



GEF PACIFIC IWRM PROJECT RESULTS

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RSC 5 2013

Integrated Water and Land Management for the Sustainable Use of the Laura Water Lens, Majuro Atoll



Top 3 Project Results

1. Establishment and Operation of the National IWRM Task Force as RMI's APEX Body for Coordination and Planning of Water and Sanitation Investments and Actions
2. Strengthened Community Engagement with National Government on Water and Sanitation Issues via Establishment and Operation of the Laura Lens Committee
3. Reduced stress on the Laura Water Lens by development and operation of septic remediation programme, pilot ECOSAN, and conversion of piggeries from wash down waste disposal systems to dry litter systems

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1. PROJECT OBJECTIVE

The objective of the “*Integrated Water and Land Management for the Sustainable Use of the Laura Water Lens*” Project (Laura Lens Project) is to strengthen national and local coordination for water resource management with a focus on reducing stress on the Laura Water Lens and planning the longer-term sustainable use of the Laura Water Lens.

2. RESULTS: PROCESS

A start-up committee for the IWRM Demonstration Project was first established in 2009 with members limited to traditional leaders, major landowners, and Council officials from the Local Government. Following establishment of the Project Management Unit In 2010, effort was made to revitalise and expand the membership of this group. Initially, traditional leaders and Laura residents were invited to consultations to re-introduce project goals, objectives, and to ensure all key traditional leaders were adequately represented in these discussions. Establishment of this locally based committee has been effective in: (a) building relationships of government with traditional landowners and leaders and (b) has also been catalytic in terms of influencing decision makers at the national level to provide support for the revitalisation of the “*National IWRM Task Force*” to lead national IWRM policy and planning. The National IWRM Task Force then proceeded to organize a national consultative process, including a large National Water and Sanitation Summit convened in March 2011 involving ~300 participants, to agree targets and priorities for the development of national policy and an IWRM Plan. This has facilitated the development of a National Water and Sanitation Policy and draft IWRM Plan for endorsement 2013.

2(a) INDICATOR#1: BEST IWRM AND WUE APPROACHES DEFINED

Prior to project inception a consultant had been engaged to identify IWRM and WUE needs for the Marshall Islands. Although these had not been considered by communities or relevant agencies of government. The target was to have the approach defined and endorsed by national APEX body. Via the operation of a national consultation process, involving communities and women’s groups, priorities for and steps towards institutionalizing IWRM approaches in the RMI have been developed and endorsed by the National IWRM Task Force.



Figure 1: Influential female members of the community, including the First Lady, Government Officials, and WUTMI members attend the 2011 Water Summit to lend their support to IWRM initiatives in RMI



Figure 2: Members of the National IWRM Task Force working to incorporate agreed approaches for IWRM into the National Water and Sanitation Policy

2(b) INDICATOR#2: INCREASE IN COMMUNITY ENGAGEMENT WITH NATIONAL GOVERNMENT ON WATER ISSUES

At the time of project inception, the relationship with the Laura community and national government was tenuous due to a history of dispute over water resource access and allocation. Prior to project commencement, only 2 community group representatives occasionally took part in government workshops. Regular engagement of traditional leaders, landowners, and Laura residents with government through the operation of the community-based Laura Lens Committee has assisted with developing a common understanding and trust between the community, with on average 12 community leaders meeting on a quarterly basis with government.



Figure 3: Community representatives participating in a National Water Summit in 2011

2(c) INDICATOR#3: MULTI-SECTORAL APEX BODY IN PLACE

At the time of project inception, there was no APEX body for water in the RMI. The target of the project was to have such a body established and operational by July 2010. RMI's National IWRM Task Force was established by Executive Order and includes membership off all relevant community

and traditional leaders, national government departments, local governments, private sector and NGOs. The Task Force is actively leading coordination, policy development, and planning.



Figure 4: National IWRM Task Force making a presentation to RMI Parliament on IWRM Policy

2(d) INDICATOR#4: SECTORAL ENGAGEMENT IN FORMAL MULTILATERAL COMMUNICATION ON WATER ISSUES

Prior to commencement of IWRM there was limited cross sectoral engagement or communication on water issues. The project aimed to increase engagement, with a particular emphasis on strengthening communication between national government and traditional community-based governance arrangements. The National IWRM Task Force established the forum for this and, with Secretariat support for this group provided through the IWRM, up to 30 different agencies from national and local government, representatives of NGOs, and community leaders have met on a quarterly basis to discuss national water and sanitation policy and IWRM planning, review the status of various water related investment in the Marshall Islands, and to share information on the results of various stress reduction technologies being trialed as part of the IWRM demonstration project. Minutes of the meetings of National IWRM Task Force indicate a high level of continuity of participation by senior representatives of the participating agencies in these meetings.



Figure 5: The President of the Republic of the Marshall Islands facilitating the National Water Summit in 2011

2(e) INDICATOR#5: LAURA LENS INTEGRATED WATER AND LAND MANAGEMENT ADVISORY COMMITTEE

At project inception there existed no mechanism for local community stakeholders, including landowners and traditional leaders to contribute to planning and management of water resource use and sanitation in the area of the Laura groundwater lens. The target of the project was to establish a local coordinating committee to enable community input to planning at both local and national levels and to establish a formal linkage between local stakeholders and the National IWRM Task Force. Terms of Reference and membership for a Laura Lens Integrated Water and Land Management Advisory Committee (or Laura Lens Committee) were developed, considered by the 2011 National Water and Sanitation Summit, and subsequently endorsed by the Chair of the National IWRM Task Force. The Committee has been in operation since 2011 and acts to guide planning of local stress reduction initiatives and provides inputs to national policy and planning.



Figure 6: Members of the Laura Lens Committee meeting with a regional expert on pig waste management to discuss and plan the installation and maintenance of dry litter pig pens in the Laura Community

2(f) INDICATOR#6: PROPORTION OF COMMUNITY ENGAGED IN WATER RELATED ISSUES

Community engagement in awareness activities and on-the-ground work for environment and natural resource management was largely limited to solid waste management prior to the commencement of the IWRM demonstration project. This project aimed to achieve a 30 percent increase in community participation in both water and sanitation related awareness and engagement activities. This has been achieved by development and operation of a targeted water resource protection awareness program which has been mainstreamed into the routine operations of RMI EPA. Supporting initiatives include the active participation of 33 households in testing dry litter pig pens and ecosanitation toilets in the Laura community.



Figure 7: Community awareness workshop on IWRM and safeguarding the Laura lens convened as part of the IWRM demonstration project's outreach programme

2(g) INDICATOR#7: BEST APPROACHES TO IWRM AND WUE MAINSTREAMED INTO NATIONAL AND REGIONAL PLANNING FRAMEWORKS

Prior to project commencement the RMI had no strategy or agreed approaches to water and sanitation policy. The project aimed to define targets and priority actions for IWRM aimed at strengthening national coordination and reducing stress on vulnerable water resources for mainstreaming into national and regional planning frameworks. An intensive consultative process, involving broad cross-sectoral and community participation, enabled the definition of best approaches for water and sanitation management which were subsequently incorporated in the draft National Water and Sanitation Policy and IWRM Plan. National priorities have also been used in broader regional efforts during 2012-2013 to revise the Regional Action Plan for Water and Sanitation.

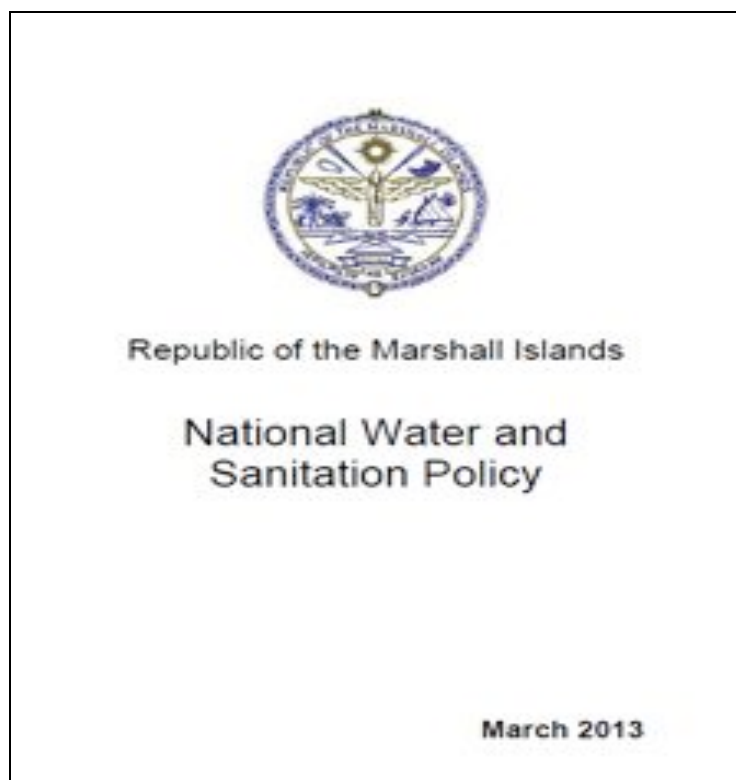


Figure 8: The Republic of the Marshall Islands' national policy and planning framework for the water and sanitation sector

2(h) INDICATOR#8: LESSONS LEARNED INCORPORATED INTO OTHER PROJECT(S) AND/OR REGULATIONS

The Majuro Atoll Local Government (MALGOV) ordinances human and pig waste management and the RMIEPA regulations for household toilets require the use of septic systems at each household in the Laura community. Limited resources for septic pump-out and disposal had led to overloaded septic systems contaminating the Laura water lens. The project demonstrated alternative, locally appropriate technologies for the management of pig-waste (dry-litter pig pens) and human waste (ecosanitation composting toilets) in the Laura community. The Laura lens committee for the project has initiated efforts with MALGOV and RMIEPA to amend local government ordinances and national regulations to encourage the use of dry litter pig pens and ecosanitation toilets in place of septic systems.



Figure 9: Council members discussing issues relating to use of septic systems in areas of the vulnerable Laura groundwater lens

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3. RESULTS: STRESS REDUCTION

The Laura Lens Project aims to reduce stress on the Laura Water Lens via targeted actions addressing pollution from septic systems, piggeries, and domestic solid waste. These will be supported via introduction of a zoning scheme based on an assessment of Laura water lens vulnerability to land and water uses. Key achievements to date include conduct of a survey of solid and septic waste management practices and needs for all Laura households, and development of septic monitoring and pump-out programme; community led design and conduct of household water use and sanitation audit; construction of 3 pilot ECOSAN systems at prominent locations in Laura community; preliminary works to remediate a large broken pig waste septic at a commercial piggery and conversion of its operation to a dry litter system; and conversion of 30 household pig pens to dry litter system from typical water intensive wash down pens.

3(a) INDICATOR#1: REDUCTION IN SEWAGE POLLUTION IN LAURA COMMUNITY

At the time of project inception, there was no system in place for reducing sewage pollution in Laura. Many household septic systems were overloaded and broken. The target of the project was to have 35 percent reduction in sewage pollution of the lens from households. The survey of septic waste identified 117 broken and overloaded septics requiring immediate pump-out. To date around 40% of these septics have been remediated.



Figure 10: Example of an overloaded septic immediately above the Laura Water Lens

3(b) INDICATOR#2: REDUCTION IN POLLUTION SOURCES DISCHARGING INTO LAURA GROUNDWATER

At the time of project inception, there was no action underway for reducing pollution discharges into Laura groundwater. The target of the project is to achieve 30% reduction in sources discharging into Laura groundwater. To date the number of households and pollutant sources have been identified and characterized. Pollution from pig waste has been identified as a major source. Preliminary work has been done to remediate a large broken pig waste septic at a commercial piggery and conversion of its operation to a dry litter system, and conversion of 30 household pig pens to dry litter system from typical water intensive wash down pens. An ECOSAN pilot activity is also underway in the Laura community, with 3 pilot systems constructed at prominent locations in Laura community. The national IWRM Plan for RMI is being developed and contains targeted costed actions for pig waste management and ECOSAN replication and scaling-up.



Figure 11: Commercial piggery situation above the Laura Water Lens with effluent discharge into cesspit immediately in the lens. High levels of *e coli* have been recorded at wells in the vicinity.



Figure 12: Waterless dry litter pig waste management being promoted in the Laura community at commercial pig farms and for household pig pens (change photos above to include Bokmej and household pens



Figure 13Current toilets being utilized at Laura providing poor sanitation and septic systems



Figure 14: Recently constructed eco-san toilets as part stress reduction methods and ideal replacement for current toilets being used on Laura

3(c) INDICATOR#3: POPULATION WITH ACCESS TO IMPROVED SANITATION

Prior to inception of the IWRM demonstration project there was no monitoring of the status of sanitation systems in the Laura community. Routine monitoring of well water quality and resultant e-coli data had indicated significant risk of waterborne disease. Priority targets of the project were to conduct an assessment of the state of sanitation at the project site and to initiate a monitoring programme to identify septic system remediation and sludge disposal needs. Based on the results of this assessment, the project initiated a partnership with the Majuro Water and Sewer Company for the routine pump-out of septic systems. To date this has resulted in almost 40 percent of overloaded septic systems having been remediated. Recent surveys of well water quality indicate significant reduction of e-coli in the Laura lens groundwater. This has been augmented with efforts to promote ecosanitation approaches within the community.



Figure 15: The Majuro Water and Sewer Company septic pump-out operations

3(d) INDICATOR#4: REDUCTION IN USE OF FRESHWATER FOR SANITATION PURPOSES DUE TO COMPOSTING TOILET INSTALLATION

Prior to project commencement there was limited understanding of the volumes of water used for sanitation at the household level. The project aimed to provide practical demonstrations to

householders in the Laura community of how to reduce household water use by 30 percent through the use of ecosanitation composting toilets. Technical exchange with the Tuvalu IWRM project enabled the construction of 3 demonstration toilets at key locations within the Laura community. It has been estimated that these households have reduced water use by 40 percent through the use of composting toilets instead of flush systems. These reductions in water use have been augmented by the conversion of wash-down pig pens to waterless dry litter pig waste management systems at 30 households in the community.



Figure 16 Comparison of the commonly used flush toilet in Laura with the waterless composting toilet demonstrated in the Laura community

4. RESULTS: WATER RESOURCE AND ENVIRONMENTAL STATUS

IWRM in the Marshall Islands aims to contribute to improved water resource status by increasing population with access to safe drinking water supply and with access to sanitation. Drinking water safety has been addressed via the development of a drinking water safety planning and IWRM planning underway for RMI incorporates the replication of this work on Ebeye.

4(a) INDICATOR#1: POPULATION WITH ACCESS TO SAFE WATER

At the time of project implementation, there had been no water safety planning conducted for Majuro Atoll. The target of the project is to have the Majuro Water Safety Plan implemented. To date water safety issues have been investigated and discussed with key water providers and businesses. A Water Safety Plan has been drafted and reviewed by the IWRM Task Force and is awaiting formal adoption.