

MEASURING THE REGIONAL VARIATION OF THE QUALITY OF LIFE IN SRI LANKA

By

H. D. SUMANASEKERA

Aimed at providing an understanding of the level of regional development in Sri Lanka, this paper presents the districtwise PQLIs by sex in 1971, supplemented by historical PQLIs of the Sri Lanka in the census years during 1921-71. An examination of the interdistrict variation and the pattern of the distribution of the districtwise PQLI revealed that (a) there was relatively wide disparity among the district PQLIs of the females than that of the males, and (b) the simultaneous existence of high average values of PQLI with positive differences between the female and the male PQLIs indicate not only a better overall quality of life than indicated by PQLI alone but also an improved status of women.

Introduction

The recent establishment of the District Development Councils (DDCs) aimed to decentralise the administration with a view to co-ordinating and directing development programmes more effectively and also to increase the people's participation in the planning and implementation of the Government's economic and social programmes will commence a new chapter in the regional development in Sri Lanka. The effective identification of development strategies and fixing priorities will call for better understanding of the present level of development in each district as well as its position relative to other districts. The purpose of this paper is to aid such understanding by providing the results of an attempt to measure the quality of life in each district.

The layout of the paper is as follows: After a brief account of the Physical Quality of Life Index (PQLI) the measure used to quantify the quality of life-in Section 1; Section 2 presents the historical sex-wise PQLIs of Sri Lanka in the census years during the period 1921-71. These historical PQLIs, being informative in themselves, assist to visualize in perspective the existing inter-district variation of the quality of life. The inter-district variation, along with the pattern of the distribution, of the districts is viewed here in two directions: firstly according to the female and the male PQLIs in Section 3, and secondly according to the average of and the difference between the female and the male PQLIs in Section 4. Finally, Section 5 summarizes the findings.

Basic Needs and Quality of Life

The measurement of development efforts in developing countries, in the past, has generally focussed on the growth of the per capita gross national product and other monetary indicators. Gradually, it has observed that growth of output or income by themselves are not adequate indicators of development, and that the reduction of poverty and the satisfaction of basic human needs are goals that should get reflected in a measure of development. In response, there has been growing interest, during the recent past, in designing and constructing better measures of development¹. The Physical Quality of Life Index (PQLI) is one such basic needs-oriented development measure that has received widespread adoption and stimulated promising and exciting lines of analysis.

The PQLI, developed at the Overseas Development Council under the direction of Morris D. Morris in 1976, is a composite index based on three simple indicators: life expectancy at age one, infant mortality and literacy.² On *indexing each indicator* to a scale of 0–100—that is, by taking the range of the data for each indicator with the most unfavourable performance in any country since 1950 being defined as zero and the best expected performance by the end of this century as 100—and combining them with equal weight, PQLI is made to lie between 0 and 100³.

On studying the values of PQLI and per capita GNP of 150 countries M.D. Morris observed that as a social science too, the PQLI's major value is not only 'in the new information it provides and in the new lines of analysis it stimulates' but also in its capacity 'to serve as a creative complement to the GNP. By focussing on welfare results rather than economic inputs, it records how widely certain basic characteristics are distributed within and among populations. It informs about changing distribution of social benefits among countries and, within a country, between the sexes, among ethnic groups, and by region and sector... Because it is bounded at the upper end, the PQLI can be used to set objective? that are achievable'.⁴

Historical PQLIs of Sri Lanka

On realising the usefulness of identifying the differences in the quality of life between sex, care has been taken to compute separate values of male and female PQLIs throughout the paper. The available data on the component indicators given in Appendix Table A 1 limit to the census years of 1921, '46, '53, '63 and '71. The

1. For a recent critical review of such indicators, see Norman Hicks and Paul Streeten (1979).
2. A detailed account of the PQLI is available in Morris D. Morris (1979).
3. (a) Life expectancy at age one is converted to an index number using the formula:
 $(\text{life expectancy at age one} - 38) \div 0.39$
(b) Infant mortality rate is converted to an index number using the formula:
 $(229 - \text{infant mortality rate per 1000}) \div 2.22$
(c) Literacy index number corresponds to the actual data.
(d) PQLI is the average of life expectancy at age one, infant mortality and literacy indexes (equally weighted).
4. Morris D. Morris (1979). p. 57 and p. 93

computed male and female PQLIs, their averages and their differences for the above years are in Table 1. This table also presents the average annual Disparity Reduction Rates (DRRs) in PQLI between the inter-census years. The DRR measures the rate at which disparity between the present PQLI and the maximum it can attain (100) decreased between a given period.⁵

Table 1: Sri Lanka's Historical PQLIs And Average Annual Disparity Reduction Rates by Sex

Year		PQLI		Average Annual DRR in PQLI (c)			
		Male	Female	Average(a)	Difference (b)	Male	Female
1921	...	25.0	12.1	18.6	-12.9	—	—
1946	...	46.3	36.3	41.3	-10.0	1.3	1.3
1953	...	68.3	60.1	64.2	-8.2	7.3	6.5
1963	...	75.5	71.3	73.4	-4.2	2.5	3.2
1971	...	79.7	78.1	78.9	-1.6	2.3	3.3
1921-71	...	(50 years)		...	...	2.6	2.7
1946-71	...	(25 years)		...	...	3.8	4.2
1953-71	...	(18 years)		...	...	2.4	3.3

Source: Appendix Table A 1

Note: (a) (Male PQLI + Female PQLI) ÷ 2

(b) Female PQLI-Male PQLI.

(c) Computed using the formula given in Note 5.

It can be seen that during the half-a-century period from 1921 the male PQLI has grown from 25 to 80 and the female PQLI from 12 to 78. The magnitudes of increase, thus, have been more than three-fold for males and more than six-fold for females. In terms of average annual DRR for different periods between 1921 and 1971, it is noteworthy to observe that for both sex the highest value is in the period 1946-'53. Whatever the precise mix of factors that accounted for this rapid progress of the PQLI in Sri Lanka, the malaria eradication campaign of that period has, certainly, played a major role in it. It is also interesting to observe that the growth of Sri Lanka's PQLI records a higher DRR for the quarter century after 1946 than that for the quarter century before 1946. However, during the period 1953-'71 the average annual DRR has remained almost constant around the value of 2.4 for males and 3.3 for females.

5. 'The DRR for PQLI is calculated according to the formula:

$$DRR_{t \rightarrow t+n} = \left\{ \frac{X_{t+n}}{X_t} \right\}^{1/n} - 1$$

Where X is the disparity between actual PQLI performance and 100 in time t and in time t + n. The calculation yields a negative number when the disparity is being reduced. However, for the convenience of discussion, the rate at which the gap between actual PQLI and 100 is narrowing is shown as a positive number. Unlike the normal percentage rate of change, the DRR permits meaningful comparisons of performance toward fixed goals to be made.' Morris D. Morris (1979) p. 121.

Notwithstanding the above facts the gap between the female and the male PQLIs has remarkably narrowed down during the half-a-century period after 1921. It is observable that there exists a strong inverse relation between the average and the difference between the female and the male PQLI during the period 1953-'71 (see, Note (b) for Table 3). This indicates that during this period the increase in the value of the average PQLI has accompanied with a uniform decrease in the gap between the female and the male PQLIs. The importance of the above can be further seen when observed that during a comparable period in India the difference between the female and the male PQLIs has steadily increased.⁶ These observations bring to light an important conclusion that in Sri Lanka the past development programmes have resulted in the improvements of the quality of life of the males as well as the females: the increase in female improvement has been relatively more rapid than that of males.

In summary, the above figures quantify the significant improvements in the levels of living of the majority in Sri Lanka which has been able to achieve in the life time of a single generation.⁷ By 1971, although Sri Lanka has achieved the 'basic human needs, target suggested by the Tinbergen group report, 'Reshaping the International Order'⁸ which is equal to a PQLI of, 77 by the end of the century, 'it would be wrong to conclude that the country as a whole has reached a level at which the basic needs of the population are being fully satisfied and the manifestations of acute poverty and deprivation have been entirely eliminated'.⁹ An attempt is made to visualize this in the two sections that follow.

Inter-district Variation of PQLI

This section presents the results of the computation of districtwise PQLIs of Sri Lanka. The data utilized¹⁰ and the computed male and female PQLIs are in Appendix Tables A2 and A3. The results along with the district locations are depicted in Figure 1. Since the districtwise data on all the three components of the PQLI are available only for 1971, any study of temporal variation of district wise PQLIs, however, is not possible.¹¹ Further, in 1971 Sri Lanka had only 22 districts although later in 1978 it was increased to 24. The present discussion, thus, centered around the 22 districts at the time. To facilitate the analysis that follows, the results in Figure 1 are first presented as in Table 2 which indicates the distribution of districts according to the male and the female PQLIs. For the purpose of comparison with the historical PQLIs the corresponding values for Sri Lanka in 1953, '63 and '71 are also included in Table 2.

6. op cit., Appendix C Table 1.

7. Paul Isenman (1980) provides a broad review of relevant issues connected with Sri Lanka's success in meeting its basic needs and growth objectives.

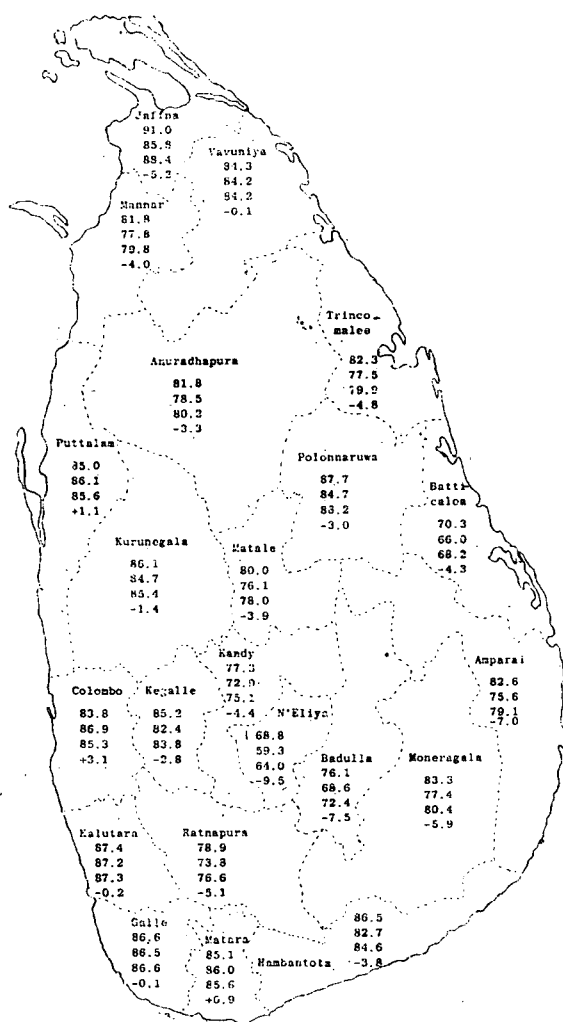
8. Morris D. Morris (1979) p. 62.

9. Godfrey Gunatilleke (1978) p. 51.

10. Author is grateful to the Director, D T & R U, University of Colombo and the Registrar-General for making available districtwise data on life expectancy and infant mortality, respectively.

11. However, except districtwise data on life expectancy, the data on other two component indicators are available for the years 1946, '53 and '63.

Figure 1 : Districtwise PQLIs in Sri Lanka — 1971



Note: Figures in each district indicate the male PQLI, their average and the difference between the female and male PQLIs, respectively.

Source: Appendix Table A2 and A3

Table 2: Distribution of the Districts according PQLIs for Males and Females-1971

<i>PQLIs for Males</i>	<i>PQLIs for Females</i>						
	55-59	60-64	65-69	70-74	75-79	80-84	85-89
65-69	Nuwara Eliya (64)	SRI LANKA: 1953 (64)	—	—	—	—	—
70-74	—	—	Batticaloa (68)	—	—	—	—
75-79	—	—	Badulla (72)	SRI LANKA: 1953 (73) Kandy (75) Ratnapura (77)	SRI LANKA: 1971 (79) Matale (78) Amparai (79)	—	—
80-84	—	—	—	—	Mannar (80) Trincomalee (80) Anuradhapura (80) Moneragala (80)	Vavuniya (84)	Colombo (85)
85-89	—	—	—	—	—	Kegalle (84) Hambantota (85)	Kurunegala (85) Polonnaruwa (86) Matara (86) Puttalam (86) Galle (87) Kalutara (87)
90-94	—	—	—	—	—	—	Jaffna (88)

Source: Appendix Table A2 and A3

Note: (a) Figures in parantheses indicate the average of the female and the male PQLIs.

(b) Correlation between the male and the female PQLIs, for the districts in 1971 is 0.9395 and is significant at % level of significance.

A cursory look at Table 2 suggests that the districtwise male and female PQLIs are highly related indicating that high values of the male PQLI are generally associated with high values of the female PQLI and *vice versa*. However, as the following inequality measures of the distribution of the male and the female PQLIs among the districts indicate, there exists relatively wider disparity among the female PQLIs than that among the males.

Inequality of the Distribution of the Male and the Female PQLIs Among the Districts

<i>Inequility measure</i>	<i>Male</i>	<i>Female</i>
Range	68.8 to 91.0	59.3 to 87.2
Maximum-Minimum	22.2	27.9
Coefficient of variation	6.59%	9.57%
Variance of Logarithms	0.85×10^{-3}	1.85×10^{-3}
Gini Coefficient	0.034	0.050

On the basis of the average of the female and the male PQLIs we observe, from Table 2, that the Jaffna district has the highest PQLI (=88) while the Nuwara Eliya district has the lowest (=64); the difference being substantial. Further, the 6 districts—Jaffna, Kalutara, Galle, Puttalam, Matara and Polonnaruwa—precede the metropolitan Colombo district. PQLI is comparatively very low in the estate districts of Nuwara Eliya, Kandy, Badulla and Ratnapura. The Batticaloa district is an exception, in that it has a comparatively very low PQLI despite the absence of an estate sector. On the other hand the Kegalle district has a comparatively high PQLI in the presence of an estate sector. Except Batticaloa, all districts entirely within the dry zone—namely Jaffna, Mannar, Vavuniya, Anuradhapura, Trincomalee, Polonnaruwa, Amparai, Moneragala and Hambantota have higher PQLIs than the average PQLI for Sri Lanka. Further, the four coastal districts entirely in the wet zone—namely Colombo, Kalutara, Galle and Matara have relatively high PQLIs than the rest. It is noteworthy that Puttalam—a coastal district with a major part in the dry zone—has a relatively high PQLI which is, in fact, on par with that of the above mentioned four coastal districts.

In an attempt to explain the magnitudes of some of these PQLIs, let us begin first by considering the case of Jaffna. Its unique attainment of the highest PQLI is probably due to many factors. The prevalence of relatively very high literacy rates—second only to that of the Colombo district between 1946-'63—may have been, to some extent, responsible for the Jaffna district to attain this very high PQLI.¹² Further, the position in Jaffna is unique in some other aspects too as evident from the following. 'In the pattern of agricultural and demographic change, Jaffna presents a situation different from any of the other districts. Large portions of the total land area were not available for agricultural use, owing to aridity, salinity, other unsuitable soil conditions and lack of irrigation facilities. The arable land available had been used to develop a highly efficient, intensive system of dry farming. ...The developments in Jaffna illustrate the way in which the interaction between agricultural and demographic factors is influenced by the larger relationships between social, ethnic, agro-climatic, economic and political factors'.¹³

12. It has now established that 'literacy has an important impact on life expectancy and infant mortality'. See, for example, Paul Isenman (1980) p. 242.

13. ESCAP (1975) p. 78.

On considering the estate districts, the extent of the smallness of the value of the PQLI of the Nuwara Eliya district (in 1971) can be realised when observed that it is equivalent to that of Sri Lanka as a whole in 1953. Further, it can be observed that the PQLI of the Badulla district (in 1971) seems to equal to that of Sri Lanka in 1963. These may suggest that the quality of life in the districts such as Nuwara Eliya and Badulla are about 10–20 years behind that of Sri Lanka as a whole.

Comparatively very low PQLIs in the estate districts confirms that 'the deepest pockets of poverty however are to be found in the hill country in the Kandyan districts among the rural communities which is surrounded by the plantations. ...The characteristics of poverty in the disadvantaged rural communities can be contrasted with those among the population resident in the estate. In the estate while nutritional levels are above the minimum, mortality rates are high and poverty manifests itself in high rates of illiteracy and poor housing with severe over-crowding. In the rural community educational levels are much higher, rates of literacy even in the poorest pockets are high, housing in terms of living space more satisfactory. Poverty is essentially seen in extremely low levels of income and insufficiency of food. ...The two types of poverty that have been described exist side by side, in close proximity to each other. They combine to produce the disadvantaged districts which reflect lower aggregate levels of life expectancy, literacy and nutrition when compared to other parts of the country'.¹⁴

Comparatively high literacy rates that have prevailed throughout the past may have created an impact on life expectancy, and mortality (see, Note 12) to result relatively high PQLI in the Kegalle district even in the presence of an estate sector. In addition the favourable combination of agro-climatic and demographic factors also may have contributed to the improvement of the quality of life in Kegalle.¹⁵

The programme of health which eradicated malaria and made dry zone districts habitable and created conditions conducive for migration concomitant with investment in irrigation which provided the infrastructure for the cultivation of the dry zone land under a settled agricultural cropping pattern may have contributed to result PQLIs which are above average, in the dry zone districts. The critical importance in the latter factor is observed in the different magnitudes of PQLIs for Polonnaruwa compared with Moneragala. The availability of land by itself in the Moneragala district did not create the same conditions for rapid migration and expansion of agricultural land as it did in the case of Polonnaruwa, mainly because of the lower level of investment on irrigation in the Moneragala district.

Relatively high PQLIs observed in Colombo, Kalutara, Galle and Matara—the four coastal districts entirely in the wet zone—are not difficult to explain. Being urbanized than other districts, in these districts there is an intensive utilization of agricultural land and many rural people engaged in non-agricultural occupations thereby resulting higher income levels. On the whole, adequate rainfalls, highly developed educational and health services with better road networks and communication systems over a longer period of time have, no doubt, resulted better quality of life in these districts.

14. Godfrey Gunatilleke (1978) pp. 71-73.

15. In studying the population growth and agricultural change, it has observed; 'While it (the Kegalle district) received adequate rainfall for the rainfed cultivation of paddy, it did not suffer from the problems of drainage encountered in the low country. The supply of labour was adequate to meet the requirement of labour intensive cultural practices such as transplanting and hand weeding. There is no doubt that the demographic factor entered the total situation and contributed to the exceptional progress made in Kegalle'. ESCAP (1975) p. 87.

Inter-district Variation of Difference Between Female and Male PQLI's

To study, next, the districtwise variation of the difference between the female and the male PQLIs the results in Figure 1 are further tabulated as in Table 3. It presents the distribution of the districts according to the average of and the difference between the female and the male PQLIs. Again as in Table 2, the corresponding values for Sri Lanka in 1953, '63 and '71 are also included in Table 3.

An important observation evident from Table 3 is that as the average district PQLI increases the difference between the female and the male PQLIs generally changes from large negative values (eg. Nuwara Eliya) to zero (eg. Vavuniya) and continues to result moderate positive values (eg. Colombo), resulting a significant correlation between the variables. Note that a similar observation was made in the context of the whole island from the historical PQLIs, in Section 2. The pattern of the distribution of the districts seen in Table 3 is, on one hand slightly different to that of Table 2 and, on the other hand reveals a welcome phenomenon. The coastal districts of Colombo, Kalutara, Galle and Matara with relatively high PQLIs have positive or near zero differences between the female and the male PQLIs whereas the estate districts of Nuwara Eliya, Badulla, Ratnapura and Kandy with comparatively very low PQLIs have large negative differences. On considering the socio-economic conditions prevailing in the above two groups of districts, it can be safely hypothesized that in Sri Lankan context simultaneous existence of high average values of PQLI with positive differences between the female and the male PQLIs indicate a better overall quality of life than indicated by PQLI alone.

It seems difficult to single out a common reason that may have been responsible for the apparent large negative differences between the female and the male PQLIs in districts such as Jaffna, Amparai, Badulla and Nuwara Eliya. The pattern of the ethnic composition of the population in a district, which one could have guessed as a possible reason, does not explain a significant proportion of the variation in the differences between the female and the male PQLIs among the districts.¹⁶

Since in many countries it has been observed that 'a general improvement in the overall status of women leads to the enhancement of the quality of life both at the micro-level of the family and at the macro-level of the community'¹⁷, it can be hypothesized that along with large average PQLI, positive difference between the female and the male PQLIs in a district can be, to some extent, used as an indicator of the improvements in the status of women in that district. This goes to point out, confirming the popular belief, that the status of women in the Colombo district is relatively much better and that in the Nuwara Eliya district is relatively poor.

Summary

The Physical Quality of Life Index (PQLI) was utilized to aid the understanding of the present level of development in each district by measuring the quality of life in each. With a view to visualizing in perspective the existing interdistrict variation of the quality of life, historical PQLIs of Sri Lanka in the census year during the period 1921-71 were first calculated. The historical growth of PQLI of Sri Lanka not only quantified the significant improvements in the quality of life which has been achieved in the life time of a single generation, but also indicated that during the period 1953-'71 the average annual Disparity Reduction Rate has remained almost constant around the value of 2.4 for males and 3.3 for females.

16. Correlation between 'the difference between female and male PQLIs' and 'the proportion of Tamils and Moors in the population', is 0.396 and is not significant at 5%.

17. ESCAP (1976) p. 343.

Table 3: Distribution of the Districts according to Average of and Difference between the female and the male PQLIs-1971

<i>Difference between female & male PQLIs</i>	<i>Average of female and male PQLIs</i>					
	60-64	65-69	70-74	75-79	80-84	85-89
-10- -9	Nuwara Eliya (64)	—	—	—	—	—
- 8- -7	SRI LANKA: 1953 (64)	—	Badulla (72)	Amparai (79)	—	—
- 6- -5	—	—	—	Ratnapura (77)	Moneragala (80) Trincomalee (80)	Jaffna (88)
- 4- -3	—	Batticaloa (68)	SRI LANKA: 1963 (73)	Kandy (75) Matale (78)	Mannar (80) Anuradhapura (80) Kegalle (84)	Hambantota (85) Polonnaruwa (86)
- 2- -1	—	—	—	SRI LANKA: 1971 (79)	—	Kurunegala (85) Puttalam (86)
0-+ 1	—	—	—	—	Vavuniya (84)	Matara (86) Galle (87) Kalutara (87)
+2- +3	—	—	—	—	—	Colombo (85)

Source: Figure 1.

Note: (a) Figures in parantheses indicate the average of the female and the male PQLIs.
 (b) Correlation between the average of and the difference between the female and the male PQLIs.,
 (i) for the districts in 1971 = -0.7072**
 (ii) for Sri Lanka during the period 1953-'71 = -0.9997**

** Significant at 1 % level of significance.

The interdistrict variation and the pattern of the distribution of the quality of life in the districts, in 1971, were viewed in two directions: firstly according to the female and the male PQLIs and secondly according to the average of and the difference between the female and the male PQLIs. The sex-wise PQLIs indicated that there was relatively wider disparity among the districts of the quality of life of the females than that of the males. On the basis of the average PQLI, the highest and the lowest values were recorded in Jaffna (=88) and in Nuwara Eliya (=64) districts, respectively.

An important fact that emerged from the study was that the simultaneous existence of high average values of PQLI with positive differences between the female and the male PQLIs indicate not only a better overall quality of life than indicated by PQLI alone, but also improved status of women. The pattern of the distribution of the districts resulting from the analysis pointed out, confirming the popular belief, that the urbanized coastal districts of Colombo, Kalutara, Galle and Matara in the wet zones have better overall quality of life than that in the estate districts of Nuwara Eliya, Badulla, Ratnapura and Kandy.

The extent of the existing 'backwardness' of the quality of life in certain districts highlighted in this study, can be used to guide the identification of districts for development activities under such projects as the Integrated Rural Development Programmes.¹⁸

References

- ESCAP (1975), Comparative Study of Population Growth and Agricultural Change: Case Study of Sri Lanka, *Asian Population Studies Series*. No. 23. Bangkok.
- ESCAP (1976), Population of Sri Lanka, *Country Monograph Series* No. 4. Bangkok.
- Gunatilleke, Godfrey (1978), "Participatory Development and Dependence—The Case of Sri Lanka". *Marga* 5 (3) (Special issue) pp. 38–172.
- Hicks, Norman and Paul Streeten (1979), "Indicators of Development: The Search for a Basic Needs Yardstick". *World Development* 7 (6), pp. 567–580.
- Isenman, Paul (1980), "Basic Needs: The Case of Sri Lanka" *World Development* 8 (3), pp. 237–258.
- Morris, Morris D. (1979), *Measuring the Conditions of the World's Poor: The Physical Quality of Life Index*. Pergamon Press Ltd., New York.

18. The Integrated Rural Development Programme (IRDP), launched in Sri Lanka in 1979, aimed at ameliorating the conditions of the community by providing them the basic needs and eliminating regional disparities within the district. It is directed to achieve better standard of living, to increase production, employment and income. While the implementation of IRD programme have commenced in Kurunegala, Matara, Hambantota, Nuwara Eliya, Matale, and Puttalam districts, the following districts have been identified for future IRD programmes: Vavuniya, Mannar, Badulla, Moneragala and Ratnapura.

Appendix Table A1: Component Indicators for the Construction of Sri Lanka's Historical PQLIs by Sex: 1921-'71

Year			Life Expectancy at Birth (1) (Years)		Life Expectancy at Age one (2) (Years)		Infant Mortality Rate (3) (per 1000 live births)		Literacy Rate (4) (%)		Life Expectancy at Age One Index		Infant Mortality Index	
			M	F	M	F	M	F	M	F	M	F	M	F
1921	...	...	32.6	30.6	39.5	36.6	196.4	187.5	56.4	21.2	3.8	-3.6	14.7	18.7
1946	...	...	43.8	41.5	50.2	47.0	145.1	135.8	70.1	43.8	31.3	23.1	37.5	42.0
1953	...	...	57.8	55.7	61.6	58.6	77.0	65.1	75.9	53.6	60.5	52.8	68.5	73.8
1963	...	...	62.8	63.0	65.9	65.4	60.8	50.7	79.3	63.2	71.5	70.3	75.8	80.3
1971	...	...	64.0	66.9	66.4	68.7	48.8	40.7	85.2	70.7	72.8	78.8	81.2	84.8

- Source: (1) S. L. N. Rao (1975). *Demographic Problems in Sri Lanka*. Demographic Training & Research Unit, University of Colombo.
- (2) Estimated using the formula, $e_1 = [e_0 - 1 + q_0(1 - k_0)] \div [1 - q_0]$ where e_1 = life expectancy at age one, e_0 = life expectancy at birth, q_0 = infant mortality rate, and k_0 = average survival period during the first year (=0.2 years).
- (3) 1921-'63: ESCAP (1976). *Population of Ceylon*, Bangkok (Table 100 and Annex III Tables 1 and 2) 1971: Tables A2 and A3.
- (4) Dept. of Census & Statistics (1974). *The Population of Sri Lanka-1974*, Colombo (Table 3.19).

Appendix Table A2: Districtwise PQLIs and Component Indicators—1971: Males

District			Life Expectancy at Age One (1) (years)	Infant Mortality Rate (2) (per 1000 live- births)	Literacy Rate (aged 10 & over) (3) (%)	Life Expectancy Age One Index	Infant Mortality Index	PQLI
1. Colombo	...	...	67.90	45.45	91.9	76.67	82.68	83.8
2. Kalutara	...	...	72.20	38.59	88.6	87.69	85.77	87.4
3. Kandy	...	...	66.85	65.30	84.2	73.97	73.74	77.3
4. Matale	...	...	68.99	56.18	82.7	79.46	77.85	80.0
5. Nuwara Eliya	...	...	65.24	101.27	78.9	89.85	57.54	68.8
6. Galle	...	...	72.64	44.93	88.1	88.82	82.91	86.6
7. Matara	...	...	73.80	56.18	85.6	91.79	77.85	85.1
8. Hambantota	...	...	73.58	38.95	82.7	91.23	85.60	86.5
9. Jaffna	...	...	75.44	27.51	86.3	96.00	90.76	91.0
10. Mannar	...	...	68.78	42.32	82.4	78.92	84.09	81.8
11. Vavuniya	...	...	70.41	33.95	81.8	83.10	87.86	84.3
12. Batticaloa	...	...	65.07	62.59	66.4	69.41	74.96	70.3
13. Amparai	...	...	71.98	41.93	76.4	87.13	84.27	82.6
14. Trincomalee	...	...	70.83	37.58	76.4	84.18	86.23	82.3
15. Kurunegala	...	...	71.45	41.64	88.0	85.77	84.40	86.1
16. Puttalam	...	...	69.21	36.04	88.0	80.10	86.92	85.0
17. Anuradhapura	...	...	68.80	46.45	84.2	78.97	82.23	81.8
18. Polonnaruwa	...	...	72.94	31.05	84.2	89.59	89.17	87.7
19. Badulla	...	...	66.86	59.98	78.3	74.00	76.14	76.1
20. Moneragala	...	...	73.05	40.45	75.2	89.87	84.93	83.3
21. Ratnapura	...	...	69.63	63.61	81.1	81.10	74.50	78.9
22. Kegalle	...	...	72.65	49.90	86.1	88.85	80.68	85.2
Sri Lanka	...	...	66.39	48.83	85.2	72.79	81.16	79.7

Source: (1) Demographic Training & Research Unit, University of Colombo—Unpublished data

(2) Registrar General's Office—Unpublished data

(3) Department of Census & Statistics *Census of Population—1971: General Report: (1978)* Colombo.

Appendix Table A3: Districtwise PQLIs and Component Indicators—1971: Females

District	Life Expectancy at Age One (1) (years)	Infant Mortality Rate (2) (per 1000 live- births)	Literacy Rate (aged 10 & over) (3) (%)	Life Expectancy Age One Index	Infant Mortality Index	PQLI
1. Colombo	72.86	36.19	84.4	89.38	86.85	86.9
2. Kalutara	74.74	29.88	77.7	94.21	89.69	87.2
3. Kandy	67.96	55.82	63.9	76.82	78.01	72.9
4. Matale	69.71	42.89	63.3	81.31	83.83	76.1
5. Nuwara Eliya	63.02	83.73	48.3	64.15	65.44	59.3
6. Galle	75.10	35.23	77.2	95.13	87.28	86.5
7. Matara	75.96	30.91	71.4	97.33	89.23	86.0
8. Hambantota	75.70	34.64	63.9	96.67	87.55	82.7
9. Jaffna	71.59	24.27	79.2	86.13	92.22	85.8
10. Mannar	68.46	35.08	68.0	78.10	87.35	77.8
11. Vavuniya	72.96	22.09	69.9	89.64	93.20	84.2
12. Batticaloa	65.77	51.49	46.7	71.21	79.96	66.0
13. Amparai	73.66	41.04	50.7	91.44	84.67	75.6
14. Trincomalee	72.09	34.82	57.6	87.41	87.47	77.5
15. Kurunegala	74.27	35.57	74.0	93.00	87.13	84.7
16. Puttalam	72.81	29.65	79.1	89.26	89.90	86.1
17. Anuradhapura	69.43	32.05	66.2	80.59	88.72	78.5
18. Polonnaruwa	76.16	36.38	69.6	97.85	86.77	84.7
19. Badulla	67.53	54.30	51.5	75.72	78.69	68.6
20. Moneragala	74.08	35.80	52.8	92.51	87.03	77.4
21. Ratnapura	69.58	52.91	61.0	80.97	79.32	73.8
22. Kegalle	73.70	39.24	70.3	91.54	85.48	82.4
Sri Lanka	68.74	40.65	70.7	78.82	84.84	78.1

Source: (1) Demographic Training & Research Unit, University of Colombo—Unpublished data

(2) Registrar General's Office—Unpublished data

(3) Department of Census & Statistics (1978), *Census of Population—1971: General Report, Colombo*.