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Solomon Islands: Malaita Hub Scoping Report



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Solomon Islands: Malaita Hub Scoping Report

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1. Executive Summary

The CGIAR Research Program (CRP) Aquatic Agricultural Systems (AAS) will target five countries, including Solomon Islands. "Hubs", defined as a "geographic location providing a focus for innovation, learning and impact through action research", have been identified in each of the countries. In the initial proposal document prepared in 2011 (CGIAR Research Program on Aquatic Agricultural Systems 2012b), the proposed hubs for Solomon Islands were to cover most provinces, referencing the Western, Central and Eastern regions. Scoping of the initial 'Central' hub was undertaken in Guadalcanal, Malaita and Central Islands provinces and this report details findings from all three. As scoping progressed however, it was agreed that, based on the AAS context and priority needs of each province and the Program's capacity for full implementation, the Central Hub would be restricted to Malaita Province only and renamed "Malaita Hub".

Consistent in each AAS country, there are four steps in the program rollout: planning, scoping, diagnosis and design. Rollout of the Program in Solomon Islands began with a five month planning phase between August and December 2011, and scoping of the first hub began in January 2012. This report, the second to be produced during rollout, describes the findings from the scoping process between January and June 2012.

Scoping consisted of one-on-one meetings with stakeholders, identification of existing reports and documents related to previous and current development and research initiatives, and a site visit to Malaita in February 2012. The scoping team also drew on WorldFish experience from ongoing bilateral projects in Honiara, rural Guadalcanal, Central Islands Province and Malaita. The scoping phase culminated with a stakeholder consultation workshop held in Auki, Malaita Province.

As scoping proceeded, we identified different levels of engagement for work in the hubs as well as other Provinces. While the hubs will be the primary focus of community based AAS research, the focus for the capital Honiara will be on national level capacities and the enabling environment. In provinces other than the hubs, activities will relate to scaling of lessons learned and will be effected through partnerships.

Malaita was selected as the first target province because of its particularly poor showing according to poverty indicators such as HPI/HDI, the challenges of population size and land/reef area, and relatively low levels of support, particularly relating to resource management. This profile increases the likelihood of having greater measurable impact. Two overarching challenges were recognized within Malaita Hub: high population pressure coupled with fast population growth, and declining marine resources and collapse of key cash earning commodities. A key outcome of the scoping process was the articulation of a draft development challenge for hub activities.

As the final step in the scoping process, the development challenge and its underlying rationale were presented to a hub level stakeholder consultation workshop in Auki in June 2012. The workshop attendees validated the development challenge and were able to identify a number of additional opportunities in agriculture and development that had not previously been adequately captured and that would need to be addressed further in the diagnosis phase. Network mapping enabled the identification of opportunities for strengthening and forming new partnerships to fill those gaps. Through a facilitated participatory process, stakeholders identified five areas of opportunity for impact that address the development challenge and that can be mapped to one of the six research themes of the AAS Program. These areas of opportunity are:

- improved community knowledge, attitude and practices;
- climate change adaptation;
- resource (including land, sea and mangrove) management;

- nutrition and livelihood diversification;
- cross-cutting areas related to gender and strength-based approaches.

This report marks the transition from the scoping phase to the diagnosis phase in which output from scoping was used to develop a hub level theory of change for identifying research opportunities. Subsequent reports detail in-depth analyses of gender, governance, nutrition and partner activities and discuss Program engagement with community members to identify grass-roots demand for research.

2. Introduction

The CGIAR Research Program on Aquatic Agricultural Systems

The CGIAR is undertaking a new generation of global agricultural research programs on key issues affecting global food security and rural development. These CGIAR Research Programs (CRPs) are meant to fundamentally improve the ways that international agricultural research works with stakeholders to achieve large-scale impact on poverty and hunger. The CRPs take a participatory approach to designing, implementing and assessing scientific research through partnerships between scientists, farmers, government, and private sector and civil society stakeholders. Their comprehensive view of agriculture that includes technological, environmental, social, economic and institutional dimensions will be implemented through multi-disciplinary partnerships that involve CGIAR centers and their national partners.

Several of the proposed CRPs focus on key single commodities of global or regional importance that include rice, maize, wheat, roots and tubers, livestock and fish, and legumes. Others are concerned with fundamental drivers of change such as climate change, markets and trade, and water. A third group focuses on understanding the main agricultural systems where these commodities and drivers of change interact and on creating opportunities for the poor that are dependent on these systems to improve their livelihoods and nutrition and thus climb out of poverty. One such holistic research program focuses on harnessing the development potential of Aquatic Agricultural Systems (AAS) and includes within its mandate inland floodplains, major river deltas, and coastal environments. The AAS program is coordinated by WorldFish on behalf of the CGIAR.

Solomon Islands is one of five priority countries in the Aquatic Agricultural Systems Program (hereafter called 'the Program') and represents the Coral Triangle nations that are dependent on fish caught principally from coastal marine fisheries. The overall goal of the Program is to improve the well-being of people dependent on these systems. The Program builds on an analysis of key constraints that drive poverty and vulnerability in aquatic agricultural systems, and identifies a preliminary theory of change (TOC) for the program, "...that releasing the productive potential of aquatic agricultural systems to benefit the poor will require aquatic agricultural systems users, and their partners in development to generate innovations in farming, natural resource management, marketing, livelihood strategies and social institutions. The capacity and confidence to innovate will be greater if people are less poor and vulnerable, better fed, and better integrated into economic, social and political processes".

Six corresponding objectives and research themes have been identified that frame the research agenda:

1. increased benefits from sustainable increases in productivity.
2. increased benefits from improved and equitable access to markets
3. strengthened resilience and adaptive capacity.
4. reduced gender disparities in access to and control of resources and decision making.
5. improved policies and institutions to empower AAS users.
6. expanded benefits for the poor through scaling-up.

Rollout of the AAS Program in Solomon Islands

The AAS Program emphasis on research in development requires commitment to places and relationships to establish the trust and co-operation essential to implementing an action research approach. To this end, engagement in each country will be focused through hubs. A hub is defined as a “geographic location providing a focus for innovation, learning and impact through action research”.

In Solomon Islands, rollout and implementation will occur in stages, beginning with one hub in 2012 and a second in 2013. The details of program activities in Solomon Islands will be consistent with the program research themes, but will also be guided by hub and community level gendered theories of change developed during the scoping and participatory diagnosis phases of rollout. The AAS Program Rollout Handbook (2012b) describes the four steps of program rollout: planning, scoping, diagnosis and design (Fig. 2). A five-month planning phase was carried out in Solomon

Islands from August to December in 2011. A scoping phase for the initial hub began in January, 2012 and finished with a stakeholder consultation workshop in June, 2012.

This report is the second to be produced during the scoping phase (Fig. 2). Prior to this report, a national situation analysis was produced (Govan et al 2013) that describes the national setting and provides basic information on the operational context of the Program in Solomon Islands. It includes an assessment of the Program’s relevance to existing national strategies and plans, with macro level analysis and provision of baseline national level indicators, policy context, power relationships and other factors relevant to program planning.

In this report we define the first hub with respect to geographical boundaries and expected modes of engagement, and begin to focus on hub level development challenges, possible research questions, current initiatives and potential partnerships.

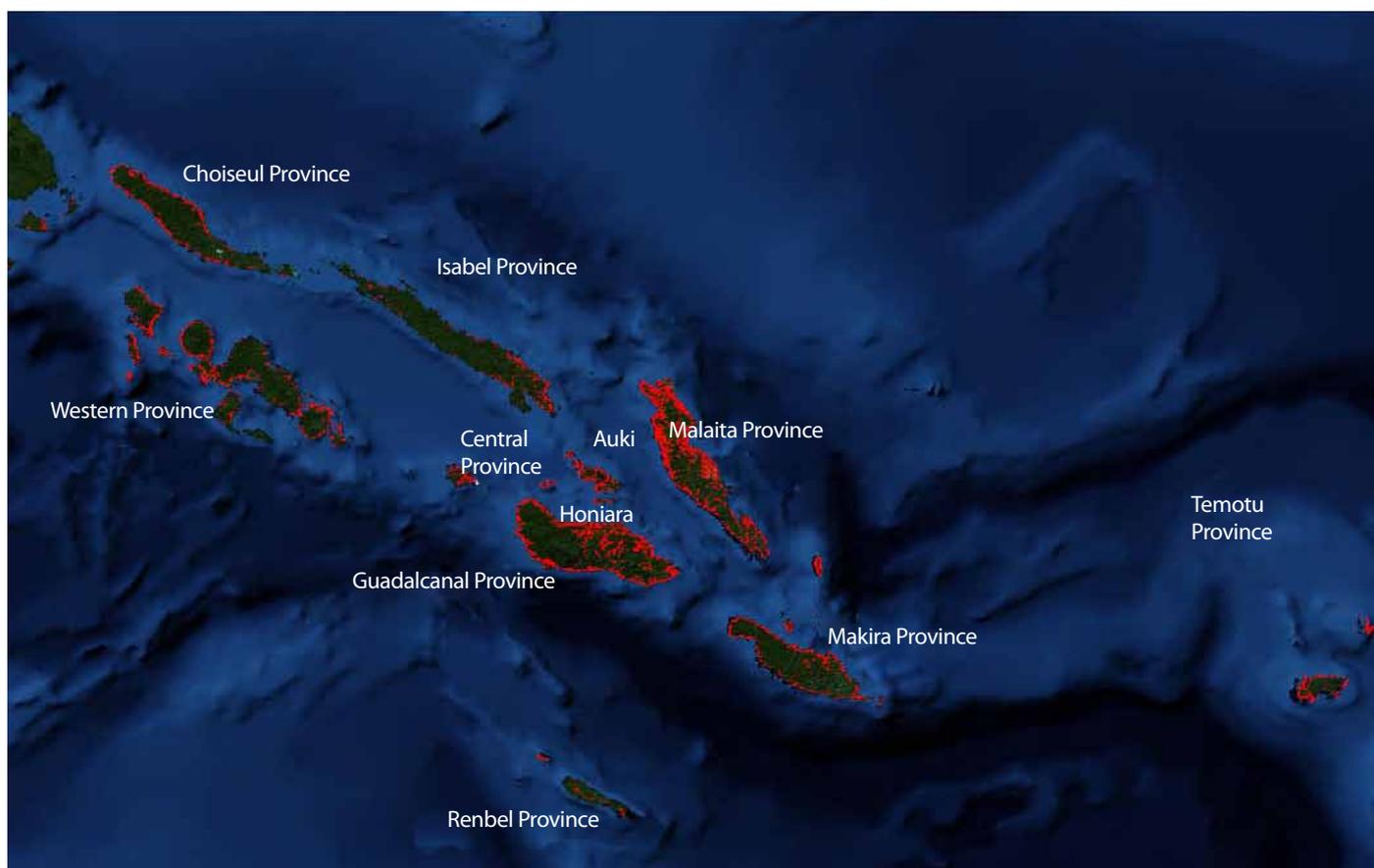


Figure 1. Map of Solomon Islands.

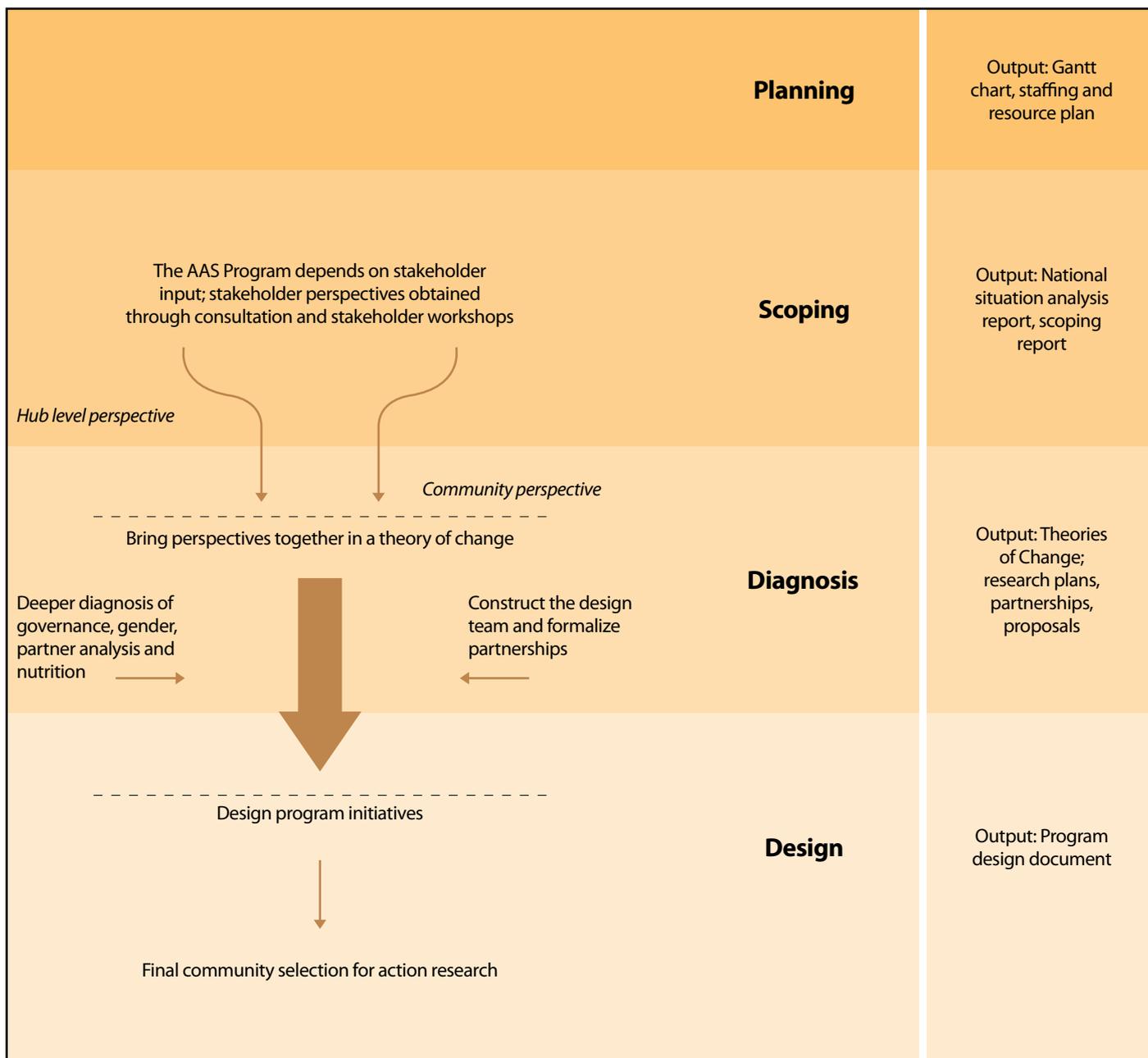


Figure 2. Diagrammatic representation of rollout process.

3. Scoping Process

A Central Hub was broadly defined in the program proposal (CGIAR Research Program on Aquatic Agricultural Systems 2012a) as encompassing three provinces: Guadalcanal, Malaita and Central Islands. Scoping therefore began with all three provinces in mind, and this report details findings from all three.

WorldFish has had a sustained engagement in Solomon Islands since 1986, and with specific communities in Western and Isabel Provinces for nearly a decade. At the time of scoping, WorldFish had ongoing bilateral projects with prospective aquaculture farmers in Guadalcanal, the provincial government, a community in Central Islands Province and communities in North and South Malaita. Experiences from these projects were incorporated into the scoping phase as well as additional secondary information that was collected.

The scoping team was drawn from WorldFish science and management staff, a consultant with Pacific development and coastal resource management experience, local government fisheries staff and a gender expert from local provincial government (Table 1). Unfortunately, government agricultural

staff were not available to join scoping team field visits.

Scoping included:

- preparation of an initial summary of other partner and stakeholder programs underway in the three provinces and of relevance to the Program;
- identification of existing reports and documents related to previous and current development and research initiatives;
- a scoping mission to Malaita in February, 2012;
- follow up visits to stakeholders in Honiara, rural Guadalcanal (Rere, Lees Lake, peri-urban Honiara) and rural Central Islands Province (Sandfly and Koilovalala) between February and May, 2012.

Stakeholder consultations (Appendix 1) consisted of informal focus group discussions, individual interviews with key informants and formal group discussions with key experts and local leaders. Stakeholder views and expert opinions have been solicited from national and provincial government officials, NGOs active in the provinces, WorldFish–Solomon Islands staff and members of civil society. The scoping team used the “Gender Checklist for the Hub Scoping Team” (AAS CRP Hub Rollout handbook 2012) to determine the type of secondary data needed and the nature of discussions with stakeholders.

The scoping mission to Malaita Province focused geographically on Auki, the provincial capital of Malaita, and the Eastern and Central regions of Malaita. While WorldFish had no previous experience working in the Eastern region of Malaita, the provincial government had identified it as a vulnerable region. As such, it was important to undertake a site visit to understand the context and opportunities for AAS to contribute to this region.

Based on relative priority needs in each of the three provinces and organizational capacity for full implementation, it was agreed that the first hub would be restricted to Malaita Province (hereafter referred to as 'the Hub').

The final step in the scoping process was the presentation of outcomes from the scoping mission to a stakeholder consultation workshop held in Auki in June, 2012. These outcomes informed the subsequent participatory Diagnosis and Design phase of rollout (Fig. 2).

The scoping process highlighted challenges and opportunities for agriculture and fisheries in Solomon Islands. As WorldFish is the only CGIAR center with a permanent presence in Solomon Islands and formal international program partners Bioversity and IWMI did not visit the country as part of the rollout process, we acknowledge that until the stakeholder consultation workshop, the entry points we had defined for the Hub retained a strong fisheries focus. The scoping process, however, enabled us to identify where formal partnerships with relevant agricultural stakeholders could be established and these partnership opportunities were strengthened and became more formal during the diagnosis and design phase (Fig. 2).

4. Description of the three provinces

Geography and demography

The three provinces included in the initial scoping prior to

narrowing the focus to Malaita are connected by population movement patterns and market chains.

Each of the three provinces is home to different ethnic groups [with at least 24 languages between them (Lewis 2009)] and Honiara, the capital of Guadalcanal, attracts people from all three as well as the remainder of the country. Honiara is the center of national government processes and employment, provides a significant link to the cash economy for rural families with members who have settled in the urban center, and provides the only significant market outlet and export gateway for fish and agricultural products from the rural areas.

Central Islands Province has the highest population density of all provinces in the country, closely followed by Malaita (Table 2), however Malaita has the largest overall population of any province. People of Malaitan descent have settled on both Guadalcanal and Central Islands Provinces. Geographically, Central Islands Province is the half-way point for boat travel between Guadalcanal and Malaita. At a greater distance from Honiara, the islands of Malaita have higher costs for transporting goods to market than the other two provinces.

According to Human Development Indicators and Poverty Indicators (HDI/HPI) in Solomon Islands [Source: Solomon Islands Human Development Report 2002 (based on 1999 Population and Housing Census)], Malaita has the lowest HDI and HPI of all three Provinces, which rank as the four lowest in the country along with Temotu (Govan et al 2013). Of the three Provinces, Malaita has 681 square kilometers of reef and shallow areas on which communities rely for subsistence and cash compared to 135 square kilometers in Central Islands Province and 83 square kilometers in Guadalcanal Province (data accessed from Reefbase.org coral layer 2010, cttlas.reefbase.org and pacificgis.reefbase.org).

Table 1. Members of the scoping team.

| Name | Position | Institution |
|-----------------------------------|------------------------------------|-------------------------------|
| Dr Anne-Maree Schwarz | Solomon Islands CRP Leader | WorldFish |
| Dr Neil Andrew | Pacific Regional Director | WorldFish |
| Dr Hugh Govan | Private Consultant | Private Consultant |
| Mr Daykin Harohau (Malaita only) | Research Analyst | WorldFish |
| Ms Clera Rikimani (Malaita only) | Council of Women, Malaita Province | Provincial Government |
| Mr Micheal Laumani (Malaita only) | Chief Fisheries Officer | Malaita Provincial Government |
| Ms Delvene Boso (Honiara only) | Country Manager | WorldFish |

Table 2. Geographic and demographic data for Solomon Islands provinces (MECM/MFMR 2009 and SINSO 2012).

| Province | Capital | Land Area (km ²) | Reef Area (km ²) | # Households | Population | Household Size | Population density (km ⁻²) |
|-------------------|-------------|------------------------------|------------------------------|--------------|------------|----------------|--|
| Central | Tulagi | 615 | 135 | 4,905 | 26,051 | 5.3 | 42 |
| Choiseul | Taro Island | 3,837 | 266 | 4,712 | 26,372 | 5.5 | 7 |
| Guadalcanal | Honiara | 5,336 | 83 | 17,163 | 93,613 | 5.4 | 18 |
| Isabel | Buala | 4,136 | 502 | 5,143 | 26,158 | 4.9 | 6 |
| Makira-Ulawa | Kirakira | 3,188 | 158 | 7,173 | 40,419 | 5.5 | 13 |
| Malaita | Auki | 4,225 | 681 | 24,421 | 137,596 | 5.6 | 33 |
| Rennell - Bellona | Tigoa | 671 | 192 | 688 | 3,041 | 4.4 | 5 |
| Temotu | Lata | 895 | 1,029 | 4,303 | 21,362 | 4.9 | 25 |
| Western | Gizo | 5,475 | 545 | 13,762 | 76,649 | 5.3 | 10 |
| [Honiara] | | | - | 8,981 | [64,609] | 7.0 | 2,953 |

Gender context for the three provinces

The situation of women in Solomon Islands shows alarming indicators, with some of the highest levels of domestic violence in the world: 64% have experienced physical and/or sexual violence (SPC 2009) with no evidence to suggest that the provinces that were scoped are worse than others.

Solomon Islands has low MDG 3 scores on gender due largely to the low participation of women in non-agricultural employment and their absence in national and, to a lesser extent, provincial government. There are currently only three women members of Provincial Councils: one in Rennell/Bellona Province and two in Isabel Province. In many parts of Solomon Islands, the cultural context dictates that women are unlikely to participate in public meetings or to put forward their views in the same way, or in the same forums, as men. Notable exceptions are women in Isabel that have been appointed to serve as tribal chiefs and can be represented on the Isabel Council of Chiefs. Currently only one woman chief (from Kia) is represented. The Guadalcanal Council of Chiefs also has a woman representative for the same reason (IFC 2010). According to the 2009 census, slightly more households were headed by women in Malaita (16%) than in Guadalcanal (14%) and Central Islands Province (13%) (Fig. 3). Honiara has a lower proportion of female headed households than any of the rural areas.

AAS in the three provinces

Fisheries and agriculture

Artisanal coastal fisheries characterize all three provinces. In Malaita, the 'saltwater people' or 'people of the sea' (Molea and Vuki, 2008; Akimichi 1978) have livelihoods that have historically been almost entirely dependent on marine resources. Their mainland counterparts (the 'bush people') obtain most of their food from gardens. Historically, close relationships were maintained between the two groups through a barter system in which fish, shellfish and other marine products were exchanged for root crops, vegetables and other garden produce. This arrangement also created a means by which they could help each other when cash income was low. The division of food gathering from the sea and from the bush remains, and while the barter system is becoming less important as staples such as rice, noodles and flour can be obtained from shops, the practice of exchanging or selling root crops and fish in regular coastal markets continues (Fig. 4).

The ease of access to the sea and the relative lack of access to land for gardening mean that marine resources are extremely important to the livelihoods of the people of the artificial Malaitan islands of Lau and Langalanga lagoons and other island dwellers such as Kwai/Ngongosila and Malaita Outer Islands (MOI). They are important not only as a source of food and cash income, but

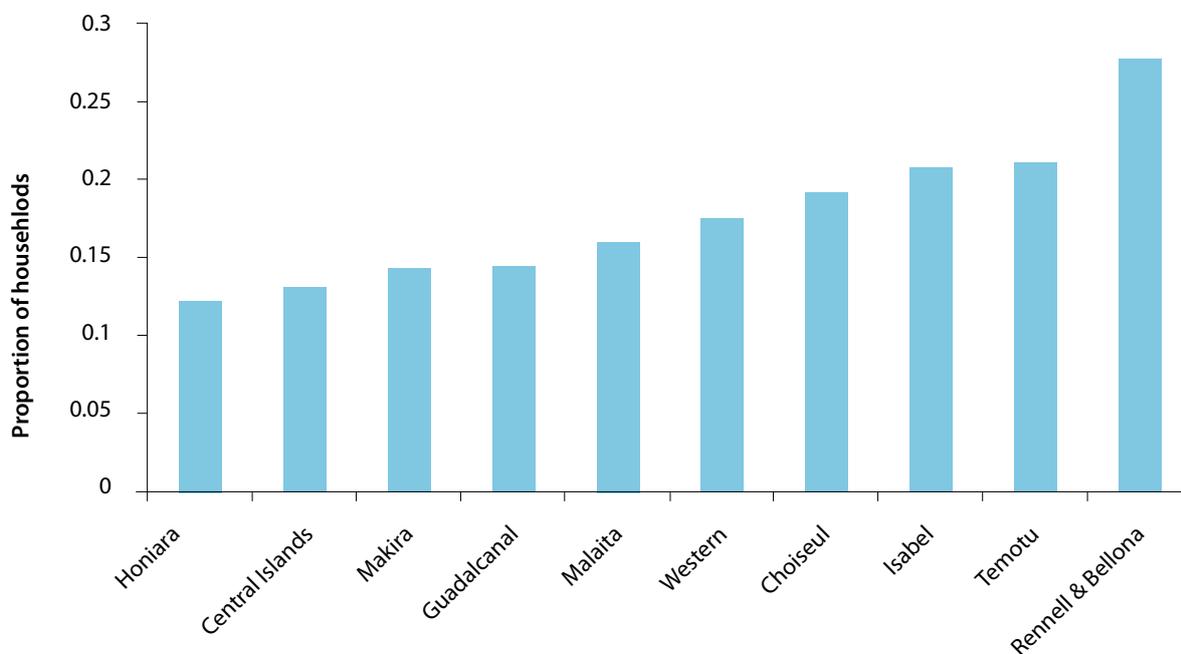


Figure 3. Proportion of female headed households by Province according to SINSO (2012).



Figure 4. Malaita Province: L to R. Village fishermen, Malu'u market, Takwea market North Malaita.

also for meeting cultural obligations. Among coastal people, a greater proportion of men than women describe their primary occupation as fishing with gardening (and other activities) as a secondary occupation. For women, gardening is more commonly described as the primary occupation with fishing (and other activities) as a secondary occupation.

On the large, mountainous islands of Guadalcanal and Malaita, inland communities use freshwater fisheries as a source of protein as well as using alternative sources such as pigs, chickens and native birds. Freshwater fisheries include native riverine taxa such as *Macrobrachium* prawns and eels (Anguillidae) as well as *Oreochromis mossambicus*, introduced by the Solomon Islands government in the 1950's and since established in many lakes and rivers as a significant food source (e.g. Lees Lake in East Guadalcanal) (Fig. 5).



Figure 5. Guadalcanal Province: Tilapia fishers in Lees Lake, inland East Guadalcanal.

Among the 178 peri-urban households surveyed in Central Guadalcanal and Central Malaita in 2010 (WorldFish 2011), gardening, selling fish and garden products at market, and fishing were the major livelihood strategies. All households were engaged in two or more livelihood activities. The majority of households surveyed relied on home gardening to meet their food requirements and 70% of these listed gardening as a primary or secondary livelihood activity. Root crops like cassava and sweet potatoes are major staple crops in the area and a wide range of vegetables and herbs are grown. In the peri-urban study, the significance of home gardening in providing food to households was apparent, but its contribution to income generation is rather minimal. Nevertheless, a small number of households do augment their income by selling surplus garden products.

Agriculture encompasses the production of coconuts, cocoa, root crops, leafy vegetables, fruits and (more recently) kava and coffee, and extensive market gardens in Guadalcanal supply the Honiara urban markets. Small scale livestock production (chickens and pigs) is found in all three provinces. Rice farming is in the early stages of development in all three provinces.

Aquaculture

Presently, there is limited aquaculture production in Solomon Islands, with a growing seaweed sector and low level farming of giant clams and corals for the aquarium trade. There was some aquaculture production in the 1980s and 1990s (*Macrobrachium* and penaeid prawns), but output was minimal and eventually ceased altogether. None of these items contribute directly to food security. Mozambique tilapia (*Oreochromis mossambicus*) was introduced during the 1950s and is well-established in many fresh and brackish waters around the country. It is harvested for food and income by households, particularly the poor in urban and peri-urban areas and those without ready access to near shore marine resources. The largest concentrations of tilapia production in backyard ponds are found on Guadalcanal and Malaita, where there are between 50 to 100 informally constructed household ponds. These are characterized by low yields, with a total annual production of less than 5 tons. Nearly all farmed tilapia are used for household consumption. Although pond yields are low,

farmers are enthusiastic about culturing fish: around 60% of households surveyed in Guadalcanal and Malaita expressed interest in culturing fish (Final Report Aquaculture and Food Security in the Solomon Islands – Phase 1, 31 January 2011). A prevailing view is that improvements in yield can be accomplished in Mozambique tilapia farming through better management, but that such improvements will give poor returns on investment and will only marginally increase (cash) benefits to households. Further investigation is needed to better understand the role that small fish are currently playing in household nutrition.

Agricultural Research

The Ministry of Agriculture and Livestock has two research divisions based in Honiara, one for Agriculture and one for Livestock. The Agricultural Research Division focuses on root

crops, nut and fruit trees, agronomy, soil systems, crop health and plant protection. The Agricultural Research Division has identified Kastom Gaden, SIDT and Don Bosco School near Honiara as research partners and extension agents. AVRDC-The World Vegetable Center is active in agricultural research in Solomon Islands. An international nonprofit research and development institution, AVRDC is committed to alleviating poverty and malnutrition in the developing world through the increased production and consumption of nutritious and health-promoting vegetables. AVRDC has one full-time and one part-time staff member based in Honiara and is poised to implement an ACIAR-funded project on integrated crop management (including pest and soil management) for farms in Guadalcanal Province. The project includes a partnership with World Vision in Marau. AVRDC is also seeking funding for a project to improve the availability of vegetables in schools. Although previously involved in a project in Malaita, they currently have no ongoing activities in that province. In recent years AVRDC has worked in close partnership with Kastom Gaden Association (KGA), a Solomon Islands NGO working in areas such as quality vegetable seed production and improvement of fertility of garden soils. KGA tackles a diverse range of agricultural issues and provides what is probably the most extensive networking organization in the country (in relation to gardens) for rural farmers. With a focus on food security and improved nutrition, KGA implements programs that encourage people to "eat local". KGA co-ordinates and maintains a database on more than 3000 members of a planting material network. In Malaita the planting network has a base at Takwa in North Malaita (Baetala farmers association), with other lead farmers located throughout the Province. Lead farmers that have been trained by Kastom Gaden are also used by the Ministry of Agriculture and Livestock as extension officers.

Transport linkages

Guadalcanal is home to the largest urban center in the country and as such hosts exporters of marine and agricultural products that are linked to the provinces almost solely by sea freight. The domestic market in Honiara is supplied with fish and marine products imported from all provinces (Fig. 6).

All three provinces usually have daily access by cargo or transport ship between the three main centers (Auki, Tulagi and Honiara of Malaita, Central and Guadalcanal respectively), however locations away from the main centers are poorly and irregularly serviced, if at all. Only around 40km of Solomon Islands' 1500 km of roads are tar sealed and these are mainly on Guadalcanal. Malaita has only 5-6 km of tar sealed roads (ADB 2005). There are no sealed roads in Central Islands Province. Road access to locations outside of the tar sealed roads is difficult and roads are often impassable due to poor maintenance and the effects of seasonal rains. There is currently no air transport route to Central Islands Province and only two operational airfields each in Malaita and Guadalcanal Provinces.

Based on the national situation analysis (Govan et al. 2013), existing relationships with bilateral projects and the in-country capacity and resources of WorldFish, we identified different levels of engagement that will characterize our work. The hubs will be the primary focus of community based AAS research, while we pursue activities related to scaling of lessons learned that can be effected through partnerships in other provinces.

We selected Malaita as the primary focus of community based AAS research because of its particularly low rating according to poverty indicators such as HPI/HDI, the challenges of population size and land/reef area, and the relatively low levels of support, particularly relating to resource management. This increases the likelihood of having greater measurable impact. The next section of this report therefore focuses on Malaita Province.

Malaita scoping mission

The main activity of the scoping mission to Malaita in February, 2012 was face-to-face meetings with the Malaita provincial



Figure 6. Central Islands Province L to R. Lodges support tourism opportunities in Tulagi, locally grown products in a village, commercial fisheries are transported to Honiara.

government and development NGOs working in Malaita Province. WorldFish has active projects with communities in Lau lagoon in North Malaita, in Maramasiki in South Malaita and a newly developing project with fishers of Langalanga Lagoon. In addition, a WorldFish team made a visit in 2010 to Malaita Outer Islands as part of a livelihoods and socio-economic analysis in relation to the *bêche-de-mer* fishery with MFMR and MECDM. Thus there was some available background information on the fisheries development challenge in these regions. To obtain a broader understanding of development challenges through the lens of the AAS Program, we chose to conduct a detailed scoping visit to an area that was 'new' for us. East Malaita has been identified by the Provincial Government as having had few 'projects' and development interventions to date, in part owing to its relative geographic isolation.

In the communities of Kwai and Ngongosila, we conducted community meetings, a focus group discussion with women and key informant discussions with leaders, fishers and professionals in the communities. All community meetings were conducted in Solomon Islands Pidgin language with translation to local language when required by team members.

Malaita Provincial Government

Malaita Province is following a Regionalization Policy with the aim decentralizing governance, services and planning at the regional level through Regional Planning Councils (Malaita Provincial Government – Policy Framework and Development Strategies 2011-2020 – “political direction”). The intent is to shift the center of governance, service delivery, and development planning from Auki to Regional Centers, and develop existing provincial sub-stations into Regional Growth Centers of good governance, economic planning, rural administration, and information. Regional Councils will be composed of elected members, traditional chiefs and representatives of civil society to ensure that traditional leaders, civil society, and communities all play an active role in the political, economic, social, and environmental aspects of development at the regional level.

By setting in place appropriate institutional and organizational frameworks (including budgets) at the regional level, the province aims to promote a multi-disciplinary and integrated approach to social, economic development, and good governance instead of the prevailing single sector approach. The provincial government seeks to improve local revenue through institution of basic rates and licenses in order to improve services. They will aim for rigorous and on-going cooperation and constructive debate between Central and Provincial government to maximize all available options in the public and private sector economy for effective and efficient delivery of services and development outcomes to grassroots communities.

Activities in the five regions (North, South, East, Central and Malaita Outer Islands) (Fig. 7) are centered on existing administrative centers. Each region, with the exception of the tolls of Malaita Outer Islands, has a designated growth center

(Kadabina, Fomamamu, Liwe and Auki). Kadabina, Liwe and Fomamamu have been prioritized for development as Industrial Parks in pilot projects under an Israeli technical support agreement between the Israeli government and the Malaita Chazon Development Authority (MCDA), the economic development arm of Malaita Province. MCDA has an awareness program about provincial development initiatives and at the time of scoping had conducted an awareness program in the Eastern Region. According to the provincial government, early discussions are underway about options to relocate people from the climate change vulnerable MOI to the mainland. Although land has apparently been identified on the mainland for that purpose, discussions are still at an early stage and logistics must be worked through to reach a resolution.

Agriculture

The Ministry of Agriculture has a national role in coordinating and providing extension services for livestock and crops that are suitable to Solomon Islands for food security, import substitution and income generation. In Malaita the ministry has three departments: the Extension Department (25 officers); the Research Department (3 officers), which is undertaking relatively

informal farmer level research on coffee and kava; and the Livestock Department (4 officers). The officers aim to promote agricultural development in the province and to assist farmers in the rural centers. Some current initiatives include a proposed cattle herd for West Kwaio.



Figure 7. The province of Malaita showing the regional boundaries sites visited in scoping and areas where known coastal resource management and fisheries projects are currently operating.

Consultations with the Provincial Agriculture Division officers revealed that the main areas of development focus are crops, including coconut, cocoa, coffee (there are currently 37 ha of coffee grown in an unspecified area in the highlands of Malaita), kava, vanilla, food crops (e.g. rice, vegetables, sweet potato, taro), spices (e.g. chilli, ginger, cardamom, turmeric) and nuts (e.g. peanuts, ngali nuts *Canarium* spp, cut nuts *Barringtonia* sp.). Development of livestock mainly focuses on cattle, pigs, poultry and honey.

According to the chief field officer in Auki, a workplan has been developed in conjunction with the Rural Development Programme (RDP). The Ministry, through its extension office, is supporting and developing its technical expertise to better assist farmers in the province. Activities that focus on capacity building within the provincial office will enable extension workers to disseminate better information, improve skills and offer training to local farmers on issues relating to cocoa, coconut, kava, coffee and livestock farming. In addition, an annual workplan has been developed to implement a budget provided by the Ministry of Agriculture and Livestock that funds the training of field officers in farm management issues that are identified by the farmers themselves.

Fisheries

Malaita is a province that relies heavily on inshore fisheries for subsistence and cash. Maintaining healthy and productive fisheries is thus a priority for the provincial government, not only in terms of food security but also to boost commercial development in the province. Various attempts at commercialization of near shore fisheries have been made since independence in 1978, but apart from some small scale enterprises for local markets, few of these have been successful. In the meantime, lacking information and assistance and facing rapid population growth, many of the province's fisheries have been over-exploited

and have suffered extensive habitat destruction (e.g. mangrove clearance, coral reef damage caused by destructive fishing methods). Based on demand from fisheries officers in the provincial centers, re-opening and improving infrastructure around Provincial Fisheries Centers are currently targeted for assistance under the NZAid funded Fisheries Institutional Strengthening Programme (MSSIF). Within this context, the Malaita Province Fisheries Division has devised a work plan based on priority areas for action. The work plan includes (but is not exclusive to):

- developing a provincial fisheries ordinance.
- developing fisheries management plans that include community based fisheries management.
- providing training and awareness for fishermen.
- developing aquaculture and deploying FADs.
- supporting fishermen's associations.

Malaita based development NGOs

The primary development NGOs that are active in Malaita and have offices in the provincial capital Auki are World Vision, Save the Children, Kastom Gaden, the Solomon Islands Planned Parenthood Association (SIPPA) and Diocese of Melanesia (Literacy).

Save the Children Malaita Programme maintains or sponsors:

- a basic education program supporting the Ministry of Education in North Malaita (Takwa and Gounu'usu Grade 1 to Grade 9).
- a Youth Outreach Programme (YOP) and HIV program operating in Auki.
- a Youth in Conflict with the law program in the Southern (West Kwaio) and Eastern Regions (Kwara'ae, Kwai and Fataleka). This crime prevention approach identifies vulnerable children, sets up committees and addresses petty crime.
- no specific programs targeting gender/women.
- some baseline information from target villages. Vulnerable groups are identified using PRA mapping.

The World Vision Malaita Programme

- World Vision's Country Development Program in Solomon Islands has a programmatic approach. The program is ending a two year assessment and design phase and is now moving into implementation of an initial five year plan.
- World Vision's geographical focus is Honiara (urban), Malaita, Weather Coast Guadalcanal, Makira and Temotu. The Malaita area program covers water and sanitation, HIV/AIDs, peace building, community empowerment and livelihoods.
- In February 2012 World Vision initiated a partner's network meeting for government and civil society in Auki.
- WorldFish has an MOU with World Vision to deliver marine resource management awareness to small Malaita coastal communities.

AAS in East Kwara'ae and East Kwaio, Malaita

During the scoping trip to East Malaita, community consultations were held in Kwai and Ngongosila (East Kwara'ae), two densely populated islands separated by a shallow channel some 500m wide off the eastern coast of Kwara'ae/Kwaio Region of Malaita. Kwai Island is the larger and more populated of the two islands. Key informant discussions were held at Atoifi hospital (East Kwaio) and Atoifi Police Post. Some of the AAS issues and solutions identified by the people we spoke with are listed below. These initial discussions from a very limited geographical area provide only a brief glimpse of the AAS development challenges in the region. Like many other parts of Malaita, the people of East Malaita are marginalized by geography and lack of education (1999 SIG census literacy data), resulting in few development interventions. At the time of scoping there were no development NGOs with an established presence in East Kwa'arae or East Kwaio.

A group from the National Agriculture Research Institute in PNG had been working alongside the Ministry of Agriculture (research department) and made a scoping visit to Kwai and Ngongosila

to conduct a baseline survey to address climate change-related sea level rise issues. The goal of the group was to develop a soil type (although local soils are high in saline content) that is suitable for growing (perhaps saline tolerant) crops as part of a food security initiative for adaptation to climate change funded by the European Union (EU), especially in low lying islands like Kwai and Ngongosila. Training on composting was undertaken and adopted (to an unknown extent), but due to budget overrun caused in part by the high cost of logistics in this region, the work shifted to Buma in West Kwai.

Market days in Kwai and Ngongosila are Tuesdays and Saturdays at Adakoa (a 10 minute outboard motor ride away on the mainland) and Wednesdays at Atoifi. The Atoifi market serves a wide area of Uru Harbour from Kwai, Ngongosila, and Adakoa up to the inland communities of East Kwai near Atoifi.

Issues identified by respondents in full community meetings include:

- There are too many people; basic needs are the driving force for over-exploitation of resources.
- Bêche de mer ban has had significant implications (reduces cash, increases pressure on other species).
- Currently there is no dynamiting in the area, but there are gill nets and night diving (unprompted recognition of threats).
- Threats to fisheries include night diving with torches, mangrove cutting and over-harvesting of mangroves for firewood.
- Reviving the closed fisheries center would improve marketing and reduce waste.
- Erosion of the islands.
- Nutrition (particularly infant malnutrition) is an issue for the inland people of East Malaita who don't have regular access to fish.
- The police force is too small to prevent fisheries infractions. Police are primarily concerned with local disputes, often about land.

Issues identified by women respondents when meeting with only women:

- Village women are dependent on their men and are time poor.
- Some women on Kwai Island and the mainland do go fishing, but most important for women in terms of cash earning opportunities is koa (mangrove fruit) and clamshells (koa parcels can be made with fish if necessary or with mangrove shells). Nowadays clams are hard to find.
- People rely more on gardens and are starting to move inland, but when the sea is rough, it takes longer to paddle to the mainland, they get back late and the children therefore eat late at night.
- Without ice for storing fish, the women must motu (cook in fire/stone oven) the fish that men bring back from night fishing. This puts an additional burden on their time.
- Women are responsible for cutting mangroves for firewood.
- There are options for making money (such as baking food and selling it at the market), but women are busy with the children, cutting firewood and the garden so often there is no time to earn cash income of their own – they must rely on men for cash
- A number of women are married to men from Kwai Island but grew up in mainland (bush) communities and don't necessarily know about the sea; this creates problems in terms of being able to find seafood for the family.

Solutions identified by respondents in full community meetings:

- Establishing rules regarding resource management at the community level.
- In terms of information and awareness, leaders would like to effect a change in attitude. Use of materials in the curriculum, including information about topical issues such as the biology of mangroves and the implications of their

clearance is a possible solution, with information preferably provided in the local language.

- A Provincial Fisheries Ordinance to strengthen local management initiatives
- Desire to utilize traditional knowledge and skills to achieve sustainability
- Interested in marine livelihood opportunities such as mud crab farming, FADs
- training of lead farmers, such as done by Kastom Gaden in East Malaita
- Leaders suggested that problems faced by the community can be resolved if organizations such as WorldFish work closely with the community.

Solutions identified by women respondents when meeting with only women:

- Women suggested that if clams could be farmed close to the house it would be easier to look after them and to collect them. Traditionally, women used to farm clams closer to the house using stone circles but now can't find the clams to do that.
- Koa gardening was done before by the previous generation (the mothers of those in group).
- A woman originally from Western Province related her experience with community based marine resource management and suggested this as an option.

Synopsis of health and gender concerns for AAS, Malaita

Theme/Objective four of the AAS Program is to reduce gender disparities in access to and control of resources and decision making. Improved general health, nutritional status and food security as a result of AAS investments are also proposed target impacts for the program. Understanding the existing baseline data for health and gender issues in Malaita was therefore a component of this scoping exercise. Malaita is served by two hospitals: Kilufi Hospital near Auki and Atoifi Hospital in East Malaita. Rural people otherwise rely on clinics which are accessible by road or outboard motor canoe or not accessible at all without extensive travel by foot or by paddle canoe.

Summary of data and initiatives identified during scoping:

- Available data suggest that birth weights in Malaita are the lowest in Solomon Islands [Solomon Islands Demographic and Health Survey (SIDHS) 2006-2007] and data from family health cards suggest that East Malaita in particular records exceptionally low birth weights (M. Iro, pers comm.). Childhood stunting is relatively prevalent in Solomons and especially affects populations in rural Malaita, Western Provinces and Guadalcanal (SIDHS 2007). Women considered "thin" are more prevalent in Malaita and Guadalcanal, but men only in the latter (SIDHS 2007).
- Atoifi hospital provides services to East Malaita. Discussions with local staff suggest that the hospital is keen to provide an alternative source of protein for patients diagnosed as under-nourished, but this was discouraged by the hospital CEO. Nevertheless, the discussion highlighted an issue concerning insufficient access to protein for the inland/"bush" people of the region.
- Nafinua Clinic, which is on the mainland close to Adakoa at the end of the Nafinua River, is responsible for undertaking a household health survey of the area once a year. The survey basically covers population, general information (sanitation, rubbish disposal, water supply, domestic animal and general cleanliness), maternal health, family planning, and child health.
- A woman's first visit to the clinic might be in her last week of pregnancy.
- Southern Region has the worst statistics in the Province on child mortality (Source: Family Health Card returns 2009. Marilyn Iro, Reproductive Health Unit, Kilufi).
- There is one case of HIV in Eastern Region and "some" in Southern Region.
- Since the SPC Solomon Islands Family Health and Safety Study 2009 violence survey, there have been no follow-up

programs (note that World Vision is currently scoping a gender program for East Malaita).

- Malaita Provincial Government has recognized the need to include both men and women in development activities, as witnessed by the creation of a post in the Women's Development Division of Malaita Province (Under the Provincial Ministry of Gender, Youth, Sports and Civic Affairs).
- Malaita Province has a Council of Women that functions poorly but is seeking better resources and improved organization. Some key women have been identified as driving this process.
- Kastom Gaden has found that there are few women in the planting material network and that projects would benefit from gender differentiated activities.
- We did not identify any other government or non-government programs targeting specific gender groups to provide access to agricultural technologies, information or knowledge and capacity building.

Gendered livelihood analysis: case study from the artificial islands of Lau Lagoon

Based on a 2009 study for a marine resource management program (Boso and Schwarz 2010), the primary daily occupation of adult men over the age of 15 in artificial island communities in Lau Lagoon was fishing (52% of respondents), while for women (90% of respondents) it was gardening that necessitated a daily paddle to the mainland to access the gardens. Twenty seven per cent of men also listed gardening as their primary employment and 12% of men were involved in wage employment. An additional 25% of men and women listed fishing as a secondary occupation, although cutting mangrove firewood was the main secondary occupation for women. Additional livelihood activities for women included baking, marketing, church work and housekeeping.

Fishing and gardening were the main sources of daily food for households but were also important sources of cash. Fishing was the main source of income for men (Fig. 8). For women, their main cash source was from marketing fish and garden products.

Women who fished, also marketed the household catch (that of theirs and their husbands), while those who were not fishers sold fish caught by the men. Other sources of income listed by men included agriculture, baking, running a canteen, carpentry, craft making and wage employment.

A summary of livelihood options available to artificial island dwellers from formal surveys and focus group discussions further highlights the important contribution made by fisheries and agriculture (Table 3). Only one livelihood option available to the people of the artificial islands (baking) was not dependent on natural resources or farming/gardening.

Control of household money depends on the household; at times it is under joint control, while at other times it is controlled primarily by the male household head or his wife. Women do not necessarily have more control over the money that they earn, but 95% of men and 94% of women agree that husbands give their wives money for household expenses. More than 80% of men and women stated that some of the money earned by women is given to men to manage or to invest in livelihood activities.

Resource Management

Life on the artificial islands of Lau Lagoon is intricately connected with the sea (Molea and Vuki 2008) and people have a comprehensive understanding of the impact of resource depletion. Management of marine resources is widely acknowledged to be necessary, but there are significant barriers to implementing an effective form of Community-Based Management that meets future needs and little formal management has taken place in recent decades. Areas of vulnerability considered potential barriers to successful marine resource management have been identified by both men and women. Women feel that the most significant barriers are disease and sickness, poverty and climate/weather, although more than 20% of women cannot name any barriers. Men also feel that disease/sickness and poverty are the most significant barriers to successful marine resource management, but more than 20% of men also identified lack of alternative jobs or alternative fishing gears and climate/weather (Fig. 9).

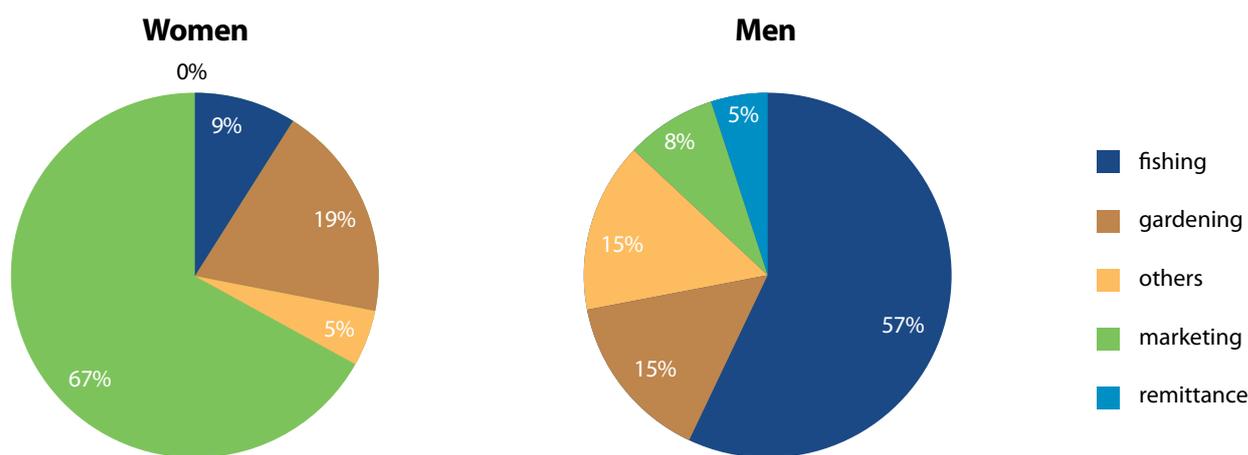


Figure 8. Sources of income by gender for a group of communities in North Malaita in 2009.

Table 3. Summary of current livelihood options identified by men and women in a group of communities in Lau Lagoon, North Malaita.

| Livelihood | Men | Women | Local market cash/trade | Food | Transported to Auki of Honiara for sale at urban markets |
|--------------------------|-----|-------|-------------------------|------|--|
| Lagoon fishing | √ | √ | √ | √ | |
| Reef fish | √ | √ | √ | √ | |
| Deep sea fishing | √ | √ | √ | √ | |
| Mangrove fruit | √ | √ | √ | | |
| Thorny oyster | √ | √ | | | |
| Trochus | √ | √ | √ | | |
| Shark fin | √ | √ | | | |
| Animals (pigs, chickens) | √ | √ | ? | | |
| Shellfish | √ | √ | √ | | |
| Gardening | √ | √ | √ | √ | |
| Green Coconut | √ | | | | |
| Betelnut | √ | √ | | | |
| Watermelons | √ | √ | √ | √ | √ |
| Baking (scones) | √ | √ | √ | √ | |

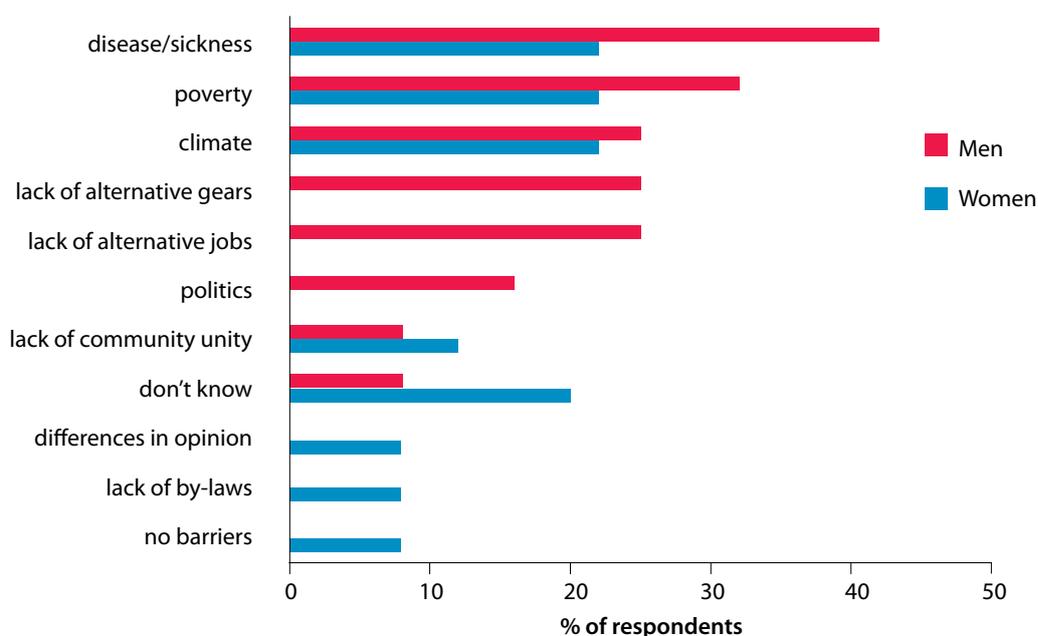


Figure 9. Barriers to successful marine resource management identified by men and women.

In 2009 the majority of men in island communities stated that they were sometimes involved in decision making about how the marine environment should be managed. The majority of female respondents were never involved in the process, although one woman who was the women's representative on the local community committee said that she was always involved in such decision making (Fig. 10).

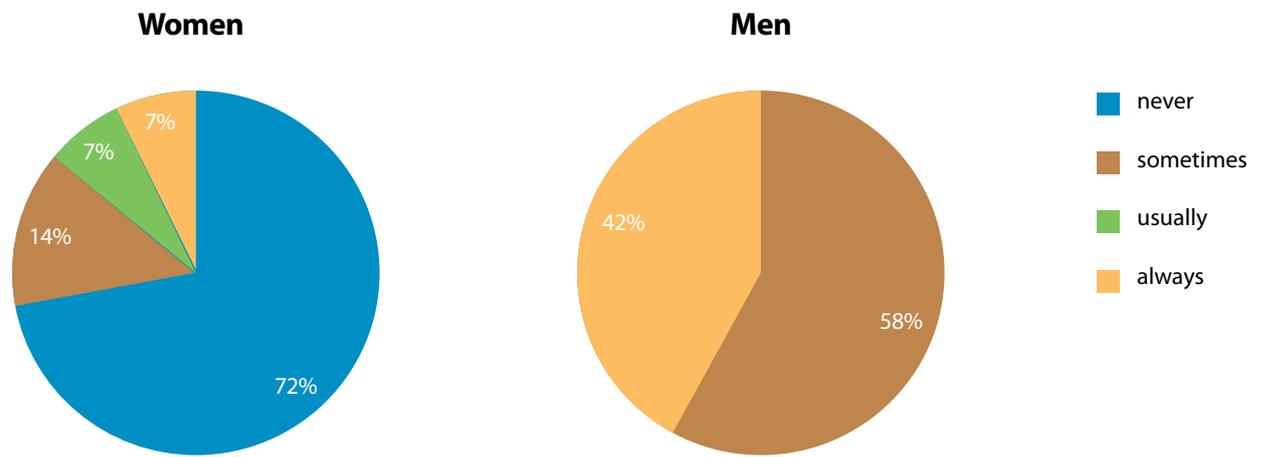


Figure 10. The involvement of men and women in decision making regarding the marine environment

5. Synthesized scoping findings

The remainder of this report categorizes the scoping information according to the objectives of the Scoping Mission (CGIAR Research Program on Aquatic Agricultural Systems 2012b). These five objectives are:

- To identify main development challenges and opportunities affecting the Hub as a whole,
- To identify overarching research questions that inform development efforts in response to these challenges and opportunities,
- To identify possible target communities where these research questions can be addressed early in the Program,
- To describe the institutional set-up and assess strengths and capacities of possible implementing partners,
- To give an overview of relevant development programs and investments in the Hub and identify possible linkages with the CGIAR Research Program.

challenges in the three provinces and of particular relevance for Malaita, that are “slow variables” in that they operate over long time periods and will require long-term investment to resolve. These slow variables are high population pressure with fast population growth and declining marine resources and collapse of key cash earning commodities. These underlying drivers are related, of course, and in many senses other challenges we highlight are the short-term symptoms of these slow processes.

High population pressure

The three provinces are subject to the effects of high population pressure. Central and Malaita Provinces have around double the national average population density and together account for half the national population (Fig. 11). Most people are concentrated near the coasts (Fig. 12). Pressure on land and resources is a cause of migration to Guadalcanal, but civil tension that is partially caused by these pressures has resulted in back migrations to Malaita (Fig. 13).

Overarching challenges for rural people in the three provinces

Within the development context outlined in the National Situation Analysis (Govan et al 2013), we recognize two overarching

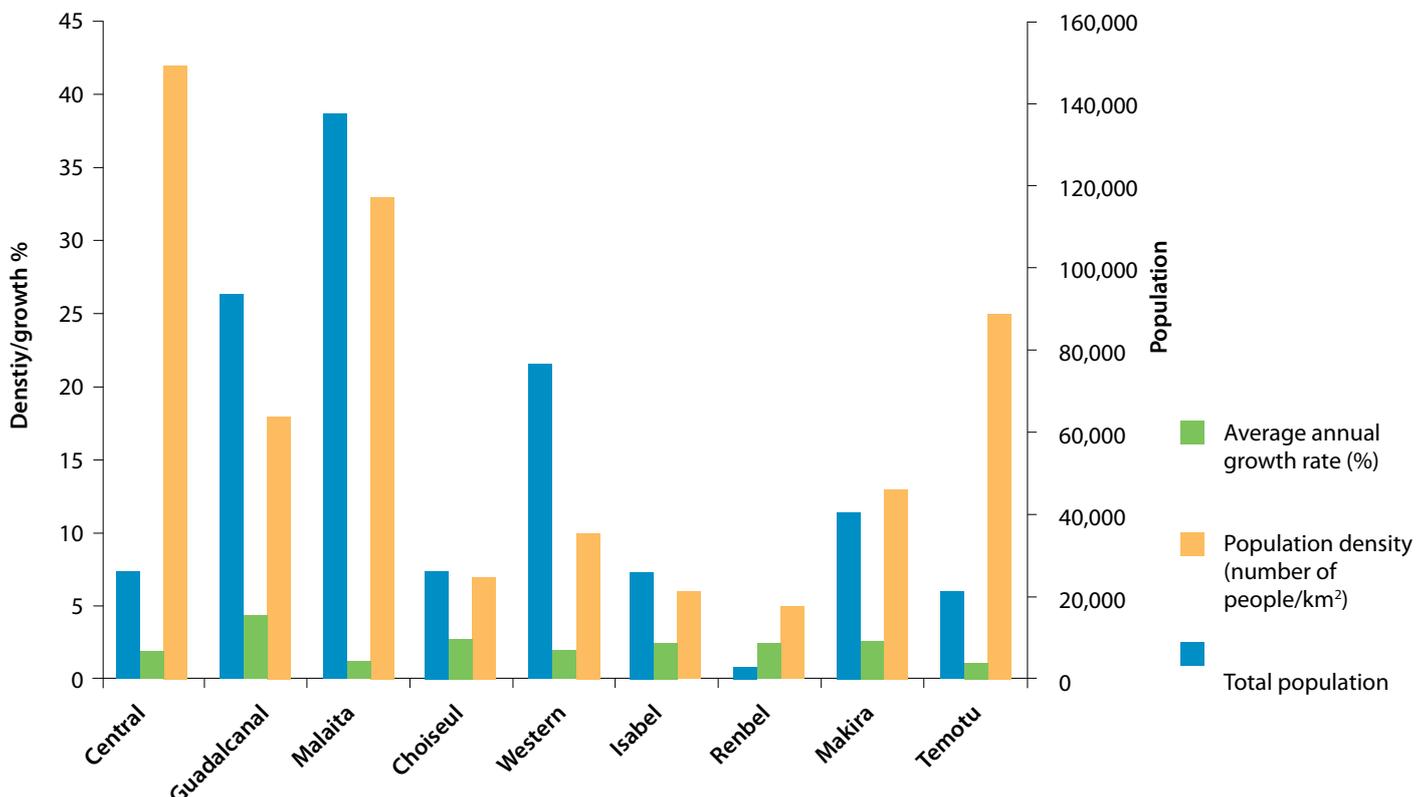


Figure 11. Population characteristics of provinces in Solomon Islands (SINSO, 2012).

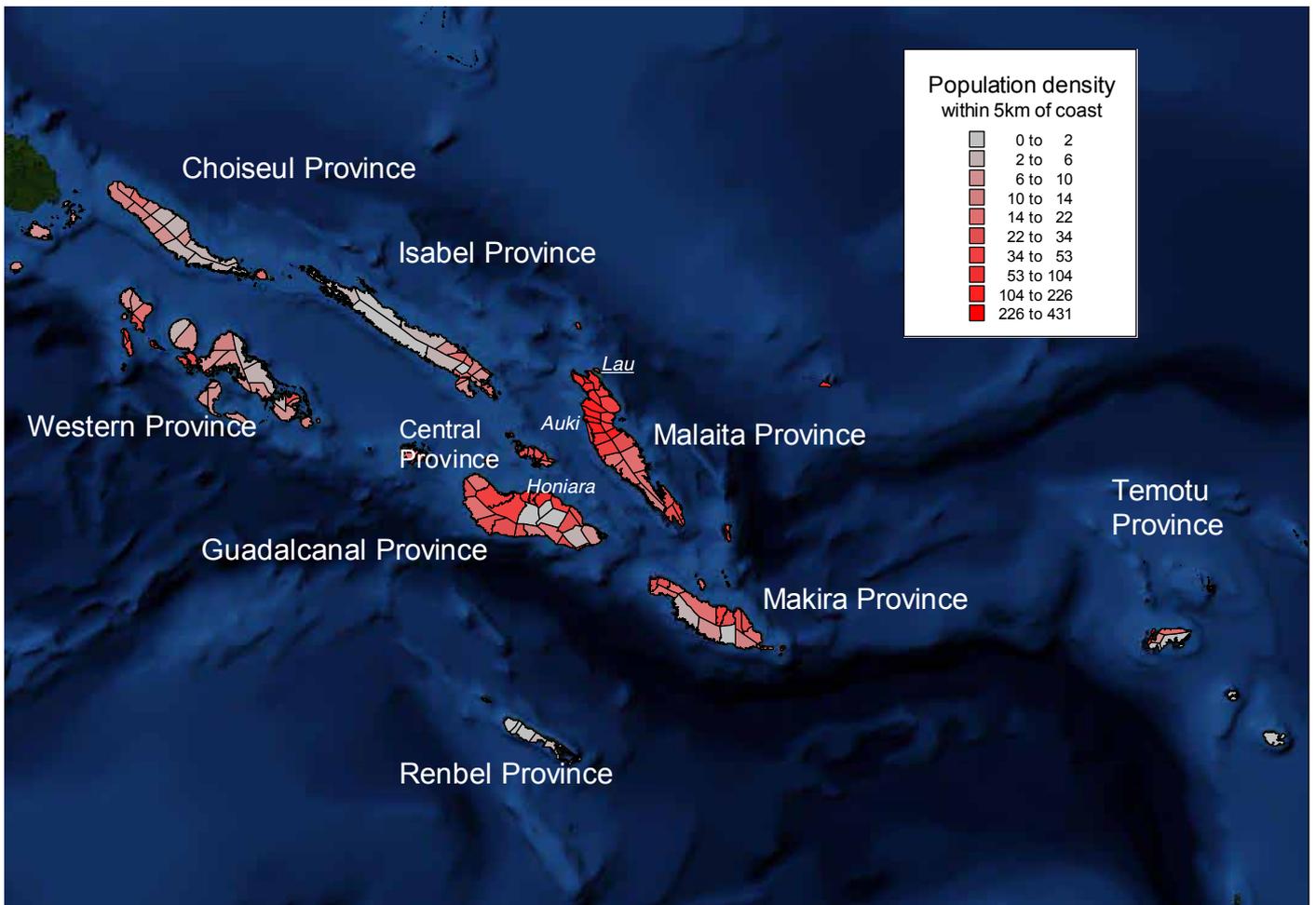


Figure 12. Map of Solomon Islands highlighting wards that have the highest population density within 5km of the coast (data from Foale et al. 2011 and SPC PopGIS).

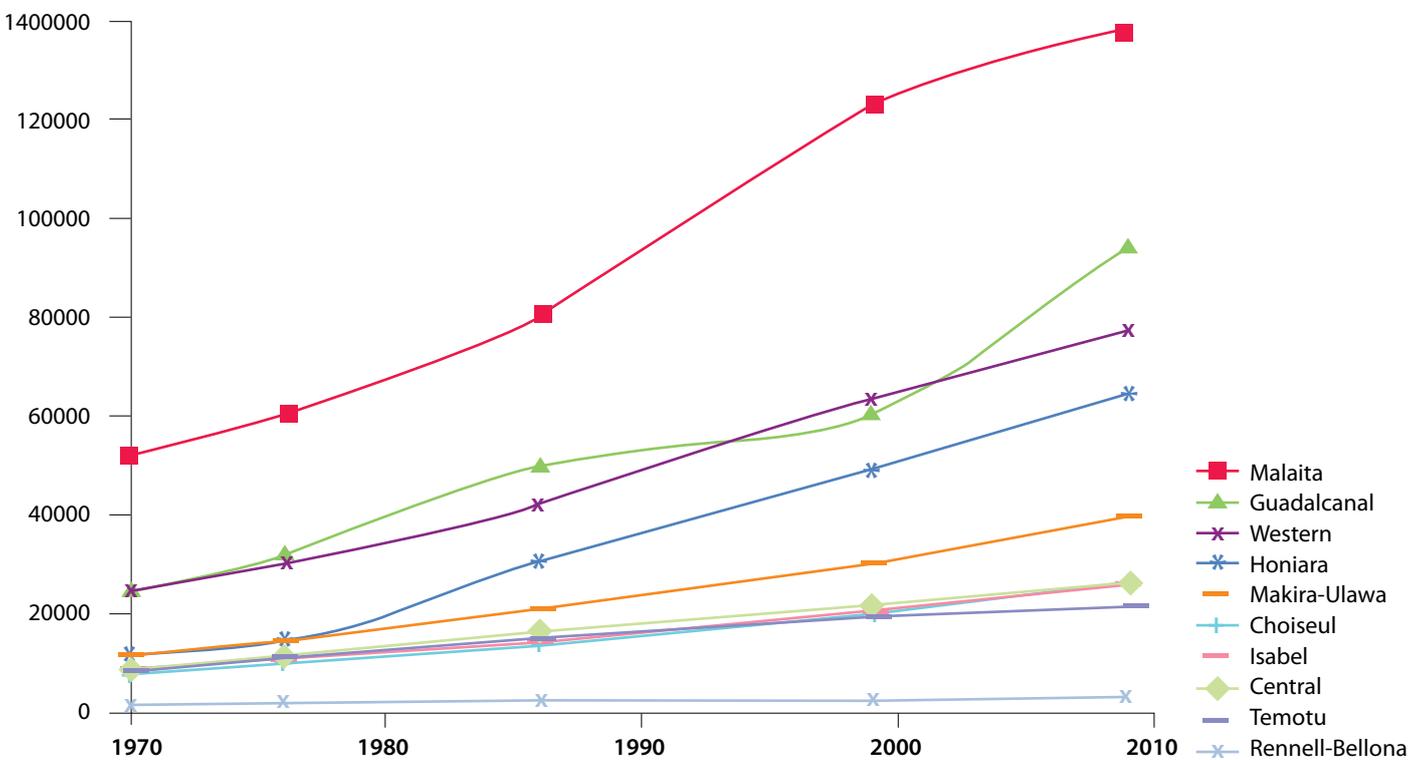


Figure 13. Population increases in Solomon Islands Provinces (SINSO 2012).

Declining marine resources and collapse of key cash-earning marine commodities

Fish is an important food and income source in Solomon Islands and is the most important food and protein source in two sites surveyed in Central Islands and Guadalcanal provinces where per capita consumption is around 100kg/year (Pinca et al 2009), although more general estimates range from 25-45 kg/year

(Gillett 2009). Many of the inshore fisheries resources, particularly near urban centers, are considered to be fully exploited with national annual production of coastal subsistence and commercial fisheries estimated at 18,250 tons (Gillett 2011). Inshore fish stocks are widely, though anecdotally, reported to be declining with smaller fish in markets and increases in fishing times reported. An extensive survey by Green et al (2006) suggest that overfishing

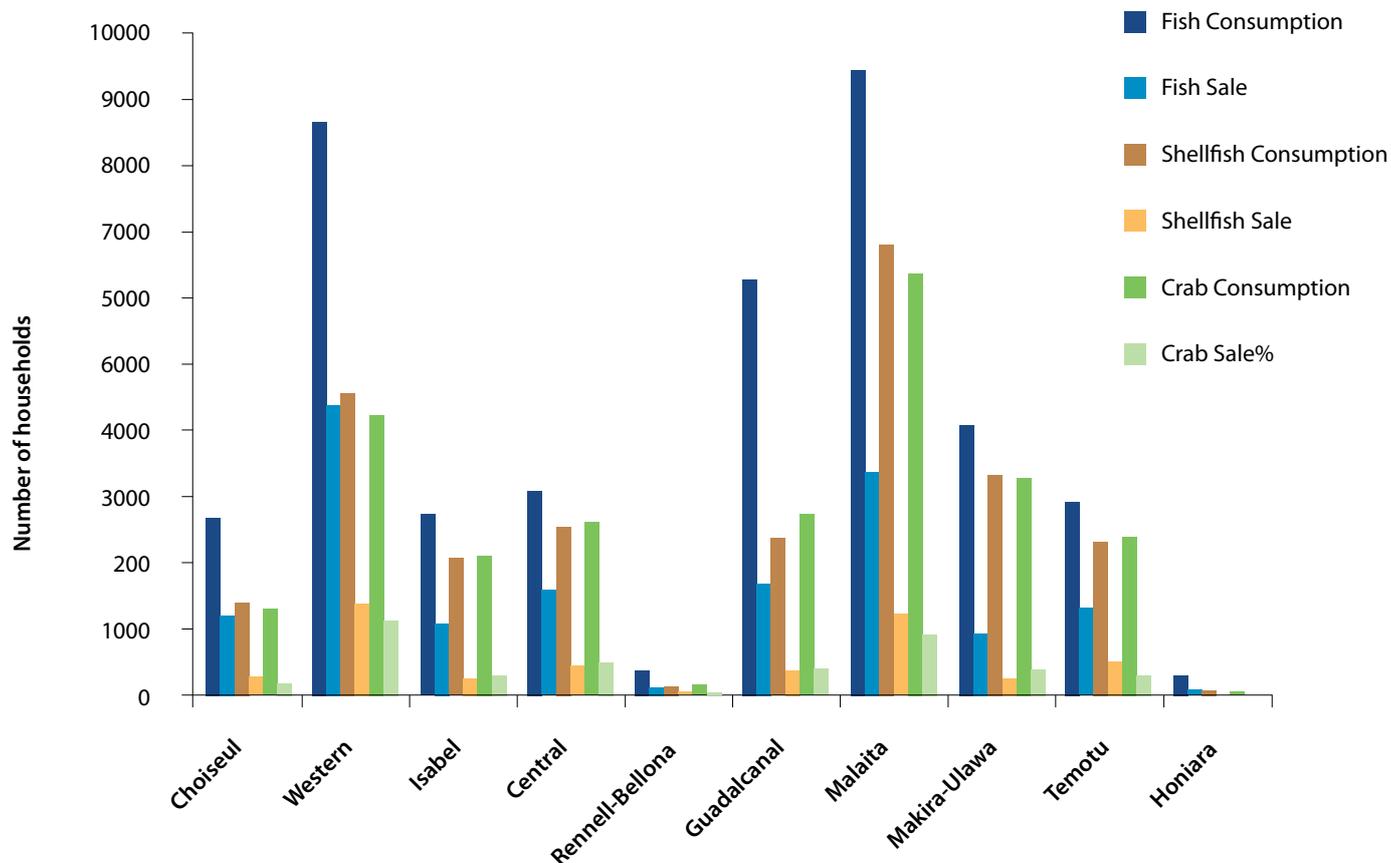


Figure 14. Number of households per province engaged in fish, shellfish (bivalves) and crab production during the past year according to SINSO (2012).

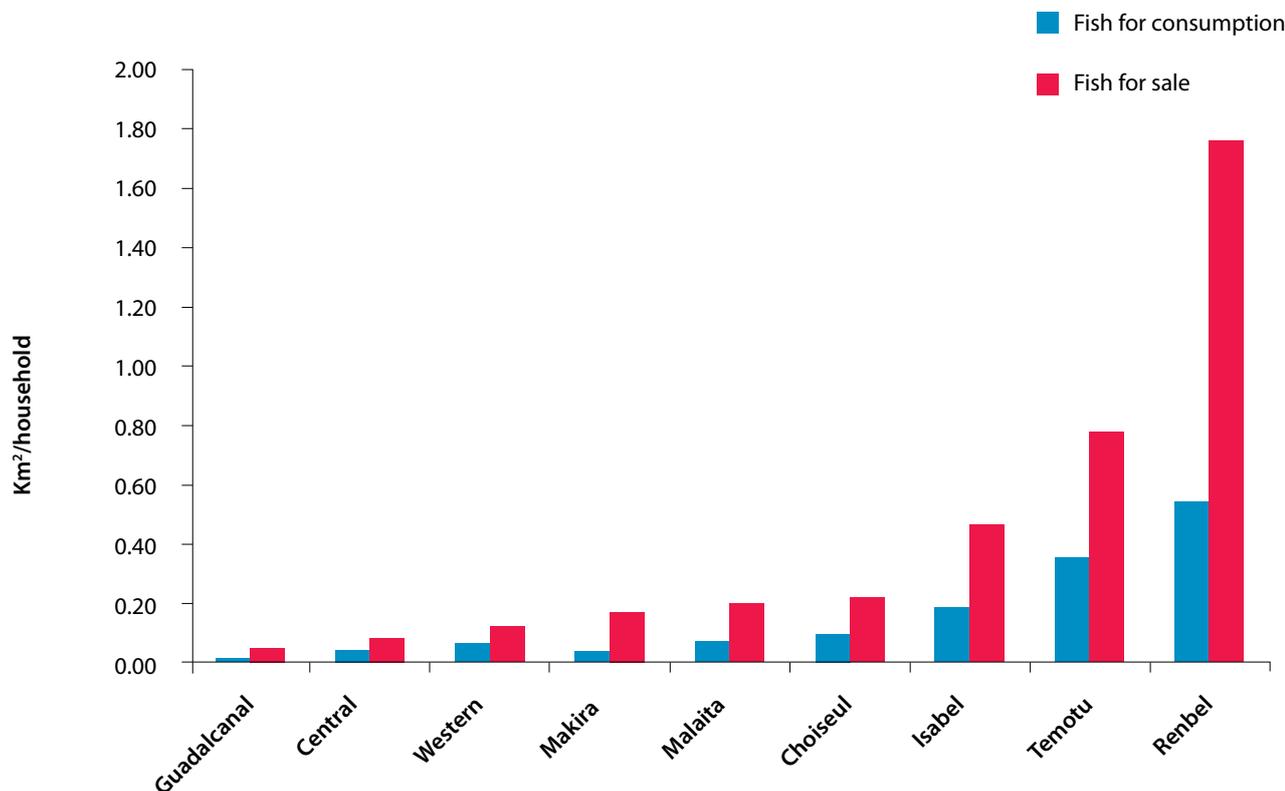


Figure 15. Reef and shallow area available per households that fish for home consumption and sale in Solomon Islands provinces (1999 census data and reef data from the Institute for Marine Remote Sensing).

of reef fish populations may already be occurring in Guadalcanal, Malaita and Central Provinces. The decline and collapse of commercially important invertebrates such as green snail, trochus, giant clams and bêche-de-mer (termed commodity fisheries) is well documented and has resulted in the declaration of national moratoria in the case of bêche-de-mer. Bell et al. (2009) estimate that current demand for coastal fisheries resources already exceeds estimated production and demand is expected to nearly double by 2030.

Some estimates of the fishing pressure on available shallow and reef areas are available from analysis of census data. Malaita shows the highest number of households in the country engaged in marine resource consumption and sale (Fig. 14), and all three provinces have <0.1km²/household of reef and shallow area available for home consumption (Fig. 15).

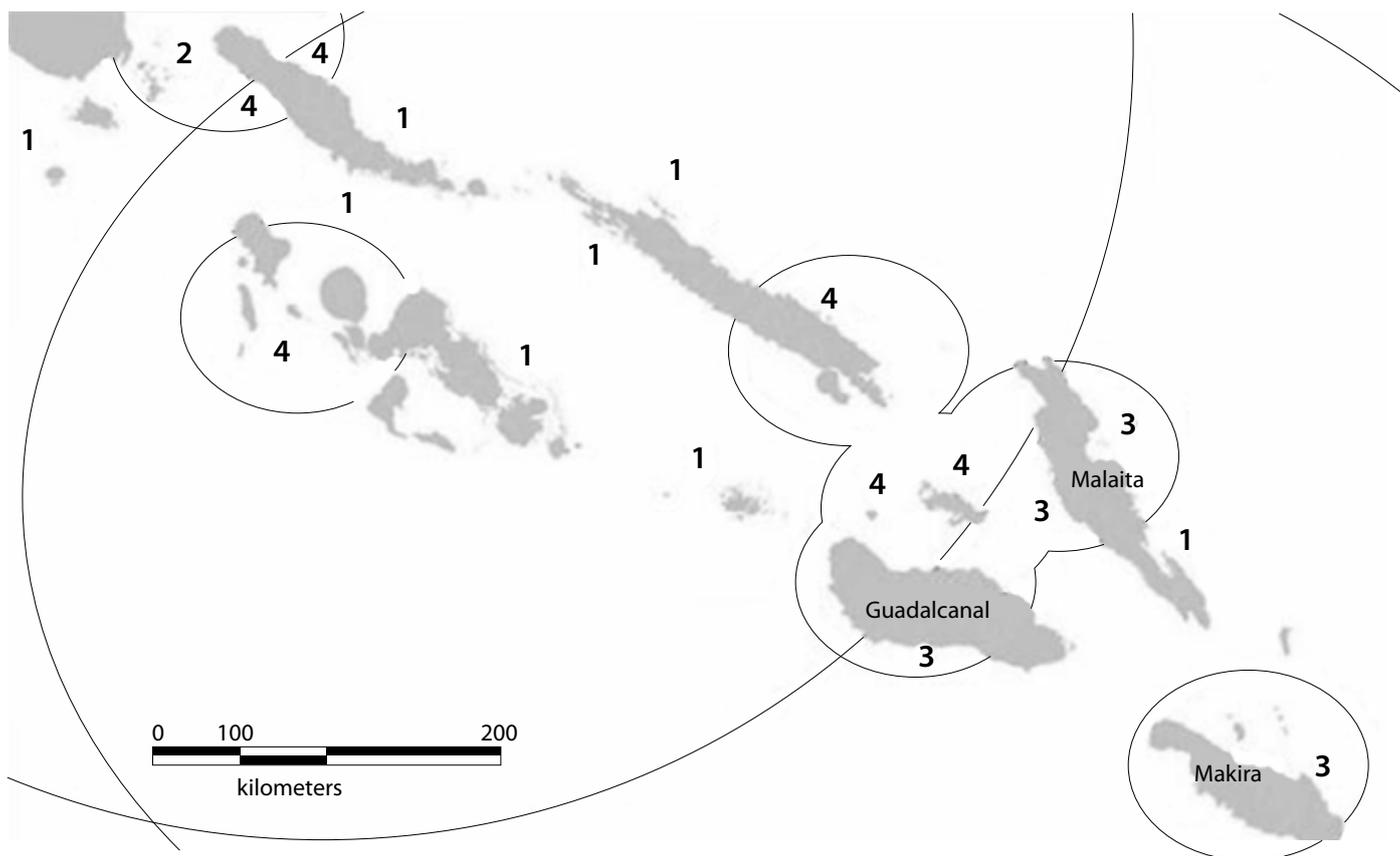


Figure 16. Figure from Brewer et al. (2009) showing scaled threat to biomass of a family of fish particularly vulnerable to fishing pressure (scarids). Ranges are from (1) low threat (highest biomass) to (4) high threat (lowest biomass).

Brewer et al (2009) report that proximity to market accounts for much of the pressure on fishery stocks and that improvements in market accessibility will directly impact resource health. The study (Fig. 16) supports the suggestion of Green et al (2006) that commercial reef fish are under particular threat, and Brewer et al (2011) showed that the Malaita fishery is the most depleted nationally; however, coral reefs in close proximity to other provincial capitals, particularly where there is adequate transport to Honiara, are also likely to be significantly depleted. Population pressure on marine resources, relative proximity to national and important provincial markets, the shift towards cash purchase rather than production or barter of staple foods and the decline in alternative livelihoods such as logging are all closely related. Even without adequate scoping analysis of threats to agriculture at this stage of the AAS rollout process, these trends suggest a bleak future for the socio-ecological systems of the Malaita Hub.

The development challenge and opportunities for the Malaita Hub

Based on the overarching challenges, we proposed a development challenge for Malaita Province: "Rural people in the Malaita Hub of Solomon Islands face major challenges from rising population and diminishing marine resources¹. The development challenge is to improve their lives through more productive, diversified livelihoods that empower communities to better adapt to change and *make more effective use of their resources*. The research challenge we will address with the people of Malaita Hub is to develop and test alternative approaches to livelihood diversification and resource stewardship that will accelerate development and restore the productivity of their resources".

Within the overarching development challenge, shorter-term opportunities may be recognized under each of the six research

themes. As mentioned earlier, these opportunities present a fisheries bias due to the makeup of the scoping team. This bias was partially redressed at the stakeholder consultation workshop and will be further ameliorated as new organizational partnerships are formalized throughout the rollout process.

Theme 1: Sustainable increases in system productivity

- Although coastal people cannot necessarily increase coastal fish productivity to meet increasing demand for food, there may be opportunities in agriculture through improved garden management, soil fertility, and new crops (coffee, kava, vegetables etc.).
- While some inland people have access to freshwater fish protein, this does not appear to be meeting needs and there are few options to access fish protein other than buying fish from coastal markets. The challenges of a subsistence-based

¹ Note, during a subsequent community consultation workshop, the first sentence of the development challenge was changed to "Rural people in the Malaita Hub of Solomon Islands face major challenges from rising population declining quality and availability of marine and land resources.

diet makes these marginalized² people vulnerable to a range of health issues.

- In an analogous situation, peri-urban and urban poor in the capital city Honiara have few options but to buy fish and increasing prices mean that diets of marginalized people include lower quality fish, an increased proportion of tinned fish or simply less fish.

survey found that around half of the 30 RFC in Solomon Islands were unserviceable (MFMR 2007).

Under the new MFMR Corporate Plan (2011 – 2013), national and provincial government fisheries policy is once again focusing on regional centers for provision of ice to fishers, storage of fish and improved transport arrangements to markets. MFMR, through the



Figure 17. Location of community based management sites in Solomon Islands (red dots) and coral reefs (yellow).

Livelihood diversification is a key strategy used by communities to ensure resilience in Solomon Islands. In parts of Malaita, traditional specialization has emerged with “sea people” living on islands or coastal strips and becoming main suppliers of fish protein for “bush people”, who may, in return, trade root crops. Increased population pressure and ever more destructive exploitation of natural resources through poor soil management and use of new fishing gear disrupt production and mutual supply of basic food stuffs. The increasing demand for fish in urban centers tends to increase the incentives for sale to such markets and decrease local availability, with reports of subsequent protein malnutrition amongst the land-based children.

It is likely that multi-sectoral approaches will be needed to halt the decline of marine and terrestrial resources and to discover new avenues such as improved farming techniques, land-based aquaculture for food security, and enhancement of key commercial marine species such as trochus and inshore pelagics.

Theme 2: Equitable access to markets

- Poor infrastructure and long distances marginalize large parts of the population from opportunities and services.
- Poor understanding of market chain dynamics and connections between nodes in the value chain can result in interventions that are inappropriately targeted.

The inaccessibility of markets to the rural poor is due in part to inadequate infrastructure and transport, which in turn have engendered numerous projects and policies to improve such access. These range from expansion of transport infrastructure such as roads and wharves to the cycles of construction and rehabilitation of Rural Fisheries Centres (RFC). The high cost of these interventions limits their widespread applicability, especially for fisheries centers (which serve as focal points for fish collection, ice production and training) that frequently experience problems in terms of maintenance and local suitability (Gillett 2010). A 2007

MSSIF Programme, has recently undertaken a review of the Fisheries Centres (2010) whose findings are yet to be made public.

An absence of research to determine the status of inshore fisheries stocks combined with the paucity of studies regarding the dynamics of market chains mean that it is not possible to accurately predict the effects that changes in infrastructure might have on fish stocks and food security. The available information for coastal fisheries in fact suggests that traditional stocks in the Malaita Hub are under great pressure already, that existing market chains are one of the major causes of such pressure and that while improved infrastructure and transport could increase the value added, they may also trigger definitive stock collapses unless all the dimensions of market access are taken into account for the implementation of policy.

Some options that could be factored into improved infrastructure projects include utilizing new or under-exploited resources such as offshore fisheries or aquaculture and linking fisher access to infrastructure to improve local management plans. Current assessments of RFC status and reasons for their failure will likely generate debate over the merits of government vs. privatized facilities and have implications for their impact on resource management.

Theme 3: Social-ecological resilience and adaptive capacity

- The coral reef and mangrove ecosystems that provide fish for people are under threat. With a high dependence on marine resources, coastal populations are vulnerable to resource collapse.
- CBRM is now enshrined in national policy and there are isolated examples of CBRM in Malaita. Communities are interested in knowing how to manage their resources better. Overall however, linkages between communities, provincial governments and national policy are weak and result in lost opportunities for improved management of inshore fisheries.

² Marginalization, or social exclusion, sees certain groups systematically disadvantaged because they are discriminated against on the basis of their ethnicity, race, religion, sexual orientation, caste, gender, age, education, class disability, HIV status, migrant status or place of residence (Atkinson 1998, DFID 2005).

Mangrove and coral reef ecosystems are key marine habitats for harvesting food by coastal communities. Mangroves and corals themselves are also harvested in Malaita for fuel (mangroves), building materials and manufacture of lime (coral), with additional increased pressure from the effects of climate change and impact of destructive fishing. The reduction in mangrove cover in Malaita is already affecting availability of fuel (Langalanga consultation) as well as decreasing protection from coastal erosion that impacts gardens and dwelling areas.

The Malaita Hub has some isolated examples of community based fisheries and even mangrove management, but in general these have not included integrated resource management of the various habitats and threats nor achieved extensive results (Fig. 17). Future management initiatives will require integration of the various social and ecological dimensions of resilience on a wide scale.

Theme 4: Gender equity

- The prominent role of women in child bearing and raising children results in few opportunities to use their labor for other economic pursuits and many perpetuate dependence on the male household head.
- Being time poor limits opportunities for engagement in poverty reduction strategies, including CBRM.
- Societal norms cause women to be poorly represented in provincial and national decision making processes.
- Fisheries management and development initiatives may differentially impact on men and women. For example gendered partitioning of resources need to be understood, such as the tendency for use of mangroves to largely be allocated to women and use of outer reefs to men. A poor understanding of women's roles in market chains means that interventions may be poorly targeted and that unforeseen consequences may occur.

Men and women from coastal communities often describe themselves as gardeners and fishers, however proportionally more women in coastal communities describe themselves as primarily gardeners while proportionally more men describe themselves as primarily fishers (e.g. Boso and Schwarz 2010). Other gendered differences include the fact that women may be responsible for production from specialized fisheries and habitats – such as mangroves – and some are also responsible for the marketing of certain fisheries produce. Failure to consider gendered resource partitioning and understand women's market chain linkages may distort the assessment of women's roles and how proposed interventions will impact them and community wellbeing at large.

Theme 5: Policies and institutions to empower aquatic agricultural systems users.

- There are ineffective institutions and insufficient capacity to support CBRM and wider inshore fisheries management (national, provincial government and police)
- While strong traditional leadership exists in some places, in others it is weakened by absentee leaders and affected by urbanization (e.g. proximity to Auki) and urban drift to and from Honiara. The degree of understanding and agreement about traditional governance systems at the community level can determine the significance of marine and land tenure issues in management and development initiatives.
- There are few bridging institutions to unite government and civil society. There are weak national research capacities and poor research-farmer and research-development linkages. Opportunities exist for better co-ordination and linkage to create more effective networks.
- There are poor and/or non-existent linkages between fisheries and agricultural research and extension.
- There is a need to refine a simple and nationally appropriate approach to CBRM with the goal of identifying and resourcing the priority skills and roles needed for its implementation.

Recent advances have been made at the national level in the area of environmental and coastal governance, including the gazetting of the Protected Areas Act 2010 and the drafting of a revised Fisheries Bill. However, the institutional weakness at national level and virtual absence of environmental governance at the provincial level remain the key constraints to providing support and advice to rural people. Provinces are poorly resourced from central budgets.

Strengthening local government is a high priority as they are better placed to provide and tailor support to community based approaches (ARDS 2007, Cox 2009). The high cost of improving the delivery of government services, particularly in remote areas, is acknowledged and the emphasis must shift to strengthening partnerships among public sector agencies, the private sector, and nongovernmental organizations (ARDS 2007, MFMR 2010, Govan et al 2011). One network mechanism; the Solomon Islands Locally Managed Marine Area Network (SILMMA), was tasked with bringing together key NGOs, communities and government to share experiences and further the aims of CBRM, but so far it has underperformed in terms of achieving government policy. Rural areas still have the key asset of communal and traditional leadership for environmental governance, although this is eroding in peri-urban situations. How local governance addresses the increasing challenge of larger populations with added incentives (money) and means (new gear) to fish will be a major determinant in the ultimate management of inshore fisheries. Community based approaches require supportive linkages with a variety of sectors beyond fisheries and environment, suggesting that new fora, particularly at the level of provincial implementation, are needed to incorporate agriculture, forestry, health and other key sectors.

Opportunities exist to work with partner organizations that have capacity in both fisheries and agriculture (e.g. SPC) and/or that have experience in co-coordinating relatively effective AAS networks in Solomon Islands (e.g. KGA).

Theme 6: Knowledge sharing and learning

- While understanding of resource threats is good, information and knowledge about opportunities and pathways to deal with them is lacking or scarce.
- Decentralized approaches are recognized as necessary, but a better understanding and implementation of effective mechanisms and pathways for scaling is required.
- There are opportunities to build on initiatives such as KGA planting networks, MCDA demonstration centers, and Regional Councils and to continue to support and find effective models for SILMMA.

6. Overarching research questions

An initial set of research questions under each of the thematic headings of the Program was identified in response to the challenges and opportunities mentioned above. These were revised during the participatory diagnosis and design phases.

Theme 1: Sustainable increases in system productivity

- Does CBRM offer an effective mechanism to reverse declines in coastal fisheries? If so, what are effective modalities in terms of the intensity of interactions with external agents and of diffusion of experiences?
- Does a more integrated version of CBRM (including brokering cross-sectoral partnerships) improve its ability to reduce poverty?
- Can integrated garden and land based aquaculture technologies improve nutrition of people without easy access to coastal fisheries?
- Can improved aquaculture technologies offer an alternative source of fish to meet demand for urban and peri-urban populations?

- Can improved agriculture technologies provide incentives for effective marine resource management initiatives and improve food security?

Theme 2: Equitable access to markets

- Will more efficient value chains and linkages between local and national markets reduce the supply of fish at the local level, thereby making non-fishing households and women more vulnerable?
- Will more efficient value chains and linkages between local and national markets increase fishing pressure and habitat destruction, thereby further degrading resources?
- What are the dynamics of cross scale market chains and their interaction with food security and cash economy?
- Is there sufficient market demand for tilapia/milkfish to offer an alternative source of fish to meet demand for urban and peri-urban populations?

Theme 3: Social-ecological resilience and adaptive capacity

- Will an integrated approach to AAS management lead to increased resilience of coral reef and mangrove ecosystems?
- Will diversifying protein sources through increased contribution from aquaculture reduce vulnerability of non-coastal fishing households?

Theme 4: Gender equity

- What are women's roles in the market chain of AAS and how can these be improved for the benefit of both men and women?
- How can gender considerations be effectively integrated into community and national decision-making on fisheries and resource management without creating an additional time burden for rural women?
- Can empowerment at the community level through CBRM activities contribute to increased acceptance of women in provincial and national decision-making?
- What are the differential costs and benefits of introducing new economic activities, such as aquaculture, for women and men?

Theme 5: Policies and institutions to empower aquatic agricultural system users

- What are the success factors for effective CBRM at the community, province and national level?
- How can CBRM initiatives best be integrated with other fisheries management and development initiatives, such as fisheries centers and national plans for commodity fisheries? What types of bridging institutions are effective in bringing together government and civil society to increase food security?

Table 4. Some opportunities to address concerns identified by the groups

| Marine resource sustainability and mangrove management | Climate change adaptation | Lack of new pathways for diversification and development | Community knowledge, attitudes and practice | Improving nutrition |
|--|--|--|--|--|
| Mangrove management | Advocate for big countries to behave better | Communities already have multiple livelihood activities, e.g. gardening, hunting, fishing | Schools / education system | Go back to local food consumption |
| Awareness, education | Resettlement programs | Provincial recognition for their concerns | Education is a government priority | Encourage nutritional 'sup sup' gardens |
| Mangrove replanting | Raise the land | Utilize existing networks: women's, wards, council, church groups | Strong traditional knowledge that we can learn from | Improve/ need training on cooking skills for local foods |
| Tourism opportunities with mangroves | Forest and mangrove management | Already a lot of work on livelihood diversification need to share lessons learned – what worked, what didn't | Awareness can be retargeted | Encourage community members to become fish and agriculture farmers (encourage aquaculture) |
| Carbon trade | Funds from international programs – transfer of payments | Extension services available in Auki | There is demand for knowledge – communities taking up initiative | Improve/ need training on cooking skills for local foods |
| Mangrove forest management / agro forestry | | A number of agricultural rural training centers in the province/ schools | Links with other networks – provinces, communities | Encourage community members to become fish and agriculture farmers (encourage aquaculture) |
| Fruit management | | | Regional networks available for learning | Strengthen education/ awareness for communities in terms of nutrition |
| Assessing nutrition quality | | | Strong faith-based culture | |
| Alternative fuel/ fuel efficient devices | | | | |

Theme 6: Knowledge sharing and learning

- What are effective delivery mechanisms for research, information and technology for CBRM, agriculture and aquaculture among national, provincial and community levels?
- What is the most effective model of CBRM for Solomon Islands (including processes of engagement, institutions and indicators of success)?
- What is the most effective model to scale out innovations in AAS to new areas to ensure development impact beyond the direct beneficiaries of the project?
- How do innovations spread among local and larger scale formal and informal social networks (including an analysis of barriers and successes)?

7. Stakeholder consultation workshop

The hub level stakeholder consultation workshop (SCW) was the last formal activity in the scoping process (Fig. 2) and the first feedback event for program rollout in the Hub (CGIAR Research Program on Aquatic Agricultural Systems 2012b). The Solomon Islands Malaita Hub SCW was held in Auki, Malaita from the 4th – 6th July 2012. A separate full workshop report has been prepared with full details of all activities and processes. A summary is given here. The purpose of the workshop was to bring together a broad range of stakeholders who could give a perspective at hub or province level, rather than an individual community perspective. A separate process was adopted to incorporate the community level perspective during diagnosis in 2012. Hub level stakeholders were facilitated to identify and develop a common vision of success and to nominate opportunities and constraints (within the areas of the development challenge).

The intent was to validate (and amend if necessary) what had emerged from the scoping study and national study to date. According to the AAS Rollout Handbook (CGIAR Research Program on Aquatic Agricultural Systems 2012b), this workshop should build stakeholder commitment to tackling the development challenge through producing a shared vision of success and commonly agreed constraints and opportunities. Participants in the Malaita SCW were drawn from provincial government (executive and provincial members), NGOs and national government Ministries (Appendix 2). The workshop was divided into nine sections and these are briefly summarized here.

Section 1: Introductions, scene-setting and expectations

The workshop was opened by the Malaita Province Minister for Economic Development, Planning and Aid Co-ordination, Honorable Everest Edgar, who reiterated the Provincial Government's emphasis on food security and development. Delvene Boso (Country Manager WorldFish-Solomon Islands), who welcomed participants and explained the purpose and importance of the workshop, provided the first introduction to the hub development challenge. Rural people in the Malaita Hub of Solomon Islands face major challenges from rising population and diminishing marine resources. The development challenge is to improve their lives through more productive, diversified livelihoods that empower communities to better adapt to change and to make more effective use of their marine resources. The research challenge for the people of Malaita Hub is to develop and test alternative approaches to livelihood diversification and to assume a resource stewardship that will accelerate development and restore the productivity of resources.

After these initial messages, participants introduced themselves and outlined their role in the organizations they represent. Charles Crissman (WorldFish) provided a brief introduction to the AAS program and its global approach. This provided the context for the Malaita work and its connections to a global program of research in development. Anne-Maree Schwarz (AAS Solomon Islands Program leader, WorldFish) introduced the Solomon Islands node of AAS and provided: a brief summary of what is

meant by the term “aquatic agricultural systems”, a road map for setting up the AAS Program in Solomon Islands including scoping work to date, placement of the workshop in the process, and (iv) a re-introduction and justification of the hub development challenge.

Ranjitha Puskur (WorldFish), the workshop facilitator, summarized the objectives of the workshop and the agenda for the following three days. The hub development challenge was again referred to and posted on the wall as a reference point for discussion and revision. Participants shared their expectations of the workshop.

Section 2: Identification of concerns and the strengths/opportunities to address them

Part One: Concerns with respect to the development challenge

Participants were divided into five groups. These groups brought together provincial government members and ministers (Groups 1 and 2), officers of development and research partners (Group 3), officers of national Solomon Islands Government (SIG) agencies and a national development project (Group 4), and provincial officers of the development arm of the Malaita Provincial government (MCDA) and representatives of the provincial council of women (Group 5).

In the first group exercise, participants identified concerns they had about the future of communities and people in Malaita, with particular reference to the development challenge. Concerns were defined as “things that you personally worry about” as distinct from the sometimes more commonly used “issues”. Results from the discussion were recorded on cards and a broad 1. rapporteur presented the cards from each group. The facilitator grouped cards into eight categories of concerns. In summary, these concerns dealt with:

1. marine resource sustainability.
2. mangrove management.
3. integrating support from government and donors .
4. community knowledge, attitudes and practice.
5. lack of new pathways for diversification and development.
6. land disputes and land use planning.
7. climate change adaptation.
8. improving nutrition.

Participants discussed these broad categories of concern and consensus was reached that the process had captured key concerns with respect to the development challenge.

Part two: Identification of strengths/opportunities to address these concerns

In the same groups, participants were challenged to explore opportunities to address these concerns. Specifically, the groups were tasked with answering the following questions:

1. Why do these concern us?
2. What are the opportunities to address these concerns?
3. Who should be involved?
4. Where and when is the concern worst?

Following animated discussion, flip charts were used to capture outcomes and rapporteurs provided entertaining and informative summaries of the group's discussion. The summaries provided a great springboard for plenary discussion in which the group reports were amplified by other participants. Summaries of opportunities for five of the eight broad categories of concerns are shown in Table 4.

Section 3: Vision of hub and community success in addressing the development challenge

Using the same groups, participants were challenged to provide a vision of what success would look like after six years of program activities. Specifically, participants were asked to imagine themselves six years into the future and to reflect on their circumstances at that time. They were posed the following questions:

1. What are communities, fishers and farmers doing differently?

2. What are the organizations that work to support them doing differently?
3. How are technology and knowledge spreading?
4. How are the “higher-ups” nurturing the improvements?

The discussion was captured as a single vision statement from each group and reported back by a rapporteur. Visions for six years into the future were included. From the officers of development and research partners group, “After six years, the Program has contributed information on AAS to new curricula in schools that are integrating technical and academic streams, core communities/individuals/schools have fixed gardens and pond aquaculture (and/or CBRM for coastal communities) from which they are harvesting fish, and people are talking to each other about their success as a means of information spread. Communication is occurring through networks and partnership MOU’s are effective”.

From the officers of SIG group, “Fertile lands and productive gardens and recovering ecosystems (balanced social, economic and development challenges) result in empowered, productive and healthy communities linked by information and technology to coordinated support and action by all stakeholders”.

From the provincial government members and executive group, “We will be successful if we have implemented a range of activities to meet the realistic goals we set in 2012. National and provincial governments will be stronger and some communities will be setting the standard in managing their own resources. There will be better transport and more electricity in communities. There will be improved gardening and land use with nutritious *supsup* (household) gardens and improved awareness of fishing techniques that are sustainable; there will be control of mangrove crab harvests and destroyed mangrove areas will be replanted”.

The provincial officers, MDA and Provincial Council of Women group also contributed its vision. There will be an “improved standard of living and full participation in the implementation of community activities”. An extended plenary discussion variously challenged and affirmed visions from the groups. Particular emphasis was placed on the underlying issues for achieving the visions, such as community engagement (whether communities are “really listening”; being realistic; the need for truth from everyone; and “waking the sleeping giant”, the idea that the need and capacity is there in communities but just needs to be energized).

Section 4: Self-assessment of community, organizational and collaborative competence in addressing concerns

The groups examined their visions and drew links to the opportunities they had identified earlier. Strong themes that emerged regarding the state of current practices included: lack of coordination or planning among development projects and short time scales of investment and the ‘no choice situation’ with regards to livelihood opportunities that many communities are finding themselves in. In spite of differing priority areas for improvement, common themes were the need for community ownership and a strength based approach, and the importance of new programs drawing on existing knowledge and technology from the communities and partners.

Section 5: Network mapping and identification of opportunities for network strengthening

In groups, participants mapped networks of actors whose work is relevant to the development challenge. Groups then reported back to plenary using network maps on flip charts. The groups came to the analysis from different perspectives and organizational backgrounds and as a result, the maps were very different. The provincial representatives created a map that was centered on MCDA as the main actor, with linkages among other actors that radiated out from MCDA. The NGO group produced a much more complex map in which most actors had linkages (Fig. 18).

Nevertheless, gaps in beneficial linkages were recognized, particularly between marine and terrestrial focused organizations and with National Agriculture and Health Ministries.

Linkages to schools were also weakly linked to development challenge partners. The SIG group produced a similarly complex spider gram of network relationships. Weak linkages were observed between SIG and communities in Malaita, and between the Ministries of Health and Agriculture, and MFMR and MECMD. Notably absent from the networks were credit institutions and value chain actors (transport, agricultural input buyers, sellers).

The three network maps have been compiled using appropriate software as seen in Fig. 18. They will be further explored ensure that the new partnerships identified as necessary to help achieve impact in the program can be facilitated.

Section 6: Community engagement

This session focused on determining processes for ensuring that community perspectives are not only captured, but are also drivers of the program design during the diagnosis phase. A wide-ranging plenary discussion addressed how to include a community perspective in the design process while avoiding the enormous problem of raising expectations of future engagement in program implementation. The conversation remained unresolved at the end of Day Two, largely because participants identified threats to the AAS Program and programs of partner organizations from inadvertently raising unrealistic expectations among communities where the program may not in fact be active in the future. WorldFish offered to come back in the morning with a proposal for moving the program design forward.

In the morning of Day Three a road map for program design over the next 6-8 months was presented. The main premise of the road map was that community perspectives would be sought collectively from a group of people invited from places where WorldFish or AAS partners are already working or have strong relationships. There was universal approval and support for the road map. Similarly, there was agreement that the community perspective would be very different from that of government agencies and international NGOs, and should be sought in a different forum.

Section 7: What the AAS program might look like

The opportunities that were developed in group work were then clustered into areas of potential focus for the Program, with gender and using strength-based approaches identified as enabling or cross-cutting themes (Fig.19). The facilitator then explicitly linked this grouping with the development challenge introduced on Day One. The participants agreed that the development challenge captured the essence of what lies before the people of Malaita and should remain unchanged for the present, subject to further reflection during the community workshop, further diagnosis and the design processes. What became clear at this stage was the multi-sectoral and partner-driven nature of the program and opportunities for partnerships.

The facilitator then led the workshop through a discussion of experiences in community engagement and other existing programs in Malaita. The Kastom Gaden Association (KGA) offered an example of engaging with youths to promote independence as they enter adulthood (e.g. through making gardens). World Vision described literacy and early childhood education courses made available to young women in the community at a pace to suit the students. Representatives of the Provincial Government discussed the need to consider and address issues of culture in different parts of Malaita and offered examples of how to get men thinking about the significance of gendered roles and “how life is for women”. Kwai Island representative spoke about developing fertile soil on atoll islands the evolution of cultural norms and the

nutritional issues that are arising due to the prevalence of noodles and rice in the diet of rural people.

The facilitator then redirected the group to explore how participants might contribute to the program. MCDA led off with a discussion about how they propose to work with WorldFish and other partners in facilitating development in Malaita. The Ministry of Health representative reminded participants to take their Rubella shots and then expressed his keenness to be involved with the program, particularly with respect to providing information on population control and family planning. Oxfam discussed their engagement in climate change issues in other provinces and their planned continued engagement in Lilisiana in Auki. Although the Oxfam climate change program will roll out in Isabel, Santa Cruz and Makira, they are keen to share lessons and work together. AVRDC were introduced to the group and emphasized the synergies between fish and vegetable production, maintaining that one does not really work without the other when developing livelihood options and reducing vulnerability. KGA's long term engagement in Malaita was also summarized. They highlighted two upcoming projects funded by the EU and UNDP that will target hotspots also targeted by AAS

(e.g. Langalanga). They further noted that they are dealing with the same people and therefore need to integrate their efforts.

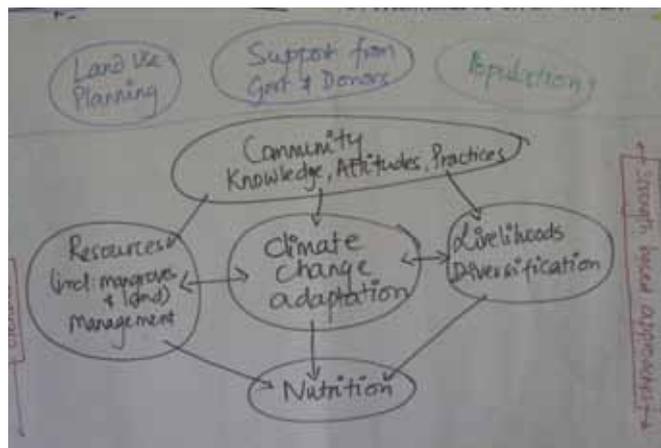
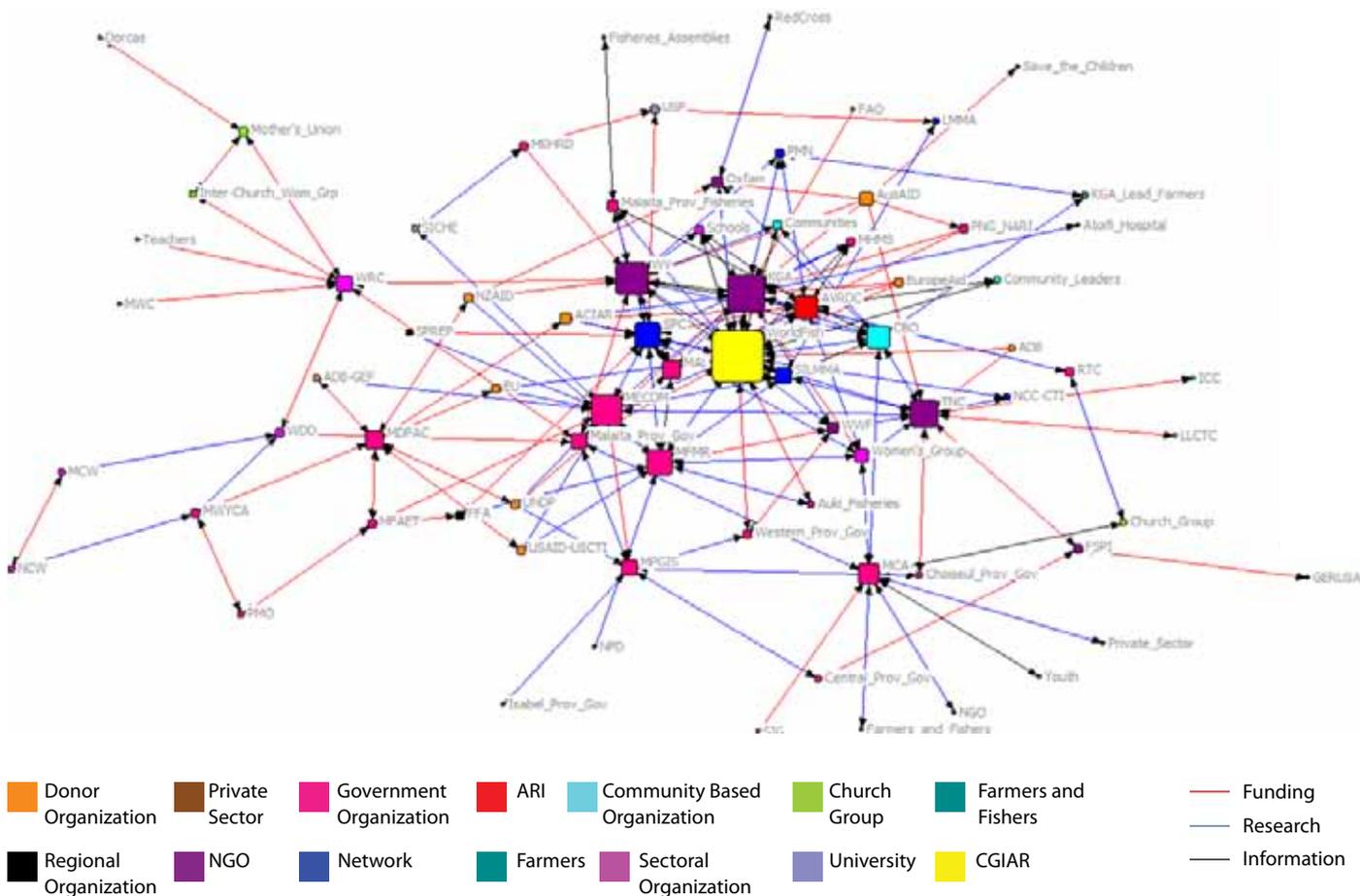


Figure 19. Opportunities for impact from the hub-level SCW that map to the research objectives/themes of the AAS Program.



Solomon Island Hub network from drawn network maps

Figure 18. Example network map from the NGO and development group.

Section 8: Next steps

The road map that was laid out in Section 6 was revisited. Moving past the scoping phase and into the diagnosis phase (refer Fig. 2), the next step in this process included a community perspective workshop plus some additional information gathering in communities where partners are already active on gender, governance, nutrition and partner activities. From this, the program design team (including new partners, particularly those in the agriculture sector) distilled information to design the program. This phase was completed in November 2012 and ended with a workshop to design the details of the program and fix initial work plans. Communities targeted for intervention will be chosen in early 2013 and community engagement and program implementation will follow.

Section 9: Workshop closure and evaluation

Participants were invited to provide insights on what they did or did not like and also to highlight any special moments. This was a personal reflection exercise, not shared in plenary but returned to WorldFish as part of a learning exercise for future workshops. The results of this exercise are presented in the workshop report.

In summary, key outcomes from the workshop were:

- The scoping report was largely validated but gaps in agriculture (which are particularly evident when reviewing the research questions proposed earlier in this report) are apparent. Network mapping and partnerships with agricultural researchers will help fill that gap as diagnosis and design proceeds.
- Validation of the development challenge.
- There were five clear areas of opportunity for impact and where pathways for change can be articulated. These can be mapped to at least one of the six program objectives/research themes. In addition, other opportunities for impact were identified that lie outside of the immediate program scope (e.g. family planning).
- An initial theory of change is being developed from the outcomes of the SCW and this will be refined and validated during the diagnosis phase.
- Clarification of opportunities for partnership
- Consensus about concerns for community engagement and lessons shared on community engagement principles.

8. Target communities for community based research in Malaita

Based on the scoping exercise, including the SCW, the hypothesis that we have articulated to address the development challenge is that improved livelihoods will be delivered by interventions at individual farmer, community³ and possibly ward scale as well as at the provincial and national level. It will be necessary to consider what the relative mix of investment required at each of these levels is. In addition, different models of intervention at the community level were found to be relevant discussion topics based on lessons from previous work suggesting that continuation of a community by community approach is not necessarily the most effective mechanism for delivering change at scale (Govan et al 2013).

Options for community engagement include:

1. partnerships with development NGOs,
2. a community by community approach, and
3. lighter community level interventions using various communication media and that draw on research on social network analysis, enabling facilitation of scale out at an early stage of the program.

Sites will not be drawn at random from a population of sites within the region, nor will an impact/control design be adopted. Rather, sites and the target audience that has the greatest probability of accelerating development impact will be selected. The intent is to establish a network of communities of sufficient scale to have tangible impact on the development challenge and to facilitate a meaningful government support strategy and operational unit. To do this, it is expected that target areas for interventions will be selected based on the following process:

1. The hub and community level development challenges and theories of change will be confirmed.
2. Areas with the greatest development challenges will be examined.
3. Gradients in relation to the development challenge will be identified for those areas.
4. Partner organizations and the extent of their influence will be identified.
5. The scope of the AAS Program will be identified.
6. An expression of interest from communities, tribes, and wards will be sought.
7. Clusters will be selected along those gradients.

9. Institutional context, development programs, investments and key partners in the hub

The AAS Program emphasizes a "research-in-development" approach to ensure that research is both responsive to development priorities and is directly linked into development processes of government, private sector and civil society. The initial list of partners shown in Table 4 was identified during scoping as being composed of key implementing and general partners for the CRP in Solomon Islands. Network mapping during the SCW identified additional partnership opportunities and it is expected that these will be refined as the diagnosis phase progresses during 2012. An initial overview of AAS-relevant programs and investments in the Hub is summarized in Appendix 3 and an initial list of existing data suitable for baseline information for performance monitoring and impact assessment is given in Appendix 4. This does not constitute a full literature review of the technical information that exists on fisheries and agriculture in the Hub. A small number of published works exist in the scientific literature on anthropology, fisheries and agriculture supported by a larger number in the grey literature. At this scoping stage, we have limited ourselves to databases and key review documents or studies that illustrate key findings in relation to the development challenge.

³ *Community* is used here in the broadest sense of a functional social unit; at different times and in different cultures, the most relevant social unit in connection with local marine resource management may be a group of villages, a single village, a clan, a family, or a chief or other influential individual in the community" (Johannes 2002).

Table 4a. Core, key implementing and general partners for AAS CRP rollout in Malaita Hub.

| Core | Key Implementing | General |
|-------|--------------------------------|--|
| MFMR | Malaita Provincial Government | Malaita Provincial Government |
| MECDM | World Vision | SILMMA partners [TNC, FSPI] |
| MAL | World Vegetable Center (AVRDC) | Save the Children JCU OXFAM SPC |

Table 4b. Details of roles and contributions for Core and Key Implementing partners.

| Potential partners | Main potential roles | Contributions during roll-out |
|--|---|---|
| Malaita Provincial Government | Aligning initiatives with province priorities | Policies, briefings, office rental for WorldFish, MoU, Provincial department staff involved in scoping, commercialization and expansion of backyard aquaculture |
| MFMR | Aligning initiatives with government priorities | Policies, plans, facilitating MOU with SIG, support for project proposals, commercialization and expansion of backyard aquaculture |
| Ministry of Agriculture and Livestock | Aligning initiatives with government | Information and policies, provincial staff |
| Ministry of Environment, Climate change, Disaster Management and Meteorology | Alignment of CBRM to NPOA | Support for project proposals through CTI and NCC |
| Ministry of Women, Children and Youth Affairs | Aligning initiatives with government priorities | Policies, plans and aligning of gender strategies, mainstreaming of gender outcomes |
| AVRDC The World Vegetable Center | Research partners in agriculture | Consultation providing information, exploring alignment developing joint research questions at Inception |
| Kastom Gaden Association | Research and extension partners in agriculture | Consultation providing information, exploring alignment, joint proposals, a contracted partner following inception meeting. Pond aquaculture/ gardening options |
| World Vision | Development NGO partner in Small Malaita | Baseline information, opportunities to develop research approaches that utilize the presence of a lead development NGO, alignment of gender programs |
| Bioversity | Agriculture research on target crops | Visit Solomon Islands to assess opportunities, visit target communities once community TOC and develop joint research proposals with WorldFish |

10. Next steps

This report summarizes the completion of the scoping phase of rollout for Malaita Hub in Solomon Islands. The scoping phase has enabled us to define our geographical focus for community engagement as Malaita Province. We have now obtained some clarity on how the program can pursue research-in-development that addresses strategic challenges of agricultural and social development. This will be accomplished through common understanding and partnership with development agencies operating in this area. The SCW was a critical step in this process and only at this first feedback opportunity did a common vision amongst potential partners of a theory of change for AAS in Malaita begin to emerge. The next step to refine the theory of change was to invite key partners to join a guiding coalition or steering group to oversee the diagnosis and design phase of rollout. An orientation for this group commenced in August 2012.

The community perspective on the development challenge and theory of change was solicited in community workshops and targeted focus group discussions between July and October 2012. The diagnosis and design phases were completed in November 2012 with a program design workshop in which the guiding coalition played a key role. Activities for 2013 are the selection of target communities and implementation of action research initiatives based on the Program design currently in preparation.

Abbreviations

| | |
|-------|---|
| AAS | CGIAR Research Program on Aquatic Agricultural Systems |
| ACIAR | Australian Centre for International Agricultural Research |
| ADB | Asian Development Bank |
| ARDS | Agriculture and Rural Development Strategy |
| AVDRC | The World Vegetable Center |
| CBRM | Community Based Resource Management |
| CEO | Chief Executive Officer |
| CTI | Coral Triangle Initiative |
| CGIAR | A Global Research Partnership for a Food Secure Future |
| CRP | CGIAR Research Program |
| EU | European Union |
| FAD | Fishing Aggregating Device |
| FSPI | The Peoples of the South Pacific International |
| HDI | Human Development Index |
| IRD | Research Institute for Development |
| IWMI | International Water Management Institute |
| JCU | James Cook University |
| KGA | Kastom Gaden Association |
| MAL | Ministry of Agriculture and Livestock |
| MADA | Malaita Chazon Development Authority |
| MDG | Millennium Development Goals |
| MECDM | Ministry for Environment, Climate Change, Disaster Management and Meteorology |
| MFMR | Ministry of Fisheries and Marine Resources |
| MoU | Memorandum of Understanding |
| MOI | Malaita Outer Islands |
| MSSIF | Mekem Strong Solomon Islands Fisheries |
| MWCYA | Ministry of Women, Youth and Children Affairs |
| NCC | National Coordinating Committee |
| NGO | Non-Governmental Organization |
| NRM | Natural Resource Management |
| OBM | Outboard motor |
| OXFAM | Oxford Committee for Famine Relief |
| PNG | Papua New Guinea |
| PRA | Participatory Rural Appraisal |

| | |
|--------|---|
| RDP | Rural Development Project |
| RFC | Rural Fisheries Centre |
| SIDHS | Solomon Islands Demographic and Health Survey |
| SIDT | Solomon Islands Development Trust |
| SIG | Solomon Islands Government |
| SINSO | Solomon Islands National Statistics Office |
| SILMMA | Solomon Islands Locally Managed Marine Area |
| SIPPA | Solomon Island Planned Parenthood Association |
| SPC | Secretariat of the Pacific Community |
| TNC | The Nature Conservancy |
| TOC | Theory of Change |
| UNDP | United Nations Development Program |
| YOP | Youth Outreach Program |

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Appendix1: Stakeholders consulted

| Institution | Name | Position |
|--|--|--|
| HONIARA and GUADALCANAL | | |
| Australia People, Health, Education Development (APHEDA) | Merbilly Pitadunga | Program co-ordinator |
| AVRDC- The World Vegetable Center | Suzanne Neave | Pacific Programme Manager |
| MAL Extension Office and Head Quarter | Eddie Hori | Project deputy Director |
| MAL agriculture Research Division | Martin | Deputy Director Research |
| MFMR (Aquaculture Section) | Alex Meloty | Aquaculture team leader |
| Guadalcanal Provincial Government | Francis Sade | RDP coordinator |
| Guadalcanal Provincial Government | Dixon Warakohia | Chief Fisheries Officer |
| Kastom Garden | Clement Hadosaia | Director |
| Ministry of Fisheries and Marine Resources | Chris Ramofafia | Permanent Secretary |
| Lees Lake bush communities | Hon. Lazarus Rina | Provincial member |
| Save the Children-Solomon Islands | Niamh Murnaghan | Country Manager |
| SPC | Mia Rimon | Solomon Islands Manager |
| WorldVision Solomon Islands | Andrew Catford | Country Manager |
| MALAITA | | |
| Radifasu community, Malaita | Benjamin Walelia & Dominic Oduagalo | Mangrove replanting initiative |
| Atoifi Hospital | Atoifi Hospital Chaplain, Humpress Harrington | Hospital Chaplain and Nursing School Principal |
| Atoifi police Post | Robert Kwairia | Officer In-Charge at Police Post |
| Kwai Island community | Andrew Soai | Chief |
| Kwai Primary School | Headmaster | Headmaster |
| Malaita Chazon Development Authority (MCDA) | David Toifai | MCA Deputy Interim Director |
| Malaita Chazon Development Authority (MCDA) | Patrick Taloiboe | MCA Interim Director |
| Malaita Provincial Assembly | Ward 16 (Malaita Province) provincial member Hon. Billy Farobo | Provincial member and Minister for Commerce, Employment, Industry, Tourism & Trade |
| Malaita Provincial Government | Hon. Edwin Suibaea | Premier |
| Malaita Provincial Government | Harold Leka | Permanent Secretary |
| Malaita Province Fisheries Division | Michael Laumani | Chief Fisheries officer |
| Save the Children, Malaita | Robert Iamaea | Program Coordinator |
| WorldVision, Malaita | James Hagi & Tomos Opaka | Area Coordinator & Livelihood Division Coordinator |
| Women's Development Division, Malaita Office | Clera Rikimani | Head of the Women's Development Division |
| CENTRAL ISLANDS PROVINCE | | |
| Central Islands Province Government | Hon. Patson Mae | Premier |
| | Selwyn Vasuni | Provincial Secretary |
| Koilovala community, Central Islands Province | Godfrey | Chief |

Appendix 2: Participant list stakeholder consultation workshop, Malaita

| No. | Names | Organization |
|-----|---------------------------|--|
| 1 | Suzanne Neave | The World Vegetable Center (AVRDC) |
| 2 | Ennie Tako | Ministry of Agriculture (Malaita) |
| 3 | Agnetha Vave-Karamui | MECDM |
| 4 | Hon. Edwin Kauolisi | Malaita Provincial Government |
| 5 | Hon. Everest Kairi | Malaita Provincial Government |
| 6 | Augustine Faliomea | Malaita Provincial Government |
| 7 | Max Kori | Malaita Provincial Fisheries Unit |
| 8 | Michael Laumani | Malaita Provincial Fisheries Unit |
| 9 | Peter Kenilorea | SILMMA/Ministry of Fisheries and Marine Resources (MFMR) |
| 10 | Peter Ramohia | ADB – CT Pacific project |
| 11 | Donald Raka | ADB – CT Pacific project |
| 12 | Clement Hadosaia | Kastom Gaden Association |
| 13 | Lorima Tuke | OXFAM |
| 14 | John Sala | Kastom Gaden Association (Malaita) |
| 15 | Tomos Opaka | World Vision |
| 16 | Joylyn Afu | Destiny Family Centre, East Malaita |
| 17 | Martha Rurai | Malaita Provincial Council of Women |
| 18 | David Toifai | Malaita Chazon Authority |
| 19 | Beato Apaniai | Minister of Community Health and Medical Services |
| 20 | Kemuel Iro | Ministry of Health - Auki |
| 21 | Hon. Slade Abae | Prov. minister for Lands |
| 22 | Hon. Alick Maeaba | Deputy Premier |
| 23 | Hon. Joel Mamali | Pro. minister Works |
| 24 | Hon. Rensly Uguni | Ward 5 Pro. minister |
| 25 | Hon. Erickson Otia | Provincial Minister of Fisheries |
| 26 | Hon. Daniel Riimana | Provincial Minister of Agriculture |
| 27 | Seno Mauli | The Nature Conservancy |
| 28 | Chris Apairamo | Rep for Southern Region on behalf of their pro. minister |
| 29 | Faye Saemala | Malaita Province Woman Council coordinator |
| 30 | Hon. R. Sifoni | Provincial Minister for Finance – Ward 30 |
| 31 | Hon. Messach R. Liufainia | Provincial Minister for Environment, Conservation and Climate Changed-Ward 9 |
| 32 | Janet Oeta | WorldFish |
| 33 | Delvene Boso | WorldFish |
| 34 | Faye Siota | WorldFish |
| 35 | Daykin Harohao | WorldFish |
| 36 | Anne-Maree Schwarz | WorldFish |
| 37 | Ranjitha Puskur | WorldFish |
| 38 | Charlie Crissman | WorldFish |
| 39 | Reuben Sulu | WorldFish |
| 40 | Neil Andrew | WorldFish |

Appendix 3: Profiles of current development programs and investments in Malaita hub, in order of national, provincial, community

| Name of Program | Implementing partners (lead institution, partners, donors) | Technical focus | Locations within the hub | Duration/ status | Possible links with research program | Contact person |
|--|--|---|----------------------------------|------------------|--|---|
| MSSIF | NZAID, MFMR | Fisheries strengthening | National with a Provincial focus | 2015+ | Core partner alignment of priorities, joint projects | PS Dr Chris Ramofafia |
| CTI | MFMR/MECDM | CBRM | National | 2015+ | Core partner alignment of priorities, joint projects | Agnetha Vave-Karamui |
| Planting networks and research on promoting local food | Kastom Gaden | Food security gardens | National | Ongoing | Extension partner | Director Clement Hadosaia |
| SILMMA Network support | LMMA Network (Packard)/ MFMR/ NGOs, others | CBRM Networking and coordination | National | Ongoing | CBRM spread integral to process | Peter Kenilorea (co-ordinator/ MFMR) |
| Climate Change Assistance Programme (SICAP) | EU/GCCA/MECDM and USP | Effective mainstreaming of CCA and DRR, policy enhancement, coordination and implementation of Climate Change strategy in line with its NAPA and National Disaster Risk Management Plan | National | 2010+ | Sharing of lessons learned and alignment of national and provincial policies | MECDM |
| Youth Environment Program | UNDP/MECDM/ SICHE | Youth capacity building, awareness & mobilisation | National | 2011+ | implementation | MECDM |
| Provincial Governance Strengthening Programme (PGSP) | UNCDF-UNDP/ MPGIS with MECDM, MEHRD and MHMS | Develop the capacity of provincial governments in the Solomon Islands to deliver services and promote local development. Includes access to PDCF funds | National | ongoing | Provincial government strengthening | Sawaneh Modoulamin sawaneh.modoulamin@uncdf.org |
| Israeli Proposed Technical Agreement with MCA | Israel's Agency for International Cooperation | Agriculture, fisheries and industry | Malaita | ongoing | Industrial Park developments link with communities | Patrick Taloboe MCA |
| Rice, coconuts, coffee, cocoa, kava | Ministry of Agriculture | Rice extension by project; coffee and kava research by action research with farmers. | Guadalcanal and Malaita | Ongoing | Government researchers | PS John Haronari Director of Research Mrs Helen Tsatsia |

| Name of Program | Implementing partners (lead institution, partners, donors) | Technical focus | Locations within the hub | Duration/status | Possible links with research program | Contact person |
|---|---|--|---|---|--|---|
| Rural Training Centers | Assn of Rural Training Centers | Technical training for rural youth | Malaita | Ongoing | Extension of learning | Mr Billy Mae |
| Rural Development Project | MDPAC RDP co-ordinator. [funded by World Bank, AusAid and Solomon Islands Government] | Agriculture, forestry and to a lesser extent, fisheries. Vehicle for delivery through an infrastructure and service delivery component implemented by MDPAC; an improved agricultural services component implemented by Ministry of Finance; and a rural business development component managed by the commercial banks. | Phase I in East and Central Malaita Phase II Guadalcanal and Central | 2007-2012+ | | Lottie Francis Sade [G Province] |
| Malaita PGSP Ministry of Provincial Government (EU, WorldBank, SIG) | Malaita Province Premier and PS | There are seconded staff for PGSP based in Auki. To build local capacity but approved at the provincial level | Auki | ongoing | To be kept informed through Provincial Government | Hon Edwin Suibaea and PS Harold |
| ACIAR: Integrated Crop Management | AVRDC-The World Vegetable Center | Integrated Crop Management (including pest and soil management) | Guadalcanal-site based | 2012-2014 | Research partner | Suzanne Neave Tikai Pitakia |
| Solomon Islands Country Programme | WorldVision | Economic development/ livelihoods | Marau, Small Malaita, East Malaita (proposed) | 2010+ | Development partner | Country Programme Manager Dr Andrew Catford |
| Malaita Programme | Save the Children | Basic education programme, YOP, HIV and Youth in Conflict with the law. | Auki, West Kwaio)/East (Kwara'ae, Kwai and Fataleka) | -2013+ | Development partner | Robert Iamaso, Provincial co-ordinator |
| Solomon Islands Communities and Coasts Programme | FSPI | Marine resource governance | Langalanga, Central, Marau | 2012+ but programme under review awaiting new co-ordinators | Implementers of resource management in Langalanga, Central and Marau | Zaidy Khan |
| Fish Aggregating Devices | NZAID/ MFMR/ World Fish Center | Artisanal fisheries | Guadalcanal, Ngella, Malaita | 2010-2013 | Community level interventions | Director MFMR |
| CBRM | ACIAR/ MFMR/ World Fish, | Scaling-out community-based marine resource governance in Solomon Islands, Kiribati and Vanuatu | Malaita, | 2012-2015 | implementation | Anne-Maree Schwarz, WorldFish Center |
| MESCAL | IUCN/MECDM/ | Mangroves, Climate Change and Livelihoods | Malaita, Maramasike Passage | 2012-2014 | Lessons to share with communities | Hugo Tafea |

| Name of Program | Implementing partners (lead institution, partners, donors) | Technical focus | Locations within the hub | Duration/ status | Possible links with research program | Contact person |
|---|--|---|------------------------------------|--------------------------------|--|---|
| Adaptation Fund | Global Adaptation Fund/UNDP and MECDM | Enhancing resilience of communities in Solomon Islands to the adverse effects of CC in agriculture and food security” | Malaita, Langalanga | 2011+ | Synergies with interventions | Douglas Yee d.yee@met.gov.sb |
| Pacific Adaptation to Climate Change (PACC) | SCCF (GEF)/ MECDM and MAL/ | Food security in 3 sites. | Ontong Java, Sikaina and Fenualoa. | Duration: 5 years (2009 -2013) | Lessons to share | MAL is the implementing and executing agency. MECDM is the focal point. |
| Land based aquaculture and freshwater fisheries | WorldFish and MFMR | Tilapia and milkfish aquaculture | Guadalcanal and Malaita | 2011-2014 | Interventions and OFT directly relevant to AAS | Alex Meloty and Reuben Sulu |
| REDD+ Readiness Project | GIZ/SPC/MECDM | Development of a REDD+ Policy Framework at the national level. Establishment of Pilot Study sites on selected islands | Not yet identified? | 2010+ | Sharing of lessons learned and alignment of national and provincial policies | MECDM |

Appendix 4: Information sourced during scoping

Link or location given if electronic copy available

Hard copy only, with scoping team >>

| Reference | Sector relevance | Comments on data | Location of document |
|--|--|--|---|
| SPC Violence against women (2009) | Cross cutting gender | Gender disaggregated but not disaggregated by Province | |
| Child mortality and birth weight | Health | Not gender disaggregated | Kilufi Hospital print out – copy with HG >> |
| Malaita Provincial Government | Policy Framework and Development Strategies 2011 – 2020 (“political direction”) | | |
| Malaita Province Development Plan | Strategic plan of the people of Malaita Province 2007 – 2017 | | |
| Premiers Communiqué , 15 September 2011, Gizo: | A coordinating mechanisms for delivery of CBRM and CCA through provincial governments | | |
| National Disaster Risk Management Plan | For Disaster Management Arrangements and Disaster and Climate Change Risk Reduction, November 2010. Includes community and provincial level implementation and is overseen by MECDM. | | http://www.preventionweb.net/files/22_085_14656ndrmp_solomonsfinaliseddra_ftff2.pdf |
| The National Coalition for Reform and Advancement (NCRA) Government Policy Statement | Maintains or increases emphasis on climate change adaptation, mainstreaming of environment issues and community awareness for natural resource management. | | |
| Solomon Islands National Development Strategy (NDS) 2011-2020 | Aims to get government services to all Solomon Islanders, improve management of the environment and related governance | | |
| MECDM Strategic and Corporate Plan 2011-2014 | Incorporates Disaster Management and Risk Reduction along with CCA and Environment and Conservation. | | |
| MFMR Corporate Plan 2011-2013 | Enshrines the Inshore Strategy in terms of improved health of resources, community based management and ensuring that climate change impacts are taken into account. | | |
| ARDS | Agriculture and general rural development | | http://siteresources.worldbank.org/INTPACIFICISLANDS/Resources/442114---1180930407961/ARDS_Full_Report.pdf |
| SINSO 2012. Solomon Islands 2009 Population and Housing Census | Basic census data | Partially gender disaggregated | |
| MDG gender targets | Data for Solomon Is and Pacific Countries | | http://www.devinfo.info/mdginfo2011/ |

| Reference | Sector relevance | Comments on data | Location of document |
|-------------------------------------|---|-----------------------------------|--|
| SPC PopGIS | Software package developed by the SPC to analyze and represent spatially down to Enumeration Area detail the data of the SI 1999 census | Partially where not by Households | program available (Hugh Govan) |
| Andréfouët et al. 2005 ¹ | Coral data | | http://imars.usf.edu/MC/output_south_pacific.html or Reefbase or http://data.unep-wcmc.org/datasets/13 |
| Giri et al. 2011 ² | Mangrove distribution data | | ftp://na.unep.net/UNEP/mangroves |
| Lewis 2009 | SI Languages | | www.ethnologue.com/ |
| Reefbase | General data, esp on coral and some MMAs. Links to a repository of references on grey literature from the hub (ReefBase Pacific) | | http://ctatlas.reefbase.org and pacificgis.reefbase.org and supplementary updates with HG |

¹ Andréfouët, S., F. E. Muller-Karger, J. A. Robinson, C. J. Kranenburg, D. Torres-Pulliza, S. A. Spraggins, and B. Murch. 2005. Global assessment of modern coral reef extent and diversity for regional science and management applications: a view from space. in Y. Suzuki, T. Nakamori, M. Hidaka, H. Kayanne, B. E. Casareto, K. Nadaoka, H. Yamano, M. Tsuchiya, and K. Yamazato, editors. 10th International Coral Reef Symposium. Japanese Coral Reef Society, Okinawa, Japan. CDRom. Pages 1732-1745. http://imars.usf.edu/MC/output_south_pacific.html or Reefbase or <http://data.unep-wcmc.org/datasets/13>

²Giri, C., E. Ocheing, L. L. Tieszen, Z. Zhu, A. Singh, T. Loveland, J. Masek, and N. Duke, 2011. "Status and distribution of mangrove forests of the world using earth observation satellite data," *Global Ecol. Biogeogr.* 20(1), 154–159 & Bhattarai B. and C. Giri. 2011. Assessment of mangrove forests in the Pacific region using Landsat imagery. *Journal of Applied Remote Sensing*, Vol. 5. <ftp://na.unep.net/UNEP/mangroves>.



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The CGIAR Research Program on Aquatic Agricultural Systems is a multi-year research initiative launched in July 2011. It is designed to pursue community-based approaches to agricultural research and development that target the poorest and most vulnerable rural households in aquatic agricultural systems. Led by WorldFish, a member of the CGIAR Consortium, the program is partnering with diverse organizations working at local, national and global levels to help achieve impacts at scale. For more information, visit aas.cgiar.org.

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