HEALTH AND THE CITY: CONSEQUENCES OF THE ‘KING TIDES’ OF URBANIZATION IN KIRIBATI, CENTRAL PACIFIC

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Summary: The small, isolated island countries of the Pacific are extremely vulnerable to the effects of climate change and face a long term threat to their very existence from rising sea-levels. At the same time, these ‘nano-countries’ are experiencing an unprecedented wave of urbanization, the drivers and short term impacts of which are not dissimilar to those in other regions. The paper argues that regardless of this climate change backdrop, the political commitments and national priorities that shape physical investments in the Pacific are at heart anti-urban and weighted in favor of outer island, rural priorities. Furthermore, that it is the regressive or absent urban and housing policies and management systems - seemingly justified if, in the long term, the towns will be inundated by rising sea levels, and that have resulted in the parlous and immediate public health challenges that face urban residents. The paper explores this lacuna of policy and how it plays out in the Pacific and in the specific case study of Kiribati. It concludes with takeaways for practice by identifying entry points at the technical, governance and programmatic levels aimed at redirecting urban dialogue in the region in a more constructive direction.

Key Words: Pacific, Kiribati, urbanization, governance, slums, integral urban management.
HEALTH AND THE CITY: CONSEQUENCES OF THE ‘KING TIDES’ OF URBANIZATION IN KIRIBATI, SOUTH PACIFIC

I. INTRODUCTION

The small, low-lying island countries of the Pacific are extremely vulnerable to climate change and face a long term threat to their very existence from rising sea-levels. At the same time, the ‘nano-countries’ are experiencing an unprecedented wave of urbanization, the drivers and short term impacts of which are not dissimilar to those in other rapidly urbanizing regions. The paper argues that irrespective of this climate change backdrop, the political commitments and national priorities that shape physical investments in the Pacific are at heart anti-urban and weighted in favor of outer island, rural priorities. The region’s extreme isolation has further insulated its policy makers from positive lessons of experience from elsewhere. This has resulted in regressive or absent urban and housing policies, regulatory controls and management systems that seemingly might be justified if the towns will in time be inundated by rising sea levels. The paper posits that the parlous public health challenges and slum-like living conditions immediately facing large sections of the region’s urban residents are a direct consequence of this lacuna of policy and that the consequences of this unmanaged growth pose a more immediate short-term threat to the well-being of urban populations than the likely generational impacts of climate change.

The first part of the paper provides a brief overview of the South Pacific region and touches on the vulnerability of the island countries to the impacts of climate change. It secondly documents the scale of urbanization apace in the isolated countries of the region. It goes on to briefly explore an apparent anti-urban bias that underlies many of the regional and national development policies found in all but very recent cases. Overall, the rationale for emerging interventions in the urban sector have been constrained by fixations on social stability, physical town planning issues, and investments in narrowly focused basic needs infrastructure. Data regarding the urban contribution to country GDPs is presented to show how the prevailing anti-urban sentiment severely underestimates the urban contribution to national economies in the region.

Of particular concern is the paucity of empirical and reliable data regarding the Pacific region’s urban population and in particular the urban poor. In the third part of the paper, the extent of urban slum-like living conditions is derived for a number of countries by applying the UN-Habitat’s operational definition of “slum” to available national statistical data. In the fourth part, the paper explores the consequences of this lacuna of urban policy in a specific country case study of Kiribati. Household level data is presented to demonstrate the acute ‘king-tide’ disease load on residents living in the urban villages of South Tarawa, the nation’s capital. Given the high incidence of preventable diseases, the paper questions the legitimacy of deferring public sector financial and human resource investments in urban areas - neither upgrading of existing slums nor new serviced land delivery is being undertaken nor planned for.
Finally, the paper concludes with take-outs for practice by identifying possible entry points at the technical, governance and programmatic levels that is aimed at redirecting urban dialogue along a more constructive path than in the past -- a so-called ‘integral urban management approach’ to break the cycle of deterioration underway. Potentially the Kiribati case study may offer an interesting approach for adoption by other countries in the Pacific region.

II. OVERVIEW OF THE SOUTH PACIFIC ISLAND REGION

The South Pacific island region1 discussed in this paper comprises the 14 scattered and remote island ‘nano’ states and numerous territories of Polynesia, Melanesia and Micronesia spread out over an area covering around one third of the globe. The actual land area of most of the countries is extremely small. Kiribati’s 32 atolls and one island for example, comprise 800 sq km of land mass spread across 3.5 million sq km of ocean, an expanse of water that is the size of Europe. There are no shared land boundaries between countries. The World Development Report 2009 booklet on Pacific Islands’ emphasizes the extreme remoteness and “sea-locked” character of the region with the average Pacific Island country being 197th on a scale of remoteness in the world (Gibson 2006 cited in Watsa 2009). The countries therefore, must grapple with a “tyranny of distance”2 regarding high transportation and communication costs, small populations3 and narrow and undiversified productive bases that make it difficult to compete competitively in world markets. As a result, national economies are highly dependent on remittances from overseas migrant household members, fishing license fees and foreign aid (Montiel 2012; Zhu 2012) and domestically from informal sector production and trade (Reddy et al, n.d.)

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1 For the purposes of this paper, the Pacific Island States primarily under discussion are taken to be the members (excluding Australia and New Zealand) of the Pacific Island Forum of independent and self-governing states in the South Pacific, namely:- Cook Islands, Federated States of Micronesia (FSM), Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea (PNG), Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. The larger Pacific region is also home to various territories in administrative association with the U.S., France and New Zealand.


3 Ten of the 14 countries have populations of less than 150,000 people and at least two, Nauru and Tuvalu, have around 10,000 people.
A defining feature of the Pacific Island countries is their vulnerability to the effects of climate change with 10 of the 14 countries being defined as “extremely vulnerable” and lying in the top ten percent of most vulnerable nations globally (SOPAC/UNEP 2005). The countries are subject to well documented increases in highly variable weather events affecting temperatures over land areas, periodic droughts, high rainfall, increased wind strength and storm surges (Adger et al 2003). Many are low lying (for example, Kiribati’s capital, South Tarawa, is no more than 4m a.m.s.l. for much of its length) and around half of the region’s population lives within one and a half kilometers of the coastline (Maclellan 2009). As such, the countries are particularly at risk in the event of long term sea level rise and face particular threats regarding their biodiversity and increased salinity of fresh water lenses.

Sea level change is not geographically uniform and is influenced by natural variations in climate (for example, El Niño). Long term sea level modeling tends to be inexact, in part due to uncertainty regarding corrections for tectonic plate movements and limited accurate tide gauge data globally. Predictions vary for example, from potential inundation levels of 1m (25-54 percent) on land masses such as South Tarawa or Tongatapu by 2050 (The World Bank 2000) to a perhaps less dramatic though no less significant rise of up to 14cm of the sea level by 2050 (Government of Kiribati 2007). Analysis of high-precision SEAFRAME tide gauge data by the Australian Government Bureau of Meteorology’s National Tidal Center indicate a quantifiable net relative rise in sea levels since around 1993-2011 at 12 tidal gauges installed in different Pacific locations. Overall, the readings, particularly from stations close to the Equator, point to rises in sea level of up to 5mm per year compared to measured global increases of 3mm per year and extreme high sea levels are also seen to be increasing, (Government of Australia 2011).

The SEAFRAME data needs to be applied with a degree of caution – it is with respect to weather stations within each country and could not therefore be generalized to a particular country as a whole. Also the data available covers too short a period of time to be used to predict long term
indications associated with climate change. Interestingly, in a systematic analysis of rectified aerial photography and satellite imagery for 27 islands, Kench and Webb (2010) have concluded that over the past 60 years, 23 of the islands they studied had actually accreted or gained land rather than demonstrating a universal loss of land to the sea. In part, this might be due to human activities such as land reclamation and building of seawalls and in part too, due to the slow adaptation and growth of the living coral reefs that fringe many of the atolls (Callick 2010). However, the overall conclusion of the research is not that the effects of climate change can be dismissed but that adaptation measures at a localized level need careful tailoring to the unique and complex coastal processes at work on individual islands.

III. URBANIZATION IN THE SOUTH PACIFIC ISLAND REGION

The global trend of urbanization also is apace within the islands of the Pacific where rapid urbanization took place in the 1960s and 1970s and where overall urban growth rates have been higher than rural growth rates for the last three decades. In 2007, around one quarter of the region’s total population of 9.32 million people lived in urban areas (Secretariat of the Pacific Community SPC 2011a). At a regional level the urban ratio is skewed downwards by the fact that the biggest country Papua New Guinea, accounting for two thirds of the region’s population, is largely rural – only 13.2% urbanized. If one excluded PNG, the urbanization level across all remaining countries and territories is 46 percent although there are notable differences between individual countries (Haberkorn 2008). Furthermore, data from national census sources tend to be problematic in that they refer to formal administrative urban boundaries rather than functional areas. This results in a likely under-reporting of significant peri-urban growth around cities such as Apia, Samoa and Port Vila, Vanuatu (Wilkinson 2011) and Honiara, Solomon Islands (Butcher-Gollach & Liloqula 2011).

As elsewhere, the drivers of this rural-urban trend are primarily economic - the prospect, real or hoped for, of economic opportunities and also health and education services to be found in the cities and towns (Watsa 2009). Conversely however, the urban areas of the Polynesian and Micronesian sub-regions act as springboards for onwards international migration (Rallu 2009) and a recent Pasifika Mobility study has highlighted the lower than expected growth rates in non-Melanesia as being explained by international the ‘circuits of migration’ that exist between particularly the Island countries and New Zealand, Australia and the United States (Bedford 2008).

Until recently, both the literature and most governments in the region have been reticent in recognizing that the urbanization underway is both economically rational and irreversible and instead have talked to the squalor and problems of urban areas and not to their strengths. As a result, a number of improbable “solutions” to the urban problems have been put forward, ranging from calls to reduce birth rates and put a halt further in-migration (Hughes 2011), to schemes to relocate urban populations to economically dormant outer islands (Asian Development Bank 2006). The underlying causes of the visible urban malaise is typically reduced to discussions about “overcrowding” (Bryant-Tokelau 1995), extending to a misinformed comparison between Pacific urban settlement densities to those of the megacities of Asia that has only recently been
corrected by Haberkorn (2008), and a limited focus on strengthening town planning and land use control systems and procedures (Jones 2005). The latter, as pointed out by Storey “[misses] half the picture” (2006, p.22) as it completely overlooks the more important need for introducing governance systems and resource allocations that are responsive to and accountable for meeting the service needs of urban residents including the poor.

The Pacific Island Forum – a political grouping of the South Pacific countries, in its Pacific Plan 2007 called, for the first time, for the preparation of “plans for urbanization” which were placed alongside plans for “biosecurity and safety” and an “expanded focus on broader political and human security issues” (Pacific Island Secretariat Forum 2007, p. 8). A year later, the Forum members endorsed the Pacific Urban Agenda 2 aimed at “Improved political and social conditions for stability and safety” (Pacific Island Secretariat Forum 2008, p. 21). The urban agenda for the region is thus conflated with strong concerns regarding urban crime rates and unemployed and increasingly marginalized young adults – a continued focus on the negative rather than the positive opportunities for employment and economic growth.

This anti-urban political bias is perhaps better understood if one considers that the political power in many of the countries is weighted in favor of the outer islands. Within Kiribati, for example, the 50% of the population living on the outer islands is represented by 39 of the 45 Members of Parliament. The remaining MPs represent the 50% of the population living in South Tarawa and Kiritimati Island urban areas (Teburoro Tito, Member of Parliament for South Tarawa, pers.com, January 2007). This same disproportionally weighted representation of outer island interests similarly holds true, for example, in the Solomon Islands and Tonga.

Following the seminal work on Pacific Island urbanization by Connell & Lea (2005), research has more recently sought to better understand the underlying drivers of urbanization in the region (Storey 2005, 2006; Wilkinson 2011), albeit that recent analyses have continued to argue counter-factually that the main drivers are “population-led” and not linked to increases in GDP and per capita incomes (Jones 2012).

Using a rough estimation of the urban contribution to GDP as the share of GDP produced in the industry and service sectors combined relative to agriculture (Soubbotina 2004), Table 1 below sets out the urban contribution to GDP in the Pacific countries in 2010. In all cases other than Nauru, the urban contribution as a share of total real GDP is greater than the proportion of the population that is urbanized.

Table 1: Urban Contribution as Share of Total GDP and Urbanization, 2010

<table>
<thead>
<tr>
<th>Area/Country</th>
<th>Real GDP (Total) USD m</th>
<th>Share Industry USD m</th>
<th>Share Services USD m</th>
<th>Urban Contribution (% of GDP)</th>
<th>Urbanization (% of Population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific</td>
<td>924</td>
<td>271</td>
<td>392</td>
<td>80%</td>
<td>46%</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>174</td>
<td>19</td>
<td>153</td>
<td>99%</td>
<td>75%</td>
</tr>
<tr>
<td>Fiji</td>
<td>2,957</td>
<td>528</td>
<td>1,837</td>
<td>80%</td>
<td>52%</td>
</tr>
</tbody>
</table>
Figure 2 below shows the correlation between urbanization (percent of population in urban areas) and growth in per capita GDP (corrected to 2005 USD) for an arbitrary selection of six countries from different parts of the Region, namely Fiji, Kiribati, Papua New Guinea, Samoa, Tonga and Vanuatu. The chart clearly shows that those countries with higher urban populations (as a percent of the total population) enjoy higher GDP per capita. The exception is Papua New Guinea which has low urbanization and an economy largely based on extractive, primary industries of mining and logging. The chart also tracks urbanization and per capita GDP by country over the period 1970 through 2010 and shows that the trend has persisted over time.

**Figure 2: Correlation between Increasing Urbanization and Growth in GDP per Capita for Six Countries, 1970-2010**

<table>
<thead>
<tr>
<th>Country</th>
<th>Year 1970</th>
<th>Year 2010</th>
<th>Urbanization (%)</th>
<th>Per Capita GDP (2005 USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiribati</td>
<td>109</td>
<td>8</td>
<td>72</td>
<td>73%</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>142</td>
<td>26</td>
<td>97</td>
<td>87%</td>
</tr>
<tr>
<td>Micronesia (F.S.)</td>
<td>248</td>
<td>16</td>
<td>157</td>
<td>70%</td>
</tr>
<tr>
<td>Nauru</td>
<td>30</td>
<td>11</td>
<td>17</td>
<td>93%</td>
</tr>
<tr>
<td>Palau</td>
<td>159</td>
<td>33</td>
<td>119</td>
<td>96%</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>6,421</td>
<td>2,607</td>
<td>1,564</td>
<td>65%</td>
</tr>
<tr>
<td>Samoa</td>
<td>450</td>
<td>132</td>
<td>278</td>
<td>91%</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>519</td>
<td>42</td>
<td>303</td>
<td>66%</td>
</tr>
<tr>
<td>Tonga</td>
<td>262</td>
<td>44</td>
<td>138</td>
<td>69%</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>26</td>
<td>3</td>
<td>17</td>
<td>77%</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>519</td>
<td>51</td>
<td>341</td>
<td>76%</td>
</tr>
</tbody>
</table>

(Source: UNESCAP Data Center, April 5, 2012)
Even here, national statistics underplay the importance of the cities to national economic growth and improved living conditions. For example, the urban share of national GDP captured by official statistics does not include data regarding informal sector contributions, a sector that represents significant productive and distributional wealth generated through own account work and micro-enterprises such as boat building, making of school uniforms and other garments, baking of bread/buns, brewing of ‘toddy’⁴ and kava, auto and machine repairs, handicrafts and street trading, builders and carpenters. Although there are established methods for measuring the size of the informal economy, these are not readily captured in the national accounts and so informal sector contributions to non-agricultural GDP are not included in Pacific island countries’ data. Reddy et al (n.d.) estimated that in 1996, 37 per cent of Fiji’s economically active population were engaged in informal sector employment and more recent research points to the on-going importance of the sector to national economies of the region (Ellis et al, 2010).

Similarly, there have been no systematic attempts to calculate the value of the extra-legal urban housing stock (new shelters, home improvements and extensions), resulting in a further under-accounting of the urban share to GDP. To take but one example, using known per square meter construction costs of the non-registered housing stock in South Tarawa, Kiribati (Franklin et al 2011), it is estimated that the total value of the extra-legal housing stock in South Tarawa is some US$58m. New household formation in South Tarawa and peri-urban North Tarawa is approximately 250 households per year. Assuming that each new household might construct at least two additional rooms (kiakia) for their residential needs as infill within the existing settlement areas/villages, this would result in an additional investment of between US$1.5m to US$2m per year in the informal construction sector, equivalent to around 1.8% of national GDP.

IV. SLUMS OF THE SOUTH PACIFIC ISLAND REGION

Living conditions within the Pacific’s cities and towns are anecdotally described as being “squalid” (Field 2011). However, systematic attempts to verifiably quantify the population living in slum-like conditions are limited. Not one of the Pacific Island countries appears in the United Nations Statistics Division’s global monitoring of “Slum population in urban areas” for the Millennium Development Goals. Only two countries monitor the growth of slum settlements. Fiji attempts to collect data on informal settlements as part of its periodic Household Income and Expenditure Surveys and the Cook Islands reports directly on urban population in slums (in 2008 reportedly as being “0”).

UN-Habitat defines a slum household as lacking in one or more of access to improved water, improved sanitation, security of tenure, durability of housing or sufficient living area. Table 2 below shows the percent of urban population in each country lacking access to adequate water supply or sanitation. Albeit within the limitations of available data, around 20% or more of the

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⁴ Fermented pandanus sap.
urban population in half of the countries of the region lack access to improved water or sanitation and so by definition are ‘slum households’.

<table>
<thead>
<tr>
<th>Area/Country</th>
<th>Available data</th>
<th>% Urban popn in slums</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook Islands</td>
<td>2008</td>
<td>2%</td>
</tr>
<tr>
<td>Fiji</td>
<td>2000</td>
<td>7%</td>
</tr>
<tr>
<td>Kiribati</td>
<td>2005</td>
<td>51%</td>
</tr>
<tr>
<td>Marshall Islands</td>
<td>2008</td>
<td>17%</td>
</tr>
<tr>
<td>Micronesia (F.S.)</td>
<td>2005</td>
<td>39%</td>
</tr>
<tr>
<td>Nauru</td>
<td>2008</td>
<td>50%</td>
</tr>
<tr>
<td>Palau</td>
<td>2005</td>
<td>20%</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>2008</td>
<td>29%</td>
</tr>
<tr>
<td>Samoa</td>
<td>2005</td>
<td>10%</td>
</tr>
<tr>
<td>Solomon Islands</td>
<td>2005</td>
<td>6%</td>
</tr>
<tr>
<td>Tonga</td>
<td>2008</td>
<td>2%</td>
</tr>
<tr>
<td>Tuvalu</td>
<td>2008</td>
<td>12%</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>2008</td>
<td>34%</td>
</tr>
</tbody>
</table>

(Source: UNESCAP Data Center, April 5, 2012)

The following section of the paper discusses how regressive urban policies and deferred investments in service delivery have played out in and been at the root of the parlous public health conditions of one particular Pacific city of South Tarawa, Kiribati. It goes on to describe a series of recent improvements that together have the potential to break the cycle of deterioration underway.

V. URBANIZATION IN KIRIBATI – THE CYCLE OF DETERIORATION

The Republic of Kiribati consists of 32 low lying atoll islands and one raised coral island in three main island groups scattered over 3.5 million km$^2$ (an area roughly the size of Europe) of the central and western Pacific. Most of the islands are less than 2 km wide and not more than 6 m above sea level; 21 are inhabited. The total population of this extremely isolated country is 103,466 people (2010 census, preliminary estimates) of which 50,010 (almost half) live in urban and peri-urban village settlements on South Tarawa (in the Gilbert group of islands), the seat of the national Government and on Kiritimati Island in the eastern Line Islands (5,791 people).

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5 According to the Fiji Household Income and Expenditure Survey 2002, this would be a higher 67.8% if lack of security of tenure is included.
During the inter-censal period 1995-2000, annual urban growth rates were a high 5.2% as compared to the annual national growth rate of 1.7%. Over the subsequent 2000-2005 period, the rate of in-migration to South Tarawa appeared to plateau and dropped back to an annual rate of 1.9%. However this apparent decline in urban growth masks the growth in peri-urban North Tarawa, within commuting distance of the capital and part of the functional city, where the population grew by 4.8% annually over the same period.

According to the 2005 census, 49% of residents on South Tarawa had been born on the atoll and 77 percent had lived there for five or more years, pointing to a degree of stability of the urban population. Typically, once an individual moves to town for employment, high school or other reasons, s/he tends to remain there and in time is joined by family members (Butcher-Gollach et al, 2007).

Around 55% of South Tarawa’s population is located on approximately 30% of the atoll’s land area. Nanikaai and Banreaba urban villages have the highest settlement densities (164 persons or 21 dwelling units per hectare) followed by Betio, Bairiki and Taborio with densities of between 12-14 dwelling units per hectare (Bishop et al, 2011). Overall, densities in the rest of South Tarawa are much lower with an average of 45 people per hectare across the city as a whole.

In an attempt to address the well-documented lack of services on the Outer Islands, successive national development strategies (National Development Strategies 2004 – 2007 and Kiribati

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6 Some sources claim that the 1995 population was under-enumerated and so the inter-censal rate of growth would have been lower than as shown. However, even taking into account this anomaly, the urban growth rate would have exceeded natural growth over the same period.
Development Plan 2008-2012) recommend strengthening of Outer Island administration and provision of Outer Island infrastructure investments. However, the policies are silent with respect to the 50% of population living in the country’s urban areas of South Tarawa and Kirimiti Island. The country lacks a national vision regarding the potential for economic and social benefits that could be derived from well planned, managed and resourced towns. Urban responses at either a ‘whole of government’ level or with respect to area (slum) upgrading or development or serviced greenfield subdivisions on either state or customary lands are not mentioned in any of the national strategies (Metcalfe 2008).

Environmental and land Planning Acts and regulations exist, including a Land Recovery (Squatters) Act of 2006 introduced to facilitate compulsory acquisition by the state of land occupied by squatters. The planning legislation reflects outdated ‘blueprint master plan’ approaches aimed at controlling and restricting rather than enabling development and are largely adhered to in the breach.

In common with many of the Pacific island countries, Kiribati has a well-established history of participatory democracy at the community level that operates through traditional meeting points (maneaba) under the authority of a council of elder men (unimane). In 1966, 15 sub-national Island Council administrations were formally established (Local Government Ordinance, 1966) and there are currently 20 locally elected Island Councils and three locally elected Urban Councils. On the Outer Islands, candidates for the local government are nominated through the unimane system. South Tarawa is under the jurisdiction of locally elected Teinainano Urban Council (established in 1972) and Betio Urban Council (established in 1972), and elected Kirimiti Island Urban Council (established in 2004) is responsible for administering the designated urban settlement on Kirimiti Island. In the case of the three Urban Councils, an unimane representative and the Members of Parliament all hold ex officio seats on the councils. According to the Ministry of Internal and Social Affairs responsible for overseeing the Island and Urban Councils, the role of the councils is to “empower the indigenous to elect their own government” and “to coordinate social service provision”.

In terms of their respective Warrants of Establishment and the Local Government Act, 1984, the Councils have a range of powers for, among other things responsibility for education, health care, water supplies, land planning and feeder roads. Over the years, responsibility for all urban management functions other than garbage collection and building consent have been centralized in the sector Ministries and although the necessary pillars of an appropriate legal framework exist, the Councils are typically “besieged by lack of resources, whether human or financial” (Hassal & Tipu 2008, p21).

At both the central and local government levels, there is little clarity as to which agency should be doing what in respect to planning, budgeting and administration. The Councils are no longer held responsible for urban management functions nor are they consulted in any meaningful way by the central agencies. This means that the Councils, in turn, do not consult effectively with

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7 Personal communication with Director of Local Government, January 2007.
their communities over local needs and priorities when preparing plans and budgets. As a result, there has been inadequate investment in provision and maintenance of basic services and social facilities, and inefficiencies and gaps in delivery.

Past responses to the needs of South Tarawa’s growing population have been both limited and piecemeal. Central government measures supported by donor funding have attempted to introduce ‘blue-print’ type land planning and zoning controls in three of the eleven villages (neighborhoods), a short-lived squatter removal program was implemented in 2006, 16 heavily subsidized housing units for civil servants were constructed in 2008, a largely unsuccessful attempt was made to resettle people from South Tarawa to the 3,000km-distant Kiritimati Island (2005-2008) (Taekiti 2009), and a program of water and sanitation investments was made that, in retrospect, lacked the coverage and appropriateness of technology to have a widespread impact on public health (Butcher-Gollach et al 2007).

As a result of deferred investments in the basic ‘lifeline’ services (water, sanitation, solid waste management and drainage) and poor maintenance regimes, public health indicators for preventable diseases are worse in South Tarawa than compared to the rest of the country and in comparison to other Pacific Island countries. Public health officials are of the opinion that the spread of the diseases will not be stopped until the poor environmental determinants (overcrowding, poor ventilation, inadequate access to water and sanitation) are addressed8.

A detailed household survey9 carried out in Betio and Bairiki kawan villages10 in 2009 was one of the first structured attempts outside of the five-yearly national census to record the living conditions of urban residents in the low income settlements. The survey found that only 37% of the working age population was engaged in a productive activity (either formal sector employment, own account work or microenterprise). In Betio, 67% and in Bairiki, 74% of households had monthly incomes of less than A$500/month equating to less than US$2 per person per day, a clear indication of poverty.

Half of the households (53% in both villages) had a piped water supply. However, due to limited and over pumped water reserves and high leakages in the reticulated network, households only receive piped water for a few hours every second day. Only 17% could afford the costs of installing rainwater tanks to supplement piped supplies. As a result, households have no choice but to make use of wells, typically unprotected. 71% of all households in the two villages make use of well water and 38% of households in Bairiki and 78% in Betio stated that the water in their household wells was “very fresh” tasting. However, well water testing carried out in late 200911 found that all water tested from samples in the two villages showed positive faecal

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8 Personal communication with Director of Public Health, May 2008.
9 The household survey was carried out in November 2009 by the National Statistics Office with facilitation and funding support provided by the New Zealand Aid Program, Ministry of Foreign Affairs & Trade.
10 Betio and Bairiki villages are located on the outskirts of the main port area and the central government administrative center, respectively and are well located with respect to places of employment. They are recognized as being villages with the poorest residents and most deficient in service infrastructure.
11 US Pacific Partnership, August 2009 -- Water quality testing was conducted from 30 samples taken from the reticulated water system, groundwater wells and rainfall catchment systems on South Tarawa.
coliform results and some of the wells had higher than safe nitrate levels, in some cases, 20 times the safe level. Infants are particularly vulnerable to water-borne diseases; a reported four children in the under-fives age group die of diarrhea and five under-fives of pneumonia every month on South Tarawa and infants drinking water or formula that is high in nitrates are at risk of developing methemoglobinemia which, untreated, can lead to coma and death. Therefore, the well water in the settlements that is the primary supply for the majority of households is not suitable for drinking, even when boiled or used in cooking.

Sanitation facilities in the two villages also were recorded as being inadequate and only 37% of households had their own toilet. Poor sanitation continues to contaminate the soil, the lagoon (a source of fish, crustacean, mollusks and other marine food) and the water table, causing diarrheal diseases, worm infestations (around 90 percent of school children have worms), skin infections and other infectious diseases. Health problems are compounded by poor water-handling and hygiene practices, and overcrowding of the existing housing stock that is a result of no new land having been serviced for the past 30 years. According to a public health officer working in Tarawa, under present circumstances “the people on South Tarawa will die of preventable diseases long before sea level rise”.

The household data confirm the pockets of poverty that characterize the nation’s largest city/town, and the acute load of preventable diseases on residents living in the urban villages, and in particular the more vulnerable (under-fives and pregnant women).

Approximately 95% of all land in South Tarawa belongs to private landowners held under customary tenure arrangements. The government holds registered long term leases over much of the land in three of the 11 urban villages and subsequently sub-leases some of this land in a secondary land market. Five percent of the land (mainly in eastern Temaiku) is state owned and vacant. Regulatory controls over the leasing and trading of registered land are highly centralized - every change of leasehold is subject to approval by Cabinet. The sluggishness of the formal approval procedures have stifled any effective land and housing market. It has been estimated that the length of time to acquire and register a property in Tarawa through the formal Land Court procedures takes 513 days (World Bank 2012b) whereas acquiring a property using the informal patronage system takes an average 42 days (Butcher-Gollach et al., 2007). Exacerbating the cumbersome procedures in formal housing areas, no new state land has been planned or serviced for the past three decades.

The result is that the informal, extra-legal land market is effectively the only means by which enterprises and households are able to access land in the urban areas. Urban households have no alternative but to obtain land illegally (squat), crowd into the existing housing stock, or make new land by means of solid waste dumping on the foreshore, in locations that are extremely vulnerable to erosion and storm surges. Overall, the unmitigated environmental impacts of unmanaged development in Tarawa are considerable -- groundwater depletion and

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12 Either flush, bucket flush, pit latrine or compost toilet.
13 Reportedly ranging from 6.6 people per dwelling unit (National Census, 2010) to 14 people per unit (ADB, 2011).
contamination from raw sewage, animal excreta and household domestic waste and *ad hoc* construction of private seawalls and increased coastal erosion.

The responsible agencies at both central and local government levels have similarly fallen short in adequately adopt planning and building standards appropriate for low income groups, preparing or servicing new land for planned settlement, establishing addressage systems in the unplanned areas, promoting the participation by the country’s two commercial banks in microfinance for low income housing, or adopting and implementing *in situ* upgrading approaches in the existing slum-like villages.

In such a situation -- where the central government and donors determine the level and standards of services to be provided with little to no consultation at the local level, it is almost unavoidable that a culture of non-payment or of “pay later” for services has built up in South Tarawa. The central government does not have the resources or staff on the ground to ensure that user fees are efficiently collected. Residents in turn complain that the services do not meet their needs and frequently neglect or defer payments for services. The high level of bad debtors in turn undermines water utility’s and sector ministries’ maintenance budgets and the infrastructure assets progressively deteriorate. This vicious cycle (*see Figure 4 below*) of lack of consultation ⇒ poor usage ⇒ poor reliability of service has undermined the sustainability of many of the past infrastructure investments and clearly impacts negatively on the already fragile natural environment.

*Figure 4: Vicious cycle of urban deterioration*

![Cycle of deterioration](image-url)

*Source: Author’s elaboration*
VI. TOWARDS AN INTEGRAL URBAN MANAGEMENT APPROACH

Following an urban renewal scoping study (Butcher-Gollach et al, 2007) carried out in 2007, and with funding support from the New Zealand Aid Programme and the Cities Alliance, some early activities aimed at strengthening the budgeting and financial management of the Urban Councils were carried out in 2009 through 2010. With facilitation from a dedicated Urban Management Unit established in the Ministry of Internal and Social Affairs, the urban councils created local Citizens Taskforces in South Tarawa comprising Mayors, Councilors, business leaders, NGOs, churches, teachers and other respected local traditional leaders prepared Town Development Strategies and local economic development plans for their jurisdictions. A comprehensive solid waste management action plan with performance targets was prepared and subsequently is being implemented with donor funding. Following a donor’s meeting convened by the Government of Kiribati in March 2010, among other national priorities, a large scale infrastructure investment program in South Tarawa is now underway with donor funding for a water and sanitation program, road reconstruction and climate change adaptation measures including the infill and ‘climate-proofing’ of a new pilot residential greenfield subdivision for middle income households on the Temaiku state land.

VII. CONCLUSIONS AND TAKE AWAY FOR PRACTICE

The case study of South Tarawa, Kiribati empirically demonstrates the vicious cycle of urban deterioration underway in but one of the Pacific’s towns and cities. The underlying causes are not unique to the vulnerable, small island Pacific states, albeit that they are exacerbated by the limits to land and fragile natural environment of the atoll setting. Much of the disease load and growth of slum-like conditions is the result of regressive or absent land and housing delivery policies and urban management and budgeting systems. Recent, largely donor-funded infrastructure investments are being implemented accompanied by institutional strengthening of the implementing central government agencies that will likely result in at least short term improvement in the public health and living standards of the urban population. A risk facing these initiatives is that they might successfully provide infrastructure investments at the ‘technical’ level but be divorced from any long term appreciation by the country itself of the wealth and positive economic opportunities of its main city.

That a virtuous circle of urban renewal can only be successful and adequately financed over the long term if accompanied by economic growth is a truism. However, the corollary of this, i.e. that economic growth requires strong and well managed cities and towns, is less valued in the Pacific, particularly when urban constituents form an irrelevant portion of political power in national decision making. In such circumstances, the rationales for interventions in the urban sector are constrained by fixations on social stability and short term public health interventions. For these interventions to be lasting, it is necessary to move the dialogue regarding the cities and towns in the national economies.

The entry points for doing so lie, at the technical level, in increasing the visibility and more accurately capturing the true share of urban contributions to the national economies and accounts
where they are currently under-reported or invisible as they are partly comprised of the informal employment sector and extra-legal housing stock. At the governance level, the entry point lies in strengthening the lower tiers of government, those closest to the urban constituents (be they elected or traditional or oftentimes a blend of the two), so as to be better able to participate in the decision-making over the share and use of national resources and to have the capabilities to be more responsive to the basic services needs of their urban electorate.

At a programmatic level, the sum of urban renewal interventions needed is greater than the parts. In order to break the multi-causal cycle of deterioration and put in place a virtuous cycle of improvement (see Figure 5 below), an integral urban management approach is needed. The approach would need to encompass:

- A visible package of phased, area wide improvements that address the different needs and incomes of different neighborhoods and so underwrite a willingness to pay for services;
- Proactively ensuring that new serviced land is identified and delivered and so encompassing not only town/physical planning considerations but also those of allocation criteria, secure property rights (leaseholds), minimum building standards that match affordability levels and that are flexible enough to enable incremental construction, and developing an appetite for extending micro-finance to the low and middle income groups by private sector financial institutions;
- To the extent possible, the ‘climate proofing’ of physical infrastructure by measures such as infill and raising the level of land, and both hard and soft solutions (seawalls, mangrove planting and beach nourishment); and
- Improved urban management based on a rigorous understanding of the economic base of the cities and towns and associated development of
  - national urbanization and housing strategies
  - facilitated discussions between national and subnational tiers to clearly identify the mandated subnational responsibilities; b) assess the full costs of meeting each expenditure responsibility (cost centre); and c) agreeing all (existing and possible new) revenue sources that the subnationals may levy in order to meet their responsibilities;
  - accompanied by strengthening of sub-national institutions for efficient local government administration and service delivery according to the mandated responsibilities; and
  - pro-poor effective local governance based on open and transparent managements, forward planning and consultative budgeting procedures.
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