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Hydrology and Earth System Sciences Discussions

Interactive comment on "Experimental study using coir geotextiles in watershed management" *by* S. Vishnudas et al.

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Referee Comments on "Experimental Study using Coir Geotextiles in Watershed Management" (hessd-2005-0081). Federico Preti, Università di Firenze

General comments Ţ The treated argument concerns with the banks of an artificial basin and not directly with a watershed (river basin). Ţ The methodology is not experimentally rigorous; especially it is not clear (and it is not enough) the adopted motivation ("Since the pond is used for domestic purposes by the people, it was not possible to install equipment for directly measuring the soil loss") to conduct a qualitative monitoring instead of measurements. Ţ The "only grass" case is lacking. Ţ A cost/benefits analysis should be opportune.

1) Does the paper address relevant scientific questions within the scope of HESS?

Probably it is more a technical note and the argument is very specific but “soil slope and river bio-engineers” appreciate the acceptance by the Editors

2) Does the paper present novel concepts, ideas, tools, or data? Yes, but in a very simplified manner.

3) Are substantial conclusions reached? Yes, but it would have been useful also a comparison with the “only grass” case showing also the economic convenience.

4) Are the scientific methods and assumptions valid and clearly outlined? It would be a good idea to give almost a quantitative example that demonstrates the correspondence between the assessments obtained with the score evaluations from the questionnaires and the experimental measures.

5) Are the results sufficient to support the interpretations and conclusions? In a specific and elementary way.

6) Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Not completely: there is not a quantitative example that demonstrates the correspondence between the assessments obtained with the score evaluations from the questionnaires and the experimental measures; The tensile strengths and the soil samplings with its relative measures are not described.

7) Do the authors give proper credit to related work and clearly indicate their own new/original contribution? To be improved.

8) Does the title clearly reflect the contents of the paper? The title let’s think to a more general treatment rather than to a specific application for an artificial bank (in fact in the abstract is written: “This paper presents the results of a field experiment conducted in Kerala, South India, to test the effectiveness of coir geotextiles for embankment protection” and the statement at line 27 of the introduction is not demonstrated in this work: pag. 2328 24-27 ”The aim of the experiment was to study the conditions under

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which coir geotextiles can be used for embankment protection of ponds and provide an alternative, cost effective, option for watershed management to reduce soil erosion, increase vegetation growth and increase soil moisture availability").

9) Does the abstract provide a concise and complete summary? It does not exactly resume the case of study and it is concluded with an affirmation of general value.

10) Is the overall presentation well structured and clear? Quite well organized, not so concise, and clearly written

11) Is the language fluent and precise? Yes, I think so.

12) Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? It is better to verify them.

13) Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? The experimental design is not reported (map and cross-sections with individuation of the experimental plots, sampling points and water level).

14) Are the number and quality of references appropriate? The citations are specific and lack of references to soil slope and river bank bio-engineering (naturalistic engineering).

15) Is the amount and quality of supplementary material appropriate? ?

Specific comments Ţ The title let's think to a more general treatment rather than to a specific application for an artificial bank. Ţ pag. 2332 1-4 an explanation, also in the diagrams and in the figures, of CG (Coir Geotextile + Grass), CG and CP is needed; it would have been also useful a "only grass" treatment case: to be motivated and explained. Ţ It would be a good idea to give almost a quantitative example that would demonstrate the correspondence between the assessments obtained with the score evaluations from the questionnaires and the experimental measures.

Technical corrections Ţ A clear definition of "coir" is needed; Ţ pag. 2329 4-5 to be

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explained the meaning of A, V (place of origin?) e 1 (?) Ţ pag. 2331 18 unit of tensile strength kN/m ? Ţ pag. 2331 24 The slope of the embankment is 70° : very high! To be explained which side of the bank is covered to contrast erosion: the one facing the water or the external one? Which is the water level? The erosion is caused by rainfall and runoff? Ţ Fig. 1: decrease? Ţ pag. 2335 3 ... established well before it started ... : is it clear? Ţ pag. 2335 7 ... an it seen ... : is it clear? Ţ pag. 2335 14 ... tensile strength ... : measured? How? Ţ pag. 2335 18 The loss of strength of the coir matting was no reason for concern as it had served its purpose until vegetation established. .. : to be explained. Ţ pag. 2335 18 Soil samples ... collected from the field ... : to be explained. Ţ pag. 2336 1 ... fabric ... : ?.

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 2327, 2005.