Royal Government of Cambodia

Ministry of Planning

POVERTY ALLEVIATION
AN APPROACH TO AN ACTION PLAN FOR CMDG-1

PHNOM PENH
APRIL 2014

Contents	Page No.

Poverty Alleviation – an Approach to an Action Plan

Cambodia Millennium Development Goal 1 – to be achieved by 2015

1. Reduce by 2015, the proportion of people living in poverty to ≤19.5%, and hunger to ≤10%;
2. Raise the share in consumption of the poorest 20% of the population to ≥11%;
3. Reduce prevalence of underweight children (<5 years) to ≤ 19%, stunted children to ≤25% and wasted children to ≤6%;
4. Reduce prevalence of anaemia among children aged 6-59 months to 42% and among women aged 15-49 to 42%;
5. Increase the proportion of households using iodised salt to 90%;
6. Reduce prevalence of working children (≤ 17 years) to ≤ 8% of the total children in this age group.

THE ISSUE

Cambodia embarked upon the path to economic development soon after the Peace Treaty of 1993 and picked-up pace in the new millennium. It is among the more successful low-income post-conflict transitional agrarian countries having achieved significant economic growth, to the extent that it is now on the threshold of moving out of the 'least developed country' status. There is significant progress made on most Millennium Development Goals (MDG) as well. The government, however, sees no room for complacency; as stated in the NSDP 2014-2018 document, it will continue its efforts to promote both economic and social policies for the betterment of the people of Cambodia. Given the global focus on rising inequality in the current times, effort will be made to address this issue as well.

Cambodia has achieved most of the above-mentioned targets in Cambodia Millennium Development Goal 1 (CMDG 1), an account of which could be seen in the next section. This paper is not about evaluating the CMDGs, an exercise carried out annually by the Ministry of Planning of the Royal Government of Cambodia (RGC). It is about promoting poverty alleviation and eventually its elimination. Achieving CMDGs is only one goalpost in the journey towards a continuous quest for human betterment and all the goals (and more) have to be pursued regularly for human betterment. This paper concentrates on Poverty Alleviation (CMDG1). Premise:

- Poverty alleviation and reduction in inequality are an economic necessity
- Poverty alleviation and reduction in inequality are a social necessity
- Poverty alleviation and reduction in inequality are a political necessity
- Poverty alleviation and reduction in inequality are essential for sustainability

This report presents a prelude to an approach towards promoting CMDG1 with special focus on substantive poverty alleviation during the planning cycle 2014-2018, and eventually its elimination in the subsequent years. The paper is written in three parts:

(1) Part 1 presents the magnitude of the problem of poverty and its other attributes – the situation analysis,

(2) Part 2 presents a diagnosis of the drivers of (positive) change and factors that perpetuate it – a change and bottleneck analysis, and
(3) Part 3 presents an integrated approach to poverty alleviation drawing upon the findings in Parts 1 and 2.

This paper draws upon data from the Cambodia Socioeconomic Surveys (CSES), the Commune Databases (CDB), the Cambodia Demographic Health Survey (CDHS), the Ministry of Agriculture databases, and occasionally the Population Census data. In much of the text the data from CSES pertain to 2012, but in a few cases 2011 have been drawn upon to ensure that there is robustness in the results and inferences. The same is true for CDB as well.

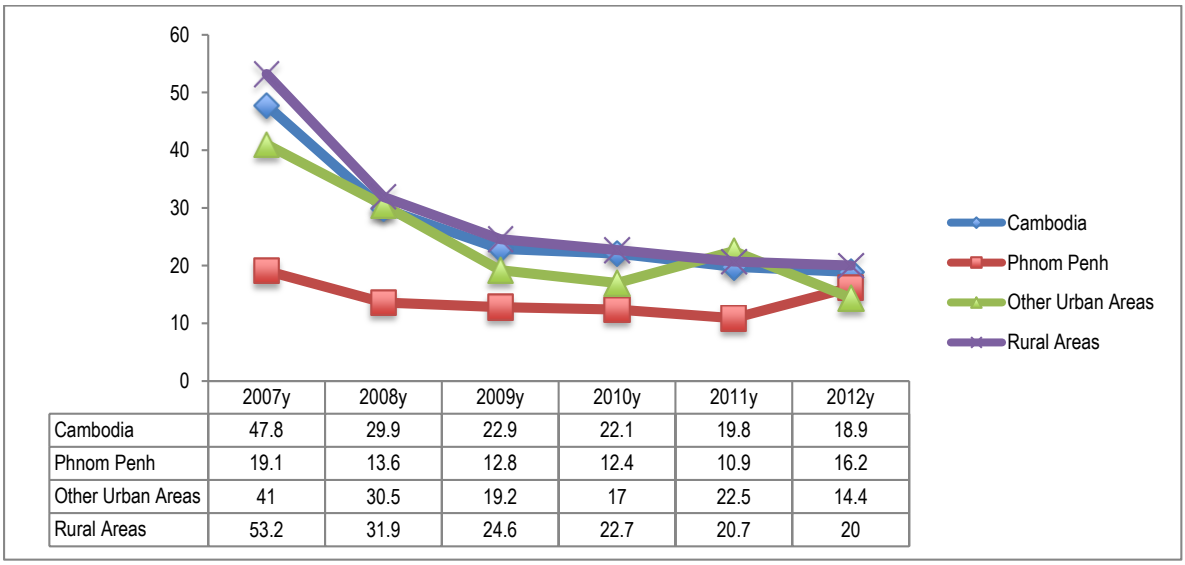
PART 1: SITUATION ANALYSIS: TRENDS AND PATTERNS IN POVERTY, INEQUALITY, MALNUTRITION AND CHILD LABOUR

Aggregate Trends in Poverty

Trends in poverty rates, calculated from the Cambodia Socioeconomic Surveys (CSES), suggest that the target of halving the proportion of people below the national poverty line between the early 1990s and 2015 (i.e. reducing the poverty rate to about 19.5% in the population) has been met as in 2012 despite a stiffer poverty line adopted since 2012 and an unchanged goalpost: the poverty rate in 2012 was 18.9%. This is a definite achievement (Figure 1).

There was a steady reduction in the rural poverty rates from about 53.2% in 2007 to 20% in 2012: steep in 2008 and 2009, and gradual thereafter. This is similar to the aggregate trend, and expectedly so as ≥75% of the population has resided in rural areas all along. The reduction in poverty rates in Other Urban Areas is similar, though there was a tweak in 2011 that got corrected in 2012. In Phnom Penh there was a gradual fall in poverty rates until 2011, but there was a tweak observed in 2012. These data suggest that the trends in poverty reduction have resulted from significant improvements in the standards of living in rural areas. At the same time, urban poverty is seen as real and cannot be neglected anymore.[1]

Figure 1: Trends in Poverty Rates in Cambodia by Broad Strata, 2007-2012



	2007y	2008y	2009y	2010y	2011y	2012y
Cambodia	47.8	29.9	22.9	22.1	19.8	18.9
Phnom Penh	19.1	13.6	12.8	12.4	10.9	16.2
Other Urban Areas	41	30.5	19.2	17	22.5	14.4
Rural Areas	53.2	31.9	24.6	22.7	20.7	20

Source: Calculated from CSES

[1] Explanations of the trends (including those in urban poverty) are explained in more detail in Part 2 of this paper. This section, as stated earlier, is on the situation.

Box 1: A Brief History of Poverty Assessment

Between the 1990s and 2010, the Royal Government of Cambodia (RGC) enumerated the proportion of people subsisting in poverty using a poverty line that the World Bank developed in 1997 based on data pertaining to 1993-1994 [from the first Cambodia Socioeconomic Survey (CSES)]. For 1993-1994, the poverty rate was estimated at about 39% of the population. In the new millennium, the government set the target for reduction in poverty rate at 19.5% in the population under the then established Cambodia Millennium Development Goals (CMDG). According to this (old) poverty line, the poverty rate was 14.6% in 2009: the CMDG target was achieved. However, the government redefined the poverty line in 2011/2012, raising the bar. It also decided that the target for reduction in the poverty rate would continue to be 19.5% by 2015, despite the (upward) revision in the poverty line.

Poverty Rates at the Provincial Levels

The most acceptable method of measuring poverty in low income agrarian economies is through measuring the food and non-food consumption levels of people and CSES is the only source collecting data on household consumption expenditure in Cambodia. It, however, does not permit disaggregations at the province level due to the sample design and size. Disaggregated poverty estimates have been prepared here using the Commune Database (CDB)[2] through grouping together proxy (stock) indicators of human wellbeing (the reverse of it) to arrive at a composite Poverty Index from which the poverty rate is arrived (Box 2 states the method).[3,4]

This asset-based poverty measure has distinct advantages: it permits to identify which (household-level productive) assets can alleviate poverty, (or access) to which common property resources can strengthen poverty alleviation. Since this method provides options to strengthen the production base of the poor for them to move out of poverty, it circumvents the issue of making the poor persistently dependent on income transfers from the state. [5,6]

[2] CDB is an administrative database. It collects data from villages and communes from records maintained at that level – it is not a household level enumeration. This is the only source that provides broad-based data at the provincial and sub-national levels. The other database on poverty is the ID-Poor list. This is a listing of households identified to be poor. This list, however, is not available for all provinces for the same year. Also, the aggregate numbers of poor according to the ID-Poor Programme are aligned with the numbers obtained from CSES. Thus, provincial estimates from ID-Poor will not serve the purpose.

[3] As stated in the calculated in Box 2, the method of calculating poverty from CDB Database is quite different from an actual count. Next, these poverty rates are not the same as those prepared by the CDB Authorities.

[4] The Ministry of Planning prepares a list of the poor (again based on the asset structure) on a census bases under a separate programme known as ID-Poor. This, however, does not provide a cross section for the whole country for the same year. Hence, poverty estimates cannot be prepared for annual poverty monitoring.

[5] See also, Carter MR and CB Barret, The Economics of Poverty Traps and Persistent Poverty, https://www.aeaweb.org/assa/2005/0108_0800_1102.pdf . R

[6] Programmes like the Padat Karya in Indonesia, WFP-sponsored food-for-work activities in Cambodia, or NEREGA in India offer seasonal wage employment to the poor. They have a transient impact only, but disturb the labour market dynamics and also create a perpetual dependency of the poor on the state, in turn, which balloons the state budget deficit.

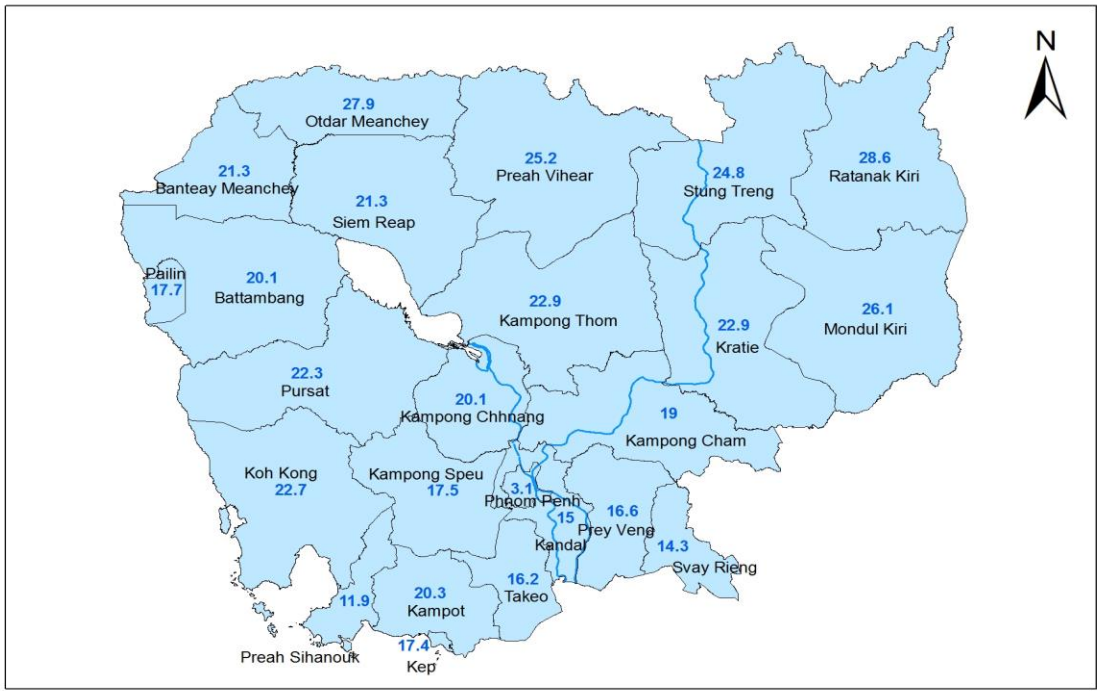
Box 2: Calculating Proxy Poverty Rates at the Province Level Using CDB

A Poverty Index is first calculated using five groups of variables, which are identified to reflect poverty or lack of it:

1. Assets (motorcycles, bicycles, house-types in villages);
2. Facilities (electricity, clean water, sanitation in villages);
3. Human endowments (literacy, school attendance in villages);
4. Work/productivity (non-farm employment, paddy productivity, <1 ha farmers, dependency ratio in villages); and
5. Isolation (distance of villages from urban centres).

The province-specific poverty rates are calculated using a three-step process. It deploys the method used for constructing the Human Development Index.
Step 1: Calculate Individual Variable Index (EVI) (for X_i) = [(Actual (X_i) – Min (X_i)]/[(Max (X_i)– Min_(X_i)]
Step 2: Calculate Composite Poverty Index = SUM (EVI)/k (where k is the number of variables – there are 13 here)
Step 3: Re-index the Composite Poverty Index with National Poverty Rate and obtain province-specific poverty rates according to variations in the Composite Poverty Indices across provinces
All variables are measured as ratios to the population to circumvent the problem of comparing provinces when there are unequal populations and population densities across provinces.

Figure 2: Poverty Rates in Provinces, 2011



Source: Calculated, based on CDB and benchmarked with CSES

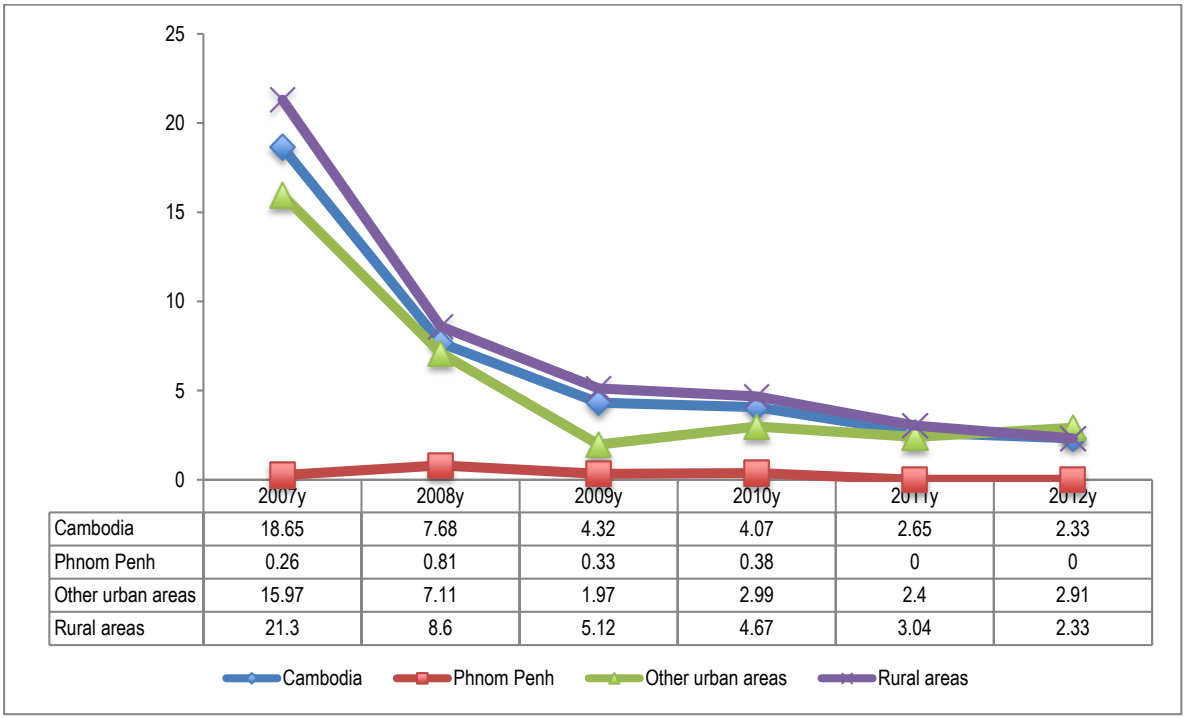
A profile of (proxy) poverty rates constructed at the provincial level is given in Figure 2.[7] Provinces in the south and southeast of Cambodia, which are relatively more densely populated and have had a long tradition of practicing settled farming, have a lower poverty rate compared to those in the north, northeast and northwest. Naturally, agricultural development matters in societies where large numbers depend on agriculture. Of particular concern are the northeastern provinces, where mainly the indigenous communities dwell; they are predominantly rural, agriculture is of low yield and subsistence, and to an extent they are 'un-integrated' in the national mainstream.

Next, relatively high poverty rates are also seen in Siem Reap and Battambang, despite them having a long tradition of farming. Siem Reap is the most important tourist attraction of Cambodia and Battambang is an important paddy-growing province. Why is it that the tourism industry in Siem Reap does not employ larger numbers from the province in tourism? Also, why is it that there is not enough spill over of the distribution of gains from paddy cultivation in Battambang? These are issues will find some discussion in Part 2 of the paper [Box 3].

Trends in Food Poverty

Trends in Food Poverty (also referred to as hunger) are seen in Figure 3.[8] Food poor are also referred to as the very poor or sometimes as 'chronic poor', since they might fall below the band where a small/transient (upward) movement in income / consumption would not result in these people moving above the poverty line.

Figure 2: Trends in Food Poverty Rates, 2007-2012



	2007y	2008y	2009y	2010y	2011y	2012y
Cambodia	18.65	7.68	4.32	4.07	2.65	2.33
Phnom Penh	0.26	0.81	0.33	0.38	0	0
Other urban areas	15.97	7.11	1.97	2.99	2.4	2.91
Rural areas	21.3	8.6	5.12	4.67	3.04	2.33

Source: Calculated from CSES

[7] Note: The 'derived' poverty rate for Phnom Penh (Figure 2) is quite different from that obtained through direct measurement (Figure 1). Among the reasons: CDB provides village level estimates, meaning that if certain village-level aggregates fall below/above a certain standard, the whole village is declared poor/non-poor. Also, the method deployed in Box 2 enumerates the relative position of a province (relative to the highest and lowest). The derived rates thus could be effectively used for ranking provinces, but not for obtaining absolute numbers. To the extent that the ranking is fairly accurately obtained, the (limited) purpose is served.

[8] The food poverty line enumerates the proportion of people whose overall consumption level is less than the quantity of monies required for acquiring just equivalent to 2,200 Kcal of food.

In 2007 (or earlier, for which data are not presented here) there was hunger in the country, both in Rural Areas and Other Urban Areas (i.e. urban centres outside the Municipality of Phnom Penh). Thereafter, there was a rapid fall: in 2012, it was less than 3% everywhere.[9] In terms of CMDGs, this target was met as early as 2008 and the situation has further improved since then. In Phnom Penh there has been no prevalence of food poverty since 2011.

That there is little or no food poverty but there is overall poverty, suggesting that people are deprived of non-food expenditure items: education, health, transport, housing, water, sanitation, others. The earlier poverty line (of the 1990s) did not attach much weight to non-food items as the main focus was on hunger. The new poverty line attaches greater weight to non-food items, thus bringing out this dimension of poverty, especially in urban areas but generally all over. A clear pointer is that the policy should move from 'food-hunger' alone to 'basic needs'.

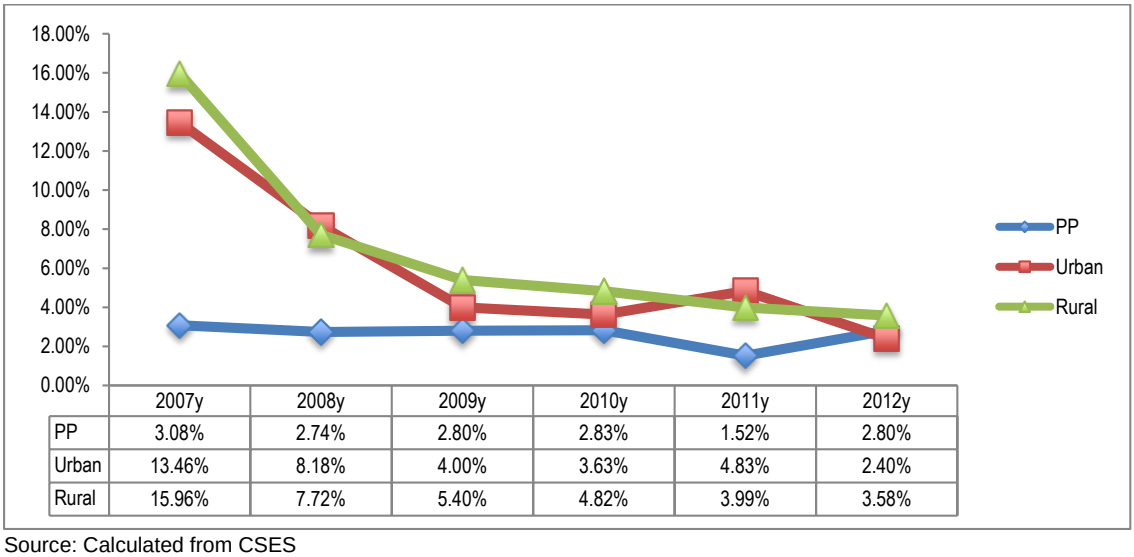
Poverty Gap and Vulnerability

How far are people below the poverty line? One of the measures, the Foster-Greer-Thorbecke (FGT) Index, in its simplest form is the poverty gap measure and its computational formula is as below:

FGT Index (Gap) = $(1/N)\ \Sigma\ (P-Y_i)/P$ [i = 1 to Q] where P is the poverty line, Y_i are incomes of Q people below the poverty line, and N is the whole sample.

Computed numbers of the Foster-Greer-Thorbecke (FGT) Index could be seen in Figure 4. The poverty gap has been small (<5%: the range is 0-100, with 0 showing no gap) and falling over time (except in Other Urban Areas in 2011 and Phnom Penh in 2012 – these, though are small changes). The numbers here suggest that those below the poverty line are huddled close to it: abject poverty is no longer a compelling problem in Cambodia.

Figure 4: Trends in Foster-Greer-Thorbecke Index, 2007-2012



	2007y	2008y	2009y	2010y	2011y	2012y
PP	3.08%	2.74%	2.80%	2.83%	1.52%	2.80%
Urban	13.46%	8.18%	4.00%	3.63%	4.83%	2.40%
Rural	15.96%	7.72%	5.40%	4.82%	3.99%	3.58%

Source: Calculated from CSES

[9] CSES also asks a direct question, 'have you experienced hunger any time in the last one year?' The answers match with the findings seen in Figure 2.3.

Inequality

The share of poorest 20% in the total consumption is rising, albeit slowly. This being current consumption expenditure, it misses out on asset inequality, which it is believed could be higher. Similarly, the consumption inequality measured by the Gini coefficient is falling (Table 1): at 0.29, it is lower than in most countries of the Southeast Asia region, or for that matter all of Asia.

Table 1: Trends in Consumption Inequality

Year	2007y	2008y	2009y	2010y	2011y	2012y
Gini coefficient	0.411	0.381	0.343	0.341	0.313	0.29
Consumption of 20% poorest	6.85	7.46	8	8.34	8.98	9.3

Source: CSES

Nutritional Status – Children and Women

Data on nutrition, an important indicator of human wellbeing, presented in Table 2, suggest that the nutritional deficiency among children is still high. Seen temporally, stunting reduced only by three percentage points—from 43% to 40%—between 2005 and 2010, a small decrease for a five-year period. If the same trend continues, it is highly unlikely that the target of 25% will be met by 2015. Underweight children did not show any improvement either, and wasted children actually increased between 2005 and 2010. The percentage of children and women suffering from anaemia also improved rather slowly between 2005 and 2010. None of these five indicators is yet on track. The only on-track indicator is of iodised salt intake. This trend on the face of it is unsatisfactory and requires explanation and also attention, which will be discussed in Part 2.

Table 2: Nutrition Indicators[10]

	2005	2010	2015 (target)
Children 0-59 months moderately/severely stunted	43%	40%	25%
Children 0-59 months moderately/severely wasted	8%	11%	6%
Children 0-59 months moderately/severely underweight	28%	28%	19%
Children 6-59 months suffering from anaemia	62%	55%	42%
Women 15-49 years suffering from anaemia	47%	44%	-
Proportion of households using iodised salt	73%	83%	90%

Source: Cambodia Demographic and Health Survey (CDHS) 2010

The provincial picture of the nutritional status of children is contrasting (Figure 5 a&b). There is a strong association between the prevalence of stunting and being underweight across provinces: the correlation coefficient is 0.80. It implies that those who are stunted are also underweight. Malnutrition, thus, affects more than one facet of health in a person's life. A simple correlation across provinces between poverty rates and the prevalence of stunting (among children) is 0.56, and between poverty rates and underweight (children) is 0.50. Poorer provinces have larger proportions of under-nourished children, and the vice versa.

[10] Definitions: Stunted is deficient on height to age; Wasted is deficient on height to weight; severe is more than two standard deviations from normal; moderate is more than one standard deviation from normal.

The typology of the southern, central and southeastern provinces (e.g. Phnom Penh, Kandal, Preah Sihanouk, Kep/Kampot, Svay Reing) out-performing those in the north and northeast (e.g. Rattanakiri, Mondolkiri, Stung Treng, Siem Reap) in the nutritional status of children is similar to the spatial pattern of poverty seen earlier in Figure 2. This reiterates the relationship between poverty and the nutritional status – obvious, but evidence-based.

Figure 5 (a&b): Children Stunted and Underweight by Province, 2010

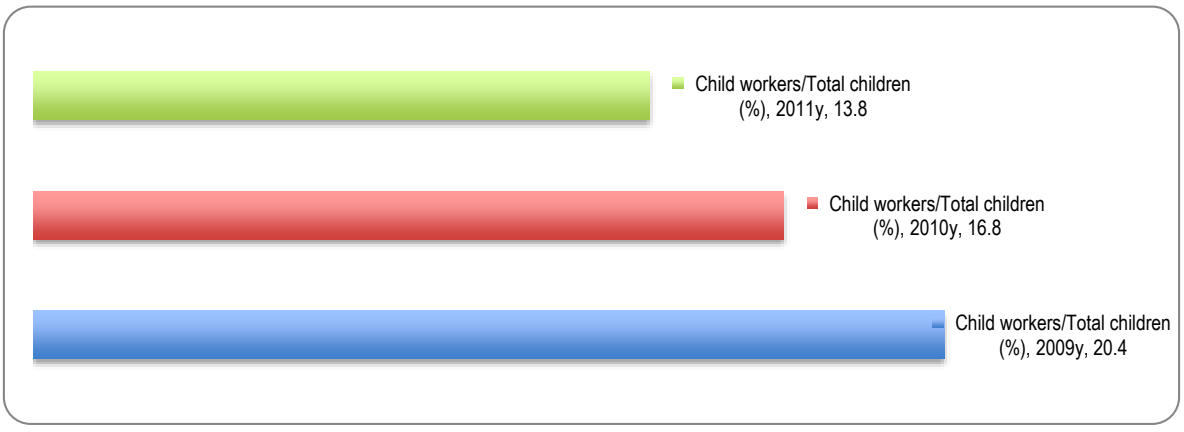
Source: Calculated from CDHS 2010

Finally, in Mondolkiri, Rattanakiri, Stung Treng, Preah Vihear and Siem Reap, the proportion of stunted children exceeds 50%, and underweight about 35-40%. This is a major cause of concern.

Child Labour – Proportions

According to the Cambodia laws persons under the age 18 years when working full time or for a major part of their time as workers, are considered to be child workers. The proportion of child workers to total children fell rapidly through 2009-2011, and was about 14% in 2011 (Figure 6). A combination of falling poverty proportions and increased effort to retain children in schools in grades higher than the primary level appears to have contributed to achieving reduction in child labour. However, the numbers are still larger than the set target of 8% for 2015 and greater effort will be required. This aspect is discussed in Part 2 of this paper in greater detail.

Figure 6: Child Labour as a Proportion of Total Children (age 6-17 years) (%)



Source: CSES

Summing Up

The poverty rates and consumption inequality have come down between 2007 and 2012. The inter-provincial inequalities, however, remain, with the southern and southwestern provinces ranking higher than those in the north, northwest and north. Next, malnutrition among children and women remains high, especially among the poor but it is a general concern. Finally, child labour has reduced as well but is still high when seen from the CMDG goalpost. Thus, the effort to further alleviate poverty and address its other correlates is a real challenge in the years to come.

PART 2: SOME KEY ISSUES IN REGARD TO POVERTY PERSISTENCE AND POVERTY ALLEVIATION: DRIVERS OF CHANGE AND BOTTLENECKS

Economic Growth, Poverty and Vulnerability

Growth and Poverty Associations

The Cambodian economy has grown at 7+% trend growth rate for more than a decade now, resulting in almost tripling of the GDP in a decade (at current prices). The numbers in the previous section suggest that while over the period 2007 until 2012 the poverty reduction was dramatic, the major contributor to this effect has been a one-time shift during 2008-2009: for the other years the reduction has been relatively modest – no more than one percentage point each year despite the impressive growth numbers. Of these two years, in 2008 the growth rate in GDP slowed compared to the past and in 2009 it was near zero and these are the two years when the poverty rates fell the most. *Prima facie*, it appears as if there is only a limited association between aggregate growth in GDP and poverty reduction. How does one interpret these numbers? Some possible explanations:

(a). Part of the reason why poverty rates seems not to be appear associated with growth could lie in lagged effects of growth. There was double-digit growth in the GDP during 2004-2007, which in all probability had a lagged impact on poverty.
(b). Part of the reason appears to be in the sectoral composition of growth. Agriculture, which is the occupation of most rural people, has grown at a steady 3-4% annually in the last 10 years, which has had its (virtuous) effect on people's livelihoods.
(c) Part of the reason relates to external factors like the sudden dramatic rise the food prices globally in 2008 and 2009, which helped the net food sellers – most Cambodian farmers are.[11]

However, for certain, this aspect certainly requires more involved research than is presented here.

Some general inferences in the context of growth and poverty in Cambodia in a '*business as usual*' situation:

1. Agricultural growth appears to have resulted in reduction in rural poverty rate (and overall, since a large proportion of the population is rural) due to a distribution of gains to most farmers. However, as will be discussed in a subsequent section, this cannot continue indefinitely in the present form and will require significant shifts to maintain the momentum.
2.1 Trends in reduction in urban poverty trends are weak. Industrial growth has occurred in the garment industry, but this industry being a basic / low productivity industry, the extent of income increase to people at large is (or would be) limited. Moreover, a seamless lateral expansion of the industry in its present form might not be possible in any foreseeable time horizon.
2.2 To an extent the same could be said about the growth in construction and tourism (low productivity, lateral expansion), the other key growth sectors, in their present shape.
3. There seems to have been some occupational diversification in the south, southwestern and southeastern parts of the country—mainly, in and around Phnom Penh—but not much elsewhere.
4. People at large in the provinces of Siem Reap and Battambang have not benefitted from visible economic activities therein; at least in Siem Reap, poor performance of agriculture and low land availability seem to contribute to this (Box 3).

[11] The question whether all/most farmers gained or a few gained is discussed in the section on Agriculture, subsequently.

Box 3: Poverty in Siem Reap and Battambang

Both Siem Reap and Battambang show relatively higher rates of poverty despite the former being the most important tourism destination and the latter an important paddy-growing province.

The table below presents five select poverty/wealth-related indicators. Siem Reap scores below the national average on all the counts. Battambang scores poorly on four out of the five indicators.

An earlier study suggests that the tourism industry employs the locals mainly as unskilled construction workers (CDRI: Pro-poor Tourism in the Greater Mekong Sub-region, 2007). This implies that most of the workers here are engaged in either agriculture or fishing on the Tonle Sap or as unskilled construction workers. Note that the proportion of fishers to all families, has been included because the fishing communities are among the more poor in the primary sectors compared to others the world over, and Cambodia is no different.

Select indicators related to poverty in Siem Reap, Battambang and Cambodia, 2012

	Siem Reap	Battambang	Cambodia
Paddy Production /population (t/person)	0.48	0.72	0.62
Arable Area /population (ha/person)	0.14	0.18	0.37
Yield rate wet paddy	1.70	1.99	2.04
(Farmers < 1ha + landless)/ families	0.22	0.12	0.18
(Fishers/ Families) X100	5.4	4.4	3.3

Data Source: CDB

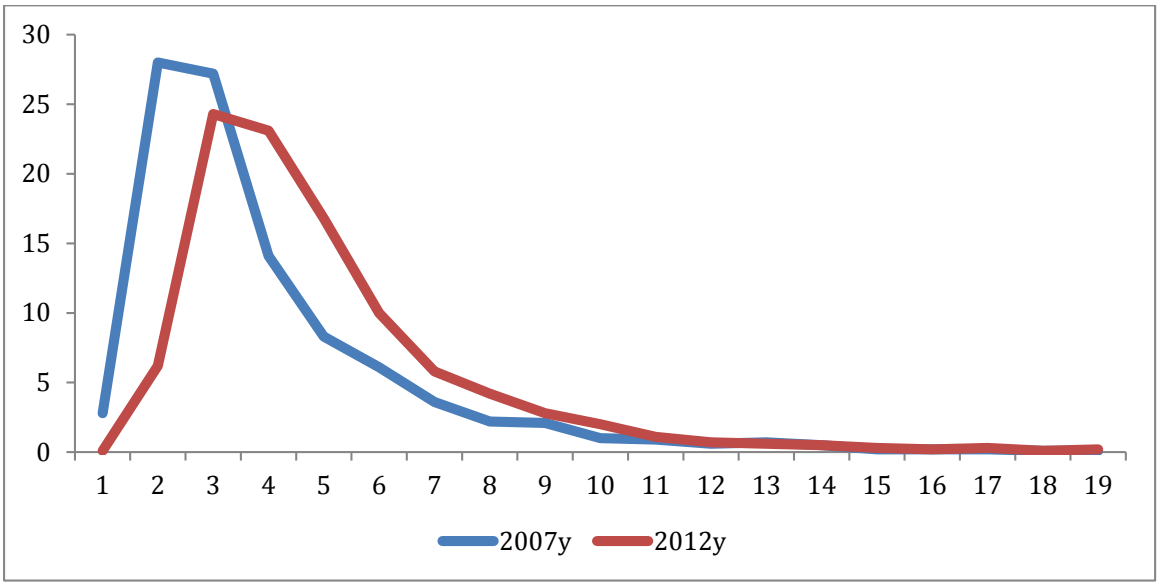
Economic Vulnerability

Figure 7, which plots the distribution of total consumption expenditure for 2007 and 2012, suggests that the modal frequency is at a fairly modest level (of consumption expenditure) and after the mode the curve falls steeply. Between the two years, there has been only a slight flattening of the skew in the curve: thus, while there has been a positive shift in the distribution of expenditure, it is modest, just to push the modal frequency in the consumption expenditure from the left of the poverty line to the right. In simple words, there are large numbers of households huddled just *above* and *close* to the poverty line.[12]

An exercise was carried out to assess the sensitivity of poverty rates to a small increase in the poverty line (which is the same an a small decrease in the incomes) on CSES data pertaining to 2009 (the full CSES sample) (Table 3). It suggests that if the poverty line is raised by one percent successively (equivalent to 35-60 Riels per person per day, depending upon the location), the poverty rate increases by about a little less than one percent (in the range 100,000-120,000 persons). The inference is clear: that while abject poverty is not such a concern, vulnerability is. Thus, with a small (downward) swing in income, a not too small number of people who are currently above the poverty line could be pushed below it. Actually, shocks are not uncommon in any economy: they could emerge from both natural (floods, droughts) and/or human-made phenomena like international economic downturns, fallouts of international integration, etc.

[12] Economic vulnerability is multifaceted. E.g., using multiple variables Sothea has constructed indices on economic vulnerability and wealth index using several social and economic variables, as seen in Box 3.

Figure 7: Distribution of Persons by (Equal) Monthly Per Capita Expenditure Groups (MPCE, in Riels '000) for 2007 and 2012



Source: Calculated from CSES

Table 3: Sensitivity of poverty estimates to changes in poverty line, 2009

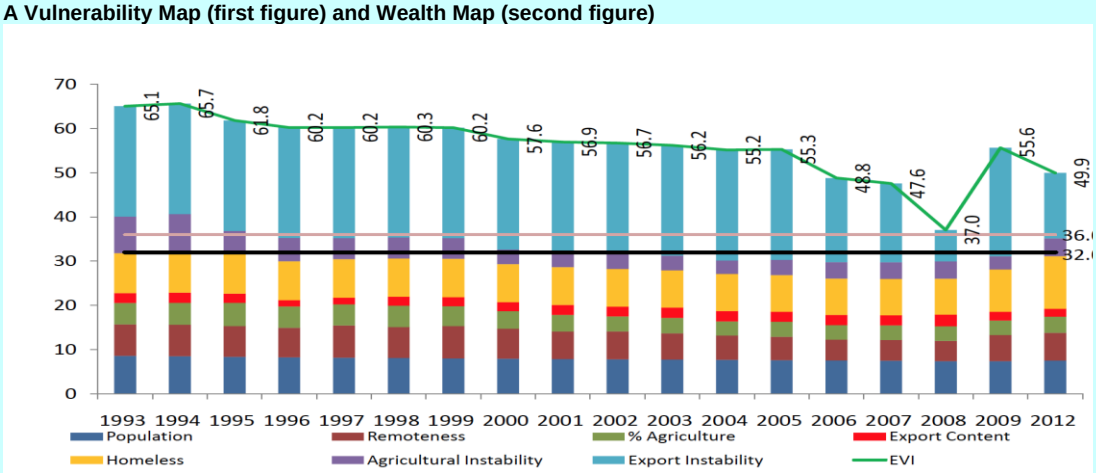
	Poverty estimates	Poverty estimates with 1% increase in poverty line	Poverty estimates with 2% increase in poverty line	Poverty estimates with 3% increase in poverty line	Poverty estimates with 4% increase in poverty line	Poverty estimates with 5% increase in poverty line
RURAL	24.6	25.4	26.1	26.8	27.4	28.1
OU	19.3	19.5	19.7	20.1	20.4	20.9
PP	12.8	13.1	13.6	14.1	14.6	14.7
Cambodia	22.89	23.58	24.21	24.86	25.42	26.04

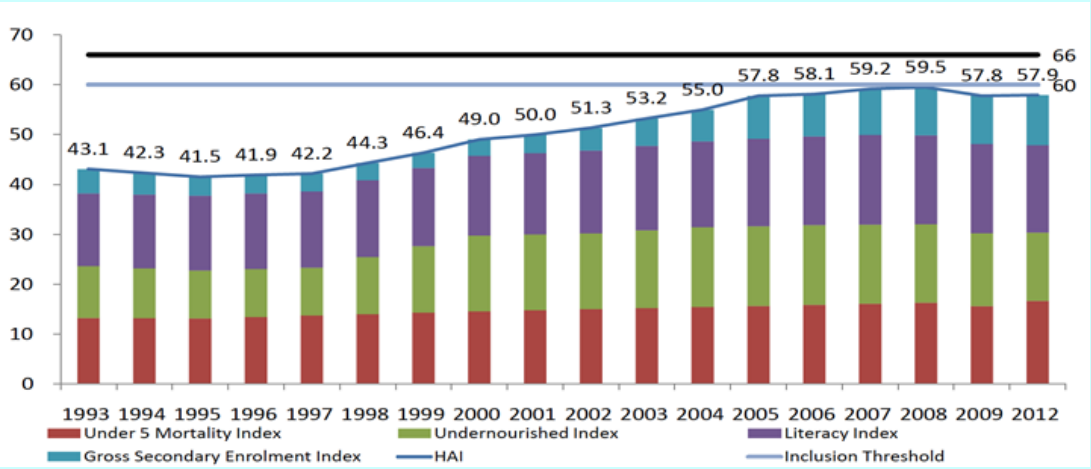
Source: MOP Internal Calculations

Box 4: Economic Vulnerability and Wealth Index – Alternative Measures

Economic vulnerability has been measured using more than one method. A multi-dimensional index could be seen in the first figure below. An associated wealth index could be seen in the second figure. The conclusion: on aggregate, both the vulnerability index and wealth index have been unstable in the recent years. These results being temporal, it is not easy to compare them with the spatial analysis done in the main text here. While these analyses could be useful from a multi-dimensional perspective on vulnerability and similar analyses (they permit to identify which variables can help reduce overall vulnerability), there are problems in these related to the juxtaposition of data from multiple sources and also interpolation of data. Nevertheless the analysis reiterates the main proposition in the text, that vulnerability in the population is yet an issue.

A Vulnerability Map (first figure) and Wealth Map (second figure)





Source: Nuo Keosothea, LDC Graduation: A Case of Cambodia, presentation at LDC Graduation: A Case of Cambodia, Dec. 4-6 2013, Siem Reap

Urban Poverty

As elsewhere in the world, urban poverty in Cambodia is a spill over of rural poverty. People out-migrate to urban areas to escape the low-income environment in rural areas continuously. Yet, they could join the ranks of the poor for a while in urban areas if they are not ready to join the thriving/high paying sectors – and there are many who do.

Next, while there is virtually no food poverty in urban areas, overall poverty does exist, suggesting that many of the recent migrants (un/underemployed, or employed in low or even not so low income jobs) are not able to meet the costs of non-food items: housing, health, others, as they many of these items are monetised and/or more expensive in urban areas compared to rural areas. In larger cities like Phnom Penh, land prices are rather high. Since in-migration is a continuous process and the migrants do not usually plug into high paying jobs immediately on their arrival urban poverty rates will continue showing fluctuating trends and patterns.

Urbanisation requires more concerted engagement and while a more detailed analysis of how to address this issue is presented later in the section on 'non-farm jobs', and 'human capital' a few points require mention here.

1. Excessive in-migration in a single location is a pattern that worsens urban poverty.
2. Absence of full-fledged schemes to promote relatively high productivity small and micro enterprises for quick absorption of the in-migrants is an impediment.
3. Lack of skills impartation and up-gradation laterally spread across the country is also an impeding factor.
4. There are no schemes for affordable housing and a land use plan that accommodates abodes for low-income people in urban areas. Increasing commercialisation, especially of land, worsens matters for these migrants.
5. There is little information to the prospective migrants other than through family/clan connections on what the migrants should expect.

Key messages: *For one, poverty in the broader sense is still a concern despite the recent gains. Among the reasons is the fact that the poverty lines deployed in most Asian countries are at fairly modest levels, which ensure just sufficient nutrition and some modest non-food entitlements. The government's poverty alleviation programmes thus ought to target not just the 19-20% poor but also a band above that – say, those in the lowest three or four decile populations.*
Next, the economy requires growing in a manner that it carries all the people along with it (i.e. also strengthens people's employability and earnings in a sustainable manner), the growth process will require widening its base beyond the present 3-4 activities and deepening the value addition and should be labour intensive and spatially dispersed. Finally, affordable housing in urban areas requires attention.

Issues in Agricultural Development

Poverty reduction in the recent years in Cambodia has been led by a fall in rural poverty. This is further supported by the rise in the wages in rural areas.[13] Other factors contributing to poverty reduction are reduction in the overall inequality, seen both from the reduction in the Gini Coefficient and the percent consumption by the poorest 20% population (see Part 1 for the numbers). The World Bank, under restrictive assumptions, calculates that two main contributors to poverty reduction,

[13] World Bank, based on computations from CSES 2004-2011, confirms this (pg. 27-28). See: World Bank: Where have all the poor gone? Washington, 2013

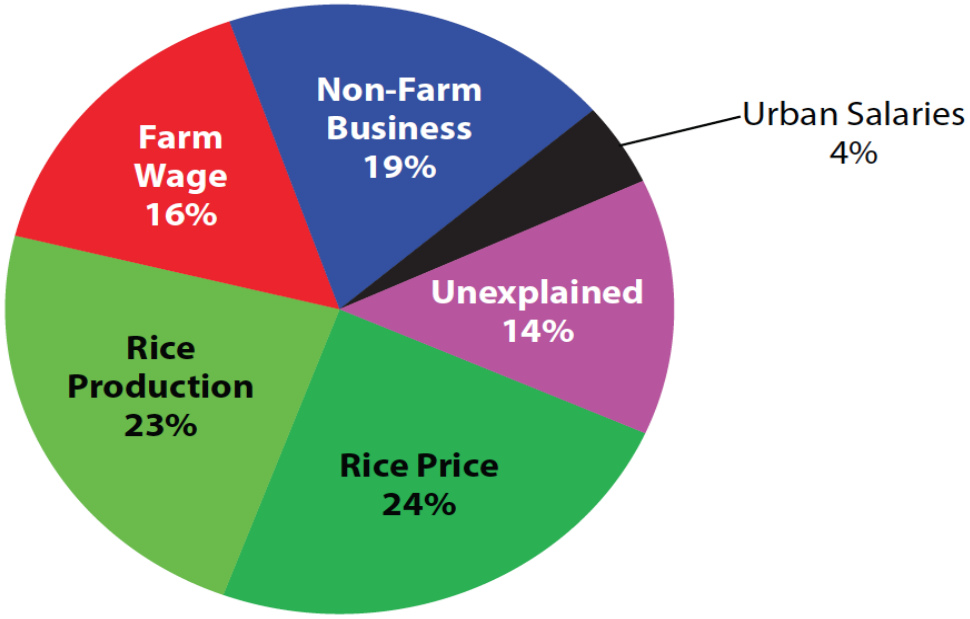
amounting to almost half the poverty reduction during 2004-2011, are an increase in rice production and rise in rice price (Figure 8).

In rural areas the main activity is agriculture. There has been a rapid and sustained expansion in the production of paddy and other crops through the last decade. Between 2008 and 2012 the area under all crops grew from about 3.2 million ha to about 3.8 million ha. The expansion in land area along with expansion in non-farm jobs (and out-migration) has also resulted in reduced landlessness. At about the turn of the century, rural landlessness among farmers was estimated at about 15-17%, which was down to less than 10% in 2011/2012 (estimates from CSES). MAFF estimates suggest that the area under paddy rose to about 2.6 million ha in 2012 compared to it being less than a million at the turn of the century. The (paddy) yield rate has also grown: it was 2.8 tonnes/ha in 2008, which rose to 3.1 tonnes/ha in 2012. Expansion in cropped area though has contributed the most to the increase in the overall production – both paddy and non-paddy crops.

Presently the area under cultivation to the country's total land area is about 21% compared to the world average of about 11%. While such comparisons might not be very tenable since different countries lie in different agro-climatic zones, and that expansion in area under crops is necessary in the short run in countries at an early stage of development, there are limits to it. Cambodia has aimed to maintain at least 60% of its land under forest cover, implying that a ceiling will soon have to be set on how much area could additionally be brought under crops. The key then lies in the yield rates to achieve higher production and incomes.

Having said that growth in the yield rate is central to improving productivity, the next question is, how could this be achieved most sustainably? This question has at least three facets: institutional, market, and technological. These are discussed in turn, keeping in view the (limited) availability of data.

Figure 8: Sources of Poverty Reduction[14]



[14] Source: World Bank (same as quoted in Footnote 13, pg. 44).

Institutional: Farm-size, productivity and earnings

The farm size and productivity debate has been among the more discussed in the context of land reforms, often introduced at the early stages in agricultural development.[15] In Cambodia, more than 70% farmland holdings are small: less than 2 ha, and about 15-20% of the land holdings less than 0.5 ha. Land holdings larger than 10 ha are only about 1%. For paddy land, close to 50% of the plots are 0.5 ha or less. The average ownership of agricultural land is 1.74 ha, and of paddy land it is 1.24 ha. Many of these lands are fragmented: the average number of plots per single ownership for all agricultural land is 2.4 while for paddy land it is 1.6. The former is relatively larger since the (non-concessional) plantations are also included in the count. In short, unlike as in some other agrarian economies, there is no issue related to very large land plots that might otherwise result in diseconomies and inefficiency.

There is an influential school of thought that makes a case for maintaining small farms while undertaking land reforms. Reasons:

1. Small farms have been found to provide a higher yield rate since they employ much larger numbers of family workers to eke a living due to which land use and supervision are better.
2. It is the good quality agricultural land that is often split, since it is much sought after. In inter-generational transfers, farmers' offspring divide the good lands among themselves for use, rather than some opting for non/off-farm vocations. The protagonists maintain that there is no advantage in regrouping these lands since given their quality they would be optimally used any way, and at the same time this would promote equity.
3. Since agriculture in significant parts of Asia and Africa are yet not fully commercialised and modernised (they are constrained by lack farm machines and modern biological inputs), relatively larger land holdings tend to suffer from diseconomies of scale.
4. Since the relatively more affluent farmers own larger land holdings, and whose economic interests are diversified, sharecroppers and hired workers manage their lands much of the time, resulting in low productivity. This is because those work on the land have no interest in investing in the land (its not theirs).[16]

Since modernisation is considered a gradual process, it was believed that land reforms of this kind would promote small farms for increasing both productivity and equity. However, much of this literature referred to the era prior to the new era of 2000s, where agricultural modernisation and plugging into the global markets are priorities. Some key questions nevertheless are:

1. How small is a preferred small farm? Would excessively small plots of 0.5 ha and less would also be preferred?
2. Does a small farm permit generation of enough incomes for the farmers to move out of poverty?
3. Would such farmers have enough marketable surplus to feed the non-farm workers, so necessary for industrialisation?
4. Would it be possible to get the benefits of modern technology in such small-scale farms?

These questions are at least partly discussed here based on hard evidences.

---

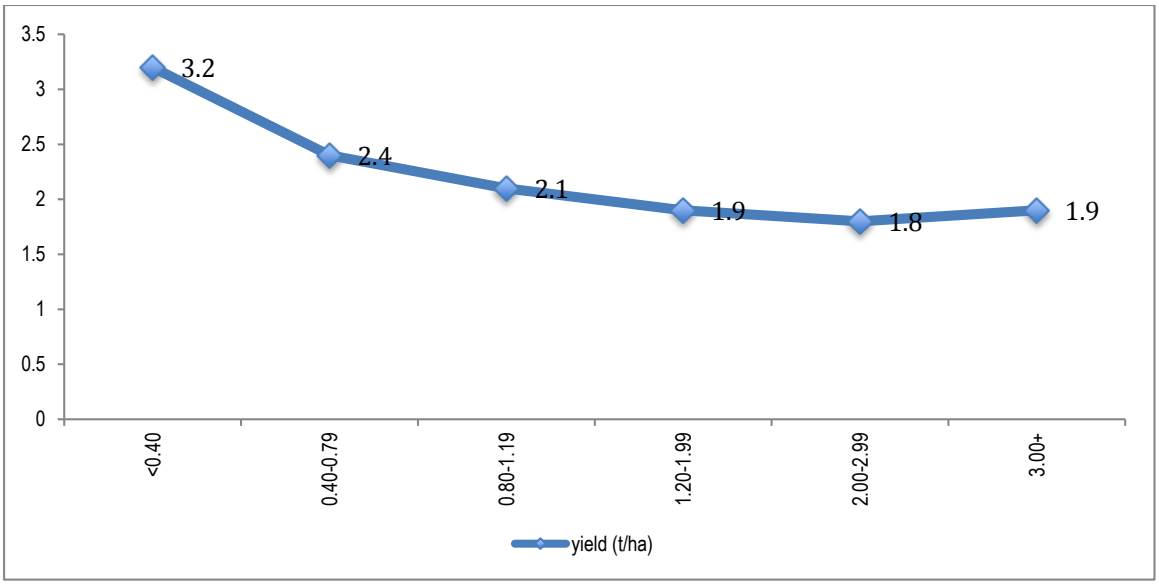
[15] Land reform is the starting point in initiating modern agricultural development. In the East/Southeast Asian context, there has been extensive discussion on this topic on Japan, South Korea, Philippines and Indonesia. See Y Hayami and VW Ruttan Agricultural Development: An International Perspective, 1985, Baltimore: Johns Hopkins University Press. Also see G. Feder, The relation between farm size and farm productivity: The role of family labour, supervision and credit constraints, Journal of Development Economics, Vol. 18, 1985; G Dyer, Farm size - farm productivity re-examined: Evidence from rural Egypt, Journal of Peasant Studies, volume 19, 1991.

[16] Almost a century back the classical economist Alfred Marshall wrote that sharecropping is inefficient because of these reasons. Repeated empirical studies across the world have confirmed this. See for a review, J Stiglitz, "Incentives and Risk Sharing in Sharecropping". *The Review of Economic Studies* **41** (2) 1974: 219–255; A Rudra, Indian Agriculture: Myths and Realities, New Delhi: Allied Publishers, 1981.

Figure 9, which shows the relationship between farm-size and yield-rate in wet season paddy, suggests that smaller farms are generally more productive. However, this pattern shows a slight reversal in the largest land size bracket of 3 ha+, in a way hinting that it is not that smaller farms are always more productive.

A similar pattern (and sharper upswing) has been observed for dry season.

Figure 9: Farm size and Yield Rate in Wet Season Paddy, 2012



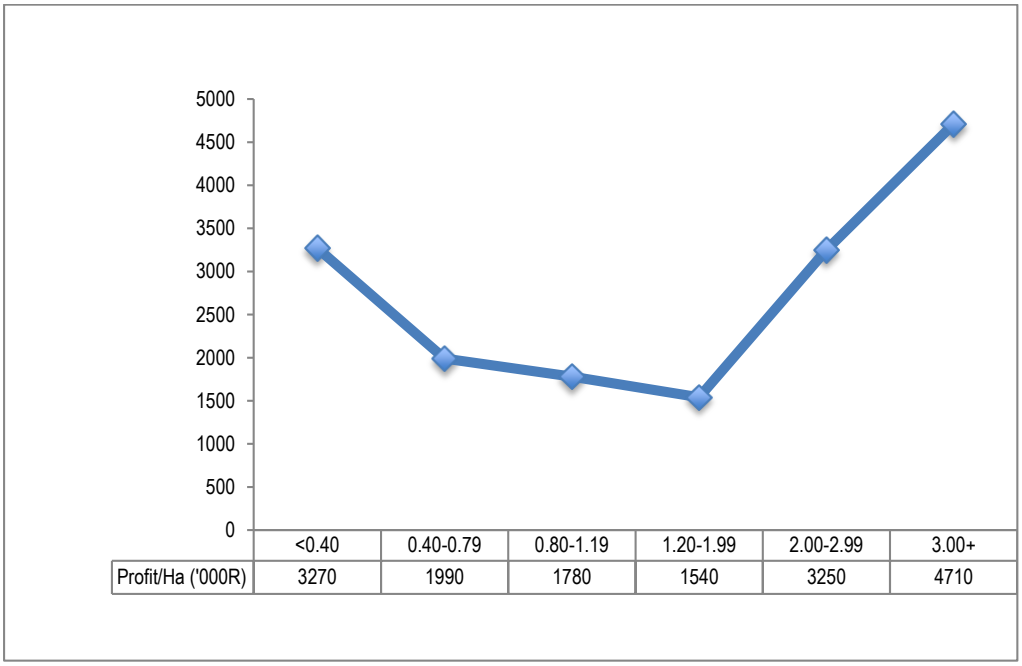
Source: CSES 2012

Seen from a farmer's perspective, the profit/income is more important than the yield rate. These two should notionally have high correspondence, but this might not always be so. In instances when the yield-rate is increased through excessive and uneconomic use of inputs (for a given farm size) the costs could disproportionately rise resulting in low incomes. Also, if excessive numbers of farm workers are deployed, the worker productivity (and hence income) falls. These aspect are reflected in Figures 10a and 10b where the profits per ha and profits per household, respectively, are plotted with the farm-size. Figure 10a suggests the very supposition presented above: that profit/ha initially falls but begin to rise rapidly after the 2-ha size. The reason very small farms providing higher profitability other than the good quality land argument stated earlier perhaps lies in excessive application of (unpaid) family labour even at the cost of them registering near zero marginal productivity. The profit per household of-course rises seamlessly and rapidly with the size of the landholding. It follows that very small farms or excessive land fragmentation do not augur well in the context of poverty alleviation.

Next, small farms by definition are not able to modernise since they cannot use mechanical technology due to size limitation. Also, application of (the size neutral) bio-chemical technologies can be constrained for want of working capital and incapacity to generate marketable surplus. Another feature of very small farms is that there is an *institutional compulsion* of farmers clinging to their plots rather than move to higher productivity and income options: this perpetuates poverty.

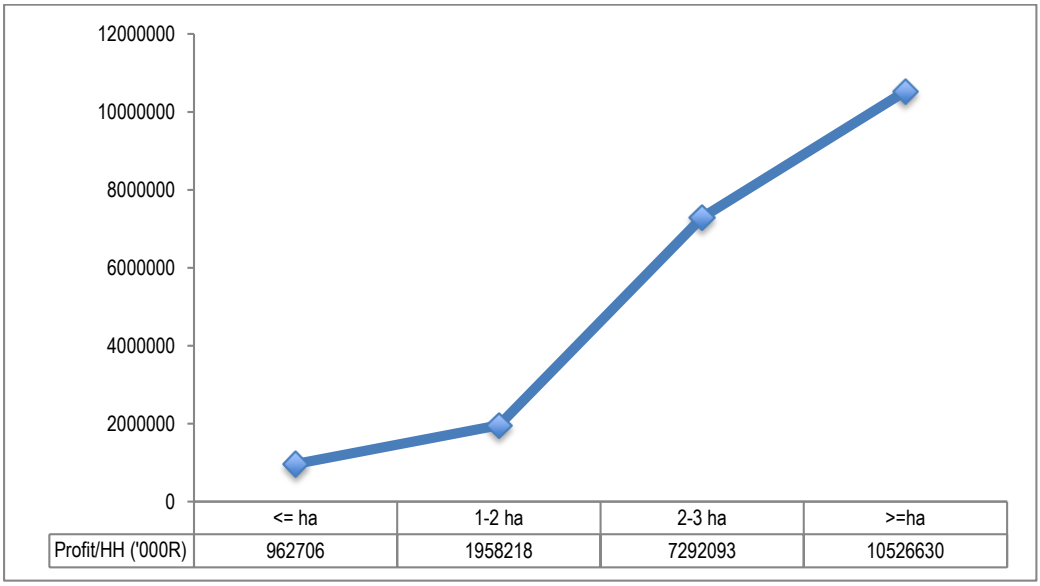
It follows that small farms must have a definition of small, implying that excessive land fragmentation must be avoided to ensure higher productivity and profitability, each of which are central to poverty alleviation, modernisation and viability of agriculture.

Figure 9a Profits/ha by Farm Size



	<0.40	0.40-0.79	0.80-1.19	1.20-1.99	2.00-2.99	3.00+
Profit/Ha ('000R)	3270	1990	1780	1540	3250	4710

Figure 9b Profits/Household by Farm-Size



	<= ha	1-2 ha	2-3 ha	>=ha
Profit/HH ('000R)	962706	1958218	7292093	10526630

Source for Figures 9a and 9b: CSES 2012

Box 5: Land Consolidation: International Experience

Land consolidation, needed to justify large investments (e.g., irrigation) to productivity, as well as making livelihoods of farmers more viable, has been recognised for more than 150 years. The first official policies date back to 1847, enacted by the British colonial administration in Bombay Province, British India. Through the 1950s and 1960s, Belgium, Chile, Egypt, Iraq, Japan, Lebanon, Mexico and Syria, among others, formally adopted land consolidation laws.

Each country has had a different history and agro-ecology of land; hence, the rational minimum landholdings, methods of land consolidation and extent of success of these policies have varied. The following examples illustrate the point:

1. One approach followed has been a refusal by the cadastral authorities to register agricultural land plots if they are smaller than minimum permitted size. Thus, if a land plot is subdivided into two or more (due to inheritance or otherwise), the legal records will enter only those plots of at least a minimum size, while smaller fragments would be a part of recognised contiguous plots (India). This encourages one of the parties to sell/buy off the other's share.
2. In some cases, very small plots are merged with unused state-owned lands, which are then reorganised and redistributed (and/or sold) to the concerned very small plot owners and other landless (India).
3. In the event that some farmers' land plots become too small because of land acquisition for non-agricultural or other development purposes, the affected farmers are compensated with land elsewhere. In the event of non-availability of land, cash compensation has been offered. Over time, when it was found that farmers could not easily switch to other livelihood options, in select cases it was decided that they would be provided employment (unskilled work) on development projects (e.g., long-term job contracts in the event that land is acquired for railway lines, roads or urbanisation), in addition to the cash compensation. In the event that farmers take up off-farm activities, they are trained in certain skills and provided easy loans/grants to set up shop (South Asia, China).
4. Sometimes land consolidation has been more in the spirit of land reorganisation, so that irrigation waters could reach those lands. Land is acquired and redistributed after its reorganisation (not necessarily in the same sizes as earlier), so that all lands can benefit from canal waters and surface flows (Republic of Korea).

In each case, the extent of success has depended upon political will and judiciousness in carrying out the exercise. For example, land consolidation in the Indian state of Punjab has been more successful, while in the state of West Bengal it has been less successful. In the Republic of Korea, the success level has been high. Cambodia will have to study each case to identify which policies and instruments could be most suitable to its environment.

Caution: Land consolidation or re-bordering is never successful when carried out through a central diktat since the full truth is often not known that that level, and also, the sensitivity required to carryout such an operation is best practiced locally. Any land redistribution has to be carried out with full participation of the communities through authorities at the local levels. It might take time, but then there would be a lasting solution found.

Source: Cambodia Human Development Report 2007

Some 10 years back the RGC had developed a scheme of distributing five hectares land to landless families under social land concessions or some other schemes. For some reason that could not be implemented. However, the scheme could be revisited to assess its feasibility in today's context.

A caveat: Consolidating small land pieces should be done with great care. Not all who leave land find job options in non-farm activities. This creates a cadre of landless farmers. Computations from CSES 2012 suggest that the landless farmers earn less than the landed ones (see the following numbers):

-Average MPCE of rural households with some arable land: 258,312 Riels
-Average MPCE of rural households without arable land: 198,781 Riels

Pearson's correlation coefficient between MPCE and land holding: 0.24 (statistically significant at 99% confidence in a 2-tail test)

Note: MPCE is monthly per capita expenditure
Source: CSES 2012

The proposal here, thus, is not that land consolidation should be undertaken to make all farms of at least a targeted size. Instead, it is proposed that excessive fragmentation of land with plots becoming of size, say 0.05-0.10 ha, need to be controlled. Many countries have laws against excessive land fragmentation (see Box 5).

Markets: Price and Productivity

International experience (and of course, common sense) suggests that price of a crop is a major incentive for farmers to grow more: both through an increase in the area and the yield rate.[17] For this to happen,

a. The markets should be competitive,
b. The information with the sellers should be sufficient and accurate, and
c. The means to transport products should be readily available to the sellers.

These principles hold true for all crops, fish and livestock products.

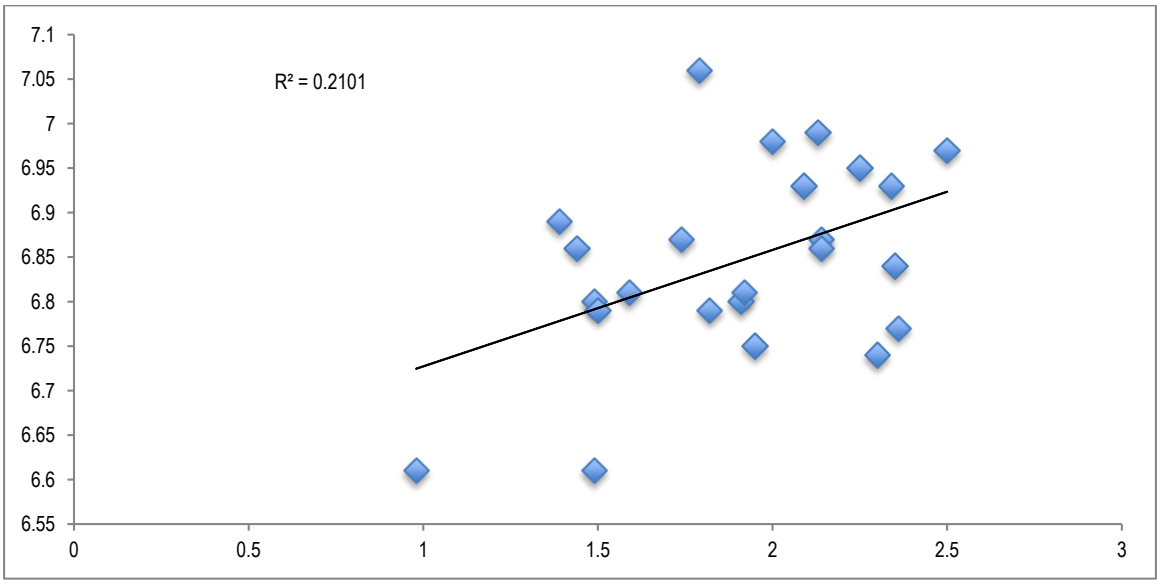
Evidences from the recent past suggest that middlemen have control the markets: both of product and inputs, which are detrimental to the interests of the farmers.[18] Non-availability of roads and transport only worsened matters. More recently the government has constructed roads extensively and has also done away with at least the fishing concessions. Farmers now have betters access to information, especially aided by the spread of mobile phone connectivity.

Figure 11 suggests that provinces where paddy prices are higher are also the provinces where the yield rate is better. Cambodia had benefited from the global price rise during 2008 and 2009. Farmers responded to the global price rise during 2008 and 2009: the area under (all) crops rose some 20% while the yield rate (paddy) rose by some 15% between 2008-2011 – the principal reasons for reduction in poverty.

The key to success is removing all the distortions that inhibit farmers from getting what they 'should get', *vis a vis* what 'they actually get'; i.e. improving access to the larger markets, improving information flows, stretch the time for which they can hold on the inventory, raising their bargaining power, and so on.

[17] See CP Timmer Getting Prices Right: Scope and Limits to Agricultural Price Policy, Ithaca: Cornell University Press, 1986; CP Timmer, and D Dawe, "Why stable food prices are a good thing: Lessons from stabilizing rice prices in Asia,", *Global Food Security*, Vol. 1, Issue 2, (2012).
[18] See for example, K Sedara, C Sophal and S Acharya, Land, Livelihoods and Food Security in Cambodia, Working Paper No. 24, CDRI Phnom Penh 2002.

Figure 11: Log (Wet Paddy Price) (vertical-axis)—Paddy Yield (t/ha) (horizontal axis) Relationship Across Provinces, 2012



Source: CDB

Technology and modern farming

Modern technology is a strong supply-side driver in improving the yield rates of crops. Sowing high-yielding variety seeds with fertiliser application in the presence of adequate irrigation has brought about a quantum shift in the production function of crops the world over but especially in Asia.

A decade back, Cambodia had less that 10% of its cropped area irrigated while now it is about a third. Similarly, while the fertiliser application per farmer household was about 90,840 Riels in 2007, this amount was 235,852 Riels in 2012, as per the CSES data. Each of these inputs has enabled an increase the yield rate. The following regression equation establishes the relationship between input application (all inputs; fertilisers, irrigation, pesticides, machine hire, etc. in all crops), and the profit rate:

$$\textbf{Profit/M}^2 = -3.07 + 1.32\textbf{Costs/ M}^2 + 0.15\textbf{FarmSize(M}^2\textbf{)} - 70.64\textbf{Fragment}$$
$$\qquad\qquad\qquad\quad (4.93) \qquad\qquad (6.62) \qquad\qquad\quad (1.74)$$

R2 = 0.13; F = 29.8; N = 1,793

Figures in the brackets are the respective 't' statistics. Data Source: CSES 2012

[M refers to metres and Fragment refers to the number of land fragments per single ownership. Cost/M2 and Farm-Size are significant at 99% confidence level in a 2-tail t-test, while Frag is significant at 95% confidence level in a 1-tail t-test]

The equation, though explains only a small variation in the overall profit rate, is a robust fit (F statistic is ~30). The coefficient of 'costs' is positive and statistically significant suggesting that at this stage of agricultural development there are increasing economies to input application. There is, thus, scope for increasing inputs like fertilisers and irrigation to increasingly raise profitability. Next, the coefficient of 'farm-size' is also statistically significant, which refers to the argument in the earlier sub-section – larger farm-sizes yield higher profitability. A negative sign on the variable 'fragment'

suggests that excessive land fragmentation is detrimental to profitability. Overall, the equation clearly establishes the importance of applying modern-technology, farm size and land consolidation in improving the profitability in crop operations, in turn, helping to alleviate among poverty among the farmers, and agricultural development in the country.

Note: Farmers cannot apply modern technologies by suggestion alone. Relatively large landowners acquire inputs for modern farming practices but the smaller ones might not always have the wherewithal for doing so. Even when they do—data suggest that they do—it is not clear whether they do it in the right quantity and combination. Facilities in the form of supply and working capital have to be created and the prices of inputs require to be kept within the economic domain of the farmers.[19]

***Key messages**: Land reforms should address excessive land fragmentation since maintaining a critical minimum size of a farm is central to obtaining a minimum income from it and also modernising farms for obtaining marketable surpluses. Next, markets play an important role in ensuring fair prices to the farmers. Finally, modern technologies can boost both productivity and profitability when applied to farms of a reasonably un-fragmented size.*

Non-farm Sectors, Urbanisation and Remoteness

Non-farm work

The productivity gap between the farm and non-farm sectors is visible: in agriculture, some 60% of the workers are engaged producing some 30% of the GDP, while in the non-farm sectors some 40% of the workers are engaged producing 70% of the GDP, thus suggesting a 1:3 productivity gap. The continuing out-migration of people from agriculture towards urban areas and also people taking up non-farm work in rural areas further corroborates this point. CSES data suggest that there was a reduction in the proportion of workers engaged in agriculture from about 66% in 2009 to about 62% in 2011. The Census of 2008 (using a different definition) showed 72% workers in agriculture, while the Cambodia Inter-Census Population Survey (CIPS) of 2013 showed it to be 64%. The earnings of the non-farm workers, as seen from the numbers below, are higher.

-Mean MPCE, Farm workers: 202,702 Riels
-Mean MPCE Non-farm Workers: 291,106 Riels

Source: CSES 2011

A calculation of the MPCE by households whose members engage in some non-farm activity versus those who do not, and the correlation between non-farm activity and MPCE, based on CSES 2012, show the following results:

-Mean MPCE of Households With Some Non-farm Activity: **313,878** Riels
-Mean MPCE of Households Without Any Non-farm Activity: **218,810** Riels

Pearson's correlation coefficient between MPCE and households undertaking some non-farm work: **0.18** (statistically significant at 99% confidence in a 2-tail test)

Source: CESE 2012

[19] Micro level field studies supported by anecdotal evidence suggest that the prices of fertilisers in Vietnam are lower than those in Cambodia. An equalisation of prices can improve fertiliser application, in turn, which will increase farmers' profits and also make Cambodian products cheaper.

Figure 8 (earlier) suggested that expansion in non-farm activities/jobs accounts to about 19% of the poverty reduction.

These numbers corroborate the suggestion that workers' engagement in non-farm jobs can be an important vehicle for poverty alleviation and elimination. Since non-farm jobs are mainly in urban areas, urbanisation is essential for hastening poverty reduction.

The most pertinent example to quick industrialisation most quoted in the contemporary times is of China. In China since the early 1980s, large numbers of rural workers were / are encouraged to take up unskilled / low-skilled jobs (principally in export-oriented industries – garments, shoes, toys, furniture, simple assembly in mechanical and electrical works, and so on). The workers also preferred these jobs to working in farms. Large-scale factories were set up and links were established with global companies to supply products to them. Initially the authorities provided basic infrastructure facilities for industries to establish, but later picked up the wherewithal to move up the value chain.

In Cambodia, this to an extent is happening in garment manufacture and to a lesser extent in shoe/leather products. However, this might not be as simple for other products as there are bottlenecks in scaling up or laterally expanding off-farm and non-farm jobs. Consider this: The present strength of the Cambodian non-farm sectors is in garments, shoes and tourism.[20] In each of these the extent of unit value addition is small and the activities simple since there is little 'vertical integration' of activities, unlike in China. Laterally expanding 'more of the same'; e.g., expanding garment factories from 300 to 500 and beyond, or expecting 3-5 million tourists and more (progressively), are really no viable options. Such lateral expansions would also not fetch much higher wages individual workers than their present emoluments.[21]

Cambodia needs to scale up and deepen operations for comprehensive industrialisation. Consider the following:

Deepening the Garment Industry

In the garment industry in Cambodia, the value added is significantly less than 5% in the overall value chain. A deepening of the activities is a distinct option. For example, there is a possibility to establish weaving and spinning (or composite) mills, initially in small/medium scale and scaled up later, but for these to be economically viable, growing the cotton crop and ginning it to extract cotton from it become prerequisites. All this is imminently feasible, as past records suggest that cotton used to be grown in parts of Cambodia in the past – the 1940s and 1950.

Each of these will provide diversified jobs and help improve income generation.

Expanding Other Sectors

With livestock sector receiving high prominence in the new government policy (Rectangular Strategy 3), developing modern tanneries for processing leather and animal skins, making shoes and other leatherwear, or installing meat processing and packing industries are other options. Next, rubber is now an important sector in Cambodia. With the maturing of the rubber trees planted some 6-8 years back, there would be huge demand of workers in rubber tapping and downstream processing in

[20] Handicrafts are not stated as a lead sector here because part of it would be covered under tourism and partly because it is a high (demand) elasticity sector and would not qualify to be one of the engines of growth.

[21] Many of these factories have obsolete machines wherein the productivity is low and it is not possible to pay much more than the present $80-$95 as the wage rate per month, unless the labour productivity rises.

addition to transport. This could also be an important off-farm job-creating sector.[22] In the same vein is it is imminently possible to indigenously develop processed food and other inputs (for hotels) in addition to transport for retaining more value added from tourism and creating mass jobs.[23] Similar opportunities could be sought in electrical and mechanical assembly after careful studies.

Again, each of these will provide diversified jobs and help improve affluence in the society and in these activities the jobs will be in diversified locations.

Infrastructure and Human Skills

Some basic infrastructure is essential. While Cambodia has connected key centres with roads, availability of electricity at competitive prices and completing the railway track are yet incomplete tasks. In situations like these, in select other countries industries have generated electricity from captive/off-grid power plants. Possibilities to do this could be examined here. A statement on skills shortages and the requirements are made subsequently in the paper. The fact stays that scaling up activities from the present levels requires more skilled workers than presently available.

The 'How' of Things

The full chain of these activities might take 5-10 years or more to fructify but a beginning will have to be made now, if results are to be seen by say, 2020-2025. The starting point would be to undertake technical feasibility studies, preferably in partnership with investors to assess options in setting each of these industries. Many of these activities will require being initiated on a pilot basis to judge their viability after the technical feasibility studies are complete.

The Industrial Development Policy (IDP) of the government, which is presently in a finalisation stage, identifies a roadmap and a timeline, which could be useful to follow. It is, however, yet to identify the 'how' of the roadmap. The next task thus would be its operationalization, details of which could be worked out only after the industries, scales, locations, and partners are identified.

Isolation

The urban population in Cambodia is about 23% of the total population. Villages are scattered across the country rather thinly. There are over 14,000 villages, and the population is about 14 million (i.e. 2.8 million households). Large parts of the country in the south and southeast are densely populated. On the other hand, large parts of the north, northwest, southwest and northeast are sparsely populated in hamlets of no more than 50-100 households, with little in terms of infrastructure or basic facilities like safe drinking water, sanitation or electricity. Isolation results in people being relatively poor as they have sparse access to markets, learning options, schools, health, and so on.

The Pearson Correlation Coefficient between some key variables that enable moving out of poverty and the distance at which a village is located from the provincial capital could be seen in Table 4 below:

Table4: Pearson Correlation Coefficient Values of Distance of a Village from Provincial Town with Key Development Variables

[22] It is estimated that each hectare of rubber plantations requires some 2-3 workers, to work in tapping alone: transport, handling, downstream processing and the like would engage more. The tapping job might be for 4-6 months a year. Some 60000-70000 ha of plantations might be ready for tapping by 2015-2016.
[23] A large volume of food, beverages and cosmetics in high-end hotels and also in departmental stores is presently imported from other countries.

	Distance Jr. sec. school	Paddy yield (t/ha)	DD ratio (%)	%HH having <1ha land	% HH having Moto	% HH having cycle	% HH living in thatch huts	% HH having safe water	% HH with safe sanitation	% HHs with power
Distance of village to province town	0.20*	-.077**	.186**	.071**	-.195**	-.135**	.276**	-.136**	-.299**	-.294**
N	14040	12110	14040	14040	14040	14040	14040	14040	14040	14040

DD = Demographic Dependency, HH = households; Jr. Sec. = Junior Secondary School
*Note: * denotes statistical significance at 95% confidence level and ** at 99% confidence level (in a 2-tail test); Source: CDB 2012*

The correlation coefficients in this table suggest that villages located at further distances from the provincial capital towns (compared to those nearer) are handicapped in educational infrastructure; farmers therein cultivate smaller land plots; the villages have fewer modes of transport (per population); they are disadvantaged on basic amenities like water, sanitation and electricity; and they have a larger demographic dependence ratio.[24]

Small and scattered populations are un-conducive to expansion of non-farm activities and industrialisation. They are an anti-thesis of urbanisation.

How to reach these facilities to the far-flung villages? The answer is clear: they cannot be reached. One option is to bring the people to where the facilities and jobs are. This is the most desirable but a difficult proposition as people do not easily leave their settled lives and also mass relocation is very expensive with no certainty on whether the new locales would be better from an economic and/or social perspective. Relocating rural populations on a large scale has been tried in many countries—Indonesia, China, India and Brazil, to name a few—and almost nowhere has involuntary movement of populations been successful, resulting in their abandonment in many cases.[25]

A solution to the situation, therefore, will have to be found and one approach is of setting up 'growth centres'. Conscious efforts and investments could be made these centres better endowed with basic facilities and amenities compared to the hinterland villages. People in-migrate on their own volition after they recognise the potential for non-farm jobs and more modern social environment. This in a way is induced 'decentralised' urbanisation. In Cambodia, the district towns or even some commune headquarters could be developed into growth centres.

Note: NSDP 2014-20198 states that the RGC has plans to develop industries along major highways and near the borders. In effect these means urbanisation as well. The 'how' and 'where' of these, however, are yet to be worked out.

Key Messages: *In general, non-farm jobs provide better livelihoods. To promote these requires implementing a systematic industrialisation policy. An approach, which has seen success so far, is to create growth-centres; in effect, it is an induced urbanisation).*

[24] Isolation prevents knowledge of birth spacing and family planning from percolating to these areas. The consequent high dependency ratio results in too many dependents (children) and too few earners, and consequently low per capita earnings.
[25] Indonesia has had the largest transmigration programme anywhere, of resettling populations out of the over-populated Java on the outer islands. It was given after more than a decade of trying, spending much more than anticipated, and not fully succeeding.

Human Capital

Education

Human capital—education, health, skills and employability—being fundamental to strengthening people's capacity to earn more and move out of poverty is well known for many decades now. The World Bank estimates that for wage / salary workers the returns to education (number of years) is about 5%, to lower secondary education about 16%, and higher secondary education about 24%.[26] Yet, the average level of education is only 4-5 years, which is grossly insufficient in accessing paying occupations and moving out of poverty.

Human capital levels

To delve into analysis, the first task is to measure human capital. For this, effort has been made to measure the 'quality' of knowledge extant in a household. A proxy is developed here: the number of years of education obtained by all members of a household aged 15 years and above, added together and then divided by the number of persons aged 15 and above. This is the average stock of human capital in a household. The average stock of capital per household in Cambodia was 4.96 in 2012, which in a way is similar to the average number of years of schooling by definition as well as numbers. This number, by MPCE quartiles, given in Table 5, suggests that the poorer households possess much lesser knowledge compared to the non-poor.

Table 5: Education stock by MPCE Quartiles (2012)

Quartiles	*Average education stock (years)*
Lowest MPCE quartile	3.31
Second MPCE quartile	4.20
Third MPCE quartile	5.43
Highest MPCE quartile	7.08

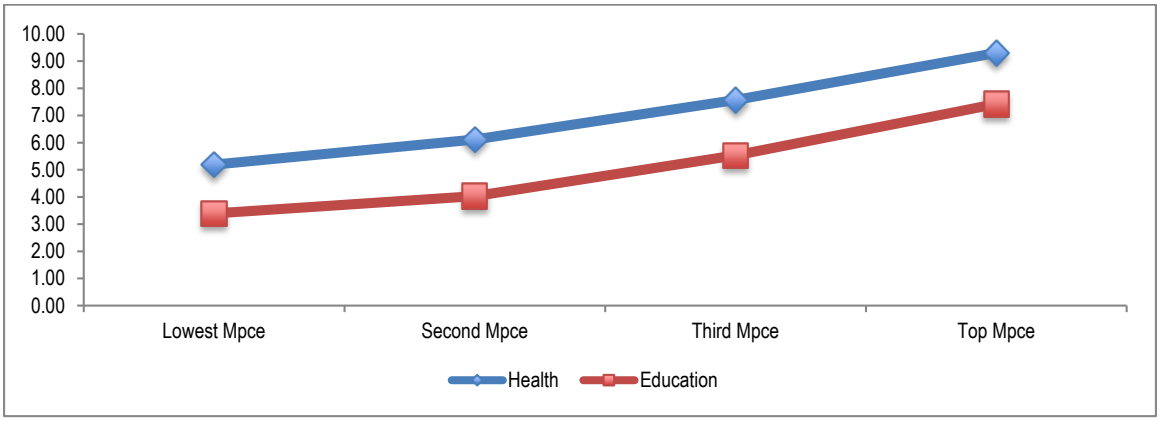
Source: CSES 2012

The causality is one way: more/better education provides people more value-adding occupations, in turn, which provides them higher earnings. The more educated households educate their offspring, in turn who earn more, setting in motion a virtuous cycle of 'more knowledge more earnings more knowledge', and so on.

There is, though, a down side emerging from the fact that education in Cambodia is not fully free. The more affluent households spend proportionately more on education (meaning much more, in absolute terms), which could be a reason for widening the gap between the rich and poor in the times to come (see Figure 12). The Gini Coefficient of inequality, measured through the educational stock in a household, was 0.38 in 2012.

[26] World Bank (as quotes in Footnote 13), pg. 26

Figure 12: Expenditure on Education and Health as a percentage of MPCE by MPCE Quartiles 2012



Source: CSES 2012

Explaining returns to human capital

To more comprehensively appreciate human capital in the Cambodian context, multiple regression equations are fitted to explain variations in MPCE in a significantly modified Human Capital Framework. The first equation is a household level equation wherein the explanatory variables are, the stock the education in a household, average age in the household (standing for experience), farmland holding, and the extent of participation in non-farm work by the household members (in full or part). An intercept dummy variable has been added to account for the differences between rural and urban areas [Dummy Area (Rural=0)]. The dependent variable is the natural logarithm of MPCE, Ln (MPCE). The second equation has been estimated at the individual level for persons of age 18 years and above. In this equation, the average age and education are replaced by the concerned persons' age and education, and a gender dummy is added. Estimates of the fitted equations are given in Table 6 below:

Table 6: Regression equations explaining variations in MPCE

Household equation			**Individual equation**		
Variant	*Coefficient*	*'t' value*	*Variant*	*Coefficient*	*'t' value*
Education Stock (average)	0.076	26.6	Education (years)	0.042	44.2
Average Age	-0.010	-3.9	Age	0.011	8.1
Square of Average Age	0.001	6.9	Square of age	-0.0001	-4.2
Farmland holding	0.009	2.7	Farmland holding	0.010	5.4
Non-farm Occupation	0.013	5.2	Non-farm Occupation	0.013	10.8
Dummy Area	0.359	22.3	Dummy Area	0.42	44.2
			Dummy Sex	-0.074	-8.7
Constant	11.897	288.3	Constant	11.634	396.1
R^2	0.418		R^2	0.344	
F	458.4		F	858.4	
N	3839		N	11455	

Both the equations are good fits with all the coefficients statistically significant at 99.5% confidence levels.[27] They underscore the important role of human capital in raising MPCE, i.e. the standards of living of people. The rate of return on an extra year of education is about 7.6% as seen from Equation 1, and 4% from Equation 2, which are not too different from those put forward by the World Bank (see beginning of this section). But the dependent variables here are consumption and not income in both the equations, and since consumption is usually more supressed compared to income it

[27] In the first equation, the coefficient of age is negative and that of age-square, positive. Normally this should have been the other way round. It implies that there are increasing returns to age. This could be expected as the equation groups all the members of the household wherein children are also included. The age variable probably also captures the impact of the dependency ratio, thus having the signs as they are.

implies that the rates of return could be higher than those stated here.

What then inhibits people from acquiring education? The Cambodia MDG Report of 2013 suggests that there are both, supply and demand constraints.

(1) There are about 7,000 primary schools in the country but the connecting lower secondary schools are only about 1,230, implying fewer seats.[28] The average distance of a typical village from a lower secondary school is almost 5 Km.[29] This is far for a child aged 12-14 years. The numbers of higher secondary schools are fewer than 500, implying that the distance would be still longer and seats yet fewer.
(2) Despite that the government strives to provide free education at the lower levels, education costs money. Calculations based on CSES 2012 suggest that on average, the expense on education constitutes about 4.63% of the household expenditure. Among the reasons for the expenses is also that many parents prefer to send their offspring to private facilities (for tuitions and/or for full-time education) since private education facilities are perceived to provide better quality education.
(3) In tertiary education the total number of institutions is 101 out of which 63 are in the private sector. The private institutions run for a profit and also principally teach subjects easy to teach (accounts, financial management). Areas that the economy requires for strengthening human capital, e.g. science, engineering, or other technical skills, remain less attended.

Explaining participation in education

For explaining factors that influence children's schooling in a multivariate framework, a multiple regression has again been fitted using the CDB Database at the village level. The explanatory variables include both, supply and demand side explanatory variables. The findings, seen in Table 7, are self-explanatory. The one thing that stands out is that the 'demand-side factors' are more prominent than the supply side factors. It implies that the cost of education has to be brought down and incentives to schooling have to be extended more (e.g. quality of teaching, mid-day meals, travel arrangements, etc.) to ensure greater participation of children in education. Of course, along with, increasing the supply of facilities require a boost as well.

Table 7: Determinants of the % of children in Schools – Regression Estimates from CDB Database

	Coefficient	't' statistic	Elasticity at mean
Constant	63.8943	68.7636	-
Distance Lower-Sec School (Km)	-0.0028	-1.2274	-0.0002
Distance Higher-Sec School (Km)	-0.0034	-1.6081	-0.0005
Paddy Yield (Wet Season)	1.4567	5.0639	0.0391
Distance of Village to Town (Km)	-0.0489	-7.1378	-0.0272
Ratio of Motos to Households	0.0159	1.9869	0.0106
Ratio of Bicycles to Households	0.0723	16.2546	0.0630
% Households Living in Thatch Houses	-0.1806	-16.2717	-0.0422
% Households Tilling <1 Ha Land	-0.0043	-2.6795	-0.0008
% Households Using Hygienic Toilets	0.1168	16.1083	0.0551
% Households Having Water Connection	0.0540	11.9045	0.0331
Dry Season Paddy Yield	0.3676	2.5133	0.0047
R2 = 0.15; F = 192.06; N = 11,882			

Data Source: CDB 2011/2012

It could be concluded that:

First, households must have a minimum standard of living—whichever way it is measured—to ensure entry (and retention) of their offspring in the educational streams since low standards of living

[28] Source: MOEYS, Year: 2012/2013
[29] Source: CDB; Year: 2012

poverty adversely affect continuation in education. So, strategies that improve people's incomes must be continuously pursued.
Second, the cost of education paid by the students' parents require reducing, in turn, which would implicitly raise their disposable income; thereby permitting children to attend schools. The state expenditures thus must rise, substituting for private expenditures.
Third, the supply needs augmenting.

Labour Market and Training

Wage Labour and Wages

Between 2007 and 2012, the percentage of wage/salary workers to total workers in the Cambodian economy rose from 25% to 36%.[30] During this period while the average real MPCE rose by some 20%, the average wage/salary (for all occupations) rose some 29%. The World Bank finds that an increase in farm wage/salary has been one of the reasons for poverty reduction (Figure 8). There is more to this: part of the decrease in poverty could be due to shift by workers towards occupations and industries which have higher productivity (*among* the wage/salary earners, which permitted an increase in wages/salaries), part because of an increase in the share of workers towards the wage/salary segment (from being unpaid family workers), and part due to some overall increase in productivity.

However, it should be noted that the wages/salaries and wage/salary employment have so far risen because of the 'expansive' nature of the economy: the farmland area has increased, more garment factories have been set up (or expanded), construction has expanded, etc. Each of these activities, however, is of low skills, and limits to growth, in both, the wages/salaries and demand to low-skill/no-skill labour, would soon reach. Limits to wage increase are already visible, e.g. in the garment factories.

The Skills Factor

Cambodia has many training facilities. It has these for school dropouts as well as for those who have completed schools. Within the Technical and Vocational Training System managed by the MOLVT, MOWA, and MOEYS, NGOs and the private sector, some 60,000-65,000 participants get trained each year in about 330 training institutions (227 are private institutions 49 are NGO-run, and 49 are government-run). The vocations include handicrafts, weaving, silk work, personal services, agriculture, construction, mechanics and telecommunication, among others. The courses could be of a few weeks to three years, although a predominant number are of short duration and in traditional skills and agriculture. It is not surprising that a recent government report finds that in the 10 (growth-oriented) industries analysed, there was no TVET training facility for seven, and limited in the other three.[31] *The supply for skills and skills improvement requires being closely linked to the market demand.* This is a crying need, for moving up the value chain and keeping the wage trajectory to rise.

Note: Creating facilities to train workers today will begin to yield results several years from now. If such a decision is postponed now, the coming generation will continue living at the same standards of living as now.

[30] This measure is by the current status. Data on the worker status by the usual status are not available for all the years.
[31] RGC, Cambodia's Diagnostic Trade Integration Strategy and Trade SWAp Roadmap 2014-2018, Phnom Penh, 2014

Health

It has been sporadically reported since early 200s that expenditures on health have driving people towards poverty.[32] In isolated cases people have sold land and/or other possessions and have also excessively borrowed to meet costs towards health. Estimates from CSES 2012 suggest that expenditure on health forms up to 6.57% of the household expenditure. This is high when seen in relative terms. Also, the relatively richer households spend proportionately more compared to the lower income segments, i.e. much more in absolute terms, suggesting that the actual need might be higher that what the poor actually spend (see Figure 12). While the government has a wide network of over 1,000 health centres in addition to district, provincial and central hospitals, the services are free only for those who possess the ID-Poor Card: the others pay. Additionally, a large number of patients prefer availing the services of private providers, and this is expensive.

If health were made cheaper, there would be a rise in the (implicit) disposable income, permitting people to spend on other priority items, in turn, resulting in some poor moving out of poverty.
Next is the distance to a health centre: it is about 6 Km in average, from a village. For one, in some provinces the distances could be >15 Km – see Table 7. Next, in many cases it is not the distance per se but the mode of transport. In much of rural Cambodia there is no public transport and roads too are not all-weather drivable. A moto (typically, a small motorcycle, 50 ml engine capacity) is the sole mode of transport, which might not be the best of pregnant women or very sick people.

Key messages: *Since there are definite positive returns to education, the supply of education needs scaling up substantially both in quality and quantity. Education should also become substantially cheaper and accessible though a range of incentives. The budget support to education should be at least 3-4% of the GDP in contrast to it being <2% now. In health as well, the quality and quantity needs to improve in addition to it becoming cheaper. In this regard, among the first steps is to raise the budget support to health to at least 2-3% of the GDP. Finally, the ID-Poor Card (for health access) could be given to the bottom 30-35% of the population rather than to just the 20-21% poorest.*

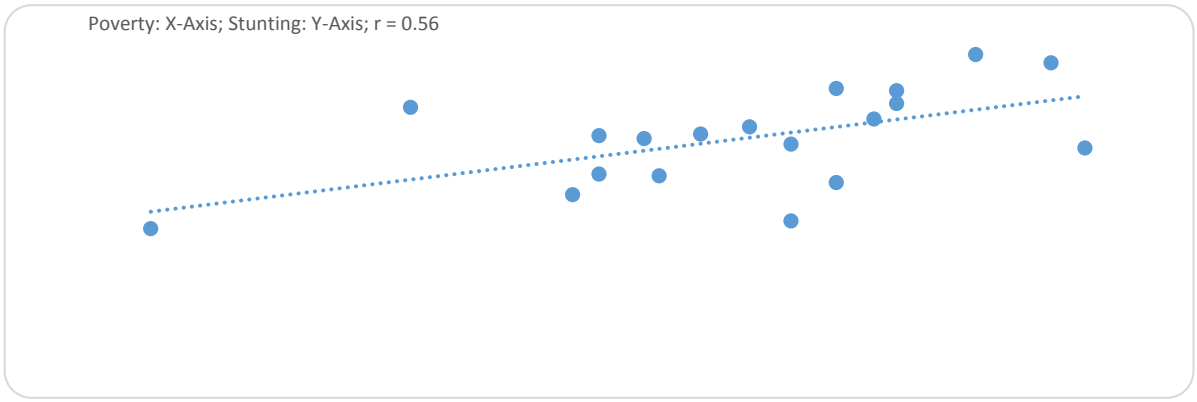
Nutrition and Child Labour

Nutrition

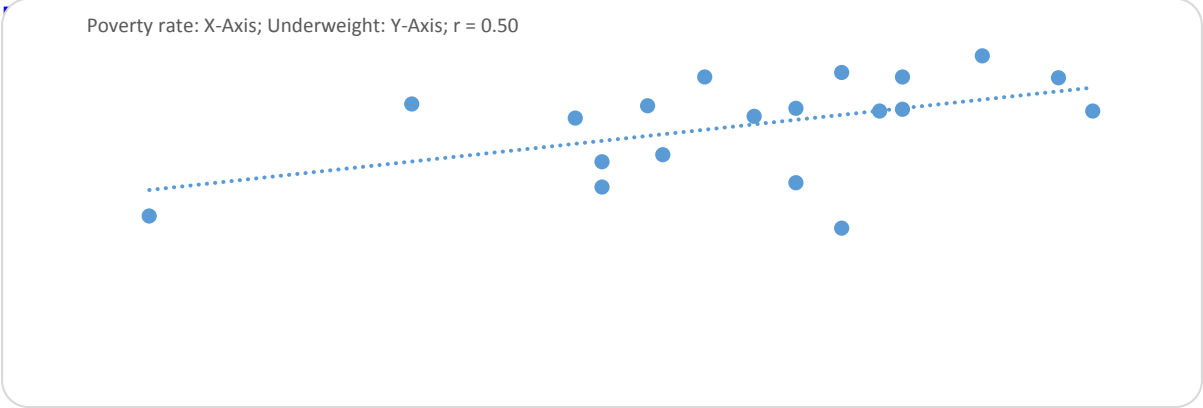
Part 1 of this paper found the nutritional status of both children and women to be deficient. A (cross-sectional) mapping of the extent of malnutrition (stunted and underweight) by the poverty status suggests a visible association between malnutrition and the poverty rate (Figures 12a and 12b).

Malnutrition is a problem, and only to an extent it will get resolved with improvement in the poverty and vulnerability status of the people. Thus the poverty alleviation route can help alleviate poverty to some extent.

Figure 12a: Scatter of Provinces by Stunted Children and Poverty Rate



[32] Oxfam reported this as early as in 2002. Later, CSES reports this to be much lesser, though not totally absent.

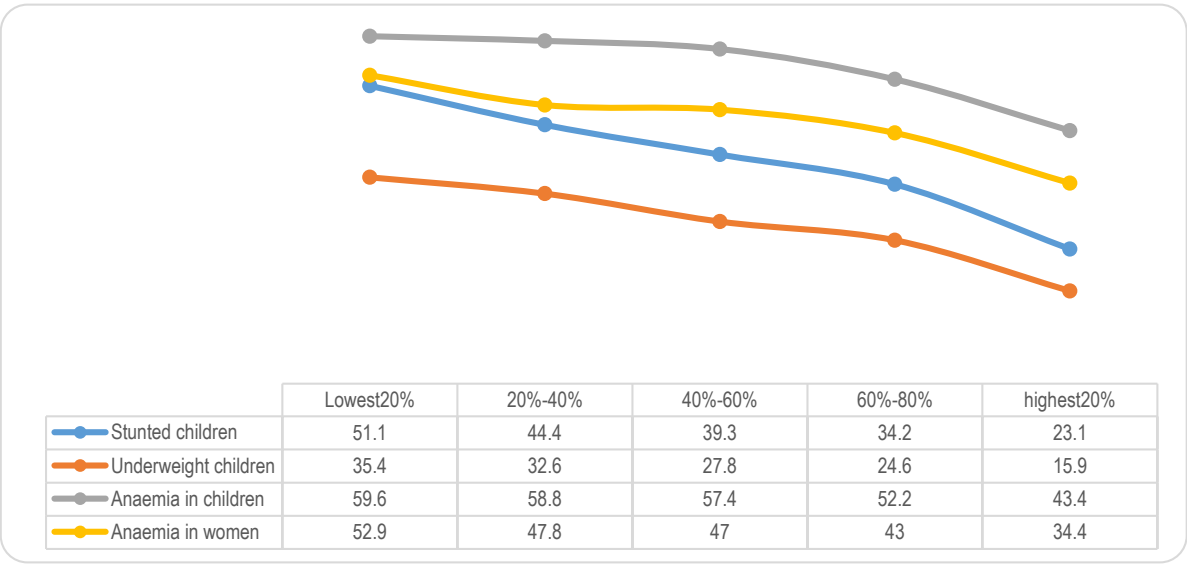


Source: Calculated from CDHS and Figure 2 above

A plot of the different indicators of malnutrition by the wealth status of households suggests that with improved economic status of households malnutrition reduces but does not it vanish (Figure 13). In fact, there is substantial malnutrition even in the wealthiest group. At one level it is argued that poverty rates can reduce at relatively short intervals but nutritional variables are incremental and change slowly and that nutritional variables would improve if the momentum of income increase would be maintained. Additionally, other aspects like food habits and availability of water and sanitation matter. In rural areas safe water is available to only about half the population and nearly 70% population defecates in the open. Open defecation can contaminate both food and water: people could chronically suffer from stomach worms, diarrhoea, dysentery and other diseases. Thus, each of these factors additionally required address on priority to tackle the problem of poverty alleviation.

Thus, poverty alleviation policies, inclusive growth and other such efforts need to be accompanied by other inputs like safe water and sanitation and changes in knowledge, attitudes and practices to people in regard to food, nutrition, water and sanitation.

Figure 13: Patterns in Key Nutrition Indicators by Wealth Status of Households, 2010



	Lowest20%	20%-40%	40%-60%	60%-80%	highest20%
Stunted children	51.1	44.4	39.3	34.2	23.1
Underweight children	35.4	32.6	27.8	24.6	15.9
Anaemia in children	59.6	58.8	57.4	52.2	43.4
Anaemia in women	52.9	47.8	47	43	34.4

Source: CDHS

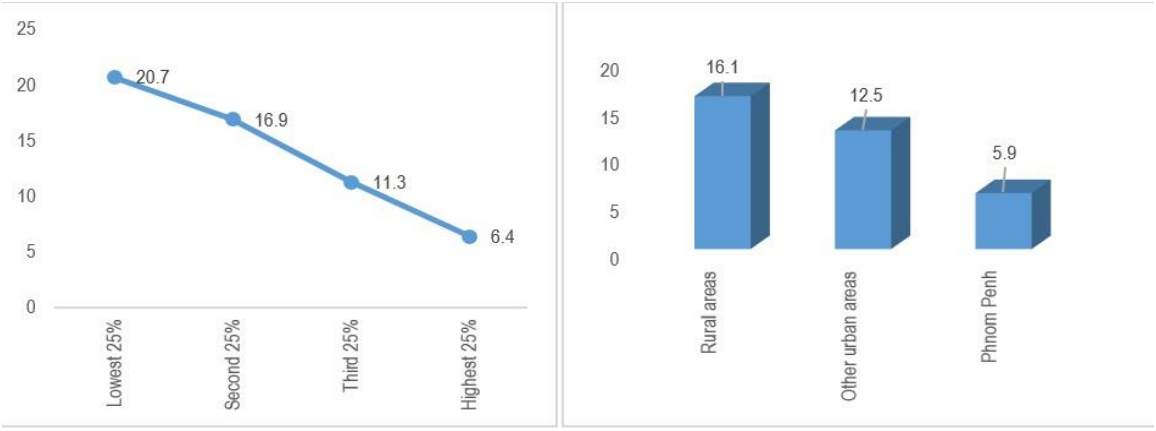
Child Labour

As discussed earlier, child labour is still prevalent. Figure 14a suggests that the economic status influences the extent of child labour. The figures clearly find that living standards and location of the household also matter. The higher prevalence of child labour in rural areas is partly due to higher poverty rate and fewer schools there (Figure 14b). Thus at one level, with progress in poverty alleviation child labour too could be gradually reduce.

More detailed analysis (of the CSES database) suggests that most of the child workers are engaged in family farms: small family farms, which employ extra labour to maximise on output without heed to principles of marginal productivity. They are mainly of the age group 12-17 years. To reduce child labour, thus, household incomes must grow and farm activities modernise.

Finally, it is observed that since the numbers of lower secondary schools are significantly fewer compared to the primary schools, many children who pass out from primary schools—often of age 11-13/14 years—have no option but to join the workforce. This aspect could be addressed if the numbers of lower secondary schools increase and education becomes really free up to nine years.

Figure 14 (a&b): Child Labour Prevalence by Monthly Per Capita Expenditure (MPCE) Groups and Location, respectively, 2011



Source: Calculated from CSES

Key Messages: *Malnutrition among the target groups could reduce with an increase in the people's standards of living. Additionally, water and sanitation and nutrition supplementation are essential. Next, a portion of the child labour will get eliminated with improvements in the standards of living. To fully eliminate child labour, initiatives to further education up to nine years, especially cheapening education and improving quality, will be essential.*

Summing up

Poverty reduction and eventually its elimination will require adopting an economic growth model that would progressively engage/move workers from low productivity options to higher ones. The analysis here suggests that there is need to scale up all the sectors in the economy so that they become more diversified and vertically integrated (agriculture, garments, agri/food processing, tourism, others), and also that people's skills will require improving at all levels: schools, technical levels and higher levels for them to effectively engage in the newer forms of economic activities. One essential initiative alongside is to promote urbanisation for facilitating both, a rapid industrialisation and extending enabling services to the people at large. Finally, initiatives in nutrition, safe water and sanitation are essential for healthy growth of people in the society.

PART 3: PROPOSALS TO AN APPROACH TO POVERTY REDUCTION

The Approach

At the outset, it is important to emphasise that poverty alleviation must form a part of the overall development strategy and special programmes aimed at income, asset or service transfer should only supplement the effort. In short, the growth process should be inclusive and pro-poor, such that it provides for extending opportunities for decent employment and other benefits and entitlements to the population.

Some key issues discussed in Part 2 of this paper are taken further here:

Social Protection for Addressing Vulnerability

Despite reduction in the poverty rate in the country there is high vulnerability. The issue of vulnerability is confirmed by the fact that many indicators in health, education, safe water, sanitation, etc. are closely linked to the standards of living in continuum without a kink at the *poverty line*, and that these indicators present acceptable numbers (e.g., in availing education and water and sanitation, IMR/U5MR, etc.) only at the third and fourth deciles from the bottom. Some options to reduce vulnerability are as below:

1. The free health care benefit is presently offered to those holding the ID-Poor Card could be extended to populations up to 30% of the bottom population.
2. The ID-Poor Scheme identifies the poor. Only the Health Sector has so far spread its net across the country. Other schemes that have selectively used the ID-Poor identification are: Social Protection, Education, Social Land Concessions, and Nutrition, to name a few. The span of these schemes, though, is limited and could be expanded further.
3. Extending crop insurance: These require to be extended especially in provinces where agricultural commercialisation is high.
4. Food for Work: Food supplies through 'Food-for-Work' programmes in identified locales help people who are frequently exposed to food insecurity.[33]
5. Conditional Cash Transfers require to be implemented in select areas to ensure good health and continuing education up to nine years.
6. Social assistance programmes, presently implemented sporadically, could become more regular to span the whole country.

Box 6 provides a brief on social protection and security schemes in Cambodia, which if effectively implemented, could provide succour to the poor. The unit cost of these items is well known with the implementing ministries. Thus, the overall costs could be worked out.

[33] While on aggregate, food insecurity is minimal; there could be specific locales where people could seasonally face food insecurity.

Box 6: Social Protection Programmes in Cambodia

In 2011, RGC unveiled a National Social Protection Strategy (NSPS). This strategy aims at:

(i) Protecting the poorest and most disadvantaged
(ii) Mitigate risks that could lead to negative coping strategies and further impoverishment, and
(iii) Assist the poor to move out of poverty by building human capital and opportunities.

During 2012-2013, RGC worked with its development partners on preparing three pilot programmes to experiment with programme designs and delivery mechanisms for safety nets.

The ID-Poor programme, meant to enumerate the poor households, began in 2007. Under this scheme, the poor households are identified based on the assets they owned. Households are identified as extreme poor or poor: ID-Poor 1 and 2. By 2012, the ID-Poor programme covered almost all rural areas. The ID-Poor scheme was extended to urban areas in 2013. The database, whose validity is 3 years, provides a ready target list to any ministry, department or international agency wanting to initiate a poverty alleviation programme.

The government directly implements 3 main safety net programmes:

-Welfare payments for specific vulnerable groups (elderly people, orphans, veterans) through the Ministry of Social Affairs;
-Scholarships for poor children in lower-secondary schools through the Ministry of Education, and
-Health Equity Funds (HEFs) through the Ministry of Health.

The scholarship programme has been successful in raising the school enrolment rate among children. In health, data from CSES 2012 suggest that about 12.3% of the households availed of free health service under one or another scheme in that year. Though limited in coverage, NGOs operate a number of varied programmes extending welfare services, most of which are effective. Public works programmes to create jobs in off-seasons have also been sporadically initiated by the WFP, ILO and some bilateral donors. These are self-targeted.

NSDP 2014-2018 proposes the following for social protection:

Social protection: Scale-up the NSPS programmes – social protection for the poor and vulnerable, cash transfers (linked to pregnant women's health and child health / education), public works (for job creation), nutrition (incl. food fortification with micronutrients), Health Equity Fund, school feeding, and scholarships
Eight welfare programmes: Social and family welfare; child welfare and youth rehabilitation; welfare for people with disability; elderly welfare; services for former civil servants; services for veterans; social security for general people; and institutional capacity and strengthen partnerships

Want of resources limits spreading and sustaining of the NSPS.

Agricultural Development

Among the important drivers for poverty reduction in the recent past, were, rise in the prices of agricultural products (a large number of Cambodian farmers are net food sellers) and growth in agricultural production. However, price rise is unlikely to happen on a sustained basis at the rate as it happened in 2008/2009. Next, much of the agricultural production has so far emanated from expansion in area and this needs to change in favour of yield increase. Some approaches in this direction are:

- Implementing land reforms to reduce excessive land fragmentation for optimal land use and an assured income to the farmers.
- Distributing farmland to the landless farmers and/or those with uneconomically small land-holdings.
- Launching a multi-crop Green Revolution, as is was done in the Philippines and Indonesia a few decades back, which requires a large-scale application of fertilisers (or organic manures),

high yielding variety (HYV) seeds and pesticides (and/or herbicides) in the presence of controlled irrigation.

- Following a 'farming systems' approach to maximise on the farm resources (livestock, fish, forest) and create value the year round.
- Expanding irrigation—ground water and surface, as the case might be—with maximal participation of the users for ensuring efficiency.
- Strengthening institutional mechanisms—e.g. information on prices, transportation, storage, collective bargaining facilities, and contract farming—for farmers to get stable and predictable price for their produce.
- Putting in place effective agricultural extension services.
- Making modern farm inputs (HYV seeds, fertilisers, others) available to farmers at reasonable, competitive prices.
- Promoting (limited) farm mechanisation to improve efficiency.
- Extending (seasonal/crop) credit to farmers.

Estimates from the CDB suggest that in 2011/2012, the total number of households in the country were 2,337,290 (estimate for rural households: 1,799,712) in that year. Out of these, 268,863 owned less than <1 ha farmland and 277,300 owned none. Logically, the latter two should be the priority target groups for intervention under a land reforms programme. A percentage distribution of these across provinces shows that the maximum numbers of both < 1ha landholders and the landless are in the largest in Kampong Cham (Table 7). Next, <1ha landholders are in significant numbers in Kandal and Battambang, and the landless in Benteay Meanchey, Siem Reap and Kampot. These data could help identify the size of the problem and be early pointers for identification of where targeting on this count could be done.

Table 7: Select Frequency Distributions of Variables and Mean Values – Land, Water, Toilets, Electricity, Education and Health

Province	% Dist. of households with Le 1 ha land	% Dist. of households with no land	% Dist. of households not having safe water	% Dist. of households not having Clean Toilets	% Dist. of households not having Electricity	Average Distance to Jr Sec School (Km)	Average Distance To Health Facility (Km)
Benteay Meanchey	6.49	15.77	13.48	5.09	4.62	3.60	4.41
Battambang	9.32	0.38	14.76	7.20	6.45	4.62	5.14
Kampong Cham	22.11	28.42	8.07	13.72	14.99	10.15	4.77
Kampong Chhnang	2.65	1.80	5.06	3.65	4.63	4.32	4.62
Kampong Speu	3.68	1.76	1.01	5.46	6.56	3.82	5.39
Kampong Thom	4.60	5.12	5.25	4.32	6.30	4.09	7.34
Kampot	5.68	9.14	8.49	4.51	5.63	2.28	3.49
Kandal	17.21	4.35	5.38	8.02	5.20	2.24	2.71
Koh Kong	1.16	0.49	0.31	0.71	0.62	8.45	15.31
Kratie	3.87	4.46	1.92	2.34	2.82	5.84	8.04
Mondol Kiri	0.64	0.61	0.47	0.47	0.49	15.05	15.06
Phnom Penh	2.09	4.27	NA	8.61	0.69	1.41	2.18
Preah Vihear	1.17	1.08	0.18	1.55	2.02	7.49	11.13
Prey Veng	0.96	0.78	0.53	8.74	11.24	3.15	3.98
Pursat	4.16	1.66	1.90	3.06	3.80	4.60	5.22
Rattana Kiri	1.72	2.47	2.64	1.15	1.41	20.09	11.65
Seam Reap	3.21	11.32	11.18	6.36	6.87	5.64	4.41
Preah Sihanouk	0.26	0.17	0.50	1.33	0.49	4.01	6.40
Stung Treng	0.82	1.00	NA	0.76	0.98	12.21	16.63
Sway Reing	0.71	0.09	2.84	4.23	5.05	2.50	3.68
Takeo	4.74	1.52	13.19	6.51	6.53	6.72	3.16
Oddar Meanchey	1.97	2.64	2.07	1.45	1.97	6.89	7.37
Kep	0.20	0.01	0.78	0.26	0.28	2.67	3.17
Pailin	0.57	0.69	NA	0.50	0.37	3.56	3.67
Cambodia	100	100	100	100	100	5.01	6.00

Source: CDB 2011-2012

NSDP 2014-2018 mentions titling, optimal land use, social land concessions, land distribution etc. as priority activities. Land consolidation is presently not explicated but could be a part of optimal land use. The actual implementation strategy requires to be made a bit more articulate and location-specific. As stated in Part 2 of this paper, land consolidation requires to be implemented with a great degree of local level participation and consensus building, and not through a central diktat.

Optimal use of water for irrigation requires setting up of water-user societies that control all activities after the head works (i.e. the main, secondary and tertiary canals, water distribution pattern, prices, maintenance of the distribution systems, etc.). There are already some established. Their institutionalisation, rules and functions need strengthening. The lead in such matters needs to be taken by the district authorities.

The government requires setting up extension centres: say, one in each major agricultural district. This could be staggered over time, and some work could be shared with the private sector. In fact, private sector participation in agricultural extension centres is not completely uncommon.[34] This

[34] K. Adebayo, Private Sector Participation in Agriculture in Nigeria, Paper prepared for presentation at the Farm Management Association of Nigeria Conference, Abuja, Nigeria Oct. 19-24, 2004 (http://ageconsearch.umn.edu/bitstream/54379/2/Private%20Sector%20Participation.pdf)

aspect is already a part of the NSDP 2014-2018 but has to be made functional with operation and maintenance (O&M) expenditures.

Finally, seasonal credit to farmers is an important input. The Rural Development Bank (RDB) of Cambodia provides loans to enterprises and microfinance institutions (MFI) and not to farmers directly. Next, while the MFIs credit reaches out to only about 20% of the rural households, well over 70% of the rural households engage in farming.[35] Finally, microcredit is not exactly meant for meeting the seasonal farm credit needs of farmers. To meet this demand, there are other ways to reach out: either the RDB encourages some of the microfinance institutions to become local area banks (LAB), or farmers' groups be registered as cooperative societies to avail of seasonal crop loans from the MFIs. Two key factors are: that the interest rate should not be much different from that charged from the non-farm sector borrowers, and two, the default should be strictly kept at a minimum.

A prerequisite: Besides the human capital and physical infrastructure needs oft stated, detailed studies and surveys on soil and ground/surface water are critical.

Urbanisation and Non-farm Jobs

Two processes that require to be encouraged simultaneously in Cambodia are: people moving to where relatively higher productivity jobs are, and multi-nodal growth centres springing up to gainfully absorb labour. The two could ensure that the total numbers of population centres in the country are fewer but each centre inhabits a relatively larger number of people. Some approaches:

- As stated earlier, a pincer thrust towards developing industries wherein Cambodia could develop comparative advantage, including through strengthening backward and forward linkages, is a distinct possibility.
- Next, among the approaches worth pursuing is the growth-centres approach along with incentives for SME/micro enterprise development and human capital strengthening. A growth centres approach is a distinct possibility, though it requires initial studies before any design is made and costing done. The actual launch should be done on a pilot basis, initially: a few districts or commune centres.
- Urbanisation should be facilitated rather than discouraged. With a growth centre policy in place, urbanisation would result in a multi-nodal.
- At the household (small/micro enterprise) level, promote occupational diversification through a number of approaches like 'one-area-one product', food processing, agro-marketing, transport and retail businesses, and the like, for which the primary requirement is initial capital followed by working capital along with technology and market information. Micro credit schemes along with business centres require promoting for this.

Prerequisites: It goes without saying that both infrastructure and basic human capital formation are prerequisites for all this, aspects that are discussed subsequently.

Note: Some of these processes are iterated in the NSDP 2014-2018, but the actual approach on, 'how to do this', is yet to be charted out. In its absence, costing of the scheme also might not be possible.

[35] See, Rural Development Bank, Director General's statement at, http://www.rdb.com.kh/

Human Capital

At least five proposals put forth here: in education, training, health, nutrition and water and sanitation.

Education: People must be better endowed skill-wise for them to earn their way out of poverty. There are at least three goals here: completion of 9-year education, technical education, and higher education. To begin with, the state expenditure on education must rise to at least 3-4% of the GDP from the present much lesser proportion.

Target 1: To upgrade existing primary schools to lower secondary schools and also establish new lower secondary schools, all with improved quality, esp. in science and mathematics.
Target 2: To establish at least one quality technical institution per province: to begin with, establish these in 5-6 provinces. Table 7 can provide an idea of where an initiation could be made. Training systems must develop to match with the present and future demand and should also be of a certain quality.
Target 3: To strengthen higher education in science and technology – each province should have an outlet for tertiary education.

Health: Besides making health cheaper—a point made earlier—it is also essential that there are more facilities established, say up to one health centre per commune. The state expenditure on health must also rise, to say about 2-3% of the GDP. The average distances to the health facilities in each province are given in Table 7, which will provide an idea as to where these facilities are most required.

Nutrition: Supplementary nutrition, especially to pregnant and lactating women and children up to age 5 years, is essential. Such schemes could be implemented through the health centres and commune offices (for women) and schools (for children). A rough 'back of the envelope' calculation suggests that the cost of supplementary might be no more than $7.6 million per year but the benefits could be huge.

Water and Sanitation (WATSAN): The NSDP 2014-2018 target is to cover up to 60% of the rural population and all the urban population by 2018. However, if urbanisation expands more rapidly and the population continues to be as mobile as it is now, the target could be made more ambitious**.** In any case, the proportion of the population getting WATSAN must rise to more than 60% in the next 5 years for meeting the human development and poverty reduction targets.

A percentage distribution of households not served by water and sanitation facilities could be seen in Table 7. These data provide the dimension of the problem and the cost of the solution thereof. The unit cost of extending water and sanitation in rural areas is well known to the Ministry of Rural Development. Hence, it should be possible to identify the resource requirements.

A Policy Schema

A policy schema of the above is presented in three policy matrices covering the following areas:

1. Poverty reducing inclusive growth process,
2. Developing and strengthening human capital, and
3. Increasing the coverage of safe water and sanitation to cover larger populations.

These could be seen in Tables 8.

Box 7: Key Outcome Targets 10 Years Hence (Proposed)

Poverty rate: <10%
Unemployment: <3%
Average educational completion for population in 16-24 years age group: 9 years
Longevity: Matched with the ASEAN
Child labour: negligible
GDP per capita (at dollar of 2014): ~US$2,500
Share of secondary sector in GDP: ~40-45%
Non-farm workers in labour force: >50%
Paddy yield rate: 3.5-4t/ha (wet paddy); >4t/ha (dry season paddy)
Electrification: >75% households
Safe water: ~100%
Hygienic sanitation: >80%

TABLE 10: GOAL – POVERTY ALLEVIATION AND ABOLITION

APPROACH	-Pro-poor growth for more jobs -Access to and ownership of productive resources by low-income people for them to better participate in development process	-Adequate education and skills, and health, for all -Employability of both women and men	-Maximum people have access to clean water and sanitation in both rural and urban areas
COMMON FACTORS	-Raise public budget revenues significantly more and allocate higher amounts to priority sectors (esp. HD sectors), locations & infrastructure -Step-up investments on electrification, roads/railways, communication, urbanisation and growth centres -Strengthen D&D process -Conduct a number of baseline and feasibility studies on soil, water, urbanisation, growth centres, population dynamics, and many other priority areas		
POLICY	- Undertake land reforms to optimise land use (incl. land consolidation) -Modernise and diversify agriculture and create marketable surplus -Expand irrigation -Establish 'growth centres', promote urbanisation and affordable housing -Promote options in off-farm and non-farm activities (e.g. one-region-one-product) -Roll out Industrial Development Policy to promote labour-intensive industrialisation across the country (esp. borders) -Strengthen nutrition extension	-A clear human-power /skill policy based on (a) principles of universal education, and (b) assessment of demand by type, thru joint planning forums between MOLVT, MOEYS, industry-related ministries, MOWA, MoP and private sector -Draw up comprehensive Science and Technology Plan - Improve education quality at all levels (esp. science, maths) - Increase demand from households for education through implementing poverty alleviation policies and educational promotional measures	-Allocate more resources in the National Budget to WATSAN -Make a national roadmap for WATSAN by location - Seek technical alternatives for remote locales and hilly terrain - Dovetail WATSAN with other development programmes
STRATEGY	-Step up cadastral exercises to assess surplus arable land -Rationalise land use pattern -Extend (subsidised) distribution of HYV-Seeds -Promote irrigation in surface and groundwater (public + private) -Promote off-farm work, strengthen farming systems approach -Provide farm extension services, incl. training of workers, with O&M resources -Ensure adequate finance to farmers (for equipment, private wells, others) and micro entrepreneurs -Encourage rural industries – food processing, agri-production, transport, storage (develop business models for micro enterprises) - Set up growth centres on pilot basis, invite private sector to invest there - Set up infrastructure and (labour intensive) industries, esp. along the borders -Establish a wage policy linked to productivity, encourage tripartite dialogue mechanisms -Develop poverty /vulnerability sensitive strategies contextualised to geographic specificities (social protection and assistance) -Extend nutrition thru schools and health centres -Initiate the concept of affordable housing and urban land use	-Expand lower secondary schools and up-grade primary schools - Set up *Model Schools* (of excellence) – one in each province (5 initially, on pilot basis) Try with cluster schools, multi-grade schools in the short-term - Train teachers – skills in math and analytical methods, provide incentives to teachers; conduct assessment examinations -Seek international collaborations to strengthen quality (science, maths) -Increase and strengthen TVET: one quality institute in each province -Strengthen higher education, esp. science and engineering and have a tertiary education outlet in each province -Establish a technical university or expand an existing one Popularise non-formal institutions for youth literacy - Examine setting up an institute for educational planning (or strengthen existing ones) - Liberal scholarships to deserving and needy -Scale-up school-feeding programmes	- Map terrains to identify water flows for harnessing water - Conduct groundwater surveys - Conduct KAP studies -Raise awareness on links between sanitation, hygiene and health - Educate communities on benefits of WATSAN, and use and repairs of WATSAN facilities -Train communities on water treatment and storage, and waste-disposal -Increase spread of safe drinking water through piped water and stand posts -Popularise use of cheaper and simpler ways to purify water – e.g. SODIS -Construct simple sewage treatment plants, esp. for village clusters and large villages -Initiate technologies for improved sanitation in rural areas including locally designed latrines -Promote WASH-education in schools -Socially market CLTS -Develop an M&E Framework to inform on activities of government agencies, DP & private provisioning --Seek PPP for WATSAN services

CONCLUSION

This paper is a prelude to how CMDG1 can be further promoted for alleviation and eventual elimination of poverty in Cambodia. It is rooted in the local reality in the sense that each of the propositions is backed with evidence from large and most recent surveys in addition to authentic studies.

While there is no 'silver bullet' to achieving poverty alleviation, the paper makes a pitch for making the growth process dispersed and inclusive, making institutions and markets more transparent and pro-equity, and attaching high priority to human capacity building. The time horizon for initiating the whole process might be the next five years, i.e. the NSDP 2014-2018, but the poverty reduction might begin to quicken only after the basics of the proposals are in place.

This paper is *an approach to an approach* as the title suggests. Much more detailed work requires doing before it reaches an implementable stage, particularly in regard to the following:

1. The legal aspects – this refers to what laws and regulation require being put in place to implement some of the options mentioned.
2. Budgetary aspects – this refers to re-examining the state budgets in regard to raising more resources and reallocating monies in favour of human development sectors.
3. Financial aspects – this refers to actual costing of national programmes as well as pilot projects.
4. Identification of implementing agencies and partnerships – this refers to pinning responsibilities within the government, public-private partnerships, NGO partnerships, and partnerships with international agencies
5. Dovetailing the whole approach with the NDPS's over-arching objectives – this refers to requiring engagement with key line ministries and also setting up strategic inter-ministerial working groups to address cross-cutting issues.

List of Abbreviations

CDB	Commune Database
CDHS	Cambodia Demographic Health Survey
CDRI	Cambodia Development Resource Institute
CIPS	Cambodia Inter-census Population Survey
CLTS	Community-led Total Sanitation
CMDG	Cambodia Millennium Development Goals
CSES	Cambodia Socioeconomic Survey
D&D	Decentralisation and De-concentration
FGT	Foster-Greer-Thorbecke
GDP	Gross Domestic Product
HEF	Health Equity Fund
HYV	High Yielding Variety
IDP	Industrial Development Policy
IMR	Infant Mortality Rate
KAP	Knowledge, Attitude and Practice
Kcal	Kilo Calories
LAB	Local Area Bank
LDC	Least Developed Country
MDG	Millennium Development Goals
MFI	Microfinance Institution
MOEYS	Ministry of Education, Youth and Sports
MOLVT	Ministry of Labour, and Vocational Training
MOWA	Ministry of Women's Affairs
MPCE	Monthly Per Capita Expenditure
NGO	Non-Governmental Organisation
NSPS	National Social Protection Strategy
O&M	Operations and Maintenance
PPP	Public-Private Partnership
SME	Small and Medium Enterprises
RDB	Rural Development Bank
RGC	Royal Government of Cambodia
TVET	Technical and Vocational Training
U5MR	Under-5 Years Mortality Rate
WATSAN	Water and Sanitation