PERSPECTIVE ON RURAL LAND MANAGEMENT AND SOIL AND WATER CONSERVATION IN ST. LUCIA

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Over the past 100 years the face of the environment on St. Lucia has changed in response to man's interventions on the landscape. We have seen progressive degradation over many areas, particularly in agricultural regions in the steep interior of the island. While agriculture has been the backbone of development, and has created the favorable socio-economic climate required for evolution of other industries such as tourism, the methods of production have been largely unsustainable in the context of natural resource conservation. In attempting to cope with the problems we have generated many studies and associated recommendations, which are contained within numerous reports and studies. All these studies have pointed to similar root causes of environmental degradation and have identified similar lines of remediation. However, effecting real change in spite of all these studies and recommendations has been a painfully slow process. The question that begs an answer is how much longer can we continue along this path and what may be realistic options in driving change. In this article I will present a historical perspective and provide an illustration of how we may direct change through an approach based on water conservation.

As far back as the late 1800s forestry officials of the British colonial empire saw the beginnings of worrying patterns of degradation, the result of farming on steep slopes. In those days, much of the fertile flat river valleys, Roseau, Cul de Sac, Mabouya and Marquis had been long cleared of the original vegetation, the land under intensive sugar cane production. These lands were predominantly undivided large estates held by wealthy landowners. Lands further in the interior, typically viewed as less productive on account of the terrain were subdivided and sold. On these steeper hinterlands, mixed cropping was dominated by tree crops and subsistence crops such as tubers and vegetables. The role of the high elevation forests in provision of water and in soil conservation was certainly appreciated by colonial administrators at the time. The very first management intervention in the way of environmental protection came about in 1911 with the official declaration of the Castries Waterworks Forest Reserve. This forest which cloaked the region between Piton Flore and La Sourciere yielded the source of water to the town of Castries.

In 1938 the Ravine Poisson tragedy over 100 persons lost their lives in massive landslides evidently precipitated by persistent rains. The event brought into sharp

focus the consequences of steep hillside clearing in an environment characterized by unstable soils and subject to heavy rainfall. Although not well documented, back in those days restrictions were applied to utilization of high elevation lands and lands along riverbanks. If one examines old survey plans and Crown Grants (lands sold by the Crown) ridge and riverbank reserves were clearly identified, implying that some form of conservation regimes were in place. The Forest, Soil and Water Conservation Ordinance was enacted in 1946 allowing for creation of forest reserves and protected forests in the interest of soil and water conservation. In 1949 S. J. Beard of the British Imperial Forest Service published the first comprehensive assessment of forests on St. Lucia and made recommendations regarding conservation of forests, noting the extent of deforestation at the time for agriculture, fuel wood and construction.

The transition from sugar to large-scale banana cultivation began in the 1950s, its development accelerating during the 1960s with small hillslope cultivations converted from mixed cultivation to banana monocropping. In 1966 the first comprehensive soils survey of the country was published by the Imperial College of Tropical Agriculture of the University of the West Indies in Trinidad, by Stark, Lajoie and Green. This survey highlighted the problems of deforestation induced by agriculture, and made the first attempt at linking soil productivity and land capability to remedial conservation measures, using tree crops to stabilize soil particularly on steep lands. The decades of the 1970s and 1980s saw yields in bananas skyrocket as production and road access subsidies facilitated development on lands within mountainous enclaves well in the interior. It became increasingly apparent that unregulated banana cultivation was exacting a heavy toll on the environment and government polices regarding the banana industry and environmental protection appeared to be divergent.

In response to the degrading state of land resources several studies were commissioned in the 1980s largely with assistance of external agencies. Studies pointed overwhelmingly to the typical lack of soil and water conservation measures on farm holdings, compounded by land ownership issues, size of farm holdings and financial ability of farmers to implement conservation measures. Estimations were made in terms of the volumes of topsoil permanently lost due to erosion, and the impact of irreversible loss in natural soil fertility and productivity. Projects were implemented in various parts of the island, which provided financial support to farmers in the integration of conservation measures on their holdings. However the most poignant feature of most of the assessments was the absence of a national land management policy.

The mid 1990s saw the beginnings of a turbulent period for agriculture, particularly for banana farming. In 1994 Tropical Storm Debbie brought rains on the order of

magnitude that is seen once in one hundred years, wiping out cultivations due to flooding and massive landslides, causing major damage to the banana industry in that year. The scale of land degradation brought on by Debbie once again brought the issue to the forefront. In addition the changing global trade environment began to cause ripples in the agricultural sector by the end of the 1990s, marking the start of the present decline in bananas.

During all this time environmental considerations featured prominently in sector planning and these considerations were at the core of the diversification drive to integrate tree crops with banana cultivation. Land capability classification schemes tailored to St. Lucia were proposed as a rational method in directing agricultural land zoning and guiding implementation of more sustainable agricultural practices. However, it was apparent that the driving forces required to make changes in land stewardship was not to come from within the Government but from the farmers themselves. While the government could render assistance in the form of farm subsidies and other incentives for implementing conservation measures, true sustainability seemed to be driven by the economic circumstances of the farmer. A study carried out in the late 1980s at the then Model Farms in the Roseau valley confirmed that implementation of conventional conservation measures was very costly particularly to farmers who possessed small acreages at only marginal production levels.

So how do we go about tackling the problem of arresting or slowing down the continued degradation of the rural agrarian environment given the socio-economic circumstance of many farmers? Of the approaches recommended which of these are most feasible? One approach that is taking hold in St. Lucia is fostering community participation in natural resource management. The approach incorporates collective decision-making amongst communities and support agencies in focusing on specific environmental issues and devising ways to deal with these issues. A primary environmental issue amongst many communities is water, specifically its availability and quality. Drinking water is extracted from stream sources at various locations around the island where WASCO operates intakes. The land area that drains into these streams commonly termed 'water catchment areas' where intakes are located are therefore high on the priority list for management. However, in many of those areas intensive agriculture is practiced with high levels of soil and agrochemicals finding their way into the stream flow, presenting water quality problems.

Given the fact that water security is a very tangible and basic need it can be used as a rallying theme to elicit community-based activism to make changes in land management; essentially fostering sustainable agricultural land practices with a view to ameliorating water quality. Singling out water catchment areas for

community-based management interventions seems to provide springboard from which sustainable land practices can be incorporated on the landscape. Strategies include protection of the riverbanks through reforestation, elimination of livestock grazing upstream of intakes and soil stabilization through incorporation of tree crops amongst traditional crops. The Talvan Water Catchment Project evolved around this concept with the farmers and community members rallying around the theme of promoting more sustainable agricultural practices within the catchment above the WASCO intake at Talvan. The tree crops that are now being cultivated along river banks and incorporated within traditional banana cultivations are those identified as having high market potential, following the theme of fostering agricultural diversification.

In this approach therefore, sustainable land (agricultural) management may most effectively 'piggy-back' on a water management theme as in the case of the Talvan project. It appears that landowners and farmers may be enticed to make changes in how they manage their land not solely from an economic standpoint but recognizing their important role in contributing toward improvement in water quality in their community. The rate at which such change can be realized depends on the level of empowerment within the community and the level of support that can be provided from related stakeholders, governmental and non-governmental agencies. In the long run it is expected that this approach may be applied to many such areas on the island and gradually extended to lands that are being degraded that many not necessarily fall within catchment areas.