Preparing for better livelihoods, health and well-being – A key to climate change adaptation  [31]

Time: 1400-1420 Hours
Pacific Symposium – 26-28/7/2016
Tanoa Waterfront Hotel
Lautoka, Fiji
OUTLINE

1. Introduction
2. Method
3. Results
4. Discussion
5. Conclusion
6. Acknowledgement
1. INTRODUCTION

• Global Climate Change – Pacific Islanders
  – Tonga and other PICs in the region

• 2013 – 2016 (Ph.D. Project):- Climate Change Impact on livelihood, health and well-being: A mixed method approach
  – 5 Coastal Communities (Tongatapu)
    • Kanokupolu, ‘Ahau, Tukutonga, Popua, Manuka

• 6 Climate Change Impacts (Impact Factors)
  – SLR, TR, RPV, SV, EWEs, DRT
Impact on Livelihoods

- Decreasing crop yields, reduced land productivity and horticultural production
- Coastal erosion, collapse of marine resources and loss of traditional fishing practices
- Damage to infrastructure, settlements and the built environment, including loss of property
- Disruption of food production and water supply
- Employment impacts and family income revenue disorder (especially for those who relied on their jobs and small-scale business to earn money)
- Impact on training and education (loss of school days, seminars or training and damaged school property)
- Financial impact on government investment since the government cannot fund all adaptation projects to reduce the impact of climate change and these communities depend largely on international donors.
Impact on Health

- **Non-communicable disease (NCD)** – asthma, influenza, pneumonia, shortness of breath (SOB), inter alia

- **Communicable disease (CD)** – STIs (sexually transmitted infections), typhoid fever, leptospirosis, dengue fever and tinea.
Impact on Well-being

• Consequences for mental health and human well-being were also identified. The following perceived impacts of climate change on well-being were revealed: worry, stress and anxiety, physical impacts (e.g. coastal erosion and death) and spiritual impacts (e.g. church services cancelled)
Impact and Adaptation Model

- **Our Paper** – CCA
- **Model** – Climate Change Impacts and Adaptation
2. METHOD

• Concurrent Convergence Parallel Triangulation Design – MMR
  – Quantitative Study (SAQ, CC data)
  – Qualitative Study (IDI, FGD, II, Videos, Pictures, Docs)

• Data Analysis (Thematic)
  – Computer-Assisted Quantitative and Qualitative Data Analysis Software Packaging
    • SPSS, Nvivo, R studio etc.
3. RESULTS

1. Sample Characteristic

Fig. 1 Location of the studied communities and sample size
Fig. 2 Sample population pyramid: gender and age
2. 5 Major Themes Emerged – (Survey, Interviews, FGD)
   – Mitigation policies
   – Modulating factors
   – Impact factors
   – Impact on livelihoods, health and well-being
   – Climate change adaptation
4. DISCUSSION

1. Climate change impact and adaptation model

![Diagram of climate change impact and adaptation model](image-url)

- **Human-induced activities and natural variability influences climate**
- **Climate change and variability in Tonga**
- **National and local weather changes in Tonga**
- **Impacting factors - Sea-level change, temperature change, heavy rainfall, drought, EWEs, seasonal variation**
- **Climate change impact - livelihoods, health and well-being**
- **Livelihoods, health and well-being management**

**Key:**
- = Associative
- = Symmetrical

- **Mitigation policies to reduce greenhouse gas (GHG) emission**
  - e.g. Forest preservation and replanting

- **Modulating influences**
  - e.g. Standard of living and local environment and weather conditions

- **6 climate change impacts**
  - e.g. Sea level rise, temperature rise, rainfall pattern variation, drought, EWEs and seasonal variation

- **Livelihood, health and well-being impact**
  - e.g. Loss of agriculture, asthma, anxiety and stress and cancel of church services

- **Adaptation measures**
  - e.g. Land reclamation, building of seawall, disease surveillances, fasting and praying

Fig. 3 Impact and Adaptation Model
2. Preparing Kanokupolu, ‘Ahau, Tukutonga, Popua and Manuka to Adapt

1 – Land reclamation
2 – Reforestation
3 – Building of seawall
4 – Preaching, praying and fasting to God
3. Limitations and Management

1 – Information bias
   • Translation and transcription done by researcher

2 – Perception bias
   • Visit to the study sites
4. Audiences

- Affected communities
- Governments
- NGOs
- International
- Regional
- Graduate students (Advance)
- Writers (MMR)
5. CONCLUSION

Climate Change Adaptation – Tonga

- Lesson Learnt
  1. Prepare better LHW – Key to CCA
  2. Modelling
  3. God Scripture Fulfill
  4. Community-based Initiatives

- Future Research
  1. Model testing – PICs
  2. Health and well-being adaptation
“Resilient Tonga”
6. ACKNOWLEDGEMENT

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4. Professor Walter Leal & Reviewers
Community-based adaptation initiated by Liahona High School Students in ‘Ahau

Photo: Reforestation Initiative of Mangrove, ‘Ahau, 2013 (Peni Hausia Havea Image)