# A LANDCARE NETWORK FOR SOUTH ASIA

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The challenge faced globally in every catchment basin on every continent in terms of stabilizing soils, protecting water quality and availability, and providing a viable livelihood for those living on the land are beyond the capacities of all governments, international organizations, non-governmental organizations, financial institutions, and commercial enterprises to resolve. Given the complexities of natural systems and human communities, there will never be a best, single or simple solution. Rather, those living on the land around the world must empower themselves to safeguard their environmental endowments. The question for the 21st Century and beyond is how this must be done in practical concrete terms.

Over the past century, much has been done to improve the productivity of agricultural and forested land with an emphasis on more yields per acre and per day of labour. Not until the 1960s did agro-ecology and forest ecology emerge as recognizable disciplines when concerns over soils, water, and sustainability grew in prominence.

But even with these developments, the relationships of communities to productive technologies were drowned out by cries for more food at cheaper prices. Spurred on by the awareness of ever-growing human populations and the constant migrations to cities, technological efficiency to offset the growing numbers of hungry mouths spurred agricultural research forward with the hope that improving economic conditions would eventually create effective demands by all the Earth's peoples and, as educational levels improved, birthrates would fall. Over the past 40 years, we've grown to realize that these visions of conditions and what is possible and even affordable were misguided.

Landcare, while open to and dependent upon scientific evaluation of basic inquiry and programmatic results, builds upon the contributions of people from many walks of life in collaborative ventures dealing with specific landscapes and locales in creating ways to protect and, in many circumstances, improve life-sustaining resources. Required are successful models, such as the Potter Farm demonstration farms in Australia and others that serve as focal points around which to engage communities in developing management practices that serve the long-term needs of communities.

In addition to accessible demonstration sites and projects, trained facilitators are also a vital cog in interpreting demonstration findings and other technical assistance into local contexts. As cost effective change agents, facilitators also require assistance and support through networks of specialists training and capacity building. The wisdom of this approach is that the specialists are called upon to address specific needs and are not expected to develop a demand for their services making the entire approach more affordable.

The value of a Landcare approached linked to ongoing discovery processes on the land, *en situ* as the scientists say, in concert with those who will carry out the changes can be both affordable and meet the demands of the triple bottom line -- a better quality of life through (1) higher

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incomes and improved economic security, (2) improved community services meeting shared needs and (3) a vibrant and healthy environment.

Over the past 30 years in Sri Lanka, the NeoSynthesis Research Centre (NSRC) has discovered solutions affordable and implementable by villagers that increased productivity, food availability and incomes while protecting natural resources. Addressing specific community needs, solutions have been found that are manageable by villagers and affordable by the Sri Lanka National Water Supply and Drainage Board and other agencies and organizations with guidance by the NSRC and scientific support from the University of Peradeniya. Under the leadership of Kamal Melvani, the centre has demonstrated the value of collaborative efforts.

Community led catchment basin restoration:

The restoration of the Kumbukkan River watershed on Maragalakanda, Moneragala District was first undertaken on behalf of the National Water Supply and Drainage Board and extension of the demonstration was later supported by SGP/GEF/UNDP.
Outputs:

- The establishment of a demonstration model for ecological restoration of degraded land with one farmer. This involved the restoration of dry monsoon forest in the buffer zone, riparian forest along streams, forest gardens in the crop production area and traditional paddy cultivation.
- The increase in shade, enhanced soil fertility and habitat restoration of the model garden led to substantial increases in farmer income and food security.
- The management techniques were replicated in 52 farm gardens in the watershed.
- Over 155,000 trees were planted on 4,350 acres and vegetation was restored along 22 streams.
- The work improved water supplies to over 3,400 people downstream.
- The work was replicated in four additional watersheds in the District.

Bioremedition of contaminated water:

Bioremediation of nitrate contaminated water was pioneered in public wells on the Kalpitiya Peninsula with research funding from the National Water Supply and Drainage Board and implementation funds from CWI/UNDP.
Outputs:

- Creation of a demonstration micro-catchment around a drinking water well with unpotable water in Nawakkaduwa using over 1,608 trees and plants of 99 species native to the scrub forests found in the area.
- The resulting reduction in nitrates and nitrites in ground water made the well water potable.
- Extending the technology to restore the micro watersheds of 42 public wells in the Kalpitiya Peninsula by planting 12,556 trees resulting in the successful bioremediation of drinking water for more than 1,513,612 people.
- Extension of bioremediation through micro-watersheds in over 1100 wells in additional project areas.

Establishing a green belt to counter sea level rise:

After the 2004 Tsunami, NSRC began working on the east coast in devastated communities. The restoration process in the town of Kalmunai began in early 2005 and has been supported by

Novib/Oxfam, Wetlands International, WWF, IUCN, UNDP/ GEF, BothEnds, Overseas and the European Union.

Outputs:

- The establishment of a 3 kilometer long and 5 meter wide coastal forest comprised of over 9000 trees and shrubs of over 30 species most of which are native to Sri Lanka. The green belt will protect thousands of people who live along this coastline from storm surges and sea level rise.
- Bioremediation of 1001 drinking water wells using 11,804 trees of 68 species providing potable water for 5,005 people.
- Establishment of 150 model gardens on tsunami ravaged lands. The landscape design used 27,245 trees of 74 species.
- Dramatic increase in income, shade, water retention and biodiversity for more than 1,265 people.
- Organized and provided environmental conservation training for 29 community groups.
- Food security in an urban slum through small garden production systems and farm gate sales.
- Working across lines of ethnic tension with Tamil and Muslim women in a war zone
- With increased vegetation and improved water management, enhanced resilience to climate change

## Restoring cloud forest cover to biologically mitigate landslides:

The upper montane zone of Sri Lanka, once covered by cloud forests, has been converted to intensive tea plantations. Changing the hydrological regime and increasing the susceptibility to landslides, the tea estates have been in environmental decline for more than 100 years. The NSRC directed community based Water Towers Project on the Kalkanna Oya Watershed in Lipton's Valley initiated the restoration of cloud forest cover to biologically mitigate the onset of landslides. Along with reforestation, water quality in the watershed is being improved by a shift to regenerative agriculture designed to protect water resources while increasing incomes for workers on the estate. This project, supported by UNDP GEF/SGP and Art Gold Sri Lanka, involved the collaboration of the Tamil estate worker community, the management of the tea estates, local government and school children.

Outputs:

- Replanting of the riparian zone of the Kalkanna Oya on two estates with 21,280 trees and shrubs of over 43 native species.
- Conversion of 39 home gardens of estate workers to organic agriculture.
- Establishment of a 'Nature Park' around Lake Richmond, the epicenter of the landslide area.
- Mobilized school children mobilized to restore the area around the Lake.
- By 2010 there were over 15,000 seedlings of over 55 forest species in the plant nurseries maintained by the children.

## Methods of environmental restoration:

Kamal and the NSRC staff have developed a broadly applicable approach to restoration that applies across the diverse agro-ecological zones and communities. After initial meetings with farmers to discuss their priorities and ways in which NSRC can assist, some farmers agreed to

develop demonstrations on their lands. As more farmers see results and seek to participate, extension services are expanded. In each case a similar process is applied.

- The local landscape is mapped including farmer gardens, degraded common lands, streams, and riparian areas.
- Vegetation structure, biodiversity and the environmental functions of the closest natural forest are identified to provide a model for restoration.
- Landscape design is drawn up for areas requiring restoration. Annual and perennial crops are used in the production areas of the gardens with native species used in as fences and in riparian and buffer zones.
- Private farms are mapped and designs created in consultation with the farmers creating management plans to environmentally stabilize their home gardens with a mix of perennials and annuals thus creating productive forest gardens.
- Nurseries are established to propagate adequate planting material.
- Planting is carried out with farmers during the rainy season

Once a project is initiated, local NSRC facilitators live in the village working daily with the farmers until management techniques are mastered. Trained to create and manage nurseries, design watersheds, and in organic farming techniques, the facilitators aid farmers in keeping detailed records of yields, inputs and sales to increase an understanding of improvements in family economic circumstances and to ensure that the management methods do indeed serve the people.

Kamal, the NSRC staff, and thousands of farmers and school children have worked together to apply this approach for over a decade. They have planted 470,531 trees of over 3,000 species on 24,395.11 acres of land. Over 5,000 farmers have converted their home gardens to forest gardens, benefiting 29,176 persons directly and over 1,599,652 persons indirectly. The restoration methods have increased soil organic matter that has led to improved moisture retention, increased habitat for biodiversity and increased frequency and abundance of many native species. Dramatic income growth, enhanced nutrition and increased food security have been recorded. Projects include the construction of toilets and apply a zero waste policy. All organic waste is composted and re-used. The sustainability of the programs beyond project duration is based on the mobilization of farmer led community groups where members engage in savings and micro-finance based on the income generated from the sale of crops. The planting of trees and diversification of crops buffers climate induced variations in yields and provides greater stability both in their livelihood and the environment.

## Enter Landcare:

In 2006, Kamal was invited to Australia to attend a Landcare MasterClass funded by the Crawford Fund following the 2nd International Landcare Conference in Melbourne. As a consequence this intensified the NSRC collaborative efforts with people from many walks of life from the grassroots up to government agencies and ministries, commercial enterprises, and international organizations.

Then in 2010 with the visit to Sri Lanka of Sue Marriott and Victoria Mack of the Secretariat for International Landcare, Matthew Stephenson representing Australian Landcare International,Jerry Moles from Grayson LandCare, Yvonne Everett from Humboldt State University, and Willie Baber from the University of Florida in the USA, Landcare Lanka Ltd was

formed with a local board of directors. Since that time the on the ground efforts have carried the Landcare banner.

Over the years, visitors have arrived in Sri lanka from North and South America, Africa, and various places in Asia seeing with their own eyes what has been accomplished and requesting more information and support.

Most recently, representatives from a large Bangladeshi NGO, Friends In Village Development Bangladesh (FIVDB) learned of the NSRC successes and sent a team to explore possibilities of collaboration. Kamal has subsequently travelled to Bangladesh to run workshops on the methods that were successful in Sri Lanka.

There is need now for additional assistance in creating an ongoing Landcare learning/demonstration/training process to spread the methods that have proven so successful and Landcare across the country. Further, there are requests for training from other South Asian groups and the time is ripe for the formation of a training program to extend Landcare in South Asia.

With the support of USAID, Kamal has completed a Handbook for Regenerative Agriculture based upon the years of experience in the field and a more recent project in English and now translated into Singalese and Tamil for use in Sri Lanka.

We believe that the time is ripe for a South Asian Landcare Training Centre with the capacity to share what has been learned in Sri Lanka and to guide the development of similar efforts in other countries. Repeatedly, demonstrations show that land management can change and meet the goals of the triple bottom line and done in such a way that farmers can be empowered and take action to care for their natural resource endowments.