DREAM-II Learning Event-IV

‘The Need for Integrated Spatial Development Planning: the Case of Gully Control near Jigjiga’

Gully Hazard Rapid Assessment Report

Overview of Gully Control Measures

By: Girma S. and Solomon Y.

August 31, 2021

Supported by:

german cooperation DEUTSCHE ZUSAMMENARBEIT

Implemented by: giz

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1. Definition of Gully

- A gully is a channel resulting from erosion and caused by concentrated but intermittent flow of water usually during and immediately following heavy rains

- **Gully is visible manifestation of misuse of land**

2. Causes of Gullying

A) Physical factors

- rainfall
- topography
- soil type
- shape & size of watersheds
- length and gradient of the slope

B) Man-made factors

- Improper land use
- Deforestation
- Overgrazing
- Poor road construction
- Livestock/human foot paths

Causes Of Gullying… (case of study area

- Deforestation at the upper catchment
- Quarry mining & destructive access road to these sites
- Steep slope (particularly on the Western part of the study area)
- Settlement area is taking more land and contributed for more runoff
- Climatic change resulted in high intensity rainfall that aggravate runoff (reducing recharge)
- Fragile nature of soil formation

One of the quarry sites with access route

The blooming Jigjiga city

3.Damages of Gullying

- Damaging infrastructures (water, road)
- Damaging productive arable and pasture lands
- Moving to the city at rate of about 70m per year
- Draining shallow ground water
- Hamper access to field, farm operation and transport

4.Recent Efforts to Control the Gullies

4.1.Previous efforts (by PCDP?)

- There were effort made to rehabilitate the gully at Shek Ali Gure site (southern part of the city)
- With stone masonry and gabion check dams
- This effort is not successful as the intervention was made at the mid-way of the watershed, where the concentrated flood comes from the upper catchment
- The structural measures were not supported by the biological (vegetative) measures

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Previous interventions status…in pictures

The structures are damaged and the gully is advancing to the city

4.2. Ongoing Efforts (GiZ-SDR) in collaboration with BoANRD

- Many masonry water spreading weirs were constructed at: Karamara, Bolidid Cascades and Jigjiga10 (water spreading weir already damaged)
- Masonry check dam constructed at Karamara cascade
- These structures at Bolidid and Karamara cascades are contributing to soil and water conservation
  - Visible moisture difference at the u/s and d/s of the WSWs
  - Significant volume of sediments (trapped at the structures and healing the gullies)
  - Helped farmers to grow crops (mainly sorghum and maize)
- Local capacity building (construction by trained local masons)
- Contributed to job creation

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WSW- status in pictures (Bolidid and Karamara)

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GiZ-SDR interventions…

Attention!

- Adding height of the WSWs & check dam at the Karamara cascade
- Maintenance works of one WSW apron at the Karamara cascade

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5.Conclusion

- The ongoing interventions by SDR are encouraging but not enough to reverse the prevailing situations
- The intervention made so far is more of physical/structural measures
- The rate of gully expansion is high, the required scope of intervention demands big resources to invest, and even more if fast decision is not taken
- The contribution and attention of some of mandated/relevant sectors are observed to be minimal
- Natural resources management in Urban area is not given adequate attention
- There are opportunities to pull resources for integrated intervention as there are many programs (such as: LLRP, PSNP, SDR) having a common domain particularly on NRM and Livelihood. Regular NRM and the Green Legacy are also other potentials
- If properly intervened, there are indication of possibilities to change the area into productive land (of course, be studied further)
- The presence of University and TVETs can also contribute a lot for local capacity building works

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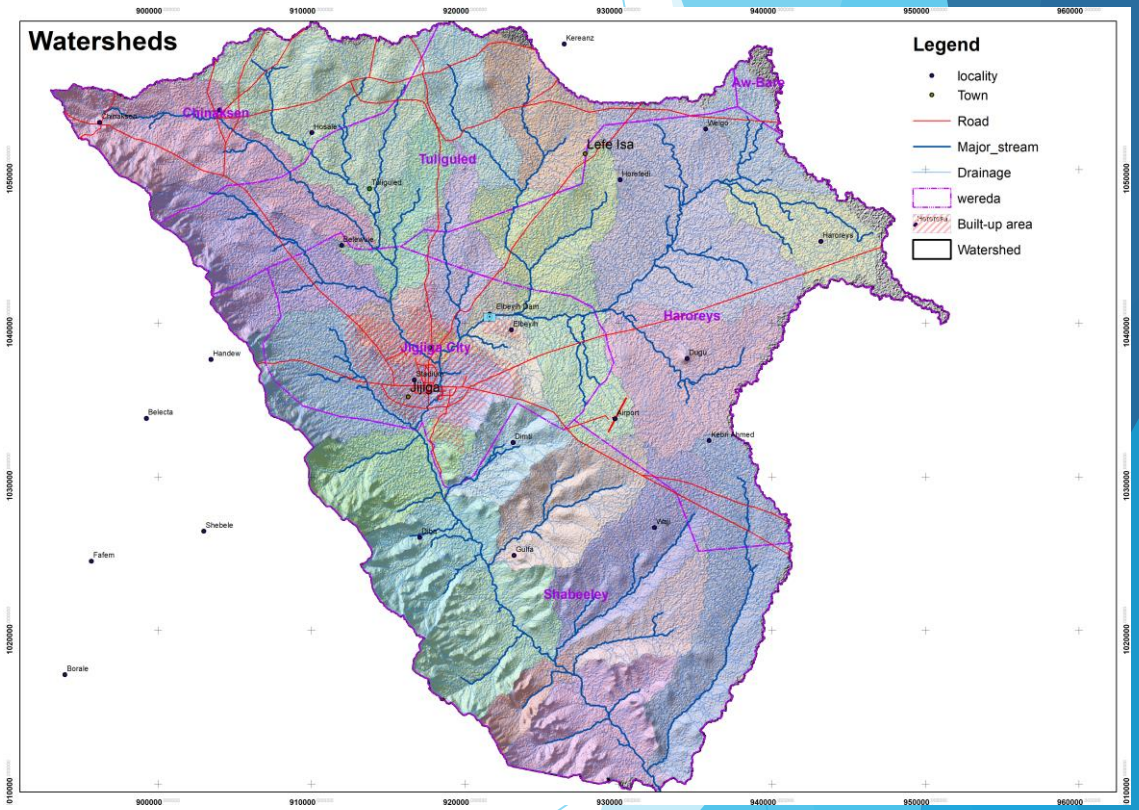
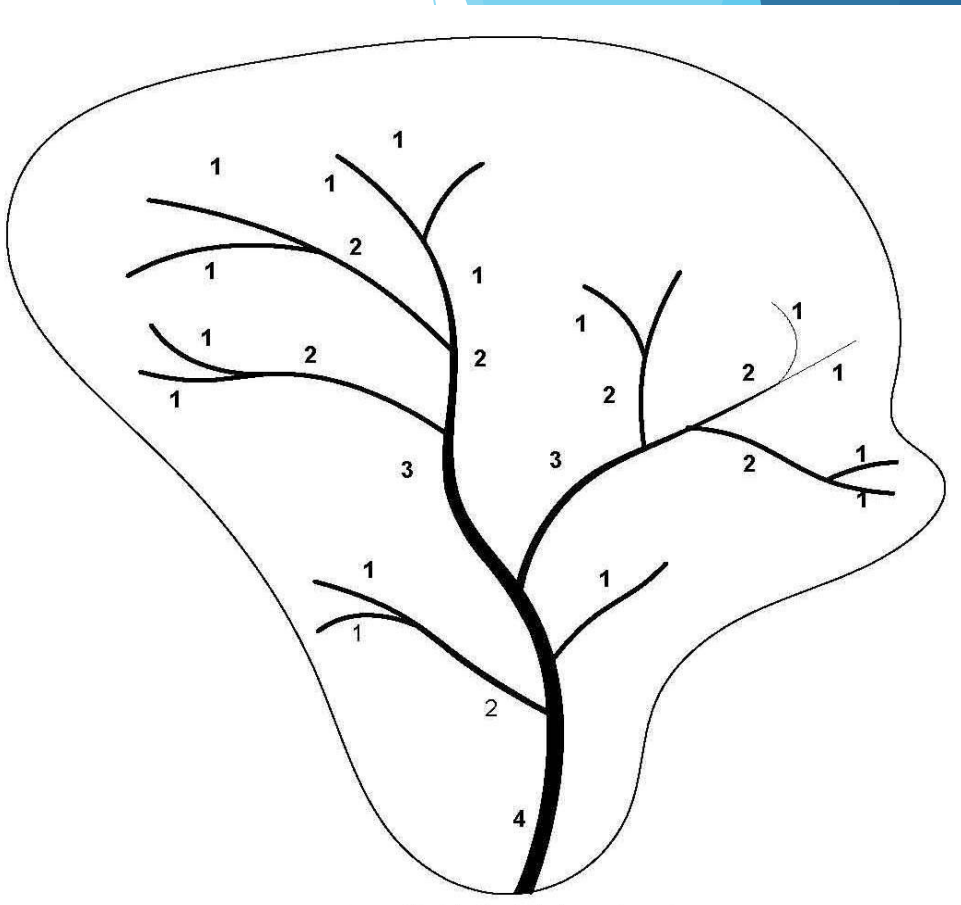
Recommendations for Sustainable Measures

- Gully Management should be intervened at catchment level as part watershed management
- With Integrated spatial planning based on land capacity
- Need of working on alternative energy sources to reduce deforestation
- Awareness raising on the number vs quality of livestock
- Properly designed and controlled access road to quarry and farm sites



Recommendations…

- Following basic rules in gully control which must be applied in order of priority:
  - Improvement of gully catchments to reduce and regulate the run-off volume and peak rates;
  - Diversion of runoff water on the upstream of the gully area;
  - Stabilization of gullies by structural measures and accompanying by re-vegetation.



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Recommendations…

Exercise area closure, afforestation, cut and carry system

- Needs linking to livelihood alternatives and circular economy in terms of:
  - Beekeeping, beeswax processing
  - Fodder production
  - Nursery development
  - Livestock fattening
  - Alternative energy (biogas, solar)

Recommendations…

- **Road Water Management for multiple advantages**
  - For Road Safety
  - Water harvesting for agriculture
  - Water Supply for human and livestock
  - Minimize soil erosion/gully
  - Helps groundwater recharge

Transforming number to quality will contribute for healthy catchment