

RATIONALISING LAND USE IN SRI LANKA

by

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Over three quarters of Sri Lanka is directly or indirectly controlled by the State, yet a very large number rural families are landless, and large areas are producing at only a small fraction of their potential productivity. At the same time the country has an urgent requirement to reduce both its internal budget deficit and its external trade gap. Alienation of land to the poor coupled with rational re-allocation of agricultural land use, has a major role to play in attempting to rectify these problems. However, apart from selection of land for allocation to the landless, provision must also be made for agricultural training and extension, inputs, improved physical infrastructure, credit, and marketing facilities. Careful planning thus must be carried out in order that the latter are made in the most efficient and economic way.

During the colonial period land policies were not formulated to cater to the needs of the people and the situation was aggravated by the increasing population. The most important landmark of the period was the Crown Lands Encroachment Ordinance No. 12 of 1840, which is more commonly known as the Waste Lands Ordinance. As a result of this law, all the waste lands, including forest, swamp, chena, uncultivated and unoccupied land was considered to be the property of the crown until the ownership could be established with firm and valid reasons. Under these circumstances, many of the peasants who had no strong evidence or proof in their favour had no claim to the land and it became the property of the crown. Moreover, this acquired land was subsequently sold by the crown to prospective planters, opening up the commercially orientated plantation sector of the country.

It has long been recognised that colonial land policies and the advent of the plantation sector discriminated against the majority of the indigenous population. The peasant sector, which was confined to small hamlets bounded by large estates, had

no access to land to meet the demand from increasing population. However, during the later states of colonial rule, there seemed to be increasing interest shown towards the welfare of the peasantry. This situation was indicated by the appointment of the Land Commission in 1927 to formulate land policies leading to a systematic alienation of the land for settlement and development. The outcome of this commission was the Land Development Ordinance of 1935 which laid down a definite policy for alienation and development of crown land. It further made a rudimentary attempt to inculcate the concept of rationalising land use.

During the post-independence period, the establishment of settlement schemes in the Dry Zone is considered a milestone in the attempt to mitigate landlessness among the peasant sector. However, due to modern medical facilities being established before family planning programmes were operational, absolute numbers of landless people actually increased. After the introduction of the land reform legislation in the early 1970s, the State was vested with yet more land area, and at the moment over three quarters of

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the total land area is ultimately controlled by the State Institutions.

Availability of Land

How large an area does Sri Lanka possess for re-allocation? Of the land under state control, very large areas are either unavailable or unsuitable. 'Unavailable areas' could be defined as those under existing, intensive and sustainable land use where it would be irrational to contemplate further new settlement on any appreciable scale. This definition would then take the 'available' areas down to 3 million (53%). Some of the best areas are achieving very high levels of agricultural productivity, and we must be careful in land use planning not to impede good land management. However, many areas, particularly in the Hill Country, should revert from attempted intensive use (for example, tobacco or some tea cultivation on very steep land) to less intensive use (eg long-cycle forest plantations). Although this is environmentally desirable (or even essential if the expensive Mahaweli reservoirs are to be prevented from silting up), unfortunately this would lead to yet more people being made landless and having to be accommodated elsewhere.

'Unavailable land' also includes areas not under existing intensive

land use, but currently protected by legislation from any land use changes. River, canal, road, railway and other reservations are examples of these areas. In addition, large swathes of the country, amounting to some 1 million (24%), are under Wildlife Conservation or the Forestry Departments, and there is urgent need in or protection for these areas. Wet Zone rainforest areas are a prime example of such areas: high altitude heath and grassland ecosystems represent another. However, there must be much clearer thinking on what exactly one is trying to protect, why it is being protected and what the economic cost to the country is for such protection.

Although most of the wildlife and forest areas would appear to be correctly zoned, some areas occupy good potential agricultural land. The biggest conflict of land use centres around elephants, particularly in the Monaragala District where sugarcane has become an important crop. Large areas of cane are being destroyed annually by rampaging elephants whose numbers are increasing because of the good nutrition afforded by the cane. There is thus an urgent need to redraw some lines on the national land allocation map in order to move elephants and other wild animals to areas where conflicts with agriculture will be minimised.

Unsuitable Areas

Allowing for available land, the total state land available for settlement would be no more than 1 million. This includes both suitable and unsuitable areas. Unsuitable areas for smallholder agricultural development include land of more than 30 percent slope (ie approximately 17 degrees), which of course is applicable mainly to the Hill Country,

and areas of shallow soils or abundant rock outcrops, applicable to all areas. The 30 percent limit is important as steeper land would incur unacceptably high levels of soil erosion under normal smallholder management capability: smallholders do not have the capital to invest on expensive measures of erosion control. In addition, there are flood-prone areas, saline soils (rich in free salts), sodic soils (rich in exchangeable sodium which imparts undesirable physical characteristics), very gravelly, sandy or peaty soils which occur in rather smaller areas in certain Districts. These soils may be suitable for very restricted uses, or may be suitable only after expensive reclamation measures.

Land Use Mapping

Information on 'Availability' and 'Suitability' of land urgently needs to be brought together at a common scale for the whole country, and this should initially be done at a standard 1:50,000. Work is currently underway by the Survey Department on production of topographical maps at this scale (the Agricultural Base Mapping Project maps), and these are currently available for 49 of the planned 92 sheets which within two years will give national coverage. As an important component of information required for rational land use planning, the soil and land classification data at semi-detailed level needs to be generated on an urgent basis by the Land Use Division of the Irrigation Department. Although a good reconnaissance map has been undertaken for the whole country (scale 1:506,880), this is insufficiently detailed for District or Divisional-level land use 1:50,000 scale/4-5 observations/square km covers only 13 percent of the country although considerable areas of irrigation projects, together comprising a

further 10 percent, have been undertaken at detailed/high intensity levels. The latter are useful in providing much information on Dry Zone soil types.

The current ADB Land Use Planning Project is devoting 75 percent of its funding to strengthening these two departments, particularly for the acceleration of work at this 1:50,000 scale. The Centre of Remote Sensing (CRS) of the Survey Department has published coloured mapping now needs to be put on a controlled mapping base at 1:50,000 scale. Computerisation of all mapping, also being funded by the ADB inexpensive updating of maps to be made, and by imposing a cartographic discipline on all staff. Overlaying of different map themes, changes of scale and generalisation, and combination from original mapping of different sources, will all be facilitated.

The need for District and Divisional level information for land use planning has required the Land Use Policy Planning Divising of the Ministry of Lands to devote much time and effort into the compilation of 'Indicative Land Use Maps', which, together with 'Operational Status Mapping' will show areas which are available and suitable for new smallholder agricultural settlement. Indicative Land Use maps show nine units of potential land use a simplified version of which is given in Table 1.

Mapping has now been completed for 1-2 million of the most critical areas of the country, and studies are underway on a further 1 million ha. Area calculations of each of the nine units are undertaken on a Divisional basis for each of the agro-ecological zones as mapped by the Dept. of Agriculture in 1976. Results of these

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potential in these areas. A good example is the work on Badulla, which covers a broad range of the agroecological spectrum. Summarised figures for the entire district, but excluding Mahaweli System C areas, are given in Table 2.

thus decrease in the order: Wet Zone >IU1 >>IM1 >>IL2 >DL1.

From the table we can conclude that land utilisation can be markedly increased, but that most of the potential development of these areas, however, will require water supplies, both for domestic purposes and for

by a further 9,300ha in the intermediate areas.

The greatest scope for land development in Badulla very clearly lies with forestry, with the biggest concentration occurring in the targeted for reafforestation and more productive management of natural forests. Although slopes are steeper than in most areas of forest plantations, and costs of access roads and new plantings considerably necessary protection for the downstream Mahaweli infrastructure. Some 20,000ha net of new forest plantations could be established in this areas. The challenge here will be to increase people's participation in this, and obtain finances for what is essentially a long term project.

Reafforestation is also urgently needed in the long term for some 21,000ha for land which is mostly under intensive land use, but on land steeper than 60 percent. Much of this is currently in tea, and there is a danger here that this, being marginal land, will become available this land does not go under smallholder management, but that it reverts back to longterm forestry uses

Institutional Framework

An Interministerial Coordinating Committee on Land Use chaired by the Secretary, Ministry of Lands, Irrigation and Mahaweli Development, and comprising Secretaries of the land-related ministries and their Heads of Departments, has been set up at the National level. Matters connection with any redefinition of forestry or wildlife boundaries and such matters as institutional support for soil conservation, would be discussed at these meetings.

At a lower level, responsibilities are entrusted with the District Land Use Planning Committee (DLUPC) for smooth implementation of Na-

TABLE 1

INDICATIVE LAND USE MAP LEGEND (SIMPLIFIED)

Areas of Existing Intensive Land Use

Unit 1. Present Land Uses may continue	0 - 30% slope
Unit 2. Careful soil conservation is needed	30 - 60%
Unit 3. Land should revert to less intensive use	60% +
Areas of Under-utilised lands, suitable for :	
Unit 4. Paddy cultivation (if water is available)	0 - 2%
Unit 5. Dryland cropping with minimal restrictions	0 - 8%
Unit 6. Treecrops and agroforestry	8-16%
Unit 7. Treecrops and agroforestry (v.careful management)	16 - 30%
Unit 8. Forestry Plantations; some estate treecrops	30 - 60%
Unit 9. Natural forest & longterm plantations; wildlife	60%+

Note:

IU1, IM1, IL2 Intermediate zone, Up-country, Mid-country and Low-country respectively

DL1 Dry Zone, Low country

All area figures are gross figures: reduction factors will have to be allowed to convert these to net developable areas.

In this we must note that Wet Zone and IU1 areas have a relatively favourable climate with generally long and reliable growing seasons. IL2 and DL1 areas are much less favoured, with a long dry season from May to September, plus a shorter dry period in February. Rainfall in the intermediate months, particularly January, March and May, is very variable. IM1 areas are intermediate between the other two. Carrying capacity of the land, in terms of numbers of farmers that rainfed farming laong will support,

irrigation, and the cost of the latter could be prohibitively expensive. However, even with rainfed farming, possibly with relatively minor areas of supplementary irrigation, the potential of the areas is large, particularly for increase in rainfed sugarcane acreage. It is interesting to note that in the more favoured areas in terms of climate, the available areas for seasonal cropping with minimal restrictions is zero (in fact, unmappable at scales of 1:50,000 or 1 inch: 1 mile).

Limitations to farming in the climatically favoured areas centre on slope gradient and hazards of erosion, and any available areas here will be suitable, at best, only for agro-forestry. However, experiences in Badulla in agroforestry have been favourable, and there would appear scope for extending this by some 4,200ha in the favoured areas, and

TABLE 2: BADULLA: INDICATIVE LAND USE UNITS (AREAS IN HECTARES)

UNIT	SLOPE	WET ZONE&IU1	IM1	IL2&DL1	TOTAL
Areas of Existing Intensive Land Use (102,000ha)					
1	0-30%	23,200	9,400	9,900	42,500
2	30-60%	26,500	11,500	600	38,700
3	60%+	15,300	5,300	600	21,200
Under-utilized land (119,000ha)					
4&5	0-8%	0	200	19,700	19,900
6	8-16%	600	1,800	2,900	5,300
7	16-30%	3,600	7,500	5,000	16,200
8	30-60%	11,700	24,000	11,100	46,800
9	60%+	12,200	15,300	2,700	30,000
TOTAL					220,700

tional policies and for effective co-ordination of land use planning activities within the District. The DLUPC is chaired by the Government Agent, and comprises all heads of department covering land matters. The newly appointed district land use Planning officer coordinates activities of the committee and acts as its secretary. Under this set up, for example, a decision could be taken on whether a recently harvested forest plantation, occupying gentle gradients and deep soils, should remain with the forestry department or be reallocated to more intensive agricultural land use. The District Land Use Planner, a graduate staff member, has the training to undertake rational decisions in such a case. Controversial issues, or ones affecting large areas of land, would be referred to the LUPPD within the Ministry. With the devolution of administration under the Provincial Council, Assistant Government Agents or Divisional Secretaries in particular will have a key role to play in the land use planning activities.

Extrapolating the present requirements and trends to the future, major

changes in land use in 10 - 15 years time could be the following:

Sugarcane: Rainfed sugarcane increases by some 40,000 ha. mostly in the transition between Intermediate and Dry Zones, and virtually all supplies (tanks, canals and wells) receive supplementary irrigation by small, tractor-mounted pumps with portable pipe systems which become economically attractive particularly during periods when world market sufficiency in sugar is achieved, and several bi-product industries become important locally. Livestock, fed partly on sugarcane residues and bi-products (and partly on products of agroforestry enterprises) also become an important industry in these areas

Paddy: Overall Maia paddy acreage increases but Yala acreage decreases due to systematic introduction of water metering and levies in large scale irrigation schemes, and consequent diversification to other crops. Efficiency of use of irrigation water increases, benefiting considerably the 'tail-enders' on irrigation schemes. Increased production is also obtained from some of the low-

lying lands in the coastal belt after drainage and land reclamation measures. Attention is also focussed on reclamation of saline and sodic soils in low-lying Dry Zone areas, involving gypsum applications and construction of drainage measures. Paddy straw is increasingly used as a mulch in sloping upland areas. 100% self sufficiency in paddy is reached.

Pulses/oilseeds: Acreage increases markedly, particularly on irrigated land during Yala, and rainfed upland under agroforestry enterprises in the hill country and Intermediate Zone areas. Overall 100 percent self sufficiency is achieved.

Temperate (high elevation) vegetables: The tourist boom, and other factors, increase demand such that acreage increases by 5,000ha creating much employment for displaced workers from uneconomic tea lands. Some tea land on more gentle slopes is devoted to vegetables and some forest plantations and some grasslands under dairy cattle also change to use under vegetables. Bench terracing on steeper lands becomes much more common.