

APPENDIX

APPENDIX

STUDENT CASE STUDY EXERCISES

The following exercises are given so that the student of soil conservation can gain experience in designing programmes of soil conservation activities as case studies. The case studies should take into consideration the principles outlined in the book and the socio-economic context of the Caribbean.

Project Profile

A soil conservation programme is to be developed in a project area with the following features:

Area : 18km²

Terrain: Hilly with varying slopes including steep slopes;
large number of gullies and ravines.

Soils: Two major soil types.

(1) loose erodible, shallow or shallow and
bouldery in places;

(2) loose friable erodible, deep profile

Present Cropping

High percentage of cocoa and coffee

Banana

Some food crops

Few scattered fruit trees

Forest trees

Farm Sizes

Small farms 0.5 - 5 hectares

Tenure

(1) Owner occupied (2) Short term leases

Constraints: low yield of crops because of low technology;
low or no use of suitable fertilisers; high
incidence of disease; low crop husbandry.

Specific Objectives:

- Increase productivity of farms
- Increase farmers' income
- Improve land-use practices, particularly the adoption of appropriate sustainable soil conservation methods
- Strengthen producers organizations
- Strengthen extension services

Soil conservation practices are to be developed for the following farm situations:

No.	Farm Size	Slope	Gullies/ Ravines	Cropping	Tenure	Soil
1	Small	G/M	Small	Banana and Food Crops	Lease	1
2	Large	S	Large	Cocoa, Coffee, Food Crops	Owner	2
3	Medium	S	None	Free choice	Lease	1
4	Small	S	Small	Coffee	Lease	2
5	Large	S	Small	Food Crops, Fruit Trees, Banana	Lease	1
6	Medium	G/M	Moderate	Vegetables, Banana, Cocoa	Owner	2

Soil conservation practices are to be developed for the following farm situations:

No.	Farm Size	Slope	Gullies/ Ravines	Cropping	Tenure	Soil
7	Small	G/M	Large	Vegetables,	Owner	2
8	Large	G/M	Small	Vegetables, Banana, Tree Crops	Owner	2
9	Medium	S	Small	Cocoa, Food Crops	Lease	1
10	Small	S	None	Vegetables, Banana, Food Crops	Owner	2
11	Large	G/M	Moderate	Free choice	Owner	2
12	Medium	S	Large	Vegetable, Tree Crops	Owner	1

Farm Sizes

Small

0.5 - 1.5 ha

Medium

1.5 - 3.0 ha

Large

3.0 - 5.0 +

Slopes

G

gentle

M

moderate

S

steep

BIBLIOGRAPHY

- Brady, N.C. (1974) The nature and properties of soils, 8th edition, Macmillan Publishing Co. Inc., NY 10022
- Caribbean Conservation Association (1991) Environmental Profile of Dominica; CCA, Bridgetown, Barbados
- Chenery, E.M. (1952) The soils of Central Trinidad, Government Printer, Port-of-Spain, Trinidad
- Government of the Commonwealth of Dominica (1985) National Structure plan of Dominica; GOCD, Dominica
- Gumbs, F.A. (1987) Soil and water conservation methods for the Caribbean. Department of Agricultural Extension (Caribbean Agricultural Extension Programme) University of the West Indies, Trinidad
- Gumbs, F.A. (1992) Integrating soil conservation into farming systems in the Commonwealth Caribbean. Status report and components of a regional programme. Commonwealth Secretariat, London, UK
- Hardy, F. (1942) Soil erosion in Trinidad and Tobago. Trop. Agric. (Trin.) 29:29-35
- Lal, R. (1975) Role of mulching techniques in tropical soil and water management. IITA Tech. Bull. No. 1; IITA, Ibadan, Nigeria. pp 38
- Lal, R. (1976) No-tillage effects on soil properties under different crops in western Nigeria. Soil Sci. Soc. Amer. J. 40:762-768
- Lal, R. and Russell, E.W. (1980) Watershed Management and Land Use (pp 111-139). In: Tropical Agricultural Hydrology. John Wiley and Sons, NY
- Lindsay, J. I. and Gumbs, F.A. (1982) Water runoff and soil loss from an Ultisol under different crops and soil management. Soil Sci. Soc. Amer., J. 46: 1264-1266
- Mohammed, A. and Gumbs, F.A. (1982) The effect of plant spacing on water runoff, soil erosion and yield of maize (*Zea mays* (L)) on a steep slope of an Ultisol in Trinidad. Journal of Agricultural Engineering Research 27: 481-488
- Russell, E.W. (1973) Soil conditions and plant growth, 10th edition, Longman, London
- Russell, J. (1974) World Crops 26(3): 134-135

Soil and Land Use Surveys

- No 1. Jamaica, Parish of St. Catherine (K.C. Vernon and T.A. Jones, 1958)
- No 2. St. Vincent (J.P. Watson, J. Spector, and T.A. Jones, 1958)
- No 3. Jamaica, Parish of St. Andrew (K.C. Vernon and T.A. Jones, 1959)
- No 4. Jamaica, Parish of Clarendon (T.F. Finch and T.A. Jones, 1959)
- No 5. Jamaica, Parish of St. James (R.W. Price and T.A. Jones, 1959)
- No 6. Grenada (K.C. Vernon, H. Payne, and J. Spector, 1959)
- No 7. Jamaica, Parish of St. Mary (K.C. Vernon, 1960)
- No 8. Jamaica, Parish of Portland (T.F. Finch, 1961)
- No 9. Jamaica, Parish of Hanover (R.W. Price, 1960)
- No 10. Jamaica, Parish of St. Elizabeth (J. Stark, 1963)
- No 11. Jamaica, Parish of Westmoreland (J. Stark, 1964)
- No 12. St. Kitts and Nevis (D.M. Lang and D.M. Carroll, 1966)
- No 13. Jamaica, Parish of Manchester (J. Stark, 1964)
- No 14. Barbados (K.C. Vernon and D.M. Carroll 1965)
- No 15. Antigua and Barbuda (I.D. Hill, 1966)
- No 16. St. Lucia (J. Stark, P. Lajoie, and A.J. Green, 1966)
- No 17. Dominica (D.M. Lang, 1967)
- No 18. Montserrat (D.M. Lang, 1967)
- No 19. Jamaica, Parish of St. Thomas (G.W. Morgan and R. Baker, 1967)
- No 20. Jamaica, Parish of St. Ann (G.H. Baker, 1968)
- No 21. Jamaica, Parish of Trelawny (G.H. Baker, 1970)

Regional Research Centre of the British Caribbean at the Imperial College of Tropical Agriculture (now faculty of Agriculture, The University of the West Indies Trinidad).

- No 22. Cayman Islands (R.J. Baker, 1974)

Tropical Forestry Action Programme (TFAP) 1991-1992

Reports of the consultants on Legislation

Reports of the consultants on Land Use and Watershed Management
(Antigua and Barbuda, Barbados, Dominica, Grenada, Montserrat,
St. Kitts/Nevis, St. Lucia, St. Vincent and the Grenadines).