Contribution of response options to mitigation, adaptation, combating desertification and land degradation, and enhancing food security

Magnitude of the contribution of each response option categorised using thresholds as **positive** or **negative** impacts with confidence associated with each estimate, also showing the cost range.

	Response options based on land management	Mitigation	Adaptation	Desertification	Land Degradation	Food Security	Cost
Agriculture	Increased food productivity	L	M	L	M	H	
	Agro-forestry	M	M	M	M	L	●
	Improved cropland management	M	L	L	L	L	●●
	Improved livestock management	M	L	L	L	L	●●●
	Agricultural diversification	L	L	L	M	L	●
	Improved grazing land management	M	L	L	L	L	
	Integrated water management	L	L	L	L	L	●●
	Reduced grassland conversion to cropland	L	-	L	L	L	●
Forests	Forest management	M	L	L	L	L	●●
	Reduced deforestation and degradation	H	L	L	L	L	●●
	Reforestation and forest restoration	M	M	M	M	M	●●
	Afforestation	M	M	M	L	M	●●
Soils	Increased soil organic carbon content	H	L	M	M	L	●●
	Reduced soil erosion	L	L	M	M	L	●●
	Reduced soil salinization	-	L	L	L	L	●●
	Reduced soil compaction	-	L	-	L	L	●
	Biochar addition to soil	M	-	-	L	L	●●●
Other ecosystems	Fire management	M	M	M	M	L	●
	Reduced landslides and natural hazards	L	L	L	L	L	
	Reduced pollution including acidification	M	M	L	L	L	
	Restoration & reduced conversion of coastal wetlands	M	L	M	M	L	
	Restoration & reduced conversion of peatlands	M	-	na -	M	L	●
	Bioenergy and BECCS	H	L	M	H	M	●●●
	Response options based on value chain management						
Demand	Reduced post-harvest losses	H	M	L	L	H	
	Dietary change	H	-	L	H	H	
	Reduced food waste (consumer or retailer)	H	-	L	M	M	
Supply	Sustainable sourcing	-	L	-	L	L	
	Improved food processing and retailing	L	L	-	-	L	
	Improved energy use in food systems	L	L	-	-	L	
	Management of supply chains	L	M	-	-	L	
	Response options based on risk management						
Risk	Livelihood diversification	-	L	-	L	L	
	Management of urban sprawl	-	L	L	M	L	
	Risk sharing instruments	L	L	-	L	L	●●

Options shown are those for which data are available to assess global potential for three of more land challenges

Confidence level

Levels of confidence indicate confidence in the estimate of potential

- **H** High confidence
- **M** Medium confidence
- **L** Low confidence

Cost range

See technical caption for cost ranges in US$ $tCO2e^{-1}$ or US$ ha^{-1}

- ●●● High cost
- ●● Medium cost
- ● Low cost
- — no data

Key for criteria used to define magnitude of impact of each integrated response option

		Mitigation *GtCO-eq yr-¹*	Adaptation *Million people*	Desertification *Million km²*	Land Degradation *Million km²*	Food Security *Million people*
Positive	Large	More than 3	Positive for more than 25	Positive for more than 3	Positive for more than 3	Positive for more than 100
	Moderate	0.3 to 3	1 to 25	0.5 to 3	0.5 to 3	1 to 100
	Small	>0	Under 1	>0	>0	Under 1
	Negligible	0	No effect	No effect	No effect	No effect
Negative	Small	<0	Under 1	<0	<0	Under 1
	Moderate	-0.3 to -3	1 to 25	0.5 to 3	50 to 300	1 to 100
	Large	More than -3	Negative for more than 25	Negative for more than 3	Negative for more than 3	Negative for more than 100

Variable: Can be positive or negative — **no data** — na **not applicable**