

APPENDIX III: GLOSSARY – TERMS CLOSELY RELATED TO ASSESSMENT OF LAND DEGRADATION

Aggregate stability Aggregates are groups of soil particles, also called peds. Their stability depends upon the agent such as organic matter or lime which cements the particles, and upon the force which breaks them down such as rainfall erosivity or the action of a plough.

Alkalinity A type of soil degradation where sodium cations increase on the exchange complex of clay and organic matter particles in the soil. Increased alkalinity leads to physical degradation as well as chemical problems.

Biomass The total weight of the organic substance and organisms in a given area. It includes growing and decaying plant materials and micro-organisms found in the soil.

Bulk Density The mass of soil divided by the volume occupied by soil, water and air.

Cost-benefit Analysis This is a method of financial appraisal which compares the estimated future costs with the estimated future benefits of a particular course of action. The appraisal goes beyond a purely financial calculation and incorporates social advantages (such as saving time) and social disadvantages (such as noise, loss of farm land) by attaching a monetary value to them. This method of analysis seeks to mimic the subjective decision-making of individual investors, but this element of subjectivity leads to the results of such analysis being treated with some cynicism. If the net present value of the course of action is positive then it is rational to undertake that action, whereas a negative net present value suggests that the costs of the action outweigh its benefits.

Degradation – Biological A type of soil degradation consisting of the mineralization of humus and an increase in the activity of micro-organisms responsible for organic decay, resulting in an overall decrease in organic matter.

Degradation – Chemical A number of types of soil degradation that may involve one or more of the following processes: leaching of nutritive elements; acidification; toxicities, other than excess of salts.

Degradation – Land The temporary or permanent lowering of the productive capacity of land.

Degradation – Physical A set of types of soil degradation involving one or more of the following processes: loss of soil physical structure; sealing and crusting of soil surface; reduction in permeability; compaction of depth; increase in macroporosity; limitations to rooting.

Degradation – Soil A decrease in soil quality as measured by changes in soil properties and processes, and the consequent decline in productivity in terms of immediate and future production.

Discount Rate The discount rate is an interest rate (usually a combination of current market interest rates plus an element to account for risk) applied to future cash flows to reduce (or discount) them to their current value if they were to arise immediately.

Ecosystem An ecosystem is a particular environment and the plants and animals that inhabit it. The boundaries of an ecosystem may be drawn very narrowly (e.g. a particle of soil) or very broadly (the entire earth).

Enrichment Ratio The levels of nutrients in eroded material are proportionately higher than in the source soil. The enrichment ratio measures the relative concentrations of nutrients in deposited material and in the soil from which that eroded material came. This measure does not take account of nutrients dissolved in run-off or deposited elsewhere.

Erosion The removal of soil and rock particles by the forces of water, wind, ice or gravity.

Focus Groups A focus group is a group of community residents specifically selected because they form part of a particular sub-grouping within the community, for example farmers, mothers. Discussions within the focus group should highlight local problems, knowledge, beliefs and problem-solving capacity for the sub-group.

Gully A miniature valley or gorge caused by the erosive effect of running water. The water wears away a deep channel in the land surface. Typically water only runs through gullies after rains.

Key Informants These are community members who are particularly qualified to provide information about local conditions, usually due to their position within the community, e.g. local officials, community leaders, other development workers. Key informants may provide background information, or introductions to other community members or groups.

Net Present Value The value of the projected future costs and benefits of a particular course of action discounted to the present value equivalent using an appropriate discount rate (incorporating the cost of capital and the degree of risk associated with the course of action).

Pairwise Ranking See problem ranking.

Participatory Rural Appraisal Information gathering that requires the active involvement and participation of the rural people being targeted by research and development projects. PRA involves listening to, and learning from, members of rural communities.

Pedestal A pillar of soil capped by a more resistant material (such as a stone or root) which protects the soil from rainsplash erosion.

Problem Ranking This technique allows the field worker to determine the relative importance attached to practices or problems by the community. It also helps to focus on the areas that should be prioritised by extension work. Pairs of issues are compared and a matrix constructed which records the relative importance attached to each item in each comparison. The issues can then be ordered from the most to the least important.

Resilience The ability of a land system, or a livelihood strategy, to absorb and utilise change, including resistance to a shock.

Resource Mapping This technique is a useful first step in field work as it explores the residents' perception of their community and yields information about the physical features, infrastructure, community meeting points and location of households within the community.

Rill A small channel formed on the soil surface during erosion. Rills often appear during heavy rains. They are seasonal, in that they can be eliminated by normal agricultural practices.

Salinity A type of soil degradation where salts increase in the soil water solution. It is measured by an increase in electrical conductivity.

Seasonal Calendars These record the main activities and problems which occur during the agricultural year. Cropping patterns, labour availability, food availability, water supply and health status should all be addressed in the calendar. These calendars are a good way to gain information about the farming practices in the community and an understanding of the constraints recognised by land users.

Semi-structured Interviews In this type of interview the interviewer has a broad aim, or checklist of points to be covered, at the outset of the meeting with the interviewee. However, the answers provided by the interviewee determine the actual direction of the interview. The interviewer takes his lead from the information provided by the interviewee and explores the issue on that basis.

Sensitivity The degree to which a land system, or livelihood strategy, undergoes change due to natural forces, human intervention or a combination of both.

Shear strength The ability of a soil to resist shearing or physical breakdown. Strength is imparted to soil by cohesive forces between particles and by the frictional resistance of particles that are forced to slide over one another during, for example, tillage operations.

Social Mapping This process may be conducted as part of a resource mapping exercise, since the degree of access to resources is often determined by membership of social groups. Social linkages can be more explicitly recorded on a Venn diagram.

Soil Fertility The soil's ability to produce and reproduce. It is the aggregate status of a soil consequent upon its physical, chemical and biological well-being.

Soil Productivity The overall productive status of a soil arising from all aspects of its quality and status, such as its physical and structural condition as well as its chemical content.

Subsoil The layer of soil lying immediately below the surface soil.

Time Lines This technique records changes, trends and events by reference to locally important history as remembered by the informants/community. It can help to pinpoint the causes of problems or changes.

Transect Walks These are systematic walks through the village from one boundary to the opposite boundary. Usually two walks are undertaken, perpendicular to each other (to give a cross-shaped pattern). During the walk the field worker observes the local practices, and discusses how and why things are done with the land users. Information on farming practices, access to land and water, constraints and problems should be recorded.

Topsoil The surface layer of the soil. This is the soil used for cultivation.

Wealth Ranking Information on the relative wealth (or well-being) of households in a community can be gathered where community members define how wealth (or well-being) is perceived locally, and then putting the households into order from those with the greatest level of wealth to the least. This technique is best used with individuals, but it should be carried out with at least three community members to avoid inherent biases arising due to the status of the respondents.

Well-being Ranking See wealth ranking.