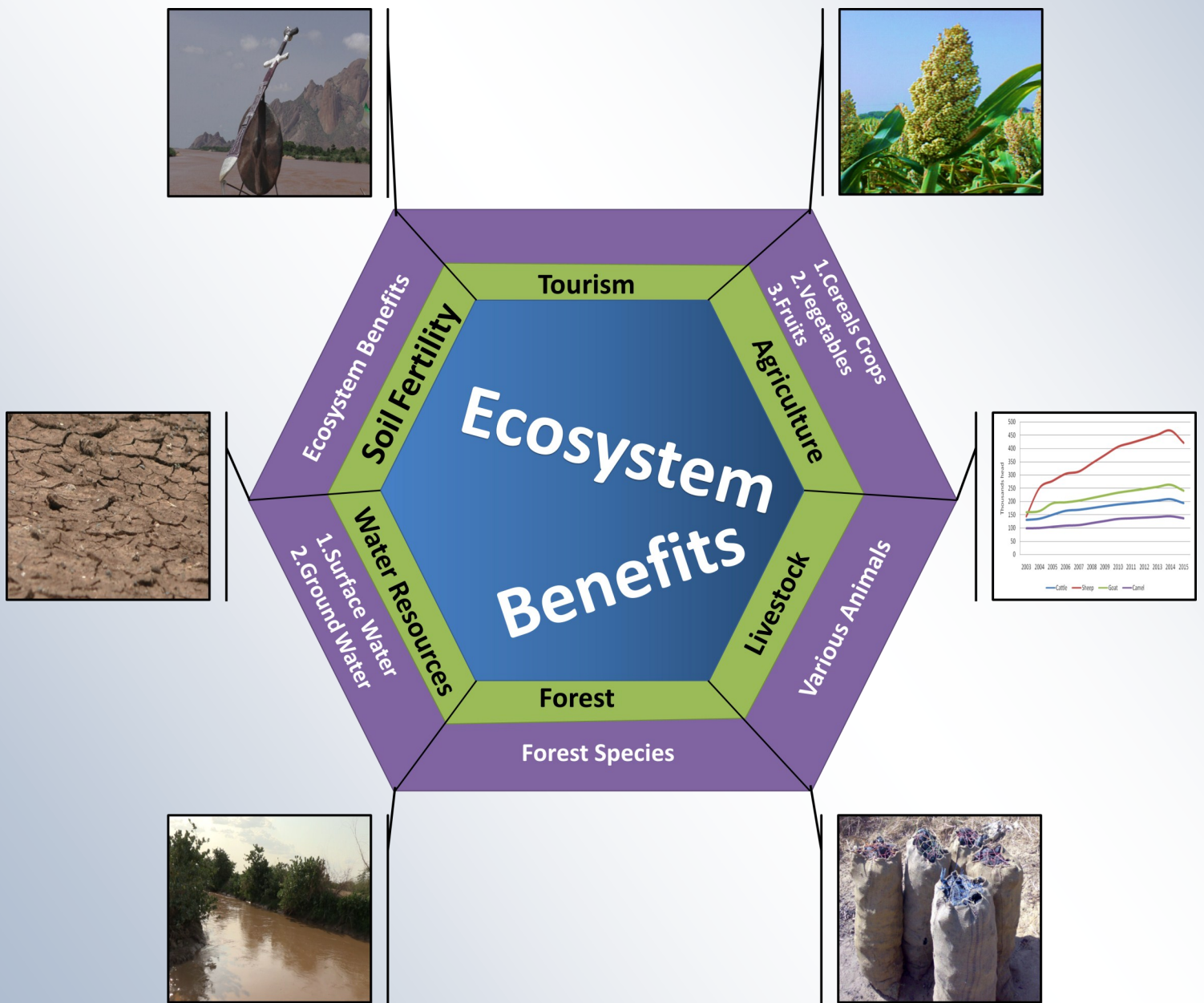


# Ecosystem Services and Benefits

## Introduction

An ecosystem is a dynamic complex of plant, animal and micro-organism communities interacting as a functional unit. In Gash River basin, the population within Gash River basin derive many goods from its natural ecosystem, including food, animal, fodder, fuel wood and pharmaceutical products.



## Impact of upstream activities on downstream (Gash Die)

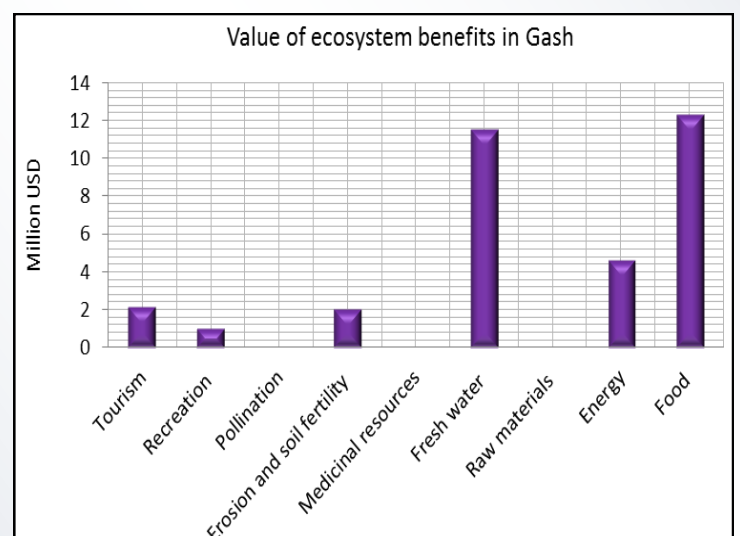
Upstream activities	Upstream	Adverse impact downstream
Vegetation cover change	Reduce soil erosion	Reduce sediment load in flood plain
Expansion of horticultural production	High water consumption Improve livelihoods of up streamers	Low groundwater recharge Small irrigated area Reduction of grazing area Problems of drinking water
New structures (Dykes)	The city protection Narrowing the river course and reduces the flood time to recharge groundwater high velocity created	Flushes more sediment downstream Reduction of irrigated areas downstream

## Winners and losers for different development scenarios

Winners	Losers	Why
Livestock	Forest and other plants	Deforestation and heavy grazing
Agricultural sector	Groundwater recharge	Expansion of agricultural land consumes a lot of water left few percentage of water to recharge
Soil	Water supply	Sedimentation renew the soil
Pollinators	Pollinators	In Gash pollinator density may decrease as the area occupied by agriculture increases. Conversion of land to agriculture or urban areas reduces the amount of plants used by pollinators.
Up streamers	Down streamers (Gash Die)	Up streamers use most of water and reduce the amount of water downstream

## Ecosystem benefits evaluation in Gash River Basin

- The estimated ecosystem value in Gash River basin is about 33 million USD.
- Values such as education, health, settlement and culture considered non-use value and not estimated.
- Land is extensively used in Gash and therefore, ecosystem value expected to be low as there is inverse relationship between land use and ecosystem value.



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