Project Number:
LWR1/2002/018

ACIAR 项目编号：
LWR1/2002/018

Regional impacts of re-vegetation on water resources of the Loess Plateau, China and the Middle and Upper Murrumbidgee Catchment, Australia

中国黄土高原和澳大利亚马兰比季河中上游植被恢复重建对区域水资源的影响

Commonwealth Scientific and Industrial Research Organisation Land and Water
澳大利亚联邦科学与工业研究组织
水土资源研究所

Institute of Soil and Water Conservation
Chinese Academy of Sciences
中国科学院水利部
水土保持研究所

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www.clw.csiro.au/ReVegIH/

Outlines of the Project 课题概括:

Research Areas 研究区域：

Australia 澳大利亚

- Middle and Upper Murrumbidgee Catchments (MUMC)
  马兰比季流域的中上游地区(即MUMC)

China 中国

- Coarse Sand Hilly Region (CSHR)
  黄土高原粗沙多沙区
- Yanhe Basin
  延河流域

Objectives 研究内容：

To optimise the impact of large-scale revegetation on the water resources of the research areas in both countries
优化大规模植被恢复活动对研究区水资源的影响

Project duration 课题年限：

April 2003 – March 2006
2003年4月-2006年3月

Objectives of the Project 课题的目标：

1. To develop software tools to predict the impact of revegetation strategies on the two regions. This will require the development of:
   开发合适的软件，用以预测植被恢复政策对研究区可能带来的影响。这包括:
   - Regional databases
     区域数据库的开发
   - Suitability assessments
     植被适宜性的评估
   - GIS-based software tool
     基於GIS的模型工具的开发

2. To make available and communicate the capacity of the tools developed by the project as decision aids for revegetation strategies by:
   为使该课题成果得到应用、推广，并在植被恢复的决策上发挥积极作用，
   - Establishment of web-based systems
     建立一个基於互联网的交互式模型
   - Communication activities to promote the use of the tools
     进行交流宣传活动，促进成果的应用

Outputs of the Project 课题的预期成果：

1. Assemble the regional databases of climate, river flow, land use and DEMs.
   研究区域气象、径流、土壤、土地利用和DEM数据库的集成
2. Map suitability assessments for trees, shrubs and perennial grasses, taking into account changes to equilibrium soil moisture.
   考虑土壤水分平衡，对乔木、灌木和多年生草本植被的适宜性进行评估、制图
3. Develop a GIS tool to predict the impact of re-vegetation schemes on annual flow and seasonal stream flow duration curves (FDCs) for 200 years from the time of re-vegetation.
   开发GIS工具，预测植被恢复方案(植被类型及其空间分步) 对它实施后200年间常年性和季节性河流流量频率持续曲线的影响
4. Develop a Web-based interactive scenario modelling tool using the CRC_CH Toolkit to ‘port’ the GIS tool.
   采用流域水文联合研究中心(CRC_CH)的工具包，开发基於互联网的交互式GIS模型工具
5. Perform ongoing communications of project developments with potential users and other scientists.
   与用户和科研人员交流

MUMC Location

马兰比季流域
示意

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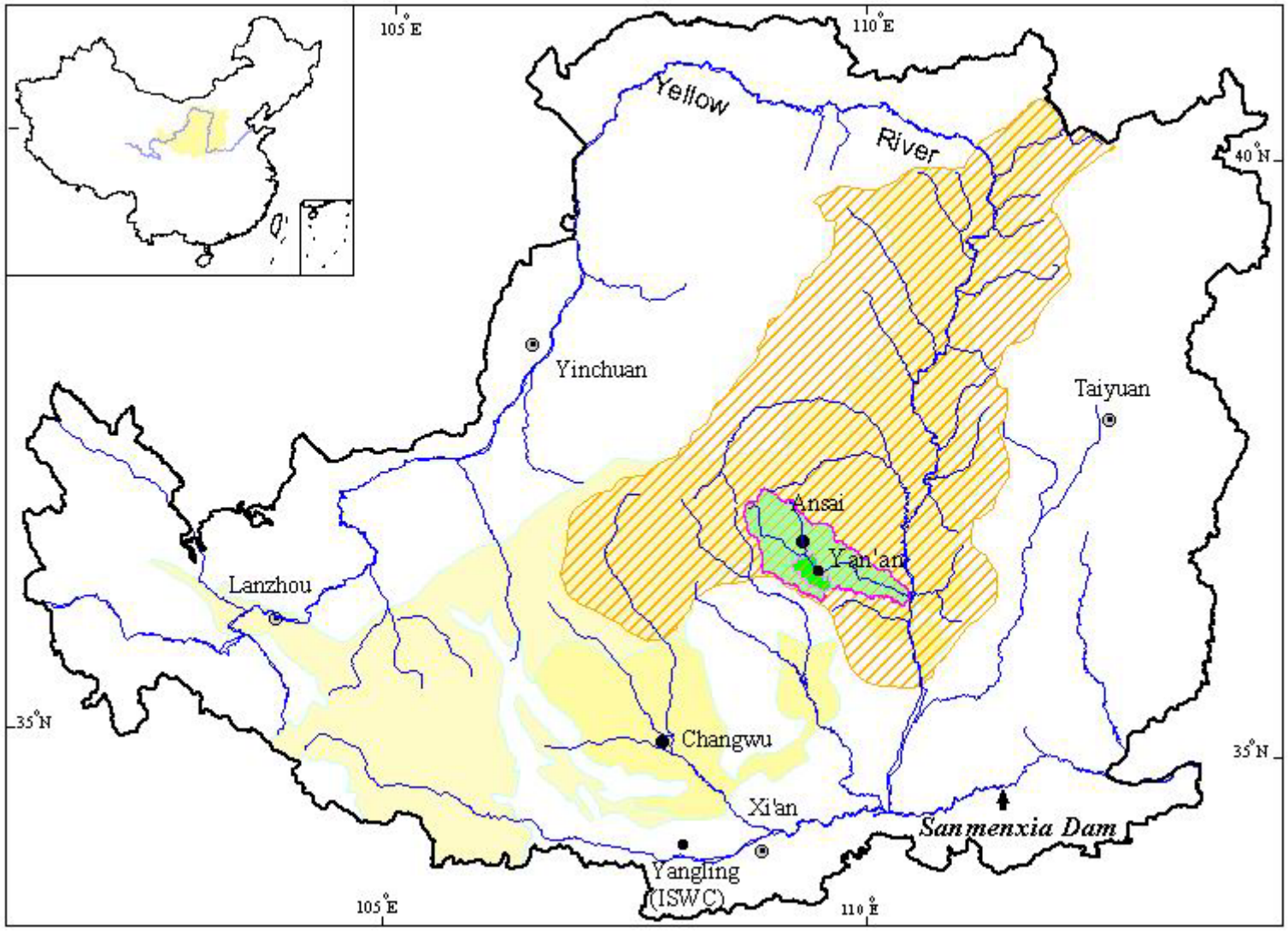
CSHR Location

黄土高原粗沙多沙区
位置示意



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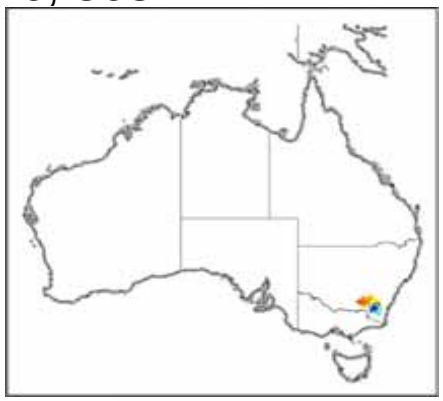
MUMC DEM

马兰比季河中上游
数字化地形模型

北
N

27 sub-catchments
27个小流域

26, 863 km^2



Legend 图例

High: 高 2044 m

Low: 低 160 m

30 15 0 30 Kilometers

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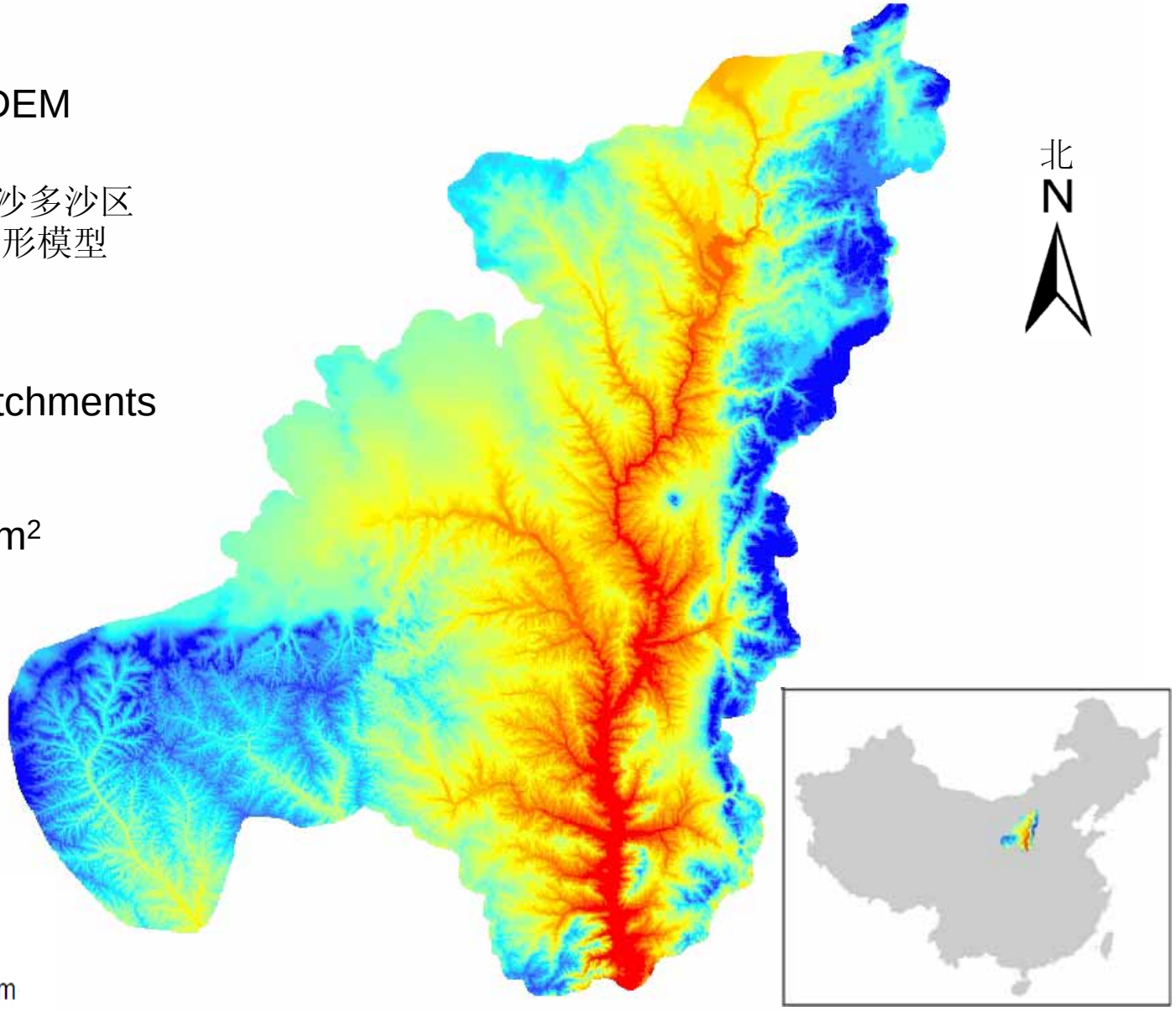
ACIAR CSIRO COOPERATIVE RESEARCH CENTRE FOR CATCHMENT HYDROLOGY

CSHR DEM

黄土高原粗沙多沙区
数字化地形模型

45 sub-catchments
45个小流域

134,050 km^2



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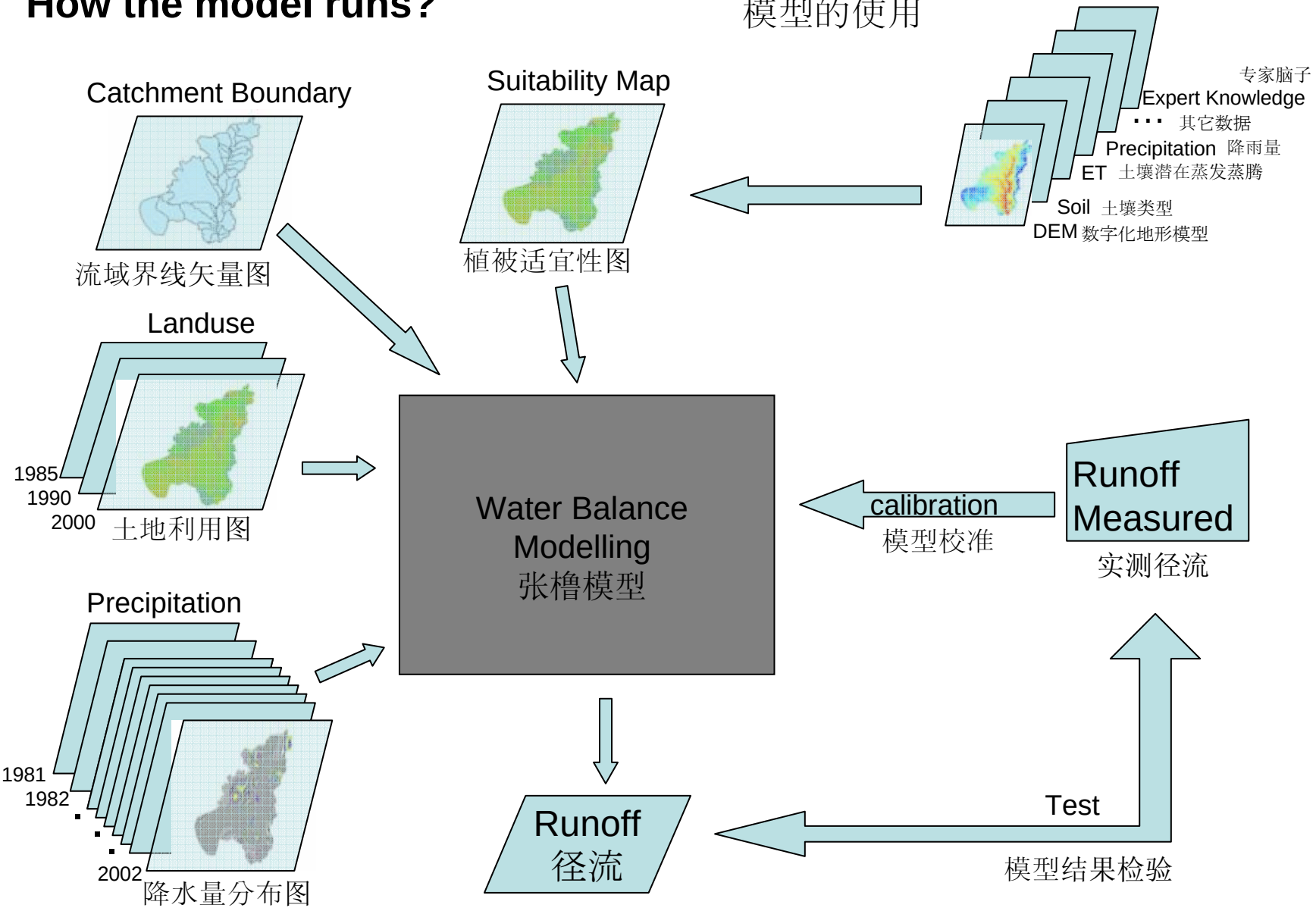
How the model runs?

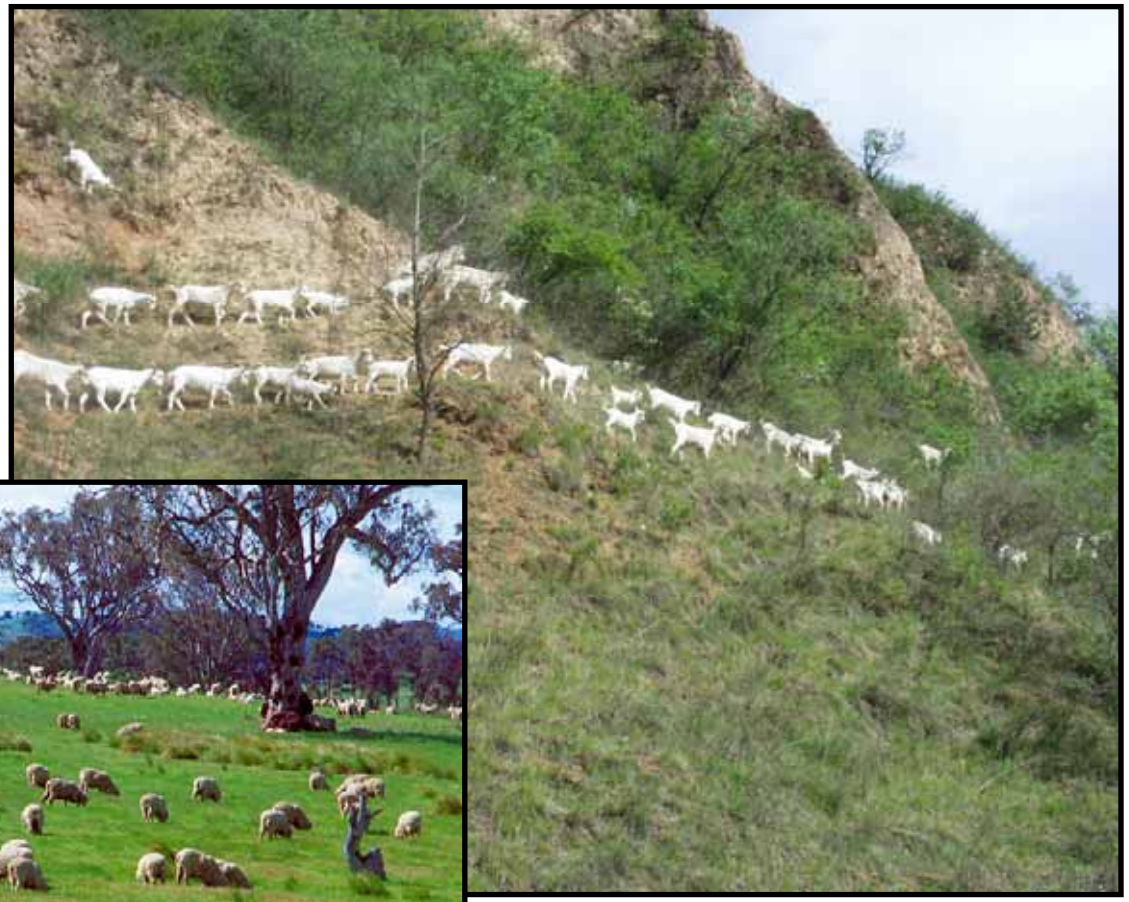
模型的使用



林地

Forest

Pasture



牧羊

Crop Land

农田

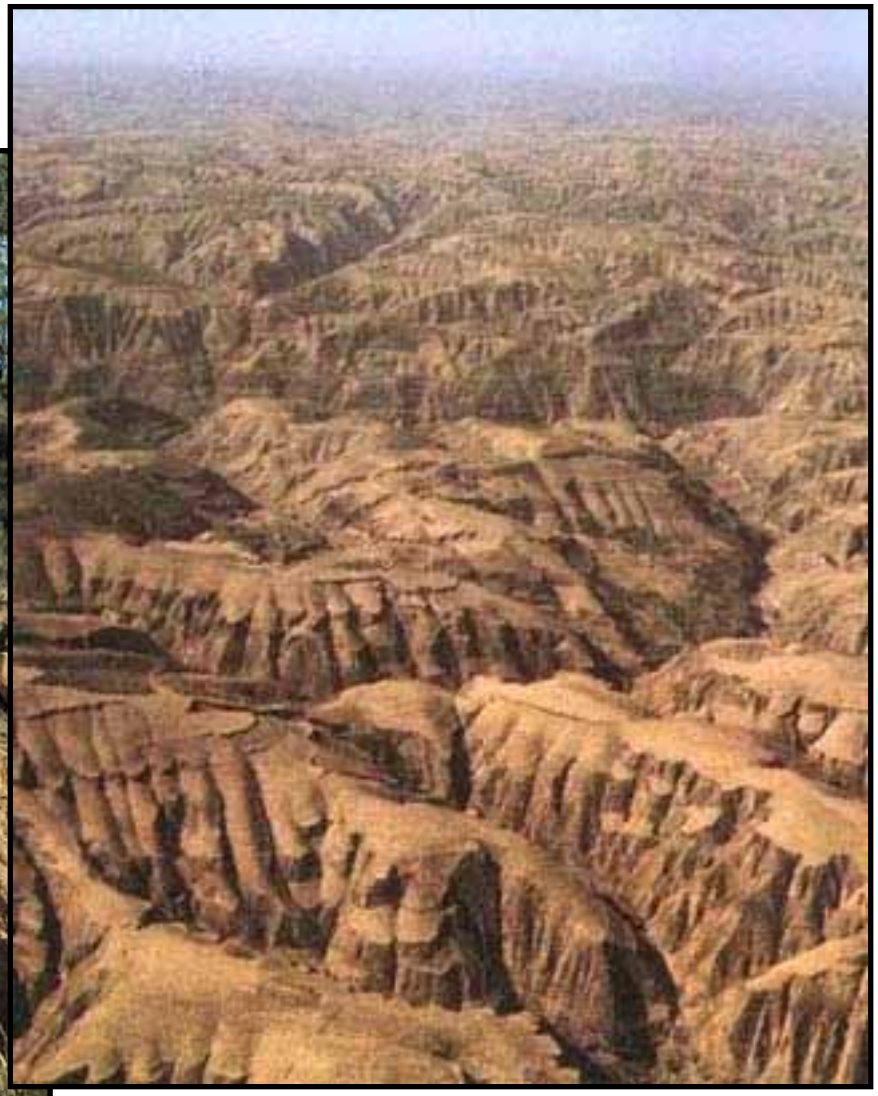
Harvest

收获图

Soil Erosion

土壤侵蚀

Soil Erosion



土壤侵蚀