

**POPULATION GROWTH, POVERTY AND ENVIRONMENTAL  
SUSTAINABILITY IN TIMOR-LESTE**

**Merve Hosgelen**

**Graduate Diploma in International Development, Faculty of Social and  
Behavioural Sciences, Flinders University**

**Bachelor of Arts in Economics, Faculty of Economic and Administrative  
Sciences, Bogazici University**

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

School of the Environment

Faculty of Science and Engineering

Flinders University

August 2014

## **ABSTRACT**

Timor-Leste has one of the poorest and fastest growing populations in the world. It faces many developmental challenges, including the rapid deterioration of natural resources, for example a deforestation rate of 1.3 percent per annum. With increasing population pressure, poverty and diminishing natural resources, peace and nation building is under enormous stress in Timor-Leste.

As a new nation, Timor-Leste lacks research in many areas including population, poverty and environment relations and their implications for peaceful development. The present thesis addresses three questions about Timor-Leste, namely the promises and challenges of the current and future population prospects for peace and sustainable development, the role of sustainable population and environment - particularly forests, in maintaining and strengthening people's livelihoods and reducing poverty; and the governance and policy measures that can be adopted to support sustainable livelihoods, national peace and environmental sustainability.

The thesis is based on analyses of primary and secondary data. The primary data were collected during field work in Timor-Leste in 2011-12, which comprise 170 household interviews, eight village surveys, four focus group discussions, and several in-depth interviews in five districts. The secondary data were obtained from censuses and available surveys for analysing the current demographic situation of Timor-Leste and projecting its population from 2010 to 2030.

At the macro level, this research showed that Timor-Leste's population will increase rapidly in the next two decades with a continuing high youth dependency ratio and it will be unlikely to have a demographic window of opportunity by 2030, precluding a timely capital accumulation and diversion of savings to productive sectors of the

economy unless there is a rapid and substantial decline in fertility. In this fragile state burdened with weak institutions, population pressure, inadequate human resources and a poorly performing domestic economy would exacerbate Timor-Leste's poverty, environmental degradation and demographic risks of civil conflict in the next two decades.

At the micro level, this thesis showed that multi-dimensional poverty has strong links with poor human and economic capital accumulation. Having more children in a household is not due to poverty, but rather due to geographical isolation, poor infrastructure development and heavy reliance on products from natural resources such as land and forests. Gathering forest products by the communities is a significant part of subsistence and traditional living. Ninety three percent of the households collected and used forest products in the year preceding the survey.

Heavy reliance on forest products is predominantly driven by people's needs for energy, construction and income generation. This is likely to increase as the population grows and would lead to further loss of forest resources. Most forest-reliant communities have six or more children and are located in places of low infrastructure development. They have high natural capital but poor human capital.

This research recommends measures to be aimed at promoting smaller families and increasing educational attainments in areas of low infrastructure development, high natural capital and large numbers of children. The thesis further recommends that policies be implemented for human resource development; provision of clean, affordable and accessible energy; strengthening of customary laws for environmental management and for investing in agro-forestry and eco-tourism to reduce deforestation and poverty, and to improve peace and sustainable livelihoods.

## **ACKNOWLEDGEMENTS**

This thesis is a product of my deepened engagement with the unique nation of Timor-Leste at both a professional and personal level. This connection will stay with me for life. It is a journey that has bettered me as an individual and, with any luck, will help make a tiny difference in the lives of the Timorese.

Throughout this journey, I was supported technically, financially and emotionally by a number of people and institutions. First of all, I would like to thank my principal supervisor Dr Udo Saikia for piquing my research interest in Timor-Leste, providing several opportunities for me to develop as an early career researcher, building research partnerships, co-authoring my research papers, and supporting this research from start to finish. Thank you Udo for being a mentor at all stages of the production of this thesis, for your generous and constructive feedback, and also for your positive guidance. I would also like to thank my co-supervisor Associate Professor Dr Gour Dasvarma for his excellent advice throughout my studies. His supervision has not only helped me keep my writing grounded and well-structured in this thesis but also in my applications for academic scholarships, conference grants and even job applications. I feel privileged to have been guided by his expertise in the field of demography and experience in higher degree research. Without his contribution, there is no doubt that this thesis would not have reached its full potential.

I would also like to thank my third supervisor, Dr Jim Chalmers, for accepting to be a reviewer at the later stage. His valuable contribution during the write-up process of this thesis and his thought-provoking feedback helped me think out of the box and has helped me improve the analytical quality of the writing. I have to acknowledge Denise MacLeod's professional services in editing this thesis and bringing it together

in less than two weeks. Due to her contribution during the final stages of writing and editing, I had peace of mind. I thank Pawel Skuza for his clear and detailed consultations on the use of SPSS and statistics, Harpinder Sandhu for fruitful discussions, and Rob Keane for producing village maps for my field work.

My field work in Timor-Leste would not have been possible without the approval of the Government of Timor-Leste. I thank the Secretary of State of the Council of Ministers at the time, Mr Agio Pereira, for approving the conduct of my research and his lovely wife Yeni for helping me get settled in and adjusted to life in Timor-Leste. Their warm personalities always made me feel welcomed. I thank Agio and Yeni for giving me plenty of insight into Timorese culture, inviting me to their traditional ceremonies, for sharing dinners with me including at Christmas, and for simply being genuine friends.

Secondly, I need to thank the UNDP Poverty Reduction and Environment Unit for providing me a base for my research work during my stay in Timor-Leste. Without being a part of the UNDP family, accessing expertise, personal contacts and resources would have been far more difficult. Among a number of colleagues, I would like to thank Katherine Leste for providing her valuable comments on my proposed questionnaires, Carsiliano Oliveira, Livio Xavier and Anderias Tani for helping me with the translation of the questionnaires into Tetum, for facilitating some of the in-depth interviews, and for accompanying me on some of the project visits. I also thank Noura Hamladji, Rui Gomes and Nizar Muhamed for their productive and stimulating discussions which helped shape the methodology and scope of this thesis. I thank all of my UNDP colleagues for their friendship, for their passion and the supportive environment.

I thank the Flinders University alumni Agustinho da Conceicao Anuno, a lecturer at the National University of Timor-Leste for helping me recruit a research team for data collection. Without him it would have been time very consuming to find the appropriate people. I thank my young and motivated research team Avito Hendrigues, Cidalia Pereira, Francisco Da Silva Mendonca, Nivea Saldanha and Mario Preto for their long hours of work including during the rainy season and their patience which enabled successful data collection. Their motivation to learn and apply skills in the field was very inspirational. I also need to thank the local communities of Timor-Leste for their precious time and for their participation in my research.

I owe special thanks to the Australian Population Association for awarding me the Caldwell grant and Flinders University for providing financial support during the completion of the field work. I thank the School of the Environment for providing me a tuition fee waiver during my masters and the Government of Australia for providing an APA award for this PhD which helped with my daily survival. I thank Andrew Millington for his continued trust and generous financial contribution so that I was able to attend conferences and broaden the reach of my research. Without the financial support I received from Flinders University, the Government and the Australian Population Association, this thesis would not have been possible to complete.

There are also some people I feel deeply privileged to have in my life and who have always supported me in many ways. I deeply thank my partner Darren Richardson for his loving heart, his patience, and his continued emotional support throughout this process. Darren, you have been the shoulder I leant on during my happy and not so happy days. You have always been there for me. You came to visit me in Timor-

Leste, participated in my field work in the most rural districts of country, coped with my stress, and shared the amazing but tough experience with me. You did not refuse to edit my work when I needed to submit a last minute conference paper or journal abstract. I am so lucky to have you in my life. Secondly, Marta Baraibar, thank you becoming one of my closest friends and sharing the amazing memories of living and working in Timor-Leste. Your passion for sustainable development is an inspiration and I hope one day we will work together again. You are more than a friend, a colleague or a travel partner. Without your always happy laughter and energising good mood, the days in Timor-Leste would not have been the same. And finally, a big thank to my family who I know will always be close to me where ever I go. Dad, Burhan Hosgelen, thank you for raising me as a free and strong woman, encouraging me to live the life I enjoy and value and for putting the virtues of hard work and honesty above all. Mum, Birsen Kardes, thank you for being so loving, so giving and so intelligent. If you hadn't invested in my education I would not be writing this acknowledgement today. My sister, Melike Hosgelen, thank you for being a companion and never leaving me alone in my adventures. And finally, to my grandmother, Raziye Kardes, thank you for loving me so much. I admire your strength, leadership and hard work, and will always love you back.

This thesis is dedicated to the PEOPLE and the land of Timor-Leste, and to my family and friends who are mentioned in this thesis who have supported me throughout this journey.

## LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AusAID	Australian Agency for International Development
BCC	Behaviour Change Communication
CIA	Central Intelligence Agency
CIFOR	Centre for International Forest Research
CM	Contraception Method
CO <sub>2</sub>	Carbon dioxide
DES	Demographic and Environmental Stress
DFID	Department for International Development
DHS	Demographic Health Survey
DID	Department for International Development
EC	European Commission
ESCAP	Economic and Social Commission for Asia and the Pacific
ETH	European Union
FAO	Food and Agriculture Organisation
FP	Family Planning
GDP	Gross Domestic Product
GNI	Gross National Income
GoTL	Government of Timor-Leste
GPS	Global Positioning System
HAI	Health Alliance International
HDI	Human Development Index
HDR	Human Development Report
HLPE	High Level Panel of Experts
ICPD	International Conference on Population and Development
IDS	International Development Institute of Sussex
IFAD	International Fund for Agriculture Development
ILO	International Labour Organisation
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IOM	International Organisation for Migration
IPCC	International Panel for Climate Change
IUCN	International Union for Conservation of Nature
IUDs	Intra Uterine Devices
KSI	Kdadalak Sulimutuk Institute
LUCC	Land-Use/Cover Change
LPG	Liquefied Petroleum Gas
MAFF	Ministry of Agriculture Forestry and Fisheries
MDGs	Millennium Development Goals
MEA	Millennium Ecosystem Assessment
MoH	Ministry of Health
MPI	Multidimensional Poverty Index
m <sup>3</sup>	Cubic Meter
NAPA	National Adaptation Plan of Action
NBSAP	National Biodiversity Strategy Action Plan
NDFWR	National Directorate of Forestry and Water Resources



NFPP	National Family Planning Policy
NGOs	Non-Governmental Organisations
NRHS	National Reproductive Health Strategy
NSD	National Statistics Directorate
NTFPs	Non Timber Based Forest Products
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
OPHI	Oxford Poverty and Human Development Initiative
PATVET	Pacific Association of Technical Vocational Education and Training
PCA	Principal Component Analysis
PoWPA	Program of Work in Protected Areas
PPE	Population, Poverty and Environment
PRB	Population Reference Bureau
PSN	Population and Sustainability Network
RH	Reproductive Health
SDP	Strategic Development Plan
SEFOPE	Secretariat of State of Professional Training and Employment
SID	Society for International Development
SISCa	Integrated Community Health Services Outreach Program
SLA	Sustainable Livelihoods Approach
SLM	Sustainable Land Management
SRES	Special Report on Emissions Scenarios
SDP	Timor-Leste-Strategic Development Plan
TFR	Total Fertility Rate
TVET	Technical and Vocational Education and Training
UK	United Kingdom
UN	United Nations
UNCCD	United Nations Conventions to Combat Desertification
UNDAF	United Nations Development Assistance Framework
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Program
UNESCO	United Nations Education Science and Culture Organisation
UNFPA	United Nations Population Fund
UNEP	United Nations Environment Program
UNICEF	United Nations International Children's Emergency Fund
UNMIT	United Nations Integrated Mission in Timor-Leste
UNTAET	United Nations for Transitional Administration in East Timor
USA	United States of America
USAID	United States Agency for International Development
VCM	Vicious Circle Model
WCED	World Commission on Environment and Development
WFP	World Food Program
WHO	World Health Organisation