Working Paper and Preprint

No.88/4

GUIDELINES FOR GENERAL ASSESSMENT OF THE STATUS OF HUMAN-INDUCED SOIL DEGRADATION

Edited by L.R. Oldeman
International Soil Reference and Information Centre
Wageningen, April 1988

GLOBAL ASSESSMENT OF SOIL DEGRADATION (GLASOD)

UNEP in cooperation with ISRIC
STIBOKA-FAO-ISSS-ITC

ISRIC LIBRARY
S 12
27
Wageningen, The Netherlands

ADDENDA

Guidelines for General Assessment of the Status of Human-Induced Soil Degradation (Working Paper and Preprint 88/4, ed. L.R. Oldeman).

I. page 4, section 4.2.1. sub.5. **Other chemical problems.**
In this group gleysation as a result of waterlogging can be included.

II. page 5, section 4.2.2. **Physical Deterioration**
In this type of soil degradation two other human-induced forms are suggested:
7) Cryoturbation and solifluction, caused by human-induced disturbance of the layer over the permafrost in the taiga/-tundra areas.
8) Concrete or tarmac (asphalt) covered areas; of particular importance in densely populated and industrial areas.

III. page 5, section 4.3. **Causative factors of Soil Degradation**
This section needs some more elaboration. It will read as follows:

4.3 Causative factors of Human-induced Soil Degradation.

Soil degradation can be caused by exploitation of the original vegetative cover, either through deforestation or through over-exploitation for consumptive use (fuel source, fence materials etc.). Exploitation of the original vegetation cover results in a loss of biological diversity often leading to a secondary type of vegetation with predominantly obnoxious and unpalatable weeds and shrubs.

It can also be caused by over-intensive use of the agricultural land, either by overgrazing of pasture lands, or by using heavy machinery, by intensive (an)organic fertilizer practices, by irrigation etc. Finally soil degradation can be the result of (bio)-industrial waste. The causative factors of soil degradation are grouped in the following categories:

1) Deforestation, (burning for clearing land or logging: "slash and burn")
2) Over-exploitation of vegetative cover for human uses (e.g. for fuel use, as fence material).
3) Over-grazing of pasture lands; extensive areas of land have been completely cleared of its original vegetation.
4) Over-intensive use of agricultural land; e.g. heavy machinery; intensive fertilizer use (inorganic and organic); irrigation.
5) (Bio)-Industrial waste. (contamination of ground water; acid rain, etc.).

IV. page 9, section 8.3.2 **Evaluation of Soil Degradation Status**
This section is rephrased to stress that often one mapping unit consists of several soil degradation types, which cannot be inserted on the base map because of lack of space.

8.3.2 Evaluation of Soil Degradation Status per mapping unit.
Give each mapping unit a unique number.
Determine for each delineated mapping unit whether it includes one or more human-induced soil degradation types or not. Evaluate for each type the degree, recent past rate and the relative extent of the land per mapping unit being affected. The result of this evaluation process is a symbol for each of the relevant degradation processes as will be discussed in section 8.4. These symbols should be listed in the matrix table (section 8.6). The type which affects the largest area per mapping unit should be listed first, to be followed by other types that may also occur in the same mapping unit.
Insert on the base map in each mapping unit its unique number as well as the mapping symbol for the type which affects the largest area of that mapping unit.
If the mapping unit is not affected by any type of human-induced soil degradation, mapping symbols as discussed in section 8.4.7 or 8.4.8 should be used.

V. page 9, section 8.4.1. **Mapping symbols for soil degradation types**
As a result of suggested changes mentioned above in remarks I and II, the following additional mapping symbols for soil degradation types are to be used:

Cg: gleyzation
Pt: cryoturbation and solifluction
Pu: concrete or tarmac (asphalt) covered areas.

As a result of suggested changes mentioned in remark III the following additional mapping symbols for causative factors are to be used:

i: over-intensive use of the agricultural land
e: over-exploitation of vegetative cover for consumptive use
w: (Bio)-industrial waste.

VI. page 11, section 8.4.7. **Mapping symbols for stable terrain.**
In this category terrain that is stable (either because of a permanent natural vegetation cover, or because of a permanent agricultural cover) is distinguished from terrain that is stabilized as a consequence of human interaction. In this category the degree of present soil degradation is none, although there may have been soil degradation in the past (see section 8.4.5). The following symbols are to be used:

SN: Terrain is naturally stable (e.g. tundra, extensive natural forest; marshes/swamps.
SA: terrain is stable as a consequence of a permanent agriculture type of land use (without conservation intended practices).
SH: terrain is stabilized by human intervention (conservation practices)
SHp: stabilized as a consequence of paddy (wetland rice) field terracing
SHc: stabilized as a consequence of conservation practices for rainfed crops or other forms of permanent conservation measures
SHr: stabilized as a consequence of reforestation, permanent planta-

tion crops etc.
SHe: stabilized as a consequence of empoldering.

VII. page 11, section 8.4.8 **Mapping symbols for non-used wasteland**
The heading of this section is changed and another group is included: land that is being degraded at present under natural conditions, but that has not yet reached a state of ultimate degradation. The new version reads as follows:

8.4.8 Miscellaneous terrain types

In this category we recognize terrain that is being degraded at present or that has reached ultimate degradation under natural conditions and that is or has become non-vegetated and/or non-used wasteland.

Mapping symbols:
U: unstable land, undergoing present natural degradation
D: active dunes
Z: salt flats
R: rock outcrops
A: deserts
I: ice caps

VIII. 8.6. **Matrix table**
(This section is added to the original version to emphasize the importance of the matrix table).

The matrix table which accompanies the soil degradation status map, should be prepared for each mapping unit, which has been delineated. This table is a listing of all types of soil degradation, caused by human activity, their degree, relative extent, recent past rate and causative factor as recognized in that mapping unit. The table could be complemented with the relative extent of the mapping unit, which is stabilized, has reached ultimate degradation, or is undergoing natural degradation.
The lower part of the matrix table can be used for descriptive remarks by the correlator.
Annex 8.6.1 gives an example of the information for a mapping unit, that is required.

GLASOD MATRIX TABLE

PHYSIOGRAPHY :..... MAP UNIT:.....
..... SYMBOL :.....
SOILS :..... COUNTRY:.....
..... REGION :.....
GEOLOGY :..... AREA(km2):.....
CLIMATE (an.mn.):P(mm).....PE(mm).....T(°C)..... COMPILATOR:....
POP.DENS.(I/km2):..... .....
LAND USE :..... EXPERTS:.....
VEGETATION :..... .....

	TYPE	CAUS	DEGR	RATE	EXT.	REMARKS ON DEGRADATION TYPE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

GENERAL REMARKS :.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

ISRIC LIBRARY
S 12
27
Wageningen, The Netherlands

GLOBAL ASSESSMENT OF SOIL DEGRADATION

(GLASOD)

Guidelines
for
General Assessment of the Status of
Human-induced Soil Degradation

edited by
L.R. Oldeman

ISRIC
Wageningen
April 1988

FOREWORD

The guidelines for general assessment of the status of human-induced soil degradation will serve as an operational manual in the description and global mapping of the status of soil degradation. The first draft was prepared by Dr. J. Riquier. His ideas were thoroughly discussed at a meeting in ISRIC, Wageningen, December 1987, which was attended by J.H.V van Baren, E. Bergsma, L.R. Oldeman, W.M. Peters, I. Pla-Sentis, J. Riquier, W.G. Sombroek, C.R. Valenzuela, R.F. van de Weg. The second draft was then sent for comments to an international panel of reviewers. Comments were received from J.P. Abrol (India); A. Ayoub (Kenya); G. Aubert (France); T.T. Cochrane (Bolivia); F.J. Dent (Thailand); H.E. Dregne (USA); M.A. Garduno (Mexico); E.G. Hallsworth (Australia); B.G. Rozanov (URSS); I. Szabolcs (Hungary).

Their constructive criticism and comments were incorporated in a third draft, which was then discussed in detail during the first regional workshop on a Global Soils and Terrain Digital Database (GLASOD) in Montevideo, Uruguay (21-25 March 1988). Some revisions were suggested at that meeting by a special working group with the following members: M.F. Baumgardner (USA); T. Cochrane (Bolivia; D.R. Coote (Canada); L.R. Oldeman (Netherlands); M. Purnell (FAO, Rome); W. Reybold (SCS, USA); W.G. Sombroek (Netherlands); A. Szögi (Uruguay). Subsequently, additional comments were received from D. Sims, D. Sanders and A. Brinkman (FAO, Italy).

Based on the consensus reached at the Montevideo workshop this new version has been edited. The subject is complex and the scales envisaged (averagely 1:10 M for the world mapping; 1:1 M for some pilot areas) will force many arbitrary decisions to be made by the various regional and national collaborators, also in view of the limited time available for project execution. We nevertheless hope that this operational manual will serve its purpose.

W.G. Sombroek
Director
International Soil Reference and Information Centre
Wageningen, the Netherlands

1. Introduction

Late September 1987 an agreement was signed between the United Nations Environment Programme (UNEP) and the International Soil Reference and Information Centre (ISRIC) for the execution of a project on: Global Assessment of Soil Degradation (GLASOD). The project has a duration of 28 months. It involves two separate activities:

a) to prepare a world map with an average scale of 1:10.000.000 on the status of soil degradation.
b) to prepare a detailed assessment on soil degradation status and risk for a pilot area in Latin America, covering portions of Argentina, Brazil and Uruguay, accompanied by a 1:1 Million map.

The guidelines discussed here are intended for the description and mapping of the status of soil degradation at a global scale. They will be used by institutions and/or qualified individual specialists, designated and contracted to prepare regional soil degradation status maps and complementary data sets at a working scale of 1:7,500,000. They should follow the procedures outlined in these guidelines as closely as possible to ensure a high degree of uniformity. The regional maps thus prepared will then be compiled and correlated to a final map of soil degradation status at an average scale of 1:10 Million. The reduction in scale from 1:7.5 Million to 1:10 Million inevitably implies that certain mapping units may disappear on the final map. The relative importance may be "flagged" by special symbols, this at the discretion of the compilation committee.

These guidelines will also be used for the detailed assessment of soil degradation status in the pilot areas; the basic concepts and the legend discussed below are also applicable for these pilot areas. They are therefore included in the "SOTER Manual for Small Scale Data Base Compilation, Volume II: Procedures for Interpretation of Soil Degradation Status and Risk".

2. Objectives of the global assessment of soil degradation

A realistic understanding of global environmental changes is needed. Past and present intervention in the utilization and manipulation of environmental resources are having unanticipated consequences. It should be realized that not all interventions are negative. While there are many causes of soil degradation - such as those associated with agricultural and pastoral land use and those resulting from mining and non-rural use -, we should also recognize the many effective soil improvement and protection

预览已结束，完整报告链接和二维码如下：
https://www.yunbaogao.cn/report/index/report?reportId=5_12973