

**National Research Institute
Discussion Paper No. 115**



**POSITIONING POPULATION IN SUSTAINABLE DEVELOPMENT
The Case of Papua New Guinea**

**By
Israel Sembajwe**

**NRI
National Research Institute**

First published in October 2010

Copyright © 2010 The National Research Institute.

NRI Discussion Paper No. 115

The NRI is an independent statutory authority established by an Act of Parliament in 1988 and confirmed by the *IASER (Amendment) Act* 1993. NRI's main aims are to undertake research into the social, political, economic, educational, legal, environmental, and cultural issues and problems of Papua New Guinea and to formulate practical solutions to these problems. Research results are published in the following NRI publication series:

Monographs	Spotlight with NRI
Discussion Papers	Post-Courier Index
Special Publications	Bibliographies
Occasional Papers	Additional Publications

Direct any inquiries regarding these publications to:

The Publications Sales Coordinator
National Research Institute
P.O. Box 5854
BOROKO. NCD. 111
Papua New Guinea

Tel: (675) 326 0300/326 0061 ext. 338
Fax: (675) 326 0213
E-mail: nri@nri.org.pg
Website: www.nri.org.pg

ISBN 9980 75 184 1
National Library Service of Papua New Guinea

ABCDE 20143210

The opinions expressed in this report are those of the author and not necessarily those of the National Research Institute.

CONTENTS

ACRONYMS	iv
EXECUTIVE SUMMARY	v
1. Introduction	1
2. What is sustainable development?	1
3. Lessons from other parts of the world	4
4. An illustration from Ethiopia	7
5. The Case of Papua New Guinea	9
6. Which direction should PNG take?	12
7. What role should NRI play?	13
8. Conclusion and the way forward	14
BIBLIOGRAPHY	15

ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
AusAID	Australian Agency for International Development
ECA	Economic Commission for Africa
DEC	Department of Environmental Conservation
DNPM	Department of National Planning and Monitoring
EU	European Union
FSSDD	Food Security and Sustainable Development Division
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IIASA	International Institute for Applied Systems Analysis
IMF	International Monetary Fund
IUCN	International Union for the Conservation of Nature
JPOI	Johannesburg Plan of Implementation
MDGs	Millennium Development Goals
MDGR	Millennium Development Goals Report
MTDS	Medium-Term Development Strategy
NDOH	National Department of Health
NRI	National Research Institute
NSO	National Statistical Office
PAU	Pacific Adventist University
PED	Population, Environment and Development
PEDA	Population-Environment-Development-Agriculture
PNG	Papua New Guinea
PRSP	Poverty Reduction Strategy Paper
RMT	Research Management Team
SAP	Structural Adjustment Program
TFR	Total Fertility Rate
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UPNG	University of Papua New Guinea
WB	World Bank
WCED	World Commission on Environment and Development
WCS	World Conservation Strategy
WCU	World Conservation Union
WSSD	World Summit on Sustainable Development

EXECUTIVE SUMMARY

This discussion paper presents arguments for treating economic optimisation, management of natural resources stock and provision of optimal social goals with equality. They form the three pillars of sustainable development. It is pointed out that although political priorities may vary from region to region or from country to country, land-based resources constitute the most important component of the challenges of sustainable development faced by developing countries. This is because in an environment of poverty, the human being falls back on land-based resources for its sustenance.

Therefore, the paper examines the concept of sustainable development and suggests the way forward for Papua New Guinea. In doing so, tentative medium-term research areas on population and sustainable development in the country are suggested for NRI through its Population Policy and Planning Program. A more comprehensive research framework will be generated after holding an extended seminar on sustainable development issues in the country.

To put the discussion in the right context, a summary of events that led to the evolution of the debate on sustainable development is provided. It gives an interesting involvement of national governments and the international community in the analysis of the development challenges faced by the world community and their implication on the welfare of all women, men and children. Overall, the paper suggests that sustainable development is taken to be a process which leads to future sustainability.

The process of sustainable development holds more promise for poverty reduction in developing countries largely because the majority of the population live in rural areas and depend on environmental resources such as land, forest, water, wildlife and other biological and mineral resources for their daily livelihoods. Without sustainable development more and more people are forced to go below the poverty line.

As illustrative examples, a summary of the discussion of the linkages of population, environment and development in Africa, as part of the developing world, and the Population, Environment, Development and Agriculture (PEDA) model it generated; as well as examples of individual countries that welcomed the development of country-specific models on the same subject are presented. The country specific models were influenced by country specific challenges such as constraints imposed by resource allocations and environmental degradation in island states, and HIV and AIDS in other states. In addition, all the models took a human-centred approach as population formed the basis of construction.

Using PEDA, the author simulates results based on assumed policy scenarios for three countries. The aim is to demonstrate the achievement of optimal results by considering all possible policy mixes reflecting the priorities of the time. In addition, the presentation establishes that the creation of a policy analysis and advocacy model facilitates the discussion and advocacy among policy-makers and planners about the ideal policy-mix options to take. Then a case is made for PNG to consider the development of such a model.

Examination of policies and plans made in PNG in the past reveals that not all pillars of sustainable development were fully taken into account. For example, the Medium Term Development Strategy (MTDS), 2005–2010 took into account two pillars, the social and economic, and missed the third one on environment. Yet, about 85 percent of PNG's

population lives in rural areas. In addition, policy-making and planning was not fully human-centred and focused much on economic maximisation.

Moreover, the lack of up-to-date relevant indicators on PNG to lead to informed policy-making and planning presented a big challenge. Thus policy-making and planning were often conducted in an environment of uncertainty and with no firm targets. This reflected a need for more evidence-based policy-making and planning; and for inclusion of all the three pillars of sustainable development in the development process.

Consequently, the paper ends by proposing a tentative medium-term research program for the Population Program at NRI. The program starts with proposing the drafting of a monograph on population and sustainable development to take stock of what has happened in the country so far and to determine the current status of selected sustainable development indicators. Establishing sustainable development status indicators will be a major outcome in the monograph. But subsequently, advocating for development of a policy analysis and advocacy tool; and the formulation of a comprehensive research framework on population issues and sustainable development will become major components of the way forward.

Tentatively, by way of research, the following research areas may form a list of priorities from which NRI may pick research projects to focus on in the medium term:

- Population and poverty reduction strategies;
- Education;
- Fertility and mortality reduction;
- Sources of livelihood and livelihood opportunities;
- Population distribution and sustainable environment;
- Gender equality, equity and empowerment;
- Family and cultural norms;
- Reproductive health;
- HIV/AIDS, STIs, TB and malaria;
- Maternal and child health;
- Advocacy and information, education and communication;
- Data collection, analysis, dissemination and utilisation; and
- Integration of population variables in development planning (at all levels of government).

1. Introduction

To balance economic optimisation with management of natural resources stock and provision of social goals, a trade-off is necessary between the three pillars — social, economic and environmental — of sustainable development. At the same time, political priorities may vary from region to region and, possibly, from country to country. For example, Leisinger (2004:1) states that although the most significant ecological issues are of truly global importance, industrial and developing countries still have different problems. For the majority of people affected by environmental problems in developing countries, lack of sanitation and sewage facilities, polluted drinking water, urban air pollution, shrinking water resources, and eroding top soil are the most pressing problems. In industrial countries, where such problems have largely been solved, the public focuses mainly on issues such as depletion of the ozone layer as well as the accumulating carbon dioxide in the atmosphere and its potential impact on climate change.

This affirms that land-based resources constitute the most important component of the challenges of sustainable development faced by developing countries. In particular, in an environment of poverty, the human being falls back on land-based resources for its sustenance. Yet, unsustainable utilisation of such resources perpetuates the poverty situation, and even aggravates it, throwing increasing numbers of the population into a vicious cycle of poverty (the poverty trap). This is the major reason why the United Nations Economic Commission for Africa (ECA) (2002:52) stated that sustainable development can be understood as a development program that increases consumption; enhances health, education, and citizenship rights; reduces inequality; appropriately upgrades and conserves the capital stock (including the environment); advances knowledge and builds durable and efficient institutions.¹ Together, all these point to the need for a human-centered development approach in dealing with issues of sustainable development.

This paper presents a review of sustainable development. It defines the concepts of ‘sustainable development’ and ‘sustainability’, and presents a position on what should be done by Papua New Guinea to tackle the challenges of sustainable development. In addition, the paper presents a composite medium-term research proposal on population and sustainable development in Papua New Guinea that lays out activities that may be conducted by the NRI through its Population Policy and Planning Program over a period of three years.

2. What is sustainable development?

The term ‘sustainable development’ was coined by the Brundtland Commission, which defined sustainable development as development that “meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (Brundtland 1987; United Nations 1987). Table 1 provides a summary of the evolution of the debate on sustainable development. Significant events, identified needs at these events, and the outcomes of the events are all presented. They clearly point to the intense interest of national governments and the international community in analysing the development challenges of the time and proposing development activities that will lead to meaningful and sustainable livelihoods for all women, men and children, wherever they might be in this small global community.

¹ See also Sembajwe *et al.*, 2005 on this subject.

Table 1: Evolution of the debate on sustainable development

Year	Event	Identified Need	Brief Outcome
1972	Stockholm Conference on the Human Environment	Need for global environmental assessment and for addressing the links between environment and development.	Drew attention to the need for holistic and integrated development planning and for addressing intergenerational equity issues.
1980	World Conservation Strategy (WCS) by the World Conservation Union (WCU)	Need for development that would alleviate the misery of hundreds of millions of people living in poverty in order to achieve conservation.	Stressed the interdependence of conservation and development.
1987	World Commission on Environment and Development (WCED) report — “Our Common Future” or Brundtland Report	Need for development that “meets the needs of the present without compromising the ability of future generations to meet their own needs”.	<ul style="list-style-type: none"> • Brought sustainable development to the centre-stage of the development debate. • Called for raising society goals to take into account environmental integrity, social justice and equity, the welfare of current and future generations, and public participation in development. • Provided a new approach and conceptual understanding of the development process, and created a demand for new concepts, tools and measures, and new data, information and knowledge for advanced policy analyses.
1992	United Nations Conference on Environment (UNCED) or the Earth Summit, Rio de Janeiro, Brazil	Need to protect the environment and promote social and economic development in order to achieve sustainable development.	Led to the development of a global program of action known as ‘Agenda 21’ aimed at promoting sustainable development for humanity.
1997	Five-Year Review of the implementation of Agenda 21	Need for accelerated implementation and renewed political commitment for action since little progress had been achieved.	Led to lack of clear consensus.
2002	World Summit on Sustainable Development (WSSD) held in Johannesburg (conducted a ten-year review of Agenda 21 and confirmed a generally low level of implementation)	Need for renewed global commitment to sustainable development.	<ul style="list-style-type: none"> • Came out with three outcomes aimed at strengthening the implementation of Agenda 21: (i) the Political Declaration; (ii) the Johannesburg Plan of Implementation (JPOI); and (iii) the Type II Partnership Initiative. • Reaffirmed global commitment to the objectives of sustainable development; provided targets and timelines to engender action; and, laid out partnership commitments.

Sustainable development is broken up into three parts: (1) environmental sustainability; (2) economic sustainability; and, (3) social sustainability (Smith and Rees 1998). Some extended reflection has gone on with regard to each of these terms by many scholars and development practitioners (Solow 1986; Munasinghe and McNeely 1995; Munasinghe and Shearer 1995). To start the discussion, let us refer to Dovers and Handmer (1993) who stated that “sustainability and sustainable development are often treated interchangeably.” He presents sustainability as a “long-term and difficult goal of reaching an ecologically sustainable state”, and sustainable development as the “variable process by which we might move somewhat nearer to this goal.” Therefore, ‘sustainability’ is an ideal state to achieve, but one that will take a very long time to reach (hence the term long-term).

On the other hand, sustainable development is a process that can be set in motion for each country through integrated and well thought out policies and plans accompanied by well formulated and implemented programs to contribute to the attainment of the long-term goal of future sustainability. It should be noted that the process should be country specific and tailored to its special conditions and development needs. But, of course, the larger picture of attaining global sustainability should always be kept in the background.

Therefore, attaining social, economic and environmental 'sustainability' is a long-term goal for the future. The economic pillar, which often emerges as paramount in the minds of most policy-makers and planners, stresses the maximum flow of income that can be generated while at least maintaining the capital stock (or assets) which yield these benefits (Solow 1986). Capital is taken to include manufactured, natural and human components. Economic sustainability assumes a high degree of substitutability among various types of capital. Observing that the expected high degree of substitutability is never or rarely achieved, it was concluded that economic sustainability is 'weak sustainability'.

In the case of social sustainability, people-centeredness is given special emphasis (Munasinghe and McNeely 1995). Development systems focus on maintaining the stability of social and cultural systems; and equitable distribution of resources is a major component of this approach. This makes it an ideal approach to take, especially when we remember that people are both producers and consumers of social and economic goods and services, and they take care of the environment. Consequently, the loud cry for the need for human-centered approaches in development programs stems from this thinking. Yet, such programs have been scarce because the nature of the world is such that individual interests predominate, and policies, plans and programs which often satisfy the leadership of the day are given preference.

For 'environmental sustainability', it is suggested that each category of critical assets should be preserved; the stability of the biological and physical systems should be maintained; and natural systems and habitat, including man-made environments like cities, require resilience and dynamic ability to adapt to changes rather than to stay static in the name of conservation (Munasinghe and Shearer 1995). In other words, developmental processes are called upon to take into account environmental consequences of the process of growth. Naturally, if you put human beings at the centre of sustainable development and clearly make them aware of the importance of their natural habitat, taking care of the environment will be an important component of the development process.

Hence, how do we reconcile these different views, concepts and approaches? The solution is integrated policy making and planning. Whatever each nation does should ensure that the net benefits of economic activities are maximised only after considering the maintenance of the stock of production assets over time and the provision of good living conditions for all the population. In other words, and for emphasis, there should be a trade-off between economic optimisation, management of the natural resources stock and provision of optimal social goals. This is sustainable development, and it is a process in itself that leads to future sustainability. The ultimate beneficiary in this process is every woman, man and child in the population. Therefore, a case may be made that this is the road that Papua New Guinea should travel.

In addition, the Agenda 21 program of action, from the 1992 United Nations Conference on the Environment in Rio de Janeiro, stresses the need to periodically assess each country's progress in achieving targets that measure the process of sustainable development (United Nations 1992a). It also points out the need for indicators to perform this assessment. This is largely the reason why all subsequent international conferences included indicators in their priorities (United Nations 1995; UNFPA 1996; United Nations, 2003a). For example, some kind of standard framework was set up under the Millennium Development Goals (MDGs) with eight goals and 18 targets which are reflected in 48 qualitative indicators (United Nations 2003b). Therefore, the need to set goals and targets and identify indicators should be part and parcel of the planning process in Papua New Guinea. In this way, monitoring and evaluation of achievements can be confidently made. However, before some reflection is given on how the country has dealt with sustainable development issues in the past, lessons learned from other parts of the world will enrich the discussion.

3. Lessons from other parts of the world

Nowhere else does the process of sustainable development, especially ensuring environmental sustainability, hold more promise for poverty reduction than in developing countries. Often more than eighty percent of rural populations in such countries are dependant on land, forest, water, wildlife and other biological and mineral resources for their daily livelihoods. Breaking out of the poverty trap requires well-informed and thought-out policy making and planning. This is the major reason why, in the case of the African nations, the United Nations Economic Commission for Africa devoted extended periods (from 1998 onward) to discussing the linkages and inter-linkages of population, environment and development (called the nexus issues) (ECA 2001; ECA 2002).

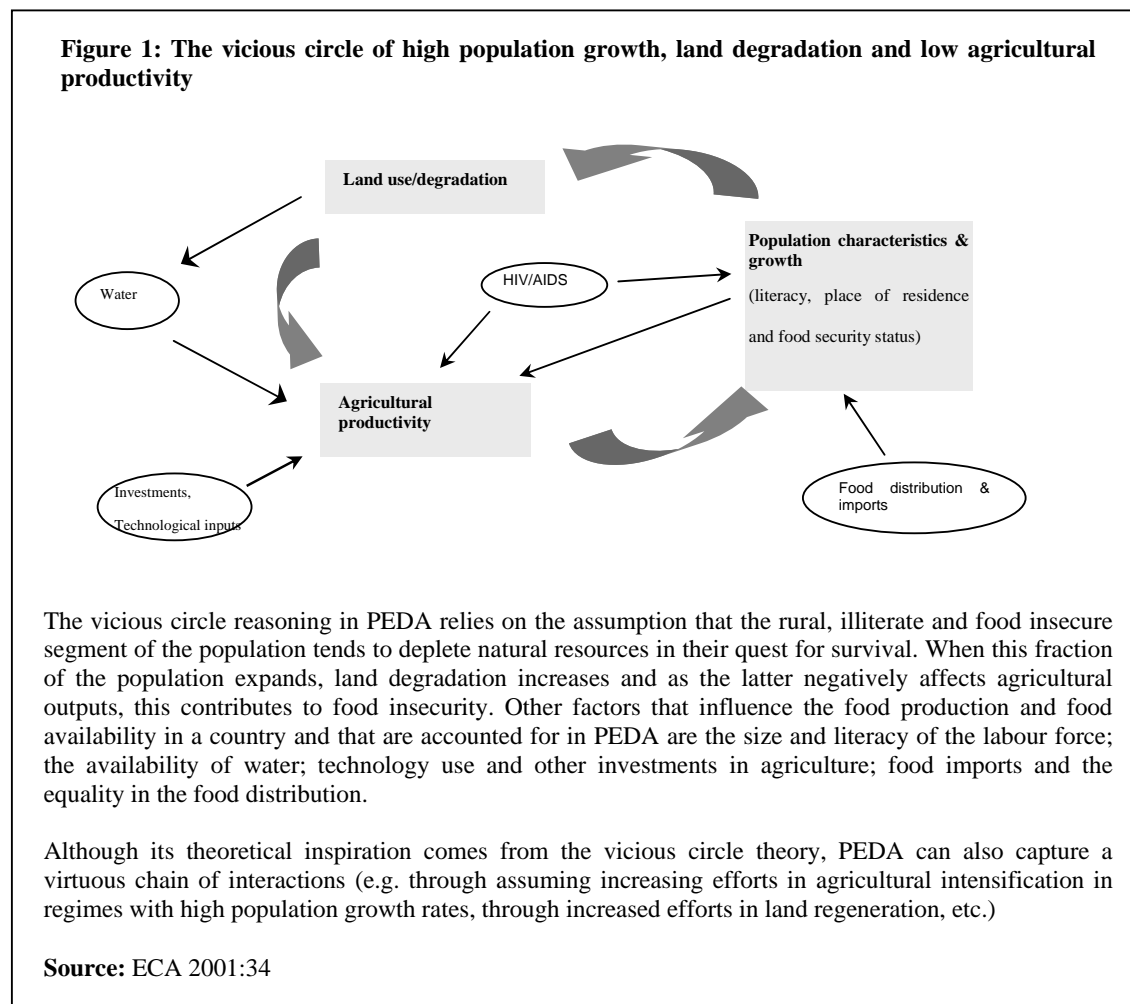
The rich and lengthy discourse that has already taken place in ECA in collaboration with international experts has specifically hinged on the relationship between population, environment, agriculture and development. This discourse generated the Population, Environment, Development and Agriculture (PEDA) Model. The basic theoretical formulations providing the foundation for the model are shown in Figure 1. It is reasoned that poverty creates a vicious circle generating the poverty trap (Dasgupta 1993; Dasgupta 1995). It is assumed that the rural, illiterate and food insecure segment of the population tends to overuse the natural resources for their livelihood. As the number in this segment of the population increases, so does land degradation as well as declining agricultural productivity. The ultimate consequence is food insecurity. The model also considers other related factors, such as the size and literacy of the labour force; water availability; technological innovation and other inputs in agriculture; and food imports and the equitable distribution of food.

The PEDA model is an advocacy tool aimed at demonstrating the likely impact of alternative policy options on the food security status of the population (FSSDD 2001). As food security is a factor of development in the areas of population, environment, agriculture and socio-economic development, the model demonstrates the relationships between these fields as well. The model also includes a health component based on the treatment of HIV/AIDS as an important component of the current development paradigm in Africa and demonstrates its impact on other variables in the model. As such, the PEDA model is able to give answers to a wide range of policy questions regarding the inter-actions of selected policy issues.

The model relies on multi-state demographic techniques, projecting at the same time eight different population subgroups (by age and sex) based on three dichotomous individual

characteristics: urban/rural place of residence, literacy status and food security status. Through the setting of scenario variables, the model enables the user to project the population that will be food secure and food insecure for a chosen point in time. It also demonstrates a number of other variables related to the socio-economic development of a country.

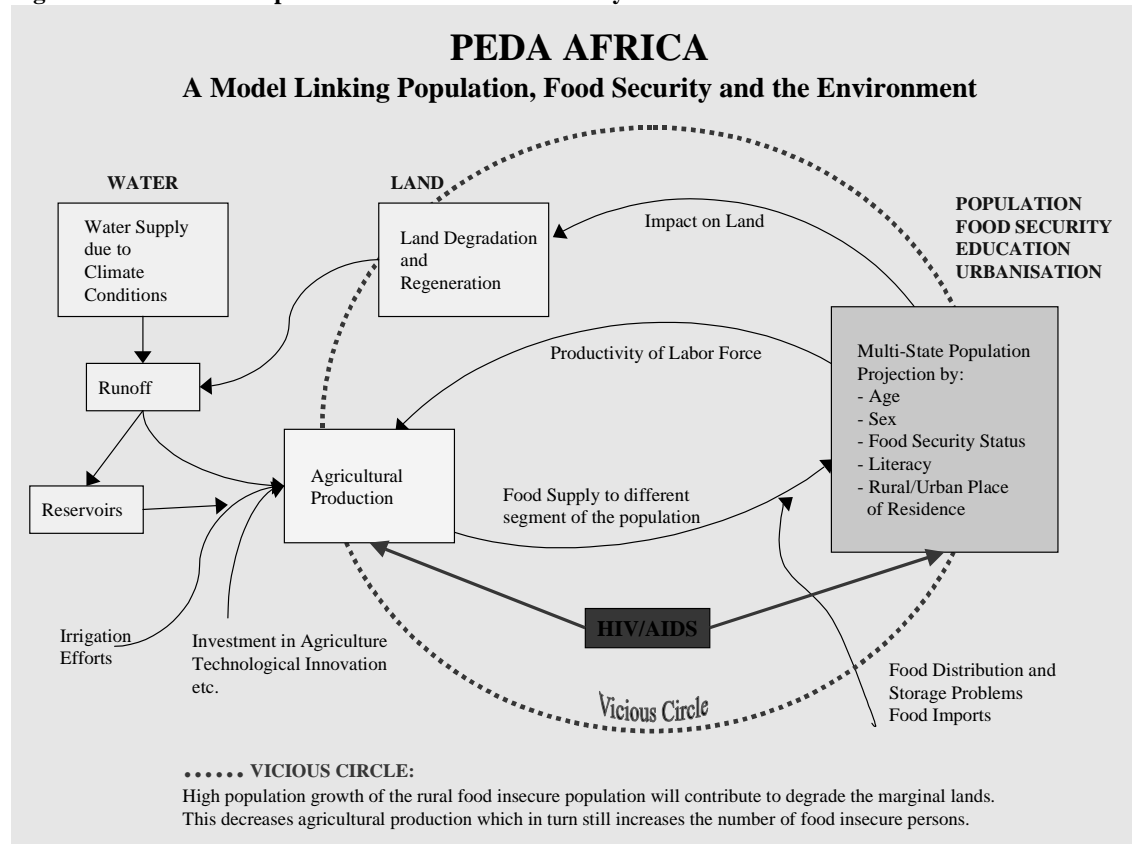
In Figure 1, it is quite clear that as the vicious circle is perpetuated through the primary interaction between population, land and agricultural productivity in an endless effort for population subsistence, the process generates land degradation and further food insecurity and poverty. Fortunately, a number of variables can be tapped both in the three spheres of the vicious circle and in areas such as technology, water resources, food distribution and imports, and the control of diseases such as HIV/AIDS to create a virtuous chain of interactions that would contribute to sustainable development. Figure 2 gives a more expanded illustration of the theoretic foundations in the model.



The model is used in this paper by taking the case study of Ethiopia to illustrate the importance of taking simultaneous action on different policy fronts. It illustrates the importance of inter-sector linkages in policy-making and planning. But at this stage, a word of caution is warranted. The implied improvement in socio-economic development, and, hence, progress towards sustainability, by examining the proportions of the population food secure over the projection period dependant on different policy mixes, may not necessarily

depict a true country situation. Nevertheless, they may support the case for formulating appropriate mixed policies and integrated plans, as well as the need for concerted implementation of related development programs to achieve optimal results.

Figure 2: An elaborated presentation of the PEDAs theory



Source: ECA 2001:12

As Box 1 reflects, the model is based on a population (or human) development approach that departs from most of the past development models which emphasised the economic development approach. In three steps, the model: (1) makes population projections to determine the size and characteristics of the population; (2) considers agricultural production as a factor of the natural resources stock (land and water), the size and productivity of the labor force and technological inputs and innovations in agriculture; and (3) distributes estimated available food over the population following a non-linear food distribution function to determine the proportion of the population that will be food insecure.

Box 1: Characteristic of the PEDAs Model

Central or characteristic to the PEDAs Model is its population or human development based approach. It views human beings and their characteristics (education, health status, food security status and place of residence) both as the agents of social, economic, cultural and environmental change and as those who are the first at risk to suffer (or benefit) from repercussions of these changes. The economic environment (e.g. the importance of markets in distributing goods) plays only an intermediate role and is not seen as an end in itself nor the primary objective of the modeling exercise. In this way, the population based approach differs from much of the development economics literature.

Source: ECA 2002

Examples of countries that have welcomed the development of country-specific models on population, development and environment (PDE) include Botswana, Cape Verde, Mauritius, Mozambique and Namibia (Lutz 1994; Wils 1996; IIASA 2001). For Mauritius, as a case study, the PDE model is an attempt to integrate the dynamics of key development parameters in the island within the constraints imposed by resource allocations and environmental degradation. In the case of Botswana, Mozambique and Namibia, modeling provided a point of reflection on the population and sustainable development challenges facing these nations in the era of HIV/AIDS. For an illustration of the advocacy implications of such modeling exercises, the case of Ethiopia is presented in the next section.

4. An illustration from Ethiopia

In their analysis of the development challenges in Ethiopia with respect to excessive population growth, environmental degradation and agricultural productivity, Lutz *et al* (2004) noted that it is often slight disturbances, such as a period of reduced rainfall or isolation resulting from conflicts, which cause the fragile equilibrium to collapse, causing famines in the country. This leads to about 50–60 percent of the population being chronically food insecure. They also noted that war and conflict have contributed to these dramatic statistics, and that although the relatively fast economic growth rates of the mid 1990s were encouraging, avoiding a Malthusian disaster scenario in the future will definitely require a concerted and sustained effort in different sectors of society and the economy. What is encouraging is that the Ethiopian Government is aware of the challenges facing the country and has even developed policies and institutions to tackle them.

The case study goes on to explore whether these policy and institutional changes will be sufficient. This is done by proposing the following scenarios (all of which start from the baseline scenario):

Baseline (termed Policy Mix I in this analysis):

The assumptions under the baseline scenario took the existing policy efforts as holding over the projection period. No negative effect of the HIV/AIDS pandemic was taken into account and the rainfall pattern of the last eight years was assumed to repeat its cycles in the future. In addition, the scenario assumed an important net increase in food imports of 2 percent a year.

Technology improvement (termed Policy Mix II in this analysis):

This scenario incorporated increased technological inputs in agriculture. It assumed that by 2030, fertilizer use would be more than 7.5 times higher than in the initial year, that irrigation and technical education would double and that machinery use would be 1.5 times higher.

Fertility decline and education improvement (termed Policy Mix III in this analysis):

This scenario assumed almost universal primary education (95 percent) in both urban and rural areas and a steeper fertility decline to reach a TFR of 2.4 by the year 2030.

Combination of scenarios 2 and 3 (termed Policy Mix IV in this analysis):

This scenario combined the efforts in terms of the inputs in agriculture and education and a fertility reduction.

The results presented in Figure 3a (time series) and Figure 3b (selected points in time) on the proportion of population who are food insecure, clearly demonstrate that only combined policies and their concerted implementation can change chronic occurrences of food insecurity. It is concluded that increased efforts in agricultural intensification or education and fertility alone do not provide a sustainable solution to food insecurity.

Figure 3a. Proportion of population food insecure by policy mix in Ethiopia

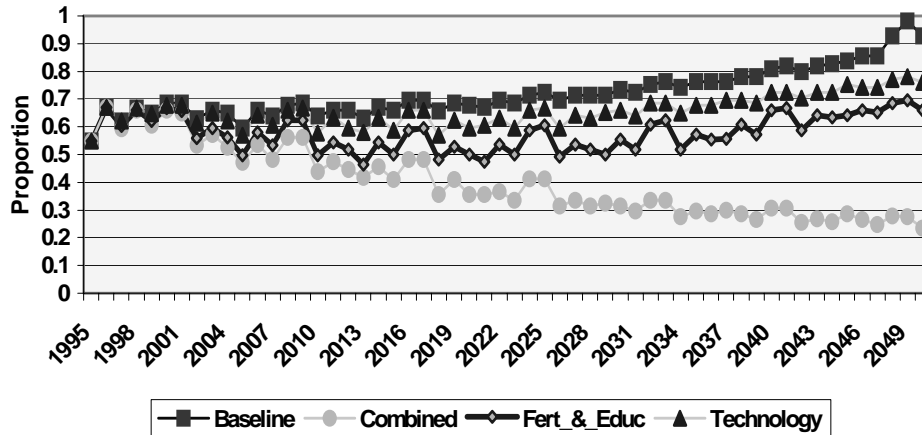
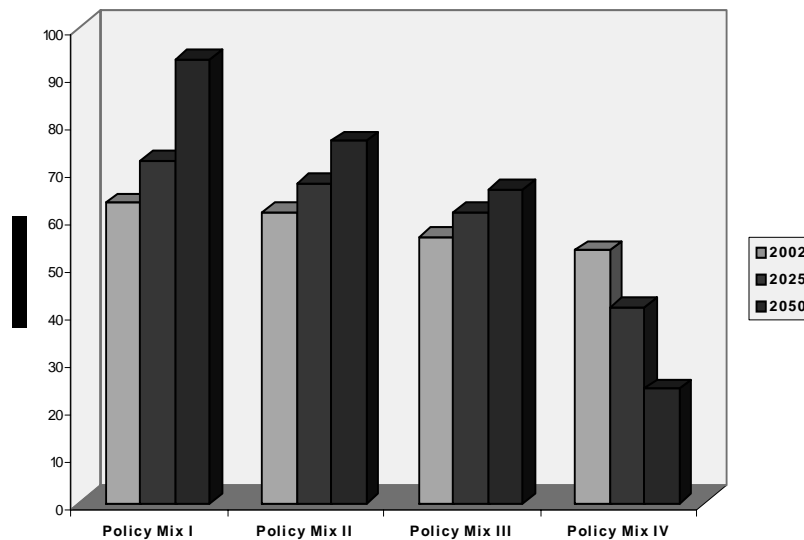


Figure 3b: Proportion of population food insecure by policy mix in Ethiopia



Overall, the relevance of a model like this for PNG and its sub-divisions will be to quantitatively help policy-makers and planners to think in terms of the consequences related to making decisions based on alternative policy scenarios either by taking or not taking selected sustainable development issues in a holistic manner.

5. The Case of Papua New Guinea

Papua New Guinea (PNG) is variously referred to as “a country of gold floating on a sea of oil” or “a country of gold floating on a sea of oil and powered by gas” (Nita 2006; Weekend Courier 2009). Unfortunately, the majority of the people of PNG have lives that are surrounded by poverty and underdevelopment. This reflects that none of the economic maximisation efforts, largely based on the mineral wealth, has touched their lives in any substantial way. The question is, “Why?”

This is a difficult question to answer in a hurry. But it may be recalled that balanced development is expected to bring about sustainable development that supports sustainable livelihoods. It necessitates integrated and multi-sectoral planning as well as concerted implementation of development programs. Has this been the case in PNG?

PNG gained its independence from Australia in 1975 and it is suggested that it enjoyed sound macroeconomic stability up to the early 1990s (Mawuli 1997). It is proposed that this stability was disturbed twice: (1) in 1989 when the Bougainville mine was closed; and (2) in 1994 due to the loss of government control of fiscal management. The uneasiness in the economic system at that time is well reflected in the declining and fluctuating values of Real GDP per Capita from 1994 (DNPM 1999). These factors alarmed the custodians of PNG’s economic development process; revealed structural weaknesses in the country’s economy and led the government of the day to the formulation of a structural adjustment program (SAP) in 1995.

Therefore, the journey of structural adjustment programs started in 1995 when the Government of Papua New Guinea made a request to the World Bank (WB) and the International Monetary Fund (IMF). After the 1995 SAP, the Government of Papua New Guinea realised that due to a number of problems, largely regarded as economic, the social indicators of poverty in the country were rising (Weise 2004). For example, health aid posts had deteriorated and were understaffed because priority expenditures were not compliant with the National Health Plan, school enrollments were down and school staff lists had many cases of ghost teachers, while at the same time many high profile cases of corruption in the country had been suspended.

With another financial rescue package provided during 1999 to 2002 it was speculated that like among several African countries, the SAP was bound to lead the country to sink deeper into a debt trap (*ibid.*). As it is elaborated in Box 2, although the World Bank may have included policies to support poverty alleviation and to improve service delivery, their major interest at that time was on monetary policies and long-term economic growth, as well as dealing with a governance environment permeated with corruption. This left little room for social and environment issues.

Box 2: World Bank Program Design and PNG

.....the World Bank usually seeks to restructure spending allocations and implement policies to target poverty alleviation, improve service delivery and sustainable economic growth over the long-term. While these aspects were seen to be important, the overriding issue for the World Bank was to design a program to offset what was seen to be the main cause of the economic crisis — namely, a crisis in governance manifested in its most visible form of corruption. In a poor governance environment, fixing policies and providing technical assistance would not fix the problem on a sustained basis.

Source: Weise 2004:3

Taking a step back, the World Bank and the Government of PNG agreed on the first SAP on 28 August 1995. It committed the country to drastic economic reforms which included: scrapping the minimum wage, removing price controls on basic foods, introducing fees for health and education services and establishing controls on foreign investment (Ecologist 1995). This led PNG's groups challenging the World Bank's structural adjustment program to, among other things, express concern that the then SAP and the proposed 1996 budget would further plunge the people into deeper poverty and would not address the fundamental problems facing PNG. They argued that the SAP relied on unsustainable exploitation of PNG's mineral resources to fuel its development, rather than strengthening local industry and promoting self-sufficiency. Therefore, an appeal was made to the Government in the media to respect the fundamental human rights of access to adequate health care and education, and to realise that trade liberalisation measures, including removal of restrictions on foreign investment, and abolition of price controls on basic foodstuffs would benefit foreign corporations and increase the cost of living for an already struggling population.

Indeed, UNICEF, in 1996, introduced the term "adjustment with a human face" strategy in which the organisation called for a number of policies directed towards the poor to be included in adjustment programs (UNICEF 1996). Such policies would, for example, take care of sustaining levels of production and employment, fairer share of incomes and resources, supporting small-scale production for such groups as small-scale farmers, the landless, urban informal workers and women; restructuring of social expenditure towards basic needs provision; and special support programs such as targeted food subsidies and public works employment. In this way, the Bretton Wood institutions were being told that they needed to be more human centred in their strategies than they had been up to then. This was one of the contributing factors to the World Bank's transition from SAPs to the Poverty Reduction Strategy Paper (PRSP) process (World Bank 2003).

Indeed, lack of integrated and holistic policy making and planning in dealing with the most important challenges of the day, and in support of sustainable livelihoods, can slow a nation's development process or even reverse it in some cases.

Experiences from most adjustment programs have shown this to be the case to a certain extent. For example, taking just one indicator, in a group of countries that implemented adjustment programs, there was a closing of the gap in gender enrolments. But that this was due to the average male enrolment rate falling towards the lower average of the female rate, in other words, a deterioration (Box 3). On the other hand, the gap narrowed in the non-adjusting countries due to an increase in the average of male and female enrolment rates.

Box 3: Gender Gap in Education

In countries that have undertaken WB supported adjustment programs, a slowdown in the increase in average female combined first- and second-level gross enrolment rates is observed between the pre-adjustment and adjustment phase. Furthermore, there has been an absolute decline in female enrolment rates in a number of adjusting countries over this period. The gap between the male and female enrolment rates has narrowed on average for both the group of countries that have undertaken adjustment programs and for their control group that have not. For the adjusting group of countries, however, the closing of the gender gap is due to the average male enrolment rate falling toward the lower average female enrolment rate, whereas for the non-adjusting group of countries the gap has narrowed due to an increase in the averages of both male and female enrolment rates.

Source: Rose 1995

Recently, the European Union, in its Country Strategy Paper and National Indicative Program for 2008–2013, stated that PNG has the worst social indicators in the Pacific (EU 2008). For example, it has lower average life expectancy, higher infant mortality rate, lower rates of adult literacy, lower female participation rates in education and higher rates of maternal mortality. This state of affairs is confirmed by other sources (AusAID 1996; Gibson and Rozelle, 2002; Bank of PNG 2007; Badu 2009; Bourke and Harwood 2009; Cammack 2009; GoPNG 2009; National Department of Health 2009).

To provide more support to this state of affairs, Box 4 highlights the situation in the words of the then PNG Minister of Finance and the Treasury, Bart Philemon, when he stated that up to 2006, the leaders of PNG had not looked after the people that they were elected to serve.

Box 4. Poverty in PNG

We are where we are today [in Papua New Guinea] because this is where our leadership has taken us.... I think it is fair to say that our leaders over the many years have not looked after the people that we were elected to serve..... For many years we have spent our money poorly, often going into debt to fund ill or poorly conceived projects or projects that would benefit a few well-connected politicians and bureaucrats. We allowed the bureaucracy to become bloated and inefficient and for corruption to fester.

Source: Philemon 2006

It is, therefore, clear that making policies and plans in the context of sustainable development in PNG has had many missteps along the way. Currently, the Medium Term Development Strategy (MTDS) 2005–2010, is noted to acknowledge only two pillars of sustainable development, the social and economic, leaving the third one, environment, almost silent (Nita 2006). With about 85 percent of PNG’s population being rural, the omission of the environment leaves a glaring gap, and reflects lack of human centeredness in the strategy. The budget passed in 2005 puts emphasis on “improving people’s lives through strong economic leadership” (*ibid.*:xvii). This reflects further that the inclusion of the social pillar is also marginal. The major aim of the strategy is economic maximisation. Consequently, one of the five goals mentioned in the Preamble of the Constitution of PNG is left completely dormant, namely, Goal Four: “We declare our Fourth Goal to be for Papua New Guinea’s natural resources and environment to be conserved and used for the collective benefit of us all and are replenished for the benefit of future generations.” In addition, lip-service is paid to the social goal.

Economic maximisation and serving individual interests instead of the entire population of PNG has led the country “to consuming its natural resource assets when it should have been saving or investing these assets to maintain the country’s aggregate wealth” (AusAID 1996). Depending on “...economic activity and wealth generation that are concentrated in only a small part of the community can cause serious social tensions. Moreover, distortions in economic growth can be produced by spending ‘too much’ of these revenue flows”, without properly thought out, spade-ready projects to warrant such expenditures (*ibid.*:xxiv). Taking the agricultural sector as another example, it has not been given its due share of attention. Yet, as stated by the Agriculture Sectoral Committee (2009), “Agriculture sector growth and development will make the single most significant contribution to achieving sustainable improvements to the livelihoods of the majority of Papua New Guineans who live in the rural areas.” Given the increasing domestic market for foodstuffs and livestock products, there is a

need to increase support to these areas to “improve competitiveness of domestic supplies to supply the domestic market both effectively and efficiently” (*ibid.*:5).

Another issue that crops up from time to time in important official forums is the lack of up-to-date relevant indicators on PNG to guide judicious decision-making and planning. For example in 2007, DNPM stated:

The first MDG Progress report (2004), as significant as it was, left many unanswered questions. One of the questions it passed over was the exact nature of data and statistical situation in PNG. The report operated on the basis of *ceteris paribus* with the data and statistics in PNG and attempted to report on national aggregates in areas where it existed without disaggregating the data along the 20 provinces and 89 districts of PNG. Instead, a composite index based on some assumed weightings that lacked national political approval and provincial consensus [was designed] to rank the provinces, in a manner that may have infringed on provincial political sensitivities (DNPM 2007:9).

Additionally, more recently, a consultant on the MDGs categorically stated the following in reference to monitoring and evaluation:

It is essential that all national targets for the period 2010–2030, like the ones included in the current MTDS, go through a thorough screening procedure to ensure that national and sectoral plans are well aligned. It is of particular importance that firm national targets for all MDGs are set before the MDG costing exercise starts towards the end of 2009 or in early 2010. Basing a costing exercise on fluid targets or vague targets like ‘significantly improve.....’ will amount to an exercise in futility. It will also be noted that several baseline figures for the national targets are not always clear. In some cases, MDG base year 1990 is used; in others 2004 and again in others a year after 2004. In order to establish proper trends, this also needs to be ironed out. The targets resulting from a broad consultation process should once again be adopted in the 2nd MDGR (Bakker 2009:14).

6. Which direction should PNG take?

PNG needs to take the way it handles the process of sustainable development seriously. There is a need for integrated and holistic policy making and planning as well as simultaneous implementation of development programs that are human centred and embrace all the pillars of sustainable development. Such an approach would take into cognisance that:

- the development of human capital is a paramount issue;
- providing fulfilling livelihoods to every woman, man and child is a major factor for a productive population;
- taking care of the health needs of the population sustains their productive energy;
- HIV/AIDS is a development issue that has a potential to significantly undermine the social and economic progress of PNG; and
- all these considerations carefully weighed against each other contribute to poverty reduction and improved welfare of PNG’s population.

The country should put these ingredients at the centre of policy making, planning, program formulation and implementation, and consider all the pillars of sustainable development, before embarking on a meaningful process of moving towards sustainability.

As Badu (2009) succinctly put it, there is a need to generate consensus for change. This can be done by rallying important stakeholders, developing monitoring tools, talking to the people, and building reform by legislating. This paper contains just a few building blocks towards contributing to this goal. To build monitoring tools, we need to know our current status and set the baseline. Monitoring and evaluation requires us to identify a minimum set of indicators, set targets, and then measure our achievement against the targets as time passes. This is true for the national frameworks, and it is equally true for the international frameworks such as the MDGs and the JPOI. On the other hand, influencing policy-making and planning requires advocacy and awareness creation with appropriately tailored information and tools for achieving that purpose.

Finally, it should be reiterated that without positioning population (people) in sustainable development, the development process is full of missteps. A colleague in the field of demography, dealing with population and sustainable issues, reflected on the major key to development and stated: “It’s human capital, stupid!” Box 5 clarifies this further.

Box 5. It is population stupid

“It is the economy, stupid”, was a widely used phrase as part of Bill Clinton’s campaign for the United States of America Presidency in 1992. Today, people are facing an even worse economic outlook. Economies are in deep crisis and the values of financial assets are plummeting leaving few safe investments.an increasing number of experts are raising the question about what appropriate development priorities could look like. Finally as it becomes progressively clear that our planet is bound to experience dramatic and unavoidable climate change throughout the next century, people are deliberating what can be done to strengthen societies’ adaptive capacity in the face of climate change. Amidst all this gloom, is there anything that can make the future look more optimistic? There is one surprisingly simple answer to this question: yes, if we focus on human capital formation.

Source: Lutz 2009

7. What role should NRI play?

Appropriately, this discussion should end by proposing a tentative medium-term research program for the Population Program at NRI. The program will start with major publication on population and sustainable development to take stock of what has happened in the country so far and to determine the current status of selected sustainable development indicators. The major aim of the project will be to establish the base against which future progress in sustainable development will be measured.

After setting the base and related status indicators, NRI may then initiate a number of research studies, depending on the priorities of the time, to provide information that facilitates tracking progress on a number of selected policy and programmatic issues. Such information will be vital in informing policy and program formulation, implementation and adjustment for future progress.

The priority areas for research may encompass current population priorities. But the list may be revised and modified to incorporate imaging issues.

The current priorities are:

- Population and poverty reduction strategies;
- Education;
- Fertility and mortality reduction;
- Sources of livelihood and livelihood opportunities;
- Population distribution and sustainable environment;
- Gender equality, equity and empowerment;
- Family and cultural norms;
- Reproductive health;
- HIV/AIDS, STIs, TB and malaria;
- Maternal and child health;
- Advocacy and information, education and communication;
- Data collection, analysis, dissemination and utilisation; and
- Integration of population variables in development planning (at all levels of government).

In the future, especially after the holding of a stockholder's seminar on population and sustainable development, a more comprehensive research framework will be generated. This framework will take into account the Millennium Development Goals, the Long-Term Strategic Plan (2010–2030) goals as well as goals from related Medium-Term Development Plans, Vision 2050 goals, and the priorities set by the expected National Population Policy for 2010–2020.

8. Conclusion and the way forward

Papua New Guinea, like many developing countries, depends heavily on natural resources for its development. Over 85 percent of its rural population depends on environmental resources such as land, forest, water, wildlife and other biological and mineral resources for daily subsistence. Policy-making and planning in the country, therefore, depend on a delicate balance between the meeting of people's subsistence needs against the need for economic maximisation and environmental conservation. This balance can be negatively affected by policy-making, and related planning that takes no action or acts in a sectoral and disparate manner, in contrast to one which utilises appropriate policy mixes that are made with good judgment using indicators. If the latter approach is taken, it has to take into account that in order to achieve sustainable development, there must be a trade-off between economic interests, environmental conservation and the achievement of social development. For the entire process to succeed, population must be put at the centre of sustainable development.

Therefore, the Population Policy and Planning Program at NRI proposes three specific projects for the Institute to pursue over the next three years. These are: 1) the drafting of a monograph on population and sustainable development (as some kind of extended literature review and determination of the current status of selected sustainable development issues in PNG); 2) the creation of a database of selected indicators on sustainable development for PNG (against which future updates and assessment of future progress shall be made); and 3) the construction of an advocacy computer model on population and sustainable development. The last project which is the backbone of the envisaged research process will yield an advocacy tool that shows policy-makers and planners the consequences of taking decisions on different policy options.

BIBLIOGRAPHY

- Agriculture Sectoral Committee, 2009. **Agriculture Sectoral Committee Paper for 2009 National Development Forum**. Port Moresby.
- AusAID, 1996. 'The Economy of Papua New Guinea', *International Development*, **46**.
- Badu, N., 2009. 'Making reform work for PNG', National Economic and Fiscal Commission's presentation to the Updates on Governance Seminar, Public Sector Seminar Series, National Research Institute, 8 September 2009.
- Bakker, M.I., 2009. **Progress Report on the Status of the Millennium Development Goals (MDGs) in Papua New Guinea**. Port Moresby: Department of National Planning and Monitoring.
- Bank of PNG, 2007. **Money and Banking in Papua New Guinea** (Revised Edition). Melbourne: Melbourne University Publishing Ltd.
- Bourke, R.M., Harwood, T., (eds.), 2009. **Food and Agriculture in Papua New Guinea**. Canberra: Australian National University Press.
- Bruntland, G., (ed.), 1987. **Our Common Future: The World Commission on Environment and Development**. Oxford: Oxford University Press.
- Cammack, D., 2009. 'Chronic Poverty in Papua New Guinea', Background Paper for the Chronic Poverty Report 2008–2009. Chronic Poverty Research Centre, Port Moresby: AusAID .
- Dasgupta, P., 1993. **An Inquiry into Well-Being and Destitution**. Oxford: Clarendon Press.
- _____, 1995. 'Population, Poverty and the Local Environment', *Scientific American*, **272(2):26–31**.
- Department of National Planning and Monitoring, 1999. **National Population Policy 2000–2010**. Port Moresby: Population and Human Resources Branch, Sectoral Coordination Division.
- _____, 2007. **Towards the Implementation of MDGs in PNG**. Department of National Planning and Monitoring, Port Moresby.
- Dovers, S.R. and Handmer, J.W., 1993. 'Contradictions in Sustainability', *Environmental Conservation*, **20(3)**.
- Economic Commission for Africa, 2001. **Population environment and agriculture interlinkages and sustainable development**. Addis Ababa, Ethiopia: United Nations Economic Commission for Africa.
- _____, 2002. **Technical Manual: Population, Environment, Development, Agriculture**. Addis Ababa, Ethiopia: United Nations.

- Ecologist, 1995. 'Please support PNG groups challenging the World Bank's Structural Adjustment Program', 27 October, 1995. www.theecologist.org, accessed on 21 July 2009.
- European Union, 2008. **Papua New Guinea-European Community Country Strategy Paper and National Indicative Program for the Period 2008–2013**. Port Moresby: European Union.
- Food Security and Sustainable Development Division, 2001. **Sustainable Development Policy in Africa: Harmonizing Population Growth and Economic Growth in the Process of Implementing the ICPD Program of Action, ECA/FSSDD/CSD/01/06**. Addis Ababa, Ethiopia: United Nations.
- Gibson, J. and Rozelle, S., 2002. **Poverty and Access to Infrastructure in Papua New Guinea**. Davis, USA: Department of Agricultural and Resource Economics, University of California.
- GoPNG, 2009. 'Economic and Development Policies', Presented by Hon. Patrick Pruaitch, MP, Minister for Treasury and Finance, on the occasion of the presentation of the 2009 National Budget.
- International Institute for Applied Systems Analysis, 2001. **Botswana's, Namibia's and Mozambique's Future: Modelling Population and Sustainable Development Challenges in the Era of HIV/AIDS**, CD-ROM. Laxenburg, Austria: International Institute for Applied Systems Analysis.
- International Union for the Conservation of Nature and Natural Resources, 1980. 'World Conservation Strategy: Living Resource Conservation for Sustainable Development', Report of the IUCN, Gland, Switzerland.
- _____, 2006. 'The Future of Sustainability: Re-thinking Environment and Development in the Twenty-First Century', Report of the IUCN Renowned Thinkers Meeting, 29–31 January, 2006, Zurich, Switzerland.
- Leisinger, M., 2004. **Sustainable Development at the Turn of the Century: Perception, Reality and Outlook**. Basel, Switzerland: Novartis Foundation for Sustainable Development.
- Lutz, W., 1994. *Population-Development-Environment: Understanding their Interactions in Mauritius*. Heidelberg, Germany: Springer-Verlag.
- _____, 2009. POPNET, *Population Network Newsletter*, **40**.
- Lutz, W., Scherbov, S., Makinwa-Adeb-Usoye, P.K. and Reniers, G., 2004. 'A Case Study of Ethiopia', in W. Lutz, *et al* (eds.), **The End of World Population Growth in the 21st Century**. London: Earthscan.
- Mawuli, A., 1997. **Microeconomic Crisis and Structural Reforms in Papua New Guinea**. Canberra: National Centre for Development Studies, The Australian National University.

- Munashinghe, M. and McNeely, J., 1995. **Protected Area Economics Policy**. Geneva and Washington DC: International Union for the Conservation of Nature and Natural Resources and World Bank.
- Munashinghe, M. and Shearer, W., 1995. **Defining and Measuring Sustainability: The Biogeophysical Foundations**. Tokyo and Washington DC: United Nations University and World Bank.
- Nita, A., 2006. **Papua New Guinea National Assessment Report**, Prepared for United Nations Department of Economic and Social Affairs Commission for Sustainable Development, New York.
- National Department of Health, 2009. **Report of the Ministerial Taskforce on Maternal Health in Papua New Guinea**. Port Moresby: National Department of Health.
- Philemon, B. 2006. PNG Minister of Finance and Treasury (Australian Broadcasting Corporation, Correspondents Report, 26 March 2006 at <http://www.abc.net.au/correspondents/content/2006/s1600073.htm>).
- Rose, P., 1995. 'Female education and adjustment programs: a cross-country statistical analysis', *World Development*, **23(11)**:1931–49.
- Sembajwe, I., Gaye, I. and Tutu, K., 2005. 'Sustainable Development in Africa', in Economic Commission for Africa, *Africa's Sustainable Development Bulletin*. Addis Ababa, Ethiopia: United Nations.
- Smith, C. and Rees, G., 1998. **Economic Development (2nd Edition)**. Basingstoke: Macmillan.
- Solow, R., 1986. 'On intergenerational allocation and natural resources', *Scandinavian Journal of Economics*, **88(1)**.
- UNFPA, 1996. 'Program of Action Adopted at the International Conference on Population and Development', Cairo, 5–13 September 1994.
- UNICEF, 1996. **Women: Maternal Mortality, The Progress of Nations**. New York: United Nations.
- United Nations, 1972. **Declaration of the United Nations Conference on the Human Environment**. New York: United Nations.
- _____, 1987. **Report of the World Commission on Environment and Development: Our Common Future**, Annex to Document A/42/427. New York: United Nations.
- _____, 1992a. **Rio Declaration on Environment and Development: Agenda 21**. New York: United Nations.
- _____, 1992b. **Report of the United Nations Conference on Environment and Development. A/CONF. 151/26 (Vol. I-III)**. New York: United Nations.

_____, 1992c. **Program for the Further Implementation of Agenda 21. A/RES/S-19-2.** New York: United Nations.

_____, 1995. 'World Summit for Social Development', 6-12 March 1995, The Copenhagen Declaration and Program of Action, New York: United Nations.

_____, 2002a. **Johannesburg Declaration on Sustainable Development. A/CONF. 199/20.** New York: United Nations.

_____, 2002b. **Plan of Implementation on the World Summit on Sustainable Development. A/CONF. 199/20.** New York: United Nations.

_____, 2003a. **World Summit on Sustainable Development: Johannesburg 2002.** Political Declaration and Plan of Implementation, Johannesburg: United Nations

_____, 2003b. **Indicators for Monitoring the Millennium Development Goals.** New York: United Nations Development Group.

Weekend Courier, 2009. 'Larry leads the way', *Weekend Courier*, 29–30 August, Port Moresby.

Weise, D., 2004. **Structural adjustment programs in Papua New Guinea: Implementation and experiences.** Asian Pacific School of Economics and Government, The Australian National University. <http://hdl.handle.net/1885/40599>, accessed on 10 July 2009.

Wils, A.B., 1996. **PDE-Cape Verde: A Systems Study of Population, Development and Environment.** Laxenburg, Austria: IIASA, WP-96-009.

World Bank, 2003. **OED Review of the Poverty Reduction Paper (PRSP) Process: Approach Paper.** Washington D.C.: Corporate Evaluation and Methods Group, Operations Evaluation Department.