advisor	1.27 M/M; from 9th Feb. to 18th Mar, 2021.	4.20 M/M	▪ Monthly Questionnaires ▪ Project implementation Manag'nt
Mr. Mori Pipe network planning	-	1.70 M/M in Canada	▪ Instruction/Advise to Pilot WSPs.
Mr. Takahashi NRW reduction tech.	-	1.35 M/M	▪ Exercise of NRW reduction Technology
Mr. Harada Customer service/ billing	-	0.70 M/M	▪ Procurement of Equipm't of leak detection
Ms. Sugimoto Information/Sensitization	0.85 M/M;	-	▪ County Sensitizations ▪ Producing sensitization tools
Total	2.12M/M	7.95 M/M	

Local staff: 2 Secretary:1	From Oct. to May: 3P @ 8 M = 24 M/ M	-
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Input by Kenyan Side

Project CPs: Number of Counterpart (CP) members that participated in the reporting period is 102 representing the following organizations.

MWS&I (6), WASREB (4), KEWI (5), WASPA (4), Nyahururu WSP (6), Meru WSP (8), Embu WSP (8), Nakuru WSP (8), Ruiru-Juja (6), Mavoko (7), Eldoret (8), Kisumu (6), Kilifi-Mariakani (10)

Facilities: Project office as well as regular meeting rooms were

provided at MWS&I. Vehicles for Kenyan C/Ps' field visits were provided.

Project implementation costs: The traveling costs and per diem for MWS&I/ KEWI/ WASREB staffs were supposed to be provided by MWS&I.

1-2 Progress of Activities

Activity	Progress
Output 1	
1-1 MWS&I NRW Unit, in cooperation with WASREB, produces NRW annual reports which include NRW reduction data.	2 nd version of the annual report 2018/2019 was completed in March 2021 and started distribution of it to WSPs.
1-2 MWS&I NRW Unit plans and implements NRW reduction sensitization activities for the Counties.	County sensitization has been suspended due to Covid-19. It will be restarted after Covid-19 is settled down.
1-3 MWS&I NRW Unit plans and implements NRW reduction campaigns.	No function related NRW reduction campaign has been done. It will be restarted after the Covid-19 is declined.
1-4 MWS&I NRW Unit conducts reviews of KEWI NRW courses.	Activities for KEWI was completed in the Phase 2.
1-5 MWS&I NRW Unit conducts reviews of WASREB's NRW reduction activities.	As a main member of the Editorial Committee for editing the new Standards, NRW Unit had worked with WASREB. The Unit has conducted 1 st stakeholder meeting as a key step for finalizing the new standards. f.
1-6 MWS&I NRW Unit assures the budget for the support mechanism based on its NRW reduction mid-term vision.	Budget for the NRW related activities for 2020/2021 was allocated as per activities implemented by the MWS&I, though many activities were stopped due to Covid-19.

Output 2	
2-1 WASREB conducts survey of the usage of current NRW reduction standards.	Completed in Phase 2.
2-2 Based on the survey result as well as Output 4 and 5, WASREB revises the NRW reduction standards.	The revision work on the technical aspects of the Standards was completed by the Editorial Committee. The standard was opened at 1 st Stakeholder meeting on 28 th & 29 th May for collecting the public comments.
2-3 WASREB promotes revised NRW reduction standards through workshop(s).	To be implemented after the completion of the new Standards as a activities to be promoted by the ^{*)} Working Group. (^{*)} see in 4. of this document)
2-4 WASREB incorporates the review results of NRW reduction activities by MWS&I NRW Unit in their activities.	The editorial committee, which includes NRW Unit and WASREB, had completed the new NRW management Standards by incorporating achievements & results gained through the project activities into it.
2-5 WASREB monitors and evaluates the usage of revised NRW standards.	Monitoring and evaluation will be conducted after dissemination of the new Standards in the country-wide. The plan of it will be formulated by the Working Group.
Output 3	
3-1 KEWI studies current status of NRW reduction courses and its challenges.	Completed in Phase 1
3-2 KEWI reviews NRW reduction training strategies and course contents.	Completed in Phase 2
3-3 KEWI, in collaboration with leading WSPs (Embu and Meru, etc.), conducts on-site NRW trainings.	KEWI has postponed the implementation of the regular course on NRW reduction training due to Covid-19 pandemic.
3-4 KEWI reflects on-site NRW trainings into NRW course contents and materials.	Completed in Phase 2.
3-5 KEWI incorporates the results of review by MWS&I NRW Unit into NRW course contents.	Completed in Phase 2.
3-6 KEWI conducts trace studies of NRW reduction course participants.	Completed in Phase 2.
Output 4	
4-1 The Project team conducts a survey of Urban WSPs and selects pilot Urban WSPs.	This activity was completed in Phase 1.

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4-2 Each Pilot WSP conducts analyses of current NRW reduction activities and identifies its challenges.	This activity was completed in Phase 1.
4-3 Each Pilot WSP identifies measures to solve challenges.	Each Pilot WSP has been preparing annual NRW reduction plans every year (including budget for each activity) by utilizing the templates created in the Project. Through this activity, all the Pilot WSPs re-assess their capacity, recognize their remaining challenges and identify measures to the challenges. The Pilot WSPs are going to share their annual NRW reduction plans for Year 2021-22 (and updated medium-term plans) after reviewing their annual activities planned for Year 2020-21, which has just ended.
4-4 Each Pilot WSP formulates the NRW reduction plan including financial plan.	
4-5 Each Pilot WSP implements the NRW reduction plan.	Each Pilot WSP has been trying to implement NRW reduction activities in accordance with their plans. However, their activities have been significantly restricted during this pandemic due to limitations on meetings, interactions with customers, and transportation, etc.
4-6 Each Pilot WSP evaluates and analyzes implementation results and revises the plans.	Each Pilot WSP has been evaluating their implementation results each year through their preparation of annual activity review sheets. The Pilot WSPs have been preparing their annual activity review sheets for Year 2020-21.
4-7 Each Pilot WSP produces the NRW reduction activity report annually.	
4-8 Each Pilot WSP holds regular NRW reduction meetings attended by relevant departments of WSP.	Each Pilot WSP is supposed to have a monthly joint meeting as per recommended by the experts. However, Covid-19 is not allowing them to do so easily.
Output 5	
5-1 The project presents results and lessons of Output 4 and other NRW activities during WASPA meetings.	The expert team collaborated with WASPA to conduct its Workshop in 23th -26 th March 2021. The local staff, expert team, took charge of a lecture for sharing some examples achieved in the Output 4 activities and gained a massive response from the participants.
5-2 The Project holds NRW thematic workshops in coordination with WASPA.	After 2 nd NRW thematic workshop was suspended in August 2020, The NRW unit intended to conduct in due time, however, it had been postponed by Covid-19. It was re-planned to hold in early June 2021 through a

	web system.
5-3 The production of the brief notes.	The 2 nd brief note was completed in February, 2021.
5-4 Counter measures against Covid-19 pandemic 1) Questionnaire surveys to trace the influences by the Covid-19. 2) Urgent donation of Chemicals for the water treatment process. 3) Producing sensitization tools for the citizens for water use and washing hands. 4) Procurement of some of Equipment in Japan 5) Conducting a remote exercise of NRW reduction technology	1) Monthly based survey was implemented from April to December 2021 for monitoring the situation changes of Pilot WSPs. The answers were edited in a table with feedback comments of the expert team. The activity was finished because the PIC was resumed in October 2020 by a web system. 2) The activity was completed from July to September 2020 with massive impacts for supporting WSPs. 3) Banners, posters and fliers had been delivered to each Pilot WSP October 2020 for sensitizing the citizens in the water use, sanitary and hand washing aspects etc. Video films for sensitizing the same is ongoing. 4) The leak detection equipment (15 set of Water pressure logger & 6 set of Portable UFM) were procured in Japan for complementing lack of the procurement done by MWS&I in 2020 5) The 1 st stage of the program had been conducted from January to March 2021. The 2 nd stage will be conducted August to come.

1-3 Achievement of Output

Output 1: Promotion and coordination of NRW reduction activities by MWS&I NRW Unit are strengthened.	
1-1 All County representative participate NRW related seminar(s).	NRW Unit made an annual plan for county sensitization and tried to implement as planned. The 2 nd seminar was held in Nanyuki Town in November, 2019. (no more progress was made after Covid-19 broke out)
1-2 NRW reduction campaigns are conducted semi annually.	Embu WSP facilitated a school visit to its Water Treatment Plants in January 2020 and Muranga WSP also conducted the similar event in February 2020. (no more progress was made after Covid-19 broke out)

1-3 NRW reduction annual reports are produced.	2 nd NRW Annual report was completed in March, 2021.
Output 2: Use of NRW reduction standards by Urban WSPs are promoted by WASREB	
2-1 NRW reduction standards are revised by 2020.	As mentioned above in Output 2, 2-2 of 1-2 Progress of Activities
2-2 Revised NRW reduction standards are disseminated to all Urban WSPs through workshop(s).	As mentioned above in Output 2, 2-3 of 1-2 Progress of Activities
Output 3: NRW related training capacity of KEWI is strengthened.	
3-1 KEWI conducts NRW reduction courses with contents incorporating on-site trainings and revised course materials.	Completed in Phase 1.
3-2 The average score of the participants on the test conducted after the NRW reduction course is higher than before the implementation.	Achieved satisfactorily in Phase 2.
Output 4: NRW planning and/or implementation capacity of Pilot WSPs is enhanced.	
4-1 More than 8 Pilot WSPs formulate NRW reduction plans.	<p>All the 9 Pilot WSPs had formulated annual NRW reduction plans for Year 2020-21 based on their capacity self-assessment (by September 2020) and all of them have updated their medium-term NRW reduction plans (by February 2021). The ongoing preparation of annual NRW reduction plans for Year 2021-22 is their 5th year of preparing annual plans using the templates gradually upgraded in the Project. The results of their ongoing preparation of annual plans and annual activity review sheets have not been confirmed yet under the prolonged difficulties with Covid-19.</p> <p>Meanwhile, the expert team has started confirming whether or not the strategic plans prepared by the Pilot WSPs have been incorporating the activities discussed in their preparation of annual and medium-term NRW reduction plans. So far, the draft strategic plan of Embu (2021-25) seems to have incorporated the details of their NRW reduction activities the most, while other</p>
4-2 More than 6 Pilot WSPs self-review their achievements of Previous year's NRW reduction plans and compile activity report.	
4-3 Based on 4-2, more than 6 Pilot WSPs continuously formulate annual NRW reduction plans.	
4-4 More than 6 Pilot WSPs continuously implement NRW reduction plan formulated in 4-1.	

	WSPs have mainly incorporated high-cost activities such as pipe replacement in their strategic plans.
4-5 More than 6 Pilot WSPs are able to use skills and/or implement activities which they could not employ before the project.	All the 9 Pilot WSPs have been implementing new activities by adopting various skills newly introduced with help of the expert team. For example, the recent efforts for improving the zoning of distribution networks in Eldoret and Ruiru-Juja seems to be on the right track after the interventions made in this Project although some other Pilot WSPs continue to struggle in optimizing their distribution systems.
4-6 The amount of NRW in the selected distribution zones indicates decreasing tendency.	In this Project, selected distribution zones have been focused in several Pilot WSPs for leakage reduction while large customers throughout the service areas have been focused for commercial loss reduction. The leakage reduction in the pilot areas of Nakuru WSP was especially successful in Phase 2. Nyahururu WSP also reduced leakage successfully in their rather small pilot areas in Phase 2. In Phase 3, Eldoret WSP conducted leak surveys on service connections with listening sticks in selected two zones and found 201 leaks (around 9% of the surveyed 2,300 connections). The subsequent repair work on the 9% connections in these zones seems to have reduced the leakage significantly although the reduced leakage could not be quantified. In Phase 3, Nyahururu WSP and Embu WSP have been working with the expert team to reduce leakage in some selected zones with PRVs, but their progress have been limited by the pandemic.
Output 5: Experiences and knowledge of NRW reduction activities are shared among Urban WSPs.	
5-1 Results and lessons from Output 4 and NRW activities are shared during WASPA meetings at least 3 times a year.	The expert team gave lectures in WASPA's Benchmarking workshop held in November 2019 and in April 2020. The latter one was conducted with a web system. In 2021 WASPA organized a workshop and the local staff participated in it and gave lectures on NRW





	relevant activities.
5-2 A NRW thematic workshop is organized every year.	2 nd thematic workshop will be conducted in June 2021 through a web system.
5-3 3 Brief notes are produced during the project.	Brief note ver. 2 was completed in February 2021.

1-4 Achievement of the Project Purpose

Project Purpose: A NRW reduction support mechanism is established for Urban WSPs to implement NRW reduction Activities.

Indicator	Achievement
6 Pilot Urban WSPs continue achieving target set by the NRW reduction plan for two years.	6 Pilot WSPs had already achieved 60% or higher annual completion ratio of their planned activities for two or more years continuously by the end of June 2020. Those 6 Pilot WSPs are; Meru - 3 years, Embu - 2 years, Nakuru - 4 years, Kisumu - 2 years, Nyahururu - 4 years and Eldoret - 3 years. The other three WSPs (Ruiru-Juja, Movoko and Kilifi-Mariakani) had not achieved 60% for two years. Although the annual completion ratio of these WSPs for Year 2020-21 have not been confirmed yet, the total number of successful WSPs is not expected to increase due to the negative impacts of the pandemic on NRW reduction activities.

1-5 Changes of Risks and Actions for Mitigation

Covid-19 is still being around the world. That means the project has risks of suspension of the implementation due to the spreading of Covid-19 in future. The project period was agreed to be extended for 9 months till May 2022 on the assumption that Covid-19 is to be controlled under the condition where the expert team can implement their work for supporting the pilot WSPs as planned. However, considering a difficulty to restrain the pandemic, it is recommendable that flexible measures should be taken if the project would be forced to suspend again due to the serious pandemic spread in Kenya.

1-6 Progress of Actions undertaken by JICA

JICA has been providing continuously 2 project vehicles.

1-7 Progress of Actions undertaken by GoK

Budget for NRW reduction activities will be disbursed timely by the MWS&I. NRW Unit is expected to manage the allocation of the budget in time by sharing information of the

program to be conducted with the counter parts.

1-8 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

Water Utilities Regional Partnership (WURP) is a forum in which the water entities from three neighboring countries such as Kenya, Rwanda, Malawi are collaborating for enhancing their performances on water service by peer-to-peer learning. EWASCO (EMBU WSP) is the member in Kenya. Main function of the forum is holding a workshop every year in a different country in circulating among the members. The workshop had been conducted in Rwanda and Malawi before and the next one was expected to be conducted in 2020 by the initiative of EWASCO, however it was tentatively postponed to the year 2021 due to the Covid-19 pandemic. JICA is willing to support for realizing the forum, however, its feasibility is still un-seeable. The expert team is carrying necessary support for EWASCO properly in consultation with JICA office.

2 Delay of Work Schedule and/or Problems (if any)

Although There was a delay of the Project implementation due to the Covid-19, JICA has decided to make the project period extension until May 2022. The dispatching plan of the experts was re-planned for the project activities to be fulfilled the achievement.

2-4 Roles of Responsible Persons/Organization (JICA, GoK etc.)

Indicated above.

3 Modification of the Project Implementation Plan

3-1 PDM and PO

In accordance with the performance and achievement of the project being implemented before, the following indicators is propose to modify in the present PDM.

- 1) Indicator of Project Purpose: "6 of pilot Urban WSPs continue achieving targets set by the NRW reduction plan for two years." is to be changed to "6 of the pilot Urban WSPs continue achieving above 60% overall achievement of their self-assessment in the NRW planning template for 2 years.

3-2 Other modifications on detailed implementation plan

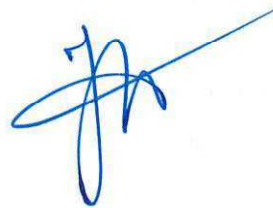
(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s),

target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) was authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

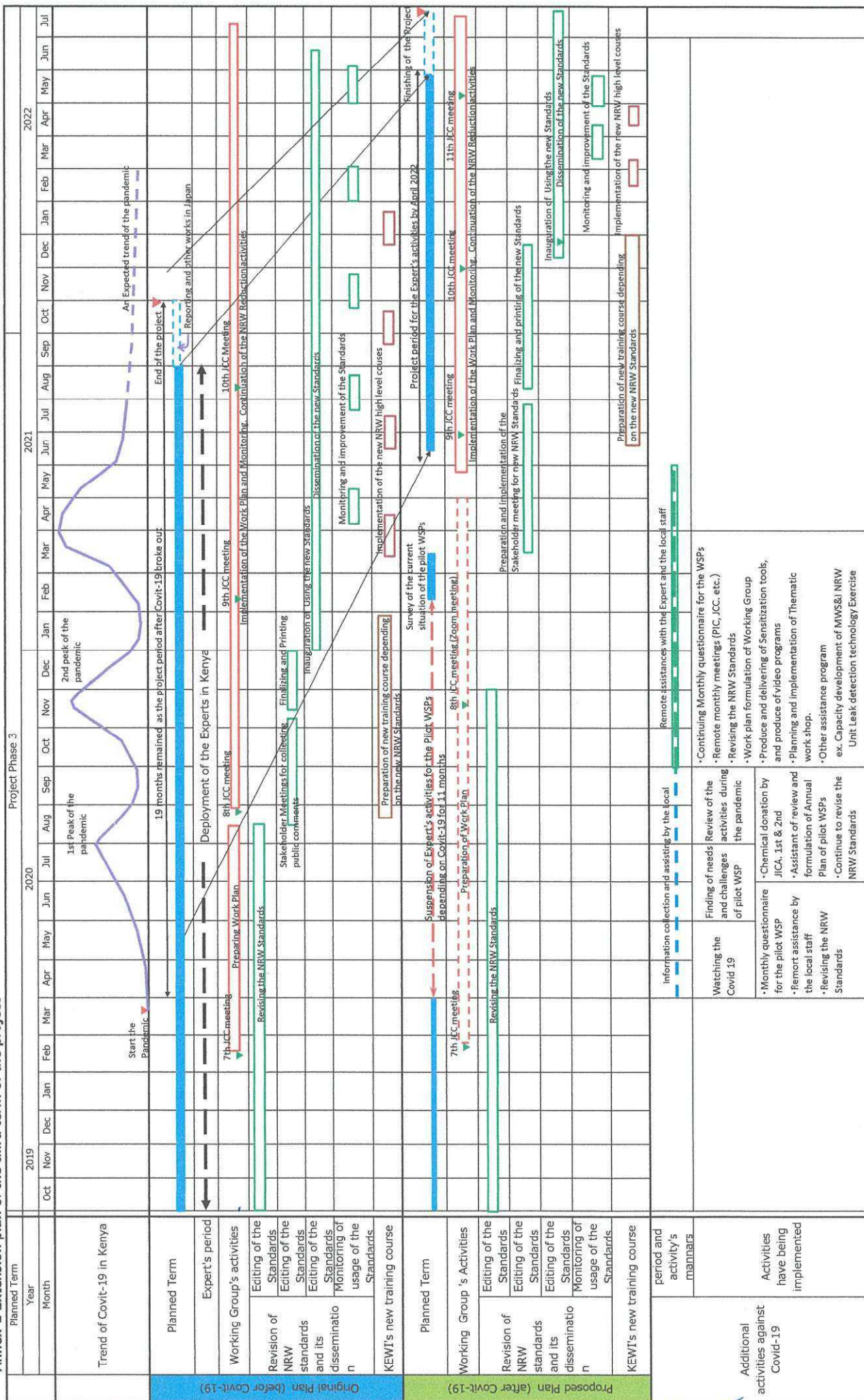
None in 9th JCC.

4 Preparation of GoK Outlook after completion of the Project

In the 7th JCC meeting hold in February 2020, the formulation of Working Group (WG) was agreed and some meetings were held in which members confirmed the purpose and tasks of the WG and necessary works to be implemented by it etc., however, the WG meeting could not continue due to Covid-19. The WG was formulated as the responsible body in order to undertake the promotion of NRW reduction for the entire Kenya after project is over. The NRW Unit of MWS&I is the main body of the WG. The other members are WASREB, KEWI, WASPA, and CoG (Council of Governors). The activities like dissemination of revised NRW management standards is ongoing through stakeholder meetings, however, collaboration among WG members is still inactive then the NRW Unit is mainly involved in coordination of such work. The expert team will support WG for the works to be implemented properly especially making annual plan (including budget) with active communication among the members in order to continue the project activities after the project is over.



Annex-2 Extension plan of the third term of the project

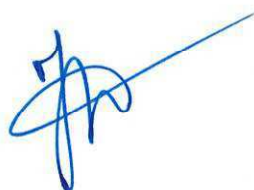


ANNEX 3. ATTENDANCE LIST

S/NO.	NAME	ORGANIZATION	POSITION
1.	ENG. MARY WAMAITHA	MWS&I	AG. DIRECTOR OF WATER
2.	ENG. VICTOR NJERU	MWS&I	NRW UNIT HEAD
3.	MR. CHEPYEGON CHEMERIL	MWS&I	NRW UNIT
4.	MR. JOSEPH MWANGI	MWS&I	NRW UNIT
5.	MS. PATRICIA MUTUA	MWS&I	NRW UNIT
6.	MR. GEORGE BOKESIA	MWS&I	NRW UNIT
7.	MR. HAJIME IWAMA	JICA KENYA	CHIEF REPRESENTATIVE
8.	MS. YOKO HATTORI	JICA	DIRECTOR, GLOBAL ENVIRONMENT DEP.
9.	MR. TAKASHI KAJI	JICA	DEPUTY DIRECTOR
10.	MR. YOSHIKI YOKOTA	JICA	SENIOR ADVISOR
11.	MS. TOMOKO MATSUNAGA	JICA	TECHNICAL ADVISOR
12.	MR. KENJI HAYASHI	JICA KENYA	SENIOR REPRESENTATIVE
13.	MS. AKIKO KAWATA	JICA KENYA	REPRESENTATIVE
14.	MR. JOHN GITAU	JICA KENYA	PROGRAMME OFFICER
15.	MR. YATTOR NEVILW	WASREB	TECHNICAL OFFICER
16.	MR. WALTER MOSETI	KEWI	NRW TEAM HEAD
17.	MR. ANTONNEY AMBUGO	WASPA	CEO
18.	MS. EDDAH WAMBUI	WASPA	CB ADMIN MANAGER
19.	MR. FRANKLINE THURANIRA	MEWASS	NRW OFFICER
20.	MR. PAUL MUTHAMI	NYAHUWASCO	NRW IN-CHARGE
21.	MR. JOSEPH MAIYO	ELDOWAS	NRW OFFICER
22.	ENG. JESEE AMBUNDO	MAVOKO	TM
23.	MR. JAMES NYAUMA	MAVOKO	NRW HEAD
24.	MR. JOB LIECH	KIWASCO	NRW ENGINEER
25.	MS. MARY MWANGI	RUJWASCO	TM
26.	MR. LEONARD MUTAI	NAWASCO	ILLEGAL USE SUP.




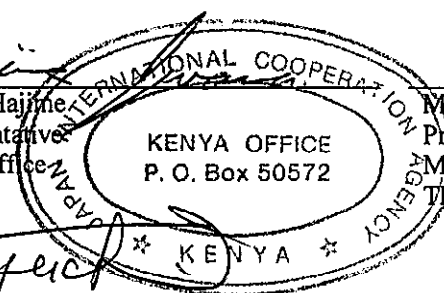
27.	MR. MASAYUKI TAGUCHI	JICA EXPERT	CHIEF ADVISOR
28.	MR. NAOKI HARADA	JICA EXPERT	
29.	MR. NOBORU SAITO	JICA EXPERT	
30.	MR. SHOZO MORI	JICA EXPERT	
31.	MS. HIROKO SUGIMOTO	JICA EXPERT	
32.	MR. GEORGE KARANJA	JICA EXPERT	
33.	MR. CHARLES MAINGI	JICA EXPERT	
34.	MS. KELLYJOY GAKII	JICA EXPERT	

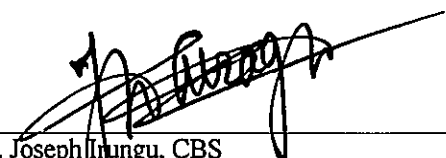


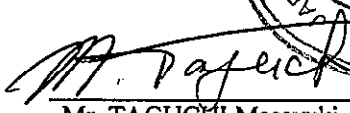
MINUTES OF MEETING
OF
THE TENTH JOINT COORDINATION COMMITTEE MEETING
ON
THE PROJECT FOR
STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION IN
THE REPUBLIC OF KENYA
AGREED UPON BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MINISTRY OF WATER, SANITATION AND IRRIGATION
THE REPUBLIC OF KENYA

1st December 2021, Nairobi


Mr. IWAMA Hajime
Chief Representative
JICA Kenya Office


KENYA OFFICE
P. O. Box 50572


Mr. Joseph Irungu, CBS
Principal Secretary
Ministry of Water, Sanitation and Irrigation
The Republic of Kenya


Mr. TAGUCHI Masayuki
Chief Advisor
JICA Expert Team

In accordance with the Record of Discussion (hereinafter referred to as the "R/D") signed on 7th March, 2016 between the Ministry of Water and Irrigation, which was renamed the Ministry of Water and Sanitation in February 2018, and again reorganized as the Ministry of Water, Sanitation and Irrigation (hereinafter referred to as "MWS&I") in October 2019, and Japan International Cooperation Agency (hereinafter referred to as "JICA") on "The Project for Strengthening Capacity in Non-Revenue Water Reduction in the Republic of Kenya" (hereinafter referred to as "the Project"). The 10th Joint Coordination Committee (hereinafter referred to as the "10th JCC") of the Project was held on 1st December, 2021. All members of the 10th JCC reviewed the overall Progress and implementation of the Project, and also exchanged opinions on major issues.

The major points of discussions and agreement are summarized as follows:

1. Opening Remarks

Eng. S.A.O Alima, Water Secretary, MWS&I, started by welcoming all the members to the meeting and thanking them for their commitment to the project activities. He thanked JICA for donating chemicals to the 10 WSPs and water meters to Kilifi-Mariakani WSP. He said the donations will greatly assist the utilities. He also thanked the Government of Japan for its collaboration with the Kenya Government especially in this project and over the years.

2. Remarks by the Chief Representative, JICA Kenya office

Mr. Iwama, Chief Representative of JICA Kenya office, appreciated the MWS&I for its effort in organizing the 10th JCC meeting. He thanked the Kenyan Government for its effort, through the Ministry, for making the constitutional provision defining water as a basic need for the citizens. He stated that the project started in 2017 and is currently in its final phase and up to now, all the counterparts, WSPs and JICA Experts have played an active role in the project and are currently consolidating the lessons learnt and establishing a support mechanism for NRW reduction activities in the water sector to ensure sustainability of the same. He mentioned that the new NRW Management Standards which had been revised by all the counterparts were validated successfully in the stakeholders' validation workshop that was held in the previous week. He said the standards will provide WSPs with a more practical approach to reduction of NRW in the country. With 6 months remaining to the end of the project, he urged members to change and be more creative and ambitious as they make use of the unique opportunity. He stated that JICA was committed to assisting Kenya improve water delivery to the communities and will continue with the collaboration.

3. Approval of Project Monitoring Sheet Ver. 9

The 10th JCC confirmed the contents of the Project Monitoring Sheet Ver. 10 (covering the period from June to November 2021), which was presented to the 10th JCC (Refer to Annex-1). The JICA Expert team presented a brief on the activities implemented during this period as follows:

The monitoring sheet ver. 10 had been shared with members earlier before the meeting, hence, Mr. Taguchi, the Chief advisor, reminded members that there was no need of reading it again item by item. He then mentioned the main topics of each Output of the project activities along with the monitoring sheet. Regarding the revision of the PDM indicator on “Achievement of the project purpose” as addressed in “3. Modification of the Project Implementation Plan”, he notified the participants that this was proposed during the 9th JCC. He explained the issue in details through a presentation of the attachment sheets containing the background and achievements of the pilot WSPs. The proposal was to change from the original “6 Pilot Urban WSPs continue achieving targets set by the NRW reduction plan for two years” to the revised “6 of the pilot Urban WSPs continue achieving above 60% for 2 years in the completion ratio of annually planned activities (based on the annual activity review sheet of the Annual Planning and Review template prepared in this project)”.

Mr. Taguchi also explained that the Water Utilities Regional Partnership (WURP) is a forum in which the water entities from Kenya and two neighboring countries i.e., Rwanda and Malawi are collaborating to enhance their performance on water service through peer-to-peer learning. Embu WSP (EWASCO) is the member in Kenya while Kigali and Lilongwe are the members from Rwanda and Malawi respectively. He stated that a workshop is expected to be held in early February next year in Kenya assuming that Covid-19 will be under control.

The chair welcomed the participants to make comments on the monitoring sheet;

Eng. Njeru, NRW Unit of MWS&I, said that he had no further comment on the monitoring sheet. He however stated that the NRW Unit was encountering challenges in collaborating with the county governments and the NRW Unit members were hoping to gain more awareness on what the WSPs were actually undertaking by making frequent visits to the WSPs in order to build up their own capacities and be able to promote NRW reduction across the country.

Mr. Yator, WASREB, confirmed the activities as highlighted in the monitoring sheet.

Mr. Moseti, KEWI, informed members that despite the pandemic, KEWI was moving on with training and was at the time conducting an On-the-Job Training for Nairobi Water and Sewerage Company in Embu. He also stated that KEWI was in the process of coming up with a new training course on the new content developed under the project.

The chair also welcomed opinions on the monitoring sheet or some reports on the NRW reduction activities from the members;

Mr. Frankline, Meru WSP, informed members that MEWASS strives to achieve the yearly targets through inclusion of every section and the management in planning, and making them understand their roles on NRW reduction. In addition, cooperation from the ground upwards, monthly meetings involving members drawn from all the units and sections and, adoption of the PDCA cycle played a big role.

Mr. Mugendi, Embu WSP, attributed the involvement of all departments, adoption of the PDCA cycle and the water utility regional partnership for their yearly target achievements.

Mr. Leonard, Nakuru WSP, attributed the great improvement to capacity building from JICA experts team and the usage of the newly acquired NRW reduction equipment.

Mr. Job, Kisumu WSP, stated that with the assistance from JICA Expert Team, they had been holding NRW oversight meetings chaired by the MD which help to involve everyone especially the management to make decisions on planning and implementation of the activities. The JICA assistance through the technical support on physical loss reduction especially on step tests and minimum night flow was very crucial.

On Mavoko WSP, Mr. Mori, JICA Expert Team, informed members that the WSP previously had a big challenge of water shortage and could not perform the activities smoothly. However, additional water was recently injected into the system from a Belgium funded project, which had caused a rise in NRW but he WSP is currently working on it with the assistance from the experts and hoped to bring it down soon.

As a result, the Project Monitoring Sheet Ver. 10 including the modification of the PDM was unanimously agreed by the members.

4. Other Issues discussed in the 10th JCC Meeting

1) How to collaborate between the national government and the county governments

Mr. Iwama sought to know how the difficulties in collaboration between the national government and the county government will be resolved.

Eng. Alima responded by explaining that the Ministry had noted the delay in implementation of intergovernmental relations framework and signed between the Ministry and COG in March 2018. The Cabinet Secretary constituted a task force in August 2021 how the two governments would work together; the aim being working towards reduction of NRW and financing of the sector. A framework (NAWASIP) for collaboration has been formulated and is expected to be signed in December 2021. This is expected to make working together easy.

2) Challenge and way forward in Kenya

Eng. Njaggah, Ag. CEO of WASREB, reported that the impact of the project was being felt since the NRW ratio for the pilot WSPs was going down. In view of this he pointed out that it was important to keep the momentum going and the best way forward was to upscale the project by adding more WSPs. He further suggested that considering there are 91 WSPs in the country, 40 of which operate below O&M cost recovery, the project should look for WSPs which are about to get to more than 100% O&M cost recovery and involve them in the project. He informed members that the National Water Service Strategy states that WSPs in urban areas should not receive subsidy and only WSPs in rural areas should receive subsidy. However, on the ground, even those in urban areas have challenges and are asking for subsidies due to increased NRW. He pointed out that high NRW reflects the quality of governance of a WSP and that WSPs should always remember that high NRW is an infringement to the right to water because the poor are denied the right and the WSP cannot provide water as required. He stated that the number of the pilot WSPs were very limited but also a very good indicator and needed to be upgraded. He reported that WASREB had embedded a licensing condition for the WSPs to have a functional NRW Unit including the kind of staff to be involved.

Mr. Taguchi stated that the 9 pilot WSPs had greatly improved through the project activities as discussed in the meeting but there were still 80 or more WSPs which had not yet received this training. Considering the number of

WSPs in the country the project activities were limited to a small group of WSPs. It was important therefore to extend these activities to other WSPs by making use of the system and tools generated through the project activities for the impact to be visible in the entire country.

Eng. Alima echoed Mr. Taguchi's comments.

3) Enhancement of the capacity of NRW Unit of MWS&I

Mr. Mori reported that he had worked with the NRW Unit, and that the Ministry had deployed young staff into the unit. However, the experts did not have enough time to train them adequately since training on NRW reduction activities require a lot of time. He also suggested that the Unit can consider starting with the WSPs with very high NRW ratio i.e. above 50% and guide them on areas that are not necessarily technical but that would still make impact.

Eng. Alima however suggested that the experts should analyze and come up with ways to assist the NRW Unit to be of assistance to the WSPs in the country. He pointed out that one of the ways that was coming out clearly was upscaling the project as suggested by Eng. Njaggah.

5. Remarks by JICA headquarters in Tokyo

Mr. Inoue, Director of Water Resources Team1, Global Environment Department, JICA headquarters, reported that he was pleased to hear the good discussion and confirm the achievements from the project. He also did a presentation on JICA sector strategy on sustainable water resources management and water supply.

6. Closing remark

Eng. Alima concluded by saying that today's discussion had good suggestions on the best direction for the current situation on the NRW reduction in the country. He requested all members to continue being committed so that they can achieve their targets. He further suggested that the upcoming projects should also include skills transfer for NRW reduction.

END

Annex-1: Project Monitoring Sheet Ver. 10

Annex-2: Attendance list

TO CR of JICA Kenya OFFICE

PROJECT MONITORING SHEET Ver. 10

Project Title: THE PROJECT FOR STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION (Phase 3)

Version of the Sheet: Ver. 10 (Term: June. 2021 – November. 2021)

Name: Masayuki TAGUCHI

Title: Chief Advisor

Submission Date: December. 1, 2021

I. Summary

1 Progress

1-1 Progress of Inputs

Input by Japanese Side

Man Months (M/M) of the deployment of the experts are calculated from June, 2021 to November, 2021 as mentioned in the table below. As 4th Covid-19 wave once summited up then being declined little by little, JICA experts have come to Kenya and been carrying their works. The local staff of the expert team have been working in collaboration with the experts for supporting C/Ps. There are still some risks of the pandemic, the members of the expert team have to implement their work in accordance with the directives of the Kenyan Government and the instructions of JICA office.

Table 1 M/M of the Experts and Local Staffs from June to November 2021

Expert	In Kenya	In Japan/Activities	
Mr. Taguchi Chief advisor	3.87 M/M; from 16th Jun. to 30th Nov, 2021.	0.55 M/M	▪ Project implementation Management
Mr. Mori Pipe network planning	3.00 M/M; from 15 Aug. to 30 th Nov. 2021	0.20 M/M in Canada	▪ Instruction/Advise to Pilot WSPs.
Mr. Takahashi NRW reduction tech.1	-	2.0 M/M	▪ Preparation & implementation of the remote training of NRW reduction Technology
Mr. Sekimoto NRW reduction tech.2	0.80 M/M; from 12 th Nov. to 30 th Nov. 2021.	-	
Mr. Harada Customer service/ billing	1.43 M/M; from 19 th Oct. to 30 th Nov. 2021.	-	
Ms. Sugimoto Information/Sensitization	0.2 7M/M;	-	▪ County Sensitizations ▪ Producing sensitization tools

Total	9.37 M/M	2.75 M/M
Local staff: 2 Secretary:1	From Jun. to Nov: 3P @ 6 M = 18 M/ M	-

Input by Kenyan Side

Project CPs: Number of Counterpart (CP) members that participated in the reporting period is 90 during recent 6 months representing the following organizations.

MWS&I (8), WASREB (4), KEWI (7), WASPA (4), Nyahururu WSP (6), Meru WSP (8), Embu WSP (8), Nakuru WSP (8), Ruiru-Juja (6), Mavoko (7), Eldoret (8), Kisumu (6), Kilifi-Mariakani (10)

Facilities: Project office as well as regular meeting rooms were

provided at MWS&I. Vehicles for Kenyan C/Ps' field visits were provided.

Project implementation costs: The traveling costs and per diem for MWS&I/ KEWI/ WASREB staffs were supposed to be provided by MWS&I.

1-2 Progress of Activities

Activity	Progress
Output 1	
1-1 MWS&I NRW Unit, in cooperation with WASREB, produces NRW annual reports which include NRW reduction data.	3 rd version of the Annual Report 2019/2021 is at edit stage and expected to be completed in Dec. 2021 and distributed to WSPs in due course.
1-2 MWS&I NRW Unit plans and implements NRW reduction sensitization activities for the Counties.	County sensitizations were suspended due to Covid-19. Planning for 3 rd and 4 th county sensitization workshops is in progress and expected to take place in January 2022 in Kisumu and Mombasa.
1-3 MWS&I NRW Unit plans and implements NRW reduction campaigns.	No physical function was held due to Covid-19 but Video programs for the campaign are being produced and expected to be finalized by the end of this year.
1-4 MWS&I NRW Unit conducts reviews of KEWI NRW courses.	Activities for KEWI were completed in Phase 2.
1-5 MWS&I NRW Unit conducts reviews of WASREB's NRW reduction activities.	The Unit conducted 2 nd stakeholder meeting in late July 2021 and a Validation meeting on 25 th November 2021 to finalize the Final Draft ready for publishing.

1-6 MWS&I NRW Unit assures the budget for the support mechanism based on its NRW reduction mid-term vision.	The Ministry has allocated Kes 70 Million for NRW related activities during the 2021/2022 Financial Year .
Output 2	
2-1 WASREB conducts survey of the usage of current NRW reduction standards.	Completed in Phase 2.
2-2 Based on the survey result as well as Output 4 and 5, WASREB revises the NRW reduction standards.	The revised standards were completed substantially by the Editorial Committee. The 2 nd Stakeholders meeting was held in late July and the validation meeting was also held on 25 th Nov. to validate the standards officially.
2-3 WASREB promotes revised NRW reduction standards through workshop(s).	WASREB has held two NRW reflection workshops one on the 28 th of July in Machakos and the second on 2 nd of November in Kisumu. The theme was to reflect on NRW performance post release of IMPACT 13 with an attendance of 15 WSPs in each. During this workshops WASREB promoted the use of the NRW standards. Promotion on the use is currently ongoing in various WASREB activities.
2-4 WASREB incorporates the review results of NRW reduction activities by MWS&I NRW Unit in their activities.	After completion of the new Standards the review work will be conducted in collaboration with MWS&I as a work of Working Group.
2-5 WASREB monitors and evaluates the usage of revised NRW standards.	Monitoring and evaluation will be conducted after dissemination of the new Standards country-wide. The plan will be formulated by the Working Group.
Output 3	
3-1 KEWI studies current status of NRW reduction courses and its challenges.	Completed in Phase 1
3-2 KEWI reviews NRW reduction training strategies and course contents.	Completed in Phase 2
3-3 KEWI, in collaboration with leading WSPs (Embu and Meru, etc.), conducts on-site NRW trainings.	KEWI has conducted three Non-Revenue Water Reduction both classroom and OJT trainings as follows: <ul style="list-style-type: none"> ● July-August, 2021 with 18 participants, ● October-November, 2021 with 12 participants ● November-December, 2021 with 35 participants (ongoing)
3-4 KEWI reflects on-site NRW trainings into NRW course contents and materials.	Completed in Phase 2.

3-5 KEWI incorporates the results of review by MWS&I NRW Unit into NRW course contents.	Completed in Phase 2.
3-6 KEWI conducts trace studies of NRW reduction course participants.	Completed in Phase 2.
-	<p>KEWI has organized to conduct a test course on new formulated management level to include 4 training areas</p> <ul style="list-style-type: none"> ● NRW Annual review and planning template ● Meter read analysis ● Billing analysis template etc. ● KOBO COLLECT TOOL BOX. <p>Thereafter will conduct 2 trainings before the project come to an end in May 2022.</p>
Output 4	
4-1 The Project team conducts a survey of Urban WSPs and selects pilot Urban WSPs.	This activity was completed in Phase 1.
4-2 Each Pilot WSP conducts analyses of current NRW reduction activities and identifies its challenges.	This activity was completed in Phase 1.
4-3 Each Pilot WSP identifies measures to solve challenges.	Each Pilot WSP has been preparing their annual NRW reduction plans every year (including budget for each activity) by utilizing the templates created in the Project. Through this activity, the Pilot WSPs re-assess their capacity, recognize their remaining challenges and identify measures to the challenges. Some Pilot WSPs are currently improving their annual NRW reduction plans for Year 2021-22 (and updating their medium-term plans) to incorporate the results of discussions with JICA experts who have come back to Kenya after more than one year.
4-4 Each Pilot WSP formulates the NRW reduction plan including financial plan.	
4-5 Each Pilot WSP implements the NRW reduction plan.	Each Pilot WSP has been trying to implement NRW reduction activities in accordance with their plans. However, their activities have been massively restricted during this pandemic due to limitations on meetings, interactions with customers, and transportation which has been brought about by the Covid -19 pandemic.
4-6 Each Pilot WSP evaluates and analyzes implementation results and	Each Pilot WSP has been evaluating their implementation results each year on a quarterly basis by doing their

revises the plans.	quarterly evaluation and by preparing the annual activity review sheets. The Pilot WSPs have already finished preparing their annual activity review sheets for Year 2020-21.
4-7 Each Pilot WSP produces the NRW reduction activity report annually.	
4-8 Each Pilot WSP holds regular NRW reduction meetings attended by relevant departments of WSP.	Each Pilot WSP is supposed to have a monthly joint meeting as per recommended by the expert team. However, the Covid-19 measures of keeping social distance has greatly affected the physical meetings though some have started meeting virtually.
Output 5	
5-1 The project presents results and lessons of Output 4 and other NRW activities during WASPA meetings.	The expert team collaborated with WASPA to conduct the Benchmarking Workshop held on 4 th -6 th Nov. 2021 and made some presentations on different topics to the participants.
5-2 The Project holds NRW thematic workshops in coordination with WASPA.	The NRW unit intends to hold a thematic workshop in Jan. next year (2022) since suspension starts due to Covid-19.
5-3 The production of the brief notes.	The 3 rd brief note is started edition and completed in due course in early 2022.
5-4 Counter measures against Covid-19 pandemic 1) Urgent donation of Chemicals for the water treatment process. 2) Producing sensitization tools for the citizens for water use and washing hands. 3) Procurement of some of Equipment in Japan 4) Conducting a remote exercise of NRW reduction technology	1) The 2 nd chemical donation exercise was completed in August except for Kilifi-Maliakani WSP which is a bulk water user that receives its supply from a WWDA. JICA will donate 1000 water meters in Nov. to Kilifi WSP instead of the chemicals. 2) Banners, posters and fliers were delivered to each Pilot WSP in October 2020 for sensitizing the users in water use, sanitation, hand washing aspects etc. The Production of Video films for sensitizing on the same is on its final stages. Leak detection equipment (15 sets of Water pressure loggers & 6 sets of Portable UFM's) were received by the project team and have been delivered to pilot WSPs for training purposes and usage. 3) The 2 nd stage of the training will be soon conducted .

1-3 Achievement of Outputs

Achievements of each Output in the phase 3 of the project up to now are mentioned here after.

Output 1: Promotion and coordination of NRW reduction activities by MWS&I NRW Unit are strengthened.

1-1 All County representative participate NRW related seminar(s).	NRW Unit made an annual plan for county sensitization and tried to implement as planned. The 2 nd seminar was held in Nanyuki Town in November. 2019. MWS&I is planning to conduct 3 rd and 4 th sensitization in January at Kisumu and Mombasa respectively.
1-2 NRW reduction campaigns are conducted semiannually.	Embu WSP facilitated a school visit to its Water Treatment Plants in January 2020 and Muranga WSP also conducted a similar event in February 2020. No more progress was made since Covid-19 broke out. After completing Video programs, the team intends to restart tie same by utilizing them effectively.
1-3 NRW reduction annual reports are produced.	2 nd NRW Annual report was completed in March, 2021 and 3 rd one will be completed in December, 2021.

Output 2: Use of NRW reduction standards by Urban WSPs is promoted by WASREB

2-1 NRW reduction standards are revised by 2020.	Due to Covid-19 the work was not completed as planned, however, Validation meeting on the standards was held in 25 th Nov. and the launch will be in Jan. next year.
2-2 Revised NRW reduction standards are disseminated to all Urban WSPs through workshop(s).	Promotion of the use of the standards has already begun. WASREB has held two workshops one on 28 th July in Machakos and the other on 2 nd November in Kisumu with attendance of 15 WSPs in each..

Output 3: NRW related training capacity of KEWI is strengthened.

3-1 KEWI conducts NRW reduction courses with contents incorporating on-site trainings and revised course materials.	Completed in Phase 1.
3-2 The average score of the participants on the test conducted after the NRW reduction course is higher than before the implementation.	Achieved satisfactorily in Phase 2.

Output 4: NRW planning and/or implementation capacity of Pilot WSPs is enhanced.

4-1 More than 8 Pilot WSPs formulate NRW reduction plans.	All the 9 Pilot WSPs had formulated annual NRW reduction plans for Year 2020-21 based on their capacity self-assessment (by September 2020) and all of them have updated their medium-term NRW reduction plans (by February 2021). The completion of
4-2 More than 6 Pilot WSPs self-review their achievements of Previous year's NRW reduction plans and compile activity report.	

4-3 Based on 4-2, more than 6 Pilot WSPs continuously formulate annual NRW reduction plans.	their annual NRW reduction plans for Year 2021-22 haven't been confirmed yet partly because JICA experts are currently encouraging the WSPs to plan and implement additional activities to recover the slowdowns and rollbacks caused during the pandemic.
4-4 More than 6 Pilot WSPs continuously implement NRW reduction plan formulated in 4-1.	
4-5 More than 6 Pilot WSPs are able to use skills and/or implement activities which they could not employ before the project.	All the 9 Pilot WSPs have been implementing new activities by adopting various skills newly introduced with help of the expert team. The recent distribution of the survey equipment additionally procured by JICA (i.e. UFM's & pressure loggers) is helping the spread of new activities. The NRW Unit of the Ministry is expected to distribute another set of additional equipment soon, which would further improve their adoption of new skills before the end of this Project.
4-6 The amount of NRW in the selected distribution zones indicates decreasing tendency.	In this Project, distribution zones have been selected for intensive leakage reduction at the Pilot WSPs while large customers have been prioritized for commercial loss reduction. Leakage reduction was especially successful in some pilot areas of Nakuru WSP in Phase 2. Nyahururu WSP also reduced leakage successfully in their rather small pilot areas. In Phase 3, Eldoret WSP conducted leak surveys on all the service connections in two meter reading zones (not isolated hydraulically) using listening sticks and found that around 9% of the connections were leaking. JICA experts have recently resumed their technical assistance at most of the Pilot WSPs especially for expanding their active leak detection activities and recovering the delay caused by the pandemic.

Output 5: Experiences and knowledge of NRW reduction activities are shared among Urban WSPs.

5-1 Results and lessons from Output 4 and NRW activities are shared during WASPA meetings at least 3 times a year.	The expert team gave lectures in WASPA's Benchmarking workshop in November 2019 and in April 2020. The latter one was conducted with a web system. In 2021 the members of the expert team participated in a WASPA's workshop at Kakamega town in March and also participated in a benchmarking workshop at Malindi town in November. The team gave lectures on NRW relevant activities.
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5-2 A NRW thematic workshop is organized every year.	2 nd thematic workshop was conducted in June 2021 through a web system.
5-3 3 Brief notes are produced during the project.	Brief note ver. 2 was completed in February 2021. The ver. 3 is under preparation and planned to complete until May 2022.

1-4 Achievement of the Project Purpose

Project Purpose: A NRW reduction support mechanism is established for Urban WSPs to implement NRW reduction Activities.

Indicator	Achievement
6 Pilot Urban WSPs continue achieving target set by the NRW reduction plan for two years.	7 Pilot WSPs have achieved 60% or higher annual completion ratio of their planned activities for two or more years continuously. These WSPs are; Meru having achieved continuously for 3 years, Embu for 3 years, Nakuru for 5 years, Kisumu for 4 years, Nyahururu for 5 years, Eldoret for 4 years and Ruiru-Juja for 2 years. Movoko WSP achieved 60% in Year 2017-18 but they have not achieved 60% ever since partly due to their budget restrictions resulting from serious water shortage. However, its NRW reduction activities have recently become more active partly due to the increase of their production through a Belgium-supported project. Kilifi-Mariakani WSP achieved 60% in Year 2017-18 and 70% in Year 2020-21 but not yet continuously for two years. NRW reduction activities at Kilifi-Mariakani WSP are currently getting more active through their organization improvement (e.g. employment of a GIS officer).

1-5 Changes of Risks and Actions for Mitigation

Covid-19 is still around the world. That means the project has risks of suspension of the implementation due to the spreading of Covid-19 in future. The project period was agreed to be extended for 9 months till May 2022 on the assumption that Covid-19 is to be controlled under the condition where the expert team can implement their work for supporting the pilot WSPs as planned. However, considering the difficulty to restrain the pandemic, it is recommendable that flexible measures should be taken if the project would be forced to suspend again due to the serious pandemic spread in Kenya.

1-6 Progress of Actions undertaken by JICA

JICA has been providing continuously 2 project vehicles.

1-7 Progress of Actions undertaken by GoK

Budget for NRW reduction activities is being disbursed in time by the MWS&I. NRW Unit is managing the allocation of the budget by sharing information of the program to be conducted with the counter parts.

1-8 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

Water Utilities Regional Partnership (WURP) is a forum in which the water entities from three neighboring countries such as Kenya, Rwanda, Malawi are collaborating for enhancing their performances on water service by peer-to-peer learning. EWASCO (EMBU WSP) is the member in Kenya. Main function of the forum is holding a workshop every year in a different country by circulating among the members. The workshop had been conducted in Rwanda and Malawi before and the next one was expected to be conducted in 2020 by the initiative of EWASCO, however it was postponed to the year 2021 due to the Covid-19 pandemic. Taking the current subsiding trend of the pandemic consideration, the workshop is expected to be realized by the initiative of Embu WSP in early February next year. Therefore, the expert team is carrying necessary support for Embu WSP properly in consultation with JICA Kenya office.

2 Delay of Work Schedule and/or Problems (if any)

Taking the suspension of the project activities due to the Covid-19 pandemic into consideration, JICA decided to make the project period extension until May 2022 in the last JCC meeting.

2-4 Roles of Responsible Persons/Organization (JICA, GoK etc.)

Indicated above.

3 Modification of the Project Implementation Plan

3-1 PDM and PO

Taking the actual performance and achievement realized through the project into consideration, an indicator in the present PDM was proposed to be modified in the last JCC meeting. However, this proposal was not agreed then because of lack of understanding by the participants. The expert team is aiming to agree the same in the 10th JCC meeting again. The reason of this is as mentioned in "1-4 Achievement of the Project Purpose" above.

Indicator of Project Purpose of the PDM: "6 of pilot Urban WSPs continue achieving

targets set by the NRW reduction plan for two years.” is to be changed to “6 of the pilot Urban WSPs continue achieving above 60% for 2 years in the completion ratio of annually planned activities (based on the annual activity review sheet prepared in this project)”.

3-2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) was authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

None in this 10th JCC.

4 Preparation of GoK Outlook after completion of the Project

Working Group (WG) was formulated on the basis of an agreement in the 7th JCC meeting held in February 2020 aiming at undertaking the promotion of NRW reduction for the entire Kenya after the project is over.

The expert team had tried to enhance the capacity of the NRW Unit members to some extent. However, such activities could not continue due to Covid-19 in almost year of 2020. After change the year, WG meeting has been activating gradually and 2 stakeholder meetings were successfully held in May and July for collecting public opinions on the revised NRW management Standards and Validation Workshop in which the content of Standards was supposed to be validated officially, was also implemented in November in collaboration with all the WG members from WASREB, KEWI and WASPA. Through the WG activities, the performance of the NRW Unit was being improved gradually but still is insufficient for self-managing of the activities required for supporting a large number of WSPs in Kenya.

[Attachment 1] Table: Completion Ratios of the Activities planned in the Previous Annual NRW Reduction Plans (from 2016/17 to 2020/21)

Indicator	Definition & Note	Main Targets of Phase 2						Main Targets of Phase 3		
		Meru WSP	Embu WSP	Nakuru WSP	Kisumu WSP	Nyahururu WSP	Ruiru-Juja WSP	Eldoret WSP	Mavoko WSP	Kilifi-Mariakani
Completion Ratio of the Activities planned in the Previous Annual NRW Reduction Plan (2016/17→2017/18→2018/19→2019/20, all data from the Annual Activity Review Sheets)	Note: Perception % among the NRW task team or person(s) in charge on how much of the NRW activities annually-planned for the last financial year has been completed. If more activities than planned has been completed, enter a % more than 100.	68 → 70 → 75 → 43 → 98 (60% or more for 3 years continuously)	40 → 50 → 60 → 65 → 70 (60% or more for 3 years continuously)	82 → 85 → 90 → 70 → 80 (60% or more for 5 years continuously)	55 → 60 → 69 → 73 → 72 (60% or more for 4 years continuously)	70 → 90 → 90 → 70 → 80 (60% or more continuously for 5 years in this project)	Unknown → 30 → 20 → 68 → 74 (60% or more for 2 years continuously)	50 → 60 → 65 → 75 → 80 (60% or more for 4 years continuously)	40 → 60 → 48 → 50 → 50 (60% or more for 4 years continuously)	35 → 60 → 50 → 40 → 70

[Attachement 2]Template: Annual Review Sheet of NRW Activities

Activity Review for Year 2020/2021 (Note: Please fill the cells coloured and enclosed with double lines.)			
(1) Main Achievements during the Fiscal Year	<ul style="list-style-type: none"> ◆ Internal standardization of pipes, fittings, customer meters, production meters and quality control. ◆ Conducted 3 in number NRW in-house training for artisans and staff from other departments on impacts of NRW in an organization.. ◆ Mapping and zoning of entire distribution network resulting to creation of 18 DMA'S within our service area ◆ Replaced 8 number production meters with EMF(Electromagnetic flow meters) insertion and inline in our treatment works. ◆ Replaced a total of 93.41 Km of aged water pipelines using HDPE pipes ranging from 20mm to 160mm diameter.CBD town centre pipeline replacement resulted to elimination of old connections which were still in use without meters a total of 60 illegal connections. ◆ Relocated a total of 3683 deteriorated service connections which resulted to the collection of debt amounting to Kshs 11,931,780. ◆ Replaced 21 number ultrasonic flow meters and 8 in EMF(Electromagnetic flow meters) for large consumers.. ◆ Standardization of service connections. ◆ Hired 5 no line patrollers to undertake intensive surveillance to reduce physical losses. ◆ Conducted one number interdepartmental meeting ◆ Rotation of meter readers within the service areas. ◆ Permanent solutions to areas prone to frequent leaks and bursts replaced distance more than 18.1km. ◆ Did a request for proposal for creation of DMAs through bulk smart metering which has been awarded to Upepo Technology Limited to undertake creation of DMAs and Sub DMAs in the entire Service Area. ◆ During this financial year 2020/2021 a total of 66.6 km new water pipeline was installed using HDPE pipes ranging from 20mm to 110mm diameter. ◆ Meter resizing, relocation, replacement of large consumer meters following the 10D and 5D rule ◆ Undertook proof of concept on automatic meter infrastructure(AMI)- A total of 174 (½") ultrasonic smart meters were installed in Kenya Re Estate and another 29 in number (½") ultrasonic smart meters 		
	<ul style="list-style-type: none"> ◆ Training of artisans on proper installation of meters and pipelaying i.e good work-manship, meter resizing as per the consumption ◆ Use of HDPE pipes for service connections ,mains and sub-main pipelines. ◆ Introduction of smart metering which is accurate and real time. ◆ The pilot area Kipkorgot which is properly zoned NRW is below 5% on average. ◆ Meter relocation to 1metre as stipulated in our metering policy. ◆ Standardization of service connections. ◆ 		
(2) Good Practices & Knowledge to Share with other WSPs	<ul style="list-style-type: none"> ◆ Covid -19 Pandemic.. ◆ Road works by the County government and other roads agencies resulting in damaged pipelines ◆ Illegal connections and water theft ◆ ◆ 		
(3) Main Obstacles	<ul style="list-style-type: none"> ◆ Covid -19 Pandemic.. ◆ Road works by the County government and other roads agencies resulting in damaged pipelines ◆ Illegal connections and water theft ◆ ◆ 		
	Indicator	%	Definition & Note
	Annual NRW Ratio	42	Definition: (System Input Volume (i.e. total production) - Billed Authorized Consumption Volume)/System Input Volume)*100
	Completion Ratio of the Planned Activities	80	Note: Perception % among the NRW Unit/Task Team (or person(s) in charge) on how much of the NRW activities annually-planned for the last fiscal year has been completed. If more activities than planned has been completed, enter a % more than 100.
	<p>↓ What are the remaining percentage?</p> <ul style="list-style-type: none"> ◆ Installation of bulk meters for established DMAS ◆ Replacement of large consumer meters with ultrasonic and electromagnet meters category C1 at 80% ◆ Enhancement of the utilization of GIS data for NRW reduction ◆ Replacement of dilapidated pipelines at, Mawazo, Karatasi, Kipkaren 85% complete. ◆ Replacement of production meters with Electromagnetic meters at 95%. ◆ Intergration of GIS and billing system(majics) ◆ Installation of smart meters 90% ◆ Sensitization of schools and general public ◆ 		
Records of Presenting & Discussing the Review Results at Your WSP (Note: Please click the checkboxes below.)			
Target of Internal Communication		Discussed / Presented	Note
NRW Unit / Section / Task Team		TRUE <input checked="" type="checkbox"/>	
Head / Staff of Technical Department		TRUE <input checked="" type="checkbox"/>	
Head / Staff of Commercial / Financial Department		TRUE <input checked="" type="checkbox"/>	
Head / Staff of Internal Audit		TRUE <input checked="" type="checkbox"/>	
Managing Director / General Manager		TRUE <input checked="" type="checkbox"/>	
Board of Directors		TRUE <input checked="" type="checkbox"/>	

Annex 2

ATTENDANCE OF THE 10TH JCC MEETING

S/N0.	NAME	ORGANIZATION	POSITION
1.	ENG. SAO ALIMA	MWS&I	Water Secretary
2.	ENG. VICTOR NJERU	MWS&I	NRW Unit Head
3.	ENG. JOSEPH MWANGI	MWS&I	NRW Unit
4.	MR. GEORGE BOKESIA	MWS&I	NRW Unit
5.	MS. PATRICIA MUTUA	MWS&I	NRW Unit
6.	MR. INOUE Yoichi	JICA TOKYO	Director, Team 1 of Water Resources Group, Global Environment Dep.
7.	MR. UJIKE Keisuke	JICA TOKYO	Team 1 of Water Resources Group, Global Environment Dep.
8.	MR. YOKOTA Yoshiaki	JICA TOKYO	Senior Advisor
9.	MR. MATSUI Yoji	JICA TOKYO	
10.	MR. IWAMA Hajime	JICA KENYA	Chief Representative
11.	MR. HAYASHI Kenji	JICA KENYA	Senior Representative
12.	MR. JOHN GITAU	JICA KENYA	Programme Officer
13.	ENG. PETER NJAGGAH	WASREB	Ag. CEO
14.	MR. NEVILE YATOR	WASREB	
15.	MR. WALTER MOSETI	KEWI	
16.	MR. CYRUS MUGENDI	EWASCO	NRW Unit Head
17.	MR. JOSHUA ORIA	EWASCO	
18.	MR. FRANKLINE THURANIRA	MEWASS	NRW Officer
19.	MR. PAUL MUTHAMI	NYAHUWASCO	NRW In-charge
20.	MR. CORNERIUS MUTAI	KIMAWASCO	NRW Head
21.	MR. JOB LIECH	KIWASCO	NRW Engineer
22.	MS. MARY MWANGI	RUJWASCO	Technical Manager
23.	MR. PETERSON	RUJWASCO	
24.	MR. LEONARD MUTAI	NAWASCO	Illegal Use Superintendence



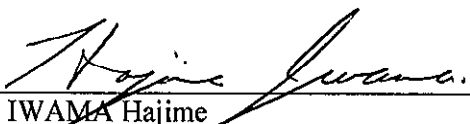
25.	MR. TAGUCHI Masayuki	JICA Expert Team	Chief Advisor
26.	MR. HARADA Naoki	JICA Expert Team	Expert
27.	MR. SAITO Noboru	JICA Expert Team	Expert
28.	MR. MORI Shozo	JICA Expert Team	Expert
29.	MS. SUGIMOTO Hiroko	JICA Expert Team	Expert
30.	MR. GEORGE KARANJA	JICA Expert Team	Staff
31.	MR. CHARLES MAINGI	JICA Expert Team	Staff
32.	MS. KELLYJOY GAKII	JICA Expert Team	Staff



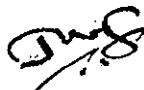


MINUTES OF MEETING
OF
THE ELEVENTH JOINT COORDINATION COMMITTEE MEETING
ON
THE PROJECT FOR
STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION IN
THE REPUBLIC OF KENYA
AGREED UPON BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MINISTRY OF WATER, SANITATION AND IRRIGATION
THE REPUBLIC OF KENYA

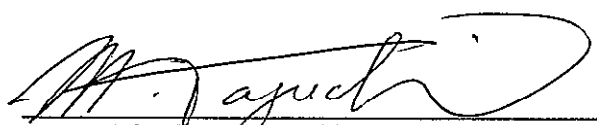
18th May 2022, Nairobi



Mr. IWAMA Hajime
Chief Representative
JICA Kenya Office



Dr. (Eng.) Joseph K. Njoroge
Ag. Principal Secretary
Ministry of Water, Sanitation and Irrigation
The Republic of Kenya



Mr. TAGUCHI Masayuki
Chief Advisor
JICA Expert Team

In accordance with the Record of Discussion (hereinafter referred to as the "R/D") signed on 7th March, 2016 between the Ministry of Water and Irrigation, which was renamed the Ministry of Water and Sanitation in February 2018, and again reorganized as the Ministry of Water, Sanitation and Irrigation (hereinafter referred to as "MWS&I") in October 2019, and Japan International Cooperation Agency (hereinafter referred to as "JICA") on "The Project for Strengthening Capacity in Non-Revenue Water Reduction in the Republic of Kenya" (hereinafter referred to as "the Project"). The 11th Joint Coordination Committee (hereinafter referred to as the "11th JCC") of the Project was held on 18th May, 2022. All members of the 11th JCC reviewed the overall Progress and achievement of the Project, and also exchanged opinions on major issues.

The major points of discussions and agreement are summarized as follows:

1. Rapport Setting

Eng. Njeru, Head of NRW Unit MWS&I, started the meeting by giving the background of the project which started in 2016 and was to end in 2021 but due to Covid-19, an extra 8 months was added to the project. The purpose of the JCC was to review the progress of the project, the performance and achievement of each stakeholder or Counter Part (C/P), and the post-project completion activities. The purpose of the project was to enhance capacity of the 9 pilot WSPs through training and sensitization forums. Good success had been recorded throughout the project period and it is expected that the WSPs will continue practicing the lessons and activities learnt.

2. Remarks by the Chief Representative, JICA Kenya office

Mr. Iwama, Chief Representative of JICA Kenya office, appreciated the MWS&I for its support, leadership and collaboration to the project. The Stakeholders were also appreciated for their engagement and contributions. The achievements of each stakeholder in the project are as follows:

- The Ministry of Water for making an effort and establishing the NRW unit to coordinate the project
- WASREB for having the Standards and Guidelines reviewed under its leadership.
- KEWI for training on NRW reduction in line with the Standards
- WSPs for preparing NRW reduction plans and acquiring new skills.

The ultimate goal of the project is for the 9 pilot WSPs to disseminate and share their knowledge and experiences with the rest of the WSPs. Sustainability of NRW reduction would help in improving our target as a country of access to water. Already the impact of NRW reduction was

visible since more revenue is being collected and helping in rehabilitation of infrastructure while customer satisfaction is improving.

3. Opening Remarks

Eng. S.A.O Alima, Water Secretary, MWS&I, made the opening remarks on behalf of the Ag. Principal Secretary, Dr. (Eng.) Joseph K. Njoroge. The Project was carried out in three phases:

- Phase 1 was from October 2016 – September 2017 with Meru and Embu WSPs. The baseline surveys were conducted to select other 7 pilot WSPs during this phase.
- Phase 2 began in October 2017 – September 2019 with Kisumu, Nakuru, Ruiru-Juja and Nyahururu WSPs joining in. NRW reduction planning for each WSP formulated and their implementation were done by each pilot WSP.
- Phase 3 was from October 2019 – May 2020 with Mavoko, Kilifi-Mariakani and Eldoret WSPs joining in.

He said that the achievement rate of the project is at around 80%, which is commendable. This is a clear indication that it can be up-scaled to the rest of the WSPs in the country. The current country NRW ratio is at 47% and can continue to reduce if the NRW reduction practices gained continue to be utilized together with the use of the NRW Guidelines and Handbook. The objective of the project was to have a systematic and sustainable mechanism to tackle NRW in the country. The Ministry had taken several initiatives to ensure this objective including:

- Creation of a dedicated Unit tasked with reviewing the Standards, benchmarking to share best practices, and working with the counties for NRW reduction.
- Preparation of the Annual NRW Report that would share on the NRW reduction progress and good practices in the country.

The Ministry will continue to fund the Unit so that its operations do not stall and the Unit will continue the activities after the end of the project. The Ministry is in the process of upgrading the Unit into a division to enlarge and motivate the team. The stakeholders were commended on their contributions to the project. WSPs were reminded that their staff played a huge role in NRW reduction, and it is important that they are trained on the same since they need to learn to buy quality and standard pipe fittings instead of cheap ones. Furthermore, all plumbers need to know that reporting any changes made to the pipeline would assist in the mapping of the network.



The governments of Kenya and Japan were commended for working together for the greater good of the country.

4. Approval of Project Monitoring Sheet Ver. 11 and Project Completion Report (PM form4)

The 11th JCC confirmed the contents of the Project Monitoring Sheet Ver. 11 (covering the period from December 2021 to May 2022), which was presented to the 11th JCC (Refer to Annex-1). And the JICA Expert team also presented Project Completion Report (PM Form 4) (Refer to Annex-2). Mr. Taguchi, Chief Advisor of the Expert team, gave a brief presentation by collaboration with C/Ps on the achievement of the project as follows:

The monitoring sheet ver. 11 had been shared with the members for going through before the meeting, hence, Mr. Taguchi requested each C/P to give a summary of their achievements in the project monitoring sheet. Each C/P reported as follows,

Output-1 by Eng. Njeru, NRW Unit, MWS&I;

4 NRW annual reports were to be prepared within the duration of the Project and 3 were so far completed while the 4th will be ready within the next month. 2 of the reports were uploaded on the Ministry's website and the 3rd was in the publication process. 5 county sensitization workshops were to be conducted. 4 had been done and the 5th was in the planning stage and will be held in Embu on the 26th May 2022. School campaigns were held several times but suspended due to Covid-19. 4 educational videos were made in cooperation with some of pilot WSPs and 2 of them can be accessed through YouTube so far. The NRW standards had been reviewed and procurement of publication services was ongoing after which they would be published followed by its launching. NRW reduction equipment were distributed to the Pilot WSPs. 3 Thematic workshops were held.

Output-2 by Eng. Njaggah, WASREB;

A survey on the use of the NRW standards by WSPs was done and the results showed that there was need to revise the standards, which was completed. Promotion of the use of the standards has been on going through regional workshops and, WASREB had put their use as part of the licensing conditions. Monitoring of the use of the standards through sensitizations are also in a continuous process.

Output-3 by Mr. Moseti, KEWI;



The materials used in NRW training had been reviewed in line with the current standards and OJT incorporated. Feedback from trainees had also been established using a before-and after-questionnaire in the Phase 2 of the project term. KEWI has trained 375 people since the start of the project to date. The JICA project has also been helping to create new training courses on NRW reduction which would train especially the managerial staff of WSPs and cope with the new licensing condition of WASREB. The 1st new training course is planned to be conducted from 23rd to 27th May.

Output-5 by Mr. Ambugo, CEO WASPA;

WASPA had been able to create a platform for benchmarking for the WSPs, bi-monthly meetings held to monitor the progress of the WSPs and, workshops and seminars on NRW reduction plans held. Water loss conferences were also held every year and this year's conference will be held in July. There was still a low usage of the Standards by WSPs but adoption of the same was being encouraged.

Mr. Taguchi informed members that Mr. Mori would present the summary of the achievement of Output-4 which had been reached through the project activities with the pilot WSPs soon after. He also pointed out that the overall achievement rate which Eng. Alima said was around 80% is quite satisfactory, however, a big challenge still remains of disseminating the new NRW reduction activities from the project across the country. Then Mr. Taguchi focused on a support mechanism formulated for dissemination of NRW reduction in collaboration with the C/Ps as the most important issue of this JCC meeting. The duties of the C/Ps were confirmed as follows:

- The Ministry – Policy Maker and procuring of leak detection equipment.
- WASREB – New licensing conditions, Monitoring, and Evaluation
- KEWI- Training WSPs, Consultation
- WASPA- Information Sharing, Benchmarking seminars
- The pilot WSPs- Peer to peer learning, Teaching WSPs

Then Mr. Mori presented summary of the achievements of output-4 by using some slides. Mr. Mori explained the project purpose that at least 6 WSPs would achieve 60% or more of the planned activities for 2 years continuously. Comparing the purpose, 7 out of the 9 pilot WSPs were successful with 4 achieving over 80% of the planned activities. WSPs implemented new skills such as annual planning, use of the PDCA cycles, conducting Monthly Universal NRW Monitoring, Analyzing of Meter reading & Billing data, Meter accuracy testing and conducting Customer Identification Surveys, etc. Eldoret WSP achieved 87% of the billing on actual meter



readings. Embu WSP had a big problem with their bulk meters and now after replacing them, the trend is showing a visible tendency of reduction of the NRW ratio.

- Discussions on the Project Monitoring Sheet were done as follows,

Eng. Alima congratulated Ruiru-Juja WSP on the reduction of NRW by 21%. Meru WSP were also commended on their NRW ratio of below 20%. Embu's one was shown around 40% and it was clarified that the ratio in the urban area is under 20% but the same in the rural area is rather high due to illegal water connections for irrigation. Eng. Alima advised Embu WSP to request the Ministry for an irrigation project for the countermeasure in the rural areas.

The Embu TM shared the experiences from the Water Utilities Regional Partnership (WURP) workshop held a week before involving Rwanda, Malawi, and South Africa. He explained that the three countries have similar NRW problems and they had concluded that NRW reduction is an issue of integrity and professionalism as a little investment is needed if we deal with the commercial loss reduction.

There was no other opinion then the Project Monitoring Sheet Ver. 11 and Project Completion Report (PM Form4) were approved unanimously by the members.

5. Special talk on Challenges and Way forward for NRW reduction in Kenya

Eng. Njaggah, Director, WASREB, gave a presentation and outlined key challenges faced by water utilities in fighting NRW as follows,

- Poor governance
- Deteriorating quality of raw water
- Increasing NRW
- Intermittent water supply
- Unplanned development
- Population explosion, fast-growth requirements
- Data gap and lack of analysis
- Deteriorating and aging infrastructure
- Weak asset management structures

80% of all WSPs have expired tariffs and have not been applying for renewal. WSPs were advised to come up with innovative ideas to curb NRW. Then he requested the members to make active discussions based on above issues.

The CEO-WASPA confirmed that poor governance is one of the major issues facing WSPs especially in cases where County Governments interfere with the management of the WSP's affairs due to their inexperience in handling of water issues. As a result, NRW rises among other negative impacts.

Eng. Mori wondered whether governance had any effect on NRW since in most WSPs the problem has been billing on estimates and lack of leak detection while specifically in Embu, the issue was the large rural coverage area with illegal water use for irrigation.

The TM, Embu WSP stated that devolution affected NRW since the governors and board members influence against disconnection of non-paying customers, penalizing or arrest of illegal water users, etc. He stated that uncoordinated planning between the various sectors such as roads, water and county construction activities where WSPs are rarely notified on ongoing road projects leads to damage of water lines. He also noted that government offices are notorious in connecting water illegally, failing to pay their bills and failing to financially assist WSPs; yet they should be leading in the fight against NRW. He strongly appealed to MWS&I through WASREB to shield WSP staff from political leaders so that they can discharge their duties professionally and reduce NRW.

6. Closing Remarks.

Eng. Alima made the closing remarks. He requested all stakeholders to complete the outstanding activities before the end of the project. The Ministry was to launch the NRW Standards and publish the 3rd NRW annual report within the next two weeks. WSPs were tasked with keeping the NRW ratio low and involving all stakeholders for assistance where necessary. They were also requested to start preparing water balance to determine the exact losses. The problems caused by road construction were attributed to uncoordinated planning and would be addressed with the Ministry of Transport. The Ministry has requested JICA for grant aid project for Nyahururu, Rumuruti and Nanyuki WSPs and is hoping for positive response as it's still a proposal.



7. Complementary Session

In this session 3 pilot WSPs ie. Nakuru, Eldoret and Mavoko WSPs gave their presentation as a good example on NRW reduction. And the following comments were added.

Eng. Karanja, from the expert team said that Pilot WSPs should maintain the same vigor in fighting NRW as JICA experts wouldn't be there to assist them anymore so they should keep on with the good practices.

Eng. Njeru, NRW Unit; Pilot WSPs were supposed to have learned something from today's meeting. They were also requested not to let JICA down as the experts had spent a lot of time and effort in assisting and training them.

END

Annex-1: Project Monitoring Sheet Ver. 11

Annex-2: Project Completion Report (PM Form4)

Annex-3: Attendance list

  7



TO CR of JICA Kenya OFFICE

PROJECT MONITORING SHEET Ver. 11

Project Title: THE PROJECT FOR STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION (Phase 3)

Version of the Sheet: Ver. 11 (Term: December. 2021 – May. 2022)

Name: Masayuki TAGUCHI

Title: Chief Advisor

Submission Date: May. 18, 2022

I. Summary

1 Progress

1-1 Progress of Inputs

Input by Japanese Side

Man Months (M/M) of the deployment of the experts are calculated from December, 2021 to May, 2022 as mentioned in the table below. The 5th Covid-19 wave peaked out in December, 2021 after which it rapidly declined its infection rate. The JICA experts were able to manage their works in Kenya as scheduled without any Covid-19 effect. The local staff of the expert team have been working in collaboration with the experts in supporting C/Ps. The project is expected to come to an end in May, 2022 as planned.

Table 1 M/M of the Experts and Local Staffs from December 2020 to May 2021

Expert	In Kenya	In Japan/Activities	
Mr. Taguchi; Chief advisor, NRW Management 1	4.20 M/M; from 1 st Feb., 2022 to 6 th June, 2022.	0.38 M/M	• Project implementation Management
Mr. Mori; Pipe network planning	3.17 M/M; from 7 th Feb. to 31 st May. 2022	-	
Mr. Takahashi; NRW reduction tech.1	-	3.32 M/M	• Remote training of NRW reduction Technology
Mr. Sekimoto; NRW reduction tech.2	3.87 M/M; from 7 th Feb. to 2 nd Jun. 2022.	-	
Mr. Harada; Customer service/ billing 2	2.40 M/M; from 7 th Feb. to 6 th Jun. 2022.	-	
Ms. Sugimoto; Information/Sensitization	0.83 M/M;	-	• County Sensitizations • Producing sensitization tools
Mr. Saito; NRW Management 2	-	0.96 M/M	• Remote supporting on NRW reduction activities for WSPs.

Mr. Matsui; Customer service/ billing 1	-	1.00 M/M	• Remote training on Commercial Loss reduction.
Total	14.47 M/M	5.66 M/M	
Local staff: 2 Secretary:1	From Dec. to May: 3P @ 6 M = 18 M/ M	-	

Input by Kenyan Side

Project CPs: The number of Counterpart (CP) members that participated in the reporting period is 172 persons during last 6 months representing the following organizations. MWS&I (8), WASREB (14), KEWI (8), WASPA (4), Nyahururu WSP (15), Meru WSP (20), Embu WSP (20), Nakuru WSP (15), Ruiru-Juja (15), Mavoko (15), Eldoret (15), Kisumu (10), Kilifi-Mariakani (15)

Facilities: Project office as well as regular meeting rooms were provided at MWS&I. Vehicles for Kenyan C/Ps' field visits were provided.

Project implementation costs: The traveling costs and per diem for staff of C/Ps of MWS&I/ KEWI/ WASREB and publishing of Annual NRW Report and NRW management Guideline and Hand book were borne by MWS&I.

1-2 Progress of Activities

Activity	Progress
Output 1	
1-1 MWS&I NRW Unit, in cooperation with WASREB, produces NRW annual reports which include NRW reduction data.	3 rd version of the annual report 2019/2021; the final draft completed and in procurement stage for printing. Distribution of the copies will be done in June 2022 after printing. Draft of report of Ver.4 has been started.
1-2 MWS&I NRW Unit plans and implements NRW reduction sensitization activities for the Counties.	3 rd & 4 th County sensitization seminars were conducted at Kisumu and Mombasa in February 2022 respectively. The 5 th is planned to be conducted in May, 2022 at Embu.
1-3 MWS&I NRW Unit plans and implements NRW reduction campaigns.	4 Videos on water treatment process, water supply, water conservation and water quality management process were developed. These videos were shown in several workshops held by MWS&I. These videos were also shown during the World Water Day's exhibition held on March 22, 2022 as part of the school campaigns. Some draft videos are already in YouTube.

1-4 MWS&I NRW Unit conducts reviews of KEWI NRW courses.	Activities for KEWI was completed in the Phase 2.
1-5 MWS&I NRW Unit conducts reviews of WASREB's NRW reduction activities.	As a main body of the Editorial Committee for editing the new NRW Standards, NRW Unit in collaboration with WASREB has produced the NRW management Guideline and Hand book. The standards are now at the procurement stage for publication.
1-6 MWS&I NRW Unit assures the budget for the support mechanism based on its NRW reduction mid-term vision.	Budget for the NRW related activities for 2021/2022 is effective and being allocated properly by MWS&I.
Output 2	
2-1 WASREB conducts survey of the usage of current NRW reduction standards.	Completed in Phase 2.
2-2 Based on the survey result as well as Output 4 and 5, WASREB revises the NRW reduction standards.	The new NRW management standards was completed after it was submitted to Stakeholders in two different meetings and a Validation meeting. WASREB is awaiting for the launch of the Standards.
2-3 WASREB promotes revised NRW reduction standards through workshop(s).	The sensitization forums for dissemination of the new Standards were held in Kisumu and Mombasa in April, 2022
2-4 WASREB incorporates the review results of NRW reduction activities by MWS&I NRW Unit in their activities.	After completion of the new Standards the review work will be conducted in collaboration with MWS&I as part of the Working Group activities.
2-5 WASREB monitors and evaluates the usage of revised NRW standards.	Monitoring and evaluation will be conducted after the country-wide dissemination of the new Standards.
※Licensing Condition enforcement	WASREB agreed to adopt 4 tools as licensing conditions for the WSPs, which are the NRW annual review template, meter reading and billing analysis tool, Universal analysis of monthly NRW ratios tool and Kobo tool box. WASREB staff hosted a training to create awareness on these tools. The training was conducted by the Expert team in April 2022.
Output 3	
3-1 KEWI studies current status of NRW reduction courses and its	Completed in Phase 1





challenges.	
3-2 KEWI reviews NRW reduction training strategies and course contents.	Completed in Phase 2
3-3 KEWI, in collaboration with leading WSPs (Embu and Meru, etc.), conducts on-site NRW trainings.	After Covid-19 pandemic waning, KEWI resumed the regular training courses of NRW reduction in June last year. In the year 2022 one classroom training course was conducted in March and OJT in April in Embu.
3-4 KEWI reflects on-site NRW trainings into NRW course contents and materials.	Completed in Phase 2.
3-5 KEWI incorporates the results of review by MWS&I NRW Unit into NRW course contents.	Completed in Phase 2.
3-6 KEWI conducts trace studies of NRW reduction course participants.	Completed in Phase 2.
※Formulating New Training course in line with WASREB's new Licensing condition.	KEWI is formulating 4 new training courses. In collaboration with Oololaiser WSP, KEWI conducted a test-run for the new course aimed at the management team of the WSP from 11 th to 15 th April, 2022, where 10 participants (Managing Director, Technical Manager, Commercial Manager, Finance Manager, Metering and Billing Supervisors) attended. A trial training is under planning from 23 rd to 27 th May, 2022 for 5 WSPs to be selected by KEWI with financial support from MWS&I.
Output 4	
4-1 The Project team conducts a survey of Urban WSPs and selects pilot Urban WSPs.	This activity was completed in Phase 1.
4-2 Each Pilot WSP conducts analyses of current NRW reduction activities and identifies its challenges.	This activity was completed in Phase 1.
4-3 Each Pilot WSP identifies measures to solve challenges.	-All the 9 Pilot WSPs have formulated and updated their annual and medium-term NRW reduction plans continuously for the last 5 years by utilizing the templates developed in the Project (the planned 5 annual cycles of this activity have been completed). Their annual plans
4-4 Each Pilot WSP formulates the NRW reduction plan including	

financial plan.	include realistic financial considerations (e.g. cost estimation for each activity). Their activities have been planned and updated based on their detailed capacity self-assessment and annual activity review of the previous year since the third year of this project. Through the detailed self-assessment (with a long list of check points), each Pilot WSP has repeatedly identified various measures to solve their challenges (this activity has been completed).
4-5 Each Pilot WSP implements the NRW reduction plan.	-Each Pilot WSP has implemented NRW reduction activities in accordance with their own plans. The average completion ratio of annually planned activities among the 9 Pilot WSPs has significantly improved from 55% in 2016-17 to 75% in 2020-21.
4-6 Each Pilot WSP evaluates and analyzes implementation results and revises the plans.	-The Pilot WSPs have planned and updated their activities based not only on their detailed capacity self-assessment but also on annual activity review of the previous year since the third year of the Project. They have incorporated the results of their annual activity review for each fiscal year into their annual NRW reduction plans of the next fiscal year.
4-7 Each Pilot WSP produces the NRW reduction activity report annually.	
4-8 Each Pilot WSP holds regular NRW reduction meetings attended by relevant departments of WSP.	-Since the pandemic is currently settling down, each Pilot WSP has been gradually resuming and making it a routine to hold inter-departmental meetings to enhance their awareness and coordination for NRW reduction activities.
Output 5	
5-1 The project presents results and lessons of Output 4 and other NRW activities during WASPA meetings.	<p>-The expert team in collaboration with the MWS&I is sharing the achievement, good practices of the Project, etc. with WSPs through WASPA's Workshops or seminars. The JICA team participated in WASPA's Bi-monthly meeting held in March 2022 in Kilifi.</p> <p>-On 6th May, 2022 WASPA held the Bi-monthly meeting in Bomet and the next one is tentatively scheduled for 7th July, 22 in Kitui.</p> <p>-The 1st Task-Group Benchmark workshop is to be conducted on 16th & 17th June 2022 with the venue to be communicated. (All utilities under the JICA program will have the opportunity to showcase lessons learnt,</p>

	achievements and also point-out the best practices that can adopted by other utilities).
5-2 The Project holds NRW thematic workshops in coordination with WASPA.	The NRW unit intends to hold a thematic workshop online in the month of June, 2022.
5-3 The production of the brief notes.	The 3 rd brief note is being edited and will be completed in due course in May 2022.
5-4 Counter measures against Covid-19 pandemic 1) Urgent donation of Chemicals for the water treatment process. 2) Producing sensitization tools for the citizens for water use and washing hands. 3) Procurement of some of Equipment in Japan 4) Conducting a remote exercise of NRW reduction technology	1) The expert team executed a task in which 1000 water meters were donated to Kilifi-Mariakani in November, 2021. 2) Sensitization Banners, posters and fliers were delivered to each Pilot WSP in December 2020. 3) Number of leak detection equipment were delivered to the pilot WSPs and utilized for their trainings and related activities. 4) The training was conducted successfully through remote system.

1-3 Achievement of Outputs

Output 1: Promotion and coordination of NRW reduction activities by MWS&I NRW Unit are strengthened.	
1-1 All County representative participate NRW related seminar(s).	<ul style="list-style-type: none"> • Kisumu workshop was held on 10th February 2022 targeting 10 counties around Lake Victoria. 4 county reps and 8 WSPs attended. • Mombasa workshop was held on 24th February 2022 and was attended by the Eastern and Coastal region Counties: 6 county reps and 9 WSPs attended. Attendance of county reps improved in Kisumu and Mombasa workshops compared with previous workshops. • 5th County sensitization workshop in Embu is under planning in May for Nairobi, central and some eastern region counties.

1-2 NRW reduction campaigns are conducted semiannually.	4 No. educational videos were developed. A video was shown during the Kisumu and Mombasa County sensitization workshops. Through exhibitions, the NRW Unit participated in the World Water Day marked in Kitui in March 2022 and conducted a workshop with school students by using the video on the WSPs' efforts in sustainable water services.
1-3 NRW reduction annual reports are produced.	The procurement of printing services for the 3 rd version of the report is ongoing. It will be published in May 2022.
1-4. NRW Unit purchases leak detecting equipment and delivers them to Pilot WSPs	• Equipment purchased by MWS&I were distributed and collected by the pilot WSPs in March, 2022.
※Supporting to the Working Group (WG) for revising the NRW-reduction Standard and disseminating them across the country.	• Validation workshop on the draft revised NRW standards was conducted in Nov. in Nakuru. Sensitization forums on the new standards were held in Kisumu and Mombasa in February, 2022 • The NRW reduction standards will be launched in June, 2022.

Output 2: Use of NRW reduction standards by Urban WSPs are promoted by WASREB

2-1 NRW reduction standards are revised by 2020.	WASREB is awaiting launching of the standards.
2-2 Revised NRW reduction standards are disseminated to all Urban WSPs through workshop(s).	• WASREB held two workshops: one in July, 2021 in Machakos and the other in November in Kisumu with attendance of 15 WSPs in each. • WASREB organized three workshops to promote use of performance based contract and the use of the standards in NRW management. The workshops were held in Kisumu and Mombasa in April and, in Nakuru town on 4th May, 2022.

Output 3: NRW related training capacity of KEWI is strengthened.

3-1 KEWI conducts NRW reduction courses with contents incorporating on-site trainings and revised course materials.	Completed in Phase 1.
3-2 The average score of the participants on the test conducted after the NRW reduction course is higher than before the implementation.	Achieved satisfactorily in Phase 2.

Output 4: NRW planning and/or implementation capacity of Pilot WSPs is enhanced.	
4-1 More than 8 Pilot WSPs formulate NRW reduction plans.	-All the 9 Pilot WSPs have successfully formulated and updated their annual and medium-term NRW reduction plans continuously for the last 5 years. Their activities have been planned and updated based on their detailed capacity self-assessment and annual activity review sheet (report) of the previous year since the third year of this project. The average completion ratio of annually planned activities among the 9 WSPs has significantly improved from 55% in 2016-17 to 75% in 2020-21. To sum up, Indicators 4-1 to 4-4 have all been achieved (the minimum targets of 4-2 to 4-4 have been exceeded significantly).
4-2 More than 6 Pilot WSPs self-review their achievements of Previous year's NRW reduction plans and compile activity report.	
4-3 Based on 4-2, more than 6 Pilot WSPs continuously formulate annual NRW reduction plans.	
4-4 More than 6 Pilot WSPs continuously implement NRW reduction plan formulated in 4-1.	
4-5 More than 6 Pilot WSPs are able to use skills and/or implement activities which they could not employ before the project.	-All the 9 Pilot WSPs have improved the effectiveness and efficiency of their NRW reduction activities by adopting various newly introduced skills (e.g. prioritization of large customers for commercial loss reduction and the use of free data collection and GIS software). The survey equipment procured by JICA and the Ministry have been used by the Pilot WSPs to conduct the newly adopted activities (e.g. minimum night flow measurement and step test with UFM, house-to-house leak survey with listening sticks, and accuracy check with meter testers). As a result, Indicators 4-5 has also been achieved (its minimum target has been exceeded significantly).
4-6 The amount of NRW in the selected distribution zones indicates decreasing tendency.	-Considering the yearly universal NRW ratio of 2016-17, 2017-18 and 2018-19 as the baseline for the Phase 1 WSPs, Phase 2 WSPs and Phase 3 WSPs respectively (except 2018-19 for Ruiru-Juja due to their unreliable data of the previous year and 2019-20 for Kilifi-Mariakani due to delayed assistance), their monthly universal NRW ratio has been reduced by around 7% (currently around 17%) in Meru, by around 20% (currently around 34%) in Ruiru-Juja, by around 8% (currently around 28%) in Kisumu, by around 5% (currently around 30%) in Nakuru, by around 5% (currently around 39%) in Eldoret, by around 6% (currently around 35%) in Mavoko and 8% (currently around 49%) in Kilifi-Mariakani, respectively. Although the pandemic made the reduction of NRW more difficult,

these WSPs have successfully lowered their universal NRW ratio (many of their NRW reduction activities target their entire service areas. Therefore, their universal NRW ratios are the most important indicator to measure their success). Moreover, Embu had a tendency of gradual decrease in its universal NRW ratio during the last quarter (41%→39%→37%) although the ratio had been rather stagnant at around 40% since they installed new bulk meters around 8 months ago to measure their production properly (previously, the estimated monthly universal NRW ratios of Embu were not reliable). Lastly, Nyahururu also had a tendency of decrease in their universal NRW ratio during the last quarter (around 39%) although their NRW ratio has been rather stagnant at around 41% in this fiscal year (their yearly NRW ratio once went down successfully from 42% to 37% before the pandemic).

-Among the target areas selected at each Pilot WSP for intensive field activities such as step test and house-to-house survey, Embu's Mukangu Distribution Zone (having around 5,500 customers including around 4,000 customers in Zone 2) and Nyahururu's Marmanet Scheme (having around 3,000 customers) have been the most difficult to deal with because these areas are large hilly rural distribution zones having widespread abundant leaks and illegal water uses. The monthly NRW ratios of these two zones went down significantly from around 70% in 2018 to around 50% in 2019 but the ratios shot up to around 70% again in both areas due to the increase of water supply to these zones and various restrictions of activities during the pandemic. However, the ratios gradually came down again successfully in the last quarter (down to around 64% in both zones). Most of the other Pilot WSPs have also been monitoring the trends in NRW reduction in their selected target areas through their implementation of step tests and house-to-house surveys for leak detection. To sum up, Indicators 4-6 has also been achieved well.





Output 5: Experiences and knowledge of NRW reduction activities are shared among Urban WSPs.

5-1 Results and lessons from Output 4 and NRW activities are shared during WASPA meetings at least 3 times a year.	In 2021 the expert team participated in a WASPA's workshop in Kakamega town in March and a benchmarking workshop in Malindi town in November. The team gave lectures on NRW reduction activities. In 2022 the expert team participated in WASPA's Bi-monthly meeting in March in Kilifi, in which the expert team gave a presentation about the new NRW Management Guideline and Hand-book and various achievements of the project to about 40 MDs of WSPs. On 6 th May, 2022 WASPA held the Bi-monthly meeting in Bomet while the next one is slotted for 7 th July,22 tentatively to be held in Kitui.
5-2 A NRW thematic workshop is organized every year.	3 rd thematic workshop is planned to be conducted online in June 2022.
5-3 3 Brief notes are produced during the project.	Brief note ver. 2 was completed in February 2021. The ver. 3 is under preparation and will be complete by the end of May 2022.

1-4 Achievement of the Project Purpose

Project Purpose: A NRW reduction support mechanism is established for Urban WSPs to implement NRW reduction Activities.

Indicator	Achievement
6 of Pilot Urban WSPs continue achieving above 60% for two years in the completion ratio of annually planned activities. (This indicator has been agreed to revise in the last JCC meeting)	-7 Pilot WSPs have achieved 60% or higher in the annual completion ratio of their planned activities for two or more years continuously. These WSPs are; Meru having achieved continuously for 3 years, Embu for 3 years, Nakuru for 5 years, Kisumu for 4 years, Nyahururu for 5 years, Eldoret for 4 years and Ruiru-Juja for 2 years. Mavoko WSP achieved 60% in Year 2017-18 but they have not achieved 60% ever since partly due to their budget restrictions resulting from serious water shortage. However, the NRW reduction activities in Mavoko have recently become more active due to the increase in their water production through a Belgium-supported project. Kilifi-Mariakani WSP achieved 60% in Year 2017-18 and 70% in Year 2020-21 but not continuously for two years. NRW reduction activities in Kilifi-Mariakani WSP are currently getting more active through their

	<p>organizational improvement (e.g. employment of a GIS officer).</p> <ul style="list-style-type: none"> - The average completion ratio of the planned activities among the 9 WPSs has significantly improved beyond 60% (from 55% in 2016-17 to 75% in 2020-21). - Year 2021-22 is the last year being reviewed annually (by using the annual review sheet) as part of the official activities within the period of the Project (by the end of May 2022). The target of the project purpose has been achieved and exceeded by 17% (7 successful WSPs in comparison to the target of 6 WSPs: 7 divided by 6 is 117%), and this successful result is final.
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1-5 Changes of Risks and Actions for Mitigation

Covid-19 pandemic is still in Kenya but on a small scale basis. There is a risk for the project activities to be suspended due to the spread of Covid-19 in future.

1-6 Progress of Actions undertaken by JICA

Not applicable.

1-7 Progress of Actions undertaken by GoK

Budget for NRW reduction activities is being disbursed timely by the MWS&I. NRW Unit has to manage its allocation by getting in touch with the counterpart organizations.

1-8 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

The Water Utilities Regional Partnership (WURP) is a forum of water entities from three neighboring countries i.e., Rwanda, Malawi and Kenya. The member utilities collaborate so as to enhance their performances on water service by peer-to-peer learning. Embu WSP (EWASCO) is the member in Kenya. The main function of the forum is to hold a workshop every year in a member country i.e., rotating among the members. This year's workshop has been conducted in Kenya through the initiative of EWASCO from 10th to 12th May 2022. The members have signed a MoU to continue the same activities in future. The workshop was conducted with the support of the expert team. Therefore, the expert team hopes that the JICA Kenya office and EWASCO are discussing on how to continue this activity after the project's completion.

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2 Delay of Work Schedule and/or Problems (if any)

Considering the suspension of the project activities due to the Covid-19 pandemic in 2020, the project period was extended for 8 months until May 2022.

2-4 Roles of Responsible Persons/Organization (JICA, GoK etc.)

Indicated above.

3 Modification of the Project Implementation Plan

3-1 PDM and PO

In the 10th JCC meeting the indicator of the project purpose was modified as per the agreement between MWS&I and JICA. The RD of this project subsequently changed in December 2021. The modified indicator of the project purpose is as follows,

“6 of the pilot Urban WSPs continue achieving above 60% overall achievement of their self-assessment in the NRW planning template for 2 years.”

3-2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) was authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

Not applicable.

4 Preparation of GoK Outlook after completion of the Project

Dissemination of the NRW reduction activities is a big challenge for Kenya. The project has formulated a mechanism to overcome this challenge and each C/P involved should fulfil its own tasks by taking the actions adequately.

Mechanism of Dissemination of the NRW Reduction Activities across Kenya

C/Ps	rolls	Actions to be taken
MWS&I NRW Unit MWS&I	Policy making and dissemination and acquisition of enough budget	<ul style="list-style-type: none"> ➤ Publishing NRW annual report in which good examples of NRW reduction should be focused. ➤ Conducting and participating in the sensitization seminars or workshops on the NRW reduction activities in collaboration with C/Ps. ➤ Acquiring enough annual budget for Supporting WSPs in procuring NRW leak detecting equipment and tools,

WASREB	Sensitizing NRW reduction activities and dissemination of NRW management guideline and handbook to the WSPs.	<ul style="list-style-type: none"> ➤ Announcing the new licensing conditions on NRW reduction tools to the WSPs. ➤ Dissemination of NRW management guideline and handbook to the WSPs. ➤ Monitoring, analysing & suggesting improvements of NRW activities among the WSPs. ➤ Evaluating NRW activities and ranking the result of the activities of WSPs.
KEWI	Training WSPs staff on the newly adopted licensing condition	<ul style="list-style-type: none"> ➤ Formulating new training course targeting the managerial staff of WSPs so as to cope with the newly adopted licensing conditions. ➤ Conducting the new training course regularly. ➤ Providing Consultation to WSPs on the implementation of NRW reduction activities.
WASPA	Disseminating the NRW reduction movement to the WSPs.	<ul style="list-style-type: none"> ➤ Publishing and sharing various information on NRW reduction activities among WSPs through meetings, seminars, workshops, etc.
Pilot WSPs	Leading other WSPs as the teachers on NRW management.	<ul style="list-style-type: none"> ➤ Teaching and suggesting to other WSPs on the NRW management technologies. ➤ Providing and sharing good examples which they had realized through the project activities.

This mechanism was discussed during the 7th JCC meeting in February 2020 where members agreed to formulate a Working Group (WG) comprising of the members above so as to discuss this issue and to make it more realistic before the following JCC meeting. However, the activities of the WG were suspended due to the Covid-19 pandemic and resumed after about one year. The members have been discussing on the launch of the NRW management Guideline and Handbook. The dissemination of the NRW reduction activities across the country is a big challenge after the completion of the Project. Progress will only be realized through the various activities to be implemented by the C/Ps members as mentioned in this mechanism. The expert team therefore requests that the MWS&I will support the Unit and upgrade it to a division with more enthusiastic members.




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Project Completion Report (PM Form4)

Project Title: THE PROJECT FOR STRENGTHENING CAPACITY IN NON-REVENUE WATER REDUCTION

Name: S.A.O ALIMA

Title: Project Director, Secretary for Water, MWS & I

Name: Masayuki TAGUCHI

Title: Chief Advisor

Submission Date: 18th May, 2022

I. Basic Information of the Project

1. Country;

Republic of Kenya

2. Title of the Project;

Project for Strengthening Capacity in Non-Revenue Water Reduction

3. Duration of the Project:

〈Planned〉 from October 2016 to September 2021,

〈Actual〉 from October 2016 to May 2022

4. Background (from the Record of Discussions(R/D))

The National Water Master Plan 2030 recommends that water resources must be properly managed, conserved, developed and more efficiently utilized considering future impact of climate change and rapid increase of population, economic growth, etc. NRW ratio in Kenya is 42% as of 2015. This figure means that half of treated water produced in the entire country is lost which results in the loss of half of the revenue which could have been used for further improvement of water access. In Vision 2030, GOK aims to reduce NRW ratio to 25% by 2020 and 20% by 2030. GOK has therefore implemented "the Project for Non-Revenue Water Management" supported by JICA from 2010 to 2014. Under this Project, WASREB developed the Standards for NRW Reduction, which consists of the NRW Reduction Guideline for use by technical staffs. Furthermore, KEWI has established new training course on NRW reduction, so it is desired to actualize the reduction of NRW ratio by applying materials that have been developed and



training courses.

For sustainable NRW reduction, GOK requested the GOJ technical cooperation to strengthen capacity of the responsible organization to enhance the basic knowledge and the technical capacity for tackling NRW issue.

5. Overall Goal and Project Purpose (from the Record of Discussions(R/D))

5-1 Overall Goal;

Under NRW reduction support mechanism, Urban WSPs enhance NRW reduction activities.

5-2 Project Purpose;

A NRW reduction support mechanism is established for Urban WSPs to implement NRW reduction activities

6. Implementing Agency;

6-1 Implementing organizations;

MWS & I, WASREB, KEWI

6-2 Cooperating organizations;

MWS & I, WASREB, KEWI, 9 Pilot WSPs*¹, WASPA

(*¹Note: The above-mentioned Pilot WSPs include two leading WSPs of Embu and Meru which were selected at the time of detailed design.

II. Results of the Project

1. Results of the Project

1-1 Input by the Japanese side (Planned and Actual)

(1) Amount of input by the Japanese side:

Table 1. Amount of In-put by the Japanese side

	Cost (million Yen)				Period
	Phase 1	Phase 2	Phase 3	Total	
Planned	161	257	198	616	Nov. 2016 – Oct. 2021
Actual	146	258	280* ²	684	Nov. 2016 – May. 2022

(2) Expert dispatch:

<Planned> 10 persons

< Actual > 10 persons (Phase 1), and 9 persons (Phase 2 & 3)

Details are as per attached.

(3) Receipt of training participants:

< Actual > 13 persons (Phase 1), and 9 persons (Phase 2)

Table 2. Training information in Japan (Phase 1)

	Phase1(2016 – 2017)
Training goals	To understand the overview of Japan and Tokyo Waterworks and to recognize the challenges to improve water service business in Kenya based on the current situation in their country and implementing agencies (C/P government agencies and WSP).
Training items	<ol style="list-style-type: none"> 1) Acquisition of knowledge of Japanese water supply (laws, standards, vision, organization, water supply management, asset management, public relations, water safety planning, facility planning, etc.). 2) To learn about the non-revenue water control efforts and leak detection techniques of the Japanese and Tokyo water systems. 3) By visiting water treatment plants and other facilities, the participants learn that the contents of water treatment methods and the scale of facilities vary depending on the quality of raw water and the amount of water to be purified. 4) To learn the basis of standards and criteria for water supply materials and equipment, quality control in production, workmanship control, etc., through factory visits. 5) Observation of the water operation system for the most efficient operation of the entire water supply facility based on demand forecasting. Observation of the latest piping (shield) construction.
Training period	12/6/2017 to 23/6/2017 (12days)

Table 3. Training information in Japan (Phase 2)

	Phase2(2017 – 2019)
Training goals	<ol style="list-style-type: none"> 1) About practical methods of NRW management, understand not only individual technologies such as leak detection, but also a method for making a leak prevention plan from long-term perspective. 2) Deepen insights from a wide range of perspectives such as water operation,

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	water purification facilities, construction management, quality control of water supply materials, drawing management, and be able to use it for daily work in a form suitable for Kenya
Training items	6) Deepen understanding through practical training on efficient water leak detection technology. 7) Improve the planning ability, such as the trainee himself creating a water leakage prevention plan to reduce the water leakage rate. 8) Understand practical examples of efficient water operation utilizing the water treatment system and network of the latest water purification plant in the Tokyo Waterworks Bureau. 9) Understand the quality control methods of materials (meters, water pipes, water supply equipment). 10) Visit construction site of distribution pipes to understand the required level of construction management and construction quality.
Training period	3/12/2018 to 14/12/2018 (12days)

It is noted that the training plan in Phase 3 was cancelled due to Covid-19.

(4) Equipment Provision:

Table 4. Costs of the equipment procured by the Japanese side

	Cost (million Yen)			
	Phase 1	Phase 2	Phase 3	Total
Planned	10.3	0	14.2	24.5
Actual	10.5	0	13.8	24.3

The details of major procurements and supplies are as follows.

Table 5. Equipment procured (on Phase1)

Purpose	Description of items	Quantity		Country of procurement
Equipment for KEWI	Notebook PC	1	set	Kenya
	Multi-purpose photocopier machine	1	set	
	Digital camera	1	set	
	Overhead projector	1	set	
Survey equipment for Pilot WSPs	Portable ultrasonic water meter	1	unit	Japan
	Pressure logger	10	unit	
	Potable checker of water meter	2	unit	
	Leak noise correlator	1	unit	
	Electronic leak detector	1	unit	
	Metal locator	1	unit	
	Listening stick (1.5m & 1.0m lengths)	8	unit	

Table 6. Equipment procured (on Phase3)

Purpose	Diameter	Quantity		Delivered WSP
Covid-19 emergency support for freezing the Kenyan side budget	Pressure reducing valve	9	sets	Nyahururu WSP
	Pressure data logger	15	sets	Kilifi-mariakani WSP, Mavoko WSP, Ruiru-juja WSP, Embu WSP, Kisumu WSP, Eldoret WSP, Nyahururu WSP, Meru WSP, Nakuru WSP
	Portable ultrasonic water meter	6	sets	Kilifi-mariakani WSP, Mavoko WSP, Ruiru-juja WSP, Embu WSP, Eldoret WSP, Nyahururu WSP,

(5) Overseas activities:

There were two kind of overseas activities as follows,

- a) Executive-Forum for Enhancing Sustainability of Urban Water Service in Sub-Saharan African held in November, 2019 at Kigali, Rwanda. 3 WSPs ie. EWASCO, KIWASCO, and NAWASCO participated in the forum as the representatives of Kenya.
- b) Water Utilities Regional Partnership was held 3 times during the project period amongst 3 water service entities ie. Lilongwe Water Board from Malawi, Kigali Water Works from Rwanda, and EWASCO from Kenya. The 1st one was held in 2018 in Rwanda, the 2nd was in 2019 in Malawi, and the 3rd was held in Kenya by EWASCO's initiative from 10th to 12th May, 2022.

1-2 Input by the Kenyan side

(1) Counterpart assignment:

MWS&I (8), WASREB (14), KEWI (8), WASPA (4), Nyahururu WSP (15), Meru WSP (20), Embu WSP (20), Nakuru WSP (15), Ruiru-Juja (15), Mavoko (15), Eldoret (15), Kisumu (10), Kilifi-Mariakani (15)

Details are as per attached.

(2) Provision of offices, etc.:

- (a) Assignment of counterpart personnel and support staff
- (b) Payment of per-diem (daily allowance, transportation fee and accommodation fee) to the counterpart personnel
- (c) Suitable office space with necessary equipment in MWS&I, KEWI
- (d) Utilities charges such as electricity, water supply, etc.
- (e) Supply or replacement of machinery, equipment, instruments, tools and




- any other materials necessary for the implementation of the Project
- (f) Costs of activities for sensitization and campaigns by MWS&I
 - (g) Expense for Training of Pilot WSPs at KEWI (short term course)
 - (h) Expense for On-site training in Pilot WSPs by KEWI
 - (i) Expense for On-site ToT in Pilot WSPs
 - (j) Expense for NRW activities of Pilot WSPs
 - (k) Available data(including maps, photographs) and information related to the Project

(3) Other items borne by the counterpart government:

Table 7. Allocated Annual Budget for the Project by MWS&I

Budget for the Project (million KES)						
Y2016-17	Y2017-18	Y2018-19	Y2019-20	Y2020-21	Y2021-22	Total
60,000,000	52,310,966	30,00,000	70,000,000	70,000,000	50,000,000	332,310,966

The details of major budget allocation are as follows,

- Holding regular meetings (e.g. JCC meeting, PIC meeting)
- Conference and workshop (eg. County sensitizations, and dissemination)
- Public relations and publication (eg. World water day's, NRW annual reports)
- NRW policy preparation (eg. Editorial committee for NRW management guideline and hand book)
- NRW joint training of KEWI
- NRW related equipment for KEWI
- Equipment to accelerate NRW activities for Pilot WSPs

1-3 Activities (Planned and Actual)

The Activities done in the project for the recent half year were shown in Table 8 bellow.

(Note: the following table is abstracted from the Project Monitoring Sheet for the 11th JCC meeting held on 18 May, 2022)

Table 8. Activities done in the Project

Planned	Actual
Output 1	
1-1 MWS&I NRW Unit, in cooperation with WASREB, produces NRW annual reports which include NRW reduction data.	3 rd version of the annual report 2019/2021; the final draft completed and in procurement stage for printing. Distribution of the copies will be done in June 2022 after printing. Draft of report of Ver.4 has been started.
1-2 MWS&I NRW Unit plans and implements NRW reduction sensitization activities for the Counties.	3 rd & 4 th County sensitization seminars were conducted at Kisumu and Mombasa in February 2022 respectively. The 5 th is planned to be conducted in May, 2022 at Embu.
1-3 MWS&I NRW Unit plans and implements NRW reduction campaigns.	4 Videos on water treatment process, water supply, water conservation and water quality management process were developed. These videos were shown in several workshops held by MWS&I. These videos were also shown during the World Water Day's exhibition held on March 22, 2022 as part of the school campaigns. Some draft videos are already in YouTube.
1-4 MWS&I NRW Unit conducts reviews of KEWI NRW courses.	Activities for KEWI was completed in the Phase 2.
1-5 MWS&I NRW Unit conducts reviews of WASREB's NRW reduction activities.	As a main body of the Editorial Committee for editing the new NRW Standards, NRW Unit in collaboration with WASREB has produced the NRW management Guideline and Hand book. The standards are now at the procurement stage for publication.
1-6 MWS&I NRW Unit assures the budget for the support mechanism based on its NRW reduction mid-term vision.	Budget for the NRW related activities for 2021/2022 is effective and being allocated properly by MWS&I.
Output 2	
2-1 WASREB conducts survey of the usage of current NRW reduction standards.	Completed in Phase 2.

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2-2 Based on the survey result as well as Output 4 and 5, WASREB revises the NRW reduction standards.	The new NRW management standards was completed after it was submitted to Stakeholders in two different meetings and a Validation meeting. WASREB is awaiting for the launch of the Standards.
2-3 WASREB promotes revised NRW reduction standards through workshop(s).	The sensitization forums for dissemination of the new Standards were held in Kisumu and Mombasa in February, 2022.
2-4 WASREB incorporates the review results of NRW reduction activities by MWS&I NRW Unit in their activities.	After completion of the new Standards the review work will be conducted in collaboration with MWS&I as part of the Working Group activities.
2-5 WASREB monitors and evaluates the usage of revised NRW standards.	Monitoring and evaluation will be conducted after the country-wide dissemination of the new Standards.
※Licensing Condition enforcement	WASREB agreed to adopt 4 tools as licensing conditions for the WSPs, which are the NRW annual review template, meter reading and billing analysis tool, Universal analysis of monthly NRW ratios tool and Kobo tool box. WASREB staff hosted a training to create awareness on these tools. The training was conducted by the Expert team in April 2022.
Output 3	
3-1 KEWI studies current status of NRW reduction courses and its challenges.	Completed in Phase 1
3-2 KEWI reviews NRW reduction training strategies and course contents.	Completed in Phase 2
3-3 KEWI, in collaboration with leading WSPs (Embu and Meru, etc.), conducts on-site NRW trainings.	After Covid-19 pandemic waning, KEWI resumed the regular training courses of NRW reduction in June last year. In this year one course was conducted the classroom training in March and OJT in April in Embu.
3-4 KEWI reflects on-site NRW trainings into NRW course contents and materials.	Completed in Phase 2.
3-5 KEWI incorporates the results of review by MWS&I NRW Unit into NRW course contents.	Completed in Phase 2.

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3-6 KEWI conducts trace studies of NRW reduction course participants.	Completed in Phase 2.
※Formulating New Training course in line with WASREB's new Licensing condition.	KEWI is formulating 4 new training courses. In collaboration with Ololaiser WSP, KEWI conducted a test run for the new course aiming at the managerial team of WSP from 11 th to 15 th April, 2022, where 10 participants (Managing Director, Technical Manager, Commercial Manager, Finance Manager, Metering and Billing Supervisors) attended. A trial training is under planning from 23 rd to 27 th May, 2022 for 5 WSPs to be selected by KEWI with financial support from MWS&I.
Output 4	
4-1 The Project team conducts a survey of Urban WSPs and selects pilot Urban WSPs.	This activity was completed in Phase 1.
4-2 Each Pilot WSP conducts analyses of current NRW reduction activities and identifies its challenges.	This activity was completed in Phase 1.
4-3 Each Pilot WSP identifies measures to solve challenges.	All the 9 Pilot WSPs have formulated and updated their annual and medium-term NRW reduction plans continuously for the last 5 years by utilizing the templates developed in the Project (the planned 5 annual cycles of this activity have been completed). Their annual plans include realistic financial considerations (e.g. cost estimation for each activity). Their activities have been planned and updated based on their detailed capacity self-assessment and annual activity review of the previous year since the third year of this project. Through the detailed self-assessment (with a long list of check points), each Pilot WSP has repeatedly identified various measures to solve their challenges (this activity has been completed).
4-4 Each Pilot WSP formulates the NRW reduction plan including financial plan.	
4-5 Each Pilot WSP implements the NRW reduction plan.	Each Pilot WSP has implemented NRW reduction activities in accordance with their own plans. The




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	average completion ratio of annually planned activities among the 9 Pilot WSPs has significantly improved from 55% in 2016-17 to 75% in 2020-21.
4-6 Each Pilot WSP evaluates and analyzes implementation results and revises the plans.	The Pilot WSPs have planned and updated their activities based on not only their detailed capacity self-assessment but also annual activity review of the previous year since the third year of the Project. They have incorporated the results of their annual activity review for each fiscal year into their annual NRW reduction plans of the next fiscal year.
4-7 Each Pilot WSP produces the NRW reduction activity report annually.	
4-8 Each Pilot WSP holds regular NRW reduction meetings attended by relevant departments of WSP.	Since the pandemic is currently settling down, each Pilot WSPs has been gradually resuming and making it a routine to hold inter-departmental meetings to enhance their awareness and coordination for NRW reduction activities.
Output 5	
5-1 The project presents results and lessons of Output 4 and other NRW activities during WASPA meetings.	<p>-The expert team in collaboration with the MWS&I is sharing the achievement, good practices of the Project, etc. with WSPs through WASPA's Workshops or seminars. The JICA team participated in WASPA's Bi-monthly meeting held in March 2022 in Kilifi.</p> <p>-On 6th May, 2022 WASPA held the Bi-monthly meeting in Bomet and the next one is tentatively scheduled for 7th July, 22 in Kitui.</p> <p>-The 1st Task-Group Benchmark workshop is to be conducted on 16th & 17th June 2022 with the venue to be communicated. (All utilities under the JICA program will have the opportunity to showcase lessons learnt, achievements and also point-out the best practices that can be adopted by other utilities).</p>
5-2 The Project holds NRW thematic workshops in coordination with WASPA.	The NRW unit intends to hold a thematic workshop in the month of June, 2022.
5-3 The production of the brief notes.	The 3 rd brief note is being edited and will be completed in due course in May 2022.

5-4 Counter measures against Covid-19 pandemic	1) The expert team completed this work in which 1000 water meters were donated to Kilifi-Mariakani in November, 2021.
1) Urgent donation of Chemicals for the water treatment process.	2) Sensitization Banners, posters and fliers were delivered to each Pilot WSP in December 2020.
2) Producing sensitization tools for the citizens for water use and washing hands.	3) Number of leak detection equipment were delivered to the pilot WSPs and utilized for their trainings and related activities.
3) Procurement of some of Equipment in Japan	4) The training was conducted successfully through remote system.
4) Conducting a remote exercise of NRW reduction technology	

2. Achievements of the Project

2-1 Outputs and indicators

(Note: the following table is abstracted from the Project Monitoring Sheet for the 11th JCC meeting held on 18 May, 2022)

Table 9. Achievements of the Project and its evaluation

Output 1: Promotion and coordination of NRW reduction activities by MWS&I NRW Unit are strengthened.	
1-1 All County representative participate NRW related seminar(s).	<p>【Fair】</p> <ul style="list-style-type: none"> • Kisumu workshop was held on 10th February 2022 targeting 10 western region counties reps around lake regions. 4 county reps and 8 WSPs attended. • Mombasa workshop was held on 24th February 2022 and was attended by the Eastern and Coastal Counties: 6 county rep and 9 WSP attended. <p>Attendance of county rep. improved in Kisumu and Mombasa workshops compared with previous workshops.</p> <ul style="list-style-type: none"> • 5th County sensitization workshop in Embu is under planning in May for Nairobi, Central and some eastern region Counties.

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1-2 NRW reduction campaigns are conducted semiannually.	<p>【Fair】</p> <p>4 No. educational videos were developed. A video was shown during the Kisumu and Mombasa County sensitization workshops. Through exhibitions, the NRW Unit participated in the World Water Day marked in Kitui in March 2022 and conducted a workshop with school students by using the video on the WSPs' efforts in sustainable water services.</p>
1-3 NRW reduction annual reports are produced.	<p>【Fair】</p> <p>The procurement of printing services for the 3rd version of the report is ongoing. It will be published in May 2022.</p>
1-4.NRW Unit purchases leak detecting equipment and delivers them to Pilot WSPs	<p>【Fair】</p> <ul style="list-style-type: none"> • Equipment purchased by MWS&I were distributed and collected by the pilot WSPs in March, 2022.
※Supporting to the Working Group (WG) for revising the NRW-reduction Standard and disseminating them across the country.	<p>【Fair】</p> <ul style="list-style-type: none"> • Validation workshop on the draft of the revised NRW standards was conducted in Nov. in Nakuru. sensitization forums on the new standards were held in Kisumu and Mombasa in February, 2022 • The NRW reduction standards will be launched in June, 2022.
Output 2: Use of NRW reduction standards by Urban WSPs are promoted by WASREB	
2-1 NRW reduction standards are revised by 2020.	<p>【Fair】</p> <p>WASREB is awaiting launching of the standards.</p>
2-2 Revised NRW reduction standards are disseminated to all Urban WSPs through workshop(s).	<p>【Fair】</p> <ul style="list-style-type: none"> • WASREB held two workshops: one in July, 2021 in Machakos and the other in November in Kisumu with attendance of 15 WSPs in each.

	<ul style="list-style-type: none"> WASREB organized three workshops to promote use of performance based contract and the use of the standards in NRW management. The workshops were held in Kisumu and Mombasa in April, 2022 and, in Nakuru town on 4th May, 2022.
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Output 3: NRW related training capacity of KEWI is strengthened.

3-1 KEWI conducts NRW reduction courses with contents incorporating on-site trainings and revised course materials.	【Fair】 Completed in Phase 1.
3-2 The average score of the participants on the test conducted after the NRW reduction course is higher than before the implementation.	【Fair】 Achieved satisfactorily in Phase 2.

Output 4: NRW planning and/or implementation capacity of Pilot WSPs is enhanced.

4-1 More than 8 Pilot WSPs formulate NRW reduction plans.	【High】 - All the 9 Pilot WSPs have successfully formulated and updated their annual and medium-term NRW reduction plans continuously for the last 5 years. Their activities have been planned and updated based on their detailed capacity self-assessment and annual activity review sheet (report) of the previous year since the third year of this project. The average completion ratio of annually planned activities among the 9 WSPs has significantly improved from 55% in 2016-17 to 75% in 2020-21. To sum up, Indicators 4-1 to 4-4 have been all achieved (the minimum targets of 4-2 to 4-4 have been exceeded significantly).
4-2 More than 6 Pilot WSPs self-review their achievements of Previous year's NRW reduction plans and compile activity report.	
4-3 Based on 4-2, more than 6 Pilot WSPs continuously formulate annual NRW reduction plans.	
4-4 More than 6 Pilot WSPs continuously implement NRW reduction plan formulated in 4-1.	
4-5 More than 6 Pilot WSPs are able to use skills and/or implement activities which they could not employ before the project.	【High】 -All the 9 Pilot WSPs have improved the effectiveness and efficiency of their NRW reduction activities by adopting various skills newly introduced (e.g. the prioritization of large customers for commercial loss reduction and the

	<p>use of free data collection and GIS software). The survey equipment procured by JICA and the Ministry have been used by the Pilot WSPs to conduct newly adopted activities (e.g. minimum night flow measurement and step test with UFM, house-to-house leak survey with listening sticks, and accuracy check with meter testers). As a result, Indicators 4-5 has also been achieved (its minimum target has been exceeded significantly).</p>
<p>4-6 The amount of NRW in the selected distribution zones indicates decreasing tendency.</p>	<p>【Fair】</p> <p>-Considering the yearly universal NRW ratio of 2016-17, 2017-18 and 2018-19 as the baseline for the Phase 1 WSPs, Phase 2 WSPs and Phase 3 WSPs respectively (except 2018-19 for Ruiru-Juja due to their incredible data of the previous year and 2019-20 for Kilifi-Mariakani due the delayed assistance), their monthly universal NRW ratio has been reduced by around 7% (currently around 17%) in Meru, by around 20% (currently around 34%) in Ruiru-Juja, by around 8% (currently around 28%) in Kisumu, by around 5% (currently around 30%) in Nakuru, by around 5% (currently around 39%) in Eldoret, by around 6% (currently around 35%) in Mavoko and 8% (currently around 49%) in Kilifi-Mariakani, respectively. Although the pandemic made the reduction of NRW more difficult, these WSPs have successfully lowered their universal NRW ratio (many of their NRW reduction activities target their entire service areas. Therefore, their universal NRW ratios are the most important indicator to measure their success). Moreover, Embu had a tendency of gradual decrease in its universal NRW ratio during the last quarter (41%→39%→37%) although the ratio had been rather stagnant at around 40% since they installed new bulk meters around 8 months ago to measure their production properly (previously estimated monthly universal NRW</p>

	<p>ratios of Embu were not credible). Lastly, Nyahururu also had a tendency of decrease in their universal NRW ratio during the last quarter (around 39%) although their NRW ratio has been rather stagnant at around 41% in this fiscal year (their yearly NRW ratio once went down successfully from 42% to 37% before the pandemic).</p> <p>-Among the target areas selected at each Pilot WSP for intensive field activities such as step test and house-to-house survey, Embu's Mukangu Distribution Zone (having around 5,500 customers including around 4,000 customers in Zone 2) and Nyahururu's Marmanet Scheme (having around 3,000 customers) have been the most difficult to deal with because these areas are large hilly rural distribution zones having widespread abundant leaks and illegal water uses. The monthly NRW ratios of these two zones went down significantly from around 70% in 2018 to around 50% in 2019 but the ratios shot up to around 70% again in both areas due to the increase of water distribution to these zones and various restrictions during the pandemic. However, the ratios gradually came down again successfully in the last quarter (down to around 64% in both zones). Most of the other Pilot WSPs have also been observing the tendencies of NRW reduction in their selected target areas through their implementation of step tests and house-to-house surveys for leak detection. To sum up, Indicators 4-6 has also been achieved well.</p>
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Output 5: Experiences and knowledge of NRW reduction activities are shared among Urban WSPs.

5-1 Results and lessons from Output 4 and NRW activities are shared during WASPA meetings at least 3	<p>【Fair】</p> <p>In 2021 the expert team participated in a WASPA's workshop in Kakamega town in March</p>
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times a year.	and a benchmarking workshop in Malindi town in November. The team gave lectures on NRW reduction activities. In 2022 the expert team participated in WASPA's Bi-monthly meeting in March in Kilifi, in which the expert team gave a presentation about the new NRW Management Guideline and Hand-book and various achievements of the project to about 40 MDs of WSPs. On 6 th May, 2022 WASPA held the Bi-monthly meeting in Bomet while the next one is slotted for 7 th July,22 tentatively to be held in Kitui.
5-2 A NRW thematic workshop is organized every year.	【Low】 3 rd thematic workshop is planned to be conducted online in June 2022.
5-3 3 Brief notes are produced during the project.	【Fair】 Brief note ver. 2 was completed in February 2021. The ver. 3 is under preparation and will be complete by the end of May 2022.

(Note; Achievement of each Output in the above table are evaluated in 3 ranks of High / Fair / Low.)

2-2 Project Purpose and indicators

(Note: the following table is abstracted from the Project Monitoring Sheet for the 11th JCC meeting held on 18 May, 2022)

Table 10. Project Purpose and Indicators

Project Purpose: A NRW reduction support mechanism is established for Urban WSPs to implement NRW reduction Activities.	
Indicator	Achievement
6 of Pilot Urban WSPs continue achieving above 60% for two years in the completion ratio of annually planned activities. (based on	【High】 - 7 Pilot WSPs have achieved 60% or higher in the annual completion ratio of their planned activities for two or more years continuously. These WSPs are; Meru having achieved continuously for 3 years, Embu for 3 years, Nakuru for 5 years, Kisumu for 4 years, Nyahururu for 5 years, Eldoret for 4 years and Ruiru-Juja for 2 years. Mavoko WSP achieved 60% in Year 2017-18 but they have not achieved 60%

the annual activity review sheet prepared in this project)	<p>ever since partly due to their budget restrictions resulting from serious water shortage. However, the NRW reduction activities in Mavoko have recently become more active due to the increase of their production through a Belgium-supported project. Kilifi-Mariakani WSP achieved 60% in Year 2017-18 and 70% in Year 2020-21 but not yet continuously for two years. NRW reduction activities in Kilifi-Mariakani WSP are currently getting more active through their organizational improvement (e.g. employment of a GIS officer).</p> <p>- The average completion ratio of planned activities among the 9 WPSs has significantly improved beyond 60% (from 55% in 2016-17 to 75% in 2020-21).</p> <p>- Year 2021-22 is the last year being reviewed annually (by using the annual review sheet) as part of the official activities within the period of the Project (by the end of May 2022). The target of the project purpose has been achieved and exceeded by 17% (7 successful WSPs in comparison to the target of 6 WSPs: 7 divided by 6 is 117%), and this successful result is final.</p>
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(Note; Achievement of each Output in the above table are evaluated in 3 ranks of High / Fair / Low.)

3. History of PDM Modification

The PDM Ver.0 of this project was originally planned and agreed upon in R/D in the following table. Taking the actual performance and achievement realized through the project into consideration, the indicators of the outputs had been amended in the past couple of JCC meetings and settled as the PDM Ver.4.

Table 11. History of PDM Modification

Project summary	PDM Modification results (as of November 2021)	
	PDM indicator (Ver.0)	PDM indicator (Revised Ver. No.4)
【Overall Goal】 Under NRW reduction support mechanism, Urban WSPs enhance NRW reduction activities	<u>Indicator 1</u> X number of Urban WSPs participate in the knowledge sharing activities promoted by the Project.	<u>Indicator 1</u> 6 number of Urban WSPs participate in the knowledge sharing activities promoted by the Project.
	<u>Indicator 2</u> X number of pilot WSPs continue to achieve the goals fixed in the annual NRW reduction plan.	<u>Indicator 2</u> 6 number of pilot WSPs continue to achieve the goals fixed in the annual NRW reduction plan.
	<u>Indicator 3</u> Annual NRW reduction reports are continuously produced and distributed.	<u>As same as Ver.0.</u>

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Project summary	PDM Modification results (as of November 2021)	
	PDM indicator (Ver.0)	PDM indicator (Revised Ver. No.4)
【Project Purpose】 A NRW reduction support mechanism is established for Urban WSPs to implement NRW.	<u>Indicator</u> X number of pilot WSPs achieve the goals fixed in the annual NRW reduction plan for two consecutive years.	<u>Indicator</u> 6 of Pilot Urban WSPs continue achieving above 60% for two years in the completion ratio of annually planned activities. (This indicator has been agreed to revise in the last JCC meeting)
【Output 1】 Promotion and coordination of NRW reduction activities by MWI NRW Unit are strengthened.	<u>Indicator 1</u> The representatives from all over the country participate in seminars on NRW reduction.	<u>Indicator 1</u> All County representative participate NRW related seminar(s).
	<u>Indicator 2</u> A NRW reduction campaign is held every six months.	<u>Indicator 2</u> NRW reduction campaigns are conducted semiannually.
	<u>Indicator 3</u> Annual NRW reduction reports are produced.	<u>Indicator 3</u> NRW reduction annual reports are produced.
		<u>(Mutual Confirmation)</u> NRW Unit purchases leak detecting equipment and delivers them to Pilot WSPs
【Output 2】 Use of NRW reduction standards by Urban WSPs are promoted by WASREB.	<u>Indicator 1</u> The NRW reduction standards are revised in Year X.	<u>Indicator 1</u> NRW reduction standards are revised by 2020.
	<u>Indicator 2</u> The revised NRW reduction standards are distributed to all the Urban WSPs through workshops.	<u>Indicator 2</u> Revised NRW reduction standards are disseminated to all Urban WSPs through workshop(s).
【Output 3】 NRW related training capacity of KEWI is strengthened.	<u>Indicator 1</u> KEWI introduces a NRW reduction course including on-site training and revised training materials.	<u>Indicator 1</u> KEWI conducts NRW reduction courses with contents incorporating on-site trainings and revised course materials.
	<u>Indicator 2</u> The evaluation from the participants in the NRW reduction course towards the training is higher than before the improvement of the training materials.	<u>Indicator 2</u> The average score of the participants on the test conducted after the NRW reduction course is higher than before the implementation.
	<u>Indicator 3</u> X% of the NRW reduction course participants prepare a work plan.	Deleted
【Output 4】 NRW planning and/or implementation capacity of pilot Urban WSPs is enhanced.	<u>Indicator 1</u> X number or more pilot WSPs continuously prepare an annual NRW reduction plan based on the results of the review on the implementation in the previous financial year.	<u>Indicator 1</u> More than 8 Pilot WSPs formulate NRW reduction plans.
	<u>Indicator 2</u> X number or more pilot WSPs continuously implement an annual NRW reduction plan based on Indicator 1.	<u>Indicator 2</u> More than 6 Pilot WSPs self-review their achievements of Previous year's NRW reduction plans and compile activity report.

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Project summary	PDM Modification results (as of November 2021)	
	PDM indicator (Ver.0)	PDM indicator (Revised Ver. No.4)
	<u>Indicator 3</u> X number or more pilot WSPs can use technologies and implement activities that they could not before the Project.	<u>Indicator 3</u> Based on 4-2, more than 6 Pilot WSPs continuously formulate annual NRW reduction plans.
	<u>Indicator 4</u> X number or more pilot WSPs can implement priority activities described in the NRW reduction plan.	<u>Indicator 4</u> More than 6 Pilot WSPs continuously implement NRW reduction plan formulated in 4-1.
	<u>Indicator 5</u> X number or more pilot WSPs foster all the NRW staff members.	<u>Indicator 5</u> More than 6 Pilot WSPs are able to use skills and/or implement activities which they could not employ before the project
		<u>Indicator 6</u> The amount of NRW in the selected distribution zones indicates decreasing tendency.
【Output 5】 Experiences and knowledge of NRW reduction activities are shared among Urban WSPs.	<u>Indicator 1</u> The case study of Output 4 and other NRW activities and the lessons learned from them are compiled and distributed.	<u>Indicator 1</u> Results and lessons from Output 4 and NRW activities are shared during WASPA meetings at least 3 times a year.
	<u>Indicator 2</u> Periodical meetings on NRW reduction are held three times a year.	<u>Indicator 2</u> A NRW thematic workshop is organized every year.
		<u>Indicator 3</u> 3 Brief notes are produced during the project.

4. Others (Not applicable)

4-1 Results of Environmental and Social Considerations (if applicable)

Not applicable.

4-2 Results of Considerations on Gender/Peace Building/Poverty Reduction

Not applicable.

III. Results of Joint Review

1. Results of Review based on DAC Evaluation Criteria

Results of review of the project are described from the 5 different point of views as follows,

(1) Relevance

In Vision 2030, which is the national plan in Kenya, it is proclaimed that the safe water coverage ratio will be 100% and Non-Revenue-Water (NRW) ratio will also be 25%. However, in accordance with Impact Report of WASREB 2020-21, these ratios were 57% (59% in the previous year) and 47% (43% in the same) respectively. The situation in both indicators have worsened recently. The Government of Kenya therefore places its high priority on improving the water service situation to the citizens of Kenya. Therefore, the development policy of the project "NRW reduction" can be said still being very effective.

(2) Effectiveness

The project formulates a support mechanism for WSPs to reduce NRW across Kenya. In this mechanism Counter Part (C/P) organizations of the project such as MWS&I, WASREB, KEWI, and WASPA are expected to perform their own roles and actions as mentioned in Table 12 and Fig. 1. And the time table for the actions to be taken are shown in Table 13.

Table 12. Support Mechanism of the NRW Reduction Activities across Kenya

C/Ps	roles	Actions to be taken
MWS&I NRW Unit MWS&I	Policy making and dissemination and acquisition of enough budget	<ul style="list-style-type: none"> ➤ Publishing NRW annual report in which good examples of NRW reduction should be focused. ➤ Conducting and participating in the sensitization seminars or workshops on the NRW reduction activities in collaboration with C/Ps. ➤ Acquiring enough annual budget for Supporting WSPs in procuring NRW leak detecting equipment and tools,
WASREB	Sensitizing NRW reduction activities and dissemination of NRW management	<ul style="list-style-type: none"> ➤ Announcing the new licensing conditions on NRW reduction tools to the WSPs. ➤ Dissemination of NRW management guideline and handbook to the WSPs.

	guideline and hand-book to the WSPs.	<ul style="list-style-type: none"> ➤ Monitoring, analyzing & suggesting for improvement of NRW activities among the WSPs. ➤ Evaluating NRW activities and awarding the result of the activities of WSPs.
KEWI	Training WSPs staff on the newly adopted licensing condition	<ul style="list-style-type: none"> ➤ Formulating new training course targeting the managerial staff of WSPs so as to cope with the newly adopted licensing condition. ➤ Conducting the new training course regularly. ➤ Providing Consultation to WSPs on the implementation of NRW reduction activities.
WASPA	Disseminating the NRW reduction movement to the WSPs.	<ul style="list-style-type: none"> ➤ Publishing and sharing various information on NRW reduction activities among WSPs through meetings, seminars, workshops, etc.
Pilot WSPs	Leading other WSPs as the teachers on NRW management.	<ul style="list-style-type: none"> ➤ Teaching and suggesting to other WSPs on the NRW management technologies. ➤ Providing and sharing good examples which they had realized through the project activities.

NRW Reduction Support Mechanism

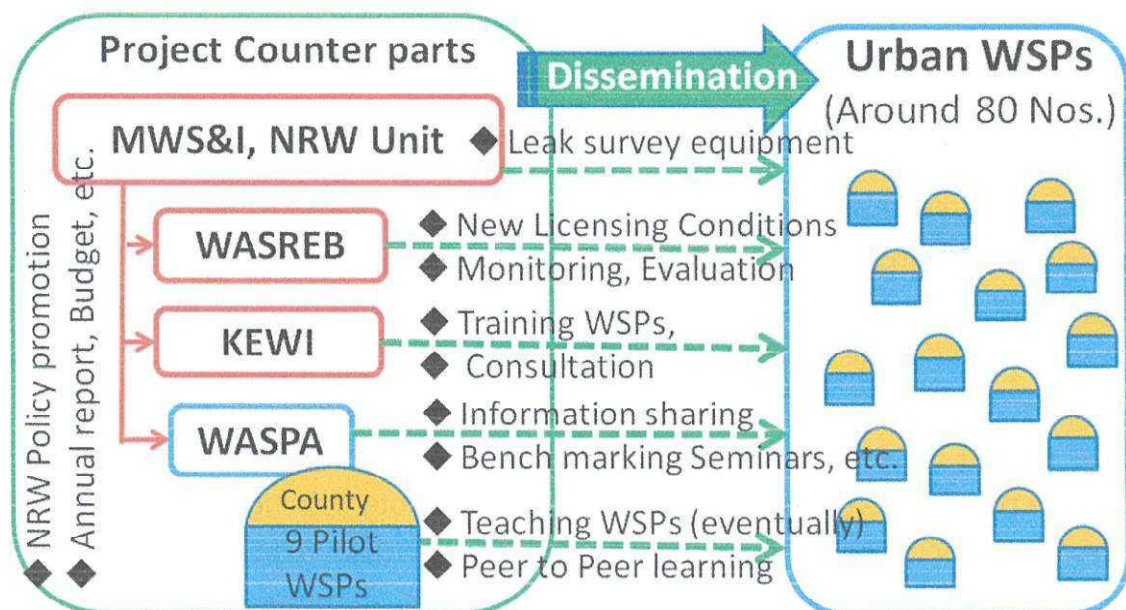


Fig. 1. Support Mechanism for Dissemination of NRW Reduction Movement

Table 13. Time table for the actions to be taken

Counter part	Actions	Timing to be done
MWS&I	<ul style="list-style-type: none"> ◆ NRW Policy promotion ◆ NRW Annual report, Budget ◆ Launch of NRW Management Guideline and Handbook 	<ul style="list-style-type: none"> ◆ Available time of other C/Ps' functions. ◆ End month of each fiscal year ◆ June 2022
WASREB	<ul style="list-style-type: none"> ◆ New Licensing Conditions ◆ Monitoring, Evaluation 	<ul style="list-style-type: none"> ◆ June 2022 ◆ On Impact Report issued yearly
KEWI	<ul style="list-style-type: none"> ◆ Training WSPs, ◆ Consultation 	<ul style="list-style-type: none"> ◆ May, 2022 (1st Training) ◆ As requested by WSPs
WASPA	<ul style="list-style-type: none"> ◆ Information sharing by Benchmarking Seminars, etc. 	<ul style="list-style-type: none"> ◆ Bi-monthly repeating or as planned yearly

The project members, C/P organizations above, understand well the system of this mechanism and are preparing themselves to fulfill their roles. However, the dissemination with the real function of the mechanism is a challenge for the future.

The original indicator of the project purpose was once revised into a more suitable one to the real activities which had been done in the pilot WSPs through the project implementation. That revision of the indicator was agreed in the 10th JCC meeting held in December 2021. The revised project purpose is mentioned at Table 10. Project Purpose and Indicators of 2-2 in the preceding paragraph.

(3) Efficiency

The activities of the JICA experts were suspended by the Covid-19 pandemic from April 2020 to February 2021 for around 10 months. During this period the activities of the C/Ps and the pilot WSPs were also stagnant due to various directives such as restrictions of meeting, peoples' gathering, working in the offices, using the public transportation for commuting, etc. After Covid-19 decreased, JICA extended the project period for 8 months considering the effect of the pandemic. The experts had also made remote trainings to the pilot WSP as much or effective as possible. The expert team also made a monthly communication with each pilot WSP by e-mail in order to keep a close relationship and maintain a sense of unity among the members of the pilot WSPs.

The expert team had edited those communications into a table and circulated it among the WSPs. Later when JICA Kenya office tried to support the pilot WSPs in financial difficulties, the expert team was able to advise JICA office effectively to decide the donation of the chemicals for the water treatment systems based on the information gained with monthly communications. In the meantime, some of the experts were conducting remote training to the pilot WSPs' staff as effective as possible. Accordingly, the project cost was increased to some extent as the working volume of the experts was increased.

(4) Impact

Based on the achievement gained through the practical work implementation in the pilot WSPs up to the end of the 2nd term of the project, the strategy of NRW reduction in Kenya was formulated. And the strategy was incorporated into NRW Management Guideline which are expected to be officially launched in June 2022. The project had also produced some useful tools for reducing NRW in WSPs in Kenya. The most effective 4 among the tools were adopted as the licensing condition of WASREB. KEWI has also formulated a new training course targeted at the managerial staff of the WSPs in line with the new licensing condition of WASREB and will be implementing the 1st training course for several WSPs within May 2022. Such activities have been integrated into the support mechanism for WSPs to reduce NRW in Kenya as mentioned in "(2) Effectiveness" above.

The support mechanism was agreed in the early stage of the 3rd term of the project and each C/Ps has been working on their roles. The dissemination to WSPs across Kenya is a big challenge for the C/Ps in future. The effectiveness of the selected 4 tools have been confirmed through the actual works in the pilot WSPs works and the C/Ps are expected to take their actions properly as shown in Table 12 and Fig. 1 above mentioned.

(5) Sustainability

The development policy of the project is highly consistent with the social need and the current national plan. The sustainability of the project will be maintained by the C/Ps' continuous dissemination as mentioned in (2) Effectiveness above and the WSPs' performance in accordance with licensing condition in their daily works. WSPs which will participate in the NRW reduction movement, shall continue to make efforts to familiarize themselves with the relevant activities.



However, it is expected that it will take a few years for WSPs to make use of the tools sustainably. It is therefore essential to strongly collaborate with the C/Ps such as MWS&I, WASREB, KEWI and WASPA in supporting WSPs in Kenya. The MWS&I's leadership is especially important for this purpose and it is recommended to up-grade the MWS&I's NRW Unit to a Division for a sustainable dissemination of NRW activities across Kenya.

2. Key Factors Affecting Implementation and Outcomes

As shown in 1-5 of the Project monitoring sheet (different document), the risk of Covid-19 will not disappear in Kenya. However, it is not expected to become a serious situation.

There should be high concern about the organizational reorganization or staffing changes of the section or unit in charge of the NRW reduction activities in the C/Ps in order to implement effectively and sustainably the support mechanism which is mentioned in Table 12 above.

3. Evaluation on the results of the Project Risk Management

There is no serious risk in the current social condition including Covid-19 in Kenya. The NRW reduction activities, which are described below in 4. Lessons Learnt, have been implemented in the project and their effectiveness confirmed for reduction of NRW in the pilot WSPs. Therefore, it is strongly recommended for the Kenyan C/Ps to perform their roles and activities as mentioned in the table 12 above on the supporting mechanism of NRW reduction. Consequently, whether the C/Ps will fulfill their mission in accordance with the supporting mechanism, or not, is crucial for disseminating NRW reduction sustainably in the future of Kenya.

4. Lessons Learnt

Past technical cooperation projects for NRW reduction in Kenya usually focused on confirming the effectiveness of model activities in District Metered Areas (DMAs) while the areal expansion of NRW reduction activities over their water service areas was usually expected as the C/Ps' post-project activities. This project approach often resulted in stagnation for areal expansion after the project period because of its mythological weaknesses and the financial investment required to establish more DMAs (e.g. procurement and installation of bulk meters, valves and pipes) which was a big burden for the C/Ps. Based on the lessons learned in the past projects, the following methodological innovations were made

for each pilot WSP in this project.

- a) NRW reduction activities were implemented over the entire water service areas rather than focusing on pilot activities in DMAs.
- b) it was encouraged to divide their distribution networks into hydraulically isolated distribution zones by each distribution reservoir or each pumping station before dividing the networks into small DMAs.
- c) The monthly data of meter reading and billing has been analyzed for commercial loss reduction while their large customers (e.g. those consuming more than 100 m³/month on average) have been prioritized for checking the meter condition.
- d) Utilizing locally available and inexpensive materials and equipment (e.g. calibrated buckets with scale marks and a handmade meter test bench) and free PC & smartphone software (e.g., mobile GIS and data collection software for smartphones and cloud computing) into the NRW reduction activities.
- e) Regular Inter-departmental meetings have been emphasized to check the effectiveness of NRW reduction activities and jointly discuss the improvement of NRW reduction activities, etc.

Although NRW reduction activities have been mainly implemented by the technical department of each WSP in Kenya, this project specifically focused on the reduction of commercial water losses by the commercial department to realize a fast increase in WSP's revenue.

Before the final JCC, the expert team had collected opinions from each pilot WSP on 4 issues and summarized in Table 14. Through these opinions, it is possible to gauge or evaluate the thoughts of each WSP on their achievements, challenges and endeavors from participating in the Project.





Table 14. Opinions of the pilot WSPs upon the completion of the project (These are answers against the question delivered to each pilot WSPs in April, 2022.)

Items of questionnaires	Ruiru - Juja WSP	Kilifi-Mariakani WSP	Embu WSP	Nyahururu WSP	Eldoret WSP	Mavoko WSP	Nakuru WSP	Meru WSP	Kisumu WSP
1. What have you been able to perform during the project? Or what else is lack in implementing the NRW reduction activities	1. Establishment of DMAs, Evaluation and Monitoring of water supply in DMAs and subsequent calculation of NRW per DMA. 2. Further subdivision of DMAs into sub-DMAs for easy management of NRW. 3. Learned how to carry out MNF, plotting graphs, interpreting data from MNF results. 4. Monitoring and Evaluation of billing data. 5. Use of NRW equipment i.e. leak detectors, listening sticks in combating NRW.	- Establishment of Nrw unit- fully functional - Establishment of Nrw Committee- in place and working - Full utilization of Review and planning Template - Meter reading and Billing data analysis after every billing cycle and addressing all the anomalies captured. - Leak Detections surveys by use of listening sticks and ground microphones - Use of Gis technologies i.e Kobo-Collect, Qfield, hand-held GPS and Qgis. - Monthly Nrw meetings- with head of departments and NRW committee - Utilization of UFM to test Bulk meters and mobile meter testing gadgets to test small, customer meters. Pending - Customer Identification survey - Formulation of DMAs but it is ongoing	Conduct MNF and interpretate the data, formulation and review of the New plan, Use of various equipment's.	• Establishment/use customer identification surveys (door to door) as a strategy for NRW reduction/ management using acoustic equipment such as listening sticks to check both physical and commercial losses • Development of GIS system, publishing of GIS layers on QGIS Could and day to day use of the online map on computers and smartphones of relevant staff. • Establishment of elevation difference within each hydraulically Isolated DMA and pressure zones on GIS • Development of standard operation procedures for NRW Team done and implementation of NRW guideline. • Establishment of school campaigns programs for primary schools on reduction of water wastage and reporting of water pipe bursts. • Training on billing data analysis and implementation of the same as a strategy for reduction of commercial losses • Field training on use of NRW equipment such as UFM, pressure loggers and listening sticks for physical loss reduction and implementation of strategies such as MNF and step tests to narrow down on problematic areas. • The use of abnormal flow monitoring template on google drive as a quick alarm system for water flows in DMAs. • Staff sensitization on their vital role in NRW management	• Large scale replacements of dilapidated pipeline a distance of 250km ranging from 20mm to 315mm in diameter. • Replacements of large customer with ultrasonic flow meters and EMM meters 90% complete. • Carrying out MNF measurements at chepkanga and Chepkoliel. • Mapping and zoning of distribution network which resulted to creation of 18 DMAs. • Permanent solution to areas prone to frequent leaks and bursts a distance of 70km. • Universal analysis of monthly NRW. • Standardization of service connections. • Meter reading and billing analysis. • Capacity development by conducting 2 times in-house training for plumbers and staff from other sections. • Carrying out leak survey using NRW equipment.	As a company we've been able to create a strong NRW team that is able to carry out non revenue water reduction activities. We've mapped over 80% of our customers through GIS. We've been able to prepare annual and mid-term NRW reduction plan by using the planning template. Improved analysis of our meter reading & billing data and acting on issues observed. Able to use NRW equipments for leak detection i.e. UFM, Noise leak detector, listening sticks Conducting Interdepartmental meetings regularly increasing collaboration on NRW activities.	• Coming up with proper leak detection program covering southern zone (Manyani, Kanyon, Bondeni and NAKA) and also parts of Northern zone (Tiriki avenue). With implementation of these activities a significant amount of physical water losses have been reduced • By application of billing analysis concept; over 1500 meters (Large and Medium consumers meters), were replaced and there was a huge improvement in billing and significant reduction in NRW reduction.	• We have been able to adopt HDPE as our Primary pipeline material. This has helped in reducing physical leakages. • Our definition of NRW has evolved from M3 lost to the monetary value for water lost • We have been able to use billing analysis to identify consumer meters that need to be changed. • We have been able to make informed decision by use Kobo Toolbox in data collection. • We have improved out step test and MNF activities, through incorporating ILI and Connection leakage index. • We have reduced our NRW ratio from 26% at project start to an average 19% last FY. • Monitoring of NRW is easier via the universal NRW monitoring sheet. • Classification of our consumer into C1 to C6 has made it easier to monitor large consumers. • Preparation of annual and long-term NRW reduction plans • Use of PDCA sheets has been instrumental in evaluating measures which work and don't work in NRW reduction efforts.	- Preparation of Feasible annual and mid term NRW reduction plan by use of the template and quarterly review. - reduction of the commercial losses by analyzing meter reading & billing data, - reduction of the physical losses by training leakage detection technologies on the ground, - recording of correct data on customer identification and works attended by the staff related in NRW reduction activities by using Kobo tool Box, a free application and - conducting periodically inter-departmental meetings for a smooth implementation of NRW related works and confirmation on effectiveness of the works done, etc.
2.What are your challenges in NRW reduction activities and what is the way forward?	1. Water shortage in DMAs due population increase causing water ration, this affects carrying activities like MNF (not very ideal for areas with intermittent water supply) Way Forward- company is planning to increase ground water catchments like plants and boreholes	Challenges - Dilapidated Infrastructure - Lack of adequate meters for replacement - the cost of meters -Intermittent water supply - Water theft- illegal connection -Inadequate finances - unmet water demand - this challenge prompt people to vandalise our systems Way forward - Rehabilitation and general overhaul of old infrastructure - Acquisition of meters through partnership with the ministry and other donors	Commercial part on the sorting slowing meter, Zoning and billing data analysis and the actions on the found anomalies.	• Financial constraints related to COVID-19 pandemic period caused some budgeted activities to be stopped. • Insufficient equipment for use during implementation of NRW activities to be rolled out to the entire service area. • Aged g.i. and asbestos pipelines with the service area which are capital investment projects The above challenges may be solved by planning, budgeting and support from the government.	• Lack of adequate funds for major overhaul of dilapidated distribution pipeline and replacement of aged water meters. • Road works by the County government and other roads and fibre agencies resulting in damaged pipelines • Illegal connections and water theft	Lack of enough number of staff to carry out all the planned activities within the specified period. The company is planning to recruit two more staff to assist in the activities. Supply shortage-we are not into 24HRS supply hence difficult in carrying out some activities	• The challenge has been the presence of invisible leaks, but with the support from JICA on leak detection equipment, we are on course in up-scaling leak detection activities across the entire network. • Intermittent water supply which is hampering leak detection activities. • Dilapidated network in some areas which require upgrading.	High cost of financing/implementing. NRW activities. I.E. bulk meter of 150 mm averagely costs 100,000 KES and 10 of them in a FY is 1,500,000 without the cost of fittings and chambers. To solve this the WSP is phasing the implementation of DMAs.	- Inadequate staffing, the company is in the process of adopting the organogram as provided by the NRW guideline.
3. How will your WSP contribute in dissemination of the NRW reduction activities?	1. Implement what was taught during JICA training sessions. 2. Implement the NRW management Guideline and Hand book 3. If given the chance, we will share with other WSPs on what we have learnt.	- By sensitizing staff and all stakeholders - Capacity building of the relevant Nrw staff through workshop and trainings - By conducting school campaigns, customer care clinics and random questionnaires - Fliers, bulk sms, radio talk shows etc.	• Conduct in-house training, formulation of the NRW committee to evaluate the activities of Nrw and advice the Management. • Utilization of the developed Nrw Guidelines and the handbook at various levels in the organization. • Do annual Nrw Reduction Plan and regular review of same.	• In house training of staff on NRW reduction and management strategies. • Using the DMA approach to train zonal managers and other field staff on the use of NRW equipment. • Incorporation of NRW management as an agenda during public meetings (Barazas).	• In-house training of company staff on issues of NRW which entails theory and field work. • Organizing of workshops and seminars which bring together neighboring WSPs. • The company has started an initiative #Iindamaji mtaani that educate the public on water conservation and to report on illegal water use.	Currently we are training more staff internally to be more conversant with the NRW Equipments and other NRW related issues. We are ready to train staff from other WSPs on matters NRW reduction and also we can lend out the equipments whenever required.	• Contacting monthly inter-departmental meetings to discuss on emerging issues. • Allocating more resources to NRW activities. • Equipping NRW staff with necessary skills and tools • Application of PDCA cycle time to time	• Peer to Peer Learning; Our WSP will always be open for other WSPs to come and learn the best practices absorbed over the project period to all interested WSPs. • WASPA Benchmarks: peer discussion via WASPA benchmarks will provide opportunities for other WSPs to learn from our WSP on techniques gained. • NRW symposiums held by bodies like KEWI or WASREB where our WSP has been invited to share good practices will help other WSPs learn and provide Q/A sessions on our adopted practices.	- To entrench some of the operation practices acquired during the project in our daily maintenance and operation manual. - Implement all the recommendations made by JICA technical experts team. - Share all the knowledge acquired during the project to other neighboring WSP.
4. Any other issue	We would like to appreciate JICA, Ministry and other partners for all trainings and advice rendered. We are grateful for this chance to learn NRW Management.	- The expertise assistance by the JICA team has been a milestone in KIMAWASCO and we still require their support. We shall highly appreciate if the Project period is extended so that we can maximise more since we lost a lot during the COVID-19 period and we still need their support and training on GIS related issues, Water Balance, MNF, use of UFM amongst others.	• Continuous use equipment's and addition of more when need arises. • Regular benchmarking with other WSPs to learn and exchange ideas on NRW reduction.	The ministry's NRW unit should be strengthened and mandated to follow up and provide support on NRW activities being conducted at the WSPs.	• The project was mostly affected by covid 19 pandemic which resulted less physical interaction with JICA expert team thus hindering the transfer of knowledge and skills, therefore we humbly request for extension of project period. • Request for funding of NRW activities i.e. replacement of dilapidated asbestos pipes and large customer meter replacements.	Training in Japan and maybe to have a chance to feel some of the things practically.	Requesting JICA to consider revisiting the WSPs in the near future for more support, since NRW levels are still at higher levels and more.	Extension of the project period. As much as the WSPs in the project have improved and reduced their NRW ratios there is still need to maintain the project to help the WSPs lower their losses to below 15%. They can then be used as models for all the other WSPs country wide.	- Quarterly meetings amongst the 9WSPs should be arranged to ensure continuity. This will also assist in WSPs to periodically share achievements and challenges in order to advance on skills to reduce NRW.
Feedbacks and Suggestions from the Expert team	Experts Team: The expert team is pleased to confirm that all the pilot WSPs have acquired a lot of new technologies as mentioned above through the project activities with the assistance of both the experts and our local staff. The team also appreciates all the pilot WSPs for recognizing their own challenges so as to improve their water system and facilities. We therefore expect that the pilot WSPs will continue with the NRW reduction activities and skills learnt from the project. We will also share with you a reality that the dissemination of NRW activities across Kenya is a big challenge after the project. The expert team has made a dissemination mechanism which consists of the revision of NRW Reduction Standards, which were re-edited into NRW Management Guideline & Handbook, new licensing condition of WASREB, and KEWI's training course so as to cope with the new WASREB's licensing conditions. In this system the pilot WSPs are also expected to play a key role for leading other WSPs which are joining the movement soon. We therefore request the members of pilot WSP, to please continue contributing in NRW reduction and offering quality water services to the customers in your service area, region and Kenya at large.								

leadership of the MWS&I which allocates an adequate financial support for the relevant activities of the C/Ps annually.

4. Monitoring Plan from the end of the Project to Ex-post Evaluation

The NRW reduction is one of the key policies of Kenya and its importance is unchanging. The dissemination of the NRW reduction will be implemented in accordance with the support mechanism as mentioned above and the relevant C/Ps shall sustainably fulfill their roles and activities as described in the same. Therefore, monitoring of the project implementation shall be conducted in accordance with the terms raised in the supporting mechanism. Moreover, it is recommended to monitor how the MWS&I, which has been having the idea of upgrading the present NRW unit to a division of the Ministry, is taking the steps to actualize it.

*** Annexes and Separate Vols.**

The following Annexes and Separate Vols. are compiled into "Project Completion Report" submitted in due course.

ANNEX 1: Results of the Project

(List of Dispatched Experts, List of Counterparts, List of Trainings, Revised Plan of Operation, etc.)

ANNEX 2: List of Products (Report, Manuals, Handbooks, etc.) Produced by the Project

ANNEX 3: PDM (All versions of PDM)

ANNEX 4: R/D, M/M, Minutes of JCC (copy) (*)

ANNEX 5: Project Monitoring Sheet (copy) (*)

(Remarks: ANNEX 4 and 5 are for internal reference only.)

Separate Volume: Copy of Products Produced by the Project




IV. For the Achievement of Overall Goals after Project Completion

1. Prospects to achieve Overall Goal

The Overall Goal of this project is that Under NRW Reduction Support Mechanism, urban WSPs enhance NRW reduction activities. Its indicators are; 1) 6 WSPs participate in knowledge sharing activities established by the project, 2) 6 pilot WSPs continue achieving targets set by the NRW reduction plan, and 3) NRW annual report is continuously produced and disseminated.

Of these indicators, 1) and 2) have been fully achieved through the implementation of project activities. As for 1), all 9 Pilot WSPs have achieved the participation of knowledge sharing activities. As for 2), 7 Pilot WSPs were confirmed, based on their annual activity review sheets, to have achieved the target continuously (i.e. 60% or higher completion ratio of planned activities for at least two years continuously) (see Table 2 for details). Regarding 3), a draft of the third NRW annual report of the Ministry has already been prepared, which indicates that 3) has been mostly accomplish, though some suspensions happened due to the Covid-19 pandemic. However, in order to promote NRW reduction activities strongly throughout Kenya in the future, it is essential to smoothly implement the national rollout toward more WSPs based on the Support Mechanism.

2. Plan of Operation and Implementation Structure of the Kenyan side to achieve the Overall Goal

The support mechanism was agreed among the C/Ps as the future implementation structure after the project is over and they have been making the preparation works in collaboration with the expert team for implementation of their respective roles and activities. However, they have not yet experienced any actual performance on their activities. Since the C/Ps understand well the importance of applicable and sustainable support for the WSPs in the dissemination of the activities through the experiences learnt in the project, it is expected they will be performing the roles and activities as mentioned in the support mechanism.

3. Recommendations for the Kenyan side

In order to implement the support mechanism sustainably, it is most important to revitalize the NRW unit of MWS&I. The dissemination of NRW reduction cannot be realized without close collaboration among each C/P under the strong

Annex-3 Attendance List

ATTENDANCE LIST of the 11TH JCC MEETING

S/N0.	NAME	ORGANIZATION	POSITION
1.	ENG. S.A.O. ALIMBA	MWS&I	WATER SECRETARY
2.	ENG. VICTOR NJERU	MWS&I	NRW HEAD
3.	ENG. JOSEPH MWANGI	MWS&I	NRW UNIT
4.	ENG. CHEMERIR CHEPYEGON	MWS&I	NRW UNIT
5.	MR. GEORGE BOKESIA	MWS&I	NRW UNIT
6.	MS. PATRICIA MUTUA	MWS&I	NRW UNIT
7.	MS. MARY TURITU	MWS&I	INTERN
8.	MR. HAJIME IWAMA	JICA KENYA	CHIEF REPRESENTATIVE
9.	MS. AKIKO KAWATA	JICA KENYA	REPRESENTATIVE
10.	ENG. PETER NJAGGAH	WASREB	DIR. STARDAND &LICENSING
11.	MS. EDITH MUSILI	WASREB	LICENSING OFFICER
12.	MR. WALTER MOSETI	KEWI	NRW COORDINATOR
13.	MR. ANTHONY AMBUGO	WASPA	CEO
14.	MS. EDDAH WAMBUI	WASPA	CBAM
15.	MR. DICKSON NJIRU	EWASCO	AG. MD
16.	ENG. JOSHUA ORIA	EWASCO	HEAD TECHNICAL SERVICES
17.	MS. DORIS NJIRU	EWASCO	HEAD FIN& COMM
18.	MR. CYRUS MUGENDI	EWASCO	NRW HEAD
19.	MR. JOSEPH MBERIA	MEWASS	CEO
20.	MR. FRANKLINE THURANIRA	MEWASS	NRW OFFICER
21.	ENG. PETER MWANGI	NYAHUWASCO	MD
22.	MR. PAUL MUTHAMI	NYAHUWASCO	NRW IN-CHARGE
23.	MR. HEZEKIAH MWARUA	KIMAWASCO	MD
24.	MR. PASCAL JIRA	KIMAWASCO	NRW HEAD



25.	MR. PAUL AKELLOH	KIWASCO	AG. CHIEF TECHNICAL ENGINEER
26.	MR. JOB LIECH	KIWASCO	NRW ENGINEER
27.	ENG. JESSE AMBUNDO	MAVWASCO	TM
28.	MR. JAMES NYAUMA	MAVWASCO	NRW OFFICER
29.	MR. ELISHA OKODE	MAVWASCO	GIS OFFICER
30.	MS. MARY MWANGI	RUJWASCO	TM
31.	MR. PETERSON MURIITHI	RUJWASCO	NRW TEAM
32.	MS. MARY WACHIRA	RUJWASCO	NRW OFFICER
33.	MR. JIMMY KEMBOI	ELDOWAS	GM-TS
34.	MR. JOHN WACHIRA	NAWASCO	NRW TEAM
35.	MR. GEORGE OMWAZA	NAWASCO	NRW
36.	MR. MASAYUKI TAGUCHI	JICA EXPERT	CHIEF ADVISOR
37.	MR. SHOZO MORI	JICA EXPERT	
38.	MR. NAOKI HARADA	JICA EXPERT	
39.	MR. SHINICHI SEKIMOTO	JICA EXPERT	
40.	MS. HIROKO SUGIMOTO	JICA EXPERT	
41.	MR. GEORGE KARANJA	JICA EXPERT	
42.	MR. CHARLES MAINGI	JICA EXPERT	
43.	MS. KELLYJOY GAKII	JICA EXPERT	