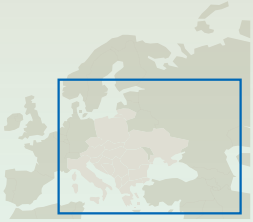
Global International Water Assessment (GIWA) Case Studies

http://www.giwa.net/





Black Sea

- **Introduction:** The catchment area is ~ 2.5 million km2 with a population of ~ 162 million, of which the urban population accounts for 60%.
- **Freshwater shortages** are a problem, although not yet catastrophic. Industry accounts for 50% of freshwater use, irrigation for 12-40%, and domestic use for ~ 28%. Increasing pollution in river basins and rising salinity are also exacerbating water shortages.
- **Pollution** from industries, municipal waste and oil spills is affecting groundwater, the seas and rivers through eutrophication.
- **Unsustainable exploitation of fisheries**: In the past 30 years, pollution has devastated the fishing industry. Total catches fell from ~ 750 000 tons in 1986 to ~ 284 000 tons in 1992.
- **Habitat and Community modification and loss:** Ecosystems have drastically changed as a result of the increasing eutrophication of water bodies.
- **Socio-economic impacts** include the decreasing amenity value of coastal areas for tourism and recreation, losses in agriculture, and rising unemployment.





Amazon

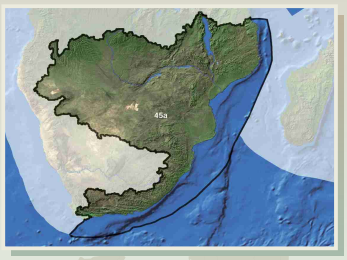
- **Introduction:** The sub region 40b measures 6 869 km2 and is shared by six countries.
- **Freshwater Shortage**: The high rate of deforestation in southeastern Brazil is altering the water cycle and increasing problems of freshwater availability.
- **Pollution** caused by chemical and suspended solids – emanating from agricultural wastes and mercury contamination respectively – is of growing concern.
- **Habitat and community modification** is the priority concern, with management desperately required to address large-scale extension impacts.
- **Over exploitation of fisheries:** The region's fisheries have a potential catch of 200 000 - 1 million tonnes/year with > 200 exploitable species. However, consumption is based on only a few dozen species and these are already threatened by over-exploitation.
- **Socio-economic impacts** include minor water shortages, growing pollution in urban centres, and increasing social and health problems in the suburbs of Amazon cities.





Great Barrier Reef

- **Introduction:** Bordered on the east by the GBR Marine Park World Heritage Area, the sub-region extends north across the Torres Strait to Bramble Cay and the Australia-Papua New Guinea territorial border, west to the PNG-Indonesia border, and south to the tip of Cape York, Australia.
- **Pollution:** Eutrophication, chemical pollution and suspended solids from the catchments, rivers, wetlands and estuaries are causing moderate impacts in the region. In some areas, the impacts are considered severe.
- **Habitat and community modification:** Loss or modification of ecosystems is a severe problem locally, notably in marshlands and riparian belts. Overall, the impacts are considered moderate.
- **Unsustainable exploitation of fisheries and other living resources:** Over-exploitation, excessive by-catches, discards and destructive fishing techniques (benthic trawling) are severe problems, particularly when targeting sharks, mackerel, lobster and shrimps/prawns.
- **Global Climate Change** is a major threat, particularly the impact of ocean sea surface temperature increases on coral reefs.





Agulhas Current

- **Introduction:** There are eight river basins in the sub region, forming a network of transboundary water systems, including a 5,000 km coastline off the Mozambique and South African continental shelves. The Zambezi catchment area covers ~ 1 434 680 km2 and supports 38.4 million people – about 70% of the region's population.
- **Freshwater shortages** are the primary concern due to excessive water abstraction and increasing pollution of supplies. Irrigation accounts for 60% of local freshwater use. Streamflow in the Zambezi river has declined by over 50% in the last three decades, due to the construction of three large dams.
- **Unsustainable exploitation of fisheries**, particularly tuna and shrimps in marine waters, is severe and likely to escalate to critical levels by the year 2020.
- **Pollution** is not a critical concern at the present, although some hotspots have been reported in the mining and industrial zones of major cities.
- **Socio-economic impacts** include escalating poverty, food insecurity and mortality due to waterborne diseases and rural-rural/rural-urban migration. The major root causes are declining agricultural productivity and fishery harvests, and habitat losses and modification