JCM Project Design Document Form

A. Project description

A.1. Title of the JCM project

Introduction of High Efficiency Water Pumps in Da Nang City

A.2. General description of project and applied technologies and/or measures

This project aims to replace existing conventional water pumps with high efficiency double suction volute pumps in two water pump stations of Cau Do water treatment plant owned by Danang Water Supply Joint Stock Company (DAWACO). The following water pumps produced by EBARA VIETNAM PUMP CO., LTD. are installed in this project. ・Raw water intake pump (450X350CWDM)　(3 units) ・Distribution pump (500X350CWDM)　(6 units) Pump efficiencies of the project pumps at a condition for operational use are 86% for raw water intake pump and 89% for distribution pump. Installation of high efficiency water pumps leads to energy savings, hence GHG emission reductions.

A.3. Location of project, including coordinates

Country	Socialist Republic of Viet Nam
Region/State/Province etc.:	N/A
City/Town/Community etc:	Da Nang city, Cam Le district, West Hoa ward
Latitude, longitude	16°00'06.3"N 108°11'17.8"E

A.4. Name of project participants

The Socialist Republic of Viet Nam	Danang Water Supply Joint Stock Company (DAWACO)
Japan	Yokohama Water Co., Ltd.

A.5. Duration

Starting date of project operation	01/10/2017
Expected operational lifetime of project	18 years

A.6. Contribution from Japan

The proposed project was partially supported by the Ministry of the Environment, Japan (MOEJ) through the Financing Programme for JCM Model projects, which provided financial support of less than half of the initial investment for the projects in order to acquire JCM credits. As for technology transfer, training has been conducted by EBARA VIETNAM PUMP CO., LTD. with a manual on operation, maintenance and safety measures of the project pumps. Maintenance services after project implementation are provided by Yokohama Water Co., Ltd., which also contribute to transfer a technical skill to the staff of DAWACO through maintenance experiences.

B. Application of an approved methodology(ies)

B.1. Selection of methodology(ies)

Selected approved methodology No.	VN_AM013
Version number	Ver1.0

B.2. Explanation of how the project meets eligibility criteria of the approved methodology

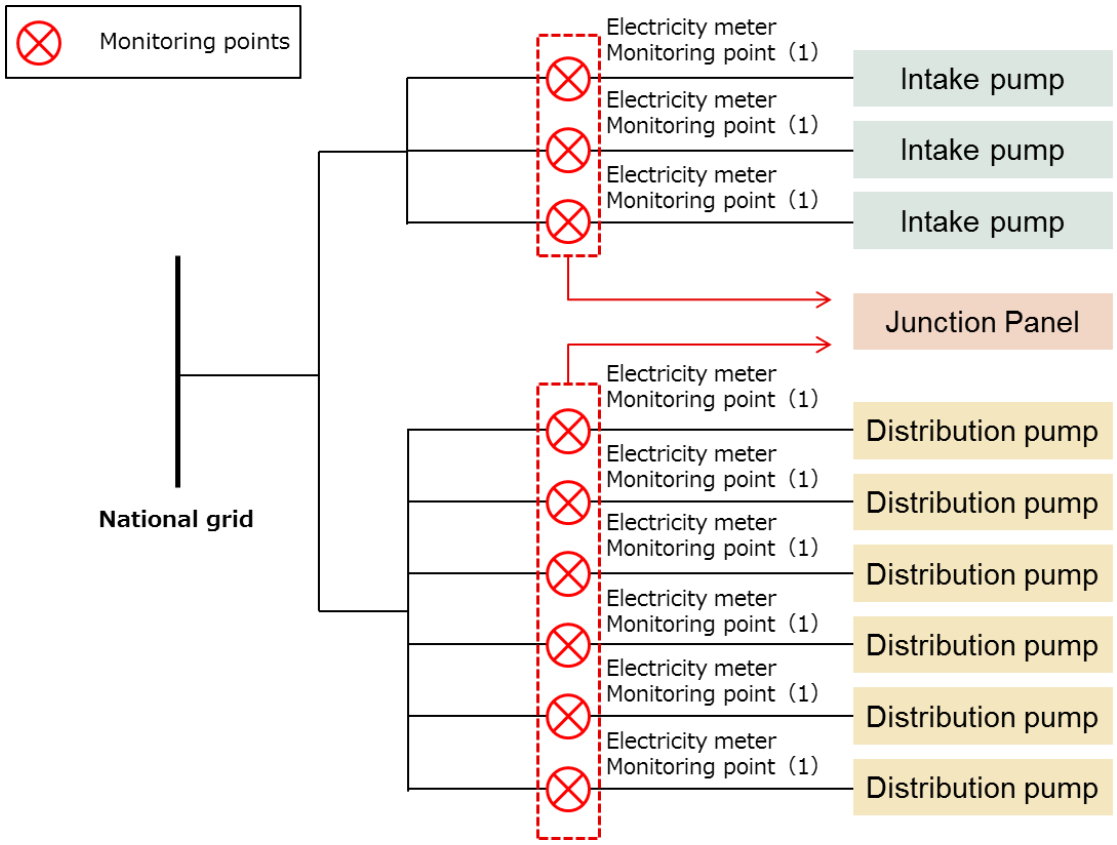
Eligibility criteria	Descriptions specified in the methodology	Project information
Criterion 1	Double suction volute pump(s) with efficiency of more than 80% at a condition for operational use is installed for water supply system at a water treatment plant.	The pump efficiency of raw water intake pump (450X350CWDM) is 86% and that of distribution pump (500X350CWDM) is 89% at a condition for operational use based on manufacturer's specification. The project pumps are installed at Cau Do water treatment plant.
Criterion 2	Project pump uses environmental friendly paints such as paints with 0.1% or less lead, cadmium and tar during the production process.	The following environmental friendly paints produced by NIPPON PAINT CO., LTD. and INTERNATIONAL PAINT CO., LTD. are used in the project pumps. These paints contain 0.1% or less of lead, cadmium and tar. ・Nippon 1100 Fast Drying Primer ・Nippon Bilac ・Nippon Zinc Rich Primer(HS) ・Interseal 670HS

C. Calculation of emission reductions

C.1. All emission sources and their associated greenhouse gases relevant to the JCM project

Reference emissions	
Emission sources	GHG type
Electricity consumption by reference pumps	CO_2
Project emissions	
Emission sources	GHG type
Electricity consumption by project pumps	CO_2

C.2. Figure of all emission sources and monitoring points relevant to the JCM project



Electricity consumption of pumps is monitored by electricity meters as shown in the diagram above. The data monitored and required for verification and issuance are kept and archived for two years after the final issuance of credits.

C.3. Estimated emissions reductions in each year

Year	Estimated Reference emissions (tCO_{2e})	Estimated Project Emissions (tCO_{2e})	Estimated Emission Reductions (tCO_{2e})
2013	-	-	-
2014	-	-	-
2015	-	-	-
2016	-	-	-
2017	1,591.4	1,406.7	184
2018	6,365.7	5,626.7	738
2019	6,365.7	5,626.7	738
2020	6,365.7	5,626.7	738
Total (tCO_{2e})	20,688.4	18,286.9	2,398

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	No

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

Local stakeholder consultation has been conducted on 22nd September 2017 at the Head Office of DAWACO in Da Nang, Viet Nam.

The list of attendees to the meeting has been determined through the consultation with the JC secretariat of Vietnamese side.

The overview and participants of the meeting are as follows.

Date: 22nd September 2017

Venue: Danang Water Supply Joint Stock Company (DAWACO)

57, Xô Viết Nghệ Tĩnh, Hòa Cường Nam, Hải Châu, Đà Nẵng, Viet Nam

57 Xo Viet Nghe Tinh St., Hai Chau, DaNang City, Viet nam

Agenda:

1. Outline of the project

2. Introduction of the product and technology
3. Benefits of the project
4. Q&A

Participants:
[Local stakeholders]

No.	Organization	Position
1	Da Nang Department of Planning and Investment (DPI)	Manager of Economy - Foreign Affairs Division
2	Danang Water Supply Joint Stock Company (DAWACO)	Manager, Planning Department
3		Deputy Manager, Planning Department
4		Staff, Planning Department
5		Manager, Technical Department
6		Staff, Technical Department
7		Staff, Technical Department
8		Manager, Finance and Accounting Department
9		Manager, Water Production Enterprise

[Project participants]
[Viet Nam] Danang Water Supply Joint Stock Company (DAWACO)
[Japan] Yokohama Water Co., Ltd.

A summary of the comments received and consideration of those comments are listed in Section E.2. below.

E.2. Summary of comments received and their consideration

Stakeholders	Comments received	Consideration of comments received
Manager of Economy - Foreign Affairs Division, DPI	There is no environmental concern as DPI. We recognize that it is a very important project for Da Nang.	Positive opinion was received. No further action is needed.
Manager, Water Production Enterprise, DAWACO	As a person in charge of supervising the water treatment plant, the introduction of this high efficiency pump is very grateful. According to the staff on site, the	Positive opinion was received. No further action is needed.

	new pumps can achieve reduction of electricity consumption around 50% compared with the old ones. Improvement of work environment due to significant noise suppression is also appreciated. There is a voice from field workers saying they want to replace all pumps with this new pump. As a Vietnamese person, I also hope that new high efficiency pumps will be introduced not only in Da Nang, but also throughout Viet Nam.	

F. References

Reference lists to support descriptions in the PDD, if any.

Annex

Revision history of PDD		
Version	Date	Contents revised
1.0	21/09/2018	First edition
2.0	18/03/2019	Revisions based on the findings from onsite validation and review inside TPE; ● C.2 ● C.3 ● E.1