

Policy Brief No. 2 – 2025

Biogas systems in Tuvalu: Gender impact assessment



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Pacific
Community

Communauté
du Pacifique

Suva, Fiji, 2025

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Original text: English

Pacific Community Cataloguing-in-publication data

Biogas systems in Tuvalu: gender impact assessment

(Policy brief / Pacific Community and Fiji National University; no. 2, 2025)

1. Biogas – Tuvalu.
2. Biomass energy – Tuvalu.
3. Digester gas – Tuvalu.
4. Women in development – Tuvalu.
5. Energy policy – Tuvalu.
6. Energy development – Tuvalu.
7. Gender mainstreaming – Tuvalu.

I. Title II. Pacific Community III. Fiji National University

665.776099682

AACR2

ISBN: 978-982-00-1628-6

This policy brief can be cited as: Hussain, J., Prasad, R.D., Reddy, N.K., Jreeta., Morris, T.M., Johnson, T. & Saula, I. (2025). Policy Brief No. 2 Biogas systems in Tuvalu: Gender impact assessment, The Pacific Community (SPC) and Fiji National University, Suva, Fiji.

Cover photo: Telei feeding the biogas system at her home in Funafuti

Prepared for publication at SPC's Suva Regional Office, Private Mail Bag, Suva, Fiji, 2025

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EXECUTIVE SUMMARY

INTRODUCTION

This policy brief synthesises research findings, analyses, and policy recommendations relating to the gendered impact of biogas systems on households on Funafuti, the main coral atoll of Tuvalu. Data were collected from September to October 2024. A mixed-methods approach using a survey questionnaire, key informant interviews and focus group discussions, was adopted. To assess the gendered impact of biogas systems, focus group discussions were conducted with seventeen women and ten men from both biogas-user and non-biogas-user households. These focus group discussions were used to understand gendered roles and responsibilities, access to and control over resources and their benefits. They were also used to assess the impact of biogas systems on gendered relations and social norms in Tuvalu. Interviews were conducted with seven stakeholders to gain insights into the experiential benefits and challenges of biogas systems, and the opportunities biogas systems provide for women and girls. Data were triangulated from the focus group discussions, stakeholder interviews and the survey questionnaires to maximise comprehensiveness and diversity. A validation workshop was held on 27 November 2024 to present and validate key findings with key government and community stakeholders.

This policy brief is complemented by *Policy Brief No. 1 Biogas Systems in Tuvalu: Achieving a Just Energy Transition Through Clean Cooking*, which summarises the findings of research investigating the impact of home biogas systems on households in Tuvalu, and the effectiveness of such systems in replacing traditional stove types. Funding and technical support for the research was provided by the Pacific Women Lead at the Pacific Community (PWL at SPC) programme, supported by the Government of Australia and the Funding with Intent programme, supported by the Government of New Zealand. The Government of the United States provided initial financial support for the Pacific Community (SPC) to procure and install 20 biogas systems across four islets in Tuvalu.

CONTEXT

Tuvalu, a small Pacific Island nation, faces unique challenges and significant gender disparities in income generation, opportunities for meaningful participation in decision-making processes, and vulnerability to domestic violence. Gender relations and norms in Tuvalu are shaped by tradition and culture. Men are traditionally the leaders and decision-makers. With a predominant gender-based labour allocation in Tuvaluan households and communities, women have the major responsibility of cooking and managing Indigenous household energy systems. Consequently, much of the unpaid labour work, including cooking, caregiving and home management, is left to women. The burden of unpaid labour is largely felt by women, as it hinders opportunities for education, training, entrepreneurship and empowerment.

KEY FINDINGS

- **Health and wellbeing:** Biogas systems promote a healthier cooking environment by reducing smoke emissions, and improving indoor air quality and health outcomes for women and children.
- **Time savings:** Biogas systems help cut down the time women and girls spend on cooking by offering an additional source of energy for cooking stoves, potentially allowing more time for education, income-generating activities and leisure.
- **Economic empowerment:** Time saved from cooking can be redirected towards educational and economic activities, enhancing women's economic status and improving financial management skills.
- **Educational benefits:** Women can participate in training and capacity-building programmes related to biogas technology, enhancing their technical skills and employability.
- **Socio-cultural changes:** Biogas systems may gradually improve gender relations as more men participate in cooking-related activities and administer biogas system operations.

POLICY RECOMMENDATIONS

- **Community engagement and women's empowerment:** Involve women in community-based biogas projects from the planning through to implementation and evaluation stages. Conduct consultations that specifically reduce barriers to women's participation. Ensure that the elderly, people with disability, and other marginalised and gender-diverse groups benefit from biogas technology.
- **Training and education:** Ensure that training programmes include and empower women with the skills needed to operate and maintain biogas systems. Provide scholarships to women pursuing science, technology, engineering and mathematics (STEM) education.
- **Financial support and incentives:** Offer microfinance, subsidies, and low-interest loans, as well as small business development training, to women entrepreneurs using biogas and low-income households.
- **Capacity-building and networking:** Establish and support women's networks and associations to facilitate knowledge-sharing and collaboration. Build women's capacity and leadership skills in biogas technology.
- **Public awareness and advocacy:** Launch awareness campaigns to promote the economic and health benefits of biogas for women and children, and to highlight the importance of women's participation in biogas programmes.
- **Gender-responsive policymaking:** Provide gender mainstreaming training for energy policy-makers and decision-makers, and support gender mainstreaming initiatives across the energy sector that identify and address women's and men's energy needs and barriers to participation. Integrate biogas into national renewable energy strategies and gender equality frameworks.
- **Policy coordination and integration:** Increase collaboration of the Department of Energy with the Gender Affairs Department and other departments (e.g. agriculture, environment, health) to create synergies on and maximise the impact of biogas initiatives. Adopt an intersectional approach in project design, implementation and evaluation.
- **Monitoring and evaluation:** Develop gender-disaggregated data collection systems and conduct regular evaluations to monitor women's progress related to biogas programmes.
- **Inclusive workplace policies:** Implement gender quotas in all levels of the energy sector workforce. Introduce mentorship programmes for women in the energy sector, and flexible working hours and on-site childcare facilities across all sectors.

“There is a need to conduct awareness campaigns that highlight the essential roles women can play in renewable energy, encouraging greater participation and challenging traditional gender norms.”

Mrs Moe Saitala Paulo, Acting Director, Department of Environment, Tuvalu

1 INTRODUCTION

Tuvalu is a Polynesian island nation in the west-central Pacific Ocean with a total land area of around 26 km². It has approximately 30 islets, as shown in Figure 1. According to the 2022 Tuvaluan census survey report, Tuvalu is home to 1,799 households with a total population of 10,941 (Menaouer 2024).

FIGURE 1. Map of Tuvalu with a focus on Funafuti Islet. Source: (World Atlas 2024)



A total of 86% of Tuvaluan households use LPG and electricity for cooking, while the rest use wood, charcoal and kerosene (Menaouer 2024). However, there is a disparity between urban and rural households, with 23% of rural households using kerosene, wood or charcoal for cooking, while only 5% of urban households use these polluting fuels. Women from poor households in Tuvalu spend more time gathering firewood and are more exposed to its impacts on respiratory health.

In his foreword to the recently formulated National Gender Equity Policy (NGEP 2024), the Prime Minister of Tuvalu, Honourable Feleti Penitala Teo, highlighted the significant disparities women in Tuvalu continue to encounter in terms of opportunities for income generation and meaningful participation in decision-making processes. Furthermore, he underscored the disproportionate vulnerability of women to domestic violence, which hinders education, training, leadership and economic opportunities. The Government of Tuvalu is committed to tackling these inequalities with the implementation of its National Gender Equity Policy and achieve gender equality in Tuvalu. It calls on all women and men in Tuvalu, in all their diversity, to make decisions together, enjoy the same opportunities to succeed economically, and be free from violence of any kind.

Given that the government aims to create an environment where everyone, regardless of gender, can reach their full potential and contribute to building a sustainable, strong and prosperous Tuvalu, biogas technology offers one pathway to empower women and their households through alternative, renewable energy technologies. Biogas technology offers significant potential in terms of reducing women's labour, improving health conditions, and providing opportunities for income generation and for social and community development activities, as well as local employment opportunities for rural women (Mahat 2004). Alternative energy technologies, such as biogas systems, provide a low-cost and clean alternative to traditional fuels for Tuvalu and other small island developing states in the Pacific region.

RESEARCH METHOD

This research on biogas systems in Tuvalu focused on three islets: Fongafale, Funafala and Papaelise. It adopted a mixed methods approach to data collection and analysis. A survey was conducted to gather quantitative data, and the gender impact assessment was conducted using a qualitative approach. This included four focus group discussions. Seventeen females and ten males participated in these discussions, two groups of females and two groups of males. They were divided into biogas system users (the Intervention Group, IG) and non-biogas users (the Control Group, CG). The discussions were conducted in the Tuvaluan language, translated and transcribed verbatim by the project team. The purpose of the discussions was to understand the gendered roles and responsibilities of the communities, their access to and control over resources, the benefits of the resources, and the impact of biogas systems on gendered relations and social norms in Tuvalu.

In addition, interviews were conducted with seven stakeholders to gain insights into the experiential benefits and challenges of biogas, and the opportunities biogas systems provide for women and girls. One person (male) with disability participated in the stakeholder interviews. Gender analysis frameworks, including the Gender Roles Framework (also known as the Harvard Analytical Framework), the Moser (Triple Roles) Framework, and the Gender Analysis Matrix (March, Symth & Mukhopadhyay 1999) were broadly adapted to organise and analyse data from the focus group discussions and summarise findings. Data were triangulated from the focus group discussions, stakeholder interviews, and survey questionnaires to maximise comprehensiveness and diversity.

TABLE 1: Tools used for gender analysis

Tool	Moser Gender Analysis Framework	Harvard Analytical Framework	Gender Analysis Matrix (GAM)
Purpose	Helps to understand the division of labour within the household and the community. Helps to examine how women and men manage their various roles and identify extension programmes that are tailored to men's and women's specific needs.	Identifies the type and amount of work men and women do in a household. Documents the differences in gendered access and control of resources.	Identifies how a particular production, processing, or marketing practice impacts men and women differently in the community.
Types/Levels of Analysis	<p>Triple roles</p> <p>Reproductive roles: Includes childbearing, caregiving, and domestic tasks.</p> <p>Productive roles: Includes roles related to activities that produce goods and services for consumption or trade.</p> <p>Community roles: Includes community work such as holding social events and political affairs of the community.</p>	<p>The activity profile: Documents inquiries about who does what for all relevant household and community tasks.</p> <p>The access and control profile: Clarifies and documents who has access to resources and who controls their use in relation to the tasks identified in the activity profile.</p>	<p>Four levels of analysis: men, women, households, and community.</p> <p>Examines the impact on four factors/areas: labour, time, resources, and socio-cultural factors.</p>



Ioana, with her child, as she boils water on her stove fuelled by her home biogas system

2 MAIN FINDINGS

The findings from this gender impact assessment suggest that Tuvaluan households, like elsewhere, have a gendered division of labour. Women are largely responsible for reproductive roles involving childbearing and caring, as well as domestic tasks that support the household's wellbeing, such as cooking, cleaning, washing, attending to the sick and elderly members, and a host of other things. Men are more engaged in productive and community roles (often voluntary), including producing goods and services, holding social events, and participating more in the political affairs of the community. Women may also be involved in these roles, but this is alongside their reproductive roles, which are primarily unpaid labour and may not be considered 'real work'. This gender impact assessment, although limited by a small sample size and data collection over a short period, suggests some improvement in gender relations with the advent of biogas. This is mainly because biogas systems offer opportunities for collaborative cooking at the household level and going beyond the traditional parameters of gender roles. The findings of this assessment, while not definitive, have implications for gradually transforming societies with rigid gender norms steeped in patriarchal traditions. It also provides the foundation for future research on clean cooking energy and gender impact assessments in Tuvalu and other small Pacific Island countries.

The following tables provide a summary of the findings from the gender analysis tools discussed in the above section.

1. ACTIVITY PROFILE

Table 2 shows the different activities categorised under three broad roles by gender. **Productive roles** are related to activities that produce goods and services for consumption or trade. **Reproductive roles** involve childbearing and caring, as well as domestic tasks that support the household's wellbeing, such as cooking, cleaning, fetching water, washing, and attending to the sick and elderly. **Community roles** involve community work, such as holding social events and activities to improve or care for community resources, and/or participating in groups or organisations.

The asterisk (*) indicates a smaller or negligible proportion of the sample engaged in a particular activity. The percentages shown for some activities were found from analysis of the survey.

TABLE 2: Activity profile

Activity profile	Women	Men	Girls	Boys
Productive activities/roles				
Income generating				
Selling handicrafts	✓			
Selling doughnuts/food	✓			
Employment	✓*	✓		
Agriculture				
Pig farming		✓		
Fishing		✓		
Gardening		✓		
Reproductive activities/roles				
Water	✓*	✓		✓
Fuel (collecting/transporting pig manure/gas)		✓ 72%		✓
Cooking	✓	✓*	✓	
Feeding the biogas system	✓	✓ 62%	✓*	✓
Childcare (children and grandchildren)	✓		✓	
Cleaning	✓		✓	
Sweeping	✓		✓	
Washing	✓			
Ironing	✓			
Tidying	✓		✓	
Housekeeping and management	✓			
Health/caregiving	✓			
Cleaning	✓			
Repairs		✓		
Preparing pig feed/pig-pen	✓*	✓ 75%		✓
Feeding pigs	✓*	✓ 85%	✓	✓
Digging earth ovens		✓		
Budgeting	✓	✓		
Purchasing food/mill mix		✓		
Community involvement/roles				
Meetings	✓*	✓		
Ceremonies and celebrations/weddings	✓	✓		
Helping others in time of need	✓*	✓		
Labour on communal projects/participating in groups	✓*	✓		
Holding social events		✓		
Catering and decoration/social goods like cleaning	✓			
Care for community resources	✓	✓		
Improving community resources		✓		
Resolving conflicts		✓		
Formal gatherings (<i>Fakaala</i>)		✓		
<i>Falekaupule</i>		✓		

Survey results

- a. Primary responsibility by gender:** Men are typically the primary individuals responsible for biogas tasks, including system maintenance, feeding the system, and managing related activities, such as pig feeding and manure collection. This indicates a gendered division of labour in the operation and upkeep of biogas systems, where men predominantly handle the labour-intensive roles.
- b. Shared household responsibility:** In households where the primary male responsible for biogas tasks is unavailable, both men and women are likely to step in as secondary operators. This highlights a more collaborative, flexible approach within families, where both genders participate in biogas management as needed. It suggests that biogas systems affect the daily routines of all household members, regardless of the primary operator's gender.
- c. Time burden on women:** Although men are mainly responsible for the biogas tasks, the overall family time required – averaging about eight hours per week – suggests that women may be indirectly affected by these time demands. The need for labour-intensive tasks, such as pig-pen cleaning and waste management, could also limit time available for other household responsibilities, often handled by women.
- d. Training needs for both men and women:** Since both men and women may be responsible for biogas tasks if the primary individual is unavailable, training programmes that include both genders are essential. Ensuring that women have equal access to biogas system operation and maintenance training can empower them to handle these tasks independently if needed, promoting resilience in household energy security.
- e. Implications for women's household roles:** The introduction of biogas systems brings a new layer of responsibility that affects both men and women, potentially altering traditional household roles and time allocation. Policy initiatives should, therefore, consider the indirect effects on women's workloads and time management when designing biogas-related interventions.

2. ACCESS AND CONTROL PROFILE

Table 3 documents who has access to resources and who controls their use in relation to tasks identified in the activity profile (above). The asterisk (*) indicates a smaller or negligible proportion of the sample population who have access to and control over the resources and their benefits. From the focus group discussions, Table 3 shows that while resources are accessible to both men and women, it is primarily men who have control over them.

TABLE 3: Access and control profile

	Access		Control	
	Women	Men	Women	Men
Resources				
Land	✓	✓	✓	✓
Water	✓	✓		✓
Livestock (pigs, chickens, ducks)	✓	✓		✓
Technology	✓	✓		✓
Project training	✓*	✓		✓
Household decision-making	✓*	✓		✓
Finance	✓	✓	✓	✓
Equipment	✓	✓		✓
Loans		✓		✓
Cultural inheritance	✓	✓		✓
Benefits (from resources)				
Assets	✓	✓		✓
Income	✓*	✓	✓*	✓
Education	✓	✓		✓
Political power/prestige		✓		✓
Health services	✓	✓	✓	✓
Food	✓	✓		
Fuel	✓	✓		
Skills	✓	✓		✓

Survey results

- a. **Household income:** 62.5% of woman respondents in the IG stated that their household's monthly income is below AUD 1,000, while 62.5% of woman respondents in the CG stated that their household income is above AUD 1,500. There is a significant difference in household income between IG and CG. The difference could be due to the type of income-earning work these households do and the rates they are paid. In addition, in the CG more households (five) are receiving remittances from overseas compared to IG (one). In terms of who controls household income, 50% of the woman respondents in the IG reported that they control household income; 12.5% reported that their household income was controlled by their partner/spouse, and 12.5% reported that it was jointly controlled (i.e. self and partner). For the CG, 70.5% of the woman respondents control their household income.
- b. **Household expenses:** 72% (8/11) women respondents in the IG had monthly expenses below AUD 500, while in the control group 37.5% (6/16) had expenses below AUD 500 and 50% had expenses between AUD 500-999.
- c. **Savings:** Household savings – For woman respondents, 60% of the households in the IG had savings below AUD 1,000 while in the CG, 89% had savings more than AUD 1,000, with 30% having savings more than AUD 5,000. In terms of the person controlling household savings, from women respondents of the two groups, 60% and 56% of the woman respondents in IG and CG respectively are controlling their household savings. Personal savings (main cooks) – 31.3% of female respondents in the IG and 35% of the female respondents in the CG did not have any form of savings. For those that have some personal savings, the majority are provident fund savings.



Siose prepares to feed the biogas system outside his home

3. GENDER ANALYSIS MATRIX: BIOGAS USERS

Table 4 illustrates the impact of the biogas systems on gender. The factors of analysis for the gender impact assessment include labour, time, resources and socio-cultural changes. The plus (+) suggests the positive implications of the biogas system for men and women while the minus (-) indicates the negative implications. The source of data is the 2024 focus group discussions.

TABLE 4: Impact of biogas systems on gender

Actors	Factors of analysis			
	Labour	Time	Resources	Culture (socio-cultural changes)
Women Biogas users	<p>(+) Less work in using the biogas stove</p> <p>(-) More work in the absence of spouse and children (feeding and collecting manure; preparing pig feed)</p>	<p>(+) Saved time in cooking food such as rice</p> <p>(+) The additional stove makes cooking more efficient</p> <p>(-) More time used to cook large meals</p>	<p>(+) Saved money</p> <p>(+) Economically efficient</p> <p>(+) Biogas produces more heat than a normal (gas) stove</p> <p>(+) Cleaner environment, minimise emission of polluted gas in the environment</p> <p>(+) Encourages entrepreneurship</p> <p>(+) Possibilities for generating income (e.g. selling food)</p>	<p>(-) No significant change in gender roles or status</p> <p>(+) Women are becoming entrepreneurs</p> <p>(+) Improvement in financial management skills</p> <p>(+) Acceptance of biogas use among the elderly and the community</p> <p>(+) Improved gender relations as more men help in cooking, food preparation, and managing biogas system operations</p>
Men Biogas users	<p>(-) More work in feeding/refilling the biogas system, collecting pig manure for biogas, collecting water, and checking the biogas system</p>	<p>(+) Provides an additional and efficient cooking system</p> <p>(+) Saved time in cooking</p>	<p>(+) Reduces indoor pollution</p> <p>(+) Saved money</p> <p>(-) Insufficient supply for the needs of large families</p> <p>(+) Biogas system is a convenient alternative on rainy days and during bad weather</p> <p>(+) Possibility of generating income (e.g. used biogas to cook food to sell)</p> <p>(+) Established savings fund when using biogas</p>	<p>(-) No significant change in gender roles or status</p>
Household Biogas Users	<p>(+) Saved women's labour for other activities and leisure</p>	<p>(+) Saved women's time for other activities and leisure</p>	<p>(+) Possibility of increasing income</p>	<p>(+) Positive attitude towards renewable energy and biogas technology</p> <p>(+) Positive attitude towards girls' education and women's training</p>

As shown in Table 4, biogas technology implementation has implications for gradually improving gender relations, roles, and gender norms as it offers opportunities for more collaborative efforts in cooking and goes beyond the traditional parameters.

This research also highlighted the challenges and opportunities of biogas systems for women. The next section provides a summary of these and draws implications for the practical and strategic gender needs of women and men in Tuvalu.

4. CHALLENGES AND OPPORTUNITIES FOR WOMEN

Table 5 shows the challenges women faced in using the biogas systems. These included the challenges that were directly related to the biogas systems, as well as those that were influenced by societal expectations and norms, the patriarchal society, and the prevalent gender disparities. Table 5 also provides a summary of the key opportunities these challenges inspire for addressing the operational and gender-pervasive issues and enable a more equitable and inclusive society.

TABLE 5. Challenges and opportunities for women

Challenge	Opportunities
<ul style="list-style-type: none"> • The availability of organic waste is a challenge for women and girls when there are no males available because it will mean more physical work (labour) for women • Single mothers and female-led households may face an increased workload, with many able-bodied Tuvaluan males participating in overseas labour schemes • Limited knowledge in operating and maintaining the biogas systems • Women may face logistical challenges, such as limited mobility due to childcare or household responsibilities, making it more difficult for them to attend meetings or training sessions related to biogas systems. • Gender disparity: Women often face barriers in accessing information, training, and decision-making processes related to biogas technology • Societal norms and expectations often restrict women’s participation in communal decision-making processes, including biogas production • Tuvalu’s patriarchal society: land ownership and stewardship are typically inherited through the male lineage, further limiting women’s involvement 	<ul style="list-style-type: none"> • Education, training, scholarships for women • Entrepreneurship and small business development, biogas training programmes, community energy projects, awareness-raising campaigns, and involvement in policy development and governance • Leverage existing women’s networks within the government and civil society organisations to expand and strengthen collaboration • Programmes aimed at raising awareness about the benefits of biogas • Engagement of girls in schools, promoting interest in STEM • Survey women’s engagement in the energy sector to know the number of women and girls interested in the energy sector and provide relevant support • Gender equity/equality awareness and training

5. GENDER NEEDS ASSESSMENT

Tables 6 and 7 provide a summary of the practical and strategic gender needs of men and women in Funafuti. The needs identified from the focus group discussions were analysed using the Moser conceptual framework for gender analysis and planning. **Practical gender needs** are identified by men and women based on their socially accepted roles and address immediate necessities such as energy access, water provision, nutrition, healthcare and employment. These needs arise from existing gender divisions of labour and do not challenge women’s subordinate position in society. In contrast, **strategic gender needs** are identified due to women’s subordinate status and aim to address issues such as participation in (energy-related) decision-making, legal rights, domestic violence, equal wages, and control over their bodies (Moser 1993). Meeting strategic needs helps women achieve greater equality and challenge unequal gender relations in society.

TABLE 6. Women’s practical and strategic gender needs

Women’s practical gender needs	Women’s strategic gender needs
<ul style="list-style-type: none"> • Improved access to organic manure • Improved access to technology • Basic biogas technology training • Biogas system installation and maintenance • Safety protocols, environmental impacts and waste management and use of bio-slurry as fertiliser • Entrepreneurship and business skills • Improved biogas systems • Improved water services 	<ul style="list-style-type: none"> • Collective organisation of women in formal sectors • Right to speak out at formal meetings and decision-making • Leadership skills and leadership positions in projects and community • Education (general and energy-related/STEM) • Youth empowerment • Reducing gender-based violence through awareness and training • Gender-disaggregated data in all sectors, including energy

TABLE 7. Men’s practical and strategic gender needs

Men’s practical gender needs	Men’s strategic gender needs
<ul style="list-style-type: none"> ● Improved access to organic manure ● Improved access to biogas technology ● Biogas system installation and optimisation strategies for maximising biogas production ● Biogas system operation and maintenance ● Advanced technical skills and knowledge of biogas systems ● Safety and risk management in biogas operations ● Entrepreneurship and business development ● Improved biogas systems ● Improved water services 	<ul style="list-style-type: none"> ● Education (general and energy-related/STEM) ● Gender awareness training ● Youth empowerment ● Embracing inclusivity in leadership positions in projects and community ● Gender-based violence awareness and training

The findings from the gender impact assessment of biogas systems in Funafuti point to the need for an empowerment approach to project design and implementation, supporting women’s capacity and the involvement of more women in the planning, installation, operation, training and management of biogas technologies.



Liliane, with her grandchild, cooking a meal on her stove fuelled by her family’s home biogas system

3 POLICY RECOMMENDATIONS

The findings of this research have important implications for policy and practice in the energy sector in Tuvalu. Implementing these recommendations can help create a more inclusive and equitable energy sector and biogas industry, ultimately driving innovation and sustainable development. Policy recommendations are listed below.

1 Enhance community engagement and women's empowerment

- Involve women in community-based biogas projects from the planning through to the implementation and evaluation stages.
- Conduct consultations and training that specifically invite women and reduce barriers to women's participation, including creating break-out group discussions to encourage open dialogue.
- Adopt an inclusive approach to biogas project design, implementation and evaluation to consider the indirect effects on women's workloads and time management, and to ensure that the elderly and people with disability, as well as other marginalised and gender-diverse groups, benefit from biogas technology.

2 Enhance training and education

- Ensure that training programmes include and empower women with the skills needed to operate and maintain biogas systems.
- Offer specialised training programmes and workshops to enhance women's technical skills and knowledge in the energy sector and to ensure sustainability and ownership.
- Provide scholarships and grants for women pursuing STEM education.
- Partner with local civil society organisations and women's groups to enhance outreach and effectiveness.

3 Provide financial support and incentives

- Offer microfinance and low-interest loans, as well as small business development training for women entrepreneurs using biogas technology.
- Provide subsidies, grants and financial incentives for women-led biogas projects, particularly targeting low-income and female-headed households.

4 Build capacity and networking

- Establish and support women's networks and associations in the energy sector to facilitate knowledge-sharing and collaboration.
- Organise workshops to build women's capacity and leadership skills in biogas technology.

5 Increase public awareness and advocacy

- Launch public awareness campaigns (especially radio and community programmes) to promote the economic and time-saving benefits of biogas systems for women, and to promote biogas as a viable alternative source of cooking energy with positive health impacts for women and children, particularly in rural areas.
- Launch public awareness campaigns that highlight the importance of women's participation in biogas and energy programmes more broadly.
- Collaborate with the media to showcase successful women leaders and role models in the energy sector.

6 Implement gender-responsive practices in energy policy-making

- Provide gender mainstreaming training for energy policy-makers, decision-makers and implementers.
- Conduct regular gender audits to identify and address women and men's energy needs, including barriers to women's participation in biogas and other energy-related projects.
- Support gender mainstreaming initiatives across the energy sector.
- Integrate biogas technology into national renewable energy strategies and gender equality frameworks.

7 Enhance policy integration and coordination

- Integrate gender considerations into national and regional biogas policies and strategies.
- Increase the collaboration of the Department of Energy with the Gender Affairs Department and other departments (e.g. agriculture, environment and health) to create synergies and maximise the impact of biogas initiatives.
- Adopt an intersectional approach to project design, implementation and evaluation to help identify and address inequalities, shift personal bias, and make informed decisions. Identify how multiple social identities, such as age, gender, class, disability, and sexuality work at multiple levels and pose unique experiences, challenges and barriers to access and control of resources, including biogas technology.

8 Strengthen monitoring and evaluation

- Develop gender-disaggregated data collection systems to monitor women's participation and progress in biogas and energy programmes.
- Conduct regular evaluations to assess the effectiveness of gender-inclusive policies and make necessary adjustments.

9 Implement inclusive workplace policies in the energy sector

- Implement gender quotas to ensure a minimum percentage of women in all levels of the energy sector workforce, and especially in leadership roles.
- Develop mentorship and sponsorship programmes to support women's career advancement in the energy sector.
- Introduce flexible working hours and remote work options across all sectors to accommodate women's diverse needs and household-gendered division of labour.
- Establish on-site childcare facilities and parental leave policies across all sectors that support both men and women.



Letia (left), Ioana and their children next to their home biogas system

Acknowledgments

This work was a collaborative effort of the Pacific Community (SPC) and Fiji National University. Funding and technical support was provided by the Pacific Women Lead at the Pacific Community programme, supported by the Government of Australia and the Funding with Intent programme, supported by the Government of New Zealand. The United States government funded the initial procurement and installation of 20 biogas systems in Tuvalu.

We extend sincere gratitude to the Department of Energy Director and staff for aiding the research work during site visits. Sincere gratitude goes to Kaio, Lavata and Teuleala for conducting the survey, focus group discussions and key informant interviews and to Lilian for doing the logistics of data collection. Heartfelt gratitude goes to Eseta Lauti for the notetaking during the validation workshop. The team is grateful to Dr Shane Harrison, formerly of SPC, for his lead and contribution to the project work until June 2024, Ms Therese Johnson from SPC for managing the project, and Ms Arti Devi from SPC for cleaning the survey data.

A heartfelt thank you to all stakeholders who attended and actively participated in the policy workshop that was organised for deliberating on and finalising the policy briefs. Finally, *fakafetai lasi* to all the household members for participating in the data collection phase.

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Produced by the Pacific Community (SPC)
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