



## **Defining land use strategies in Fiji and Samoa to combat soil degradation**

**Jannes Stolte** (1), Coen J. Ritsema (1), Walter Vermeulen (2), David Hunter (3), Maria Elder (4), Wilco Liebrechts (5), Erik van den Elsen (1)

1 Alterra Green World Research, Wageningen, Netherlands

2 METI, Apia, Samoa

3 University of the South Pacific, Apia, Samoa

4 Ministry of Agriculture, Fishery and Forest, Suva, Fiji

5 Ecoconsult Pacific, Suva, Fiji

Contact:

Dr. Jannes Stolte  
Wageningen-UR  
ALTERRA, Green World Research  
Soil Science Centre  
P.O. Box 47  
6700 AA Wageningen  
Netherlands  
Phone: +31 317 474286  
Home: +31 486 421670  
Fax: +31 317 419000  
E-mail: [jannes.stolte@wur.nl](mailto:jannes.stolte@wur.nl)

Abstract

South Pacific islands are under increasing pressure, and the threats are primarily from human interactions. The arrival of western values in the South Pacific resulted in forest depletion and intensive agricultural production systems, which have led to increasing damage to the environment, while bringing relatively few benefits to the resource owners. The pressure to which natural resources have been subjected by these development

efforts, and the substantial and sometimes disastrous degradation and depletion which have occurred, has begun to focus the attention of communities on the need to implement sustainable management of those remaining resources. At present, crop production systems practiced in South Pacific Island States range from traditional to high input production systems. The majority of the farmers in Fiji and Samoa probably fall within these two extremes in what will be termed moderate input production systems. The physically-based model LISEM is used to quantify the losses of soil and water in two small agricultural catchments in Samoa and Fiji. To be able to communicate directly with the farmers about the effects of proposed alternative land use calculation results will be presented. Calibration of the model was carried out for a number of events. It showed that results for discharge matches the measured values, when calibrated on the infiltration. Maps are produced to initiate the group discussions during the village meetings. With these maps, the farmers are consulted and discussions about alternatives started. Results of effects of pre-defined alternative land use on discharge of soil, water and nutrients will be presented. The project is funded by the EU, INO-DC and the Ministry of Agriculture, Nature and Fisheries of The Netherlands.