

EU – North Pacific – Readiness for El Niño (RENI) project
Palau
Concept Note

1. Background

Recognising the impact of the 2015 – 2016 El Niño drought in Palau, and future climate change projections for increased rainfall variability, the Government of Palau identified water security as the focus sector (31.10.17) for the RENI project. The National Emergency Committee (NEC) compiled a comparative matrix of activities based on previous reports on droughts in Palau.

2. Selection of beneficiary communities

The NEC is a national committee charged under Executive Order of the President to determine national plans and priorities on disaster risk management. The NEC includes public and private partners.

Following the 2016 drought, response strategies were prepared, and these informed the comparative matrix of activities. In particular, the 2016 Drought Report (transmitted to the Chairman of the NEC on 15.07.2016) provided recommendations for ways in which to prepare for future drought situations.

Among the options reviewed were:

- Traditional water sources – work with State and Traditional governments
- Water catchments/tanks
- Water trucks for water rationing at alternate facilities
- Rehabilitate old wells
- Develop new wells
- Expansion and maintenance of existing primary water sources
- Desalination/RO units

The comparative matrix shown in Annex 1, further analyses several of these options for specific states. The overall approach was to try and address the needs of as many users and states as possible.

After further discussion and reviewing past projects, as well as taking into account the very limited timeframe of the RENI project, the NEC Committee at a specially convened meeting on 8th March 2018, decided to focus in the first instance on priorities 1, 6 and 7. This will involve a more focused approach in Aimeliik and Ngatpang, two states on the west coast of Babeldaob and within about a 30 minutes-drive of the centre of population in Koror and Airaii.

The priorities are:

1. Purchasing and maintaining two water tanker trucks

These trucks will be able to supply water to all residents during times of drought, especially the most vulnerable such as the elderly and persons with disabilities.

2. Establishing a water storage facility on the Ngerderar River in Aimeliik State

This river did not run dry during the 2016 drought and has been identified as a “new” water source for future droughts. The proposal is to construct a weir upstream of the Compact road and pipe water via gravity flow to a (new) water storage tank of approx. 50,000 gallons

near the Compact Road. The proposed works are located in the Ngerderar Protected Area Watershed. This water storage unit will be accessible to nearby communities as well as the larger population centers in Koror and Airaii. This will serve as a water source all year as well as during drought. The capacity of the catchment, the Protected Area status of the Ngerderar watershed, and arrangements for maintenance are particular concerns that will be addressed during the project design.

3. Establishing a water storage facility on a water source near Tabecheding Falls in Ngatpang State

This river did not run dry during the 2016 drought and has been identified as a “new” water source for future droughts. The proposal is to construct a water storage tank of approx. 50,000 gallons near the Compact Road, which will be accessible to nearby communities as well as the larger population centers in Koror and Airaii. This will serve as a water source all year as well as during drought. The capacity of the catchment as well as arrangements for maintenance are particular concerns that will be addressed during project design.

Annex 1 Comparative Matrix for RENI Project Palau

PROJECT NAME	PROS	CONS
<p>1</p> <p>WATER TANKER TRUCKS</p>	<ol style="list-style-type: none"> 1. Can reach most, if not all, residents 2. Easy to operate 3. Can be useful during nonemergency situations 	<ol style="list-style-type: none"> 1. Maintenance and upkeep when not in use needs to be established. 2. Where is water source 3. Depending on size, may not be practical for accessibility 4. May be costly on fuel and manpower as experienced from last drought 5. Need to synergize with Ngerderar, Tabecheding, Melekeok and Ngchesar watering holes to enhance efficiency. (Caveat)
<p>2</p> <p>STAND PIPE NEAR MELEKEOK POLICE SUBSTATION</p>	<ol style="list-style-type: none"> 1. Long term solution 2. Water filled up and available 3. Easy access to water 4. Quick road side filling station for water trucks and individuals 5. Low capital cost and almost maintenance free 6. Can be done In-house by PPUC 	<ol style="list-style-type: none"> 1. Maintenance/vandalism 2. Can become traffic hindrance if improperly planned and positioned.
<p>3</p> <p>STAND PIPE NEAR SHIMIZU WATER TREATMENT PLANT</p>	<ol style="list-style-type: none"> 1. Long term solution 2. Water filled up and available 3. Easy access to water 4. Quick road side filling station for water trucks and individuals 5. Low capital cost and almost maintenance free 6. Can be done In-house by PPUC 	<ol style="list-style-type: none"> 1. Maintenance/vandalism 2. Can become traffic hindrance if improperly planned and positioned.
<p>4</p> <p>MOBILE REVERSE OSMOSIS / DESALINATION UNIT</p>	<ol style="list-style-type: none"> 1. Self contained if installed with solar panels 2. Removes 95-99% total dissolved solids, chlorine, fluoride & other impurities 3. Energy efficient 4. More environmentally responsible 5. Simple maintenance 6. Desal is effective; 7. Uses ocean as source 8. Turns salt water to potable water 9. Low capital cost 	<ol style="list-style-type: none"> 1. Needs a trained technician to maintain 2. Initial payment is high, maintenance & labor fees to be considered 3. Depending on RO size, may not be practical for accessibility 4. Can be some clogging 5. Chlorine can damage system 6. Takes patience & time due to using household water pressure & requires time to go thru the membrane as well as refill the tank 7. Parts and filter media may not always be available 8. Short usable life due to working in and exposed to the elements
<p>5</p> <p>EXISTING WATER WELLS</p>	<ol style="list-style-type: none"> 1. Water is potable already 2. Abundant supply 3. 80% of infrastructure is there already. 4. Proposed project is to enhance output 	<ol style="list-style-type: none"> 1. Limited capacity 2. Treatment, access, quantity
<p>6</p> <p>NGERDERAR WATER FILTER AND TANK</p>	<ol style="list-style-type: none"> 1. Long term solution 2. Closer to Koror/serve West 3. Easy to access water 4. Low maintenance 5. Can be full time water supply system for existing residents of area 6. Fosters development by “build it and they will come” concept 	<ol style="list-style-type: none"> 1. Downstream impacts, permanent structure 2. May be costly 3. Maintenance/vandalism 4. Proposed site is an active PAN site 5. High capital cost 6. “Down the road” costs will be required to extend a distribution line to the residents.
<p>7</p> <p>TABECHEDING WATER FILTER AND TANK</p>	<ol style="list-style-type: none"> 1. Long term solution 2. Closer to Koror 3. Easy access to water 4. Low maintenance 5. Can be full time water supply system for existing residents of area 6. Fosters development by “build it and they will come” concept 	<ol style="list-style-type: none"> 1. Downstream impacts, permanent structure 2. May be costly

