RURAL DEVELOPMENT MEASURES: INDICATORS AND INDICES FOR SRI LANKA

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Abstract

For designing rural development policies and programs, identification of different dimensions and processes of the rural sector is a prerequisite. Rural development indicators and indices developed following different methods quantify such dimensions and processes of the rural sector. This paper attempts to develop rural development indicators and indices for rural Sri Lanka with the objective of characterising rural sector, marking the disparity between urban and rural sectors and to demonstrate the spatial variation in the rural sector. Internationally used composite indices such as HDI, RUDI and nationally focused spatial indices have been developed. In terms of its size and contribution to the national GDP and labour absorption, rural sector remains the mainstay of Sri Lankan economy as in many other developing countries. According to the estimated values of HDI and RUDI, rural sector of Sri Lanka shows improved human development standards due to continuous state sector investments in health and education. Nevertheless income, poverty and malnutrition are persistent in rural areas. Continuum of spatial variation in terms of structural hindrances for better livelihood is captured by two indices developed here and they can be used for rural development planning.

Key Words: *Rural development measures, HDI, RUDI, rural spatial variation*

1. Introduction

Rural development has been widely perceived as a strategy designed to improve the economic and social life of the poor. Identification of different dimensions and processes of the rural society is a prerequisite before designing a strategy for intervention. Strategic options ideal for one locality may differ from another locality. To describe the elements of rural development quantitatively, it requires sensible measures. Researchers and planners have attempted to develop different

rural development measures so as to characterise the different economic and social setting of rural societies, to design rural development policies, programmes and other interventions and to replicate and alter the lessons learned from other countries and also to monitor and evaluate the social and economic development of the rural poor.

With the change in the development paradigm in global and national context, different interventions had received varying importance during different times. The success of different interventions and poverty alleviation programs is needed to be evaluated and to be monitored in order to design rural development policies and programmes for the future. Therefore the objective of this paper is to develop and update the rural development indicators and indices for rural Sri Lanka in order to:

characterise the rural sector and to highlight the importance of rural sector in the national economy and
demonstrate the rural urban disparity in terms of human development and the spatial variation of the rural sector for policy interventions.

The indicators and indices developed in this paper would be useful to policy makers and planners. Previous studies that have attempted to develop such measures to Sri Lanka too are pertinent to Sri Lankan setting as much as to conceptualise the rural development models. All these could help to achieve the ultimate goal of improving economic and social life of the poor.

2 Rural Sector of Sri Lanka

The distinction between the urban and the rural sectors is not yet amenable to a single definition that would be applicable to all countries or, for the most part, even to the countries within a region because of the national differences in the characteristics that distinguish urban from rural areas. Countries have established their own definitions in accordance with their own needs (United Nations, 2008).

The traditional distinction between urban and rural areas within a country has been based on the assumption that urban areas, no matter how they are defined, provide a different way of life and usually a higher standard of living than found in rural areas. In many industrialized countries, this distinction has become blurred and the principal difference between urban and rural areas tends to be a matter of the degree of concentration of population. However the differences between urban and rural **ways of life and standards of living** still remain in developing countries.

For example, in Botswana, agglomeration of less than 5000 inhabitants where 75 per cent of the economic activity is agricultural is defined as rural while in Islamic Republic of Iran, every district without a municipality is administratively designated as rural (Demographic Yearbook, 2005).

In Sri Lanka, rural sector is geographically demarcated as the area outside the boundaries of local administrative authorities of municipal councils and urban councils. So called local authorities are however designated from time to time by considering the availability of developed infrastructure that defines urban way of living by the Urban Development Authority.

If a comparison is made of the size of the rural sector in the developing countries, it shows that agricultural countries still posses a large rural sector. Industrialisation and urbanisation have been processes in Newly Industrial countries like Malaysia, Indonesia, Philippines where a concentration of population is observed in urban centres (Table 1).

Table 1: Rural and Urban Population in some Asian Countries, 2003

Country	Population (million) 2003	
	Urban (%)	Rural (%)
Bangladesh	26	74
India	28	72
Indonesia	42	58
Lao PDR	20	80
Malaysia	58	42
Myanmar	28	72
Pakistan	33	67
Philippines	59	41
Thailand	20	80
Vietnam	25	75
Afghanistan	22	78
Iran	65	35
Nepal	12	88
Sri Lanka	23	77

Source: CIRDAP Research Division, 2003.

3 Rural Development Measures

In this section, an attempt is made to develop different indicators and indices within a conceptual framework (Figure 1) that enables assessing rural development intervention models.

At first, measures that characterise the rural sector of Sri Lanka are developed to identify the economic and social settings in rural societies. These measures include indicators, indices and composite indices. The indicators and composite indices signify the rural urban disparity and the relative stance of rural society of Sri Lanka within the region of Asia and developing countries. Due consideration is given to capture the spatial variation of rural Sri Lanka for designing better intervention programs. Indicators are also developed to measure the extent of different intervention programs and to measure the resultant outcome of such interventions. Finally, composite indices that attempt to capture the lagging behind geographical areas are developed to design and prioritise rural development intervention programs at lower sub national level.

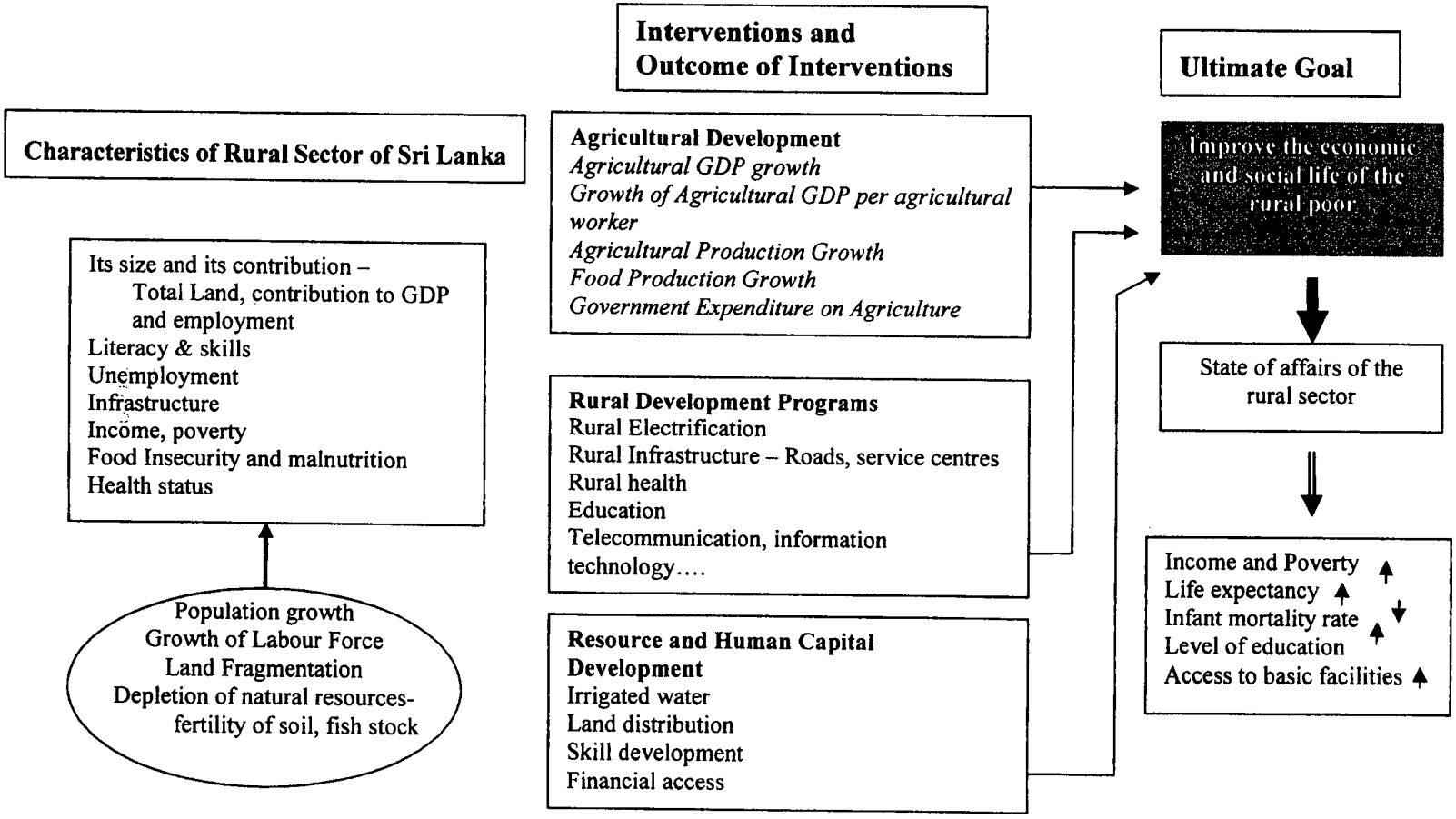


Figure 1: Schematic Presentation of the Conceptual Framework to Develop Rural Development Measures

3.1 Indicators to Characterise Rural Sector of Sri Lanka

Indicators were developed to characterise the size and contribution of the rural sector to the national economy, to specify the rural livelihoods and, to portray the status of rural economies by way of level of income, unemployment, poverty and malnutrition. Indicators were also developed in terms of accessibility to basic needs and basic facilities by the rural communities. These indicators are compared with respect to the situation of urban sector of Sri Lanka (Table 2).

Table 2: Indicators to characterise rural sector of Sri Lanka, 2006& 2007

Indicator	Unit	Urban	Rural
Size and contribution to the national economy			
Area	Sq km	854	61927
Percentage of the Area	%	1.4%	98.6%
Total Population (excluding Northern province, Batticalo and Trincomalee)	million	3.6	14.4
Population density	Persons/sqkm	5135	293
Labour force	Persons	857,199	6740,324
Percentage of labour force	%	11%	89%
Per capita GDP (calculated)	Rs	267,096	111,025
Livelihood			
Percentage of employed in Agriculture (SLIS 1999-2000)	%	NA	45%
Income			
Mean Household Average Monthly Income	Rs/month	41928	24039
Median Household Average Monthly Income	Rs/month	23642	16379
Gini-coefficient		0.54	0.46
Percentage of Income from agricultural activities	%	2 %	12 %
Percentage of Income from non-agricultural activities	%	24%	16%
Percentage of Income from wages and salaries	%	39%	41%
Unemployment			
Unemployed Population	persons	47139	446301
Level of Unemployment	%	5.5	6.6
Poverty			
Poverty headcount ratio	%	6.7	15.7
Population below poverty line	'000	184	2303
Contribution to poverty	%	6.6	94.4
Monthly total expenditure	Rs	7556	5200
Malnutrition among children under 5 years			
Stunting	%	13.7	16.7
Wasting	%	14.9	15.2
Underweight	%	16.6	21.7

Continued ..

Indicator	Unit	Urban	Rural
Basic Needs			
Food			
Population below 2030 Kcal level of dietary energy consumption (%)	%	65.0	49.2
Energy from staples			
Drinking Water			
Safe drinking water	%	97.7	85
Percentage of households traveling more than 100 meters to get drinking water	%	1.5	11.1
Percentage of households access to sufficient water for drinking	%	96.8	88.4
Shelter			
Percentage of households with permanent wall	%	92.5	88.6
Percentage of households with permanent Floor	%	97.5	85.9
Percentage of households with permanent Roof	%	89.1	85.7
Basic Facilities			
Sanitation			
Proportion of households with access to Improved sanitation	%	91.5	94.8
Education			
Literacy rate	%	93.7	91.7
Primary enrolment ratio	%	97.4	97.6
Primary completion ratio	%	87	89
Health			
Life expectancy at Birth		81.4	70
Basic Infrastructure			
Electricity			
Percentage of households using electricity as principal type of lighting	%	94.9	78.5
Telecommunication			
Percentage of households using telecommunication	%	77	44.9

Source: Department of Census and Statistics, Central Bank of Sri Lanka, (various years).

3.2 Composite Indices of Rural Development

Urban rural disparity is portrayed by developing two indices that are widely used for international comparison of development; Human Development Index (HDI) and Rural Urban Disparity Index (RUDI).

3.2.1 Human Development Index

HDI was proposed by UNDP in 1990 and was improved as an index for comparison of human development among countries. Improvements were brought out in construction of this international parameter in the subsequent reports of UNDP in 1991, 1994 and 1999 (Anand and Sen., 1994, UNDP, 1990-1998). It is now in its present form as a composite index of three basic components of human development, viz., longevity, knowledge and standard of living. Longevity is measured by life expectancy. Knowledge is measured by a combination of adult literacy having one-third weight and mean years of schooling with two-third weight. Standard of living is measured by purchasing power, based on real GDP per capita adjusted for the local cost of living (purchasing power parity, or PPP).

Table 3: Per capita GDP and HDI Values for Sri Lanka and Abroad, 2003

Country	Per Capita GDP (PPP US$)	HDI Value	HDI Rank
Norway	29,620	0.944	1
Mauritius	9,860	0.779	62
Jamaica	3,720	0.757	78
Maldives	4,798	0.751	86
Georgia	2,560	0.746	88
Sri Lanka	3,180	0.730	99
South Africa	11,290	0.684	111
Indonesia	2,940	0.682	112
India	2,840	0.590	127

Source :UNDP, 2003

Table 3 illustrates the relative position of level of human development of Sri Lanka, according to the human development index developed in 2003. Sri Lanka ranks at 99th position and the HDI value is 0.73.

3.2.2 Computing the Human Development Index (HDI) for Rural and Urban Sector

The methodology followed in computation of HDI for the sectors of Sri Lanka is more or less similar to the one used by UNDP in its recent Human Development Reports (1999 onwards) and to the one used by state of Karnataka in India in its Karnataka Human Development Report, 2005. In developing the HDI three indicators: longevity as measured by life expectancy at birth (LEB); education attainment as measured by a combination of literacy rate (UNDP adopts adult literacy rate) with two-third weight and combined primary and secondary enrolment ratio with one-third weight (whereas UNDP uses combined enrolment ratio of primary, secondary and tertiary education levels) and standard of living as measured by the real GDP per capita expressed as PPP$ (in Purchasing Power Parity dollars) are used. For the construction of the index, minimum and maximum values have been fixed for each of these indicators and they are as follows:

- Life expectancy at birth: 25 years and 85 years;
- Adult literacy rate: 0 per cent and 100 per cent;
- Combined gross enrolment ratio: 0 per cent and 100 per cent;
- Real GDP per capita (PPP$): $100 and $40,000 (PPP$).

For each component of the HDI, the individual index was computed on the basis of the following formula:

$$\text{Index} = (\text{Actual Xi value} - \text{minimum Xi value}) / (\text{Maximum Xi Value} - \text{minimum Xi value})$$

The HDI value of the jth sector (Ij) for the ith variable is defined as the average of these variables. The Human Development Report (HDR) assigns equal weight to each of the dimensions included in the human development index, as each component is equally important for a meaningful evaluation of an individual's well being.

$$Ij = \Sigma Iij / 3 \quad i=1, 2, 3$$

Treatment of income

The construction of the income index is a little more complex. Over the years, the HDR has used a particular formula, known as Atkinson's formula. The basic approach in the treatment of income has been driven by the fact that achieving a respectable level of human development does not require unlimited income.

In many cases, income loses its relevance as a proxy for all dimensions of human development other than a long and healthy life and knowledge. In HDR 1999, a thorough review of the treatment of income in the HDI was done, based on the work of Anand and Sen. This refinement in the treatment of income attempts to rectify the problem by putting the methodology on a more solid analytical foundation. The income is treated by using the following formula:

$W(y) = (\text{Log } y - \text{Log } y \text{ min}) / (\text{Log } y \text{ max} - \text{Log } y \text{ min})$

For the computation of the income index for the sector, per capita sector GDP (estimated by mean income) has been converted to its PPP$ equivalent by taking the ratio of per capita sector GDP to that of the country in rupees and multiplying this by the per capita GDP for the country in PPP$.

Empirical calculation of the index is given in Table 4.

3.2.3 Rural Urban Disparity Index (RUDI)

The rural urban disparity index (RUDI) was introduced in 1999 by CIRDAP by bringing together different dimensions of rural deprivation to a composite index. RUDI provides an aggregate measure of the prevalence of disparity between the rural and urban areas in a country (CIRDAP 2003). The rural urban disparity index (RUDI) is based on differences between rural and urban areas in three basic indicators of quality of life: entitlement, human capital and basic facilities. The choice of indicators has largely been guided by two considerations- the universality of the indicators across the CMCs and the availability of comparable data across the countries. The degree of entitlement is measured by real GDP per capita (PPP$). The progress in achievement in human capital is approximated by the adult literacy rate. The access to basic facilities is measured by a combination of life expectancy at birth (50 percent weight) and access to safe water and hygienic sanitation (25 percent weight each).

Table 4: Computation of Human Development Index for Urban and Rural Sector of Sri Lanka

		Sector	Value	Index
(1) Income Index			**Rs/Year**	
	Mean Income, 2007	National Urban Rural	77556 115836 71916	
	Per capita GDP (2007) Current Price Per capita GDP (2007) Current Price (estimated Per capita GDP (2007) Current Price (estimated	National Urban Rural	178830.00 267096.70 111025.40	
	GDP per capita at PPP($) 2007 –National	IMF WB Average	4265 4259 **4262**	
	Rural GDP Per capita at PPP$		2646.03	
	Urban GDP per capita PPP$		6365.63	
	Income Index – Urban			**0.693**
	Income Index - Rural			**0.547**
(2) Health Index /Life Expectancy at Birth			years	
	Life Expectancy at Birth	Urban Rural National	81.4 70 72.5	
	Health Index - Urban			**0.940**
	Health Index – Rural			**0.750**
(3) Education Index				
(3.1) Literacy rate		Urban Rural	93.7 91.7	
	Literacy rate Index - Urban		0.937	
	Literacy rate Index - Rural		0.917	
(3.2)	Combined primary and secondary enrolment ratio			
	Primary	Urban Rural	97.4 97.6	
	Secondary	Urban Rural	87 89	
	Primary and secondary enrolment index	Urban Rural	0.84738 0.86864	
	Education Index –Urban			**0.907**
	Education Index – Rural			**0.901**
(4) Human Development Index (1,2 & 3)				
	HDI - Urban			**0.847**
	HDI - Rural			**0.733**

Table 5: Comparative Figures of RUDI from CIRDAP Member Countries, 1995

Country	Rural urban disparity index (RUDI)		Real GDP per capita (ppp$)		
	Value	Rank	Rual	Urban	National
Malaysia	12.493	1	6808	11926	9572
Myanmar	15.863	2	1014	1478	1130
Philippines	20.888	3	1678	3649	2762
Thailand	23.721	4	2959	15286	7742
Vietnam	23.781	5	1055	1917	1236
Bangladesh	26.135	6	1133	2444	1382
Sri Lanka	**27.403**	**7**	**2793**	**5590**	**3408**
Indonesia	30.285	8	3073	5568	3971
India	39.055	9	1047	2435	1422
Pakistan	40.176	10	1767	3030	2209
Nepal	46.264	11	1004	2287	1145
Lao PDR	51.917	12	1766	5600	2571

Source: CIRDAP, 2003

RUDI primarily measures whether the development has been biased against the rural sector and in what degree. According to the 1995 estimates, the relative disparity between rural and urban sectors among CIRDAP member countries is given in the Table 5. It shows that rural- urban disparity is relatively low in Sri Lanka compared to the countries within CIRDAP.

3.2.4 Computation of RUDI for Rural and Urban Sector of Sri Lanka, 2007

The methodology of construction of the RUDI closely follows that of UNDPs human development index (HDI). The index is first constructed separately for rural and urban areas.

For the construction of the index, fixed minimum and maximum values for each of the indicators have been established.

- Real GDP per capita (PPP$): $100 and $40,000 (PPP$)
- Adult literacy rate: 0 per cent and 100 per cent
- Life expectancy at birth: 25 years and 85 years;
- Access to safe water: 0 percent and 100 percent
- Access to hygienic sanitation: 0 percent and 100 percent

For any component Xij, indices are computed by using the general formula:

$$I_{ij} = \text{(Actual Xij value - minimum Xij value)/ (Maximum Xij Value - minimum Xij value)}$$

where i refers to indicators and j to location: rural and urban.

The construction of the income index adopts the HDI approach.

The composite index value is taken as a simple average of the three components. For computing the RUDI, the rural composite index value (R) the urban composite index value (U) is combined using the formula:

$$RUDI = (1 - R/U) * 100$$

Empirical calculation of the index is given in Table 6.

Table 6: Computation of RUDI for Rural and Urban Sectors of Sri Lanka, 2007

		Value	Unit	Index
(1) Income index				
	Real Rural GDP per capita at PPP$ Real Urban GDP per capita at PPP$	2646.03 6365.63		
	Income Index –Urban Income Index -Rural			**0.693** **0.547**
(2) Education Index				
Adult literacy rate				
	Urban Rural	93.7 91.7	% %	
	Education Index –Urban Education Index -Rural			**0.937** **0.917**
(3) Basic Facilities Index				
Life Expectancy at Birth				
	Urban Rural	81.4 70	Years years	
Access to safe drinking water				
	Urban Rural	97.2 85.9	% %	
Access to hygienic sanitation				
	Urban Rural	91.5 94.8	% %	
	Basic Facilities Index – Urban **Basic Facilities Index - Rural**			**0.942** **0.827**
(4) Composite Index				
	Urban Rural			**0.857** **0.763**
	Rural Urban disparity Index RUDI			**10.946**

4. Consideration of Spatial Variation of Rural Sector for Intervention strategies

The rural-urban divide is not a discrete attribute but is a continuum, ranging from the urban suburb or periphery to the most isolated or distant rural communities. Rural development programmes need to be fine-tuned to take account of the specificity of the problems that are faced by communities lying between the two ends of the rural-urban spectrum. At least four major divisions of this spread with their own distinctive rural strategies can be distinguished from the literature as follows (United Nations, 2003).

4.1 Peri-urban Areas

The main issues arising in the urban periphery are not dissimilar to those in urban squatter settlements: creation of jobs in industrial and service sectors in neighbouring urban centres, provision of adequate transport facilities and housing. Many of these areas have been reduced to dormitories of adult residents who commute daily on bicycles or animal-driven vehicles to the urban centre. To the extent there still exists some scope for farming in these areas, the rural development programmes can help promote micro-scale, high-value-added farming, such as vegetables and dairying which would provide fresh produce, create jobs and avoid pollution. There also exists considerable scope for rural industrialization in these areas which could take advantage of backward linkages with agriculture and forward linkages with urban industry. For this there will be need for credit and new credit institutions which could provide venture capital for the establishment of small-scale industries and services to enterprising individuals or groups.

4.2 Accessible rural areas with good natural resources

These areas are good candidates for agricultural development with the help of market incentives and institutional development. They have potential for higher absorption of both labour and capital and of producing market surpluses. With investment in human development and technology, these areas could become highly productive and their products could compete in world markets. These areas could provide employment to people of other less well- endowed areas, especially during seasonal peaks.

4.3 Accessible rural areas with poor natural resources

The possibilities of productive employment are likely to be low in these areas and migration may be the only alternative for most people. However, possibilities of livestock farming could be considerable and may provide opportunities for employment in dairying and related activities, along with handicrafts for women. The main handicap is likely to be access to water and capital investment in tube-wells and small irrigation projects are likely to yield beneficial results, as land itself is unlikely to be scarce. Since these areas are not remote it may not be difficult to access services from Government and non-Government organizations engaged in rural development activities. In particular, they could receive the services of teachers and health workers for training people and providing basic education.

4.4 Remote or isolated rural areas

These are the most difficult areas to deal with as the costs of construction of infrastructure to reduce their remoteness are generally high. Nonetheless, measures to improve their productivity and incomes can be undertaken by subsidizing certain economic activities such as poultry farming and livestock. They could also be assisted in launching public works programmes to help build the needed infrastructure. Some remote areas have the advantage of being yet unspoilt by excessive human habitation and still preserve their pristine beauty. They could become attractive destinations for eco-tourism. Inhabitants of the area could be encouraged to preserve and protect wildlife and biodiversity and to guard against poaching by illegal hunters and fortune seekers.

In classifying these rural urban spread by few divisions of homogenous geographical areas, accessibility is one of the key parameters that can be used. Access to urban centres and remoteness has been estimated by constructing an index called accessibility index to Sri Lanka (Department of Census and Statistics, 2005). Access to main road infrastructure is mainly considered in constructing the index. According to the index, remoteness is gradually increased as moving away from main urban centres, and it could be possible to distinguish remote rural areas from peri-urban areas in the rural sector by using such indices and to classify homogenous geographical areas for rural development interventions.

5. Measuring Nationally Interested Spatial Issues of Rural Development in Sri Lanka

5.1 Index to measure Structural Vulnerability – Index on Vulnerability to Coping Capacity

The existing supportive infrastructure to enhance the livelihood opportunities in the region is a key determinant to access to basic needs of the rural poor in the long run. Improving education facilities, infrastructure such as electricity, road network are therefore primary to enhance the structural changes in the rural economy. The index developed by considering the existing supportive infrastructure called vulnerability to coping capacities, provides an indication of the structural vulnerability of the rural sector (Wickramasinghe, 2008). This index has been developed at divisional secretariat (DS) level and therefore the vulnerability to coping capacities index allows identifying the structurally vulnerable geographical areas at DS level in Sri Lanka where long term development interventions are required.

In developing the structural vulnerability index, principle component analysis was used to reduce the number of variables to one factor which is a weighted composite of the considered set of variables (Table 7). This composite index is then ranked into categories by classifying based on GIS. When selecting variables to develop indices, highly correlated variables are explicitly selected.

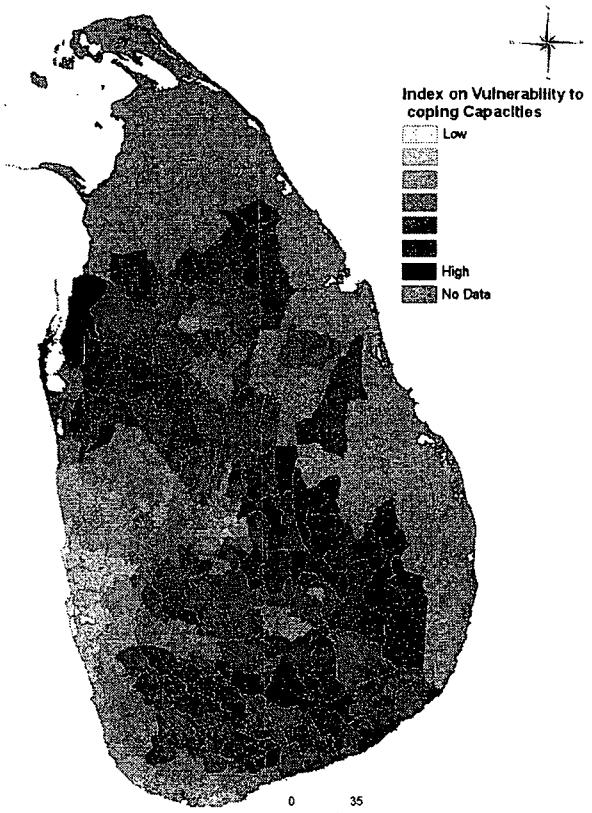
Table 7: Variables Considered in Constructing Index on Vulnerability to Coping Capacity

Dimension	Indices	Variable
Vulnerable to Coping Capacity	Index on Vulnerability to Coping Capacity	Electricity availability Literacy rate of 15-24 years olds Total Male Female National schools availability Type 1AB schools availability Type 1C schools availability Type ABC availability Road density Road length Population Poverty Population

Source: Wickramasinghe, 2008

Structural vulnerability that was accounted by considering coping capacities of the particular region has eventually described the available livelihood opportunities and the livelihood security. Particularly moving away from main urban service oriented sectors, people are gradually loosing their opportunities for better living and hence the most available livelihood become natural resource based. Agriculture, fishing and related wage labouring are the principle livelihoods of such population.

Figure 2: Vulnerability to Coping Capacities by DS Division



Source: Wickramasinghe, 2008

This index (figure 2) discloses structural hindrance it has in the rural sector to economic opportunities to food and other basic needs access thereby interventions can be focused. According to the DS vulnerability status, the critically vulnerable divisional secretariats are given in the Table 8.

Table 8: Critically Vulnerable Divisional Secretariats based on Vulnerability to Coping Capacity Index

District	Divisional Secretariat Division
Badulla	Meegahakivula Rideemaliyadda Kandaketiya Lunugala Mahiyanganaya
Moneragala	Siyambalanduwa Madulla Thanamalvila
Matale	Wilgamuwa Ambanganga Korale Laggala-Pallegama
Kandy	Udadumbara
Puttalam	Vanathavilluwa
Ratnapura	Weligepola Kolonna

Source: Wickramasinghe, 2008

5.2 Index to Measure Rural Processes: Index on Vulnerable Agricultural Operators

Land and water are primary resources of the rural livelihood. However, increasing population pressure on land due to population growth, and subsequent growth of labour force has led to involuntary processes in the rural sector such as land fragmentation and landlessness. This has been taken into account in the developed index called index on vulnerable agricultural operators and could be used as a parameter that monitor the process of vulnerability created due to land fragmentation and landlessness.

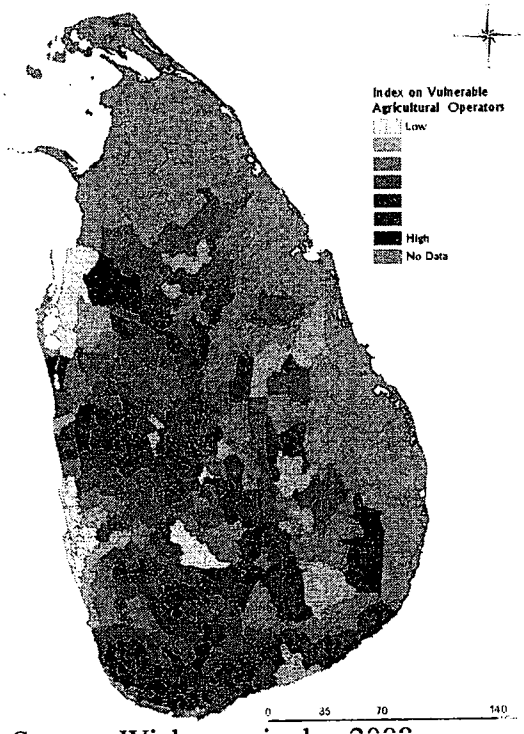
Table 9: Variables Considered in Constructing Index on Vulnerability to Agricultural Operators

Dimension	Indices	Variable
Vulnerable Agricultural Operators	Index on Vulnerable Agricultural Operators	Population Agricultural operators Agri. operator not owning land Agr. operators with < 1 AC of land

Source: Wickramasinghe, 2008

In developing the index highly correlated variables were explicitly selected and (Table 9) were reduced to a weighted composite one factor by using principle component analysis. This composite index was ranked into categories by natural break classification method of GIS.

Figure 3: Index on Vulnerable Agricultural Operators



Source: Wickramasinghe

Particularly where agriculture is the main livelihood but lack adequate land resources for economic activities it would reduce the economic viability of people and in this situation illustrated by the index as shown in the figure by Divisional secretariat level.

Table 10: Critically Vulnerable Divisional Secretariats Based on Vulnerable Agricultural Operators

District	Divisional Secretariat
Anuradhapura	Nochchiyagama, Thambuttegama Thalawa, Galnewa
Kurunegala	Bingiriya, Alawwa Udubaddawa
Galle	Karandeniya, Yakkalamulla
Matale	Rattota
Badulla	Uva-Paranagama
Matara	Athuraliya
Kandy	Thumpane
Rathnapura	Kiriella

Source: Wickramasinghe, 2008

Accordingly, vulnerable agricultural operators are largely concentrated in the divisional secretariats areas given in Table 10 excluding districts of the northern and eastern provinces.

6. Interpretation and Conclusion

There are development measures that have been developed by means of indicators and indices. Those have attempted to quantify the development in order to make comparison between countries, sectors and also to derive strategies for development. In this paper few such measures that are widely used have been considered in addition to some indices that are of national interest for rural development in Sri Lanka. Indicators have been presented to characterize the rural sector and to explain the state of affairs of the rural sector.

Rural Sri Lanka represents almost 98 % of the land area of Sri Lanka according to the definition. The contribution of the rural sector to the national economy is illustrated by its size and in terms of its contribution to the national GDP and labour absorption. Rural population represents more than 80 % of the total population of Sri Lanka and rural labour force accounts for nearly 89 % of the total labour force. Therefore rural economy has remained the mainstay of Sri

Lankan economy. As rural livelihood is natural resource based, land and water are vital for their livelihood. Agriculture continues to be the principle livelihood and 45% in the rural households are agricultural households.

More urban- bias growth observed during the past few years has widened the gap between rural and urban sector in terms of real per capita GDP. However, continued state investments in education and health and rural intervention programs have been able to improve many social indicators of the rural sector. This has given rise to positive trends of composite indices such as HDI, RUDI. However, rural deprivation in terms of poverty and malnutrition is a persistent phenomenon while rural livelihoods continue to depend on natural resources due to less coping capacities. Landlessness and land fragmentation is one of the factors that should be given due consideration.

Spatial variation of the rural sector is vast that intervention strategies should be focused on regional basis. Nationally interested spatial issues have been addressed by considering two indices; vulnerability to coping capacity index and index on vulnerable agricultural operators which are useful in determining intervention strategies. However field verification of the interpreted results of such spatially focused indices should be carried out before designing intervention strategies.

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