Current Status of Agrobiodiveristy Monitoring in Sri Lanka

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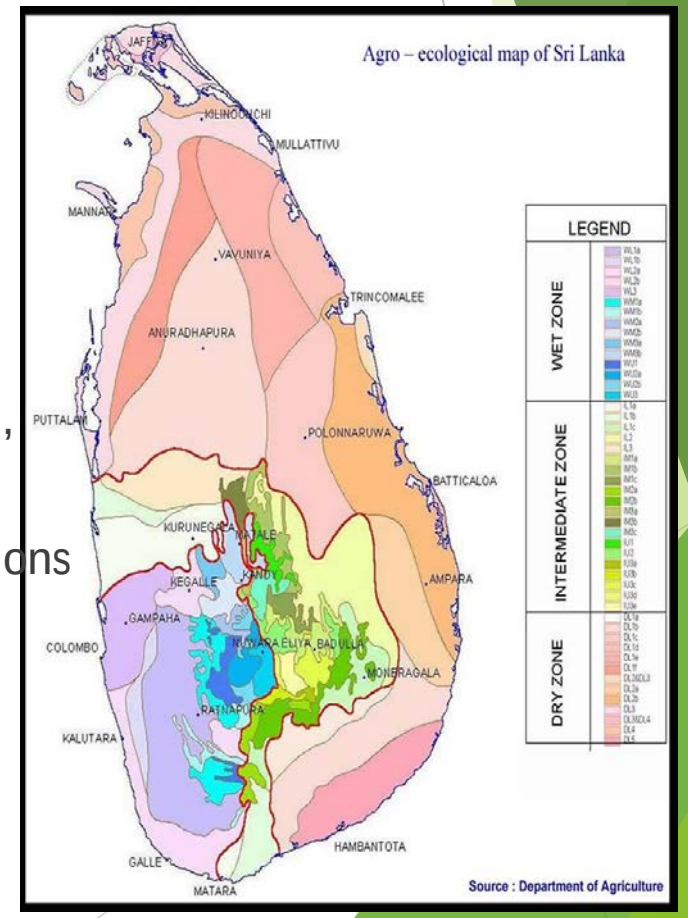
23 March 2015

Outline

- An Overview on climate, biodiversity and ecosystems in Sri Lanka
- Current status of agriculture and agrobiodiversity
- Crop agrobiodiversity monitoring- Country context
- Green Movement involvement
- Future plans and perspective

An Overview on climate, biodiversity and ecosystems in Sri Lanka

- A tropical Island in Indian ocean with bimodal rainfall pattern nurtured through Northeast monsoon, Southwest monsoon, two inter monsoons
  - Three climatic zones - wet, intermediate and dry
  - 46 Agro-ecological zones
- One of the 34 “Biodiversity Hotspots” in the world
  - Terrestrial (from tropical wet evergreen forests to grasslands)
  - Marine (sea-grass bed, coral-reefs, estuaries and lagoons, and associated mangrove swamps) and freshwater (flood plains, villu grasslands)
  - Agroecosystems -paddy lands, horticultural farms, crop plantations such as tea, rubber and coconut, homegardens, chena lands, and 23 types agroforestry systems



Current status of agriculture and agrobiodiveristy

- Rice (*Oryza sativa*) diversity
  - 2,800 varieties, show differences in maturity period 2.5-6 months.
  - 5 wild relatives (*O. nivara, O. rufipogon, O. eichingeri, O. rhizomatis* and *O. granulate*)
  - Most of the varieties are available only in genetic resource centre
- Other cereals ,legumes, root and tuber, medicinal plants, leafy and other vegetables, spices and fruits
- 240 species of crop wild relatives

Crop agrobiodiversity monitoring in Sri Lanka

- Conservation is mostly limited to *ex situ* collections in the seed banks, field gene banks, botanical gardens and with plant breeders
- Plant genetic resource centre of the department of agriculture play the main role in ex-situ conservation of seed and planting materials, conduct exploration visits and maintain germplasm collection under annual program
- There is no formal mechanism to monitor continual changes in agrobiodiversity in-situ and on-farm level
- Some research specialists in different crops and livestock breeds maintain their own record on distribution, population size and changes occurred in respective crops, crop wild relatives and livestock breeds

Green Movement involvement

- Green Movement (GM) is a Local NGO in Sri Lanka established in 1998
- Engage in agrobiodiversity monitoring since 2006
- Since 2008, GM widen agrobiodiversity monitoring through community based biodiversity management (CBM) program
- Since 2010, GM has been serving as a key stakeholder for two national level UNEP/GEP projects that focused on agrobiodiversity monitoring implemented by the department of agriculture and the ministry of environment
  - Biodiversity for Adaptation to Climate Change (BACC)
  - Biodiversity for Food and Nutrition (BFN)
- Since October 2014, GM has been a partner organization in PAR research project on land sharing and land sparing

Green Movement involvement cont.

Community based biodiversity management (CBM)

- CBM is empowering and capacity building of rural farming communities to conservation and sustainable utilization of agrobiodiversity for livelihood improvement and nutrition security and making enabling environment through supportive policy decisions for incorporation into national system
- Community biodiversity register
  - Documented crop agrobiodiversity information together with unique feature, different uses, and associated traditional knowledge by the community themself
- Community Seed Bank
  - Five community seed bank is in operation in five areas of Sri Lanka and GM is one of few institutes who introduced and work on community seed banks since last 4-5 years

Green Movement involvement cont.

- Community seed banks
  - Store and share seeds of local varieties of crops
  - Improve availability and access to crop agrobiodiversity
  - Facilitate for community seed production and seed selling

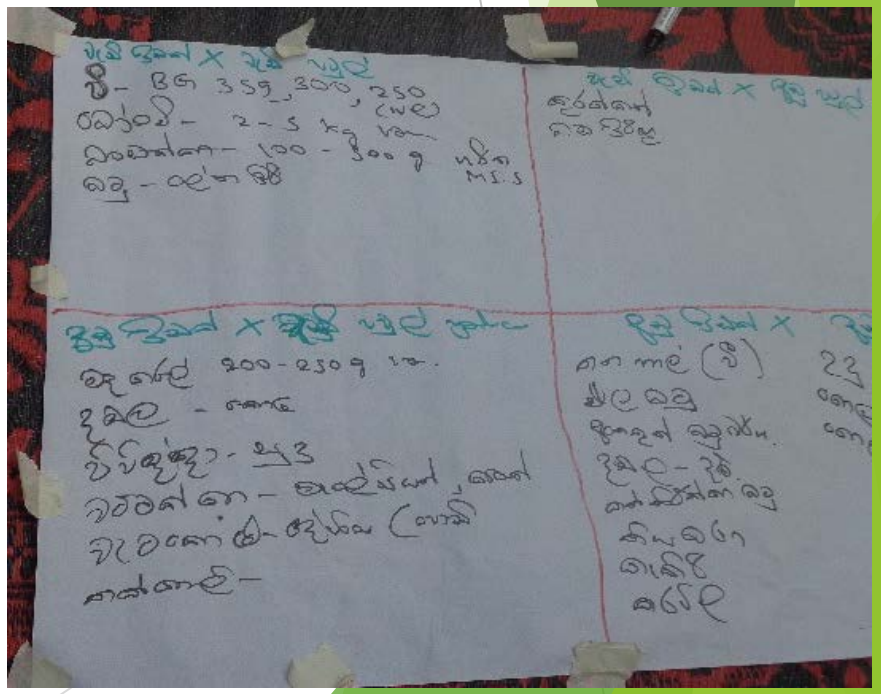
- Home gardening
  - Increase the crop and varietal diversity in homegardens
  - Improve food and nutrition security
  - Contribute to on-farm conservation of crop agrobiodiversity

- Distribution of chicks of village fowls and local goat breeds and establishment of sharing mechanism for chicks

Green Movement involvement cont.

UNEP/GEF projects

- Carried out participatory rural appraisal (PRA) for BACC project to
  - Identify community perspective on agrobiodiversity
  - Changes occurred in agrobiodiversity within last few decades
- Four-cell analysis was done to
  - Identify distribution and population density (richness and evenness) of existing crop agrobiodiversity and
  - Reasons behind differences in distribution and population density of agrobiodiversity in each area



Green Movement involvement cont.

PAR study of how land use change affects (agro)biodiversity?

- Agrobiodiversity description
- Land use types and the dynamics of land use change
- Social-ecological resilience to climate change and variability

- Land use changes has a direct impact on agrobiodiversity and ecosystem services and it determine the degree of resilience

Future plans and perspective

- Establishment of formal and collaborative mechanism for agrobiodiversity monitoring at in-situ and on-farm level
  - One of activity of BACC project to be implemented in 2015
  - Initial cost is high
- Diversification of agro-ecosystem for socio-ecological resilience through on-farm conservation and capacity building of local farming communities to improve livelihood activities using agrobiodiversity
- Strengthening of informal seed sector

Thank you