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Abstract

This paper presents the results from an analysis of sub-national, national and regional human development reports nominated for the Human Development Awards between 1998 and 2009 to highlight conceptual and measurement innovations in human development. Through a careful selection process, nearly 70 reports were identified for this study of which this paper describes innovations in 38 reports along five categories: (a) creating a new measure of human development; (b) using new data source; (c) creating a disaggregated measure of human development; (d) using a new methodology; and (e) adapting the existing measure of human development by adding/modifying an existing dimension. The objective of this paper is to analyze the innovations in the national and regional reports from the perspective of their statistical soundness as well as feasibility of their application at the global level in preparation for the twentieth anniversary issue of the Global HDR in 2010. The study concludes that a majority of the conceptual and measurement innovations in the national and regional reports are highly context driven and therefore, may not be feasible at the global level. Data requirements also limit feasibility of conceptual innovations at the global level. However, there are several interesting and novel ideas that can potentially be replicated at the global level with slight modifications.

Keywords: Human development, innovations, measurement, disaggregation

JEL classification: I32, 015, Y80

1. INTRODUCTION

In 1990, the first Human Development Report (HDR) was published along with the Human Development Index (HDI), which is a summary measure of average level of human development in three basic dimensions: a long and healthy life, access to knowledge and a decent standard of living. These basic dimensions are measured by life expectancy at birth; adult literacy and combined gross enrolment in primary, secondary and tertiary education; and GDP per capita measured in US dollars at Purchasing Power Parity (PPP US$), respectively.

Human development is a broad concept with as many dimensions as there are ways of enlarging people's choices. This makes it difficult to devise a measure that captures all its dimensions. In this regard, while the HDI has gained currency over the years, it has also been criticized for being minimalistic and lacking desirable statistical properties For example the HDI is not distribution sensitive. In addition, there are other equally important dimensions of human development not captured in the measure. Political and other forms of participation, security of persons and property; dignity and self respect, just to name a few, are all important dimensions of human development not captured in the HDI.

It is further argued that if the human development paradigm is anchored on Sen's capabilities approach, which sees human life as a set of "functioning" and evaluates human well-being from the perspective of " capability to function" (Sen 1989), then human development cannot be limited to achievements only, but also entails the ability to make a choice, an important dimension not captured in the existing human development measures.

The HDI has also been criticized for adopting linear averaging method of aggregation, which implies perfect substitutability between longevity, knowledge and living standards (Mishra & Nathan, 2008; Hopkins, 1991). In other words, a decline in life expectancy can be offset by an increase in GDP per capita. The inventors of the measure argue that the dimensions are weighted equally because none is more important than the other. However, the cost of, say, one year decline in life expectancy depends on which part of the world one is born. For example, for a poor country, an increment of GDP per capita of US$95 will compensate for one year loss in life expectancy at birth to keep the HDI value constant. However, the value attached to one year less in longevity raises to between US$2000 and over US$3,000, for developed countries using the log of income.

The HDI has also come under a lot of criticism for its failure to take into account differences in human development across various geographical, social and economic groups within a country. It also ignores quality aspects of education and health.

Since 1992, nearly 700 national and regional Human Development Reports (RHDRs and NHDRs) have been produced. A number of the reports have expanded the concept and measures of human development to capture some of the missing dimensions in the global reports via introducing other dimensions, using different indicators, reflecting inequalities in human development achievements and/or using different weighting system.

This paper summaries some of the innovations in selected regional and national reports to capture some of the missing dimensions and address some of the criticisms of the HDI. The rest

of the paper is organized in three sections— section 2 briefly describes the methodology adopted for selecting the national and regional reports; section 3 highlights the innovative measures in selected national and regional HDRs and section 4 suggests some good practices potentially worth replicating at the global level.

2. METHODOLOGY

All the sub-national, national and regional reports published between 1998 and 2009 form the sampling population for this study. A total of 495 national and sub-national HDRs and 29 RHDRs were published during this time period. The criterion for short listing reports from this pool was the nomination of the report for UNDP Excellence Awards for Human Development. Since 2000, there have been four cycles of NHDR Awards. The last round of awards was conducted in 2007 and the current awards cycle will be held later this year in 2009. NHDRs can be nominated in five categories: excellence in quality of analysis, excellence in policy impact, excellence in a participatory and inclusive process, excellence in human development innovations—concepts and measurements, and excellence in support of the millennium development goals.

For this review we focused on reports that were nominated for excellence in human development innovations—concepts and measurements and excellence in quality of analysis. This produced a sample of 70 national reports and 3 regional reports.

Out of the 73 reports reviewed, 38 reports are noteworthy for their innovative approach to the concept and/or measurement of human development and/or the quality of their analysis. The rest are not highlighted in this paper because of lack of details on their methodology, data quality and analysis. The results from the selected reports are organized around five main themes, which are most relevant to innovation viz:

1. Introduction of new composite index
2. New issues from human development perspective
3. Expanding the analysis of human development
4. New data sources: household and perception surveys
5. Disaggregation

Table 1 lists the noteworthy reports categorized by the type of innovation. We present details on the methodology, data quality and limitations in our discussion in Section 3. The full reports can be found on the NHDR website: http://hdr.undp.org/en. The list of reports that are included in our sample are presented in Annex 1.

TABLE 1: NATIONAL AND REGIONAL HDR BY TYPES OF INNOVATION, 1998-2009

Type of innovation	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
New composite index	x	x	Philippines	x	Mexico Argentina	Arab States Thailand Colombia	Chile Nepal Russia Mexico India-Nagaland	Philippines India-West. Bengal Costa Rica	x	Bosnia Ghana	x	x
New issues from human development perspective	x	x	x	Egypt	China	x	x	Peru	India-Delhi	x	Colombia-Bogota	x
Expanding the analysis of human development	x	Latvia	x	Georgia	x	x	x	x	x	India-West Bengal-Bankura Mozambique	x	x
New data sources	x	x	x	Latvia	x	C.E. Europe	x	x	x	x	x	x
Disaggregation	Lebanon	x	Bulgaria	Malawi Nepal	Kyrgyzstan Uganda	Latvia Egypt Mongolia	Egypt	India-Karnataka	x	x	El Salvador	Namibia

Note: Please note that the symbol 'X' indicates that there no noteworthy reports indentified in that innovation category in a specific year.

3. INNOVATIONS

3.1 NEW COMPOSITE INDICES

A number of the reports reviewed have introduced new measures to create better understanding of a new concept, to support the theme of the report and/or to strengthen the reports' analyses and policy recommendations. Others have adapted the existing measures to make them more relevant for country specific context and also to account for distribution effect on the HDI. An

examination of new composite indices reveals important lessons, which could potentially inform a review of the component indicators of the global HDI.

3.1.1 Introducing new measures

This section presents some of these innovative measures and attempts to evaluate how successful they capture what they are supposed to measure.

Measuring Knowledge

Enhancing peoples' capabilities to function is central to human development and knowledge and skills are core elements of the set of capabilities needed for enlargement of choices. The HDI in the global reports measured knowledge by two indicators, adult literacy rates and combined gross enrolment ratios. One of the criticisms against the use of school enrollment is that it neglects the quality aspect of learning. A number of reports reviewed have therefore introduced measures aimed at capturing the quality aspects of education. These reports are the focus of this sub-section.

The *2003 Arab States Report* for example, focuses on knowledge capital which it analyzes from three perspectives—diffusion, production and infrastructure for knowledge capital. The report's analysis uses both quantitative and qualitative data and compares levels of knowledge in the Arab region with those of countries like India, China and the 'East Asian Tigers'. It asserts that demand for knowledge backed by adequate purchasing power, is a major challenge to creating a knowledge-based society in the Arab region.

The report introduces a new *measure of knowledge*, which looks at both quantity and quality of education. The measure is constructed using the following ten indicators:

1. Quality-adjusted mean years of schooling for population aged 15 years and older. The adjusted mean years of schooling is obtained by multiplying mean years of schooling by average text score.[1]
2. Daily newspapers (per 1000 people)
3. Radios (per 100 people)
4. TV sets (per 1000 people)
5. Scientists and engineers (per million people)
6. Patent applications filed (per million people)
7. Books titles published (per million people)
8. Telephone mainlines (per 1000 people)
9. Cellular mobile subscribers (per 1000 people)
10. Internet hosts (per 1000 people)

Countries in the region are compared with 101 countries with data on the ten indicators (including five—China, India, Israel, Hong Kong and Republic of Korea, chosen for comparison with countries in the Arab region).

[1] The text scores were sourced from Barro and Lee 1997, "Schooling quality in a cross-section of countries"

Aggregation and ranking of countries in the region are based on the 'Borda' rule which is applied in the following way: the country with lowest score on a specific indicator is assigned a value of 0, the second next lowest a value of 1, etc. The country with the highest score is given the value n-1 (where n is the number of countries). Since the number of countries Arab States where the number of countries is 20, the country with the highest score on the indicator will be assigned the value 19. These are known as 'borda points'. A country's rank is determined by summing the 'borda points' for the ten indicators. The country with the highest total 'borda points' is ranked first in knowledge capital.

Based on their scores on the index, countries in the region are categorized into four groups- leaders, aspiring, intermediate and stagnant.

The report concludes that despite the methodological and other challenges encountered, the measure shows that Arab countries lag behind the more advanced developing countries such as Hong Kong, Israel and Republic of Korea in building knowledge capital. Kuwait is the only country in the region falling into the 'aspiring group' followed by Saudi Arabia in the intermediate group. The remaining Arab States are lumped in the 'stagnation group' along with India. The comparison is even more disquieting relative to the performance of the world's front-runners in knowledge capital formation and knowledge production such Finland, Sweden, Switzerland, Japan and the United Kingdom.

The index enriches the report by allowing for deeper analysis of cultural, social, political, economic and institutional factors affecting the knowledge production and dissemination processes in the region.[2]

Lack of data was acknowledged as a major impediment to the creation of this new index. All countries had data on infrastructure whereas more than a quarter of them had no data available on some basic indicators such as scientists and engineers engaged in research and development (R&D), the number of book titles and even on the core indicator—the quality-adjusted mean years of schooling. The report states that statistical methods for estimating missing values based on available information were used but no details are provided.

Despite the data limitations, the new index presented by this report is an interesting way to examine the issue of knowledge creation. In terms of the concept, indicators and its ranking method, this index could be explored at the global level.

Russian Federation 2004 Report titled "Towards a knowledge based society" also measures the knowledge potential of the Russian society. It defines a knowledge based society as one where knowledge has penetrated every aspect of life, including in the socio-economic structure of the society; as well as effective use of the created knowledge.

The report compares the knowledge base of the Russian Federation with other countries and concludes that Russia shows several qualities fundamental to knowledge based development.

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[2] For details refer to the full report. An English Version can be downloaded from: http://hdr.undp.org/en/reports/regionalreports/arabstates/name,3204,en.html

These include a high level of educational attainment among the citizens, innovation potential and a relatively developed material and technical base for innovation. However, there are a host of challenges to enabling institutional environment for a knowledge based economy. These challenges include among other things; low efficiency of state governance and regulation of the economy, insufficient incentives for entrepreneurship and high administrative barriers to market creation.

The report constructs an ***index of development of intellectual potential*** **(IDIP**) for each of the country's regions to assess the extent to which each region is developing the capabilities of its people. The index is composed of five indicators—average length of employees' schooling, education coverage measured by proportion of the population aged 5-24 years enrolled in schools, number of employees that have acquired post graduate education per 100,000 employees, number of research and development employees per 100,000 employees; and research and development spending as a percentage of Gross Regional Product (GRP). Each indicator is transformed into a scale of 0-1. The IDIP itself is a simple average of the five indices.

Analysis of the correlation between the composite index and the indicators shows that regions with high concentration of higher education institutions do better on the index. There is also a weak but positive correlation (0.230) between the index value and GRP. For 64 regions (where fuel industry is not a major part of the economy) the impact of GRP per capita on the IDIP value is 38.7%.

The IDIP presented by this report is a simple way to measure the concept of knowledge creation and could be easily applied at the global level. The challenge would be data on employees with post graduate degrees but this could be replaced with a more readily available indicator For example UNESCO Institute for Statistics has data on educational attainment of persons aged 25 years and older for a number countries .

The report also compares Russia's position on some of the indicators relative to countries like Canada, China, Germany, Italy, United Kingdom and the United States. For example, the comparison shows that Russia has lost its former position as a leader in the number of researchers. It is currently in third position behind the United States and Japan; and followed closely by China in fourth position.

The Russian Federation report also analyzes the age structure of the country's population and forecasts that by 2050, Russia's population is expected to decline by 30-35 percent with significant increase in the average age of its people. It assesses the implication of such aging population for the economy and the wellbeing of the people. The report acknowledges that technological knowledge cannot replace people and identifies effective immigration strategy as one of the solutions to the country's shrinking working age population.

Latvia 1999 report also discusses the notion of "knowledge based human development" as a development strategy in the globalized world. A knowledge based HD strategy would focus on scientific and technological research and high-tech manufacturing sectors and procurement of technological developments and investments in qualified labor and tertiary education. While the

report makes no innovation in terms of developing a new composite index, its main contribution lies in analyzing a new issue from the human development lens.

It is interesting to note that the methodologies and indicators used for constructing the index of knowledge differ for each of the countries; however, the motivations are similar— enhancing human capabilities especially in the areas of science and technology; and improving the quality of education, an aspect missing from the current HDI.

Measuring social exclusion

In his work on development as capability expansion, Sen[3] argues that the approach used to evaluate human wellbeing and advantage, has bearing on the exercise. For example, inequality of income only tells part of the story—it gives no information on social divisions and inter-class inequalities of wellbeing and freedoms. While marginalization and exclusion have been central to the global reports analyses, there has been no attempt to develop a measure of social exclusion.

Two of the reports reviewed focus on social exclusion and introduce new measures to gauge the extent of the problem in their societies, analyze the underlying causes of exclusion and make policy recommendations to address them.

The Bosnia and Herzegovina 2007 report examines social exclusion as multidimensional concept and analyzes the concept within the context of post conflict environment and a shift from market socialism to capitalism. The report notes that creating conditions and consensus on social inclusion policies is pre-requisite to strengthening inclusion in the country.

The report constructs three social exclusion indices—*a general human social exclusion index* (HSEI), which assess the level of exclusion within the entire society, e*xtreme human social exclusion index* (HSEI-1) and *long term human social exclusion index* (HSEI-2), using data from specialized research conducted for that purpose. HSEI has five dimensions:

- Living standards—measured by long-term unemployment and % of population below the poverty line;
- Health—measured by % of the population without health insurance;
- Education—measured by % of the population aged more than 15 years who did not complete primary education;
- Participation in society—measured by % of eligible voters who did not vote in the in elections and % of the population not participating in activities of social organization.
- Access to services—measured by proportion of dwellings without a telephone.

The HSEI-1 and -2 uses the first three dimensions of HSEI but measures some dimensions differently. In HSEI-1, the living standard component is measured by population without monetary income, plus those living in apartments without telephone. For HSEI-2, the living

[3] Amartya Sen (1989) 'Development as capability expansion' in Readings in Human Development (2003) edited by Sakiko Fukuda-Parr and A.K. Shiva Kumar pp3-16. Oxford University Press. New York.

standard dimension is measured by proportion of employees e*mployed in jobs with benefits below their qualification and those employed* in 'grey economy (informal sector). Health is measured by persons employed persons with benefits on minimal salary (a very strange indicator to measure health) and education by employed persons without possibility for additional education.

Calculation of the index follows the Human Poverty Index (HPI) methodology. Aversion to social exclusion is set at three. The three indices are calculated at the national level and also disaggregated by urban and rural areas; as well as separately for the Federation of Bosnia and Herzegovina, Brcko district and Republic of Srpska. The results show that half of the population suffers social exclusion. There is not much difference between rural and urban areas. However, extreme social exclusion is higher in rural areas than urban (23.6 and approximately 20 per cent for rural and urban areas respectively).

The analysis shows economic insecurity and vulnerabilities are key determinants of social exclusion. It asserts that the poor, the elderly, special needs youth and children tend to suffer social exclusion more than others.

While the methodology suffers similar limitations as the HPI—that is the measure cannot be associated to specific individuals or households, the index brought forward the degree of social exclusion among different groups and helped shaped the policy recommends.

However, it is not feasible to replicate this measure at the global level because some of the indicators used are not available for a majority of countries.

Ghana's 2007 report titled 'Towards a more inclusive society" on the other hand analyzes social exclusion within two broad contexts—relational and material. The report defines social exclusion as limited or inequitable distribution of opportunities and capabilities to participate in decision-making processes, gain access to meaningful livelihood opportunities or access social services due to discriminatory institutional practices in political, economic, and social spheres based on gender, ethnicity, geographical location, age, income status, health status, educational attainment or disability status. The report analyzes various indicators of social exclusion and concludes that a number of Ghanaians—mainly the poor, suffer social exclusion at various levels. The report emphasizes that social exclusion is a complex and interactive phenomenon which needed a holistic and coordinated strategy to redress it. The starting point, the report notes, is commitment to upholding the human rights of all citizens.

The report also constructs an *index of social exclusion* (SEI) for all the country's 10 regions using the relationship between consumption poverty and social exclusion—increase in poverty induces an increase in social exclusion**.** The report also constructs a *misery index* which is simply the sum of unemployment rate and inflation. The rationale behind this index is that high unemployment rate and worsening inflation have both economic and social costs.

While both indices are innovative, they do not make a significant contribution to the report's analysis and policy recommendations. The Social exclusion measure also falls short of how the report conceptualizes exclusion. In addition, not enough details are provided in the report to evaluate the reliability of the index' underlying data.

Assessing impacts of crime/insecurity on human development

The 1994 global Human Development Report was the first to introduce a new concept of human security. The report equates security with people and development rather than territories and arms. It argues that the world can never be at peace unless people have security in their daily lives. In this regard, human security is seen as both freedom from fear and from want. Since then, the concept of human security has become a central theme of a number of governments through their foreign and defence policies. In 2001, a Commission on Human Security was established through the initiative of the Japanese Government and in response to the then United Nations Secretary General's call for a world 'free from fear and free from want'. In spite of human security being high on United Nations agenda, the global Human Development Reports have not introduced a measure of human security or incorporate it in the existing measure. The focus of this section is attempts made by some national reports to incorporate security issues in the HDI.

Costa Rica's 2005 HDR titled "Overcoming Fear: Citizen (in)security and Human Development in Costa Rica" which won an "Excellence Award in Human Development Innovation—Concept or Measurement" in 2007, explores the relationship between citizen insecurity and human development.

The Report analyzes citizen (in)security using a conceptual framework that establishes linkages between human security, human rights and human development. It argues that insecurity of citizens impedes human development because it restricts people's freedoms, as well as social cohesion. It also affects the extent to which human choices can be expanded. Citizen's security in the Report is defined as 'a personal condition, both objective and subjective, of being free from violence or the threat of violence, or to be dispossessed by others'

The Report's uses different tools to capture citizen insecurity at the district (canton) level. Three indices—Cantonal Security Index (CSI), Index of Perception of Insecurity (IPI) and Index of Individual Liberties (IIL) were calculated to assess the level of insecurity in each district.

The Index of Cantonal Security (CSI) has three dimensions—victimization measured by prevalence of domestic violence (VD), theft (RH) and homicides (H). Each dimension is calculated as rate per 100,000 and normalized in the scale of 0-1. In this way, the cantons with low levels of 'victimization' achieve values closer to 1 and the ones with higher levels of 'victimization' closer to zero. The index is the arithmetic mean of the three dimension indices.

Index of Perception of Insecurity (IPI)

Perception of insecurity is defined in the report as the risk perceived by people of suffering acts of violence or dispossession. The index includes 4 dimensions of perception of insecurity:

1. Patrimonial: Perceived risk of losing assets as a result of a delinquent act.
2. Physical: Perceived risk of being a victim of physical acts of violence that could be of lethal in nature.
3. Emotional: Perceived risk of receiving verbal aggressions, threats, curses, etc.
4. Sexual: Perceived risk of being a victim of sexual abuse, harassment or rape.

The underlying data for the indices were from a specialized national survey (National survey on public safety ENSCR2004) conducted as part of the Report preparation process. The survey included between 14 and 21 questions for each of the dimensions. Each is converted into an index. The values were standardized in a scale from 0 to 100 (for details see Annex).

The report adapts the HDI by discounting each region's HDI value by the value of its security index. In doing so, the report re-draws the map of Costa Rica based on each region's human development achievement.

The HDI itself includes a distinctive feature, in that the income component is not measured by income but by the level of electricity consumption. The rationale is the high correlation found between electricity consumption and household income based on results of surveys conducted by the Energy Ministry. What is unique with the measure of insecurity is that it combines insecurities arising from domestic violence with crime and violence perpetrated by outsiders.

Colombia 2003 report on the other hand analyzes security within the context of armed conflict and its impact on human development. Through a process of social dialogue with communities across the country, the report analyzes the underlying causes of the armed conflict. It asserts that peace in Colombia is possible through numerous measures which go beyond military action and complement high level peace negotiations. It highlights the negative impacts of the conflict on human development but at the same time identifies enhanced human development—expanding freedoms and addressing inequalities—as central to the solution of the armed conflict.

To demonstrate the effects of the armed conflict on people's lives, the report introduces four composite indices—index of homicide, indices of displacement, index of war degradation, which measures crime committed under conflict environment; and the index of governability and violence.

Unlike Costa Rica, Colombia discounts each region's HDI by its index of homicides per 100,000 people. The minimum and maximum goalposts for this index are set at 0 and 20 for regional comparison. The resulting value is then subtracted from 1 to give it a positive twist. The violence adjusted HDI (HDIV) is then a simple average of the original three dimension indices and the homicide index.

While this is a relevant measure within the context of Colombia, it is too simplistic in that the extent of violence or insecurity posed by armed conflict often goes beyond homicide—and may include sexual violence, insecurity of property, displacement and inability to move around without fear. What is interesting though is that the report analyzes the linkages between life expectancy at birth and the homicide index for each region. Life expectancy at birth tends to be low for regions with high homicide index. [4]

The *Mexico 2004 report* on 'The Challenge of Local Development, proposes a local vision of human development and constructs two composite indices—a *Political Competition Index* (PCI)

[4] For details on the other indices and their indicators refer to the Report which is downloadable in Spanish from:
http://hdr.undp.org/en/reports/nationalreports/latinamericathecaribbean/colombia/name,3213,en.html

which measures democracy at the local level and its effects on human development; and *Index of Crime Incidence and Violence* (ICIV) for every state of Mexico.

The *ICIV* is premised on the idea that insecurity has implications for human development. High incidence of violence and crime affects the enjoyment of freedom of the people who are affected by them. Insecurity also reinforces inequality.

The ICIV is the average of four indicators—theft, murder, intentional damage and criminal acts. Each of these has been normalized between 0 and 100. A value of 100 is assigned to a state with the greatest incidence in each of the variables. Each of the variables is presented in proportional terms (per 100,000 people). The dispersion of the index has been divided into 4 quartiles: (using the highest value minus the lowest and then dividing by 4) in order to establish 4 levels of incidence that allows dividing the data into 4 categories: low, middle low, middle high, high.

The PCI on the other hand is based on indicators of competition thresholds in local and federal electoral processes. It is an indicator of the level of "contestability", based on the idea that if there is a real possibility that a party in power could be defeated in an election at the municipal level, elected members would be pressured to improve the quality of public services delivered at the municipality level.

The variables used for construction of the PCI are:

1. Party Election of municipal leaders
2. Loss of absolute majority by the party originally in office in municipal elections
3. Margin of victory of less than 10 percent in municipal elections
4. Loss of absolute majority by the party originally in office in federal elections
5. Margin of victory of less than 10 percent in federal elections
6. Effective number of parties (greater than two) in municipal elections
7. Alternation of municipal elections

Each variable is expressed in values of 1 or 0, depending on whether the observed characteristic exists or not. The highest level of the PCI is 7 (when each and every component is observed) and the lowest is one. Since the observance of each variable indicates the presence or absence of it, all variables are aggregated by simple addition.

The analysis finds that the PCI is positively correlated with the quality of the provision of public services. Furthermore, when linking the PCI with the HDI, municipalities in which there is a higher political competition have a higher HDI level. Clearly, causality cannot be inferred but it is significant to point out the positive correlation between the two indices.

The report also disaggregates the HDI by municipality. Municipal level incomes were estimated using data from the most recent census and household income survey. Estimation procedure originally proposed Elbers, Lanjow, & Lanjow (2002) was adopted.

While these are interesting innovations, the measures only capture "freedom from fear' and not 'freedom from want' e.g. food insecurity and lack of employment. The measures are also context specific and their replication at the global level may not be feasible due to data constraints. However, other NHDRs could potentially adapt these measures to suit their country

specific context. Considering the different aspects of security with implications for human development, incorporating a security component in the HDI will render interpretation difficult. However, the global report could consider a measure of security, which captures both freedom from fear and from want.

Measuring human achievement

The HDI measures achievements in three basic human development, and not the concept of human development in its entirety. As noted by Fukuda-Parr[5], the human development concept is often imprisoned in the HDI.

A number of national reports have attempted to rescue the concept from the HDI by expanding the analyses and the measures beyond income, education and health. The 2003 Thailand report explores the level of empowerment in communities and what is needed to empower communities to solve problems and to accelerate learning. However, report's analysis is mainly descriptive, especially the empowerment-human development linkages, is very weak.

The report introduces a measure of *Human Achievement Index* (HAI) which is not directly linked to the report's theme or its analysis. The HAI aims to reflect the rate of change in human development in the provinces in terms of eight dimensions and 48 indicators. The dimensions are education, health, employment, income, housing and living conditions, family and community life, transport and communication; and participation.[6] Each dimension is transformed into a scale of 0 -1 using minimum and maximum values. The "goalposts" are set to accommodate all possible values for that indicator in the next ten years.

The HAI is calculated for 76 provinces of the country. Data are sourced from national household economic survey, labour force survey, health and welfare surveys and from administrative records. The results show that provinces in the north-western part of the country are worse off in terms of human development achievement whilst the tourism and business centre of the south (the province of Phuket ranked number 1 on HAI but 5th HDI) performs better than Bangkok (in seventh position on the HAI but on top on HDI).

Like the HDI, the HAI is a simple average of its 8 dimensions. This assumes a perfect substitutability; as such variation at the high and low ends are captured and treated in the same manner. As a consequence, a very good performance on one indicator can offset a very poor performance on another. In addition, the mental illness component of the health index penalizes provinces with large number of mental institutions. Additional information on province of residence is needed to classify the patients. Further, the indicators that make the index are a combination of deprivation and achievement variables making it difficult to interpret. The

[5] Sakiko Fukuda-Parr (2002) 'Rescuing the human development concept from the HDI: Reflections on a new agenda' in Readings in Human Development (2003)pp 93-100. Edited by S. Fukuda-Parr and A. K. Shiva Kumar. Oxford University Press. New York.

[6] For details on how each dimension is measured refer to a copy of the 2003 Report, available on: http://hdr.undp.org/xmlsearch/reportSearch?y=*&c=n%3AThailand&t=*&lang=en&k=&orderby=year

measure thus, fails to measure human achievement adequately. The HAI has been calculated for all regions in the subsequent human development reports for Thailand.

The HAI would be a difficult index to attempt at the global level because it is too data intensive and too complex to interpret.

Analyzing human development and power

Human agency is a core element of the human development paradigm. The approach sees people as active participants in the development processes, including participation in ones community. However, distribution of power often influences the level of participation by the different social groups.

Nepal's 2004 report titled "Empowerment and Poverty Reduction' takes on the issue of power and analyzes the relationship between power and human development achievements. The report emphasizes that raising the human development profile of the country requires empowering marginalized and socially excluded groups by enhancing their abilities to realize their basic rights and pull themselves out of poverty. These, the report notes, will help reduce the risks of violent civil unrest. Empowerment is conceptualized as the processes by which those denied the opportunity to make choices are given such ability through the expansion of assets and capabilities to participate, negotiate and influence decisions that affect them, and demand accountability from duty bearers.

The report introduces a *Human Empowerment Index* (HEI) to assess economic, social and political exclusion suffered by different population groups. It uses the capability approach as the framework for measuring empowerment with multiple dimensions.

The index has three broad dimensions. First is social empowerment with four sub-domains—educational attainment measured by adult literacy rate and mean years of schooling, health status measured by infant mortality rate, and malnutrition among children under the age of five and access to sanitation; information and communication is measured by proportion of households with access to radio and telephone service; and participation in local organizations is measured by proportion of household members participating in various social organizations.

Second is the economic empowerment dimension with five sub-dimensions—access to and control over resources measured by land holding adjusted by the Gini coefficient. Access to financial resources is measured by proportion of households benefiting from institutional credit; and the third is access to electricity measured by proportion of households connected to electricity. The fourth sub-dimension is employment measured by the ratio of the labour force employed in non-agricultural sector. The last sub-dimension is income measured by GDP per capita in PPPUS$.

The political empowerment dimension is measured by voter turnout in the country's last election and the number of candidates per seat in the village development committee (VDC). In the absence of voter turnout data disaggregated by rural and urban areas, voter turnout for positions of municipal mayor and VDC chairpersons were used as proxies.

The index itself is calculated using observed minimum and maximum of each dimension indicator to transform it into an index on a scale between 0 and 1. The dimension indicators are weighted equally and the HEI itself is a simple average of the dimension indices.

The index shows considerable disparities between districts, regions, and urban and rural areas. The report concludes that unequal distribution of political, economic and social power creates frustration and constitutes a fertile ground for conflict.

There appears to be a mis-match between HEI and the HDI. For example, a number of districts ranked higher on the HEI than on the HDI indicating that higher level of empowerment does not translate into higher human development achievements.

Analyzing the situation of historically excluded and marginalized people such as Dalits, women and other indigenous groups, the report concludes that unless people's individual and social capabilities can enhance their position in competitive bargaining and/or enables them to hold institutions accountable, they are unlikely to take advantage of opportunities created by reforms.

It will be difficult to replicate this measure at the global level because what constitutes empowerment tends to be context specific. A big challenge in applying social and political empowerment would be the availability of similar data at the global level. However, some of the indicators used could be applied to the GEM, especially those measuring economic empowerment.

Chile 2004 report titled "Power for what and for whom?" also analyzes human development and the concept of power. It defines power as people's capacity to take action—in other words—human agency. The analysis aims to answer two main questions—how much power Chileans have to be actors in their own development and what determines the distribution of power to respond to new social, cultural and political challenges arising from modernization and globalization. The report constructs an *index of people's power* based on information gathered through perception surveys—questions included issues around access to social networks, access to public goods and services, attitude towards power and the self perceived capabilities to take action.

The analysis shows that people's perception of power is predictive of their social behaviour (this is more so for women) including those related to participation. Using the concept of power and its measure, the report characterizes social exclusion and poverty within the context of capabilities and human agency. It creates typologies of power based on multivariate analysis. Analyzing emotions that power produces, functions related to power, its legitimacy and acquired character, the report shows empirically that Chilean elites are distant from the rest of society and its organizations—elites keep to themselves.[7] The report argues that democracy, empowerment and participation are core elements of human development and calls for equitable creation and distribution of power.

[7] For details refer to the full report which is downloadable from http://hdr.undp.org/xmlsearch/reportSearch?y=*&c=n%3AChile&t=*&lang=en&k=&orderby=year

The report also adapts the HDI by adding another indicator to the knowledge dimension—education attainment of persons aged 24 years and older, measured in mean years of schooling with goalposts of 0 and 15 years for minimum and maximum respectively. The knowledge variables are weighted as follows: adult literacy—one-quarter, education attainment—one-half and combined gross enrolment ratio one-quarter.

The income component is discounted by the proportion of the population below $1/day poverty line to account for inequality in the distribution of income. This is done by multiplying the income index by one minus the proportion poor.

A long and healthy life component is measured by years of potential life lost per thousand population. For example, if the life expectancy at birth for Chile is estimated at 78 years. The potential life lost by someone dying at age 60, is 15 years. If for every 1000, 100 die before age 75, the potential years of life lost per 1000, is the sum of the years lost to the 100 people. Because the indicator is a deprivation one, the minimum value was set at 300 years and Maximum 45.03 years.

This innovation is worth exploring in the global HDI. Both the UN Population Division and the World Health Organization publish data on age-specific mortality rates for almost all countries of the world and could be used to calculate the years of potential life lost.

Measuring quality of service delivery

The *2006 Delhi* HDR titled 'Partnerships for progress' uses the results of 2004 survey of 14,000 households to assess people's perception of the state of public services delivery and availability of basic amenities, to construct a composite *index of public provisioning and quality of service delivery*.

The survey, which purposefully oversampled poor people asked respondents to give their opinion on twelve different services in Delhi. These included education, health, water supply, power supply, sanitation, roads, transport facilities, environment, migration, livelihood, housing, women's safety and position, and overall governance.

The survey adopted a two-stage stratified sampling design. Polling stations and localities constituted the Primary Sampling Units (PSUs) The pre-determined sample size of 14,000 households was apportioned to different districts using a probability proportional size approach. The voters' lists for 2004 served as the sampling frame for the selection of households for the survey.

Performance scores were calculated on the basis of people's perceptions about various services and facilities like education, health, water supply, power supply, sanitation, roads, public transport, and environment as well as about governance. The methodology adopted for the computation of Performance Scores was as follows: All respondents were asked to rate their perceptions about the quality of different services and facilities on a five point semantic differential scale of 1 to 5—'1' indicating 'very good' service delivery level and '5' indicating 'very poor' level. The percentage distribution (rounded off to the nearest integer) of respondents on the rating scale of 1 to 5 was then computed. Each percentage thus computed was then multiplied with a corresponding value assigned to the scale: 1.0 (Very Good), 0.75 (Good), 0.5

(Average), 0.25 (Poor) a nd 0.0 (Very P oor). A s imilar m ethodology h as be en f ollowed f or computing the overall scores for each attribute for different services. A cumulative district score has also been computed by calculating the mean of all individual service scores.

While th is in dex is s tatistically s ound a nd h ighly relevant in the s ub-national c ontext, i t feasibility a t th e g lobal level is limi ted d ue to t he c ontext d ependent n ature o f th e s ampling design and questionnaire.

3.1.2 Adaptation of existing measure

In addition t o c reating new m easures a nd us ing ne w da ta s ources, s everal N HDRs h ave al so made innovative adaptation to the existing HDI measure. Adaptation of the existing HDI can be classified into three groups: (a) adaptation by using a new indicator; (b) adaptation by modifying a HDI di mension; and (c) adaptation b y using a new di scounting t echnique. W e di scuss t hese three categories below.

The *2000 Philippines Report* explores t he r easons f or t he poor qua lity of education i n t he country. The report finds that inadequate budget and a dearth of competent teachers were causes for the qu ality de ficit. T his c onclusion had a serious pol icy i mpact, s purring m ajor de bates on educational policy reform in the country's Senate and Executive Cabinet. The 2000 P HDR was adjudged a s t he be st na tional hum an de velopment r eport i n t he A sia-Pacific R egion f or t he period 1999-2000 along with the China report by the UNDP Human Development Report Office.

This report uses two measures of knowledge at the province level: (i) basic enrollment ratio and (ii) functional literacy. The measure of basic enrollment is the proportion of children aged 7-16 currently enrolled in schools and functional literacy uses 1994 data. The report also makes slight modifications i n t he t hreshold f or i ncome l evels. It us es 1997 i ncome l evels a s t he t hreshold instead of $40,000 as in the global report. The report goes on to compare the provincial HDI with global HDI levels.

While th e method of calculating t he l iteracy rate i s uni que, t he r easoning i s not c lear w hy the report considers primary education to be of more uniform quality than college education—this seems highly subjective. A lso, t he da ta us ed t o c alculate functional l iteracy i s out dated. Therefore, w hile in p rinciple it is u seful to tr y to g et to th e 'quality' o f education r ather th an volume t heir i ndicators are of que stionable qua lity. W e c an pot entially explore t he f unctional literacy measure and other ways to measure education quality.

The country's 2005 report also analyzes human development cost of conflict in both economic and s ocial t erms v ia d amage t o infrastructure a nd pr operty, de aths, i ncreased m ilitary expenditure, loss of foreign investment, loss of social cohesion and increase in ethnic tensions and loss in productivity. These are examined in areas affected by conflict and spillover effect on the entire nation. The report calculates the HDI for all regions of the country. Life expectancy at birth e stimates are d erived from a s traight-line regression of s ex-disaggregated l ife expectancy data poi nts f or years 19 70, 1980, 1990, a nd 1995, a nd pr ojected for 1 997, 2000 a nd 2003. Estimates f or ea ch r egion w ere as sumed t o b e a s imple av erage o f t he male an d f emale l ife expectancies at birth.

Functional literacy rates and enrolment in basic education are used for the knowledge component of the HDI with 2/3 and 1/3 weights. For regions with no data on functional literacy, high school graduation rates with 2/3 weight is used.

Adjusted per capita household income from the country's 'Family Income and Expenditure Survey' is used. The goalposts for income is set at a minimum of 7,675 pesos, which was the per capita income in 2000 for Sulu, an area occupied by minority Muslims and deflated to 1997 levels and 46,837 pesos which was the 1997 per capita income in Manila, the capital city. At the time the report was written, it was discovered that there were outliers—that is, households with extraordinarily high incomes—causing high-income variances within each province. To address this problem, this report computed for a top and bottom 0.5 percent-trimmed mean of per capita income.

The *West Bengal-India's 2005* report assesses human development achievements in Bankura district of West Bengal, India using eight indicators: per capita gross output, wage levels, school enrolment, malnutrition, female literacy, sanitation and vulnerability. Vulnerability is measured by migration (due to household food insecurity) and fluctuation in food production. The report conducted a survey to assess food security status of the district. Food security is measured by the number of months in a year that a household is able to meet its food needs from its own production, the number of that deficit are met by working as a labourer and/or taking loans from money lenders, migrating to other areas, It also correlates food availability with rainfall patterns and public food distribution system. The human development status of each district based on the eight indicators is presented in human development radar to show imbalances in the State. The report also maps out disease prevalence and disaggregates a number of human development related indicators by sex and caste to assess groups with more pressing needs.

The income index used in this report differs from that typically used by other HDRs because it contains three different variables to capture the actual income of people. It is a simple un-weighted average of the dimensions of per capita District Domestic Product, the per capita monthly consumption expenditure and the per cent of the population above the poverty line in that district.

The *Nagaland district-India's 2004* report modifies the method to calculate the District Domestic Product (DDP). To compute the DDP, the average income of the respondent in a district was first noted. This was multiplied by the total actual population of the district income, which was used as a proxy for the DDP. Detailed information of how to calculate other data of HDI is available in the report and is statistically sound. As for HPI, no data on the health deprivation was available when the report was written. Therefore, the HPI only contained the other two dimensions.

Mexico's first Human Development Report produced in 2002 examines the well being of Mexicans through a human development lens and focuses its analysis on inequalities between different regions and population groups. It argues that society is not a simple aggregation of individuals—relationships are defined by the relative positions and functions of each person within the society. In that same vein, development within the society cannot be conceptualized as a simple sum of different individual's level of wellbeing.

The report presents a distribution sensitive HDI called "Refined Indicator of Human Development based on general means (IRD-MG), which adjusts for inequalities between dimensions and individuals. Calculation of the IRD-MG required information about basic capacities of individuals, but was not directly available. Thus, estimations based on available information had to be made.

For the Health dimension, average child survival rate at municipal level (from Conapo 2001) was assigned to each individual in that municipality. Each individual member of the household is then assigned the value corresponding to their household.

The education dimension uses two indicators. First is the percentage of individuals who are literate. The second is the percentage of individuals between 6 and 24 years attending school at the time of the XII Household and Population Survey (conducted in 2000) from which data are sourced. The maximum and the minimum goalposts are the same as in the traditional HDI.

Income per capita data are also from the XII Household and Population Survey of 2000. The individual income is adjusted by multiplying it by a factor constructed from information of the regional GDP in 2000. The adjustment process divides the GDP of every federal entity by the total sum of income of the individuals of this entity. If this factor is multiplied by individual income, the sum of these incomes is equal to the GDP in each region, while keeping constant the income distribution. The calculation of the income index uses the highest and the lowest income per capita in the country. The IRD-MG is calculated for all regions.

The analysis concludes that in an unequal society, any given increase in individual development implies a relatively less significant improvement unless the improvement is higher for the worst off in society. Since 2002, IRD-MG has served as a reference for comparing human wellbeing over time and between regions.

While this innovation addresses distribution issue which is very pertinent for policies decisions, it is not exactly clear how households without individuals aged 6 and 24 years have been dealt, with respect to the education component. The approach can be replicated at the global level but the country coverage will be reduced significantly because household level data are not available for a number of countries.

Argentina's 2002 Report titled "Contribution to Human Development in Argentina" is composed of four booklets each analyzing a different but inter-related issue—inequality and poverty, competitiveness of the provinces, democracy and comprehensive approach to addressing the country's challenges. The report also adapts the HDI to the country specific context.

Written in the context of the country's 2001 economic crisis, the report asserts that the crisis was a result of dogmatic and erroneous visions, and a political system that could not prevent the collapse. The report challenges the prevailing neoliberal discourse and holds that the state is divorced from society, and that a reform of the political regime is crucial to ending the ongoing disintegration in the country.

The report adopts a "territorial approach to development". It criticizes the absence of territorial policies resulting in an inability to deal with social exclusion and failure to restore productive activities, in areas where they were completely dismantled or where productivity declined. It also

finds a lack of national strategy to reformulate competitiveness and suggests the formulation of a federal regional strategy for development.

The report introduces what it calls an 'expanded human development index, which uses data mainly from the permanent household surveys of 1995 and 2000 ("Encuesta Permanente de Hogares"). In order to better reflect the disparities of life conditions in Argentina's provinces, the expanded HDI incorporates new variables into the three existing dimensions (longevity, knowledge and decent standard of living) of the HDI.

The longevity dimension is complemented by the infant mortality rate due to preventable causes. The knowledge dimension also includes over-age rate at school and educational quality index, which is measured by examination results for language and mathematics at different levels of education. Decent standard of living component also adds indicators of employment and unemployment to income. The indicators used are percentage of the employed population out of the total population and percentage of the unemployed population out of the economically active population. The Expanded HDI uses the traditional HDI approach.

The indicators selected, besides presenting a high correlation with the original HDI, allow for better assessment of inequalities between provinces. Statistical tests were run to find out the direction and behavior of selected indicators with respect to the original HDI. These different tests showed that, in a direct or indirect way, the selected indicators were related to the HDI and that they allow for a higher degree of discrimination of jurisdictions of the country.

The analysis shows that territorial inequalities in human development exist due mainly to unequal territorial development management. There is also a perception that institutions and political leaders have drifted away from a search for common good and defense of legitimate social interests.

Analyzing competitiveness of the provinces, which it defines as the ability of each region to accelerate economic growth in a sustainable way, the report emphasizes the need to redirect efforts towards knowledge, technology and infrastructure development. The analysis complements quantitative data with qualitative research information.

Other reports identified in this category are from the Philippines (2005) and Costa Rica (2005). These reports have been discussed under earlier sections on new indicators and new composite index, respectively.

3.2 ANALYZING NEW ISSUES FROM HUMAN DEVELOPMENT PERSPECTIVE

The *2001 Egypt* report focuses **on how globalization interacts with human development**. The report acknowledges that globalization brings both opportunities and threats, and assesses Egyptians well-being in a globalized world. In investigation of the interaction between economic growth and human development the report constructs new index called *broad human development index* (BHDI), which has five dimensions—health, education, employment, income inequality and per capita GDP. Principal component analysis (CPA) was used to select indicators. Initially, 25 variables were loaded but only 16 were retained for the index construction.

The health dimension is measured by three indicators: life expectancy at birth, infant mortality rate and under-five mortality rate. The education component is measured by three indicators: adult literacy rate; combined gross enrollment ratio and female adult literacy rates. The housing condition is measured by the percentage of households with access to sanitation. The employment component is captured in four indicators: participation rates in the labor force for the total population and for females; professional and technical staff as a percentage of labor force and the ratio of females to males in the labor force and the income component by GDP per capita. Income component was normalized to 100 per cent, by calculating the percentage of the difference between per capita GDP for each governorate and the national average GDP per capita, to the difference between the highest and lowest GDP per capita among governorates.

The measure also reflects income inequality which is measured by three indicators—percentage shares of incomes of the highest and lowest quintiles, prevalence of poverty, and percentage of the population who are extremely (ultra) poor and percentage share of wages for the poor out of total wages.

The report uses factor analysis to calculate the weights of the indicators and the BHDI is the weighted sum of the 16 development indicators, using the weights from the factor analysis and varies between 0-100 (for details on the index construction procedure see Annex 2.1 of the Report). The report provides a detailed description of the various data sources.

While this is a laudable effort by the Report preparation team, the index itself is difficult to interpret. Firstly, the index combines individual and household level indicators. Secondly, it is not clear how total adult literacy rate and for females; and labour force participation rate, as well as female to male ratio in labour force participation has been treated in the index. Therefore, the new index cannot be replicated at the global level.

The *2002 China* report reviews **environmental challenges in China** and examines the people-environment nexus—how environmental changes affect people's health and livelihoods. The report underscores the importance of shifting the development paradigm towards a pathway which is more sustainable for the future. While the report provides valuable data on the state of the environment, little effort is made to link the environmental issues with the human development paradigm.

In terms of innovations in measurement, the report calculates a *Health Risk Index* (HRI) based on four components:

1. Potential exposure to air pollution (indoor and out door)—indoor air pollution is measured by residential coal consumption per family; and outdoor air pollution by the percentage of population living in cities exceeding the WHO air quality procedures
2. Potential exposure to polluted water—measured by the percentage of population without access to clean water
3. Poor nutrition—measured by percentage of children below 5 years whose weight-for-age is less than the median weight.
4. Capacity of health services measured is by the number of hospital beds; a doctors and nurses per 1000 of population; and percentage of population without access to health services.

The HRI is calculated using the HDI methodology. Observed minimum and maximum values are used and this poses a problem for monitoring progress as the goal posts are likely to shift. Data were sourced from 1995-1999 government statistical yearbooks. A major limitation of this index is that it combines indicators that have a positive effect with ones that have a negative effect. For missing data, proxy indicators were used. No details are provided on how much data was missing and approximated.

The HRI was produced for both the national and provincial levels. This is an interesting index that can be used at the global level with some modifications for the differing effects of various indicators Data on all four components can be obtained at the global level and this index would provide interesting information on the health risk posed by environmental pollution.

The *2005 Peru* report analyzes **competiveness from economic, social and political context** and argues that competition can enhance human development if the production processes provide opportunities for employment. The report provides empirical evidence (using data collected from 181 districts) on the relationship between basic needs fulfillment, competiveness conditions and human development at the local level. Using econometric models, the report shows a causal relationship between basic needs fulfillment and demand for competiveness but the relationship is different for different localities.

The report also presents a new composite index called the "*Algorithm of human development*". The algorithm of human development (ADH) measures the attainment of all the basic needs throughout the life cycle. The measure adds value to the HDI, in that it allows for a closer look of the regional/local conditions and informs policy design at the local level. Hover, the correlation between the HDI and ADH is over 0.90 since both indices measure very similar dimensions of human development. The ADH includes four dimensions:

1. Housing: measured by proportion of the population with good quality housing (permanent materials)

2. Health: measured by proportion of the population who were attended by health professional during last illness

3. Nourishment: measured by proportion of households with income greater than the cost of basic basket of goods.

4. Education: measured by enrollment of school going population and educational attainment of the adult population.

The innovation in this report is both in terms of using disaggregated data, as well as introducing a new measure. The ADH is a simple measure of basic needs of the people however, it is not clear what the value added of this measure is over the HDI.

The 2008 report for *Bogota-Colombia* assesses **the state of human development in the city and analyzes the human development impact of the city's dynamics** in regards to social inclusion, inequality, risks and vulnerability, and environmental sustainability. The report constructs *Urban HDI (*UHDI) using the following indicators: households' disposable income which is measured as the gross household income, plus health and education subsidies, minus all taxes; infant

mortality rates; Frequency of and time for commuting for work and for studies; and enrolment rate adjusted for number of children over age for their grade and accessibility of facilities.

Not much information is provided on the index; however, this may be due to language (translation from Spanish to English). The usefulness of the index is also doubtful, especially if it is not disaggregated at different population levels to assess inequalities and vulnerability, which is one of the objectives for constructing the index in the first place.[8]

3.3 EXPANDING THE ANALYSIS OF HUMAN DEVELOPMENT

A number of NHDRs have used innovative ways to expand the analysis of human development. These are often done by analyzing emerging global issues from human development perspective and in country specific context. These analyses are the focus of this section.

Cognizant of the lack of confidence in official poverty estimates by the Georgian public, *Georgia's 2002* report explores different definitions and ways of measuring poverty. They constructed three poverty lines called " NHDR Poverty Line", " NHDR Intermediate Poverty Line" and "NHDR Extreme Poverty Line" and together they encompass the range of poverty thresholds currently being applied in Georgia.

The NHDR Poverty Line captures the segment of the population that earns enough to achieve a minimum diet but suffers non-trivial constraints in the provision of non-food items like health care, education, electricity and gas. These are vulnerable families with limit capacity to absorb shocks. Any unexpected expenditures mean reductions in quality and quantity of food consumed.

The NHDR Intermediate Poverty Line captures the group of families that are suffering non-trivial difficulties to achieve an adequate diet in addition to serious constraints in the provision of health and education services, electricity and heating. Though it is technically possible for these families to meet minimum calorie and nutrient intake, it is a constant struggle and demands knowledge of nutrition facts and combination of foods to achieve that. However, such knowledge is lacking among most Georgians. It is likely that people having to live with the NHDR Intermediate Poverty Line are not achieving an adequate diet.

The NHDR Extreme Poverty Line captures the group of Georgians at the margin of society, a group of desperate people that are far from achieving an adequate diet and have almost no budget for health care, education, electricity and heating. This group can be thought of as people that are cold in winter and hungry all year round. They are probably physically debilitated due to the regular lack of enough food. For these Georgians, more than moderate illness can be a dangerous event and probably oblige them to sell whatever form of capital (tables, chairs, beds, etc.) still remains in the family.

The report uses a number of statistical tests—a combination of cluster analysis, linear and non-linear logit regressions to explore factors contributing to household welfare. The results indicate

[8] For details refer to the full report which is downloadable in Spanish from http://hdr.undp.org/xmlsearch/reportSearch?y=*&c=n%3AColombia&t=*&lang=en&k=&orderby=year

that the share of breadwinners in a family, share of pensioners and education of members of a family, among other things, influence family welfare (for details refer to Technical Annex1 and 11 of the Georgia Human Development Report).

The data used for the analysis of poverty were sourced from two household surveys conducted in the winter of 2000-2001 and the summer of 2001. Interviews were carried out with the most informed person in the family. The survey was based on a stratified random probability sample of approximately 1,100 households in each survey. A multi-stage sampling procedure was adopted to select households to participate in the survey. The country was first stratified into regions. The regions were then stratified into urban-rural areas. A random sample of cities, towns, districts, and communities were then made. The fourth stage sampled block units within the city, town, district and communities and finally a random selection of households within the sample point was done.

The report also looks at inequality across different income levels and regions. It goes on to investigate the causes of poverty to reveal the obstacles families face in securing a decent standard of living. These include lack of education, exorbitant healthcare costs, and unequal income distribution. The Report concludes with suggestions on how to improve the government's proposal, including more responsible spending, rooting out mismanagement in government, and improving the business environment. Finally, good governance is highlighted as one of the most crucial aspects in the fight against poverty.

Overall, the report presents very thorough statistical analysis. Access to household level data was key to quality of the analysis. The main innovations were not so much in the concept and measurement of HD but in the measurement of consumption poverty and its determinants.

Mozambique's 2007 report analyzes the relationship between the HIV and AIDS pandemic and human development prospects for Mozambicans. The analysis specifically focuses on the implications of the pandemic for demographic structure, economic and social spheres and governance capacity. The report also identifies areas of the country that are more susceptible to the spread of the disease and those most at risk. The report asserts that traditional practices such as levirate, the socialization processes and subordination of women, are key drivers of women's increased vulnerability. It calls for renewed political will and expansion of treatment programmes and attitudinal change. The innovative analysis in this report is that it calculates the HDI indices for all geographical regions and GDP per capita at regional levels (which were unavailable) are estimated based on contribution to each sector of the economy. The source of data for these estimates was the country's national accounts balance sheet. The calculations use the approaches and indicators in the global HDR.

3.4 NEW DATA SOURCES: HOUSEHOLD AND PERCEPTION SURVEYS

Data availability is a major constraint on human development measurement. A number of countries have used the HDR preparation processes to generate the much needed data through objective household surveys and perception survey, and to also create demand for data. Some of these innovative surveys were mentioned earlier in the document. This section discusses the remaining surveys and data sources that are worth mentioning.

The *2001 Latvia* Report seeks to answer two main questions: is policy-making in Latvia sufficiently human development-oriented, and which policy improvements would be required to enhance advancement of human development. The report focuses on the process of policy-making as an essential means for achieving human development goals and assesses whether individuals and social groupings have opportunities to be heard and influence policies that affect them. It stresses the importance of public participation and urges for continued perseverance in the implementation of democratic, responsible, competent and open policy-making in Latvia.

An interesting aspect of this report was a survey of the public, deputies of the Saeima (Parliament), local government leaders and ministries' department directors. This survey was combined with information obtained from interviews with politicians, business people, NGO representatives, journalists and other participants in the political process, to provide a comparative overview of the political processes in Latvia. Respondents were asked to express their opinion on three main questions—what are the main problems in the adoption of important political decisions; what are the main obstacles to developing open public policy and what is the best way to render the decision-making of important political issues more open and transparent?

The results revealed that dependency on sponsors, dominance of party interests, limited public participation and incompetent deputies are some of the major problems. Personal interests, lack of contact with the public and corruption are hindrance to open public decision making. On the third question respondents suggested that working closely with the public and the media; as well as insisting on accountability by politicians, state funds to sponsor political parties and consulting experts on certain issues are some of the best ways to improve democratic decision making.

While the idea behind conducting the survey was novel, the presentation was lacking. There were no details provided on sampling procedure, sample size and how the survey was conducted. The response rates were not presented either, making it difficult to evaluate the statistical soundness of the analysis.

The *Central and Eastern Europe Regional report for 2003* titled 'Avoiding the dependency trap' also uses quantitative survey covering over 5,000 Roma minorities in the region to analyze their human development situation. The report sought to answer one key question—what are the systemic causes of the problems faced by marginalized groups, especially the Roma? The report calculated the HDI for the Roma group and also disaggregates the MDG indicators by different population sub-group to bring out disparities buried in national averages.

It concludes that integration of the CEE countries into the European Union (EU) would only be successful if the Roma and other vulnerable groups become integrated productively into their home societies, via improved access to employment opportunities, education and political participation. Without proper integration, and without an overall development framework to guide the process, the report asserts that the opportunity provided by EU accession may quickly disappear. It states that costs in delays to integrate marginalized groups would be immeasurably higher—the human security costs of exclusion could potentially result in political extremism and setbacks for the democratic process.

The data gathered and analyzed for this report is unique and provides interesting insights into the human development conditions of the Roma. However, the report fails to provide the details of the data collection making it difficult to judge statistical issues such as sampling, representation and statistical validity.

3.5 DISAGGREGATION

HDI produced by the global report can conceal the fact that different groups within the country have very different levels of human development. Disaggregation is one way that national and regional reports have improved the use of HDI at the national, sub-national and regional levels. National and regional reports have the advantage of having access to disaggregated (socio-economic) data that enables them to compute disaggregated HDIs for separate groups. There are different ways to disaggregate data—e.g. income or wealth groups, geographical or administrative regions, gender; and ethnicity

Using disaggregated HDIs at the national and sub-national levels helps highlight the significant disparities among various groups across regions, between the sexes, urban and rural areas and among ethnic groups. Disaggregated HDI can be used to as a policy development tool to guide policy to address specific inequalities. Disaggregation by social group or region can also enable local community groups to press for more resources as well as to force accountability on local representatives, making the HDI a tool for participatory development.

Below we discuss key reports that have used disaggregated data to calculate the human development indicators.

Measuring regional, social or economic inequality

The most common use of disaggregated data is to capture geographical, social or economic inequality by using lower levels of disaggregated data. Several national human development reports have calculated HDI at lower units of analysis: geographical, social or economic.

Geographical or administrative disaggregation: Geographical disaggregation is the most common unit of disaggregation used in NHDRs. A number of reports have calculated human development indicators at regional, state or district levels. *Bulgaria (2000)* report calculated the MHDI (Municipal HDI) for 262 Bulgarian municipalities. While there were no innovations in the actual calculation of the HDI, Bulgaria is among a small set of countries that tried to disaggregate the HDI to the lowest political unit (the municipality). The findings from this report reinforced the need to involve local communities in the national planning process and made recommendations for Local Strategic Human Development plans, in order to *localize* development.[9]

[9] The innovative approach for the report's preparation and the launch of a disaggregated human development index earned the UNDP Country Office in Bulgaria the Special Award of the UNDP Administrator and the Global Human Development Report Office.

The focus of the *2001 Nepal* Human Development Report was poverty reduction and governance through the lens of human development. The report presented disaggregated HDI at the regional level and for different economic development levels. The report concluded that weak institutions and inefficient administration are a major reason for Nepal's low human development levels and high level of poverty.

The *Kyrgyzstan (2002)* report used an interesting (albeit highly context-dependent) unit of disaggregation: different altitude zones (low-, mid-, and high-mountain) that were identified in accordance with the vertical zoning of mountain areas and bio-climatic characteristics of populated areas. This approach made it possible to define common characteristics of their development, irrespective of the Republic's administrative division. This zonal division laid the foundation for a sociological survey selection and the calculation of disaggregated human potential development indicators.

Other reports that have presented disaggregated HDI across geographical units are the *Uganda HDR 2002, Malawi 2001, Mongolia (2003) and Egypt (2003 and 2004)*. The Uganda report reviewed twenty years of HIV/AIDS in the country, assessing the impact of the disease on the population in terms of the population structure, fertility and mortality and the effects on households, families, health, education, agriculture, the labor force, businesses, women and the economy. The report produced disaggregated HDI at the district level for 45 out of 46 districts. Malawi (2001) focused on linkage between poverty and human development, and presented HDI at the district level. *Egypt (2003)* report constructed HDI using disaggregated data from district and governorate levels. The *2003 Mongolia* NHDR calculated HDI by urban and rural residency and by provinces and major cities. The results are compared to HDIs from other transition and landlocked countries.

The *2004 Egypt* NHDR examines the relationship between human development and the degree of decentralization. GDP Per Capita for Egypt was estimated from the national income accounts of 2000/2001. Household Income and Expenditure Survey carried out by CAPMAS was used to determine the pattern of differences between different governorates with respect to average income per capita. With these estimates at the governorate level, the report estimated the value of income per capita at the district level for each governorate using a percentage share of workers in each economic sector.

Social disaggregation: The *Lebanon (1998)* report presented disaggregated HDI measuring human development among various social groups (male/females, rural/urban) in the country and found that while GDP per capita had increased in the past few years (since 1993) wide differences in education and health indicators remained between regions and among population groups. *India-Karnataka (2005)* report calculated HDI and GDI are disaggregated by gender, region, and caste. Further, it analyzed the relationship between public expenditure patterns and human development outcomes. Public expenditure is analyzed within the context of equity and social justice for poor and vulnerable people. The analysis draws from the social allocation ratio, social priority ratio and human expenditure ratio discussed in the 1991 global HDR.

Economic disaggregation: The *El Salvador (2008*) report analyzed the country's labor market to assess its ability to widen people's opportunities and strengthen their capacities in terms of remuneration, quality of work and the satisfaction people derive from productive activities. Based on ILO's framework for 'decent work', the report introduced a measure of decent work, using data from a multi-purpose household survey—especially one taken in 2006 with a sample size of 16,800 households across the country.

Decent work is measured by two proxy indicators: (i) whether remuneration equals to or is above the costs of bundle of market goods and services, and (ii) social protection measured by workers with contracts and those affiliated to a social security system. The working population is then divided into four categories: unemployed, underemployed, fully employed without fair remuneration or social protection and fully employed with social protection. The HDI is then calculated separately for each group. The fully employed group has the highest HDI value (0.855) and the unemployed, the lowest HDI value (0.664). As we think ahead about disaggregating the HDI, it would be interesting to replicate this measure of work as a potential unit of disaggregation.

***Cross-cutting units of disaggregation*:** A background paper to *Namibia's* (yet to be published NHDR) looks at trends in human development and human poverty in Namibia disaggregates the HDI by sex, region, urban and rural areas and by language groups. With the exception of the goalposts for knowledge indicators, the goalposts were set within the context of developments in Namibia. The income component of the HDI is measured by inflation adjusted household income per capita. The goalpost are set at a minimum of N$1,400, which is the food poverty line in 2004 prices and a maximum of N$90,000 which is the income per capita for an average German speaking Namibian, the wealthiest population sub-group in the country. Income per capita for male headed and female headed households are used as proxy for female and male income per capita income. The minimum goalpost for life expectancy at birth was set at 35 years which is the assumed worse-case scenario, in view of the HIV/AIDS prevalence rate in the country and a maximum of 69 years by 2030.

Using disaggregated qualitative data

The 2003 Latvia NHDR used a special survey to gauge individual perceptions of security on 64 issues with the results disaggregated by gender, age, income level and ethnicity. The data helped identify the '*securitability'* threshold and people most in need of attention. Although, the report makes no innovation in the measurement of human security, it is one of the few reports to systematically collect disaggregated qualitative data and ensure representation and objectivity in data collection.

The important take away from the discussion on disaggregation for the global report is that while disaggregation serves useful purpose at the national or sub-national level, it may not be feasible at the global level due to data requirement. National HDRs are able to compute disaggregated human development indicators because of access to regional/local data that may not be able to for a large set of countries globally.

4. CONCLUSION AND RECOMMENDATIONS

The objective of this study was to identify and highlight innovations in concept and measurement in national and regional human development reports over the past ten years (1998-2009). Using the nomination of a report for the HDR Excellence Awards as the criterion, we selected a sample of 73 reports which were comprehensively reviewed for this paper. The innovations were classified in to five categories: new composite index, new issues from human development perspective, expanding the analysis of human development, new data sources: household and perception surveys, and disaggregation.

Overall, the results of the review reveal three areas where most innovations were noted — addressing missing dimensions in HDI, adaptation of existing HDI measure to address some measurement challenges, and address disaggregation across regions, and socio-economic groups through an analysis of HD at lower units of socio-economic hierarchy. The main findings along these dimensions are discussed below.

Missing dimensions

First, in terms of creation of new composite or analyzing new issues from HD perspective, there are several interesting innovations addressing some of the missing dimensions that could potentially be replicated at the global level. *Several reports had innovations relating to the measurement of environmental challenge (China) and access to social networks; and public goods and services (Chile).*

Another recurring theme in national and regional reports is the *concept of security*. Several reports have addressed the concept of security – human security, food security, and personal security. Three reports, Costa Rica, 2005; Mexico, 2004; and India-W. Bengal, discussed the concept of security in great detail. The Costa Rica and Mexico reports also developed interesting new indices to measure various aspects of security as it relates to human development and discounts the HDI by the security measure.

As these reports rightly point out, security has serious implication for human development. However, in order to maintain the simplicity of the HDI, HDRO should consider a report with conflict/security as a theme.

Addressing measurement issues

Several reports adapted the existing measure of HDI either by including a new dimension or modifying an existing dimension. As mentioned earlier, the Philippines (2000) report introduced a new measure for measuring the quality of education. Chile (2004) report made adjustments to all three components of education, income and health, while Costa Rica (2005) measured income by the level of electricity consumption. Many of these adaptations are worth exploring at the global level, especially changes in the income component which is regarded as highly controversial, such as discounting the income by percentage of absolute poor or using electricity consumption instead of GDP per capita.

The Arab States report creates a new measure of knowledge that measures both the quality and quantity of education in the member countries. Similarly, the 2004 national report by the Russian Federation also focuses on measuring the amount of knowledge creation by creating a new index of *development of intellectual potential.* While there are statistical issues with both indices, they

measure quality aspects of education which are missing in the global HDI. The measures are also relatively simple and could potentially be replicated at the global level with slight modifications.

Another report that also focuses on knowledge creation is the Latvia (1999) report. While this report does not actually develop a new index, it does present an excellent analysis of the role of knowledge and research in enhancing human development. The theme of knowledge and quality of education was also addressed by the Philippines (2000) report. This report made an attempt at measuring the quality of education by using an indicator of functional literacy. However, no details are provided on how functional literacy is actually defined.

What we can infer from the recurrence of the theme of knowledge creation is that it is something that countries and regions are concerned about and would like to emphasize in the measurement of human development. A recommendation for the global report from this analysis is to explore the possibility of introducing quality aspects in the knowledge dimension instead of just quantity of education.

Addressing regional and/or socio-economic inequalities

In addition to developing new composite indices, several reports used disaggregated data to capture geographical, social or economic inequality. For instance, the Kyrgyzstan report calculates HDI at the different altitudes while India-Karnataka report calculates HDI at the caste level. A number of reports use geographical and administrative divisions as the unit of disaggregation such as the governorate (Egypt, 2003), the region (Mexico, Nepal) or the municipality (Bulgaria. 2000). Other reports disaggregate the HDI based on social categories such as caste (India-Karnataka, 2005) or gender (Lebanon, 1999). Some reports combine innovations in concept or measurement with disaggregation. For instance, the El Salvador (2008) report used ILO framework for 'decent work' to introduce a new measure of decent work and presented HDI for different categories of the new employment measure.

The main message from the study of disaggregation of the HDI is that various units of disaggregation usually tend to be context specific, and may be difficult to replicate at global level primarily due to the data requirements. While it is possible to disaggregate the HDI, the unit of disaggregation – geographical, social or economic or cultural – has to be common to a large number of countries. At the level of the global report, disaggregation by sex and economic groups is possible. Another possibility is to calculate HDI for countries with similar geographical characteristics such land-locked countries or island countries, not simply geographical regions.

As expected, this review of innovations in concept and measurement in the national and regional reports has thrown up a wealth of interesting and novel ideas that could potentially inform the 2010 report in terms of addressing some of the short-comings in human development measures, especially the HDI.

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ANNEX 1: LIST OF NATIONAL AND REGIONAL REPORTS REVIEWED

Year	Reports Reviewed
1998	China, Egypt, Lebanon
1999	Latvia, Armenia, China
2000	Bulgaria, Philippines, South Asia
2001	Kenya, Egypt, Turkey, Malawi, Nepal, Latvia
2002	Argentina, China, Georgia, Kyrgyzstan, Central and Eastern Europe, Mexico, Uganda
2003	Arab States, Colombia, Egypt, Latvia, Mongolia, Tajikistan, Thailand, Zambia
2004	Bolivia, Jordan, Kosovo, Russian Federation, Turkey, Afghanistan, Egypt, India-Gujarat, India-W. Bengal, India-Nagaland, Nepal, Chile, Mexico
2005	Bhutan, Bosnia and Herzegovina, Botswana, China, India-Karnataka, India – Arunachal Pradesh, India - Kerala, Kenya, Malaysia, Philippines, Costa Rica, India- Chhattisgarh, Peru, Kazakhstan, Romania
2006	India (Delhi HDR)
2007	Bosnia and Herzegovina, Ghana, India-West Bengal - Bankura (dist), Mongolia, Mozambique, Uganda
2008	Colombia- Bogota, El Salvador, Georgia, Mozambique
2009	Lebanon, Namibia