Gabion Baskets

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info sheet

What are Gabion Baskets?

Gabion baskets consist of wire mesh containers that are filled with locally available rocks. When stacked together, they can provide some stability to slopes. Common uses in Afghanistan include:

- Protection from falling rocks or landslides on steep slopes
- Retaining walls to support terraces, or
- Protection of fields, roads and buildings next to flood-prone wadis and waterways

Note: To control erosion along gully beds, use loose stone check dams rather than gabion baskets.

Gabion baskets for erosion control (Source: SWSF, Afghanistan)

Advantages of Gabion Baskets

- Porous and free-draining - Slowing water movement and reduce soil erosion.
- Can be made in various sizes
- More economical than retaining walls.
- Easy to assemble on-site and little maintenance required

Disadvantages of Gabion Baskets

- When not placed correctly in the landscape, gabions can quickly fail and lead to increased erosion
- When used for riverbank stabilization, gabion walls increase water flow rates and can increase erosion to the bank immediately downstream. Gabion wall failure is common in this setting.
- Some gabion baskets on the market are faulty and will disintegrate in a matter of months

Wiremesh gabion ready for filling Source:wiremeshmaster.com

Constructing a Gabion Basket?

See **Gully erosion control: Watershed Management Manual** for detail. Construction of gabions is time consuming and labor intensive.

- Level and smooth the area for the first row of gabions.
- Use heavy duty wire mesh to make the gabions.
- Once assembled, the baskets are filled on site with stone.
- Lay out your first row of empty gabions--this will be the base of the wall.
- Tie the individual empty gabions together in several spots with heavy duty wire
- Fill the gabions with rock. Make sure the average rock size is larger than the mesh of the gabion, so the rock stays in place.
- Fill behind the row of filled gabions with soil or rock.
- Stack new gabion rows onto the first row of the wall. Step back the rows to match the slope. Tie each new row to the previous with heavy duty wire

Do not construct gabion baskets walls in flood prone areas unless first consulting an engineer familiar with the area. Gabion wall failure is common due to frequent misuse in Afghanistan.

For more information visit: www.ip.ucdavis.edu

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Reference: Freeman and Fischenich**.** 2000. Gabions for Streambank. Erosion Control. EMRRP