

# Level Bunds (graded or level)



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

# Level Fanya Juu (graded or level)



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

# Bench Terracing



<b>Hydrological purpose:</b>	soil and water conservation
<b>Bio-physical purpose:</b>	erosion reduction
<b>Socio-economic purpose</b>	Increase crop productivity

<b>Suited to altitude?</b>	midland, highland
<b>Suited to slope?</b>	15-50%
<b>Suited to rainfall conditions?</b>	all
<b>Suited to soil conditions?</b>	deep well drained soil not sandy not stony soils
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	medium
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	low
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	high

# Conservation Tillage



<b>Hydrological purpose:</b>	soil and water conservation
<b>Bio-physical purpose:</b>	Erosion reduction
<b>Socio-economic purpose</b>	Increase crop productivity

<b>Suited to altitude?</b>	midland, highland
<b>Suited to slope?</b>	all
<b>Suited to rainfall conditions?</b>	all
<b>Suited to soil conditions?</b>	deep soil
<b>Suited to degraded land?</b>	no
<b>Land needs</b>	no
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	low
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Hillside Terraces (with or without trenches)



<b>Hydrological purpose:</b>	soil and water conservation
<b>Bio-physical purpose:</b>	erosion reduction
<b>Socio-economic purpose</b>	increased yield

<b>Suited to altitude?</b>	highland
<b>Suited to slope?</b>	15-50%
<b>Suited to rainfall conditions?</b>	<900mm
<b>Suited to soil conditions?</b>	not vertisol, not sandy, medium-well drained
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	medium
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	if combined with vegetation strip
<b>Requires access to markets?</b>	
<b>Required level of cooperation</b>	high

# Cut off drains/Waterways



<b>Hydrological purpose:</b>	drainage
<b>Bio-physical purpose:</b>	conserve soil, reduce soil erosion
<b>Socio-economic purpose</b>	increased yield

<b>Suited to altitude?</b>	midland highland
<b>Suited to slope?</b>	< 50 %
<b>Suited to rainfall conditions?</b>	all
<b>Suited to soil conditions?</b>	not on vertisol
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	low
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	if combined with vegetation strip
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	high



# Hand-dug wells



<b>Hydrological purpose:</b>	water storage
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	Cash crop in the dry season

<b>Suited to altitude?</b>	lowland
<b>Suited to slope?</b>	< 35%
<b>Suited to rainfall conditions?</b>	all but access to groundwater
<b>Suited to soil conditions?</b>	not stony, not shallow, not sandy
<b>Suited to degraded land?</b>	no
<b>Land needs</b>	medium
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	high
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	high
<b>Required level of cooperation</b>	medium

# Treadle pump



<b>Hydrological purpose:</b>	water lifting
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	Cash crop in the dry season

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

# Diesel pumps



<b>Hydrological purpose:</b>	water lifting
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	Cash crop in the dry season

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	all but access to water storage
<b>Suited to soil conditions?</b>	-
<b>Suited to degraded land?</b>	no
<b>Land needs</b>	no
<b>Required level of labor input?</b>	low
<b>Required level of capital investment?</b>	high
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	high
<b>Required level of cooperation</b>	low

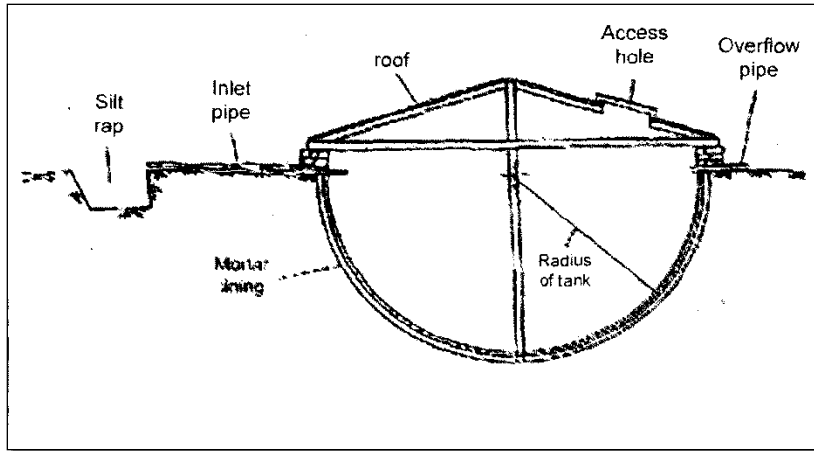
# Wind mill



<b>Hydrological purpose:</b>	water lifting
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	Cash crop in the dry season

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	All but access to water storage and wind
<b>Suited to soil conditions?</b>	-
<b>Suited to degraded land?</b>	no
<b>Land needs</b>	Medium
<b>Required level of labor input?</b>	High
<b>Required level of capital investment?</b>	Medium
<b>Generates additional fodder?</b>	No
<b>Requires access to markets?</b>	High
<b>Required level of cooperation</b>	Low

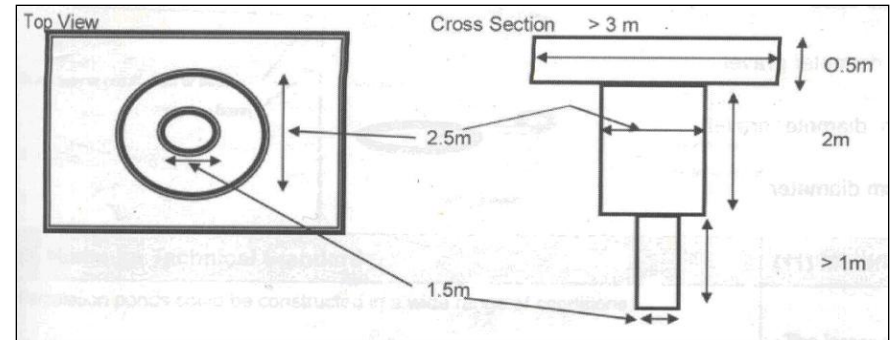
# Underground cisterns



<b>Hydrological purpose:</b>	water storage
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	supplementary irrigation

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	-
<b>Suited to soil conditions?</b>	deep, not vertisol
<b>Suited to degraded land?</b>	Yes
<b>Land needs</b>	fertility
<b>Required level of labor input?</b>	-
<b>Required level of capital investment?</b>	-
<b>Generates additional fodder?</b>	-
<b>Requires access to markets?</b>	-
<b>Required level of cooperation</b>	low

# Percolation pond/ percolation pit



<b>Hydrological purpose:</b>	water storage
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	Increased crop yield

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

# Pond



<b>Hydrological purpose:</b>	water storage
<b>Bio-physical purpose:</b>	minimize rainfall failure
<b>Socio-economic purpose</b>	supplementary irrigation for cash crop

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

# Family drip irrigation



<b>Hydrological purpose:</b>	water lifting
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	Improved yield

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	< 900 mm, access to water
<b>Suited to soil conditions?</b>	not on sandy, moderately-well drained
<b>Suited to degraded land?</b>	No
<b>Land needs</b>	No
<b>Required level of labor input?</b>	Low
<b>Required level of capital investment?</b>	High
<b>Generates additional fodder?</b>	No
<b>Requires access to markets?</b>	High
<b>Required level of cooperation</b>	Low



# Roof water harvesting



<b>Hydrological purpose:</b>	water storage
<b>Bio-physical purpose:</b>	
<b>Socio-economic purpose</b>	supplementary irrigation for cash crop
<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	all
<b>Suited to soil conditions?</b>	-
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	low
<b>Required level of labor input?</b>	low
<b>Required level of capital investment?</b>	high
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	medium
<b>Required level of cooperation</b>	low

# Micro dam construction



<b>Hydrological purpose:</b>	water storage
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	supplementary irrigation for cash crop
<b>Suited to altitude?</b>	midland-lowland
<b>Suited to slope?</b>	< 50%
<b>Suited to rainfall conditions?</b>	-
<b>Suited to soil conditions?</b>	-
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	medium
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	high
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	high
<b>Required level of cooperation</b>	medium



# Flood diversion (spate irrigation)



<b>Hydrological purpose:</b>	water storage
<b>Bio-physical purpose:</b>	accumulate sediments
<b>Socio-economic purpose</b>	improved yield

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	< 900 mm
<b>Suited to soil conditions?</b>	-
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	low
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	high

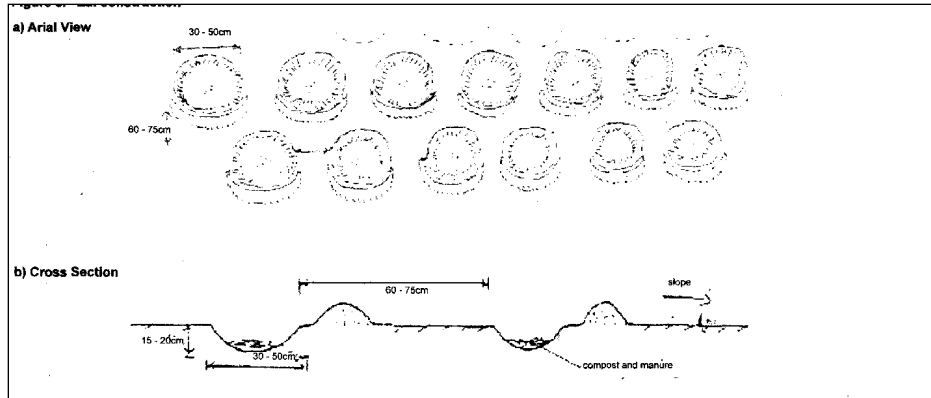
# Tied ridge



<b>Hydrological purpose:</b>	in-situ water storage
<b>Bio-physical purpose:</b>	restore degraded land
<b>Socio-economic purpose</b>	cultivation on degraded land

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	
<b>Suited to rainfall conditions?</b>	< 900 mm <1400 mm if altitude <2300m
<b>Suited to soil conditions?</b>	moderately -deep , not sandy, medium-well drained
<b>Suited to degraded land?</b>	no
<b>Land needs</b>	yes
<b>Required level of labor input?</b>	medium
<b>Required level of capital investment?</b>	high
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Zai & Planting Pit system



<b>Hydrological purpose:</b>	in-situ water storage
<b>Bio-physical purpose:</b>	restore degraded land
<b>Socio-economic purpose</b>	cultivation on degraded land

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	< 5%
<b>Suited to rainfall conditions?</b>	< 900 mm
<b>Suited to soil conditions?</b>	moderately -deep , not sandy, medium-well drained
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	no
<b>Required level of labor input?</b>	medium
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	yes
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Large Half Moons



<b>Hydrological purpose:</b>	insitu water storage
<b>Bio-physical purpose:</b>	erosion reduction
<b>Socio-economic purpose</b>	Crop cultivation in low rainfall area

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	< 5%
<b>Suited to rainfall conditions?</b>	< 900 mm if altitude < 1500 m
<b>Suited to soil conditions?</b>	moderately-deep
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	medium
<b>Required level of labor input?</b>	medium
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Diversion Weir



<b>Hydrological purpose:</b>	use of river
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	supplementary irrigation for cash crop
<b>Suited to altitude?</b>	lowland
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	all but proximity to river
<b>Suited to soil conditions?</b>	not sandy soils
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	medium
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	medium-high
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	high
<b>Required level of cooperation</b>	high

# Sand dam



<b>Hydrological purpose:</b>	use of river
<b>Bio-physical purpose:</b>	-
<b>Socio-economic purpose</b>	supplementary irrigation for cash crop
<b>Suited to altitude?</b>	lowland
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	all proximity to the river
<b>Suited to soil conditions?</b>	sandy soils
<b>Suited to degraded land?</b>	no
<b>Land needs</b>	low
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	high
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	high
<b>Required level of cooperation</b>	high



# Checkdams



<b>Hydrological purpose:</b>	soil and water conservation
<b>Bio-physical purpose:</b>	soil fertility
<b>Socio-economic purpose</b>	-

**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



<b>Hydrological purpose:</b>	soil and water conservation
<b>Bio-physical purpose:</b>	soil fertility
<b>Socio-economic purpose</b>	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



# Biological fertility management

(Legume, intercropping, crop rotation)



**Hydrological purpose:**

water recharge

**Bio-physical purpose:**

soil fertility

**Socio-economic purpose**

Fodder for livestock

**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

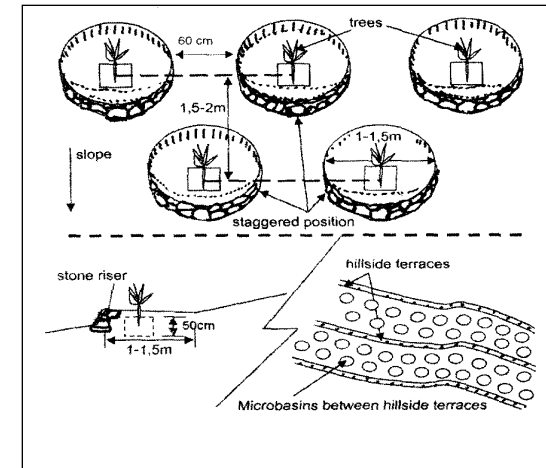
**Requires access to markets?**

low

**Required level of cooperation**

low

# Microbasins



**Hydrological purpose:**

in situ water storage for trees

**Bio-physical purpose:**

improve degraded land

**Socio-economic purpose**

Fodder for livestock

**Suited to altitude?**

midland

**Suited to slope?**

< 15%

**Suited to rainfall conditions?**

>900 mm and if altitude >1500 m

**Suited to soil conditions?**

moderately-deep , not vertisol  
medium-well drained

**Suited to degraded land?**

yes on degraded land only

**Land needs**

no

**Required level of labor input?**

high

**Required level of capital investment?**

low

**Generates additional fodder?**

yes

**Requires access to markets?**

low

**Required level of cooperation**

low

# Eyebrow basins



<b>Hydrological purpose:</b>	in situ water storage for trees
<b>Bio-physical purpose:</b>	erosion control
<b>Socio-economic purpose</b>	-

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	< 1400mm 1400 if altitude <1500mm
<b>Suited to soil conditions?</b>	moderately-deep, not vertisol medium-well drained
<b>Suited to degraded land?</b>	yes on degraded land only
<b>Land needs</b>	no
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	Yes if multipurpose tree
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Herringbones



<b>Hydrological purpose:</b>	In situ water storage for trees
<b>Bio-physical purpose:</b>	improve degraded land
<b>Socio-economic purpose</b>	Increased biomass

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	< 5%
<b>Suited to rainfall conditions?</b>	< 900 mm
<b>Suited to soil conditions?</b>	moderately deep and shallow soils, medium texture soils, stony soil
<b>Suited to degraded land?</b>	yes on degraded land only
<b>Land needs</b>	no
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	Yes if multipurpose tree
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Micro-trenches/ trenches/improved pits



<b>Hydrological purpose:</b>	in situ water storage for trees
<b>Bio-physical purpose:</b>	improve degraded land
<b>Socio-economic purpose</b>	exploit productivity of different parts of hillside

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	< 35%
<b>Suited to rainfall conditions?</b>	< 900 mm
<b>Suited to soil conditions?</b>	not on shallow and poorly drained soils
<b>Suited to degraded land?</b>	yes on degraded land only
<b>Land needs</b>	no
<b>Required level of labor input?</b>	high
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	yes if multipurpose tree
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Limiting animal movement



<b>Hydrological purpose:</b>	increased water infiltration
<b>Bio-physical purpose:</b>	grazing land improvement
<b>Socio-economic purpose</b>	-

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	-
<b>Suited to soil conditions?</b>	-
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	low
<b>Required level of labor input?</b>	low
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	-
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	high

# Woodlots



<b>Hydrological purpose:</b>	ground water recharge
<b>Bio-physical purpose:</b>	erosion reduction
<b>Socio-economic purpose</b>	timber, fruit and fodder

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	depend on tree type
<b>Suited to soil conditions?</b>	depend on tree type
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	yes
<b>Required level of labor input?</b>	medium
<b>Required level of capital investment?</b>	medium
<b>Generates additional fodder?</b>	yes if multipurpose tree
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Orchards (fruit)



<b>Hydrological purpose:</b>	ground water recharge
<b>Bio-physical purpose:</b>	erosion reduction
<b>Socio-economic purpose</b>	timber, fruit and fodder

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	depends on the fruit
<b>Suited to soil conditions?</b>	deep soil
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	high
<b>Required level of labor input?</b>	medium
<b>Required level of capital investment?</b>	medium
<b>Generates additional fodder?</b>	no
<b>Requires access to markets?</b>	high
<b>Required level of cooperation</b>	low



# Contour hedgerow/ boundary planting



<b>Hydrological purpose:</b>	ground water recharge
<b>Bio-physical purpose:</b>	erosion reduction
<b>Socio-economic purpose</b>	timber, fruit and fodder

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	depend on tree type
<b>Suited to soil conditions?</b>	depend on tree type
<b>Suited to degraded land?</b>	yes
<b>Land needs</b>	low
<b>Required level of labor input?</b>	low
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	yes if multipurpose tree
<b>Requires access to markets?</b>	low
<b>Required level of cooperation</b>	low

# Grazing land management— over sowing



<b>Hydrological purpose:</b>	-
<b>Bio-physical purpose:</b>	grazing land productivity
<b>Socio-economic purpose</b>	increased fodder

<b>Suited to altitude?</b>	-
<b>Suited to slope?</b>	-
<b>Suited to rainfall conditions?</b>	-
<b>Suited to soil conditions?</b>	-
<b>Suited to degraded land?</b>	yes on pasture land
<b>Land needs</b>	No
<b>Required level of labor input?</b>	low
<b>Required level of capital investment?</b>	low
<b>Generates additional fodder?</b>	Yes
<b>Requires access to markets?</b>	Medium
<b>Required level of cooperation</b>	Medium

Which are the practices that you did not want to pair with? Why?

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Which are the practices that you wanted to be part of your strategy but could not pair with? Why did you want to pair up with those practices?

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What were the trade-off that you faced?

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The final strategy you are part of :  
(landscape name and name of the other cards)

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