

Bunds (graded or level)



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| Hydrological purpose: | Soil and water conservation |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Increased crop yield |
| Suited to altitude? | Midland |
| Suited to slope? | 3-35% on cultivated land (level) 3-15% (graded), up to 5% for grassland |
| Suited to rainfall conditions? | < 1400 mm (level) > 1400mm (graded) |
| Suited to soil conditions? | Not sandy, not stony, not shallow, moderately-well drained |
| Suited to degraded land? | Yes |
| Land needs | Medium |
| Required level of labor input? | High |
| Required level of capital investment? | Low |
| Generates additional fodder? | No |
| Requires access to markets? | Low |
| Required level of cooperation | High |

Fanya Juu (graded or level)



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|--|--|
| Hydrological purpose: | Soil and water conservation |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Increased crop yield |
| Suited to altitude? | Midland |
| Suited to slope? | 3-15%, up to 5% for grassland |
| Suited to rainfall conditions? | 900- 1400 mm >1400 if altitude 500 - 1000m <900mm if altitude >1500 (level) > 1400mm (graded) |
| Suited to soil conditions? | Deep well drained soil not sandy not stony soils |
| Suited to degraded land? | No |
| Land needs | Medium |
| Required level of labor input? | High |
| Required level of capital investment? | Low |
| Generates additional fodder? | If combined with vegetation strip |
| Requires access to markets? | Low |
| Required level of cooperation | High |

Bench Terracing



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|-------------------------------|-----------------------------|
| Hydrological purpose: | Soil and water conservation |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Increase crop productivity |

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|--|--|
| Suited to altitude? | Midland, highland |
| Suited to slope? | 15-50% |
| Suited to rainfall conditions? | All |
| Suited to soil conditions? | Deep well drained soil not sandy not stony soils |
| Suited to degraded land? | Yes |
| Land needs | Medium |
| Required level of labor input? | High |
| Required level of capital investment? | Low |
| Generates additional fodder? | Low |
| Requires access to markets? | Low |
| Required level of cooperation | High |

Conservation Tillage



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|-------------------------------|-----------------------------|
| Hydrological purpose: | Soil and water conservation |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Increase crop productivity |

| | |
|--|-------------------|
| Suited to altitude? | Midland, highland |
| Suited to slope? | All |
| Suited to rainfall conditions? | All |
| Suited to soil conditions? | Deep soil |
| Suited to degraded land? | No |
| Land needs | No |
| Required level of labor input? | High |
| Required level of capital investment? | Low |
| Generates additional fodder? | Low |
| Requires access to markets? | Low |
| Required level of cooperation | Low |

Hillside Terraces (with or without trenches)



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|-------------------------------|-----------------------------|
| Hydrological purpose: | Soil and water conservation |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Increased yield |

| | |
|--|--|
| Suited to altitude? | Highland |
| Suited to slope? | 15-50% |
| Suited to rainfall conditions? | <900mm |
| Suited to soil conditions? | Not vertisol, not sandy, medium-well drained |
| Suited to degraded land? | Yes |
| Land needs | Medium |
| Required level of labor input? | High |
| Required level of capital investment? | Low |
| Generates additional fodder? | If combined with vegetation strip |
| Requires access to markets? | |
| Required level of cooperation | High |

Cut off drains/Waterways



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|-------------------------------|---------------------|
| Hydrological purpose: | Drainage |
| Bio-physical purpose: | Reduce soil erosion |
| Socio-economic purpose | Increased yield |

| | |
|--|-----------------------------------|
| Suited to altitude? | Midland highland |
| Suited to slope? | < 50 % |
| Suited to rainfall conditions? | All |
| Suited to soil conditions? | Not on vertisol |
| Suited to degraded land? | Yes |
| Land needs | Low |
| Required level of labor input? | High |
| Required level of capital investment? | Low |
| Generates additional fodder? | If combined with vegetation strip |
| Requires access to markets? | Low |
| Required level of cooperation | High |

Hand-dug wells



| | |
|--|-----------------------------------|
| Hydrological purpose: | Water storage |
| Bio-physical purpose: | - |
| Socio-economic purpose | Cash crop in the dry season |
| Suited to altitude? | Lowland |
| Suited to slope? | < 35% |
| Suited to rainfall conditions? | All but access to groundwater |
| Suited to soil conditions? | Not stony, not shallow, not sandy |
| Suited to degraded land? | No |
| Land needs | Medium |
| Required level of labor input? | High |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Medium |

Treadle pump



| | |
|--|---------------------------------|
| Hydrological purpose: | Water lifting |
| Bio-physical purpose: | - |
| Socio-economic purpose | Cash crop in the dry season |
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | All but access to water storage |
| Suited to soil conditions? | - |
| Suited to degraded land? | No |
| Land needs | No |
| Required level of labor input? | High |
| Required level of capital investment? | Medium |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Low |

Diesel pumps



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|-------------------------------|-----------------------------|
| Hydrological purpose: | Water lifting |
| Bio-physical purpose: | - |
| Socio-economic purpose | Cash crop in the dry season |

| | |
|--|---------------------------------|
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | All but access to water storage |
| Suited to soil conditions? | - |
| Suited to degraded land? | No |
| Land needs | No |
| Required level of labor input? | Low |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Low |

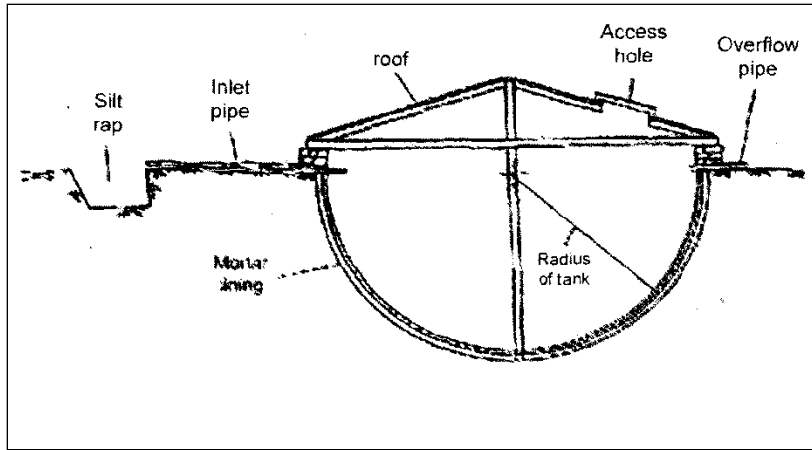
Improved soil nutrient input (organic and inorganic fertilizer)



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|-------------------------------|----------------------|
| Hydrological purpose: | Water recharge |
| Bio-physical purpose: | Soil fertility |
| Socio-economic purpose | Fodder for livestock |

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|--|--------|
| Suited to altitude? | - |
| Suited to slope? | < 50% |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | - |
| Suited to degraded land? | No |
| Land needs | No |
| Required level of labor input? | Medium |
| Required level of capital investment? | Low |
| Generates additional fodder? | Yes |
| Requires access to markets? | Low |
| Required level of cooperation | Low |

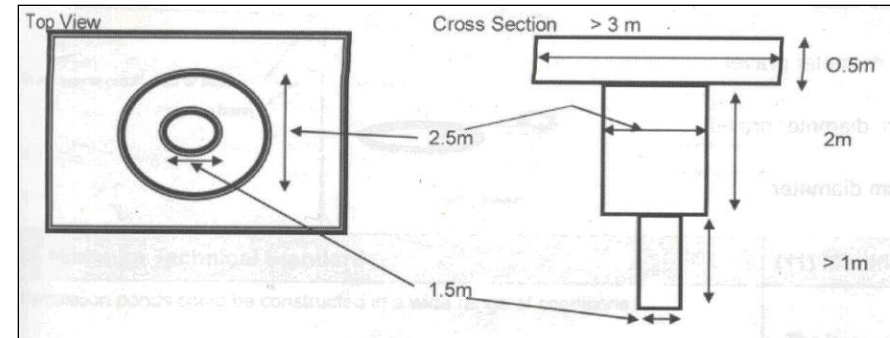
Underground cisterns



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|-------------------------------|--------------------------|
| Hydrological purpose: | Water storage |
| Bio-physical purpose: | - |
| Socio-economic purpose | Supplementary irrigation |

| | |
|--|--------------------|
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | Deep, not vertisol |
| Suited to degraded land? | Yes |
| Land needs | Medium |
| Required level of labor input? | Medium |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Low |

Percolation pond/ percolation pit



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|-------------------------------|----------------------|
| Hydrological purpose: | Water storage |
| Bio-physical purpose: | - |
| Socio-economic purpose | Increased crop yield |

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|--|--|
| Suited to altitude? | Midland-highland |
| Suited to slope? | < 50% |
| Suited to rainfall conditions? | All |
| Suited to soil conditions? | Not vertisol, not sandy, moderately-well drained |
| Suited to degraded land? | Yes |
| Land needs | High |
| Required level of labor input? | Medium |
| Required level of capital investment? | Low |
| Generates additional fodder? | No |
| Requires access to markets? | No |
| Required level of cooperation | Low |

Pond



| | |
|--|--|
| Hydrological purpose: | Water storage |
| Bio-physical purpose: | - |
| Socio-economic purpose | Supplementary irrigation for cash crop |
| Suited to altitude? | Midland-highland |
| Suited to slope? | < 50% |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | Not vertisol, not sandy, moderately-well drained |
| Suited to degraded land? | No |
| Land needs | Yes |
| Required level of labor input? | High |
| Required level of capital investment? | Medium |
| Generates additional fodder? | - |
| Requires access to markets? | High |
| Required level of cooperation | Low |

Drip irrigation



| | |
|--|---------------------------------------|
| Hydrological purpose: | Water lifting |
| Bio-physical purpose: | - |
| Socio-economic purpose | Improved yield |
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | < 900 mm, access to water |
| Suited to soil conditions? | Not on sandy, moderately-well drained |
| Suited to degraded land? | No |
| Land needs | No |
| Required level of labor input? | Low |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Low |

Roof water harvesting



| | |
|--|--|
| Hydrological purpose: | Water storage |
| Bio-physical purpose: | |
| Socio-economic purpose | Supplementary irrigation for cash crop |
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | All |
| Suited to soil conditions? | - |
| Suited to degraded land? | Yes |
| Land needs | Low |
| Required level of labor input? | Low |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | Medium |
| Required level of cooperation | Low |

Micro dam construction



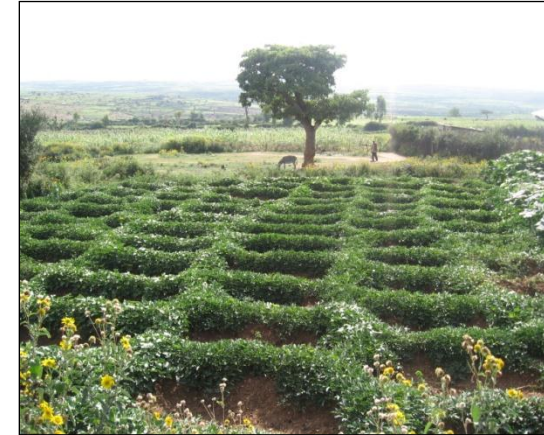
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|--|--|
| Hydrological purpose: | Water storage |
| Bio-physical purpose: | - |
| Socio-economic purpose | Supplementary irrigation for cash crop |
| Suited to altitude? | Midland-lowland |
| Suited to slope? | < 50% |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | - |
| Suited to degraded land? | Yes |
| Land needs | Medium |
| Required level of labor input? | High |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Medium |

Area enclosure with enrichment planting



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|--|------------------------------------|
| Hydrological purpose: | Increase infiltration |
| Bio-physical purpose: | Reduce erosion |
| Socio-economic purpose | Increase high quality fodder |
| Suited to altitude? | All but on degraded grassland only |
| Suited to slope? | All |
| Suited to rainfall conditions? | All |
| Suited to soil conditions? | All |
| Suited to degraded land? | Yes |
| Land needs | Yes |
| Required level of labor input? | Low |
| Required level of capital investment? | Low |
| Generates additional fodder? | Yes |
| Requires access to markets? | Medium |
| Required level of cooperation | High |

Tied ridge



| | |
|--|--|
| Hydrological purpose: | In-situ water storage |
| Bio-physical purpose: | Restore degraded land |
| Socio-economic purpose | Cultivation on degraded land |
| Suited to altitude? | - |
| Suited to slope? | |
| Suited to rainfall conditions? | < 900 mm <1400 mm if altitude <2300m |
| Suited to soil conditions? | Moderately -deep , not sandy, medium-well drained |
| Suited to degraded land? | No |
| Land needs | Yes |
| Required level of labor input? | Medium |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | Low |
| Required level of cooperation | Low |

Diversion Weir



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|--|--|
| Hydrological purpose: | Use of river |
| Bio-physical purpose: | - |
| Socio-economic purpose | Supplementary irrigation for cash crop |
| Suited to altitude? | Lowland |
| Suited to slope? | - |
| Suited to rainfall conditions? | All but proximity to river |
| Suited to soil conditions? | Not sandy soils |
| Suited to degraded land? | Yes |
| Land needs | Medium |
| Required level of labor input? | High |
| Required level of capital investment? | Medium-high |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | High |

Limiting animal movement



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|--|------------------------------|
| Hydrological purpose: | Increased water infiltration |
| Bio-physical purpose: | Grazing land improvement |
| Socio-economic purpose | - |
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | - |
| Suited to degraded land? | Yes |
| Land needs | Low |
| Required level of labor input? | Low |
| Required level of capital investment? | Low |
| Generates additional fodder? | - |
| Requires access to markets? | Low |
| Required level of cooperation | High |

Checkdams



| | |
|-------------------------------|-----------------------------|
| Hydrological purpose: | Soil and water conservation |
| Bio-physical purpose: | Soil fertility |
| Socio-economic purpose | - |

| | |
|--|-------------------------|
| Suited to altitude? | Midland |
| Suited to slope? | 1-35% |
| Suited to rainfall conditions? | All |
| Suited to soil conditions? | All |
| Suited to degraded land? | All |
| Land needs | Yes |
| Required level of labor input? | Low |
| Required level of capital investment? | High |
| Generates additional fodder? | If vegetative check dam |
| Requires access to markets? | Low |
| Required level of cooperation | Medium |

Grass strips along contour



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|-------------------------------|-----------------------------|
| Hydrological purpose: | Soil and water conservation |
| Bio-physical purpose: | Soil fertility |
| Socio-economic purpose | Forage for livestock |

| | |
|--|----------|
| Suited to altitude? | Midland |
| Suited to slope? | < 15% |
| Suited to rainfall conditions? | > 900 mm |
| Suited to soil conditions? | - |
| Suited to degraded land? | Yes |
| Land needs | High |
| Required level of labor input? | Medium |
| Required level of capital investment? | Low |
| Generates additional fodder? | Yes |
| Requires access to markets? | Low |
| Required level of cooperation | Low |

Crop-based fertility management

(Legume, intercropping, crop rotation)



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|-------------------------------|----------------------|
| Hydrological purpose: | Water recharge |
| Bio-physical purpose: | Soil fertility |
| Socio-economic purpose | Fodder for livestock |

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|--|--------|
| Suited to altitude? | - |
| Suited to slope? | < 50% |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | - |
| Suited to degraded land? | No |
| Land needs | No |
| Required level of labor input? | Medium |
| Required level of capital investment? | Low |
| Generates additional fodder? | Yes |
| Requires access to markets? | Low |
| Required level of cooperation | Low |

Improved livestock breeds



| | |
|-------------------------------|----------------------------------|
| Hydrological purpose: | Increased water efficiency |
| Bio-physical purpose: | - |
| Socio-economic purpose | Increased livestock productivity |

| | |
|--|--------|
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | - |
| Suited to degraded land? | No |
| Land needs | No |
| Required level of labor input? | Medium |
| Required level of capital investment? | High |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Low |

Woodlots



| | |
|-------------------------------|--------------------------|
| Hydrological purpose: | Ground water recharge |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Timber, fruit and fodder |

| | |
|--|--------------------------|
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | Depends on tree type |
| Suited to soil conditions? | Depends on tree type |
| Suited to degraded land? | Yes |
| Land needs | Yes |
| Required level of labor input? | Medium |
| Required level of capital investment? | Medium |
| Generates additional fodder? | Yes if multipurpose tree |
| Requires access to markets? | Low |
| Required level of cooperation | Low |

Orchards (fruit)



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|-------------------------------|--------------------------|
| Hydrological purpose: | Ground water recharge |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Timber, fruit and fodder |

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|--|----------------------|
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | Depends on the fruit |
| Suited to soil conditions? | Deep soil |
| Suited to degraded land? | Yes |
| Land needs | High |
| Required level of labor input? | Medium |
| Required level of capital investment? | Medium |
| Generates additional fodder? | No |
| Requires access to markets? | High |
| Required level of cooperation | Low |

Contour hedgerow/ boundary planting



| | |
|-------------------------------|--------------------------|
| Hydrological purpose: | Ground water recharge |
| Bio-physical purpose: | Erosion reduction |
| Socio-economic purpose | Timber, fruit and fodder |

| | |
|--|--------------------------|
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | Depends on tree type |
| Suited to soil conditions? | Depends on tree type |
| Suited to degraded land? | Yes |
| Land needs | Low |
| Required level of labor input? | Low |
| Required level of capital investment? | Low |
| Generates additional fodder? | Yes if multipurpose tree |
| Requires access to markets? | Low |
| Required level of cooperation | Low |

Over-sewing



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|-------------------------------|-------------------------------|
| Hydrological purpose: | - |
| Bio-physical purpose: | Grazing land productivity |
| Socio-economic purpose | Increased high quality fodder |

| | |
|--|-----------------------|
| Suited to altitude? | - |
| Suited to slope? | - |
| Suited to rainfall conditions? | - |
| Suited to soil conditions? | - |
| Suited to degraded land? | Yes on grassland land |
| Land needs | No |
| Required level of labor input? | Low |
| Required level of capital investment? | Low |
| Generates additional fodder? | Yes |
| Requires access to markets? | Medium |
| Required level of cooperation | Medium |