Pacific Island Food Security

Situation, Challenges and Opportunities
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Elements of food security

- Adequate food supplies (either domestically grown or imported)
- Available food supplies
- Stability of food supply
- Access to food at the household and individual level, especially for those with low incomes and vulnerable groups
Sources of food – local production of energy and protein needs

- PNG - 83% of food energy and 76% of protein is locally produced
- Solomon Islands - 75% of food energy
- Vanuatu - 80% of food energy (Malo Island only)
- Fiji - 42% of food energy, 40% of protein
- FSM - 27% of food energy, 36% of protein
Importance of food production to household income varies between and within PICs

Table 1: Contribution of food production to household income in selected PICs*

<table>
<thead>
<tr>
<th></th>
<th>Samoa a</th>
<th>Kiribati b</th>
<th>Tonga c</th>
<th>Solomons d</th>
<th>FSM e</th>
<th>Palau f</th>
<th>Tuvalu g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsistence production as % of household income</td>
<td>26%</td>
<td>21%</td>
<td>17%</td>
<td>37%</td>
<td>23%</td>
<td>3%</td>
<td>55%</td>
</tr>
<tr>
<td>Sales of own produce as % of income</td>
<td>3%</td>
<td>11%</td>
<td>14%</td>
<td>6%</td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Minimum contribution of home production (subsistence and sales) to incomes within PIC</td>
<td>7%</td>
<td>19%</td>
<td>14%</td>
<td>7%</td>
<td>15%</td>
<td>n/a</td>
<td>30%</td>
</tr>
<tr>
<td>Maximum contribution of home production</td>
<td>42%</td>
<td>50%</td>
<td>36%</td>
<td>71%</td>
<td>36%</td>
<td></td>
<td>65%</td>
</tr>
<tr>
<td>Contribution to GDP</td>
<td>11%</td>
<td>48%</td>
<td>7%</td>
<td>n/a</td>
<td>22%</td>
<td>n/a</td>
<td>13%</td>
</tr>
</tbody>
</table>
Reliance on imports also varies

- In PNG around 20% of total household food expenditure is spent on imported food
- Tonga 45%, Palau 81-84%
- Over 50% in Pohnpei, less than 20% in Yap
Global food price rises

Global food price rises are being driven by various factors:

- Diversion of land from grain production to biofuels development especially in the United States
- Changing consumption habits in developing countries including greater consumption of livestock and dairy products
- Poor harvests in some major producing countries such as Australia
- Increasing energy costs are compounding these food price rises given the costs associated with transporting food imports

Situation has changed in recent months
## Local food price rises

<table>
<thead>
<tr>
<th>Country</th>
<th>Typical retail price</th>
<th>2006</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNG</td>
<td>Beef, canned, 340 g</td>
<td>3.80</td>
<td>6.40</td>
</tr>
<tr>
<td></td>
<td>Flour, white, 10 kg</td>
<td>20.50</td>
<td>27.00</td>
</tr>
<tr>
<td></td>
<td>Oil, cooking, litre</td>
<td>5.00</td>
<td>8.00</td>
</tr>
<tr>
<td></td>
<td>Rice, white, kg</td>
<td>2.40</td>
<td>3.60</td>
</tr>
<tr>
<td>Samoa</td>
<td>Flour, kg</td>
<td>1.54</td>
<td>3.06</td>
</tr>
<tr>
<td>Fiji</td>
<td>Rice, kg</td>
<td>1.11</td>
<td>1.85</td>
</tr>
<tr>
<td></td>
<td>Tapioca, kg</td>
<td>0.75</td>
<td>1.46</td>
</tr>
<tr>
<td></td>
<td>Dalo, kg</td>
<td>1.03</td>
<td>1.31</td>
</tr>
<tr>
<td>Kiribati</td>
<td>Rice, 20 kg</td>
<td>16.00</td>
<td>21.00</td>
</tr>
</tbody>
</table>
Importance of domestically grown staples to food security in western Melanesia
Figure 2.1.2  Source of energy and protein by main food groups, 2006. Source: Table A2.1.1 and author’s calculations.
Figure 2.2.2 Estimated production of food energy of staple food crops: Survey of Indigenous Agriculture, 1961–1962 and Mapping Agricultural Systems of PNG Project, 2000. **Note:** Rice was estimated as 0.4% of food energy of the staple food crops in 1961–62, and as 0.03% in 2000. **Sources:** Walters (1963); Bourke and Vlassak (2004).
Estimated production of staple foods in Solomon Islands, 2004

- Sweet potato: 65%
- Yam: 2%
- Coconut: 6%
- Taro and Xanthosoma (taro): 7%
- Banana: 8%
- Cassava: 12%
Summary of food security situation in Western Melanesia

• Overall food security is high in Western Melanesia
• There is greater food security in 2000s than 60 years ago
• Improvement because of cash income (used to buy food)
• Also because of adoption of new staple crops, such as sweet potato, cassava, maize, Xanthosoma taro and new banana cultivars
• There are few further staple food crops to adopt
• Number of threats to food security, including population pressure; price of imported food; currency exchange rates; decline in transport infrastructure; HIV/AIDS epidemic; and climate change
• Pressure on land is an immediate threat, particularly in highland New Guinea and small islands or parts of islands
Response to currency devaluation and price increases in PNG in the 1990s

- In 1994, PNG kina was floated and it devalued
- PNG kina went from parity with US dollar in early 1990s to $0.26 by 2002
- Prices of imported food, transport and processed sugar increased rapidly as a result
- Consumption of imported meat, fish, rice and wheat all declined as a result
Grower’s response to higher import prices

- Villagers increased food production for subsistence.
- Increased production of root crops for market.
- Largest response by growers was in the highlands.
- Fresh food, particularly sweet potato, was moved to lowland urban areas.
- Price of fresh food in some lowland markets rose initially then dropped as more sellers entered the market.
- Life much more difficult for urban people.
- Most rural villagers adapted to the changed situation.
- Many parallels with current rapid increases in food prices.
Average retail price of rice in Port Moresby and Madang, 1971–2007
Volume of meat imports into PNG from Australia and New Zealand, 1983–2004
Impact on consumption of imported food in PNG in 2008

- Despite steep increases in price of imported food, consumption has increased in 2008
- There have been modest increases in consumption of rice, flour and sugar in 2008
Why is consumption of imported food increasing as prices rise rapidly?

- The PNG economy is doing well, driven by the ‘China factor’
- High prices for crude oil, gold, copper in 2008 (77% of exports)
- Renewed exploration for oil and minerals
Prices for export agriculture products are also high

- High prices for major export cash crops
- Particularly for commodities linked to crude oil price (palm oil, copra oil and rubber)
- Also higher for cocoa and Arabica coffee
- Hence many villagers have much higher cash income than in 2001-2005
- So higher prices for imported food items and fuel have been offset by higher returns from export crops
Approximate farmgate prices for export cash crops in PNG in 2001-2003 and 2008

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Product</th>
<th>Price range (kina/tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2001-2003</td>
</tr>
<tr>
<td>Cocoa</td>
<td>Dry bean</td>
<td>3000-6000</td>
</tr>
<tr>
<td>Coffee,</td>
<td>Arabica Parchment</td>
<td>2000-2500</td>
</tr>
<tr>
<td>Copra</td>
<td>Smoked</td>
<td>500-1100</td>
</tr>
<tr>
<td>Oil palm</td>
<td>Fresh fruit bunch</td>
<td>70-170</td>
</tr>
<tr>
<td>Rubber</td>
<td>Cup lump</td>
<td>400-700</td>
</tr>
</tbody>
</table>
Sales in the informal economy redistribute income

- Many people who do not benefit directly from exports of crude oil, gold, copper or agricultural commodities sell other products domestically.
- These include fresh food, betel nut, firewood and fish.
Betel nut trade routes in PNG, 2007

Figure 5. Betel nut trade routes, 2007. Source: Author's observations and Tim Jamp (pet.com.mw).
The impact of higher prices for imported food varies within the PNG population

- **Urban and rural non-village people**
  - Poor urban people: Large negative impact
  - Richer urban people: Smaller negative impact

- **Rural villagers**
  - Richer villagers (2.1 million): Benefited from higher prices for export commodities.
  - Marginally poor villagers (2.2 million): Some benefits from higher export prices, but negative impact of higher prices for fuel and imported food. Many people are worse off.
  - Extremely poor villagers (1.0 million): Overall more negative than positive impact.
  - Poorest suffer because of higher transport costs, but they are very marginal to the cash economy.
Impact of higher prices in Solomon Islands

- The Solomon Islands economy is a net beneficiary of the higher prices for agricultural commodities
- The increase in copra price has had the greatest overall impact
- Copra is widely produced throughout country
- Production of copra and cocoa is at near record levels
- Export income from copra, cocoa and palm oil is at near record levels (in SI dollar terms)
Vanuatu is also a net beneficiary of high agricultural prices

- People who produce copra in the northern islands have benefited from high copra prices
- People in the southern islands and urban people are suffering the most from high prices of imported food
Quantifying Food Security Vulnerability

- FAO has developed the Food Import Capability Index (FICI) as an indicator as a measure of food security vulnerability. The FICI measures the proportion of food imports to total exports. Any country with a FICI above 0.5 is considered vulnerable in terms of food security, while a country with a FICI above 1.

- Services and remittances also contribute to food security and the ability to pay for food imports. On the other hand, the servicing of foreign debt reduces a country’s ability to purchase food. These factors are included to create the FICI ‘plus’ indicator for the same period as the FAO data.
Diversity in food security vulnerability
Impact of higher prices

- Majority of Fiji’s population worse off - urban and peri-urban dwellers comprise 90,000 households, 50% of the population
- Sugar-cane farmers and labourers comprise around 22,000 households - further 11% of the population who face declining incomes and grow little of their own food
- A number of rural households will also benefit - copra producers, rice and root crop farmers
- The populations of the Polynesian countries have limited exports to benefit from the global commodities boom
- Some farmers will benefit from increased sales of food domestically but the majority of the population will be worse off
Impact of higher prices

• The atoll and small island countries and territories have been made substantially worse off by the global food ‘crisis’

• Atolls in particular have poor soils and limited land availability which constrains domestic production

• They are heavily reliant on imports and face rising cost of accessing these imports due to rising fuel prices

• These counties have no significant exports to benefit from the global commodities boom
Attempts to grow rice within PNG and Solomon Islands have failed

- Much wasted effort has gone in attempting to grow rice in PNG and Solomon Islands.
- No significant rice production in either country.
- Returns on labour inputs are too low for rice production to succeed.
- Much greater returns on investing in improved production and marketing of domestically marketed food; other domestically marketed products (e.g., flowers); export tree crops; and niche export crops (e.g., vanilla).
## Gross returns on labour inputs for selected cash crops in PNG in 2007

<table>
<thead>
<tr>
<th>Crop</th>
<th>Mean yield (kg/ha)</th>
<th>Price (kina/kg)</th>
<th>Gross return (kina/ha)</th>
<th>Labour input (person-days/ha)</th>
<th>Return (kina per person-day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irish potato (tubers)</td>
<td>20,000</td>
<td>2.00</td>
<td>40,000</td>
<td>450</td>
<td>89</td>
</tr>
<tr>
<td>Oil palm (fresh fruit bunch)</td>
<td>15,000</td>
<td>0.25</td>
<td>3,750</td>
<td>70</td>
<td>54</td>
</tr>
<tr>
<td><strong>Sweet potato (tubers)</strong></td>
<td><strong>14,000</strong></td>
<td><strong>0.80</strong></td>
<td><strong>11,200</strong></td>
<td>450</td>
<td><strong>25</strong></td>
</tr>
<tr>
<td>Cocoa (wet bean)</td>
<td>800</td>
<td>1.00</td>
<td>800</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Arabica coffee (parchment)</td>
<td>900</td>
<td>4.50</td>
<td>4,050</td>
<td>275</td>
<td>18</td>
</tr>
<tr>
<td>Rubber (cup lump)</td>
<td>650</td>
<td>1.60</td>
<td>1,040</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>Coconut (copra)</td>
<td>500</td>
<td>1.30</td>
<td>650</td>
<td>65</td>
<td>10</td>
</tr>
<tr>
<td>Robusta coffee (parchment)</td>
<td>900</td>
<td>1.60</td>
<td>1,440</td>
<td>275</td>
<td>5</td>
</tr>
<tr>
<td><strong>Rice (paddy)</strong></td>
<td><strong>1,300</strong></td>
<td><strong>0.80</strong></td>
<td><strong>1,040</strong></td>
<td><strong>215</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td>Pyrethrum (dried flowers)</td>
<td>650</td>
<td>1.50</td>
<td>975</td>
<td>430</td>
<td>2</td>
</tr>
</tbody>
</table>
Some policy implications of high prices of imported food, fuel and agricultural exports

- Supporting domestic grain production is a bad investment
- In PNG higher prices in 2008 not a unique event and villagers responded to higher prices of imported food by producing more food for the domestic market
- Many constraints inhibit production and sales of both fresh food and export crops
- Food security is enhanced by higher cash income for rural and urban people
- Also increased by improved transport; improved telecommunication; better education; better health facilities; improved production techniques; greater access to finance for intermediate traders
- People growing and marketing food for local market require support
- This includes more relevant research, better communication, better linkages between actors in market chain, improved transport system
Policy implications

- Policies need to boost investment in the agricultural sector and it needs to be the right kind of investment.
- Provision of public goods - science and technology, research and development.
- Extension services supported including development of partnerships with the private sector and NGOs.
- Policies need to support private sector investment rather than crowd it out.
- Investment in marketing and transport infrastructure to support domestic and export market creation and get food to where it’s needed.
- Land management is vital to improving productivity.
Policy implications

- PICs face differing vulnerability to food security - policies need to reflect this.
- Recognise the value of exports in contributing to food security in larger countries and improve marketing and transport infrastructure to facilitate trade.
- Recognise vulnerability of smaller countries and the important contribution limited domestic production has in maintaining food security. Small improvements in agricultural productivity and markets can reduce vulnerability significantly in these countries.
- Recognise the strength and resilience of smallholder traditional cropping systems and ensure extension approaches support them.
- Politicians need to recognise the value of traditional crops in improving livelihoods and health outcomes and lead by example in promoting local food.
- Recognise the importance of education and awareness campaigns in promoting local foods and engaging young people.
Vinaka vaka levu – em tasol