

UNIVERSITY OF KWAZULU- NATAL
SCHOOL OF AGRICULTURAL, EARTH & ENVIRONMENTAL SCIENCES
DISCIPLINE OF GEOGRAPHY
EXAMINATION: NOVEMBER 2014
MODULE NAME & CODE: SOIL EROSION AND LAND DEGRADATION
ENVS315H2

DURATION : 3 HOURS

TOTAL MARKS: 300

INTERNAL EXAMINER: DR SN NJOYA
EXTERNAL EXAMINER: PROF S GRAB
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INSTRUCTIONS: ANSWER ALL QUESTIONS IN SECTION A.
ANSWER ANY TWO QUESTIONS IN SECTION B.

SECTION A: ANSWER ALL QUESTIONS

1. Figures 1 (a) and (b) below are photos of a road-side erosion control structure (a) and a gully erosion control structure (b), taken during a recent field trip to the Eastern Cape (September 2014). What caution must be exercised during their construction and installation? Critique these two structures and suggest a better approach that could have prevented these apparent failures. (80)

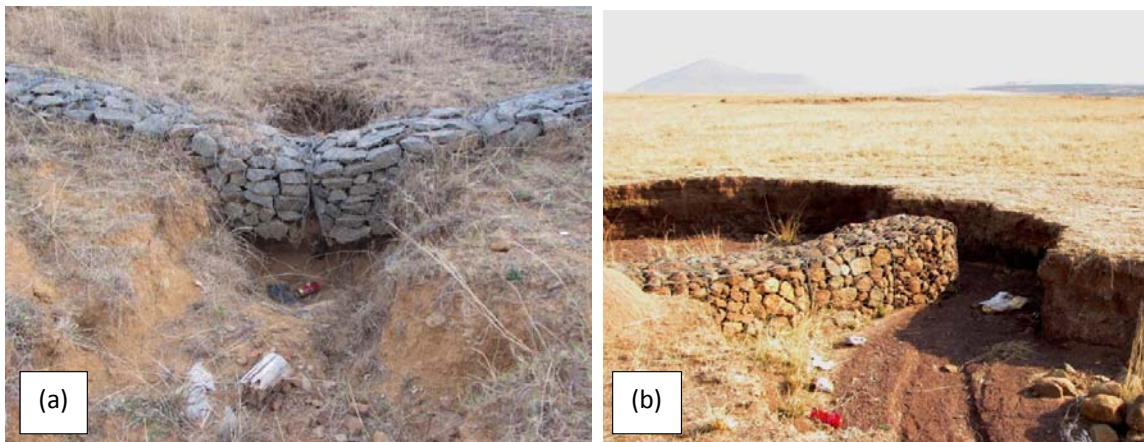


Figure 1 Erosion control measures

2. Define the following, demonstrating how they function and in what erosion scenarios they are best used:
 - a. Geocells (hyson cells) (10)
 - b. Stone walls (10)

2.

**SECTION B: ANSWER ANY TWO QUESTIONS.
EACH QUESTION CARRIES 100 MARKS.**

3. Soil erosion vulnerability assessment and soil erosion assessment are two different methods of soil erosion study. Discuss the methods related to each assessment type and explain why, and when, each assessment type is necessary. (100)
4. Soil erosion study and remediation should not be site-specific and are not the responsibility of a single specialist. Provide detailed comments on this assertion and substantiate your argument with reference to experiences from the recent field trip (September 2014) to the Eastern Cape. (100)
5. Discuss the physical and chemical properties of soil and demonstrate how they may influence soil erosion. (100)
6. Discuss the potential influence of climate change on soil erosion and land degradation, and explain what can be done to combat land degradation from possible climate change impacts. (100)
7. Explain the different types of surface erosion and provide an argument for the assertion that soil erosion is not a problem. (100)