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Ministry of Health, Labour and Welfare,

Government of Japan

FY2020

Report on a Study of International Cooperation in the Water Supply Sector

—Water supply in Pacific island countries—

March 2021

Japan International Corporation of Welfare Services

JICWEL

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Chapter 1 Policy for the FY2020 Study on International Cooperation in the Water Supply Sector

1-1 Details of the Study

(1) Background and history

In September 2015, the SDGs (sustainable development goals) were unanimously adopted by the member nations of the United Nations General Assembly, and, in the water and sanitation sectors, these goals were to ensure the availability and sustainable management of water and sanitation for all people. A corresponding target was set of achieving universal and equal access to safe, cheap drinking water for all people by 2030, and projects of various types are currently in progress around the world aimed at achieving this. As a result, the number of people worldwide who do not have access to basic water supply services, which was estimated to be approximately 840 million in 2015, had been reduced, two years later, to approximately 750 million in 2017. However, more efficient and effective efforts are still required.

In February 2015, the Japanese government reviewed the Official Development Assistance (ODA) Charter, and formulated the Development Cooperation Charter, which summarizes the principles and basic rules of ODA. In this charter, it is stated that one of the most important issues is the promotion of self-sustaining development in developing countries, and the provision of comprehensive support with respect not only to hard but also soft infrastructure, such as operation management, human resources, and institutions. In addition, with respect to infrastructure export strategy, for example, the transfer of Japan's advanced technologies, expertise, and systems, etc., to developing nations will enrich the lifestyle of the people in the partner country, and contribute to achieving sustainable development founded on resolution of global-scale issues such as the environment, disaster prevention, and health. The charter notes that this will contribute to strengthening Japan's soft power, and improving its diplomatic status.

In this way, changes are occurring in the basic direction of international cooperation and contribution activities in Japan and overseas, and so, to promote more effective and efficient international cooperation and contribution in the water supply sector, it is necessary to look back at international cooperation and contribution thus far, and consider future efforts.

(2) Purpose of project

The purpose of this project is to promote the development of effective and efficient international cooperation and contribution, and to facilitate the self-sustaining development of water supply in the aid-receiving country. This is to be achieved by experts from industry, academia, and government collecting, organizing, and analyzing information relating to international cooperation and contribution issues in the water supply sector that should be prioritized and actively addressed, considering problem solving approaches and support policies that are based on the needs of the aid-receiving country, and sharing the results with the parties concerned.

(3) Studies conducted in preceding years

Through the Study Committee on International Cooperation in the Water Supply Sector that was established under this project, Japan's Ministry of Health, Labour and Welfare (MHLW) has been conducting studies and making proposals focused on providing assistance for soft infrastructure development. The study in fiscal year 2018, which conducted a field survey on the relationship between the water supply and sanitation sectors in the Democratic Republic of East Timor (East Timor) from the viewpoint of Universal Health Coverage (UHC), proposed that not only urban water supply but also rural water supply should be improved and that quasi-public sector entities set up with capital contribution from municipalities and private-sector companies engaged in water supply operation, maintenance and management services, such as corporate members of the Japan Waterworks Operation and Management Association, should be encouraged to participate in future international cooperation between water suppliers and improvement of environments for business activities of Japanese companies overseas. Thus far, international cooperation in the water supply sector had been centered mainly on the Asian region, but the financial year 2019 survey reflected the results of the financial year 2016 survey—which had also considered Africa as a priority region for receiving support through international cooperation, and stated that activities should advance to the stage of securing bases for that cooperation—and thoroughly investigated specific measures to resolve the priority issues, and the actual situation regarding monitoring of results.

(4) Direction of this study

Japan’s assistance has been highly evaluated by Pacific island countries, such as its technological capabilities regarding hard infrastructure and face-to-face support involving communities and people, etc., and it is also necessary to meet expectations in the future (from 2015 Ministry of Foreign Affairs ODA evaluation report: (third party) evaluation report on Japan’s efforts relating to ODA projects in Pacific island countries). Furthermore, the next Pacific Islands Leaders Meeting—which Japan has held since 1997 in order to strengthen relations with Pacific island countries—will be held in 2021 (9th meeting, scheduled to be held in Shima City, Mie Prefecture). This project—which is the survey in the same financial year—must take advantage of the theme of this meeting, organize and investigate issues in the water supply sector that arise from the particular characteristics of the region and those that should be addressed by the whole region, and prepare for promotion of international cooperation in the future.

Based on the above, the survey in this financial year will mainly be conducted looking from the following perspectives.

1) Survey and summary of information that is useful for international cooperation in the water supply sector for Pacific island countries

- Organize support activities for Pacific island countries based on international cooperation

policy goals established at the Japanese government level. In particular, confirm the agenda of the Pacific Islands Leaders Meeting (PALM).

- Focusing on Japanese water suppliers, summarize activities performed hitherto in Pacific island countries, and based on those experiences, etc., extract knowledge regarding necessary support in the water supply sector.

2) Survey and summary of difficulties and response measures specific to Pacific island countries

Within the Pacific island region, and in particular for the Polynesian and Micronesian countries and regions, show the features and points to note regarding a prominently MIRAB type economy (a small nation economic structure which consists of national finance that depends on foreign aid and a national economy that relies on money sent from overseas migrants). Based on this, summarize the difficulties and response measures relating to international cooperation in the water supply sector for Pacific island countries.

3) Survey of examples of efforts to improve sanitation in island countries

Extract examples of efforts to improve sanitation described in the report of the WHO Western Pacific Regional Office (WPRO)—including considerations of links with climate change vulnerabilities—and examine the current status of efforts and direction of expansion to other regions, etc.

4) Summary of situation in each Pacific island country, and collection of local information through interviews and questionnaires

- In order to gain a comprehensive understanding of the situation in the main Pacific island countries, summarize it in the form of an extensive list.
- Due to the influence of the new coronavirus infection, it is difficult for survey teams to enter the countries of interest, and so field surveys will not be conducted. Instead, summarize the water supply situation in the relevant country: through surveys of JICA-related project performance reports; by performing surveys—conducted mainly through questionnaires—of residents of Japan who have been to the relevant country and have local information, and of water suppliers who have engaged in technical cooperation projects, etc., in the relevant region; and by using the results of literature surveys.

5) Analysis and verification of measures to implement future international cooperation more effectively and efficiently

Based on the results of the investigation so far and the results of deliberation by the committee, and while giving consideration to measures that can be widely used by people involved in

international cooperation in the water supply sector, make proposals regarding future international cooperation, the direction of international contribution, and specific relevant measures.

6) Other

In addition, aim for easier engagement with issues and greater effectiveness by reviewing the efforts of this project over its 36 years so far, looking back on the history of international cooperation in the water supply sector, and re-determining the related reference indicators for this project and the theme setting process for each year.

1-2 The Task Force for the Study

(1) Committee structure

This study was conducted over a 1-year period, and the findings were reported as the result of deliberations undertaken at three meetings held by the Study Evaluation Committee that was established in fiscal year 2020 for this purpose. The committee members are as follows.

[Committee members]

Rie Kanmori	Deputy Director, International Operations Division, Yokohama Waterworks Bureau
○Hidetoshi Kitawaki	Professor, Faculty of Global and Regional Studies, Toyo University
Kazuhiro Sasada	Manager, International Project Division, International Project Department, Water and Sewer Bureau, City of Kitakyushu
Masao Shibuya	International Director, Training and International Department, Japan Water Works Association (JWWA)
Dai Shimazaki	Chief Senior Researcher, Water Supply and Management Section, Department of Environmental Health, National Institute of Public Health
Toshimitsu Takahashi	Senior Staff, Management and Planning Division, Operation Department, Saitama City Waterworks Bureau
Yoko Nakamura	Deputy Director for International Affairs Team, Planning and Coordination Section, General Affairs Division, Bureau of Waterworks, Tokyo Metropolitan Government
Shigeyuki Matsumoto	Deputy Director General, and Group Director for Water Resources, Global Environment Department, Japan International Cooperation Agency (JICA)
Takahiro Mukai	Deputy Director and Director of Technical Management Division, Waterworks Management Department, Osaka Water Supply Authority
Tatsuo Morimoto	Senior Advisor, Federation of Japan Water Industries, Inc.

(○: Chairperson)

[Secretariat]

Kazuho Taguchi	Director, Office of Global Health Cooperation, Ministry of Health, Labour and Welfare (MHLW)
Ryuichi Morishita	Section Chief, Office of Global Health Cooperation, International Affairs Division, Minister's Secretariat, Ministry of Health, Labour and Welfare (MHLW)
Hiroya Yaguchi	Director, International Cooperation and Training Department, Japan International Corporation of Welfare Services (JICWELS)
Takeo Yamaguchi	Technical Advisor, Japan International Corporation of Welfare Services (JICWELS)
Toru Tomioka	Technical Advisor, Japan International Corporation of Welfare Services (JICWELS)
Hiroko Fujimori	Senior Staff, International Cooperation Section, International Cooperation and Training Department, Japan International Corporation of Welfare Services (JICWELS)
Atsushi Inoue	International Cooperation Section, International Cooperation and Training Department, Japan International Corporation of Welfare Services (JICWELS)

[Topic providers]

Koichi Okazaki	Deputy Director, Technology 1, Overseas Technology Management Department, Overseas Headquarters, Nihon Suido Consultants Co., Ltd.
Keizo Watanabe	Senior Staff, Management and Planning Division (in charge of promoting international expansion, etc.), Operation Department, Fukuoka City Waterworks Bureau

[Observers]

Hisashi Kudo	Deputy Director, Water Supply Division, Pharmaceutical Safety and Environmental Health Bureau, Ministry of Health, Labour and Welfare (MHLW)
Tomoyoshi Endo	Deputy Director, Water Supply Division, Pharmaceutical Safety and Environmental Health Bureau, Ministry of Health, Labour and Welfare (MHLW)
Jun Yamamoto	Water Resources Manager, Water Supply Planning Guidance Office, Water Supply Division, Pharmaceutical Safety and Environmental Health Bureau, Ministry of Health, Labour and Welfare (MHLW)
Kazutoshi Suzuki	Planning Manager, Water Supply Planning Guidance Office, Water Supply Division, Pharmaceutical Safety and Environmental Health Bureau, Ministry of Health, Labour and Welfare (MHLW)

(2) Schedule for committee meetings

The Study Evaluation Committee held meetings in fiscal year 2020 on the three following dates. The committee was basically held in a JICWELS meeting room, with committee members who could not attend external meetings participating remotely via Zoom.

- 1st meeting: September 30, 2020
- 2nd meeting: December 24, 2020
- 3rd meeting: March 1, 2021

(Domestic research)

- From September 2020 to March 2021

Chapter 2　Review of Past Studies in this Project

2-1.　Position in relation to the upper-level plan

Following is an image of the position of the Study for International Cooperation in the Water Supply Sector in relation to the upper-level plan.

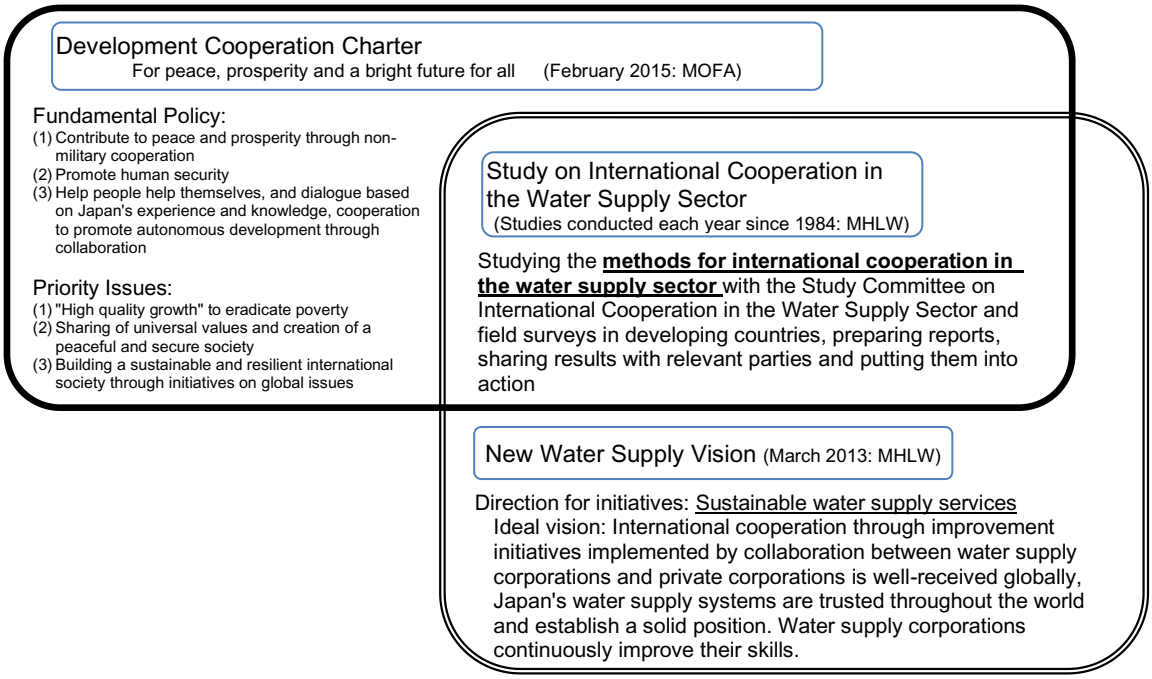

Figure 1 Image of the position of the Study for International Cooperation in the Water Supply Sector within international cooperation in the water supply sector

2-2. Background

The background (outline) of the studies in this project which started in 1984 is shown below.

1984 Project starts

1997 Water Supply Environment Project Study and Field Survey Project
→Study Committee on ODA Policy in the Water Supply Sector
(1) International cooperation in the water supply sector
(2) Direction of assistance to each country in the water supply sector

2002 Summary of International Cooperation Policy in the Water Supply Sector (October 2002)
→Report by the Study Committee on ODA Policy in the Water Supply Sector
• International cooperation in the water supply sector
– For the sustainable development of safe drinking water supplies in developing countries

2005 Summary of International Cooperation Policy in the Water Supply Sector (March 2006)
Review of the system following the government's August 2003 revision to the ODA Charter
→Report by the Review Committee for International Cooperation Projects (Water Supply Sector)
• Study development of human resources
• Study comprehensive assistance program

2009 Study on International Cooperation in the Water Supply Sector
→ (1) Study Committee on International Cooperation in the Water Supply Sector
(2) Field surveys in developing countries

2020 Study continuing

Figure 2 Background to the Study on International Cooperation in the Water Supply Sector

2-3. Summary of proposals made in past reports

(1) About the 2005 Report by the Review Committee for International Cooperation Projects (Water supply sector)

Following is an outline of the report which once again summarized the direction of international cooperation in the water supply sector taking into account the results of the preceding fiscal year, direction in the revised upper-level plan and priority issues for future projects, and which is being utilized in the direction of this study

Table 1 Outline of the 2005 Report by the Review Committee for International Projects (Water supply sector)

(1) Report content: Guidelines for Japan's aid in the water supply sector (developing countries) in 2005	
Background	The Ministry of Health, Labour and Welfare (MHLW) put together a policy proposal and implementation framework for international cooperation projects in the water supply sector that it will implement and be involved with in line with the revised ODA Charter (2003). (Study over three years starting in 2003. Mainly based on the Report by the Study Committee on ODA Policy in the Water Supply Sector (2002) resulting from the MHLW's Water Supply Environment Project Study and Field Survey Project.)
Priority issues in the summary	Study on Development of Human Resources, Study on Comprehensive Assistance Program Reference: Purport of the Revised ODA Charter 2003 Proactive Use of ODA in Peace Building, Emphasizing Human Security, U.N.

<table>
<tr><td></td><td>Millennium Development Goals (Eradicating Poverty), Enhancing the strategic value, flexibility, transparency and efficiency of ODA and gaining understanding of Japan's ODA at home and abroad</td></tr>
<tr><td colspan="2">(2) Results of study on development of human resources</td></tr>
<tr><td colspan="2">1) Recent trends in dispatch of experts (From tangible aspects such as facilities, to a greater emphasis on intangible aspects such as non-revenue water control and management and organizational operations)
2) Measures to facilitate the securing of human resources (Promoting infrastructure in Japan by the establishment of an International Cooperation Human Resources Bank (tentative name))
3) Providing information and backup (Before and during dispatch, it is necessary to create an environment that makes it easy to access experts.)
4) Human resources development (It is important to create opportunities for people to become interested in JICA experts and international contributions. (Briefings by JICA experts after returning to Japan, opportunities for accepting training participants from overseas))
5) Issues (Smoothing the succession of skills in water supply corporations, creation of a system for overseas technical staff to gain work experience in Japan)</td></tr>
<tr><td colspan="2">(3) Results of study of the comprehensive assistance program</td></tr>
<tr><td>Definition of the comprehensive assistance program</td><td>A more systematic and strategic approach that appropriately, efficiently and effectively utilizes a variety of schemes to sufficiently consider and incorporate follow-up maintenance and management when providing assistance for facility improvements.</td></tr>
<tr><td>Future direction of the project (Communication, sharing)</td><td>• Main focus of assistance (Focus on urban water supply in neighboring countries in Asia, also assistance to Africa and for rural water supply.)
• Programming of assistance (With the participation of various organizations providing assistance, establish mutual relationships as systematic and strategic programs, draw a long-term, overall vision of assistance represented by a master plan, and position various schemes within this in order to achieve the goals.)
• Establishing goals and assessment methods (Based on goals established after due consideration of the direction of upper-level plans, clearly formulate and promote an action plan that combines various schemes. Furthermore, study assessment indicators and methods that can clarify the strategic nature and systemization of assistance and the effectiveness of collaboration between projects.)</td></tr>
<tr><td colspan="2">(4) Matters to be considered and understood (Future international cooperation in the field of water supply)</td></tr>
<tr><td colspan="2">1) Importance of assistance for urban water supply (Migration to cities, rapid increase in population)
2) Consideration of rural water supply (Periodical checks of the safety of water quality)
3) Importance of monitoring (Continuing to understand the situation even after a project has been completed, continued follow-up, assessment using indicators of how much improvement has been made)
4) Understanding the necessity of comprehensive assistance (Communication and sharing of experiences to improve the quality of assistance)
5) Necessity of securing and developing human resources (Effective establishment of a human resources bank and ensuring succession)</td></tr>
</table>

(2) Results of studies over the past 10 years, and issues and proposals

The status and results of studies over the past 10 years (2010 to 2019), proposals made and subsequent developments are shown below. For each year, the study theme, subtitle, committee (observers, participants), field survey destination (target), study results and proposals, and issues for further study in the current theme are shown.

Table 2 Results of studies over the past 10 years (2010 to 2019) and issues and proposals

FY	Study theme (Subtitle)	Committee (Observers, participants)	Field survey destination (Target)	Study results and proposals	Issues for further study in the current theme
2010	No subtitle • Study training implemented in Japan and overseas with engineering professional consultants in order to further expand information on training in international cooperation in the water supply sector	S. Kunikane (Committee Chair), medical clinic, university professors (2), JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (4) (Observers) water supply division, JICA (2)	Laos (To collect information on training by Japanese engineering professionals overseas and information on training by overseas donors)	• Study having trainees provide feedback in their home countries on the knowledge and experience they gained in Japan. • Study the effective utilization of educational materials prepared and used in each training in other training sessions. • Invite people involved in facilities operation who have received grant aid and loan aid in the countries receiving assistance to come to Japan to improve their capabilities.	• Further study the optimal overseas trainee acceptance system and methods of collaboration with other assistance schemes. → Incorporate in FY2011study theme
2011	No subtitle • Summarize the points to consider for effectiveness of training from the results of the 2010 study (Follow-up survey of past participants in training in Japan, and survey of relevant private corporations about the potential for their participation in such training (20 companies))	S. Kunikane (Committee Chair), medical clinic, university professors (2), JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (3) (Observers) water supply division, JICA (2), consultants	Vietnam, Laos (Questionnaire and interviews of past participants in training provided in Japan and overseas by engineering professionals and in JICA Knowledge Co-creation Programs)	• Request cooperation from private corporations in specialist fields and promote effective collaboration. • Many requests for follow-up within five years after training in Japan by engineering professionals. • Many requests in connection with operation management of entire water supply systems.	• Study training in operations for the sound management of water utilities. → Incorporate in FY2012 study theme
2012	No subtitle • Study the support for formulation of business plans which was identified as a significant need in the results of the 2011 study (Compare potential for collaboration in Laos and Cambodia and implement exchange of opinions between experts with the goal of building a collaborative framework)	S. Kunikane (Committee Chair), medical clinic, university professors (3), JWWA, Federation of Japan Water Industries, Inc., water supply corporations (4) (Observers) water supply division, JICA (3), JWWA, water supply corporations (5), consultants	Laos, Cambodia (Survey executive personnel on the actual state of formulation of water supply system plans. Confirm the current state, issues, perspectives and initiatives that should be incorporated, and possible areas of collaboration, and study the building of a collaborative framework for projects with other countries.)	• It is necessary to formulate phased water supply improvement plans that match the situation at the national and regional levels. • When formulating plans it is necessary to collaborate with regions including with the government and water supply corporations as there are differences in the level of standards in each region, such as water quality standards and setting of prices. • It is believed to be necessary to dispatch experts to relevant government departments to promote phased improvements, assuming a difference in levels.	• It is necessary to gather and analyze information on successful public-private sector collaborations in ODA for future public-private sector collaboration. • It is necessary to promote sufficient gathering of information on the circumstances in countries and regions other than the study target country, and to extrapolate and improve the accuracy of analysis results.

FY	Study theme (Subtitle)	Committee (Observers, participants)	Field survey destination (Target)	Study results and proposals	Issues for further study in the current theme
2013	No subtitle • Study support policies to improve the financial and management aspects of water supply corporations as well as the technical aspects, as awareness is increasing of the need to support many water supply corporations in developing countries to escape the downward spiral of poor management and create virtuous cycles.	S. Kunikane (Committee Chair), medical clinic, university professors (1), JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (4), financial consultants (1) (Observers) water supply division, JICA (2), consultants, financial consultants, water supply corporations	Indonesia (Interviews with executive personnel on achievements of improvements in management and issues in improvement initiatives)	• It is necessary to switch from the conventional individual approaches limited to the water supply (technology) field to a collaborative approach including the fields of accounting, law and sanitation when providing support for business improvement. (Participation of experts in other fields in projects, and collaboration with projects in other fields). • Study support for the establishment and utilization of a mutual assistance organization that can provide a variety of information and implement training from the perspective of management, as conducted by JWWA.	• Ascertaining a system and vision that matches the circumstances of the donor country, and methods for achieving the anticipated effects of support from the partner country's perspective. → Incorporate in FY2014 study theme
2014	No subtitle • Study how to proceed in providing support for water supply systems in developing countries after summarizing and analyzing the management environment of water supply corporations focusing on the three aspects of governance, personnel systems and financial foundations as a way of ascertaining a system and vision suited to the circumstances without forgetting the perspective of the developing country.	S. Kunikane (Committee Chair), medical clinic, university professors (2), JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (4) (Observers) JICA, consultants	Laos, Indonesia (Interviews with executive personnel and Japanese experts on dispatch, in order to understand the difficulties of bibliographic surveys)	• Starting from governance as many countries have made a certain degree of progress in this, switched the flow from establishing personnel systems and a financial foundation to high level policies and established respective support menus for the four areas anticipated in reference to the results of field surveys. Analyzed from the perspectives of national and regional governance, personnel systems and financial foundation and made proposals for support strategies based on the circumstances.	• Propose collecting more data in order to improve accuracy and potential for utilization. • Propose adding Africa and Pacific Island countries to the targets of collection of data on the three aspects, and study the application and possibilities outside Asia. → Incorporate in FY2020 study theme

FY	Study theme (Subtitle)	Committee (Observers, participants)	Field survey destination (Target)	Study results and proposals	Issues for further study in the current theme
2015	Subtitle: **Public Relations (PR)** • Japan's international cooperation in the water supply sector plays a significant role in the volume of aid worldwide. This study will survey the significance of this and how results are communicated, and summarize the issues and improvements to be made in public relations.	S. Kunikane (Committee Chair), medical clinic, university professors (2), JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (4) (Observers) JICA, advertising agency	Cambodia (Gather information mainly from executive personnel in direct interviews about the PR activities in the aid recipient countries at the formation and implementation stages of projects and after completion of projects)	(Specific measures to improve effectiveness of PR) • PR Implemented by: Relevant ministries and agencies, JICA, water supply corporations, consultants, private corporations, general incorporated associations, NGOs, etc. • PR targets: General population with little interest in international cooperation • How: Room to improve PR to make it more easily understood and deeply impressive • Proposal for new initiative: Quantitative beneficial effect, continuous PR, utilize SDG indicators, introduce achievements of leading corporations in Japan	• It is necessary to study the method of measuring the effects of publicity.
2016	Subtitle: **Direction of initiatives towards 2030**」 • Study points to be reviewed or added based on the FY2005 Survey Report which proposed ways to proceed with future international cooperation in the water supply sector after confirming what kinds of policies have been implemented, taking this opportunity to review basic policy worldwide including changes to the development cooperation charter and transition to SDGs.	S. Kunikane (Committee Chair), medical clinic, university professors (2), JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (4) (Observers) none	Laos (After summarizing the state of international cooperation over the past 10 years and understanding the country's achievements, summarize how international cooperation has proceeded so far, how it should be promoted further, how it should be revised or what should be added)	• Regarding the direction of future initiatives in international cooperation in the water supply sector, after summarizing the proposals in the FY2005 from the following five perspectives, and confirming the status of implementation since FY2005, proposals were made as references for future activities. 1) Priority measures for specific international cooperation in the water supply sector 2) Methods of evaluating the measures and results of initiatives, and establishment of goals linked to these 3) Priority regions for activities and initiatives 4) Securing and developing human resources and water supply systems' experts for international cooperation 5) Collaboration with people working in the water supply corporation industry and also collaboration with people in other fields	• It is necessary to conduct a fact-finding field survey and communicate information to relevant ministries in Japan to promote understanding of Africa which is the first stage for preparation in priority regions. → Incorporate in FY2019 study theme

FY	Study theme (Subtitle)	Committee (Observers, participants)	Field survey destination (Target)	Study results and proposals	Issues for further study in the current theme
2017	No subtitle • Based on FY2016 study (review of proposals in the FY2005 study), further pursue issues and directions in connection with securing human resources, priority regions, priority measures and methods of evaluating activities, and focus on proposals for the ideal form for future activities.	S. Kunikane (Committee Chair), medical clinic, university professors, JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (4) (Observers) none	Rwanda (As there limited information available on Africa which is a priority region for future international cooperation, gather information on regional characteristics keeping in mind comparisons with Asia)	• Based on the lessons learned from the implementation of international cooperation, the following three items are considered priority items for the future. Points to focus on in Africa were summarized (Status and issues were compared with Asia). 1) Understand the circumstances in many countries based on SDG indicators. 2) Evaluate needs and status of activities in the water supply sector and sanitation. 3) Introduce to regions with which Japan does not have a sufficiently close relationship.	• In order to further promote international cooperation in the water supply sector, it is important to first of all deepen understanding of the facts regarding water supply systems and the current status worldwide and make this information widely known.
2018	Subtitle: **Collaboration with other fields, and water supply corporations and other corporations operating overseas** • With regard to the SDG initiatives which comprise 17 goals by sector which have a mutual influence on each other, study the mutual relationship between the water supply sector and other sectors, as well as trends in water supply corporations and Japanese corporations, and measures that should be taken in the future.	H. Kitawaki (Committee Chair), medical clinic, JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (5) (Observers) none	East Timor (Study the status of initiatives taken to achieve SDG goals, relationship with other sectors, and potential for overseas operations by Japanese corporations)	• Regarding SDG 6, summarized the mutual relationship with the goals of other sectors and confirmed specific initiatives that can be contributed. • For achievement of the UHC, collaboration is needed between urban water supply systems and rural water supply systems which are under the jurisdiction of different authorities. • To promote the startup of overseas operations by Japanese corporations, share with water supply corporations the successful cases of semi-public corporations in regional municipalities that are making the most of their business management experience.	• It is necessary to actively promote collaboration with other sectors, such as cooperation and adaptation policies in the water and sanitation sectors which are being emphasized. • Promote the introduction of life cycle cost evaluation for the international establishment of high quality infrastructure.

FY	Study theme (Subtitle)	Committee (Observers, participants)	Field survey destination (Target)	Study results and proposals	Issues for further study in the current theme
2019	Subtitle: **<u>Water supply in Africa</u>** • Regarding Africa, which was identified as being in the preparation stage as a priority region in the results of the FY2016 study, and considering TICAD7, gather information that cannot be obtained by bibliographic surveys and is effective for activities to promote cooperation in future, summarize the initiatives so far and issues in operational efficiency, and make proposals.	H. Kitawaki (Committee Chair), medical clinic、JICA, JWWA, Federation of Japan Water Industries, Inc., water supply corporations (5) (Observers) water supply division, water supply corporations, consultants	Malawi (Check the policy guidelines for SDGs in developing countries in Africa, study future needs for international cooperation and state of operations of rural water supply systems, and conduct interviews with engineering professionals currently in the country about progress)	1) From a questionnaire of people who have experience traveling to Africa, gather and summarize local information that would be useful to know in advance. 2) Confirm that there are no significant differences compared with the issues experienced by water supply corporations in various Asian countries. 3) Confirm basic information on each country (including climate zone, former colonial power) and support provided hitherto for urban and rural water supply systems (Support for development of human resources will be important in future).	• Collecting and sharing information on fields in which Japan does not possess knowhow, such as prepaid meters and smart meters, and providing information on the status of SDG initiatives in urban and rural water supply systems will boost the number of water supply corporations involved in international cooperation in Africa.

2-4. Results and outcomes of this study project

The outcome of this study project will be the development and implementation of initiatives based on the proposals listed in the study project report, as well as the effective utilization of the related information provided and it is believed this will be of assistance to international cooperation and support for international contributions by Japan in the water supply sector, making them more effective and enhancing their progress.

The establishment of study themes aims for initiatives that can clearly respond to the needs of the country, while confirming trends in 'relevant indicators for reference' that are quantitative measures showing the actual state of international cooperation and international contributions. However, the trends in 'relevant indicators for reference' is an indication of the combined effect of related factors and does not directly reflect the outcomes of this study.

Figure 3 shows the 'relevant indicators for reference' for international cooperation in the water supply sector and figure 4 shows the trends in 'relevant indicators for reference.' The various indicators are almost level or have tended to increase, indicating that international cooperation activities have been continuously implemented. The rise in 'number of technical staff transfers' is due to the active implementation of workshops and seminars in technical cooperation projects in recent years.

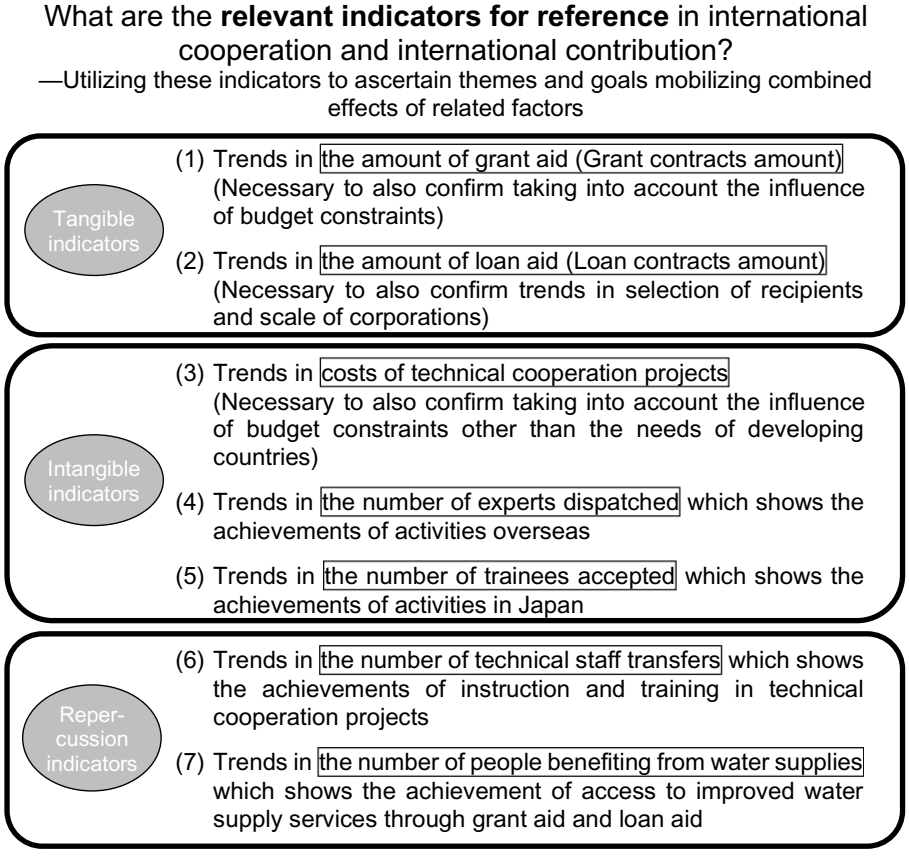

Figure 3 Various relevant indicators for reference in international cooperation in the water supply sector

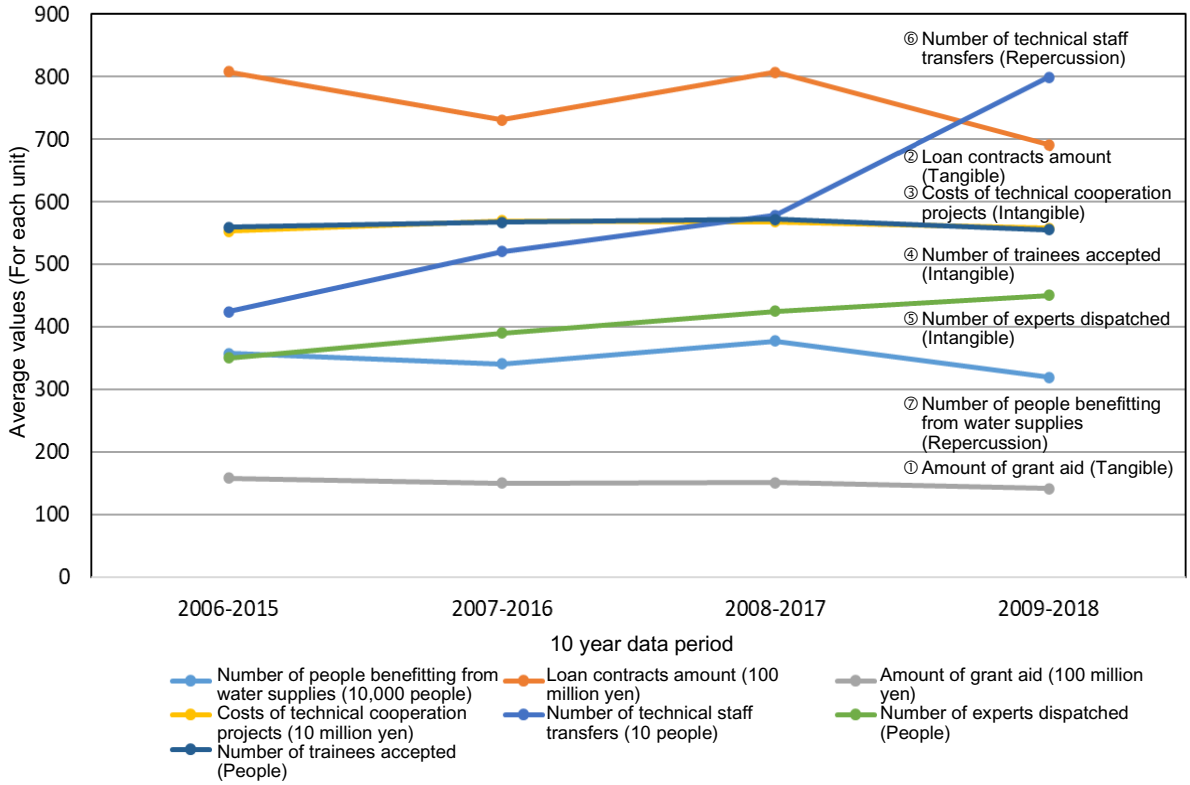

Figure 4 Transition in various relevant indicators (10 year average values)

Chapter 3　Efforts of the Water Supply Sector for Pacific Island Countries

3-1 The Japanese Government's Policy Objectives of International Cooperation for Pacific Island Countries

The Pacific region neighbors Japan via the Pacific Ocean. It has geopolitical importance to Japan because its vast exclusive economic zone makes the region into a natural resource supply center as well as a maritime route for energy resource transportation. It also has a close economic relationship with Japan since it is an investment location for Japanese private sector companies. Many countries in this region have deep historical ties with Japan, and a large number of Japanese descendants still live in these countries. These countries are important partners of Japan in the international community in terms of the importance of securing support for Japan in the international arena from mostly pro-Japanese Pacific countries.

For the purpose of building a close cooperative relationship and further strengthening ties between Japan and the Pacific island countries, in 1997, Japan began to invite the leaders of these countries and host the Pacific Island Leaders Meeting (PALM) every three years. Participating countries include 14 island nations, New Zealand, and Australia, and their leaders attend the meeting (14 island countries: Kiribati, Cook Islands, Samoa, Solomon Islands, Tuvalu, Tonga, Nauru, Niue, Vanuatu, Papua New Guinea, Palau, Fiji, Marshall Islands, and the Federated States of Micronesia)[1]. At the meeting, leaders exchange their frank opinions about various issues that Pacific island countries face. Japan has announced a wide variety of cooperation and support measures, which produced positive results. At PALM7, Japan committed to supporting the island countries with over 55 billion yen, development of 4,000 human resources, and support for their personal exchanges over the next three years. At PALM8, Japan announced support for development of a further 5,000 human resources and personal exchanges over the next three years.

These support measures not only help overcome issues of the island countries but also are believed to have multifaceted effects for Japan such as peace and stability in the Pacific region, promotion of prosperity, dissemination of techniques including Japanese disaster management, and fostering of pro-Japanese feelings.

Table 3 shows the outline of the past PALM.

[1] MOFA "Pacific Islands Leaders Meeting (PALM)"
https://www.mofa.go.jp/mofaj/area/ps_summit/index.html

Table 3 Outline of the Pacific Island Leaders Meeting (PALM)

Year	Meeting title	Host city	Outline
1997	Japan-South Pacific Forum (The 1st Pacific Island Leaders Meeting)	Tokyo	Heads and representatives of Japan and 17 South Pacific Forum (SPF) member countries met recognizing the strong friendship between Japan and the Pacific region and their common interests. The leaders issued a declaration after reaffirming their commitment to cooperating with each other as partners to realize sustainable development as well as the economic and social well-being of the Pacific island countries.
2000	Japan-Pacific Islands Forum The 2nd Pacific Island Leaders Meeting	Miyazaki	Leaders of 16 South Pacific Forum (SPF) member countries and regions attended the meeting. The New Caledonian leader observed the meeting. Japan compiled the Miyazaki Initiative as a specific example of the Pacific frontier diplomacy. The meeting was centered around three topics: sustainable development of the Pacific island countries, common regional and global issues, and further strengthening of the Japan-SPF partnership. The leaders then adopted the Miyazaki PALM Declaration summarizing the common understanding of the current situation in the Pacific, common vision for the future, and mid-to-long term priorities of Japan-SPF cooperation. In view of the urgency of the environmental issues, the leaders adopted separately the Statement on Environment in the Pacific. The meeting title South Pacific Forum (SPF) changed to the Pacific Islands Forum (PIF) (November 2000).
2003	Japan-Pacific Islands Forum The 3rd Pacific Island Leaders Meeting	Okinawa	Leaders of 13 member countries and 2 member regions of the Pacific Islands Forum (PIF) attended the meeting. With sustainable development of the Pacific island region, the leaders declared the Okinawa Initiatives, which described the regional development strategy and the joint action plan for a more prosperous and safer Pacific. The declaration also included statements about SARS, whose concerns were shared among the leaders. Japan, Australia, and New Zealand confirmed the importance of working together to support the island countries and issued their acknowledgement as a joint statement.
2006	Japan-Pacific Islands Forum The 4th Pacific Island Leaders Meeting	Okinawa	Leaders from 16 Pacific Islands Forum (PIF) member countries and regions joined the meeting. Based on the review of the Okinawa Initiatives, which was the achievement of the previous session, the leaders at the meeting exchanged opinions about creation of a new partnership between Japan and individual PIF member countries. They adopted the leader declaration, Okinawa Partnership for a more robust and prosperous Pacific Region, which was a new collaborative framework with two pillars: self-reliant efforts by the PIF countries in line with the Pacific Plan, and support by the Japanese government to push such efforts. To provide effective support, Japan, Australia, and New Zealand issued a joint statement regarding further strengthening of their cooperation.

Year	Meeting title	Host city	Outline
2009	The 5th Pacific Island Leaders Meeting	Hokkaido	Leaders from 16 Pacific Islands Forum (PIF) member countries and regions joined the meeting. Under the theme of "We are islanders - Towards an Eco-friendly and Rich Pacific," active discussions took place on the issues of (1) environment and climate change, (2) overcoming vulnerability while placing importance on human security, and (3) increase of personal exchanges. Announcing the use of 50 billion yen to support island countries over the next three years, the leaders adopted the Islanders' Hokkaido Declaration.
2010	Pacific Island Leaders Meeting: The first Ministerial Interim Meeting	Tokyo	There was a follow-up session for the 5th Pacific Island Leaders Meeting and discussion to prepare for the 6th meeting.
2012	The 6th Pacific Island Leaders Meeting	Okinawa	Leaders from 17 countries and regions, including Japan, attended the meeting. The US joined for the first time. Under the theme of "We are Islanders - For Growing 'Kizuna' (Strong Bonds) in the Pacific," discussions for the next three years were centered around the five core agenda items: (1) response to natural disasters, (2) environment and climate change, (3) sustainable development and human security, (4) personal exchanges, and (5) marine issues. The meeting was concluded with the adoption of the Okinawa "Kizuna" Declaration. The declaration included the report on achievement of the amount of support discussed in the 5th meeting and the result of the support. It also confirmed that the best efforts will be made to provide up to 500 million dollars in support over the next three years. Finally, it stated that support for the efforts to address environmental issues, including water management issues, will continue.
2015	The 7th Pacific Island Leaders Meeting	Fukushima	Leaders from 17 countries, including Japan and 14 island countries, participated in the meeting. The attending members decided that for the next three years they will work together in the seven focus areas: (I) disaster management, (ii) climate change, (III) environment, (IV) personal exchanges, (V) sustainable development, (VI) marine and fisheries, and (VII) trade, investment, and tourism. As the achievement of the discussion, the leaders adopted the Fukushima Iwaki Declaration: Building a Prosperous Future Together. In this declaration the leaders stated that they will provide over 55 billion yen over the next three years and support development of 4,000 human resources and personal exchanges. They also announced that they will strengthen Pacific island countries' ability to implement climate change countermeasures and promote business-based exchanges with Japan.

Year	Meeting title	Host city	Outline
2018	The 8th Pacific Island Leaders Meeting	Fukushima	Leaders from 19 countries and regions, including New Caledonia and French Polynesia for the first time, attended the meeting. The discussion focuses were the maritime order under the rule of law and sustainable oceans, resilient and sustainable development, increase in communication and exchanges, and cooperation in the international arena. At the end the PALM8 Leaders' Declaration was adopted as the discussion achievement. In line with the Free and Open Indo-Pacific Strategy, the priority agenda of the leader discussion was a free, open, and sustainable ocean. The leaders shared the understanding that the rule of law was important at sea and agreed to promote cooperation in the areas of maritime security and port development. The declaration included the North Korean issues for the first time and also mentioned the support for Japan to assume a permanent seat in the U.N. Security Council. In the declaration, the leaders announced that they will support human resource development of over 5,000 individuals, including 500 who will provide cooperation for realizing a free, open, and sustainable ocean, as well as personal exchanges for the next three years. With strengthening of the platform to realize resilient and sustainable development as one of the pillars of the cooperation, the declaration stated that urgent efforts to address climate change was necessary.
2021	The 9th Pacific Island Leaders Meeting (plan)	Mie	Preparation underway

Source: MOFA "Pacific Island Leaders Meeting (PALM)" https://www.mofa.go.jp/mofaj/area/ps_summit/index.html

MOFA's 2015 ODA evaluation report "Evaluation of Japan's Assistance for Pacific Island Countries (Third Party Evaluation)" highly rated the appropriateness of Japanese measures to assist Pacific island countries and the country's contribution in assistance. It listed as recommendations for future assistance, "it is important that the Ministry of Foreign Affairs not only focuses on the efficiency of aid or the scale of beneficiaries but also provides sustainable assistance from a broader perspective," "it is important to utilize ODA as a catalyst for promoting concrete approaches to strengthen trade, investment, and tourism by the private sector," and "implementation of assistance to sustain project effects"[2].

The 2018 White Paper on Development Cooperation noted that Japan's policy in international cooperation with Oceania was to back self-reliant and sustainable development of Pacific island countries through the Pacific Island Leaders Meeting, and with due consideration to the unique vulnerabilities of small developing island countries, the focuses of cooperation efforts were on the seven areas: disaster management; climate change; environment; personal exchanges; sustainable development; oceans and fisheries; and trade, investment, and tourism[3].

Furthermore, at the Pacific Island Country Cooperation Promotion Meeting in May 2019, the Japanese government compiled a report including the direction of its future Pacific island country

[2] Evaluation of Japan's Assistance for Pacific Island Countries <Overview> https://www.mofa.go.jp/mofaj/gaiko/oda/files/000157368.pdf

[3] 2018 White Paper on Development Cooperation (Oceania) https://www.mofa.go.jp/mofaj/gaiko/oda/files/000458060.pdf

support measures, which would apply across the government including ODA[4]. To maintain and promote the regional environment to support realization of a free and open Indo-Pacific, three goals were set in this report: securing of the stability and safety in this region including strengthening of the marine security capabilities, securing of a resilient and sustainable development platform which leads to realization of independent and stable development as well as advancement of the region, and stimulation of personal exchanges and communication in order to strengthen the relationship with Japan. The basic policy includes enhancement and focused allocation of resources for Pacific island countries, increased cooperation efforts by Japan as a whole, collaboration with countries concerned, and promotion of role sharing with these countries.

Japan has relationships with other Pacific island countries; every year since 1991, Japan as a non-PIF country has been attending the Post-Forum Dialogue of the Pacific Islands Forum (PIF) having 16 member countries and 2 member regions including Australia, New Zealand, Papua New Guinea, and Fiji. The Japanese government also participates in personal exchanges by inviting the PIF Chairperson to the country.

Also, at the annual Conference of the Ambassadors to Asian and Oceanian Countries ("the Conference of the Ambassadors to Asian and Oceanian Countries and International Organizations" since 2018), parliamentary secretaries of MOFA, ambassadors to the Asia, Oceania, and North American regions, ambassadors to international organizations, and executives of relevant MOFA departments discuss cooperation and collaboration with Asian and Pacific countries in various areas and strengthening of collaborative efforts through international organizations from the perspective of promoting the Japanese government's major diplomatic policies by MOFA and diplomatic establishments abroad as a team.

The Pacific Island Development Forum (PIDF), whose first meeting was held in 2013, is a federation led by Pacific island countries. With the focus on sustainable and comprehensive development of Pacific island countries, the forum was established with the objective of realizing the Green & Blue Economy in Oceania through the domestic, regional, and international frameworks. The Blue Economy, in line with the principle of the traditional Green Economy, refers to sustainable and comprehensive marine economic activities. Multi-stakeholders, including representatives of private sector groups and civil society, are the foundation of regional plans based on the belief that sustainable development requires the whole region to work together. Decisions are made by individual Pacific island countries and their regions. Forum members are Fiji, the Federated States of Micronesia, Kiribati, Nauru, the Marshall Islands, Palau, the Solomon Islands, East Timor, Tokelau, Tonga, Tuvalu, Vanuatu, the Pacific Islands Private Sector Organisation (PIPSO), and the Pacific Islands Association of Non-Governmental Organisations (PIANGO). These members are also active members of the Conference of the Parties (COP) under the United Nations Framework Convention on Climate Change to consider anti-global warming measures. Japan attended the PIDF meeting in 2013, 2014, and 2015. Countries invited for the 2019 meeting were Australia, New Zealand, EU member nations, China, India, Russia, South Korea, Malaysia, and Singapore. Japan was not included.

[4] The 2nd Pacific Island Country Cooperation Promotion Meeting on May 17, 2019
https://www.mofa.go.jp/mofaj/files/000479690.pdf

3-2 State of Support Projects for Pacific Island Countries by the Japanese Water Supply Sector

Based on MOFA and JICA information materials, this section organizes the state of support projects for Pacific island countries by the Japanese water supply sector. Table 4 shows technical cooperation projects, grant aids, and loan aids. Table 5 is the list of public-private partnership projects, and Table 6 lists grassroots technical cooperation projects.

Table 4 Technical cooperation projects, grant aids, and loan aids

Project name	Type	Country	Period/Year and Month of agreement	Grant/loan contract amount (in 100 million yen)	Cooperating/supporting water suppliers
Nadi-Lautoka Regional Water Supply Project	Loan	Fiji	Loan agreement (L/A) signed in February 1998	22.87	
Project for Improvement of the Nuku'alofa Water Supply	Grant	Tonga	Exchange of Notes (E/N): July 2000	11.77	
Project for Town Water Supply	Grant	Papua New Guinea	Exchange of Notes (E/N): August 2001	10.22	
Project for Improvement of Water Supply System in Honiara and Auki	Grant	Solomon Islands	Grant agreement (G/A): June 2009	20.9	
Project for Improvement of Non-Revenue Water Reduction Capacity for Solomon Islands Water Authority[5]	Technical cooperation	Solomon Islands	October 2012 to October 2015		Yokohama Waterworks Bureau, Okinawa Prefectural Enterprise Bureau, Miyakojima City Water and Sewerage Department, Naha City Water Works
Project for Improvement of Urban Untreated Water Supply Schemes	Grant	Samoa	Grant agreement (G/A): February 2014	18.31	

[5] Project for Improvement of Non-Revenue Water Reduction Capacity for Solomon Islands Water Authority: Project Completion Report (Main Report)
https://libopac.jica.go.jp/images/report/12263976_01.pdf

Project name	Type	Country	Period/Year and Month of agreement	Grant/loan contract amount (in 100 million yen)	Cooperating/supporting water suppliers
Capacity Enhancement Project for Samoa Water Authority in Cooperation with Okinawa[6]	Technical cooperation	Samoa	August 2014 to August 2019		Okinawa Prefectural Enterprise Bureau, Okinawa City Waterworks Bureau, Naha City Water Works, Nago City Environment and Water Department, Nanbu Water Supply Authority, Ishigaki City Water Department, Miyakojima City Water and Sewerage Department
Project for the Study on Lae-Nadzab Urban Development Plan	Technical cooperation	Papua New Guinea	May 2015 to August 2016		
Project for Improvement of Water Supply System	Grant	Palau	Grant agreement (G/A): May 2015	18.43	
Project for Improvement of Water Reservoir at Majuro Atoll	Grant	Marshall Islands	Grant agreement (G/A): September 2020	17.57	

Source: JICA Countries & Regions: Oceania[7] and the ODA Visual Presentation Website[8]
See each project's information for cooperating/supporting water suppliers.

Table 5 Public-private partnership projects

Year of public announcement	Scheme	Study/project name	Proposing companies/third party human resources	Target country	Contract period
2012	Project potentiality study (SME support)	Survey on the Okinawa Miyako-jima Model: adopting renewable energy in Samoa	Joint Venture of Fukuyama Shoji Co., Ltd., Okiden System Co. Ltd., Nansei Shoto Industrial Advancement Center	Samoa	Completed
2012	Technical transfer, testing, and commercialization project (SME support)	Pilot survey for disseminating SME's technologies for Alaoa water treatment plant improvement project	Fukuyama Shoji Co., Ltd./CARBON FREE CONSULTING CORPORATION	Samoa	November 2013-March 2016

[6] JICA "Capacity Enhancement Project for Samoa Water Authority in Cooperation with Okinawa" Newsletter https://www.jica.go.jp/project/samoa/001/index.html
[7] JICA Countries & Regions: Oceania https://www.jica.go.jp/regions/oceania/index.html
[8] ODA Visual Presentation Website (Oceania) https://www.jica.go.jp/oda/regions/oceania.html

Year of public announcement	Scheme	Study/project name	Proposing companies/third party human resources	Target country	Contract period
2012*	Project potentiality study (SME support)	Preparatory survey on environmentally friendly soil absorption systems in the Solomon Islands and other Pacific Ocean Countries	Joint Venture of Taisei Kogyo Co., Ltd. and Original Engineering Consultants Co., Ltd.	Solomon Islands	Completed
2014	Project potentiality study (SME support)	Project potentiality study on mobile drinking water treatment systems	Ichigo Holdings Co., Ltd./CTI Engineering Co., Ltd., Japan Water Forum, Omae Ltd.	Federated States of Micronesia	November 2014-October 2015
2014	Project potentiality study (SME support)	Project potentiality study on introducing wastewater treatment systems to overseas island regions	Kawasetsu Corporation/Okinawa TLO, Omae Ltd., Global Business Development Research Institute	Fiji	October 2015-October 2016
2015*	Project potentiality study (SME support)	Project potentiality study on treatment of turbid water using a coconut fiber filtration system	Joint Venture of Nansei Environmental Laboratory Co., Ltd. and Wescot West Co., Ltd./CARBON FREE CONSULTING CORPORATION, Omae Ltd.	Samoa	July 2016-August 2017
2015	Technical transfer, testing, and commercialization project (SME support)	Verification survey with the private sector for disseminating Japanese technologies for a “resilient water station” utilizing natural energy	Ichigo Holdings Co., Ltd./CTI Engineering Co., Ltd., Omae Ltd.	Federated States of Micronesia	August 2016-April 2018
2016	Project potentiality study (SME support)	Project potentiality study on a solar powered seawater desalination system	Ace Water Treatment Co., Ltd./ Ocean Energy Engineering Corporation	Marshall Islands	November 2016-October 2017
2016	Project potentiality study (SME support)	Project potentiality study on creation of a business model for selling drinking water to local residents	Y’s Global Vision Co., Ltd./ CARBON FREE CONSULTING CORPORATION, Three Lamps Inc., Accenture Japan Ltd.	Papua New Guinea	September 2017-September 2018

Year of public announcement	Scheme	Study/project name	Proposing companies/third party human resources	Target country	Contract period
		using a seawater desalination unit			
2017*	Technical transfer, testing, and commercialization project (SME support)	Business verification survey with the private sector for environment improvement and reduction of risks against natural disaster using a bio-log filter	Joint Venture of Nansei Environmental Laboratory Co., Ltd. and Wescot West Co., Ltd.	Samoa	October 2019-October 2021

Studies with the "*" symbol are categorized into the environment and energy field, and others into the water purification and treatment field.

Source: JICA Countries & Regions: Oceania and JICA Pacific Island Country Development Agenda (October 12, 2017)[9]

Table 6 Grassroots technical cooperation projects

Adoption year	Scheme	Project name	Implementation group	Target country	Implementation year
2005	Local government-led project	Technical training on slow sand filtration systems and water supply management	Miyakojima City Waterworks Bureau	Samoa, Solomon Islands, Fiji (Nepal, East Timor, Laos)	2006-2008 (completed)
2009	Local government-led project	Water business support in Samoa using the Miyako-jima Water Supply Model	Government of Miyakojima City, Okinawa	Samoa	2010-2012 (completed)
2013	Special project for regional economy vitalization	Project to support reducing non-revenue water for Nadi-Lautoka water supply operation in Fiji	Fukuoka City Waterworks Bureau	Fiji	2013-2017 (completed)
2016	Special project for regional economy vitalization	Project to strengthen the Nadi-Lautoka water supply service	Fukuoka City Waterworks Bureau	Fiji	2017-2020 (ongoing)

Source: JICA Countries & Regions: Oceania
JICA Developing Nations Issues Awareness Seminar (Urban Water Supplies & Rural Water Supplies) on February 26, 2019[10]

The "Capacity Enhancement Project for the Samoa Water Authority in Cooperation with Okinawa" carried out in Samoa from 2014 to 2019 aimed at dissemination and expansion of the measures against non-revenue water within the Samoa Water Authority. It was a technical

[9] JICA Pacific Island Country Development Agenda (October 12, 2017)
https://www.jica.go.jp/priv_partner/activities/sdgsbvs/kaihatsu/ku57pq00002azxod-att/171012_oceania.pdf

[10] JICA Developing Nations Issues Awareness Seminar (Urban Water Supplies & Rural Water Supplies) on February 26, 2019
https://www.jica.go.jp/aboutoda/sdgs/news/ku57pq00002jdrb9-att/20190313_05.pdf

cooperation project that placed more importance on countermeasures against non-revenue water than on water quality. From municipalities that shared the "island" characteristics with Samoa, experts from various departments of the Okinawa Prefectural Enterprise Bureau, Okinawa City Waterworks Bureau, Naha City Water Works, Nago City Environment and Water Department, Nanbu Water Supply Authority, Ishigaki City Water Department and Miyakojima City Water and Sewerage Department were sent to Samoa to carry out technical cooperation. As a result, standards of procedure (SOPs) were created for pipeline work, water distribution management, water leak repair, water quality management, and water treatment plant operation and management. Also, the rate of achieving the target water pressure level increased in the subject water supply area, the water produced at the water treatment plant achieved 100% of its requirement standard, 24/7 water supply was achieved, and the percentage of non-revenue water dropped from 68% to 36%[11]. Furthermore, increased customer satisfaction led to increased connection to the water system and a higher fee collection rate, improving the Water Supply Authority's balance sheet. Currently, Phase 2 of this project is in process with the objective of expanding the countermeasures against non-revenue water to other areas.

For Fiji, the basic information on formulation of the yen-loan-financed project for the Fijian water and sewerage sector was collected and reported in March 2020. The information is therefore up-to-date[12].

From FY2016 and onward, various training programs have been provided. The Fukuoka City Waterworks Bureau held the JICA Knowledge Co-Creation Program (FY2019), the Okinawa Prefectural Enterprise Bureau hosted the JICA Knowledge Co-Creation Program (region focus) (FY2016, FY2017, and FY2018), the Nago City Environment and Water Department held the JICA Knowledge Co-Creation Program (region focus) (FY2018), the Nagoya City Waterworks & Sewerage Bureau provided the JICA Knowledge Co-Creation Program (FY2016, FY2017, and FY2018), and the Toyohashi City Waterworks & Sewerage Bureau had the JICA Knowledge Co-Creation Program (FY2018). Staff members of water suppliers in Oceania countries participated in these programs[13].

3-3 State of Pacific Island Regions and Countries

(1) Summary of the State of Pacific Island Countries

Pacific island countries are divided into Melanesia, Polynesia, and Micronesia. Each region has different characteristics. Melanesia has more land area and population than the other two. It also has potential for marine and mineral resource development.

Because of how islands were formed, Pacific countries are roughly divided into volcanic islands and coral reef islands. Volcanic islands created due to undersea volcanic activities have nutrient-

[11] JICA "Capacity Enhancement Project for the Samoa Water Authority in Cooperation with Okinawa" Newsletter LeSuavai Vol.21 https://www.jica.go.jp/project/samoa/001/newsletter/ku57pq0000204mhr-att/LeSuavai_Vol_21.pdf

[12] Data collection survey for the water supply and wastewater sector in the Republic of Fiji: final report. March 2020 https://libopac.jica.go.jp/images/report/12355244.pdf

[13] Japan Water Works Association "International Activities by Water Utilities" http://www.jwwa.or.jp/jigyou/kaigai_02.html

rich, fertile soil and frequent rain due to the high altitude. Their rivers make agriculture easier than on coral reef islands. It should be noted, however, there is no escape in a case of volcanic eruption, and damage tends to be extensive. Meanwhile, coral reef islands refer to islands whose foundation is a coral reef. If an island is formed on a ring-shaped coral reef, it is called an atoll. It surrounds a shallow lagoon. Outside the atoll is the deep open ocean. Both coral reef islands and atolls have low altitude. The soil's fertility and precipitation are both low. The limited land area makes agriculture difficult. The water resource relies on harvested rainwater and little groundwater.

Polynesia is a mix of volcanic islands, countries (Tonga and Samoa) with relatively fertile soil suitable for agriculture, and coral reef islands (Tuvalu, Niue, and Cook Islands). Micronesia has many coral reef islands and atolls. Their underground resources are scarce. Many countries have their national territory widely scattered.

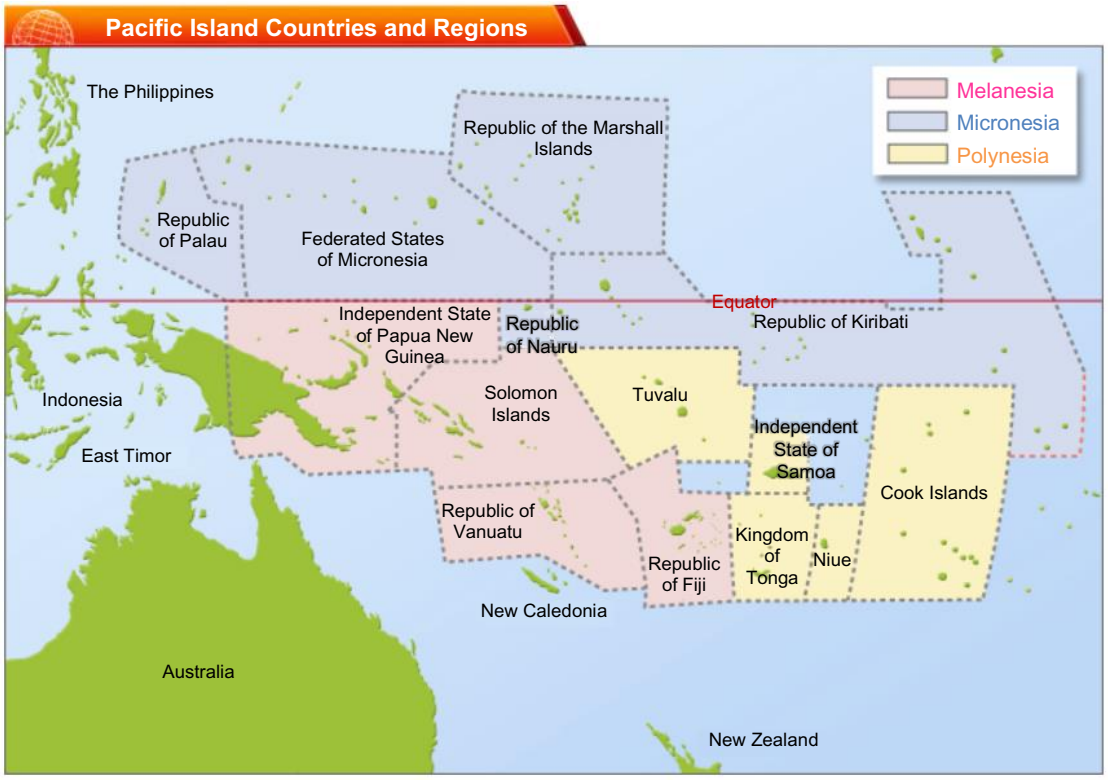

Figure 5 Location of Pacific island countries

Table 7 Population and land area of Pacific island countries

Region	Country/area	Characteristics	Population (in thousands) The World Bank, 2019	Land area (km^2) (MOFA Regional Index)
Melanesia	Papua New Guinea	Volcanic islands and coral reef islands	8,776.11	About 460,000
	Fiji	Volcanic islands	889.95	18,270
	Solomon Islands	Volcanic islands and coral reef islands	669.82	28,900
	Vanuatu	Volcanic islands and coral reef islands	299.88	12,190
Polynesia	Samoa	Volcanic islands	197.10	2,830
	Tonga	Volcanic islands	104.49	720
	Cook Islands	Coral reef islands and volcanic islands	About 18.6*	About 237
	Tuvalu	Coral reef islands	11.65	25.9
	Niue	Coral reef islands	1.52*	259
Micronesia	Kiribati	Coral reef islands	117.61	730
	Micronesia	Volcanic islands (east side) and coral reef islands	113.82	700
	Marshall Islands	Coral reef islands	58.79	180
	Palau	Volcanic islands and coral reef islands	18.01	488
	Nauru	Coral reef islands	12.58	21.1

*Source of the Cook Islands population: Asian Development Bank, 2018

*Source of the Niue population: Pacific Community (SPC), 2018

To understand the situation of each country's water supply sector, it is important to understand the results of baseline[14] and endline studies that take into account the SDG indicators, grasp the progress on the SDGs including Targets 6.4, 6.5, and 6.a that show the status of water supply and sanitation levels, and analyze how these findings connect to Target 6.1. Table 8 shows the SDG targets in the water area, and Table 9 lists SDG indicators for each Pacific island country. Since the UN database has the data on the SDG Target 6.1 monitoring indicator "Proportion of population using safely managed drinking water services" for only five countries, the table also includes the estimated proportion of the population using the basic drinking water service provided by the Joint Monitoring Program (JMP) of UNICEF and the World Health Organization (WHO). This indicates the proportion of the population using safely managed drinking water services and basic drinking water services from improved water sources. Here, safely managed drinking water services refer to water supply services that are located on premises, available when needed, and free from contamination via the fecal coliform indicator and high-priority chemical indicator. Basic drinking water services refer to water supply services via piped networks, boreholes, protected wells and springs, or rainwater harvesting that are available within 30 minutes round trip collection time.

[14] Studies to grasp the pre-project indicators (baselines) in the JICA Annual Evaluation Report 2012 https://www.jica.go.jp/activities/evaluation/general_new/2012/ku57pq000016rzgz-att/part02_02.pdf

Table 8 SDG targets in the water area

SDG		Target		Monitoring indicator	
Goal 6	Ensure availability and sustainable management of water and sanitation for all.	6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all.	6.1.1	Proportion of population using safely managed drinking water services
		6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.	6.4.1	Change in water-use efficiency over time
				6.4.2	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
		6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.	6.5.1	Degree of integrated water resources management implementation (0-100)
				6.5.2	Proportion of transboundary basin area with an operational arrangement for water cooperation
		6.a	By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies.	6.a.1	Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan
		6.b	Support and strengthen the participation of local communities in improving water and sanitation management.	6.b.1	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Table 9 SDG indicators for Pacific island countries (estimate)

Region	Country/region	SDG indicators 6.1.1					
		Safely managed drinking water services 2017 (UN SDG indicators database[15])		At least basic drinking water services* 2017 (JMP, 2019[16])			Urbanization rate % (JMP, 2019)
		All area	Urban	National	Rural	Urban	%Urban
Melanesia	Papua New Guinea	-	-	41	35	86	13
	Fiji	-	-	94	89	98	56
	Solomon Islands	-	-	68	61	91	23
	Vanuatu	44.1	-	91	88	>99	25
Polynesia	Samoa	58.8	-	97	97	>99	18
	Tonga	-	-	>99	>99	>99	23
	Cook Islands	-	-	>99	-	-	75
	Tuvalu	49.8	-	>99	99	>99	62
	Niue	97.2	-	98	-	-	44
Micronesia	Kiribati	-	-	72	-	-	53
	Micronesia	79.2	89.5	79	-	-	23
	Marshall Islands	-	-	88	94	87	77
	Palau	-	-	>99	>99	>99	79
	Nauru	-	-	>99	-	>99	100

*The table includes estimate of "at least basic" values for countries where the proportion of the population using safely managed water is not available although it should have been shown in the table.

*Proportion of the population using safely managed drinking water services from an improved water source (water supply services that are located on premises, available when needed, and free from contamination via the fecal coliform indicator and high-priority chemical indicator) and basic drinking water services from an improved water source (water supply services via piped networks, boreholes, protected wells and springs, or rainwater harvesting that are available within 30 minutes round trip collection time)

Since Oceania has high precipitation and a small population, many volcanic island countries traditionally used rainwater and mountain streams as water sources, and many atolls used rainwater as a water source[17]. As of 2017, 55% of the population had access to improved water sources in Oceania, which was the lowest rate in the world (lower than Sub-Saharan Africa). Use of surface water accounted for the largest segment, which was 38%. The region underwent the slowest improvement with respect to the 2000 status, suggesting that people continue to rely on their traditional water sources.

[15] United Nations https://unstats.un.org/sdgs/indicators/database/

[16] Progress on household drinking water, sanitation and hygiene 2000-2017, WHO/UNICEF Joint Monitoring Program, 2019

[17] JICA Thematic Guidelines: Water Resources, 2017

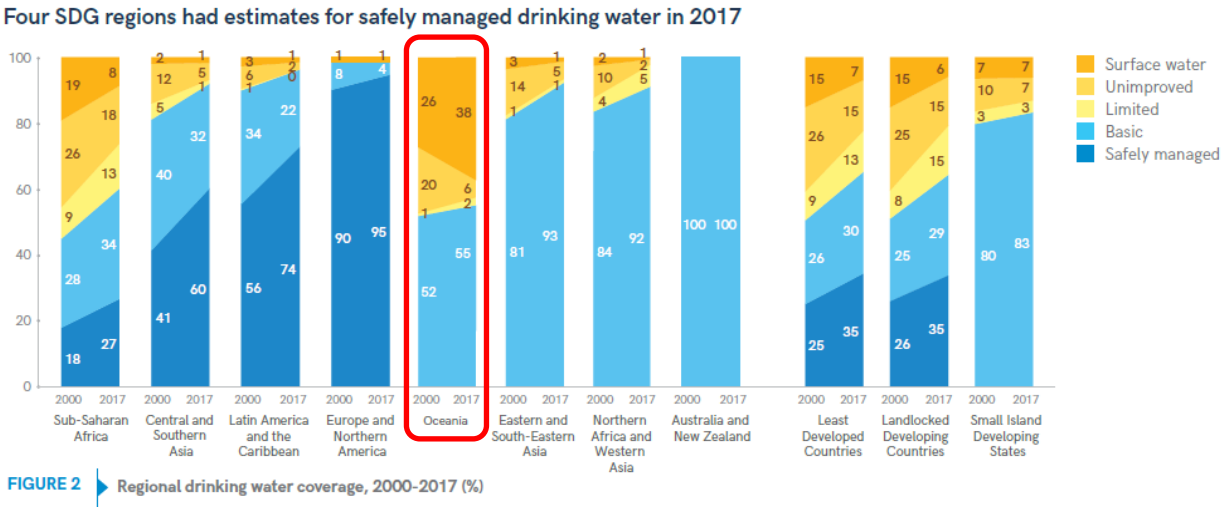

Figure 6 Use of drinking water by region

Source: Progress on household drinking water, sanitation and hygiene 2000-2017, WHO/UNICEF Joint Monitoring Program, 2019

(2) Economic Structure (MIRAB Economy)

Among Pacific island countries, Polynesian and Micronesian countries and regions in particular sustain themselves with government finance, which relies on foreign aid, and the national economy, which depends on money sent from emigrants abroad. Such an economy of a small island country is sometimes referred to as MIRAB economy. MIRAB stands for Migration, Remittances, Aid, and Bureaucracy.

Small island countries have several geographical issues: small national land and population, widely scattered territory, distance from major markets, and the surrounding ocean.

Since companies on these islands lack competitiveness due to the small economy, imports increase, often resulting in balance-of-payments deficits. The economy of these countries as a result tends to rely on aid from outside the Pacific (economic support). Many people from these countries emigrate overseas (migrant society), and money from them continues to be the main revenue source (remittance-reliant revenues). These countries are unable to retain human resources since their underdeveloped industry motivates educated human resources to seek employment outside the country. This leads to difficulty in maintaining and managing domestic business and equipment, resulting in increased vulnerability to natural disasters. Under the impact of climate change, the magnitude of natural disasters has been increasing in the past few years. The budget to respond to the damage heavily relies on the economic support from foreign countries, further solidifying their aid-reliant economic structure. The cash flow, which is mostly the aid, is then included in the domestic economy by government in the form of public officials' salary (bloated bureaucracy).

A MIRAB economy is an economic structure proposed in the 1980's by an Australian economist. As of today, many island countries are still stuck in this economic state.

The Compact of Free Association, or COFA, is the agreement signed between three countries, namely the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau, and the US when these countries became independent from United Nations Trust Territories governed by the US. COFA came into effect in 1986 for the Federated States of Micronesia and the Republic of the Marshall Islands, and in 1994 for Palau. These countries have been receiving financial support from the US and at the same time delegating national defense and security to the US. After receiving financial support for 15 years, all three countries renewed the agreement to extend the financial support from the US. This is one of the MIRAB economy examples in which, although countries aim for financial independence, they are still stuck in the aid-reliant economic structure.

(3) Examples of Effective Management of Vulnerabilities to Climate Change and Natural Disasters Introduced in the WPRO Report

Japanese cooperation activities with Oceania are often related to countermeasures against non-revenue water based on the belief that reduction of water leakage becomes a climate change adaption measure.

The grant aid project "Improvement of Urban Untreated Water Supply Schemes" in Samoa aimed to stabilize the supply of purified and safe water and improve health in three water supply areas in the capital Apia, where raw water had been supplied, by improving water intake systems and building water treatment plants, water conduits, and water distribution facilities. As for the construction method, the study concluded that pipes should be buried underground instead of using the already installed open piping to manage risks of stones or driftwood colliding with pipes during a flood caused by a cyclone for example[18].

Another grant aid project "Project for Improvement of Water Reservoir at Majuro Atoll" in the Marshall Islands involved creation of a new water reservoir in the water treatment plant, preparation of the water conduit attached to the reservoir, and strengthening of the revetment. By doing so the objective of the project was to increase the pondage, secure drinking and domestic water in case of a drought, respond to increased demand in the future, and contribute to anti-climate change measures of the Marshall Islands. Therefore, the project not only addresses vulnerabilities to climate change but also supports the country during the time of a natural disaster[19].

The WHO Western Pacific Region (WPRO) report "Sanitation, drinking-water and health in Pacific Island countries: 2015 update and future outlook"[20] touches on the state of responses to the rising sea level due to natural disasters, such as a hurricane, climate variability, and climate change. According to Section 7 of this report, *most Pacific island countries are vulnerable to*

[18] Final Report on the Preparatory Study for the Urban Water System Rehabilitation Plan in Samoa (January 2014) https://openjicareport.jica.go.jp/pdf/12146767_01.pdf

[19] Improvement of Water Reservoir at Majuro Atoll for the Republic of Marshall Islands: Pre-Project Evaluation based on the Government Policy Evaluation Method (September 17, 2020) https://www.mofa.go.jp/mofaj/gaiko/oda/press/shiryo/page22_001312.html

[20] WPRO Sanitation, drinking-water and health in Pacific island countries: 2015 update and future outlook https://iris.wpro.who.int/handle/10665.1/13130

disasters caused by floods, droughts, and climate changes and s*trengthening of the capacity to manage water and health issues during a disaster response can reduce the impact of the vulnerability to climate change*. With these comments, the report provides examples of effective actions in some island countries. Below is the introduction of examples of Fiji, Tuvalu, and the Solomon Islands.

[Emergency preparedness and response through national WASH (Water, Sanitation, and Hygiene) Cluster arrangements in Fiji)]

During the response to Cyclone Evan in 2012, the government of Fiji adopted the WASH Cluster (a system to better coordinate partner efforts to deliver WASH intervention during a disaster or emergency) as a humanitarian response to emergencies. The objectives of the WASH Cluster include quick return to normalcy to prevent spread of WASH-related diseases, strengthening of resistance of individuals and communities against climate change and disasters, identification of the most vulnerable community and strengthening of its ability to recover, activity optimization by sharing resources and information among agencies, and introduction of a drinking-water safety plan to ensure the ability to recover from risks and water safety. More specifically, the WASH Cluster has detailed requirements (e.g., definitions, actions, indicators, manuals) in the areas of drinking water supply, sanitation promotion, and waste disposal to prepare for emergencies. Furthermore, these requirements have been described in manuals that are visually easy to understand so that anyone can take part in quick, clean, and safe restoration and cooperate with each other across different areas[21].

This cluster system has been developed with the support of partner organizations including UNICEF, WHO, and UNDP. UNICEF assists emergency WASH intervention in the Pacific and, in its 2018 report, introduced activity case examples in Fiji, Kiribati, the Solomon Islands, Tonga, and Vanuatu[22].

[Sanitation solutions to heighten climate change resilience in Tuvalu and the Solomon Islands]

In Funafuti, the capital of the atoll nation of Tuvalu, a demonstration experiment of *eco-sanitation* was carried out, a toilet that did not use water. The experiment confirmed significant reduction of sewage pollution of groundwater and coastal water, reduction in the volume of fresh water used to flush the toilet, and generation of organic substances in soil. The use of fresh water was reduced by about 30%, which would be the amount of water to fill up an 80,000 to 100,000-liter rainwater tank per year per household. The experiment indicated that *eco-sanitation* played an important role in climate change response in Tuvalu.

Tuvalu is now actively sharing its findings about *eco-sanitation* with other Pacific atoll countries that are suffering from sewage pollution and water scarcity to meet demand.

A similar project has been implemented in the Solomon Islands by the Japanese government. As a FY2015 Model Project for Improvement of the Water Environment in Asia by the Ministry of

[21] Fiji Ministry of Health website http://www.health.gov.fj/tc-winston/water-sanitation-cluster/

[22] Pacific WASH in Emergencies Coordination Handbook UNICEF 2018 https://www.unicef.org/pacificislands/media/721/file/Pacific-WASH-Handbook.pdf

the Environment (MOE), the Eco-Friendly Toilet System Extension Project was carried out in the capital city of Honiara. With efficient and high-level technology, wastewater from the toilet is treated through soil absorption and evaporation without using power and discharging wastewater (reusable). It is hoped that introduction of this eco-friendly toilet system will supplement insufficient domestic effluent treatment due to the undermaintained sewage system, improve sanitation of the whole city, and play a role as an anti-climate change measure by addressing environmental issues such as river and ocean pollution[23].

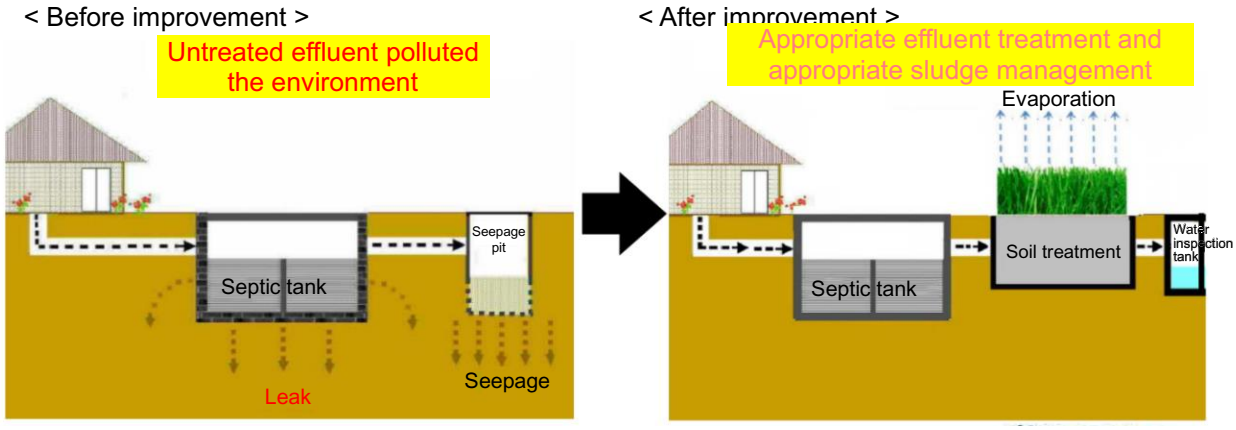

Figure 7 Improvement made by the eco-friendly toilet system

Source: Information material "Eco-Friendly Toilet System Extension Project in the Solomon Islands" from the Asian Water Environment Improvement Business Seminar, 2016[24]

[Initiative in the Solomon Islands: child-centered WASH risk mapping]

With the population and assets concentrated in a limited part of the country, the Solomon Islands have relatively higher disaster risks among Pacific island countries. UNICEF has analyzed child and WASH (water and sanitation) information in order to assess the impact of disasters on children, and the Solomon Islands were included as an analysis sample[25]. In risk mapping, child-centered risk assessment for each specific area was conducted for four factors, which were Hazard, Vulnerability, Exposure, and Capacity, and the number of risk maps to use to create a hazard map was chosen. Then, the specified formula was used to calculate the risk level of each area. Obtained risk levels were converted into a hazard map for practical use. The hazard map shows natural disaster risks that would affect WASH, such as earthquakes, floods, and typhoons. WASH is also included in the child vulnerability assessment indicator together with nutrition, education, health, and child protection.

This initiative is an example of facility management in which child-centered mapping of disaster

[23] Projects selected for MOE's FY2015 "Model Projects for Improvement of the Water Environment in Asia" http://www.env.go.jp/water/asia_business/adopt_h27.html

[24] Eco-Friendly Toilet System Extension Project in the Solomon Islands (2016) http://www.env.go.jp/water/asia_business/pdf/h27s_oec.pdf

[25] CHILD-CENTRED RISK ASSESSMENT Regional Synthesis of UNICEF Assessments in Asia https://www.preventionweb.net/files/36688_36688rosaccriskassessmentfeb2014.pdf

exposure levels of WASH facilities, which become hazardous in emergencies associated with climate change and natural disasters, and was conducted to understand facility vulnerability and promote facility improvement. In other island countries, too, risk mapping would minimize WASH risk by means of creating development programs based on the risk assessment result.

(4) Basic Policy and Focus Areas of Pacific Island Country Assistance

The table below shows the Japanese government's basic policy and priority areas of Pacific island country assistance. The common issues for 14 countries are climate change and natural disasters. The common task for Papua New Guinea, Fiji, the Cook Islands, Niue, and Palau is strengthening ("development" in the case of Fiji) of social, industrial, and economic infrastructure. The common task for the remaining 9 countries is overcoming of vulnerabilities.

The importance of the water system varies with the country. Countries for which the assistance project plan currently includes a water supply sector project, which includes training in Japan, are Samoa, Tonga, the Marshall Islands, the Solomon Islands, Papua New Guinea, Palau, and Fiji (seven countries). Details of the water supply sector project plan in line with the ODA policy of each country are provided in the reference material "country basic data."

Table 10 Basic policy and priority areas of Pacific island country assistance

Country	Basic policy of assistance (large goal)	Priority areas (medium goals)	Water-related project in the assistance project plan
Kiribati	Achieve self-reliant and sustainable economic growth and improve the national standard of living while being environmentally friendly.	Climate change and disaster prevention; overcoming of vulnerabilities	No
Vanuatu		Environment, climate change, and disaster prevention; overcoming of vulnerabilities	No
Samoa Tonga Marshall Islands		Environment and climate change; overcoming of vulnerabilities	Yes
Micronesia			No
Cook Islands	Strengthen the infrastructure to achieve self-reliant and sustainable development and improve the national standard of living.	Strengthening of infrastructure to realize sustainable development; climate change, environment, and disaster prevention; marine security, marine resource management, and development of marine transportation networks	No
Niue		Strengthening of infrastructure to realize self-reliant and sustainable development; climate change, environment, and disaster prevention; marine security and marine resource management	No
Tuvalu	Support strengthening of infrastructure to achieve self-reliant and sustainable economic growth while paying attention to climate change and vulnerabilities of an island nation.	Climate change and disaster prevention; overcoming of vulnerabilities	No
Nauru		Climate change; overcoming of vulnerabilities	No
Solomon Islands	Achieve self-reliant and sustainable economic growth by strengthening the social and economic infrastructure and improve the national standard of living.	Overcoming of vulnerabilities; environment, climate change, and disaster prevention	Yes
Papua New Guinea	Achieve sustainable economic growth by strengthening the social and economic infrastructure and improve the national standard of living.	Strengthening of the foundation for economic growth; improvement of social services; environment, climate change, and disaster prevention	Yes

Country	Basic policy of assistance (large goal)	Priority areas (medium goals)	Water-related project in the assistance project plan
Palau	Realize a sustainable ocean and achieve self-reliant and sustainable economic growth while being environmentally friendly.	Realization of a sustainable ocean; strengthening of the social infrastructure and foundation for industrial development; support for private sector investments; human resource development; climate change, environmental issues, and disaster prevention	Yes
Fiji	Achieve comprehensive economic and social development and support well-balanced nation building.	Infrastructure enhancement for economic development; addressing of climate change and environmental issues; improvement of social services	Yes

Source: The table has been created based on "Country Assistance Policy for Respective Countries" on the MOFA website[26]

3-4 Study Policy and Organization of Information about Studied Countries

(1) Study Policy

The objective of this year's study was to consider the strategy for more effective and efficient international cooperation for Pacific island countries in the area of water supply. The plan was to analyze similarities and differences with Asian and African regions that were studied in the past and put the analysis results together so that they could be referred to during the course of promoting the future international cooperation activities. For this purpose, the following study was conducted.

- Organization of information about the situation of each Pacific island country: for information that should be noted prior to implementing international cooperation, data was extracted from official information and organized.
- Interviews and surveys: interviews and surveys were conducted of those who had participated in an international cooperation project or mission in the areas of water supply in Pacific island countries to learn local information and their impression of the subject country.
- Water supply status study: information was collected and organized from public data reported in each subject country and Japanese international cooperation reports in addition to information obtained from interviews described above.

Situations of each country are organized in this chapter and reference materials. Details of interviews, surveys, and the water supply status study are described in the next chapter.

[26] MOFA website "Country Assistance Policy for Respective Countries" https://www.mofa.go.jp/mofaj/gaiko/oda/seisaku/kuni_enjyo_kakkoku.html

(2) Organization of Basic Data of Each Country

The general state of each Pacific island country that should be noted prior to implementation of internal cooperation is organized as follows.

1. Basic information: general information to understand the size and culture of the subject country
2. Economic situation: the economic situation and its background for the subject country
3. Water supply situation: the situation of the water system and rural water supply in the subject country as well as information unique to the country that needs special attention
4. ODA policy: a country-specific development assistance policy and the project plan
5. Relationship with Japan: the relationship between the subject country and Japan

Table 11 shows study items and information sources. If different data sources were used for different countries, all those used are listed. To obtain information on governance over water supply, JICA reports were studied if carried out in the subject country. If not, information was collected from the national strategy or annual reports on websites of relevant ministries and agencies as well as the water corporation of the subject country. The water supply coverage rate should show the proportion of the population who use safely managed water services. For countries without such data, the estimated proportion of the population who use the basic water supply services is shown.

Table 11 Items used to organize information on the situation of Pacific island countries

Category	Item	Required information	Study method and data source
1. Basic information	1. State of the nation	1. Area	MOFA Countries & Regions
		2. Population (in thousands)	World Bank[27], ADB, SPC
		3. Population growth (%)	World Bank[28], UN[29], SPC
	2. Politics	1. Government system	MOFA Countries & Regions[30]
		2. Former colonial power (or an equivalent state)	MOFA Countries & Regions
		3. Capital	MOFA Countries & Regions
	3. Society and culture	1. Ethnicity	MOFA Countries & Regions
		2. Language	MOFA Countries & Regions
		3. Religion	MOFA Countries & Regions

[27] World Bank: Population, total https://data.worldbank.org/indicator/SP.POP.TOTL
[28] World Bank: Population growth https://data.worldbank.org/indicator/sp.pop.grow
[29] World Population Prospects 2019 (United Nations) https://population.un.org/wpp/
[30] MOFA Countries & Regions: Regional Index https://www.mofa.go.jp/mofaj/area/pacific.html

Category	Item	Required information	Study method and data source
	4. Climate	1. Climate	Pacific Islands Center (PIC)[31], JICA reports, MOFA World Medical Service Situation, MOFA Overseas Diplomatic Establishment Website, Japan Meteorological Agency 30-Year Mean Climate Conditions by World City[32], Weatherbase[33]
	5. Travel	1. Note for travelers such as crime rates	MOFA Overseas Safety Website[34]
2. Economic situation	1. Index	1. GDP	World Bank, ADB
		2. GNI per capita	World Bank
		3. Economic growth rate	World Bank, ADB, SPC
		4. Inflation rate	IMF, ADB, SPC
		5. Unemployment rate	World Bank
		6. Literacy rate	UNESCO[35]
		7. Human development index (HDI)	UNDP 2019 (2018 data)[36]
	2. Overview	1. Overview of the economic state	MOFA Countries & Regions
3. Water supply situation	1. Dissemination	Water supplied population	JMP 2019 (2017 data)[37]
	2. Reference SDG indicator	Reference SDG indicator Proportion of the population using basic drinking water*	JMP 2019 (2017 data)
	3. Governance	1. National water supply strategy	JICA reports, public data of each country, websites of relevant ministries and agencies, etc.
		2. Water supply laws	
		3. Water quality standard	
		4. Financial base	
	4. Characteristics	Unique water supply condition	
4. ODA policy	1. Development cooperation policy	-	MOFA Country Assistance Policy for Respective Countries
	2. Project plan	-	MOFA ODA Project Plans
5. Relationship with Japan	Trade value	Export to/import from Japan	MOFA Countries & Regions
	Business expansion by Japanese companies	Japanese companies expanding their business to the country Number of Japanese people living in the country	MOFA Countries & Regions

[31] Pacific Islands Center (PIC) https://pic.or.jp/

[32] Japan Meteorological Agency 30-Year Mean Climate Conditions by World City
https://www.data.jma.go.jp/gmd/cpd/monitor/nrmlist/CountryList.php?rcode=05

[33] Weatherbase https://www.weatherbase.com/

[34] MOFA Overseas Safety Website https://www.anzen.mofa.go.jp/

[35] UNESCO eAtlas of Literacy https://tellmaps.com/uis/literacy/#!/tellmap/-1003531175

[36] UNDP Human Development Report 2019 http://hdr.undp.org/sites/default/files/hdr2019.pdf

[37] Progress on household drinking water, sanitation and hygiene 2000-2017: Special focus on inequalities, WHO/UNICEF Joint Monitoring Program, 2019
https://www.who.int/water_sanitation_health/publications/jmp-report-2019/en/

(3) Overview of Each Country

Table 12 shows basic information, economic indicators, the reference SDG indicator for the water supply status, and the characteristics of each Pacific island country. Information on all items above is organized for the 14 Pacific island countries as a reference at the end of this document. See the data sources for details of the water supply situation.

Table 12 Official information on Pacific island countries

Region	Melanesia	Melanesia	Melanesia	Melanesia	Polynesia	Polynesia	Polynesia
Country	Papua New Guinea	Fiji	Solomon Islands	Vanuatu	Samoa	Tonga	Cook Islands
Area (km^2)	About 460,000	18,270	28,900	12,190	2,830	720	About 237
Island characteristics	Volcanic islands and coral reef islands (Number of islands: over 600)	Volcanic islands (Number of islands: about 330 in various sizes)	Volcanic islands and coral reef islands (Number of islands: about 1,000 in various sizes)	Volcanic islands and coral reef islands (Number of islands: over 80)	Volcanic islands (Upolu, Savai'i, and seven small islands nearby)	Volcanic islands (Number of islands: 169)	Coral reef islands and volcanic islands (Number of islands: 15)
Population (in thousands) (2019)	8,776.109	889.953	669.823	299.882	197.097	104.494	About 18.6*(ADB, 2018) About 15.3 (SPC, 2020)
Population growth (2019)	2.0%	0.7%	2.6%	2.4%	0.5%	1.2%	0.4% (SPC, 2020)
Government system	Constitutional monarchy	Republic	Constitutional monarchy	Republic	A system resembling elective monarchy	Constitutional monarchy	Constitutional monarchy
Former colonial power	Australia	The UK	The UK	The UK and France	New Zealand	The UK	New Zealand
Capital city	Port Moresby	Suva	Honiara	Port Vila	Apia	Nuku'alofa	Avarua
Ethnicity	Melanesian	Fijian and Indian	Melanesian (majority), Polynesian, and so on	Melanesian (majority), Chinese, and so on	Samoan, mixed Samoan and European, and so on	Polynesian	Polynesian and mixed Polynesian
Language	English, pidgin, Motu, etc.	English, Fijian, and Hindi	English and pidgin	Bislama (pidgin English), English, and French	Samoan and English	Tongan and English	Cook Islands Māori and English
Religion	Mostly Christianity and some traditional faiths	Christianity, Hinduism, and Islam	Christianity and so on	Christianity	Christianity	Christianity	Christianity
GDP	24.97 billion USD (2019)	5.536 billion USD (2019)	1.425 billion USD (2019)	917 million USD (2019)	851 million USD (2019)	450 million USD (2019)	About 540 million NZD (ADB, 2018)
GNI per capita	2,780 USD (2019)	5,860 USD (2019)	2,050 USD (2019)	3,170 USD (2019)	4,180 USD (2019)	4,300 USD (2018)	Unknown
Economic growth	5.6% (2019)	1.1% (2019)	2.7% (2019)	2.9% (2019)	3.5% (2019)	0.3% (2018)	5.3% (ADB, 2019)
Inflation rate	3.68% (2019 estimate)	1.77% (2019 estimate)	1.83% (2019)	2.75% (2019)	2.19% (2019)	3.29% (2019)	0.8% (ADB, 2019)
Unemployment rate	2.6% (2011)	4.3% (2016)	0.7% (2013)	1.8% (2010)	14.5% (2017)	3.1% (2018)	No data
Literacy rate	61.6% (2010)	99.1% (2017)	76.6% (2009)	87.5% (2018)	99.1% (2018)	99.4% (2018)	No data
Human development index	0.543 (155th) (2018)	0.724 (98th) (2018)	0.557 (153rd) (2018)	0.597 (141st) (2018)	0.707 (111th) (2018)	0.717 (105th) (2018)	No data
Water supply coverage rate (country)	41*	94*	68*	44.1 91*	58.8 97*	>99*	>99*
Water supply coverage rate (village)	35	89	61	88	97	>99	-
Water supply coverage rate (city)	86	98	91	>99	>99	>99	-
Urbanization rate	13	56	23	25	18	23	75
Characteristics of water supply	Although untreated river water or rainwater is used in villages where managed drinking water is not accessible, the country has abundant water resources due to high precipitation[38].	Dams and rivers are the water sources[39]. Water from them is all distributed through natural flows. Well water and spring water are used in the interior.	Groundwater (from boreholes) and spring water are used in cities[40]. In villages, water from gravity water supply systems, well water, and rainwater are used[41].	Surface water, groundwater, and rainwater are used[42].	Rivers and spring water are water sources. It rains a lot[43]. Households outside cities use rainwater mainly.	Having no rivers, the water source for the urban water system is the underground aquifer. Water is collected from wells[44].	Water sources are groundwater, streams, and rivers. Rainwater is also harvested[45].

[38] Final Report on the Project for the Study on Lae-Nadzab Urban Development Plan in Papua New Guinea (2017)
[39] Data collection survey for the water supply and wastewater sector in the Republic of Fiji: final report. (2020)
[40] solomon-water-development-plan-2013-15
[41] Solomon Islands Rural Water Supply, Sanitation and Hygiene Policy 2014
[42] Vanuatu-National-Water-Strategy-2018-30
[43] Dissemination and Demonstration Project Completion Report for Improvement of the Slow Rate Sand Filtration Pond (Biological Purification Method) for the Alaoa Water Treatment Plant in Samoa (2016)
[44] Basic Design Study Report for the Nuku'alofa Water Supply Improvement Project in Tonga (1999)
[45] Cook Islands National Water Policy2016

Region	Polynesia	Polynesia	Micronesia	Micronesia	Micronesia	Micronesia	Micronesia
Country	Tuvalu	Niue	Kiribati	Micronesia	Marshall Islands	Palau	Nauru
Area (km^2)	25.9	259	730	700	180	488	21.1
Island characteristics	Coral reef islands (9 low islands are scattered)	Coral reef island (Niue Island only)	Coral reef islands (The country consists of three island groups. Except for one island, all islands have an altitude of less than a few meters)	Volcanic islands (east side) and coral reef islands (Number of islands: 607, of which 65 have residents)	Coral reef islands (Number of islands: 1200 or more)	Volcanic islands and coral reef islands (Number of islands: About 200)	Coral reef island (Nauru Island only)
Population (in thousands)	11.646	1.52* (SPC, 2018) 1.60 (SPC, 2020)	117.606	113.815	58.791	18.008	12.581
Population growth (%)	1.2%	-1.2% (SPC, 2020)	1.5%	1.0%	0.6%	0.6%	-1.0%
Government system	Constitutional monarchy	Constitutional monarchy	Republic	Presidential system	Presidential system	Presidential system	Republic
Former colonial power	The UK	New Zealand	The UK and the US	The US	The US	The US	Australia, New Zealand, and the UK
Capital city	Funafuti	Alofi	Tarawa	Palikir	Majuro	Melekeok	Yaren
Ethnicity	Polynesian	Niuean (Polynesian)	Micronesian	Micronesian	Micronesian	Micronesian	Micronesian
Language	English and Tuvaluan	Niuean and English	Gilbertese and English	English and eight local languages	Marshallese and English	Palauan and English	English and Nauruan
Religion	Christianity	Christianity	Christianity	Christianity	Christianity	Christianity	Mostly Christianity
GDP	About 47 million USD (2019)	24,938 USD (SPC, 2018)	195 million USD (2019)	402 million USD (2018)	221 million USD (2019)	284 million USD (2019)	118 million USD (2019)
GNI per capita	5,620 USD (2019)	Unknown	3,350 USD (2019)	3,400 USD (2018)	4,860 USD (2018)	17,280 USD (2018)	14,230 USD (2019)
Economic growth	9.8% (2019)	-1.2% (SPC, 2018)	2.2% (2019)	0.2% (2018)	3.6% (2018)	1.7% (2018)	6.1% (2018)
Inflation rate	2.18% (2019 estimate)	2.2% (SPC, 2018)	-1.88% (2019 estimate)	1.86% (2019 estimate)	1.2% (2019 estimate)	0.61% (2019)	4.3% (2019)
Unemployment rate	No data	No data	9.3% (2015)	8.9% (2014)	4.7% (2011)	1.4% (2014)	13.3% (2013)
Literacy rate	No data	No data	No data	No data	98.3% (2011)	96.6% (2015)	No data
Human development index	No data	No data	0.623 (132nd) (2018)	0.614 (135th) (2018)	0.698 (117th) (2018)	0.814 (55th) (2018)	No data
Water supply coverage rate (country)	49.8 >99*	97.2 98*	72*	79.2 79*	88*	>99*	>99*
Water supply coverage rate (village)	99	-	-	-	94	>99	-
Water supply coverage rate (city)	>99	-	-	-	87	>99	>99
Urbanization rate	62	44	53	23	77	79	100
Characteristics of water supply	Rainwater is the main supply source. Groundwater and seawater desalination plants are also used. Despite high precipitation, the country suffers water shortages[46].	Groundwater and harvested rainwater are used[47].	Water sources are limited to rainwater, groundwater (usually within 2 meters from the surface), imported water, and desalinated seawater[48].	With high precipitation, most islands can cover drinking water with rainwater in normal times. During a disaster or extreme weather, the country suffers water shortages. Emergency water transportation is sometimes carried out[49].	The country heavily relies on rainwater. The water treatment plant, which accounts for about 65% of water supplied by Majuro Water and Sewer Company, collects rain on airport runways, stores it in a reservoir, and uses it as the water source[50].	River water is the water source. The country has high precipitation and a stable water source. El Nino sometimes causes droughts. Many residents purchase bottled drinking-water, which is membrane-filtered water from waterworks[51].	The country has no surface water. Groundwater, which contains both rainwater and salt water, is used for non-drinking purposes. For drinking, water is supplied mostly from the seawater reverse osmosis plant[52].

*The table includes estimate "at least basic" values for countries where the proportion of the population using safely managed water is not available although it should have been shown in the table.
*Proportion of the population using safely managed drinking water services from an improved water source (water supply services that are located on premises, available when needed, and free from contamination via the fecal coliform indicator and high-priority chemical indicator) and basic drinking water services from an improved water source (water supply services via piped networks, boreholes, protected wells and springs, or rainwater harvesting that are available within 30 minutes round trip collection time)

[46] Tuvalu Sustainable and Integrated Water and Sanitation Policy, 2011nov30
[47] Niue National Strategic Plan 2016 - 2026
[48] 2007Nov SOPAC IWRM Diagnostic Report Kiribati
[49] Project Report on Dissemination and Demonstration of a Natural Energy-Enabled Disaster-Resilient Water Station in Micronesia (2018)
[50] Grant Aid-Based Cooperation Project Outline: Improvement of a Water Reservoir at Majuro Atoll (2018) https://www.mofa.go.jp/mofaj/gaiko/oda/files/000428239.pdf
[51] Palau Water and Sewage System Improvement Plan Preliminary Survey Report (2015)
[52] Water Supply, Sanitation & Hygiene (WASH) Training of Trainers for Nauru, SPC 2015 https://www.pacificclimatechange.net/sites/default/files/documents/4.%20Nauru%20WASH%20training%20report.pdf

Chapter 4　Questionnaire Survey

4-1　Implementation Details

Based on the outcomes of summarized materials discussed thus far, an interview-based survey was conducted on the existence and contents of political guidelines for the SDGs of target countries, as well as on future needs in light of possible cooperation with our country's water providers.

Simultaneously, information was gathered from, and opinions exchanged with, experts from JICA, water providers, and the private sector, who have assumed practical operations of project planning and reporting accomplishments since the inception of the project. The information gathered focused on comprehending the results of and circumstances surrounding activities, practical issues, and future activities worthy of implementation.

4-2　Survey Methods

During committee meetings, individuals who had traveled to the respective sites gave presentations on the issues of water supply on the islands; interviews were also conducted. Information was kept current by conducting remote interviews and questionnaires with those working in Japanese water supply utilities with on-site experience. Questionnaires were also e-mailed to relevant entities on site introduced through those who had traveled there. Queries focused on the water supply situation in the country concerned; its background with international cooperation; and its history, achievements, and challenges. Further, information on local politics, safety, and daily life were collected to be referenced for international cooperation projects in each country.

Table 13 shows survey methods, Table 14 shows survey details, and Tables 15 and 16 show the questions from the interview and questionnaire.

Table 13 Survey Methods

Time/Period	November–December 2020
Respondent	JICA, water provider, or private sector water supply and sanitation personnel with experience in projects related to water supply in the Pacific Islands
Survey Method	Committee presentation and interview Interview via web conference E-mailed questionnaire

Table 14 Survey Details

Survey Item	Question
Basic Information on Water Supply	• Collect basic data on each Pacific Island country’s water utility projects.
Initiatives Examined for Advancing SDGs	• Verify national policies and implementation plans for achieving SDGs in general. • Understand the entities promoting the SDGs, the circumstances of their system, and the likelihood of collaboration especially on SDG 6. • Verify requests from those in the locale.

Survey Item	Question
Relationship with Other Sectors	• Verify organizations related to the sectors for water supply and sanitation and the history of their founding and activities. • Inquire whether, in practical terms, these organizations are conducting policy management with the SDGs in mind. • Verify requests from those in the locale.
Likelihood of Cooperation with Japanese Water Provider and Japanese Business Advancement	• Verify the water utility situation in each Pacific Island country and understand the assistance needs related to water supply administration by exchanging viewpoints on issues and visiting the site. • Discuss the experiences of Japan's water providers and the requirements of Japanese technical products and services.
Information on Local Daily Life	• Collect information on points to note when traveling to and working on site.

Table 15 Questionnaire Survey Items (Regarding Water Supply)

Category	Item	Necessary Information	Question
1) Data Collection	1-a) Water supply system coverage	Method of calculating population, consumers per water provider	How, by whom, and how often are population data (censuses) collected? How, by whom, and how often are the population served by water providers counted?
	1-b) Number of connected households or connected population	Method of calculating the number of connections per provider	How, by whom, and how often are the number of connections counted? How are the number of connections and households differentiated? How are the connected households and the connected population calculated?
	1-c) Time water supplied	Method of calculating water supply times for connections per provider	Are records of water supply times available? What is the program employed if water is supplied on an area-by-area basis?
	1-d) Water rates	How water rates are determined for each provider	Is justification for the water rates clarified?
	1-e) Water quality monitoring	Method and frequency of interpreting water quality, control items	Can they explain the items to be inspected against water quality standards, the frequency of water quality inspections, and the inspection point?
	1-f) Other	Other (matters related to monitoring the SDGs)	Are there any other organizations involved in monitoring the SDGs or other items of note?
2) Priority Issues	2-a) Issues related to water administration	National goals and plans, legislation related to water supply, division of duties between urban and rural areas	What are the administrative systems and organizational structures for spreading and promoting water supply development and rural water supply, as well as that of legislation, such as water supply acts? Are there any challenges present in these administrative systems?

Category	Item	Necessary Information	Question
	2-b) Issues related to urban water supply	Urban water supply system, pervasion and promotion, NRW reduction measures, and water quality control	What is the situation with and what are the challenges present in urban water supply, including measures for non-revenue water reduction and for water quality (chlorination) control?
	2-c) Issues related to rural water supply	Pervasion and promotion, groundwater pollution control	What is the situation with and what are the challenges present in rural water supply, including measures for pervasion of water supply through rural areas and for groundwater pollution control?
	2-d) Issues related to organizational management	Maintenance improvement, training system	What is the situation with and what are the challenges present in facility maintenance from technology and financial viewpoints? What is the situation with and what are the challenges present in training personnel?
	2-e) Issues related to public relations and customer communication	Fee collection, public relations system, relationship-building with customers	What are the means of public relations, tools for communicating with customers, and methods of dealing with complaints? How well-known are Japanese projects?
	2-f) Current important issues	Relationship between SDGs and policy objectives, issues to prioritize	What are the issues that should be prioritized for achieving SDG 6, including all of the above? To that end, what sort of cooperation is expected from development partners?
	2-g) Human resource development and personnel management system	Management and waterworks staff employment and training	What was the system for deciding qualifications and how to develop waterworks engineers, employ staff at managerial and engineering levels, and promote and pay them?
	2-h) Assistance from other countries	Relationship-building with other countries	What are the country's existing relationships with countries other than Japan, and what aid is it getting from them? What should Japan draw on concerning financial value, target sectors, approach to involvement, and sense of speed?

Source: JICWELS, "FY2017 Report on the Project to Review International Cooperation in the Water Supply Sector" https://www.mhlw.go.jp/content/10900000/000360547.pdf

Table 16 Field Survey and Interview Items (Living Conditions)

Category	Item	Necessary Information	Question
3) Basic Information on Daily Life	3-a) Politics and public peace and order	Points to note when working on location	Political stability, conflict risk, fraud and corruption risks, reputational risk, and public order
	3-b) Society and culture		Noteworthy points such as religious rules and taboos, gender-friendliness, and slums
			Local residents' attitudes toward work
	3-c) Daily life (languages)		Whether English or French suffice for communication
	3-c) Daily life (means of travel)		Means of travel other than rental car

Category	Item	Necessary Information	Question
	3-c) Daily life (food)		Whether alcoholic beverages are permitted, noteworthy points about sanitation as related to food and water
	3-c) Daily life (illness)		Diseases requiring precaution, the need for medication and vaccines
	3-c) Daily life (finance, communication)		Noteworthy points about getting money, payment methods, prices and procurement of essentials, hotel and telecommunications contracts
	3-d) Other		Other noteworthy information regarding daily life
4) Country Overview			In brief, what sort of country is it and what are its unique attributes?

4-3 Summary of Survey Results

Information was obtained from eight individuals and five countries: Fiji, Samoa, Tonga, Papua New Guinea, and the Marshall Islands. Table 17 shows the target countries and the respondents' history of activities.

Table 17 Target Country and Respondent's History of Activities

Respondent	Target Country	Visit Timing	Respondent's History of Activities
A	Fiji	1999–2000	JICA operations, distribution network analysis, water resource survey, water intake planning and design
		2019–2020	JICA operations; survey current financial circumstances, plans, and trends of other donors with regard to water resources, water supply and sewerage, unaccounted-for water; and organization
B	Fiji	2014–2017, 2018–	JICA Grassroots Technical Cooperation Project
C	Fiji	2013	Lectures and site inspections
		2014–2018	Advised on government projects as a short-term specialist on JICA water treatment technology, supported activities as a JICA volunteer. Provided guidance for installation of purification equipment, drafted design drawings and maintenance guidelines, and provided on-site instruction.
	Samoa	2009	Provided JICA training follow-up. Surveyed site (investigated reasons for water treatment plant occlusion, drafted water treatment plant drawings and guidelines survey, and searched for water resources).
		2010–2013	Grassroots Technical Cooperation Project. Observed hands-on maintenance of water treatment plant maintenance and advised on methods of improvement. Advised Water Works.
		2014–2019	JICA professional engineer. Improved management via water leakage countermeasures, maintained water treatment plant.

Respondent	Target Country	Visit Timing	Respondent's History of Activities
D	Samoa	2015, 2016	Surveyed and improved the Samoa Water Authority water quality management system and conducted water quality survey in the waterworks area of Alaoa Water Treatment Plant as a JICA volunteer (water quality specialist).
E	Samoa	2016–2017	JICA volunteer (water examination). Aided water resource management projects at the Ministry of Natural Resources and Environment. Conducted water examination and water resource management.
F	Tonga	2019	Conducted and managed operations commissioned by the Ministry of Health, Labour and Welfare. Advised and provided guidance for planning based on data related to potential needs and challenges (facility maintenance, management and maintenance, human resource development, etc.).
G	Papua New Guinea	2009–2011	Japan Overseas Cooperation Volunteers
		2017–2019	Participated in sewerage project as a consultant.
H	Marshall Islands	2019	Took part in the Project for Improvement of Water Reservoir at Majuro Atoll as a JICA lead

Details regarding the survey results are described in a separate document. The work as well as the time and period of stay on site were not the same for all respondents, and locations for stay were sometimes limited to the project site vicinity. Further, the nature of the work sometimes complicated respondents' abilities to grasp the level at which the queries could be satisfied, causing answers to vary slightly. What follows is a summary of the characteristics of each country and points of note specific to island countries. Bracketed content will indicate (1, 2) the year in which the findings were confirmed on site and the corresponding country, while (3) indicates the name of the country alone, as impressions are those of the survey respondent.

(1) Issues concerning Urban and Rural Water Supply

1) Present State of and Issues concerning Water Administration

- Although the legal system and standards have been established, there are issues with operational capabilities. Municipalities lack operational capabilities and public corporations operate water utilities (2019, Fiji).
- There is a tendency to prioritize the volume of water more than its quality and to prioritize development and expansion over non-revenue water control (2019, Fiji).
- Some confusion has occurred during the ongoing merger between Eda Ranu, the capital's water and sewerage provider, and Water PNG, a local water and sewerage provider (2020, Papua New Guinea).

2) Present State of and Issues concerning Urban Water Supply

- PET-bottled water is consumed in lieu of tap water, which has poor water quality (2018, Fiji).
- Reliable water supply is prioritized over water quality management, and water continues to be conveyed even if the raw water is not sufficiently treated due to its high turbidity. Each consumer

understands this and consumes the water supply according to the quality at the time it is obtained. (Unfiltered water is not generally consumed. The use of an equalization basin was proposed to adjust raw water turbidity.) (2019, Samoa)

- Despite efforts at pervasion of water supply systems with donor aid, communities surrounding supplied areas are too far away and require extensive pipe lengths to be incorporated into the water service area (2019, Tonga).
- The government develops widely in the capital, but pervasion is falling behind the increasing population in the suburbs (2019, Papua New Guinea).
- Non-revenue water rate is high. Attention paid to leak repairs could be said to be high in the capital (2019, Papua New Guinea).

3) Present State of and Issues concerning Rural Water Supply

- Ecological purification systems (EPSs, like slow sand filtration) is recognized as an adequate technique and is being developed nationwide (developed in 10% of rural communities). The government provides necessary materials and water quality inspections free of charge (2018, Fiji).
- The use of wells, jointly funded water supply, and developer-led water supply development fills gaps left in areas where public water supply systems are yet to be developed. These measures often see problems with water quantity and quality (2018, Fiji).
- Some areas don't have water treatment plants, have long relied on the utilization of rain water, and lack water quality standards and quality measurement. Some areas not managed by the Samoa Water Authority (SWA) rely on raw water. SWA is proactively designing and building EPSs using water service projects in Fiji's rural communities as references (2016, Samoa).
- Water services are lacking in terms of water quantity and quality. Plans to improve water service to remote islands are underway (Tonga, 2019).
- Donors are being sought for ongoing updates to rural community water service utilities (2019, Papua New Guinea).
- Few wells are to be found and communities often rely on spring water and rain water for use. (Wells are often built by NGOs, but local residents are unable to build wells themselves.) (2019, Papua New Guinea)

4) Present State of and Issues concerning Water Supply Management

- Water rates are either free or very cheap, and revenue from water services do not cover costs incurred in supplying water and maintaining and updating supply systems (2019, Fiji).
- Despite an increased focus on resort development and water supply to them, results have not been satisfactory (2019, Fiji).
- Facility maintenance is improving. Urban facilities receive overseas assistance, while the Government of Samoa supplies water to facilities in rural communities free of charge (2016, Samoa).
- Systems are self-supporting and have achieved full cost recovery. The government is trying to introduce legal measures that require public utility companies to pay dividends of 100% of their

net income, which poses a financial threat (2019, Tonga).
- Donor support goes primarily to facilities development on Tongatapu, the island where Tonga's capital is located, while more remote islands receive insufficient funding for the development of and updates to water supply facilities (2019, Tonga).
- The water supply business is self-supporting. Although general maintenance and repairs are resolved without outside assistance, initial investment of large-scale facilities must often come from international assistance (2019, Papua New Guinea).

5) Present State of and Issues concerning Human Resource Development and Personnel Management Systems
- Turnover of experienced maintenance staff poses a challenge. Employment renews every three years, which presents the challenge of staff having to pick up where predecessors have left off (2018, Fiji).
- It is not unusual for an individual to acquire skills through training abroad and later prefer not to return to one's country of origin to share said skills, the lower salary being a deterrent factor (2019, Samoa).
- Due to lack of experience, some trainees had difficulty understanding JICA's Knowledge Co-Creation Program. Some trainees put the career expertise gained through training to use not in their countries of origin but elsewhere (2019, Samoa).
- Staff working conditions are stable and the managerial level is excellent. There is no in-house training system in place (2019, Tonga).
- The government intercedes in personnel affairs. Staff are excellent and hierarchies are strict. Educational backgrounds are more highly valued than experience. Factionalism (according to ethnic group) has significant effects on knowledge sharing (2019, Papua New Guinea).

6) Top Priority Issues
- Lack of water resources poses a challenge. Demand is increasing without sufficient resources (2018, Fiji).
- Water leakages pose the greatest challenge. The collaborative project with Okinawa has enabled improvements (2016, Samoa).
- Water supply to rural areas and remote islands are in urgent need of improvement (2019, Tonga).
- Water leakage poses a challenge. While there are issues with labor shortages and disorganization with regard to materials and procedures, lack of funding poses the greatest challenge (2019, Papua New Guinea).

7) Other
- Projects by the Asian Development Bank (ADB) and World Bank (WB) are quickly and widely implemented. Australia, the European Union (EU), and New Zealand appear to be proactive forces (2018, Fiji).
- Operations are being conducted according to the standard operating procedures (SOP)

determined by the JICA Technical Cooperation Project. SOP-guided technical transfer seem to be successful. (Respondent received e-mail after returning to Japan.) (2019, Samoa)

- The EU and New Zealand appear to be proactive forces. Country receives large sums of funding from China (2018, Samoa).
- Geographic proximity to Australia affects all affairs. Australia's success stories (such as the mapping system) are often touted directly to the top levels of the Government of Papua New Guinea. Development is underway in the absence of a control chart (2019, Papua New Guinea).

(2) Points to Be Noted Specific to Island Nations in the Course of Business

1) Customs

- Individuals may enter rural communities only with permission from the community's leadership (2018, Fiji).
- Community ties are strong. Leaders or chiefs (matai) must be approached by going to the community in question and by way of the Samoan people (2019, Samoa).
- Community ties are strong. Communities bear a strong sense of in-group cooperation (2019, Papua New Guinea).
- With approximately 700 ethnic groups with often conflicting interests, national leaders who cannot reconcile these conflicts will find their efforts stymied (2019, Papua New Guinea).

2) Land Use

- Many countries of the Pacific Islands do not operate on contemporary ideas of land ownership, and land management is often left to successive community leaders. In the Marshall Islands, it is common for these landowners to enter into a long-term loan contract with the government at government-controlled prices (cheaper than market prices) for various situations, including public works projects such as electricity and waterworks and for government officials' residences. JICA's projects, however, must comply with the JICA Guidelines for Environmental and Social Considerations, wherein borrowing at market price is the standard. It then becomes necessary to prove an appropriate basis for leasing land for a fee cheaper than the market price (discussions and agreements with landowners, for example). (2020, Marshall Islands)
- Soil structure composed of coral reef is difficult to build on in the absence of builders with appropriate knowledge and experience. Further, only a limited number of companies have excavation equipment, and their use in one project may complicate access to them for another project. These situations require prior knowledge of the circumstances and careful preparation, including personnel selection, construction period, and construction method (2020, Marshall Islands).
- Because land available for construction is limited in island countries, description of the project to the respective country's government officials or local community members may require careful measures, including the use of photovoltaic (solar power) generation panel yards on the upper layers of reservoirs, effective use of narrow land, and the like (2020, Marshall Islands).

- When surveying water resources like springs and wells, it is important to have local departments and agencies speak to relevant communities, who may otherwise see their water resources as being stolen from them (2018, Fiji).
- The country owns the land, which may be leased cheaply (2019, Tonga).
- Ownership may be unclear, requiring talks with both national officials and local communities (2019, Papua New Guinea).

3) Procurement of Materials
- When repairing water leaks, pipe material is primarily procured from New Zealand, as procurement from Japan proved impossible (2019, Fiji).
- Materials for pipeline rehabilitation are procured from New Zealand (2019, Tonga).
- Construction materials are procured smoothly from Australia and China (2019, Papua New Guinea).

4) Disaster Response
- While there is seismic activity, aseismic measures have not been taken. Cyclones hit annually, interrupting training (2019, Fiji).
- Earthquakes and tsunami do occur. Cyclones hit annually. In the aftermath of a cyclone, water purification systems clog with muddy water and suspend water supply for approximately three days (2019, Samoa).
- There are no significant earthquakes. Undergrounding of electric cables and well reinforcement are underway in preparation for cyclones (2019, Tonga).
- There are many earthquakes, and while Japanese technology is regarded highly in the capital, stakeholders often prioritize finances by procuring cheaper materials from China (2019, Papua New Guinea).
- Rainfall occurs even in the dry season. There are no cyclones. Approximately 90% of the country's residents live in the jungle (2019, Papua New Guinea).

5) Miscellaneous Points of Note
- When site development draws concerns about environmental destruction, observe environmental groups and academics paying close attention to environmental destruction. It is crucial to reach an understanding through dialogue and clarification of the project with these parties before pursuing the project (2020, Marshall Islands).
- Developments on island countries often require stakeholders to consider durability against the tides, and so building materials must be selected with adverse effects of salination in mind (2020, Marshall Islands).
- It must be noted that circumstances change between the rainy season and dry season (2019, Fiji).

(3) Cooperation between Pacific Island Countries (Respondent Impressions)

- It would be ideal for trainees from surrounding countries to convene in Fiji, but the small and spare training center would require a little more development to be fit for welcoming trainees from elsewhere (Fiji).
- The spirit of cooperation between countries of the Pacific Islands is not weak, and there may be a possibility that the island countries will implement a training program to improve technical skills. The assumption is, however, that costs will be borne separately (Samoa).
- Samoa and Fiji interact on a daily basis. Perhaps some manner of proactive engagement is forthcoming (Tonga).
- There does seem to be an intention to participate. It's possible Papua New Guinea will consider its urban scale and invite other countries (Papua New Guinea).

4-4 Summary of Survey Results

The above was a collection of views on international cooperation and water supply in each of the target Pacific island countries. Survey results indicate each island country is quite distinct from the next and treating the island countries as a monolith would be a mistake. What follows is a summary of points to note when cooperating internationally with regard to water supply systems.

(1) Commonalities between the Island Countries

1) Encouragement of a Mentality That Makes Effective Use of Limited Water Resources

One must note the differences in perception of water use across the Pacific Island region. Being composed of small communities where an abundance of rain water and mountain streams precluded any early sense of water shortage. Island communities must now contend with such shortages amid modernization that has led to an increase in demand for water and unaddressed water leakage.

In general, water supply systems have difficulty sustaining themselves. With few consumers, providers make little income from water service charges. Materials and equipment are imported and expensive. Pacific Islanders emigrate to work overseas in Australia or New Zealand.

2) Influence of Oceania's Major Powers

Even in the subject of water supply, all of the Pacific Island region feels keenly the influence of the major Oceanic powers, Australia and New Zealand. The two nations' originally belonging to the Commonwealth of Nations headed by the British monarchy is presumed to be a factor, in addition to proximity.

Their influence on Fiji is relatively small, however; a military coup led the island country's stepping away from the Commonwealth, and the Fijian government has on occasion condemned the leadership of both Australia and New Zealand. (There is room, on the other hand, for improvement in governance.)

- Meters are installed for fee collection and there is an awareness of the amount of collection necessary to manage water service. Although there are problems, the island countries in question fare better than low-income countries in other regions, and the idea is to make British-style investments with income from water charges. There is, of course, government interference in matters of personnel and income.
- In terms of personnel, differences in treatment compared to personnel in other industries or in private companies affect staff retention and motivation. Increasing worker motivation will require some ingenuity.

(2) Points of Note concerning Differences between Countries

While the target countries do share a difficulty in managing water supply, degrees of difficulty can be roughly divided according to the size of the island. Of those surveyed, the island countries are divided thus: large and very large island countries (Papua New Guinea), relatively large volcanic island countries (Fiji), and small island countries composed primarily of coral reefs (the respective countries composing Micronesia).

1) Differences in Water Resource Conditions

Generally, acquisition of water resources and the circumstances thereof varies greatly depending on the size and soil dispersibility of the island, precipitation, availability of groundwater (degree of saltwater intrusion), and other geographical factors. Further, the criteria for determining whether domestic water is being supplied are not necessarily universal, complicating the ability to assess the difficulty of such a task (which cannot be determined by simply comparing countries according to SDGs). It is necessary to carefully consider these unique geographical circumstances.

- The primary issues in countries of a certain size (i.e., Papua New Guinea, Fiji, and Samoa) are water quality management of surface water resources and other such issues in general water supply. Larger scales of business enable the possibility of aiming for sustainable water supply system management.
- Small atolls like the countries composing Micronesia experience particular difficulty securing water resources. Further, the national economy relies on remittances and assistance from emigrants and migrant workers, making autonomous water supply management extremely difficult. Although water supply rate figures in the SDGs Index tend to be high in Micronesian countries, this is likely due to the inclusion of desalinized seawater and imported water. International cooperation concerning water supply systems are therefore also considered humanitarian aid. (For example, the Marshall Islands is supplying water in a specialized manner, through a project funded by an Official Development Assistance Grant wherein runoff from an airplane runway is impounded as a water source.)

2) Differences in Cultural and Economic Foundations

The economic foundation of each island country is influenced by its scale and historical background, which must be considered on a country-by-country basis.

- Countries of a certain size (i.e., Papua New Guinea, Fiji, and Samoa) also have larger economies that enable the possibility of aiming for sustainable water supply system management.
- In small atolls like the countries composing Micronesia, national economies rely on remittances and assistance from emigrants and migrant workers, making autonomous water supply management extremely difficult. International cooperation concerning water supply systems are therefore also considered humanitarian aid.
- Papua New Guinea is larger country but extremely unique in terms of its culture and circumstances. Meanwhile, Fiji has a complicated history, including that of its independence. Such national circumstances strongly affect the readiness of any organization with jurisdiction over water supply and of personnel policies, making it crucial to provide support having fully understood each unique set of circumstances.
- A form of land ownership called customary land, quite unlike contemporary concepts of land ownership, exists in the Marshall Islands, Samoa, and the Solomon Islands. With customary land, identifying rightful landowners may prove difficult, securing the consent of community leaders and landowners may be necessary, and consent once obtained may be revoked, necessitating great care.[53] A great deal of care must also be given to communities centered around matai.

[53] 2013 Samoa Urban Waterworks Rehabilitation Plan Preliminary Survey Report
https://openjicareport.jica.go.jp/pdf/12124400_01.pdf、https://openjicareport.jica.go.jp/pdf/12124400_02.pdf

Chapter 5: Recommendations for Future International Cooperation in the Water Supply Systems Sector in the Pacific Island Region

As symbolized by the ongoing attendance of the triennial summit PALM, each island country is for our nation a strategic site for promoting international cooperation. It is desirable that international cooperation in the water supply system sector be steadily implemented in this direction, with efforts made to appropriately comprehend the unique circumstances of each island country, for which measures are tailored and promoted steadily. The unique circumstances of the island countries found in this survey will serve as the basis for the following list of actions worthy of continuation and furthering in existing initiatives.

- The root of water-related challenges in each country has to do with the lack of a mentality that prioritizes efficient use of water resources. It is crucial that activities, including activities to increase awareness, are carried out to cultivate this mentality.
  - Each country's circumstances around water resources varies wildly from the next, and understanding this is crucial. Each island's environment is fragile to begin with, and protecting water sources in some cases requires conservation of catchment basins and countermeasures for waste and sewage.
  - It may be helpful to raise awareness among water supply systems staff of the need to use water with care while riding the successes of the series of cooperative efforts with Okinawa to reduce water leakage, such as by comparing the effects of water resource development and reduction of water leakage. Concrete initiatives may also be developed and necessary engineering training conducted.
  - Raising public awareness of efficient water use also becomes crucial, as water supply systems cannot be established until residents begin to use water more carefully. It may be helpful to share information on the examples and effects of raising awareness in other countries.
  - In addition to these activities, it is important to promote appropriate water resource and water supply system development. Saltwater intrusion in particular is a global predicament, and building experience in developing countermeasures is a necessity.

- Personnel retention in general is difficult. Ways to provide support in these circumstances must be devised.
  - It is necessary to devise organizational management practices that do not rest on the retention of personnel. Managing water supply systems reliant on human resources is especially difficult, making it necessary to find a way to allow personnel with lower skill levels to work. In such cases, thorough clarity of operational know-how (its formalization) and simplification of the technology may be thought of as tenets of organizational management practices. While the Japanese water supply industry's example is difficult to tout, there is some evidence of efforts being made at clarifying operational know-how in the collaboration between Okinawa and Samoa. Such examples should be pursued.

- Japan has the advantage of experience in international cooperation based on human resource development, but personnel retention is as difficult in many countries as it is to sustain the effects of technical training. Papua New Guinea has proven to be the exception; in a society with generally poor employment prospects, the benefits of working with water providers are considered relatively positive, making them popular employers with excellent personnel in established managerial levels. From this example, we can see human resources can be better retained by improving the treatment of staff. With greater personnel retention, it may be possible to devise appropriate ways to support staff by building better relationships, training staff, and holding sufficient talks with people on the ground. It would be meaningful to seek ways to establish and retain employment based on the unique circumstances of the partner country.
- The geographically decentralized nature of the many smaller countries present an opportunity for effective use of ICT-enabled remote training, which has become more feasible in recent years. Conversely, remote training for practical skills presents difficulties, and it is necessary to continue considering how to develop effective and efficient human resources.

- Small atoll countries face the difficult challenge of independently running a state-owned water supply system. It may therefore be possible to promote international cooperation framed entirely as support for water supply or as on-site research for ways to support countries lacking in all resources. It may also be possible that Grassroots Technical Cooperation and the Knowledge Co-Creation Program may be aptly applied to countries so small.
- There is potential in proposing disaster-resistant infrastructure, for which Japan is uniquely qualified. Effects of climate change are sharply felt in island countries. It would also be necessary to explain to local stakeholders the benefits of equipment that have the added value of being suited for disasters.
- COVID-19 has had incredible effects on the islands' heavily relied-upon tourism industry. It may serve as another talking point through which to appeal the need for stable water supply, handwashing being a pillar in preventive measures against contracting the novel coronavirus.
- To coordinate between donors, methods must be considered for relationship-building with donors with a strong sense of presence (i.e., Australia and New Zealand).
  - Generally, projects are coordinated locally and independent of each other. It would be more efficient to interconnect such efforts, if possible.
  - We will work to include international cooperation with regard to water supply, as well as the interconnection of projects, in the recommendations at PALM, which our nation hosts and these target countries attend.

Reference Data

Table 18 Basic information on the Independent State of Papua New Guinea

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	Approximately 460,000 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	8,776,109 (2019)	World Bank
		3. Population growth rate	2.0% (2019)	World Bank
	2. Politics	1. Form of government	Constitutional monarchy	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	Australia	Same as above
		3. Capital	Port Moresby	Same as above
	3. Society and culture	1. Ethnic groups	Melanesian	Same as above
		2. Languages	English (public language), Pidgin English, Motu language, etc.	Same as above
		3. Religions	Mainly Christianity. Ancestor worship and other traditional faiths also deeply remain.	Same as above
	4. Climate	1. Climate	The climate of most of the national land is tropical, except some mountainous areas. The country's temperature is high and it has high rainfall due to influence of monsoons. The dry season is from May to November and the rainy season is December to March. The annual rainfall varies from area to area at approximately 1,000 to 8,000 mm. However, the temperature does not vary much. The average temperature is 27°C at Port Moresby and Lae and 18°C at the central highlands. It sometimes drops to approximately 10°C at night.	Pacific Islands Centre (PIC)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage

Category	Item	Necessary Information	Survey Results	Survey Method
2. Economic conditions	1. Indicators	1. GDP	24.97 billion USD (2019)	World Bank (2019)
		2. GNI per person	2,780 USD (2019)	World Bank (2019)
		3. Economic growth rate	5.6% (2019)	World Bank (2019)
		4. Inflation rate	3.68% (2019, estimate)	IMF (2019)
		5. Unemployment rate	2.6% (2011)	World Bank (2019)
		6. Literacy rate	61.6% (2010)	UNESCO
		7. Human Development Index (HDI)	0.543 (155th in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are mining (liquefied natural gas, gold, crude oil, and copper), farming (palm oil and coffee), and forestry (wood). Thanks to strong export, shrinking import, and tightening of the government finance, the foreign exchange rate has become stable, the inflation rate has decreased, and the private sector's activities and employment have expanded. In 2014, the country started exporting liquefied natural gas (LNG). However, the international prices of petroleum and minerals dropped in 2015 and the country got damaged due to a drought, etc., so the economy has not grown as expected. The government has been developing infrastructure, making education and medical care free of charge, and taking other measures.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	3,653,000 (urban: 981,000; rural: 2,672,000) /8,776,000 (urban: 1,141,000; rural: 7,635,000)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 41% Urban: 86% Rural: 35%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided (national development plan and water and sanitation policy)	JICA report[54,55] and national water and sanitation
		2. Water supply act	Provided (national water supply and drainage act)	

[54] Final Report on the Project for the Study on Lae-Nadzab Urban Development Plan in Papua New Guinea 2017

[55] Feasibility Survey for Providing Drinkable Water to Citizens by Leasing a Desalination Plant in Papua New Guinea 2018

Category	Item	Necessary Information	Survey Results	Survey Method
		3. Water quality standards	Provided	policy[56]
		4. Financial foundations	Self-financing	
	4. Characteristics	In rural areas at which people cannot use managed drinking water, they use untreated river water and rainwater. Because the precipitation is high, the country is blessed with abundant water resources.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Achievement of sustainable economic growth and improvement of the people's living standards through strengthening the social and economic foundations Priority areas (medium goals): Strengthening of the economic growth foundations, improvement of social services, and implementation of environmental, climate change mitigation, and disaster prevention measures (July 2017)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan (2017 to 2022)	In the environmental preservation program in the priority area "implementation of environmental, climate change mitigation, and disaster prevention measures," the "Feasibility Survey for Providing Drinkable Water to Citizens by Leasing a Desalination Plant" (2017 to 2018) is included. "Development of solar power generation and rainwater desalination systems" (2017) is included as another goal.		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 262.25 billion yen Approximately 17.62 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	12 (2018) 177 (2018)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.

*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

[56] PNG National Water, Sanitation and Hygiene (WASH) Policy 2015-2030

Table 19 Basic information on Republic of Fiji

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	18,270 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	889,953 (2019)	World Bank
		3. Population growth rate	0.7% (2019)	World Bank
	2. Politics	1. Form of government	Republic	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United Kingdom	Same as above
		3. Capital	Suva	Same as above
	3. Society and culture	1. Ethnic groups	Fijian (57%), Indian (38%), and other (5%)	Same as above
		2. Languages	English (public language), Fijian, and Hindi	Same as above
		3. Religions	Christianity (52.9%), Hinduism (38.2%), and Islam (7.8%). Almost all the Fijian believe in Christianity and Indian believe in Hinduism and Islam.	Same as above
	4. Climate	1. Climate	The climate is mild with the average annual temperature at 25°C. The temperature at Nandi is slightly higher than that at Suva. In July and August, the temperature at Nandi sometimes drops below 20°C and it rarely exceeds 31°C even in summer, which is the hottest. The rainy season is from November to April and the dry season is from May to October. Throughout the year, Suva has more rainy days comparing to Nandi and days with the humidity of 60 to 80% continue at Suva. At Viti Levu and Vanua Levu, the western sides of the islands have less rainfall than the eastern sides. Cyclones come in November to April and large cyclones come in some years. The annual rainfall is close to 8,000 mm in some mountainous areas. The annual rainfall at Suva is approximately 3,000 mm and that	Pacific Islands Centre (PIC) and Ministry of Foreign Affairs: World Medical Situations (Fiji)

Category	Item	Necessary Information	Survey Results	Survey Method
			at Lautoka is 1,800 mm or fewer, being rather dry.	
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	5.536 billion USD (2019)	World Bank (2019)
		2. GNI per person	5,860 USD (2019)	World Bank (2019)
		3. Economic growth rate	1.1% (2019)	World Bank (2019)
		4. Inflation rate	1.77% (2019, estimate)	IMF (2019)
		5. Unemployment rate	4.3% (2016)	World Bank (2019)
		6. Literacy rate	99.1% (2017)	UNESCO
		7. Human Development Index (HDI)	0.724 (98th in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are tourism, sugar, and clothing. The economic growth rate was minus 6.6% in 2007 immediately after the coup in December 2006 and it was improved to 0.2% in 2008. However, it dropped to minus 3% in 2009 due to decline in the sugar industry and influence of the global financial crisis and others. The sugar industry that has been supporting the economy for many years is facing aging machinery and other problems, in particular. The growth rates have been stable in the levels of 2 to 5% in general since 2011.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	837,000 (urban: 488,000; rural: 349,000) /890,000 (urban: 498,000; rural: 392,000)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 94% Urban: 98% Rural: 89%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided	JICA report[57] and Fiji annual report[58]
		2. Water supply act	Provided	

[57] Report on Information Collection and Research on the Water Supply and Drainage Sector in the Republic of Fiji 2020

[58] Fiji Ministry of Infrastructure and Transport 2016/2017 Consolidated Annual Report

Category	Item	Necessary Information	Survey Results	Survey Method
		3. Water quality standards	Provided	
		4. Financial foundations	Depends on subsidies from the government	
	4. Characteristics	Water sources are dams and rivers. All the dams use the gravity flow system to supply water. In inland areas, water wells and springs are used.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Comprehensive economic and social development and support of the nation-building in a well-balanced way Priority areas (medium goals): Development of foundations for economic growth, implementation of climate change mitigation and environmental measures, and improvement of the quality of social services (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan (2018 to 2023)	In the priority area “development of foundations for economic growth,” the “project to supply water to rural areas by ecological purification system” (2018) and the “water supply service improvement project at Nandi and Lautoka” (2018 to 2020) are included.		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 3.85 billion yen Approximately 8.20 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	20 (2018) 537 (2019)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.

*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 20 Basic information on the Solomon Islands

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	28,900 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	669,823 (2019)	World Bank
		3. Population growth rate	2.6% (2019)	World Bank
	2. Politics	1. Form of government	Constitutional monarchy	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United Kingdom	Same as above
		3. Capital	Honiara	Same as above
	3. Society and culture	1. Ethnic groups	Melanesian (approximately 94%), Polynesian, Micronesian, European, and Chinese	Same as above
		2. Languages	English (public language) and Pidgin English (common language)	Same as above
		3. Religions	Christianity (95% or more)	Same as above
	4. Climate	1. Climate	The country belongs to the tropical zone and the temperature and humidity are high throughput a year. The temperature does not change much. The average maximum temperature at Honiara is approximately 31°C and the minimum temperature is approximately 22°C. The rainy season is from December to April and the dry season is June to September. The maximum monthly rainfall is 362 mm (March) and the minimum monthly rainfall is 92 mm (August). The annual precipitation at Honiara is approximately 2,000 mm. As rain, the country has squalls that are the characteristic of the tropical zone. From November to January, the country is hit by a cyclone in some rare cases. In recent years, unexpected localized torrential rains and unseasonable floods often occur.	Pacific Islands Centre (PIC) and Weatherbase

Category	Item	Necessary Information	Survey Results	Survey Method
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	1.425 billion USD (2019)	World Bank (2019)
		2. GNI per person	2,050 USD (2019)	World Bank (2019)
		3. Economic growth rate	2.7% (2019)	World Bank (2019)
		4. Inflation rate	1.83% (2019)	IMF (2019)
		5. Unemployment rate	0.7% (2013)	World Bank (2019)
		6. Literacy rate	76.6% (2009)	UNESCO
		7. Human Development Index (HDI)	0.557 (153rd in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are farming, forestry, and fishery. The farming and fishery got damaged due to a fall in primary commodities' prices and the mining remains dull. Except some primary commodities, the country depends import for many items, so the economic base is weak. The economic growth remains around 3% in recent years. The country's finances greatly depend on financial support from Australia, NZ, and other countries.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	455,000 (urban: 140,000; rural: 315,000) /670,000 (urban: 154,000; rural: 516,000)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 68% Urban: 91% Rural: 61%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided (water development plan, national development strategy, and rural water supply policy)	JICA report,[59] water development plan,[60] national strategy,[61]
		2. Water supply act	None (the environmental act, environment and sanitation act, and river water act are provided)	

[59] Main Report on the Completion of the Project for Improvement of Non Revenue Water Reduction Capacity for Solomon Islands Water Authority 2016

[60] The Solomon Water Development Plan 2013-2015

[61] Solomon Islands Government National Development Strategy 2016-2035

Category	Item	Necessary Information	Survey Results	Survey Method
		3. Water quality standards	None (the WHO Standards are applied)	and rural water supply and sanitation policy[62]
		4. Financial foundations	The deficit in the income of water charges is filled with government funds.	
	4. Characteristics	Groundwater (boreholes) and springs are used at urban areas and direct gravity water supply, water wells, and rainwater are used at rural areas.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Achievement of independent and sustainable economic growth and improvement of the people's living standards through strengthening the social and economic foundations Priority areas (medium goals): Elimination of vulnerabilities and implementation of environmental, climate change mitigation, and disaster prevention measures (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan (2018 to 2023)	In development and maintenance of social and economic foundations in the priority area "elimination of vulnerabilities," "lecture on waterworks" (2018 to 2021) is included as part of training by problem.		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2018)	Approximately 0.223 billion yen Approximately 1.800 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	2 (2019) 113 (2019)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.

*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

[62] The Solomon Islands Rural Water Supply, Sanitation and Hygiene Policy 2014

Table 21 Basic information on the Republic of Vanuatu

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	12,190 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	299,882 (2019)	World Bank
		3. Population growth rate	2.4% (2019)	World Bank
	2. Politics	1. Form of government	Republicanism	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United Kingdom and France	Same as above
		3. Capital	Port Vila	Same as above
	3. Society and culture	1. Ethnic groups	Melanesian (93%), Chinese, and Vietnamese; and English and French people live	Same as above
		2. Languages	Bislama (Pidgin English), English, and French (all are public languages)	Same as above
		3. Religions	Mainly Christianity (e.g., Presbyterian, Roman Catholicism, Anglican Church, and Seventh-day Adventist Church)	Same as above
	4. Climate	1. Climate	The southern part belongs to the subtropical zone and the northern part belongs to the tropical climate zone. In summer from November to April (rainy season), the temperature and humidity are high. In winter from June to September (dry season), the county has a period of dry and rather cool fine weather. Islands with a tropical climate have annual rainfall of more than 4,000 mm. The capital (Port Vila) is rainy from January to April. The average minimum rainfall is approximately 80 mm in August. The temperature rises 30°C in December to February and it sometimes falls below 20°C in winter. In summer, cyclones come and in 1987, Port Vila was terribly affected.	Pacific Islands Centre (PIC)

Category	Item	Necessary Information	Survey Results	Survey Method
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	0.917 billion USD (2019)	World Bank (2019)
		2. GNI per person	3,170 USD (2019)	World Bank (2019)
		3. Economic growth rate	2.9% (2019)	World Bank (2019)
		4. Inflation rate	2.75% (2019)	IMF (2019)
		5. Unemployment rate	1.8% (2010)	World Bank (2019)
		6. Literacy rate	87.5% (2018)	UNESCO
		7. Human Development Index (HDI)	0.597 (141st in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The basis is the copra production and self-sufficient farming. The disparity is large between urban and agricultural areas. The import has been excessive constantly and the deficits have been filled with funds from foreign countries. In recent years, the government has been putting its efforts to diversify farming and promote sightseeing. Since 1997, with the help of the ADB, the government has been carrying out large-scale administrative and economic reform and it determined a mid-term plan in 2003. The country's economy had been growing in general, but in 2015, the country was seriously damaged by Cyclone Pam, turning to negative growth. In 2016 and 2017, the public infrastructure project service sector served as an engine of economic growth, registering positive growth. The country was delisted from the money laundering gray list and the financial sector grew and the growth of the tourist industry may have contributed.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	272,000 (urban: 74,000; rural: 198,000) /300,000 (urban: 75,000; rural: 225,000)	WHO/UNICEF JMP (Data as of 2017)

Category	Item	Necessary Information	Survey Results	Survey Method
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 91% Urban: 99% Rural: 88%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided (strategy and policy)	National water strategy[63] and national water policy[64]
		2. Water supply act	Provided	
		3. Water quality standards	Provided (the inspection system is not sufficient)	
		4. Financial foundations	Unknown	
	4. Characteristics	Surface water, groundwater, and rainwater are used.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Achievement of independent and sustainable economic growth and improvement of the people's living standards considering the environments Priority areas (medium goals): Elimination of vulnerabilities and implementation of environmental, climate change mitigation, and disaster prevention measures (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan	No plan for water services was specified. (2017 to 2022)		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2018)	Approximately 6.08 billion yen Approximately 1.27 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country	3 (2019)	Same as above
		Number of Japanese residents in the country	83 (2019)	

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.

*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including

[63] Vanuatu National Water Strategy 2018-2030

[64] Vanuatu national water policy 2017-2030

drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 22 Basic information on the Independent State of Samoa

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	2,830 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	197,097 (2019)	World Bank
		3. Population growth rate	0.5% (2019)	World Bank
	2. Politics	1. Form of government	The head of the state is selected in assemblies as the system, but customary, the system is similar to the elective monarchy.	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	New Zealand	Same as above
		3. Capital	Apia	Same as above
	3. Society and culture	1. Ethnic groups	Samoans (Polynesian) (90%) and others (e.g., mixed background of European, Melanesian, Chinese, and European)	Same as above
		2. Languages	Samoan and English (both are public languages)	Same as above
		3. Religions	Christianity (e.g., Catholicism, Methodism, and Mormonism)	Same as above
	4. Climate	1. Climate	The temperature changes from 21°C to 30°C in one day. The dry season is May to October and the rainy season is from November to April. The rainiest months are December to February. The average rainfall in January is as high as a little less than 500 mm and mostly it rains at night. Although the humidity is high throughout the year, it considerably decreases from April to October thanks to southeast trade winds. The average temperature at Apia is almost constant at 26 to 27°C throughout the year. The annual precipitation is 2,500 to 3,000 mm. The monthly precipitation is approximately 100 to 150 mm from April to October and 300 to 400 mm from November to March.	Pacific Islands Centre (PIC) and JICA report[66]

Category	Item	Necessary Information	Survey Results	Survey Method
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	0.851 billion USD (2019)	World Bank (2019)
		2. GNI per person	4,180 USD (2019)	World Bank (2019)
		3. Economic growth rate	3.5% (2019)	World Bank (2019)
		4. Inflation rate	2.19% (2019)	IMF (2019)
		5. Unemployment rate	14.5% (2017)	World Bank (2019)
		6. Literacy rate	99.1% (2018)	UNESCO
		7. Human Development Index (HDI)	0.707 (111st in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are farming and coastal fishery. In September 2009, a large earthquake involving tsunami occurred offshore of Samoa and that decreased the income from sightseeing and increased demand for reconstruction funds. In December 2012, the country was severely affected by Cyclone Evan and thereby the economic situation has been severe. The economic structure is typical as a country consisting of islands: The scale of the internal market is small and the country depends on import for most of consumer goods. Therefore, the trade has been continuously in the red. The current account deficit is not so large due to transfer from overseas and a large surplus of services and transfer balance thanks to income from the tourist industry.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	192,000 (urban: 35,000; rural: 157,000) /197,000 (urban: 35,000; rural: 162,000)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 97% Urban: 99% Rural: 97%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided	JICA

Category	Item	Necessary Information	Survey Results	Survey Method
		2. Water supply act	Provided	report[65,66] and SWA annual report[67]
		3. Water quality standards	Provided	
		4. Financial foundations	The deficit in the income from charges is filled with government funds.	
	4. Characteristics	River water and springs are used as water sources. It is rainy. In areas other than cities, each household mainly uses rainwater.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Achievement of independent and sustainable economic growth and improvement of the people's living standards considering the environments Priority areas (medium goals): Implementation of environmental and climate change mitigation measures and elimination of vulnerabilities (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan (2017 to 2022)	In the priority area "implementation of environmental and climate change mitigation measures", the "Project for enhancing the maintenance and management capability of Samoa Waterworks Company through cooperation with Okinawa" (2017 to 2019) is included.		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 0.151 billion yen Approximately 1.563 billion yen Direct investments from Japan: 15 investments, 8 billion yen (total from FY1989 to FY2006, direct overseas investment statistics by the Ministry of Finance, Japan)	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	2 (2018) 65 (2018)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.

*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

[65] Final Report on the Preparatory Survey on the Samoa Urban Waterworks Rehabilitayion Plan 2014

[66] Completion report on the Pilot Survey for Disseminating SME's Technologies for Alaoa Water Treatment Plant Improvement 2016

[67] Samoa Water Authority Annual report 2018-2019

Table 23 Basic information on the Kingdom of Tonga

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	720 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	104,494 (2019)	World Bank
		3. Population growth rate	1.2% (2019)	World Bank
	2. Politics	1. Form of government	Constitutional monarchy	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United Kingdom	Same as above
		3. Capital	Nukualofa	Same as above
	3. Society and culture	1. Ethnic groups	Polynesian (and a small number of Micronesian)	Same as above
		2. Languages	Tongan and English (both are public languages)	Same as above
		3. Religions	Christianity (e.g., Catholicism and Mormonism)	Same as above
	4. Climate	1. Climate	Although the climate varies because the islands are interspersed lengthily north and south, the climate is tropical and thereby warm with the average annual temperature of 24°C. In the dry season from June to October, the mornings and evenings at Tongatapu Island in the south get cold with the minimum temperature below 20°C. In the rainy season from December to March, the temperature raises close to 30°C and it is rainy. Also, cyclones come in the rainy season. The annual rainfall at Tongatapu Island (having the capital) is approximately 1,700 mm and that at Vavau Island is approximately 2,790 mm, ranging widely.	Pacific Islands Centre (PIC) and Ministry of Foreign Affairs: World Medical Situations (Tonga)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage

Category	Item	Necessary Information	Survey Results	Survey Method
2. Economic conditions	1. Indicators	1. GDP	0.450 billion USD (2019)	World Bank (2019)
		2. GNI per person	4,300 USD (2018)	World Bank (2019)
		3. Economic growth rate	0.3% (2018)	World Bank (2019)
		4. Inflation rate	3.29% (2019)	IMF (2019)
		5. Unemployment rate	3.1% (2018)	World Bank (2019)
		6. Literacy rate	99.4% (2018)	UNESCO
		7. Human Development Index (HDI)	0.717 (105th in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are farming and fishery. As the financial conditions, the country greatly depends on financial assistance by other countries and remittance from migrant workers constantly. The government is eager about developing new goods and crops for export: To develop new products following pumpkins that the country succeeded in exporting, the government has been doing market research and surveys on export procedure actively and has been working hard to control the quality of the products.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	103,000 (urban: 24,000; rural: 80,000) /104,000 (urban: 24,000; rural: 80,000)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using “basic drinking water”)*	National: 99% Urban: 99% Rural: 99%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided	Tonga Water Board annual report[68,69]
		2. Water supply act	Provided	
		3. Water quality standards	Provided	
		4. Financial foundations	Income from charges and subsidies	
	4. Characteristics	The country has no rivers. Underground aquifers are used as water sources for water supply at cities. Water is taken from water wells.		

[68] TWB FINAL ANNUAL REPORT 18-19

[69] TWB SDG Final Report 2018

Category	Item	Necessary Information	Survey Results	Survey Method
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Achievement of independent and sustainable economic growth and improvement of the people's living standards considering the environments Priority areas (medium goals): Implementation of environmental and climate change mitigation measures and elimination of vulnerabilities (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan (2018 to 2023)	In the task "environmental preservation" in the priority area "implementation of environmental and climate change mitigation measures," "Grant Aid for Grassroots Human Security for the water supply sector" (2018 to 2019) is included. In addition, it has been specified that Japan will contribute to maintaining and improving stable access to water resources through the execution of the wide-area technical project "Japanese Technical Cooperation Project for Promotion of Regional Initiative on Solid Waste Management in Pacific Island Countries (J-PRISM phase 2)."		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 0.16 billion yen Approximately 1.33 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	4 (2018) 66 (2019)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.
*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 24 Basic information on the Cook Islands

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	Approximately 237 km^2	Ministry of Foreign Affairs: Country and Regional Information

Category	Item	Necessary Information	Survey Results	Survey Method
		2. Population	Approximately 15,300 (2020)	Secretariat of the Pacific Community
		3. Population growth rate	0.4% (2020)	Same as above
	2. Politics	1. Form of government	Constitutional monarchy	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	New Zealand	Same as above
		3. Capital	Avarua (Rarotonga Island)	Same as above
	3. Society and culture	1. Ethnic groups	Polynesian (the Cook Islands Maori) (81%) and mixed-race Polynesian (15.4%)	Same as above
		2. Languages	Cook Islands Maori and English (both are public languages)	Same as above
		3. Religions	Christianity (97.8%) (e.g., Cook Islands Christian Church (69%) and Roman Catholicism (15%))	Same as above
	4. Climate	1. Climate	Although the seasons are opposite to those in Hawaii, the climate is similar. Rarotonga Island has the rainy season from November to March and dry fine weather in the other months. The hottest period is February and March and the average temperature is 26 to 30°C. The temperature in winter with little rain from July to October is 25°C at maximum and 18°C at minimum. The average annual rainfall at Rarotonga Island is 1,955 mm (average of the values observed from 1981 to 2010).	Pacific Islands Centre (PIC) and Meteorological Agency: Average year values around the world by spot
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	Approximately 540 million New Zealand D (2018, Asian Development Bank)	Ministry of Foreign Affairs: Country and Regional Information
		2. GNI per person	Unknown	Same as above
		3. Economic growth rate	5.3% (2019, Asian Development Bank)	Same as above

Category	Item	Necessary Information	Survey Results	Survey Method
		4. Inflation rate	0.8% (2019, Asian Development Bank)	Same as above
		5. Unemployment rate	N/A	World Bank (2019)
		6. Literacy rate	N/A	UNESCO
		7. Human Development Index (HDI)	N/A	UNDP
	2. Overview	1. Economic overview	The main industries are tourism, farming, fishery (black pearl cultivation), and financial services. The economic development was hindered because the country is geographically isolated, the islands are scattered, and the scale of the internal market is small. However, in recent years, the tourist industry has been accounting for approximately 70% of the nominal GDP. Thanks to the growth of the tourist industry, from the latter half of 1980s to the beginning of 1990s, the real GDP growth rates had been as high as 6% and the country became a rather rich country among the Pacific island countries. However, at the isolated islands other than Rarotonga Island, the development has not proceeded and the economic disparity has been widening.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	18,400 (urban: -; rural: -) /18,600 (urban: 14,000; rural: 4,700)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using “basic drinking water”)*	National: 99% Urban: -% Rural: -%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	National sustainable development plan 2016-2020	National sustainable development plan[70] and national water policy[71]
		2. Water supply act	Unknown	
		3. Water quality standards	Specified that standards will be established in 2016	
		4. Financial foundations	Unknown	

[70] Government of Cook Islands National Sustainable Development Plan 2016-2020 http://www.mfem.gov.ck/images/documents/CEO_docs/Other%20Documents/National-Sustainable-Development-Plan_2016-2020.pdf

[71] Cook Islands National Water Policy 2016

Category	Item	Necessary Information	Survey Results	Survey Method
	4. Characteristics	Groundwater, streams, and rivers are used as water sources. Rainwater has also been stored.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Strengthening of the foundations for independent and sustainable growth and improvement of the people's living standards Priority areas (medium goals): Strengthening of the foundations for sustainable growth, implementation of climate change mitigation, environmental, and disaster prevention measures, management of marine security and resources, and development of marine transportation networks (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan	No plan for water services was specified. (2017 to 2022)		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 1.21 billion yen Approximately 0.26 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	2 (2019) 6 (2019)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.
*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 25 Basic information on Tuvalu

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	25.9 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	11,646 (2019)	World Bank
		3. Population growth rate	1.2% (2019)	World Bank

Category	Item	Necessary Information	Survey Results	Survey Method
	2. Politics	1. Form of government	Constitutional monarchy	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United Kingdom	Same as above
		3. Capital	Funafuti	Same as above
	3. Society and culture	1. Ethnic groups	Polynesian (and a small number of Micronesian)	Same as above
		2. Languages	English and Tuvaluan (a Polynesian language close to Samoan)	Same as above
		3. Religions	Mainly Christianity (Protestantism). Most citizens belong to Church of Tuvalu (Protestantism, Christianity).	Same as above
	4. Climate	1. Climate	Tropical marine climate. The temperature is almost constant throughout the year at 28 to 31°C. The southern part has more rainfall comparing to the northern part. The annual rainfall at Funafuti is approximately 3,000 mm with torrential rains in a short time. It rains much from December to March with the rainfall of approximately 300 to 400 mm. The average monthly rainfall in the other months is approximately 240 mm. From November to April, strong northwest winds blow and from May to October, gentle southeast trade winds blow.	Pacific Islands Centre (PIC)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	Approximately 0.047 billion USD (2019)	World Bank (2019)
		2. GNI per person	5,620 USD (2019)	World Bank (2019)
		3. Economic growth rate	9.8% (2019)	World Bank (2019)
		4. Inflation rate	2.18% (2019, estimate)	IMF (2019)
		5. Unemployment rate	N/A	World Bank (2019)
		6. Literacy rate	N/A	UNESCO

Category	Item	Necessary Information	Survey Results	Survey Method
		7. Human Development Index (HDI)	N/A	UNDP
	2. Overview	1. Economic overview	The main industries are farming and fishery and most of harvests and catches are consumed in the country. The country is poor in natural resources and the main sources of income are charges for fishing in the country's restricted waters and remittance from migrant workers working on overseas fishing boats. The financial deficits have been filled with investment profits from the Tuvalu Trust Fund (established in 1987 with contributions from Tuvalu, the United Kingdom, Australia, and NZ). The country started receiving the license fee of domain code "tv" that the country lent to an American company under a contract since 1999. However, the income varies year by year, so managing the income is a problem. The government has been working to reduce public expenditures, such as government subsidies and special development expenses, remarkably and make the public finance more transparent. Least developed country (LDC)	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	11,500 (urban: 7,100; rural: 4,400) /11,600 (urban: 7,200; rural: 4,400)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 99% Urban: 99% Rural: 99%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	The national strategy and policy are provided.	Tuvalu water and sanitation policy[72] and Tuvalu national strategy[73]
		2. Water supply act	Unknown	
		3. Water quality standards	Provided (no periodic inspections are performed)	
		4. Financial foundations	Unknown	

[72] 89-Sustainable and Integrated Water and Sanitation Policy, 2011nov30

[73] TE KAKEEGA III National Strategy for Sustainable Development 2016 to 2020

Category	Item	Necessary Information	Survey Results	Survey Method
	4. Characteristics	Rainwater is the main supply source. Groundwater and desalination plants are also used. Although the precipitation is high, the country is afflicted with water shortage.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Support to strengthen the foundations for independent and sustainable economic growth considering climate change and vulnerabilities as an island country Priority areas (medium goals): Implementation of disaster prevention and climate change mitigation measures and elimination of vulnerabilities (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan	No plan for water services was specified. (2017 to 2022)		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 0.11 billion yen Approximately 2.02 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	0 (2018) 42 (2019)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.

*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 26 Basic information on Niue

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	259 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	1,600 (2020)	Secretariat of the Pacific Community
		3. Population growth rate	-1.2% (2020)	Same as above

Category	Item	Necessary Information	Survey Results	Survey Method
	2. Politics	1. Form of government	Constitutional monarchy	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	New Zealand	Same as above
		3. Capital	Alofi	Same as above
	3. Society and culture	1. Ethnic groups	Niuean (Polynesian) (90%)	Same as above
		2. Languages	Niuean (Polynesian languages) and English	Same as above
		3. Religions	Christianity (90%)	Same as above
	4. Climate	1. Climate	The climate is comfortable throughout the year, but cyclones come in December to April. In December 2004, a large cyclone hit the country. The average annual temperature is 25°C. From April to November, southeast trade winds blow and the temperature is 24°C. The rainfall is high from December to March and the average monthly rainfall is approximately 270 mm; it is sultry with the average temperature of 29°C. In the dry season from June to September, the rainfall is 100 mm and the average temperature is approximately 23°C. The annual rainfall is 2,180 mm and it rains on approximately 170 days.	Pacific Islands Centre (PIC)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	24,938 USD (2018, Secretariat of the Pacific Community)	Ministry of Foreign Affairs: Country and Regional Information
		2. GNI per person	Unknown	Same as above
		3. Economic growth rate	-1.2% (2018, Secretariat of the Pacific Community)	Same as above
		4. Inflation rate	2.2% (2018, Secretariat of the Pacific Community)	Same as above
		5. Unemployment rate	N/A	World Bank (2019)
		6. Literacy rate	N/A	UNESCO

Category	Item	Necessary Information	Survey Results	Survey Method
		7. Human Development Index (HDI)	N/A	UNDP
	2. Overview	1. Economic overview	The main industries are farming, fishery, and tourism. The territory is small and the economic foundation is weak, so many people move to New Zealand for job opportunities. The economic development has been hindered due to serious population decrease. The government cannot take practical measures for independent economic growth and depends on aid from international organizations and remittance from residents abroad. In January 2004, Cyclone Heta directly hit the country, devastatingly damaging it.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	1,520 (urban: -; rural: -) /1,490 (urban: 670; rural: 850)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 98% Urban: -% Rural: -%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided (drinking water safety plan)	Niue documents[74,75,76,77]
		2. Water supply act	Provided	
		3. Water quality standards	WHO Standards	
		4. Financial foundations	Unknown	
	4. Characteristics	Groundwater is used and rainwater has been stored.		

[74] Niue Reg 2017-01 Water Regulations 2017
[75] Niue Act 317 Water Act 2012
[76] Niue Drinking Water Safety Plan 2009
[77] Niue National strategic plan 2016-2026

Category	Item	Necessary Information	Survey Results	Survey Method
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Strengthening of the foundations for independent and sustainable growth and improvement of the people's living standards Priority areas (medium goals): Strengthening of the foundations for independent and sustainable growth, implementation of climate change mitigation, environmental, and disaster prevention measures, and management of marine security and resources (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan	No plan for water services was specified. (2017 to 2022)		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 0.005 billion yen Approximately 0.059 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	1 (2019) 8 (2019)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.
*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 27 Basic information on the Republic of Kiribati

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	730 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	117,606 (2019)	World Bank
		3. Population growth rate	1.5% (2019)	World Bank
	2. Politics	1. Form of government	Republicanism	Ministry of Foreign Affairs: Country and Regional Information

Category	Item	Necessary Information	Survey Results	Survey Method
		2. Former colonial power (or system similar thereto)	The United Kingdom and the United States of America	Same as above
		3. Capital	Tarawa	Same as above
	3. Society and culture	1. Ethnic groups	Micronesian (98%) and Polynesian; and European people live	Same as above
		2. Languages	Gilbertese language and English (both are public languages)	Same as above
		3. Religions	Christianity (mainly Catholicism and Protestantism)	Same as above
	4. Climate	1. Climate	Subtropical marine climate. The average temperature does not change much throughout the year at 26 to 32°C. The annual rainfall varies from area to area; The average annual rainfall is 700 mm at Christmas Island and 4,000 mm at Washington Island, ranging widely. That at Tarawa (capital) is 1,500 mm. Due to the marine climate, the average humidity is rather high at 75 to 80%.	Pacific Islands Centre (PIC)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	0.195 billion USD (2019)	World Bank (2019)
		2. GNI per person	3,350 USD (2019)	World Bank (2019)
		3. Economic growth rate	2.2% (2019)	World Bank (2019)
		4. Inflation rate	-1.88% (2019, estimate)	IMF (2019)
		5. Unemployment rate	9.3% (2015)	World Bank (2019)
		6. Literacy rate	N/A	UNESCO
		7. Human Development Index (HDI)	0.623 (132nd in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are fishery and copra production. Rock phosphate dried up in 1979. Since then, the country has been greatly depending on aid from overseas and charges for fishing in the country's restricted waters. LDC	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	84,700 (urban: -; rural: -) /118,000 (urban: 62,300; rural: 55,300)	WHO/UNICEF JMP (Data as of 2017)

Category	Item	Necessary Information	Survey Results	Survey Method
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 72% Urban: -% Rural: -%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	A draft is provided. Not approved as of 2007	SOPAC report [78] and Kiribati's webpage[79]
		2. Water supply act	None as of 2007	
		3. Water quality standards	Unknown (the national water quality monitoring program is provided)	
		4. Financial foundations	The main funds for the project are aid from donors.	
	4. Characteristics	The water supply sources are rainwater, groundwater (usually, within 2 m from the surface of the earth), imported water, and salt water desalination only.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Achievement of independent and sustainable economic growth and improvement of the people's living standards considering the environments Priority areas (medium goals): Implementation of climate change mitigation and disaster prevention measures and elimination of vulnerabilities (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan	No plan for water services was specified. (2017 to 2022)		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 0.78 billion yen Approximately 0.67 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	3 (2018) 20 (2018)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.
*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying

[78] 2007Nov SOPAC IWRM Diagnostic Report Kiribati
[79] Ministry of Infrastructure and Sustainable Energy Republic of Kiribati (Water and Sanitation unit) https://www.mise.gov.ki/index.php/departments/water-and-sanitation

water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 28 Basic information on the Federated States of Micronesia

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	700 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	113,815 (2019)	World Bank
		3. Population growth rate	1.0% (2019)	World Bank
	2. Politics	1. Form of government	Presidential system	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United States of America	Same as above
		3. Capital	Palikir	Same as above
	3. Society and culture	1. Ethnic groups	Micronesian	Same as above
		2. Languages	English and 8 local languages	Same as above
		3. Religions	Christianity (Protestantism and Catholicism)	Same as above
	4. Climate	1. Climate	Tropical marine climate. The temperature is almost constant throughout the year and the average temperature is 27°C. Many of the islands have the dry season (January to March) and rainy season with many squalls (usually, April to December). The annual rainfall in 2018 was 2,110 mm at Yap, 2,421 mm at Chuuk, 4,064 mm at Pohnpei, and 3,014 mm at Kosrae. The average number of rainy days a year at Pohnpei is 300 or more and Pohnpei is one of areas of highest rainfall in the world. Although the average humidity is also high at 80% or more, the extreme heat and humidity are slightly mitigated by trade winds and squalls in the rainy season. Typhoons form near	Embassy of Japan in the Federated States of Micronesia: Overview of Micronesia

Category	Item	Necessary Information	Survey Results	Survey Method
			the West Caroline Islands and they move north while developing.	
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	0.402 billion USD (2018)	World Bank (2019)
		2. GNI per person	3,400 USD (2018)	World Bank (2019)
		3. Economic growth rate	0.2% (2018)	World Bank (2019)
		4. Inflation rate	1.86% (2019, estimate)	IMF (2019)
		5. Unemployment rate	8.9% (2014)	World Bank (2019)
		6. Literacy rate	N/A	UNESCO
		7. Human Development Index (HDI)	0.614 (135th in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are fisheries, tourism, and farming (e.g., coconuts, taros, and bananas). The monetary economy and traditional self-sufficient economy coexist. The productivity is not high and the country depends on import for many necessaries. The trade balance has been constantly in the red. It can be said that the country has held thanks to financial aid based on the U.S. Compact of Free Association. As part of efforts toward economic self-sufficiency, the government started economic reform with the help of the Asian Development Bank (ADB) and other international organizations; the government has been working to stabilize the national finances, privatize national enterprises, improve the investment climate, and develop the private sector.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	89,900 (urban: -; rural: -) /114,000 (urban: 26,200; rural: 87,600)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 79% Urban: -% Rural: -%	WHO/UNICEF JMP (Data as of 2017)

Category	Item	Necessary Information	Survey Results	Survey Method
	3. Governance	1. National water supply strategy	Provided (a water service project is included in the infrastructure development plan.)	JICA report[80]
		2. Water supply act	Unknown	
		3. Water quality standards	Provided (Escherichia coli and coliform bacterium)	
		4. Financial foundations	Aid from the United States of America	
	4. Characteristics	The precipitation is high, so most of the islands have rainwater enough to supply drinking water at normal times. However, after a disaster or in abnormal weather, the water runs short. The country sometimes transports water as an urgent measure.		
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Independent and sustainable economic growth and improvement of the people's living standards considering the environments Priority areas (medium goals): Elimination of vulnerabilities and implementation of environmental and climate change mitigation measures (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan	No plan for water services was specified. (2018 to 2023)		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 1.49 billion yen Approximately 1.79 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country	11 (2018)	Same as above
		Number of Japanese residents in the country	107 (2018)	

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.
*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

[80] Report on the Verification Survey with the Private Sector for Disseminating Japanese Technologies for "Resilient Water Station" utilizing Natural Energy in Micronesia 2018

Table 29 Basic information on the Republic of Marshall Islands

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	180 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	58,791 (2019)	World Bank
		3. Population growth rate	0.6% (2019)	World Bank
	2. Politics	1. Form of government	Presidential system	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United States of America	Same as above
		3. Capital	Majuro	Same as above
	3. Society and culture	1. Ethnic groups	Micronesian	Same as above
		2. Languages	Marshallese and English	Same as above
		3. Religions	Christianity (mainly Protestantism)	Same as above
	4. Climate	1. Climate	Tropical marine climate. The humidity and temperature are high. The average annual temperature is almost constant throughout the year at 27°C. The sunlight during the daytime is strong, but mornings and evenings are cool and comfortable thanks to trade winds blowing from the sea. It rains at night in many cases. The average annual rainfall is approximately 3,400 mm. The monthly rainfall in October and November is approximately 300 mm and that in January to March is less than 200 mm.	Pacific Islands Centre (PIC)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	0.221 billion USD (2019)	World Bank (2019)
		2. GNI per person	4,860 USD (2018)	World Bank (2019)
		3. Economic growth rate	3.6% (2018)	World Bank (2019)

Category	Item	Necessary Information	Survey Results	Survey Method
		4. Inflation rate	1.2% (2019, estimate)	IMF (2019)
		5. Unemployment rate	4.7% (2011)	World Bank (2019)
		6. Literacy rate	98.3% (2011)	UNESCO
		7. Human Development Index (HDI)	0.698 (117th in the world) (2018)	UNDP
	2. Overview	1. Economic overview	The main industries are farming (copra and coconut oil) and fishery. The monetary economy and traditional self-sufficient economy coexist. The country's productivity is not high and the country depends on import for most necessaries. The trade balance has been constantly in the red. Approximately 40% of the government income are financial aid from the United States of America based on the U.S. Compact of Free Association. Toward economic self-sufficiency, the government has been working hard to reform the economic structure (e.g., development of the private sector).	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	52,100 (urban: 39,400; rural: 12,700) /58,800 (urban: 45,300; rural: 13,500)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 99% Urban: 99% Rural: 99%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	The development plan demands to improve the access to safe water.	JICA report[81, 82]
		2. Water supply act	Unknown	
		3. Water quality standards	Provided (9 items)	
		4. Financial foundations	Aid from the United States of America	
	4. Characteristics	The country greatly depends on rainwater. At the water purification plant that supplies approximately 65% of the water supplied by Majuro Water and Sewer Company, rainwater collected from the runways on the airport is put in the reservoir to use it as a water source.		

[81] Report on the Feasibility Survey for the PV Generation Small-scale Desalination System in Marshall 2017

[82] Grant Aid Project Overview "Majuro Atoll Water Storage Capacity Improvement Plan" 2018 https://www.mofa.go.jp/mofaj/gaiko/oda/files/000428239.pdf

Category	Item	Necessary Information	Survey Results	Survey Method
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Independent and sustainable economic growth and improvement of the people's living standards considering the environments Priority area (medium goals): Elimination of vulnerabilities and implementation of environmental and climate change mitigation measures (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan (2018 to 2023)	In the task "environmental preservation" in the priority area "implementation of environmental and climate change mitigation measures," "Lecture on the environmental preservation and water resource management sector" (2018 to 2020) is included as part of training by problem.		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 0.948 billion yen Approximately 145.757 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country	2 (2019)	Same as above
		Number of Japanese residents in the country	49 (2019)	

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.
*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 30 Basic information on the Republic of Palau

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	488 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	18,008 (2019)	World Bank
		3. Population growth rate	0.6% (2019)	World Bank

Category	Item	Necessary Information	Survey Results	Survey Method
	2. Politics	1. Form of government	Presidential system	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	The United States of America	Same as above
		3. Capital	Melekeok (the capital was relocated from Koror in 2006)	Same as above
	3. Society and culture	1. Ethnic groups	Micronesian	Same as above
		2. Languages	Palauan language and English	Same as above
		3. Religions	Christianity	Same as above
	4. Climate	1. Climate	Tropical marine climate. The average maximum daily temperature is 30°C. The average annual temperature is 27.9°C and the humidity is 82%. The annual rainfall is high and mostly from squalls. The annual rainfall at Koror is 3,784 mm. The country has the dry season (November to April) and the rainy season (May to October).	Pacific Islands Centre (PIC)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	0.284 billion USD (2019)	World Bank (2019)
		2. GNI per person	17,280 USD (2018)	World Bank (2019)
		3. Economic growth rate	1.7% (2018)	World Bank (2019)
		4. Inflation rate	0.61% (2019)	IMF (2019)
		5. Unemployment rate	1.4% (2014)	World Bank (2019)
		6. Literacy rate	96.6% (2015)	UNESCO
		7. Human Development Index (HDI)	0.814 (55th in the world) (2018)	UNDP

Category	Item	Necessary Information	Survey Results	Survey Method
	2. Overview	1. Economic overview	The country greatly depends on grant aid based on the U.S. Compact of Free Association. In recent years, aid from Taiwan has also been increasing. The main industries are the construction industry that depends on the grant aid, commerce that is founded on import of foodstuffs and consumer goods, and tourism. The country highly relies on foreign workers. More than half of Palauans are public servants. Direct flights to Japan were stopped in 2018 and the total number of tourists considerably decreased. An overseas fishery company for which the main investor is a Taiwanese company has obtained the fishing right off the coast near Palau and has been exporting tunas to Japan, Taiwan, and China. Although the country produces taros and cassava and does coastal fishery, it depends on import from the United States of America for most of foodstuffs.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	17,800 (urban: 14,100; rural: 3,700) /18,000 (urban: 14,200; rural: 3,800)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using “basic drinking water”)*	National: 99% Urban: 99% Rural: 99%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided	JICA report[83]
		2. Water supply act	None	
		3. Water quality standards	Provided (environmental standards for seawater and fresh water)	
		4. Financial foundations	The income from water charges is equal to or less than the half of the necessary expenses. The deficits have been filled with government funds.	
	4. Characteristics	The water source is river water. The precipitation is high, so the water source is stable. Water shortage sometimes occurs due to El Nino. Many residents buy bottled drinking water that was made through membrane processing of tap water.		

[83] Report on the Preparatory Survey for the Water Supply System Improvement Project in Palau 2015

Category	Item	Necessary Information	Survey Results	Survey Method
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Achievement of independent and sustainable economic growth considering the sustainable sea and environments Priority areas (medium goals): Realization of sustainable sea, strengthening of the social foundations and industry development foundations, support for private investment, development of human resources, and implementation of climate change mitigation, environmental, and disaster prevention measures (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan (2018 to 2023)	In the development task “strengthening of the foundations for economic growth,” grand aid “water supply system improvement project” (2018) is included.		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 1.44 billion yen Approximately 2.03 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country Number of Japanese residents in the country	64 (2018) 339 (2019)	Same as above

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.
*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

Table 31 Basic information on the Republic of Nauru

Category	Item	Necessary Information	Survey Results	Survey Method
1. Basic Information	1. Overview of the country	1. Area	21.1 km^2	Ministry of Foreign Affairs: Country and Regional Information
		2. Population	12,581 (2019)	World Bank
		3. Population growth rate	-1.0% (2019)	World Bank

Category	Item	Necessary Information	Survey Results	Survey Method
	2. Politics	1. Form of government	Republic	Ministry of Foreign Affairs: Country and Regional Information
		2. Former colonial power (or system similar thereto)	Australia, New Zealand, and the United Kingdom	Same as above
		3. Capital	Yaren	Same as above
	3. Society and culture	1. Ethnic groups	Micronesian (with influence of Polynesian and Melanesian)	Same as above
		2. Languages	English (public language) and dorerin Naoero	Same as above
		3. Religions	Mainly Christianity	Same as above
	4. Climate	1. Climate	The climate is tropical. The temperature is high throughout the year; it is 27°C to 32°C during the day time and 25°C at night. The heat is mitigated thanks to sea breezes. More than half of a year is the dry season with eastern trade winds. Western winds blow in the rainy season from November to February. The average humidity is 80% and the average annual rainfall is 1,500 mm, but it greatly varies within a year.	Pacific Islands Centre (PIC)
	5. Traveling	1. Points to note when traveling, such as regarding public peace and order	Level 1: Exercise caution	MOFA's "Overseas Travel Safety Information" webpage
2. Economic conditions	1. Indicators	1. GDP	0.118 billion USD (2019)	World Bank (2019)
		2. GNI per person	14,230 USD (2019)	World Bank (2019)
		3. Economic growth rate	6.1% (2018)	World Bank (2019)
		4. Inflation rate	4.3% (2019)	IMF (2019)
		5. Unemployment rate	13.3% (2013)	World Bank (2019)
		6. Literacy rate	N/A	UNESCO
		7. Human Development Index (HDI)	N/A	UNDP

Category	Item	Necessary Information	Survey Results	Survey Method
	2. Overview	1. Economic overview	The country's main source to earn foreign currencies was rock phosphate, but it is almost exhausted. The country now has no special industry that supports the economy, so the economic conditions have been severe. The country has no food industry to meet its own demand, so it depends on import for most of foodstuffs and daily commodities. Therefore, with the influence of the increase in the petroleum prices around the world, the commodity prices in the country have also been increasing.	Ministry of Foreign Affairs: Country and Regional Information
3. Water supply status	1. Service pervasion	Population served	12,500 (urban: 12,500; rural: -) /12,600 (urban: 12,600; rural: 0)	WHO/UNICEF JMP (Data as of 2017)
	2. SDG reference indicator	SDG reference indicator (Percentage of population using "basic drinking water")*	National: 99% Urban: 99% Rural: -%	WHO/UNICEF JMP (Data as of 2017)
	3. Governance	1. National water supply strategy	Provided (Nauru Utilities Corporation)	NUC 2018 annual report,[84] SPC report,[85] and SOPAC report[86]
		2. Water supply act	Nauru Utilities Corporation Act 2016	
		3. Water quality standards	None	
		4. Financial foundations	Approximately 80% of the income are from electricity charges and approximately 10% are from water charges. Government subsidies account for a little less than 10%. (2018)	
	4. Characteristics	The county has no surface water. For non-drinking use, rainwater and groundwater mixed with salt water are used. To supply drinking water, mostly a reverse osmosis desalination plant is used.		

[84] Nauru Utilities Corporation Annual Report https://www.nuc.com.nr/annual-reports

[85] Water Supply, Sanitation & Hygiene (WASH) Training of Trainers for Nauru, SPC 2015 https://www.pacificclimatechange.net/sites/default/files/documents/4.%20Nauru%20WASH%20training%20report.pdf

[86] 2007Nov SOPAC Diagnostic Report Nauru

Category	Item	Necessary Information	Survey Results	Survey Method
4. ODA policy	1. Development cooperation policy	Basic policy (big goals): Support to strengthen the foundations for independent and sustainable economic growth considering climate change and vulnerabilities as an island country Priority areas (medium goals): Implementation of climate change mitigation measures and elimination of vulnerabilities (April 2019)		Ministry of Foreign Affairs: ODA development cooperation policy by country (former support policy by country)
	2. Project development plan	No plan for water services was specified. (2017 to 2022)		Ministry of Foreign Affairs: ODA project development plan
5. Relationship with Japan	Volume of trade	Exports to Japan Imports from Japan (2019)	Approximately 0.27 billion yen Approximately 0.28 billion yen	Ministry of Foreign Affairs: Country and Regional Information
	Corporations operating in the country, etc.	Number of Japanese companies operating in the country	0 (2018)	Same as above
		Number of Japanese residents in the country	0 (2018)	

*At least basic value (i.e., estimated value for a country that has not been able to provide the percentage of population using "safely managed" drinking water that should originally have been provided) is included.

*The percentage of population of using the "safely managed services (i.e., "safely managed"): Services for supplying water without contamination via fecal coliform indicator and high-priority chemical indicator, which can be obtained within the premises as necessary," as well as "basic services (i.e., "basic"): Services for supplying water, including drawing water for less than 30 minutes (including the round trip and waiting time) with regard to piped water, boreholes or tube wells, protected dug wells, protected spring water, and rainwater" from improved water resources

End