Soil Constraints and Management Package (SCAMP)
Guidelines for Sustainable Management of tropical upland soils

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The booklet describes a decision-support framework called the *Soil Constraints and Management Package* (SCAMP). In general, the aim of undertaking a soil survey is to provide an inventory of the soil resource. The survey usually characterises the pedological features of the soil profile so that a taxonomic classification can be made. However, this classification is rarely interpreted in terms of how soil constraints might affect sustainable production of crops and how this information can provide guidance on managing these constraints. This framework attempts to bridge the gap between taxonomic soil surveys and informed management strategies for sustainable production on upland soils in the tropics. Being simplistic yet comprehensive, it can be applied to any upland situation.

SCAMP was developed and improved through jointing project leaders in two collaborative projects between The Soil Chemistry and Fertility Group of the Institute of Agricultural Sciences for Southern Vietnam with the Queensland Department of Environment and Resource Management, Australia. The first project was the Australian Centre for International Agricultural Research (ACIAR)-funded project SMCN/2002/085 *Using basic soil data for the sustainable management of upland soils in Vietnam and Australia*. The second project was funded by The Collaboration for Agriculture and Rural Development (CARD) program VIE 009/06 *Improving capability of provincial extensionists for assessing soil constraints to sustainable production through the use of the SCAMP decision support system*. The CARD project provided SCAMP training to extensionists from the uplands of Vietnam, one extensionist for each district. Three training courses had been organised in Gia Lai, Ninh Thuan, and Tay Ninh, provinces which are representative for the Central Highlands, the Southern Central Coast and the South Eastern Region, respectively.

Soil Constraints and Management Package, a decision support system was developed to assist extensionists and farmers to sustainably manage upland soils of Vietnam for crop production. SCAMP uses simple field observations and tests to identify soil constraints to productivity (such as compaction, hardsetting surfaces, periodic waterlogging, acidity, salinity, sodicity). Once the constraints are identified, SCAMP provides information on soil management options for minimising the effects of the constraints on crop production. The goal of SCAMP is to have farmers recognise that soils of different colour, texture or structure will require different management practices to maximise sustainability and profitability.

Demonstration field experiments were set up (in Gia Lai and Tay Ninh provinces) and used to compare local farmer practice with SCAMP management options. Economic analyses based on gross margins indicated that management practices determined from a SCAMP analysis of the soil were more profitable for peanut and table corn production than farmer practice. All workshop participants expressed the wish to provide SCAMP training to their local farmers, so it is hoped that SCAMP will be extended to many Vietnamese farmers so that they can learn to manage their soils sustainably and profitably. SCAMP has been used by the World Vision group pasted in Bac Binh district, Binh Thuan province as a spin-off project, to improve farmers' perception about the soil they are working on. SCAMP level 1 has been transferred to more than 500 farmers through this group and their collaborators. The authors hope that the booklet will stimulate interest in sustainable soil management, particularly in the tropics and provide the framework to organise soil data and observations to answer the questions that a landholder asks about soil data: 'What does it means?' and 'What can I do about it?'

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Figure 1. Soil Constraints and Management Package (SCAMP). Guidelines for Sustainable Management of tropical upland soils. Philip W. Moody and Phan Thi Cong. ACIAR Monograph No. 130, 86 pp

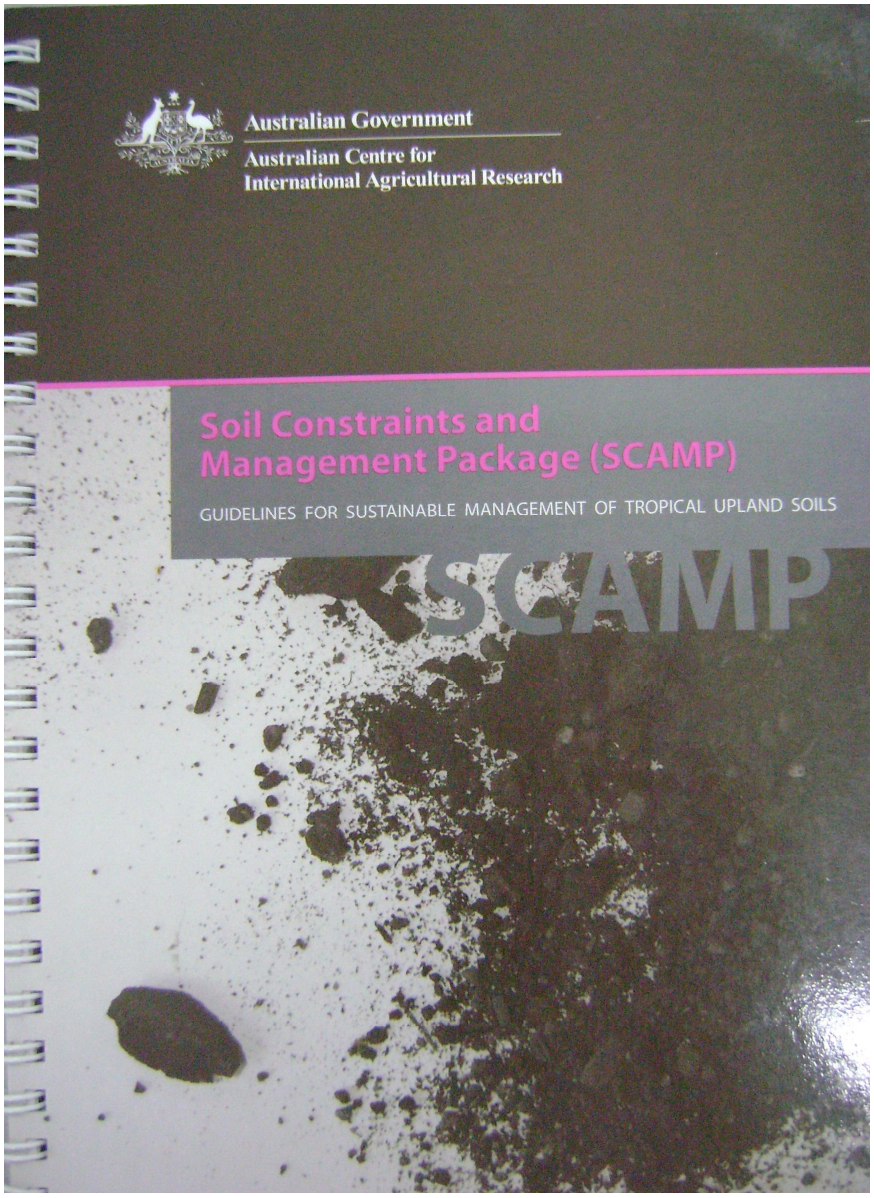

Figure 3. Soil constraints to crop production vs crop diversification. Raised-beds prepared for an upland crop after rice had been flooded after few abnomal 30 mm-rains for two days. This matter is very commonly occurred on light-texture paddy fields in Tay Ninh province due to a shallow compaction layer.

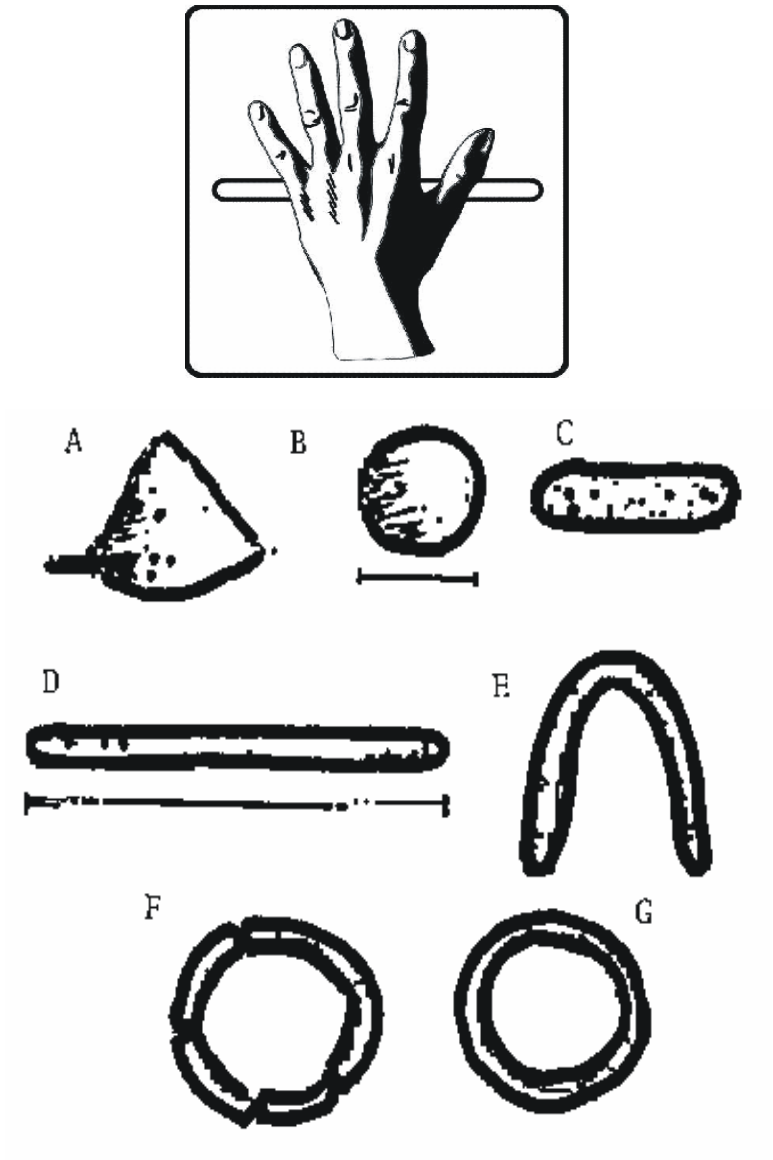

Figure 2. Determination of soil texture by the behaviour of soil at sticky consistency (Source: Euroconsult 1989. A: sand; B: sandy loam; C: silty loam; D: loam; E: clay loam; F: fine clay; G: heavy clay.