Invited Paper 1

ADAPTATION OF SRI LANKAN AGRICULTURE TO CLIMATE CHANGE: SOME THOUGHTS ON OUR STRENGTHS AND WEAKNESSES

W. A. J. M. De Costa

Department of Crop Science, Faculty of Agriculture, University of Peradeniya

ABSTRACT

Analysis of long-term meteorological data in Sri Lanka has shown strong evidence that global-scale estimates of past climate change and predictions of future climate change are reflected at the local-scale as well. Long-term increases in temperature and increasing variability in annual and seasonal precipitation have been key features of climate change in Sri Lanka. Agriculture, especially crop production, is one of the most climate-sensitive activities. As such, measures aimed at adapting Sri Lankan agriculture to future climate change have to be strengthened through research and integrated in to farmer practice through extension and technology transfer (ETT). The objectives of this presentation are: (a) to examine the adaptation options available for agricultural crops and cropping systems in Sri Lanka; (b) to assess the extent to which those options are being pursued via research and ETT; (c) to provide a personal perspective of the strengths and weaknesses that prevail within the institutional framework in Sri Lanka and (d) to make suggestions for improving and strengthening the current efforts to make Sri Lankan agriculture better-adapted and more resilient to future climate change. A strong argument is brought forward that it will be the technological advances through research, rather than elaborate policy discussions, that will bring about increased climate change-resilience to Sri Lankan agriculture. Among the technological advances, breeding of heat-tolerant crop varieties is identified as the option that will bring the most solid improvement in climate resilience. While it is encouraging to see breeding for heat tolerance being accorded a high priority in all major crop research institutes, an improved precision in the breeding methodology is required to reduce length of the breeding cycle and achieve maximum gain in heat tolerance. Options to increase climate resilience through modified crop management are limited and available options include: (a) increasing the tree cover in farmlands, especially in the dry zone; (b) optimization of planting times and matching crop phenology to climatic variation in the growing environment; (c) soil moisture conservation through mulching; (d) a paradigm shift in irrigation practices coupled with improved irrigation scheduling and greater water use efficiency and (e) intercropping C4-C3 crop combinations. While most of these options are already well-known, their effective implementation is uncertain because of ingrained farmer practices and a weak ETT system. Although Sri Lanka has an elaborate institutional network for research, they are severely under-strength in terms of human and physical resources and therefore needs considerable investment. On the other hand, the institutional network for ETT is dis-organized and disjointed and needs a total overhaul. Therefore, a co-ordinated effort to plan and implement the above measures is needed urgently.

Prof. W. A. J. M. De Costa: Email - ***janendrad@gmail.com***