Increasing the Reliability of Wellness Metrics in Unique Groups

Linda A. E. Nowakowski, Ubon Ratchathani University, Thailand
LindaNowakowski@gmail.com

Theme: Global Standards
Research domain: Living Standards

Abstract

When we look at social life and hence social development, we use three distinct lenses: economic, political and cultural. It is my belief that development has been measured in the past with a single lens that has been designed and fine tuned to perfectly see neoclassical economic development and in particular consumerism, as the perfect vision. The initiation of the term Gross National Happiness came as a result of a disagreement on whether GDP was an accurate or satisfactory measure of development. Rather than directly confront the definition of development, a decision was made to change the lens that we look at "development" through rather than address what it means to be a developed society. The adoption of the term happiness was unfortunate and has not addressed the problem of developing a suitable indicator or index to compare relative development in the global community while at the same time using a soft, undefined term measured by often questioned, subjective tools. By looking at a definition of human well being which includes a happiness factor, an index could be developed to allow communities to evaluate their own well-being based on their own criteria and over time, their development with tools that could also help them fine tune programs within their communities.

This paper offers a challenge to the GNH community to collaborate and develop the tools necessary to assist communities in meaningful assessment of their own progress on the development road: tools that can help them fine tune their own programs rather than provide fodder to those who would measure development exclusively with a western economic measurement and little concern with increased well being of individuals or communities.

Introduction

Buddhist Economics has been referred to as where Economics meets ethics. This can perhaps be seen clearest when looking at the goal of Economics. Neoclassical economics claims that the goal of the economic production process is the maximization of utility. What is utility? Utility is simply the term that has been used to replace Aristotle's human well-being. It is often referred to as a measure of satisfaction. Satisfaction and well-being seem quite different. One can imagine a person being well but not being satisfied. It is hard to imagine a person who is not well being satisfied.

Well-being has been derived from two general perspectives: the hedonic approach, which focuses on happiness and defines well-being in terms of pleasure attainment and pain avoidance; and the eudaimonic approach, which focuses on meaning and self-realization and defines well-being in terms of the degree to which a person is fully functioning. The most commonly held meaning today seems to be the hedonic approach, at least in western terms. Buddhist Economics would hold that the eudaimonic approach is the proper one. The western hedonic use of the term is particularly suited for use in neoclassical economics as it opens the door for the definition of an economic system with never ending growth and greed, because human well-being has an upper limit and satisfaction does not. It makes way for the possibility of using consumption as a measure for well-being.

Perhaps the earliest mention of economics and well-being was made by Aristotle in The Topics. [1] The term economics derives from the Greek words οίκω [okos], 'house', and νέμω [nemo], 'rules' hence household management. In the *Topics*, Aristotle provides his philosophical analysis of human ends and means. He explains that means or instruments of production are valuable because their end products are useful to people. The more useful or desirable a good is, the higher the value of the means of production is. Aristotle then goes on to derive a number of economic ideas from axiomatic concepts including the necessity of human action, the pursuit of ends by ordering and allocating scarce means, and the reality of human inequality and diversity.

For Aristotle, the individual human action of using wealth is what constitutes the economic dimension. The purpose of economic action is to use things that are necessary for life (i.e., survival) and for the Good Life (i.e., flourishing). The Good Life is the moral life of virtue through which human beings attain happiness.

Aristotle realized that wanting too much is a human failing. He placed a great deal of blame on money because it had no natural terminus. Aristotle taught that when a man pursues wealth in the form of exchange value, he undermines the proper and moral use of his human capacities.

How then does contemporary, neoclassical economics get from “survival” and “a good life”” to unbounded, never ending growth in consumerism?

Economics is a member of that strange academic division called “social sciences.” Economics has always pretended to the throne of the Social Sciences. By making an assumption here and a generalization there, economics has become a measurable science of precision and prediction. Never mind that the precision is a ruse and the predictions are often wrong. Sadly, all of this “scientific nature” has come at the cost of its description as a social study; a study involved with the wants, desires and decisions of people. This is not to say that there are not influential economists that seriously deal with the social side of Economics, rather it is to say that respect in the field goes to mathematicians and scientists. [2]

In the early 1970’s, international society, spearheaded by His Majesty King Bhumibol Adulyadej of Thailand and Jigme Singye Wangchuck, the King of Bhutan, declared unequivocally that human well-being, happiness and development can not be measured by the financial output of a nation. [3] [4]

At about this same time, Richard Easterlin’s watershed research at the University of Southern California showed that the average levels of happiness reported by Americans had not increased over decade even though their average incomes had increased by 100%. [5]

Amataya Sen, and others have also agreed that GDP is an inadequate measure for the purpose of measuring international development. [6] The development of the Human Development Index in 1990 was a big step forward. The index includes GDP but also looks at literacy measurements as well as life expectancy as a measure of health issues. The UN has adopted this index for their annual UNDP reports.

Many other new indicators have been developed over the years: The Satisfaction with Life Scale [7], Happy Life years [8], and The Happy Planet Index [9]. Each suffers in its own selection of indicators and how it is measured. There has also been substantial criticism of Happiness Science as not even having a definition of happiness to work with let alone the criticisms of the sampling techniques.

Happiness is a very soft and fluffy word. What a person means by happiness today may not mean what they mean by happiness tomorrow and it has no known relationship to what someone

else means by happiness on any given day. What Thai's view as happiness is not the same as what Americans mean by happiness. Happiness seems to have cultural, linguistic and historical factors. [10] [11] [12] The Gross National Happiness index arose because of a disagreement over the interpretation of development indices. And yet, Gross National Happiness does not seem to be attempting to measure development or even trying to define it.

If the indices that are developed to replace GDP for either development or happiness are culturally based, it seems clear that the indices cannot be used for international comparisons and scales. I see no real problem with this if the intent is to evaluate local progress and provide direction for future development work.

Besides the complaint of the weak definition of happiness, there have also been criticisms of the sampling methods [13] [14], the handling and analysis of the data [15] and the validity of the policy implications of the resulting data [16]. There seems to be much less resistance to the use of happiness indicators in smaller samples of population, especially when the sampling subjects remain the same over a period of time. [17] Subjective measurements pose potential linguistics problems and depending on the group being measured, pose a problem of linguistic, intellectual and emotional maturity.

None of the criticisms mentioned however address the problems inherent with using GDP as the primary indicator for development. GDP ignores the contribution of large swathes of a community; it ignores self production, unpaid household production, both of which reflect narrow-minded, cultural assumptions that indicate that consumerism is more valuable than sufficiency and sustainability and that there is little value in maintaining a strong unitary family. The fact that GDP also counts negatives (such as environmental clean-up, medical care for diseases caused by over consumption and unhealthy life styles) as positives makes the true value of it as a tool for measuring well-being dubious.

In 1974, at about the same time as the King of Bhutan proposed the concept of Gross National Happiness, The King of Thailand proposed a new model for development. This model was based on his Sufficiency Economy Philosophy and is part of the work for which he was recently granted the United Nations' first Lifetime Development Award.

The King has suggested, based on his observations over many years that development needs to be deliberate grassroots development. He has described this as an "explosion from within." It is a type of development that starts with the development of the individual and progresses through

the family, the community, the region and the nation. Another way to describe this is in the analogy of raising a child into a strong adult. A child needs to be prepared with the knowledge and wisdom to deal with the world. We give them knowledge of language and communication. As parents we attempt to teach them good morals in order to give them a foundation on which they can build. We provide them with educational opportunities and watch over them. As they mature, they are able to step out of their homes and interact with society in good and productive ways. In the King's words:

> *"…Development of the nation must be carried out in stages, starting with the laying of the foundation by ensuring the majority of the people have their basic necessities through the use of economical means and equipment in accordance with theoretical principles. Once a reasonably firm foundation has been laid and in effect, higher levels of economic growth and development should be promoted…"* [18]

Some people have viewed this concept as being old-fashioned. The King anticipated this. In his Birthday speech on December 4, 1974 His Majesty the King added that it is not important whether Thailand would be accused of being old-fashioned; what is important is the fact that the people have enough to live and to eat.

> *"…no matter what others say – whether they will accuse Thailand of being old-fashioned or obscurantist. So long as we have enough to live on and to live for – and this should be the wish and determination of all of us – without aiming for the apex of prosperity, we shall already be considered as the top in comparison with other countries in the present world…"* [19]

Sufficiency entails three components:

1. *moderation*
2. *reasonableness*
3. *a self-immunity system, i.e. being able to cope with shocks from internal and external changes.*

Two underlying conditions are necessary to achieve this sufficiency:

1. *knowledge (breadth and thoroughness in planning, and carefulness in applying knowledge and in the implementation of those plans are required)*

2. *morality (people are to possess honesty and integrity, while conducting their lives with perseverance, harmlessness and generosity)*

At the most basic level, the family, this philosophy encourages developing in a safe and cautious manner and building a life of relative self-sufficiency. This life style, though safe and providing the family and the region with the most basic of needs, is based on self production and contributes nothing to the GDP and hence demonstrates no economic development. It seems clear that the questions being asked by a development index that is using GDP as its primary indicator is NOT whether the society is better off but rather whether it has bought into the western definition of economic development. This flies in the face of Buddhist cultures where the ultimate development is the development of personal and community wisdom.

Neither GNH nor GDP nor HDI address how to evaluate how to measure development in a community based on the Sufficiency Economy Philosopy.

All of this leads me to the task that we are working on that needs an effective evaluation tool.

Northern Uganda has been in a civil war for some 20 years. The effect of this on the society and the economy has been devastating. The vast majority of the people have been relocated to Internally Displaced Persons' Camps (IDPs). Few adults are employed. The communities are almost entirely dependant on external aid for all of their requirements. The children have had broken educations due in no small part to their fear of being abducted by the rebel army and forced to be child soldiers or of being sexually molested or killed. Most of the children have been emotionally traumatized due to war and then you must consider the added impact of the HIV/AIDS epidemic on the families. If the loss of life due to the war is combined with the decimation of the adult population by the HIV/AIDS epidemic in Africa, we find a society that is riddled with child-headed households that are ill equipped to deal with the promised peace and resettlement out of the IDP Camps.

I am working with an incredible international team of people. The players include a native Uganda family that has approximately 9,000 acres of excellent farmland. They have decided to put 1,000 acres to a commercial organic contract farm and are donating 300 acres to resettle 150 child-headed households. This resettlement village and the farming associated with it will be set up using the King of Thailand's Sufficiency Economy Philosophy. There is work underway to survey the rich wild life on the rest of the acreage with an eye on developing an eco-tourism site that could also support the village of child-headed households. There is another graduate student

at Ubon Ratchathani University who is working on a thesis that would involve replicating a learn-by-doing school (developed in Thailand) in the village. We are getting cooperation and guidance from Thai communities, Thai academics, academics from Makarere University in Kampala and Gulu University in Gulu regarding education, health and agriculture. The Catholic Church in Uganda has been approached about providing ongoing social and spiritual support in the village. A community based organization (CBO) called Life in Africa, is supporting the project and assisting in surveying and training, and in March, April and May the other graduate student, 4 Thai undergraduates and myself will be going to Gulu to start the final community selection and the long work of developing the community.

How do we evaluate this project? Currently, the children have almost nothing: no parents or role models, no jobs, no land, no homes, and no source of income. They have mainly broken educations and no vocational skills. If things go as hoped, in a couple of years the children will have their own homes, farms that will provide them with healthy diets, social support, educational opportunities and in all likelihood, additional produce from their farms to sell at the market and provide cash income for outside necessities. We are prepared to teach them some basic production skills that can be used to supply themselves with certain necessities as well as offering them opportunities to sell these in the local markets to provide additional community income.

I am working with Life in Africa to develop the metrics that will be used to select the children and families that will be a part of the village and will serve as a bench mark to evaluate their progress. As the potential community members decide what the community goals should be, they are looking at the metrics as a set of important issues that they need to consider. With the goals that they set for themselves, we as a community/research team can then look at the members of the community and determine the best specific tools. With this particular group of people who are on the whole very young and illiterate, proxy measurements will likely be better than subjective opinions. However, the major problem comes in determining the definitions of well-being and development. Any indicators that depend on GDP in any for are likely to be less than useful in a community or society based on sufficiency modes of production.

One of the greatest gifts that the GNH movement could give the world is the development of a measurable definition of “happiness” or perhaps a term better described as wellness: a list of indicators or factors that need to be considered in developing an index for any specific set of people as well as potential proxy indicators. This would assist community leaders or researchers in setting up evaluation tools that will assist communities in assessing their development and

fine-tuning programs. Please note here that I am not concerned with providing tools that will allow for the comparison of varied communities or in providing information for government leaders to set policy over broad ranges of communities.

In looking to build that list, we can look to the different viewpoints of the two leaders in defining human needs in the last 60 years, Abraham Maslow and Manfred Max-Neef. Abraham Maslow posited the Maslow Heirarchy of Human Needs. Maslow's work is even to this day most interesting because he used well subjects rather than developmentally impaired subjects to build his argument. Maslow used some of the greatest achievers in 20th century history to define the development of self-actualization. That is to say that he looked at how these special people incrementally developed over their lifetimes and determined that in order to develop to that apex of development that he described as "self-actualized", there was a hierarchy of needs where it was necessary for the lower level needs to be met before going on to meet the next level of needs. This is not to say that a person can not work on meeting higher level needs before they work on upper level needs but rather that in order to become a self actualized individual, something that he pointed out was very rare, the needs necessarily had to be developed hierarchically.

This hierarchy can be seen in the diagram below.

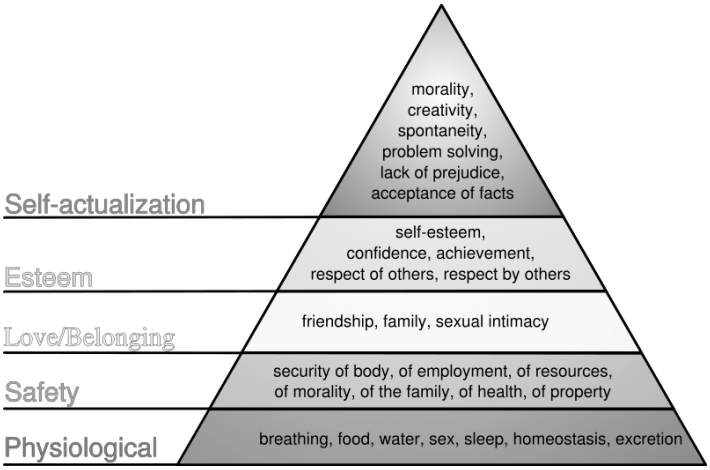

Figure 1 [20]

The second description of basic human needs is provided by Manfred Max-Neef. Max-Neef described the basic needs of individuals as universal and non-hierarchical. It can best be described in the following table: [21]

	Being (qualities)	**Having** (things)	**Doing** (actions)	**Interacting** (settings)
Subsistence	Physical and mental health	Food, shelter, work	Feed, clothe, rest, work	Living environment, social setting
Protection	Care, adaptability, autonomy	Social security, health systems, work	Co-operate, pla take care of, hel	Social environment, dwelling
Affection	Respect, sense of humor, generosity, sensuality	Friendships, family, relationships with nature	Share, take care of, make love, express emotior	Privacy, intimate spaces of togetherness
Understanding	Critical capacity, curiosity, intuition, communities	Literature, teachers, educational policies	Analyze, study, mediate, investigate	Schools, families, universities
Participation	Receptiveness, dedication, sens of humor	Responsibilities, duties, work, rights	Cooperate, dissent, express opinion	Associations, parties, churche neighborhoods
Leisure	Imagination, tranquility, spontaneity	Games, parties, peace of mind	Day-dream, remember, relax have fun	Landscapes, intimate spaces, places to be alone
Creation	Imagination, boldness, inventiveness, curiosity	Abilities, skills, work, techniques	Invent, build, design, work, compose, interpret	Spaces for expression, workshops, audiences
Identity	Sense of belonging, self-esteem, consistency	Language, religions, work, customs, values, norms	Get to know oneself, grow, commit oneself	Places one belongs to, everyd settings
Freedom	Autonomy, passion, self-esteem, open-mindednes	Equal rights	Dissent, choose run risks, devel awareness	anywhere

The third set of criteria that I would like to look at is a list of the United Nations Millennium Development Goals.

- Eradicate extreme poverty and hunger
- Improve maternal health
- Achieve universal primary education
- Combat HIV/AIDS, malaria, and other diseases
- Promote gender equality and empower women
- Ensure environmental sustainability
- Reduce child mortality
- Develop a global partnership for development

Many people disagree with Maslow's interpretation of well-being. Many other people disagree with Max-Neef's description. The Millennium Development Goals are too general and inadequate to act as a measure of total well-being but certainly provide direction on issues that should be addressed by developing societies. The theory behind the development of these scales is not particularly interesting in this study. We are more concerned with identifying an inclusive set of factors that should be considered in evaluating well-being. Therefore, we would like to look at the factors in each of these lists to see if they can lead to a single list of factors that require consideration in **any** measure of wellness and in particular, my specific case of deprived children. By dividing well-being into the following categories and looking at a broader measure of well-being than individuals we can make the following list.

Physical health – individual and family

Mental / psychological health – individual, family and community

Mental / intellectual health – individual, family and community

Political health – community and nation

Social health – family and community

Spiritual health – individual, family and community

Financial health – individual, family and community

One major difference between this list and other indices of development or well-being is that it looks at the well being on a broader scale than simply per capita GDP. It considers all facets of personal and community development. It considers the effects of programs on over-all well-

being of individuals, families and communities. If every person is maximizing their monetary income (GDP) to the neglect of the balanced development of individuals, families and communities, they are creating an unhealthy – not well – situation.

The proposed list might consist of the following areas:

Physical health ─ individual

Adequate diet (MDG)
Access to health care
Healthy life style
Shelter
Clothing

Mental / psychological health ─ individual, family and community

Individual – happiness, perceived ability to make choices, decisions and contributions
Family – stability and family support for individuals
Community – open communications in the community

Mental / intellectual health ─ individual, family and community

Individual – educational opportunities and educational detractors
Family – family support for educational requirements providing study time and conditions)
Community – community support for education (schools, libraries, museums)

Political health ─ community and nation

Community – potential and actualization of individual participation
National - potential and actualization of individual participation

Social health ─ individual, family and community

Individual – quantity and quality of personal friendships
Family – family participation and support of extended family or community activities
Community – sense of community identity

Spiritual health ─ individual, family and community

Individual – potential and actual participation in activities for individual spiritual growth
Family – support and assistance to individual spiritual growth
Community – support and assistance to individual spiritual growth

Financial health ─ individual, family and community

Individual – income, debt and savings; access to transportation (public and private)

Family – income, debt and savings
Community – income, debt and savings

Environmental Health

Individual, family and community support of sustainable life styles

In developing a tool box of evaluation questions and measurements of proxy indicators, we want to provide a community with tools that they can pick and choose from to measure the things that they believe are most important in their own development. They can define the community that they are working toward and build their own evaluation tool. This will provide a personalized tool that can be used to not only evaluate their progress but provide them with information that can be used in the future to fine tune and focus their future development efforts.

In this presentation, I do not wish to present a detailed list of all possibilities but rather would like to look at the development of a list for a single area, that of individual healthcare. This should be able to demonstrate the direction we need to go with developing a tool that is generally usable. We might start by considering some of the proxies listed below to provide more quantitative figures than subjective values.

Physical health – individual:

- **Adequate diet**
  - Calories
    - Under-development
      - Height
      - Weight
- **Access to health care**
  - Contraceptive use
  - Infant mortality rate
  - Low birth rate
  - Children born with attending health care professional
  - Availability of oral rehydration therapy (ORT)
  - Immunizations – measles, tuberculosis
  - Incidence of tuberculosis
  - Number of children under 5 with fever receiving anti malarial drugs
  - Days absent from school or work due to illness.
- **Healthy life style**
  - Insecticide treated bed nets
  - Sustainable access to clean water
  - Sustainable access to sanitary
  - CO_2 emissions per capita
  - Prevalence of smoking
  - Prevalence of drinking
  - **Other**
    - Life expectancy
    - Population growth rate
- **Shelter** – living in permanent shelter
- **Clothing** – changes of clothes and appropriateness

This list is not complete and needs to be expanded with the cooperation and participation of the community being evaluated. This community participation will be even more important in areas that are less black and white than physical health such as social and spiritual health. Other areas might be more amenable to subjective kinds of evaluations.

With this list, as I look at the particular community I will be working with, some of the indicators immediately fall out as inappropriate. This community is not sexually active, at least at this

point, so things such as the use of condoms, contraceptive use, infant mortality rate, low birth rate, and children born with attending health care professional do not give us meaningful information. However, with an inclusive list, choosing the factors measured becomes a task of looking at the community and selecting the factors that they feel are appropriate rather than developing a tool from scratch. The inclusive list will prompt members of the community on things to look for as the community develops and changes. A specific community might see tuberculosis on the list and decide that that is not an issue for them but that they need some way to assess HIV/AIDS diagnosis and treatment in their community.

Using a set of tools like this will evaluate the entire development of a community rather than focusing or really even necessarily considering GDP. A Sufficiency based community does not generate significant income. It can however generate physical, mental, social, spiritual, political, and environmental health. It can generate human development and well-being. Looking at individual communities is necessary due to the unique nature of each community. How do you evaluate subjective answers to "Is your life happier this year than last?" when you are surveying young children with little to no education? How does that help the community enhance or modify programs to improve development?

Conclusion

Peter Drucker is often quoted as saying "What gets measured, gets managed".

I believe that all of us here understand that development out of poverty needs to be managed. We cannot allow this most important task to proceed by happenstance. In order to manage it though and have results, we need to make sure that we have looked at and understood what we view as development and then have appropriately determined a way to measure progress. We have little time to argue over the definitions. We have less time to spend measuring things that are immeasurable. While we are measuring, it would be nice if the tools we use could provide the communities we are measuring with useful information toward managing their development rather than just providing numbers to be tossed around and analyzed by academics.

This community to be found gathering around Gross National Happiness has already accepted the errors inherent in the current development metrics and understands that development and

increased human well being are both more than a per capita production number and a measure of how much a society has bought into the western, neo-classic model of consumerism.

Development is always going to be a personal pathway. Since we started in different places and have traveled different paths, my development is not the same as yours. But, if we understand and agree on the basic benchmarks, we can measure our individual progress toward those. If we choose our tools wisely, we can even help provide communities the information they need to further manage their own development.

References

[1] Aristotle. *Nicomachean Ethics: Topics* English: http://www.perseus.tufts.edu/cgi-bin/ptext?doc=Perseus:text:1999.01.0048:book=1:section=1343a Greek: http://www.perseus.tufts.edu/cgi-bin/ptext?doc=Perseus%3Atext%3A1999.01.0047;query=book%3D1%3Asection%3D1343a;layout=;loc=1.1343a. 30 July 2007.

[2] In the 39 years of awarding Nobel Prizes in Economics, only two awards have been made for non-mathematical / scientific contributions and there would be some who would argue that those (Sen [1998] and Schultz and Lewis [1979]) were also scientific.

[3] The King's Sufficiency Economy and the Analysis of Meanings by Economists, The Office of the National Research Council of Thailand, July 2003

[4] Tsedruk, Pem. "Inspiration on Gross National Happiness for utterly confused people", Kuzu-Bhutan Weblog, *03 Aug 2007* http://www.kuzuzangpo.com/index.php?subaction=showfull&id=1186175822&archive=&start_from=&ucat=& 20 August 2007

[5] Easterlin, Richard A. "Does Economic Growth Improve the Human Lot?" in *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*, ed. Paul A. David and Melvin W. Reder (New York: Academic Press, 1974)

[6] Sen, Amartya. (1984): *Resources, Values and Development* (Cambridge, MA: Harvard University Press).

[7] Diener, Ed, Emmons, Robert A., | Larsen, Randy J., | Griffin, Sharon. The Satisfaction With Life Scale. Journal of Personality Assessment, 1985, Vol. 49, No. 1, Pages 71-75

[8] Veenhoven, Ruut. Happy life-expectancy. Social Indicators Research, Volume 39, Number 1 / January, 1996

[9] The Happy Planet Index: An index of human well-being and environmental impact. http://www.neweconomics.org/gen/z_sys_publicationdetail.aspx?pid=225, 20 August 2007.

[10] Wierzbicka, Anna. "'Happiness' in Cross-Linguistic and Cross-Cultural Perspective," Daedelus: Journal of the American Academy of Arts and Sciences 133, no. 2 (Spring 2006): 43

[11] Diener, Ed and Oishi, Shigehiro "Are Scandinavians Happier than Asians? Issues in Comparing
Nations on Subjective Well-Being," in *Politics and Economics of Asia*, ed. F. Columbus (Hauppauge, NY:
Nova Science, 2006).

[12] Clark, Andrew et al., "Heterogeneity in Reported Well-Being: Evidence from Twelve European
Countries," The Economic Journal 115, no. 502 (2005).

[13] Easterlin, Richard A. "A Puzzle for Adaptive Theory." Journal of Economic Behavior and Organization 56, no. 4 (2004): 513-21

[14] Frank, Robert. *Luxury Fever* (Princeton; Princeton University Press, 1999)

[15] Wierzbicka, "'Happiness' in Cross-Linguistic and Cross-Cultural Perspective," Daedelus: Journal of the American Academy of Arts and Sciences 133, no. 2 (Spring 2006): 36

[16] Wilkinson, Will. Policy Analysis: In Pursuit of Happiness Research. Is it Reliable? What Does it Imply for Policy? Cato Institute, April 11, 2007

[17] Schimmack, U. Radhakrishnan, P. Oishi, S. Dzokoto, V. Ahadi, S. (2001) Culture, Personality, and Subjective Well-Being. February 2001. RUNNING HEAD: Culture,

Personality, http://www.scar.utoronto.ca/~mgmt/research/working-papers/wp2001-6.PDF. 30 August 2007

[18] Adulyadej, Bhumibol. http://www.rdpb.go.th/rdpb/EN/BRANDSITE/theproject_s05.aspx. 31 July 2007

[19] Adulyadej, Bhumibol. Birthday Speech December 4, 1974. http://www.80thbirthdayanniversary .go.th/en/benevolence_detail.php?id=12. 31 July 2007)

[20] Finkelstein, J. Image: Maslow's Hierarchy of Needs, 27 October 2006. http://en.wikipedia.org/wiki/Maslow%27s_heirarchy_of_needs. 30 August 2007.

[21] Max-Neef, M. A. (1992). Development and Human Needs in P. Elkins and M. A. Max-Neef (eds), Real Life Economics, Understanding Wealth Creation, Routledge, London/New York.