

Potensi Sumber Daya Kelautan & Perikanan



POTENSI BESAR LAUT INDONESIA

Indonesia merupakan negara maritim dengan potensi kontribusi perikanan yang signifikan bagi dunia. Lautnya menjadi habitat bagi berbagai spesies laut nusantara juga menjadi tumpuan hidup masyarakat dengan berbagai jenis usaha.

KEPULAUAN TERBESAR

Indonesia
1.904 ribu km²

Papua Nugini
463

Madagaskar
587

EMASOK **10%**
MODITAS
PERIKANAN DUNIA



PUSAT BISNIS PERIKANAN,
PELAYARAN, DAN
PARIWISATA

7,9 juta

PENDUDUK MISKIN
BERGANTUNG
DARI LAUT



GARIS PANTAI TERPANJANG KEDUA

Kanada: **202** ribu km

Indonesia: **55**

Greenland : **44**
(Denmark)



54%
PROTEIN HEWANI NASIONAL
BERASAL DARI IKAN

SEGITIGA TERUMBU KARANG TERBESAR

37%

spesies ikan
terumbu
karang

76%

spesies
karang dunia

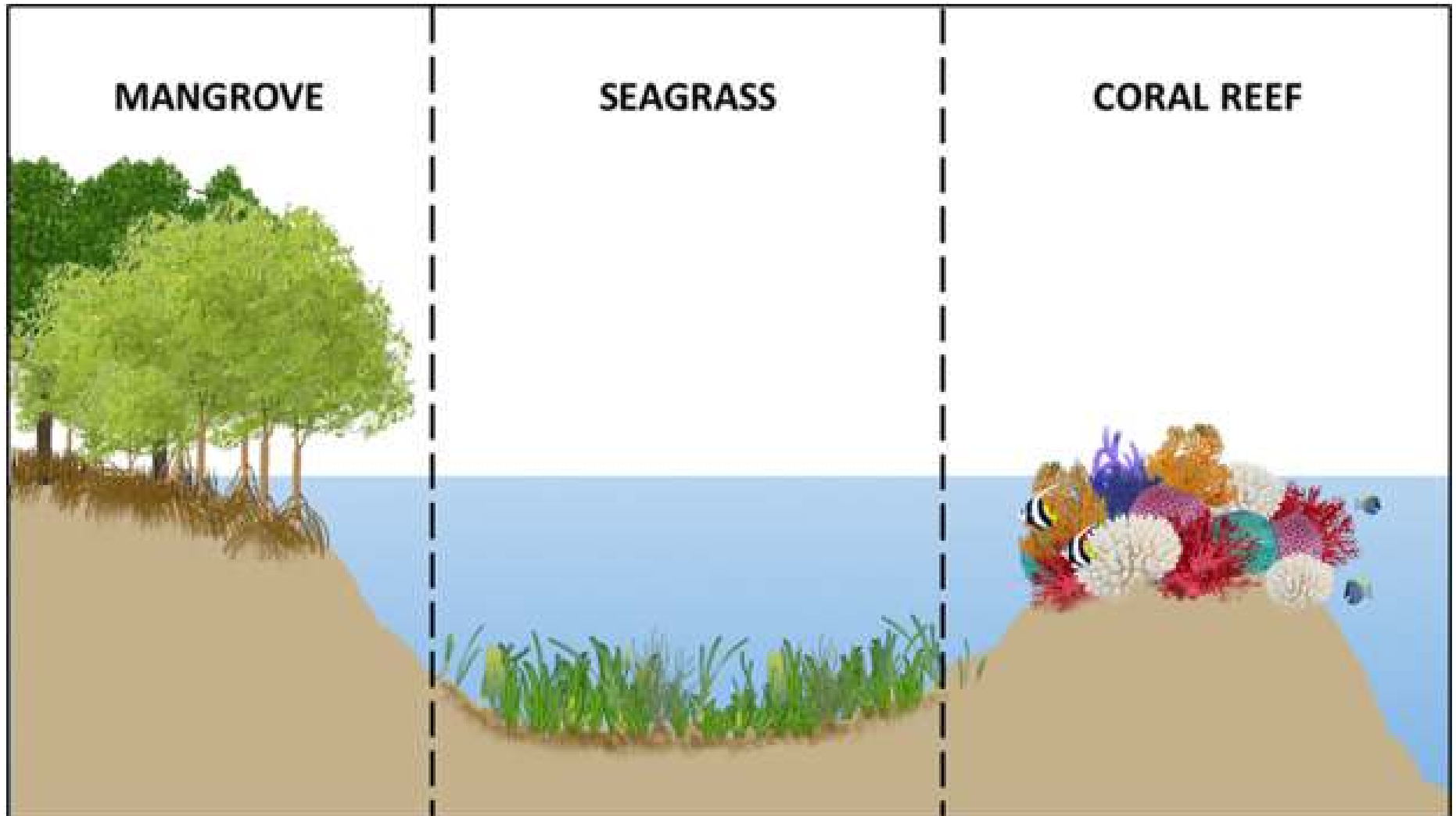
Definisi & Ruang Lingkup SDKP

Sumber daya kelautan: komponen laut/pesisir untuk kesejahteraan manusia

Sumber daya perikanan: sumber daya ikan & organisme akuatik lain

Ruang lingkup: pesisir, laut lepas, estuari, mangrove, lamun, terumbu, ZEE

EKOSISTEM PESISIR TROPIS

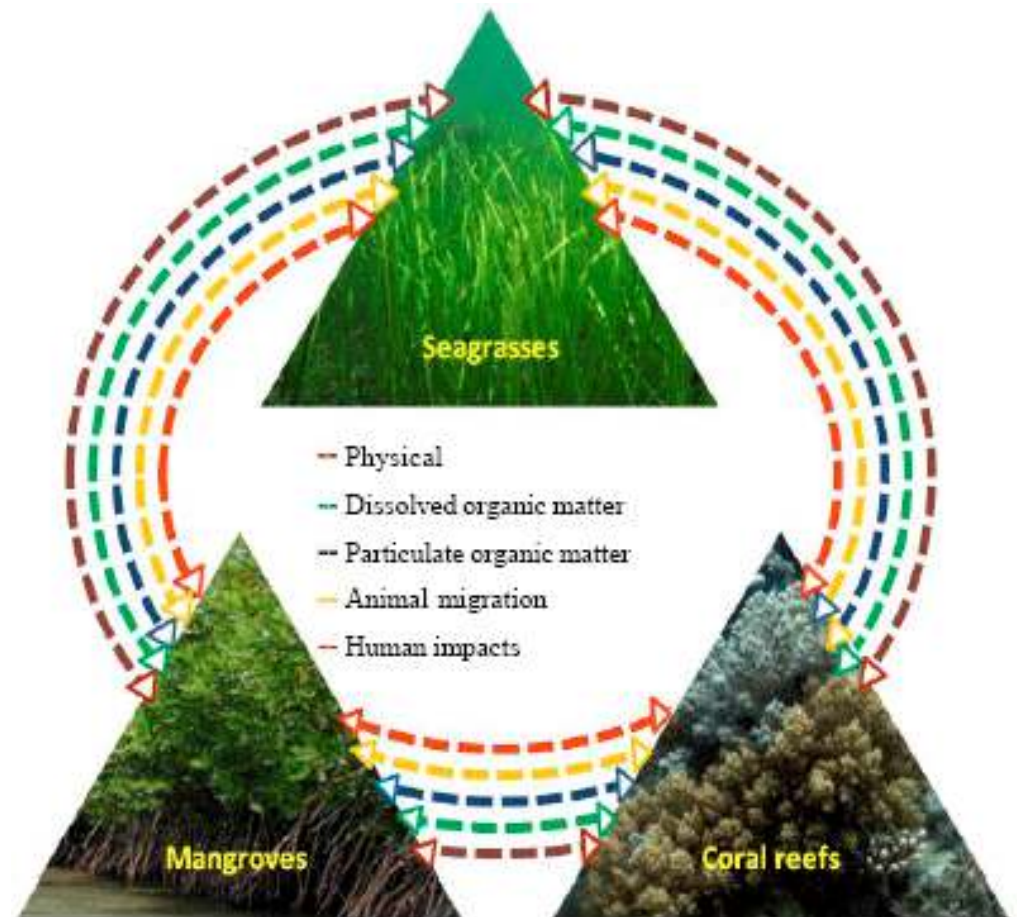


EKOSISTEM PESISIR TROPIS

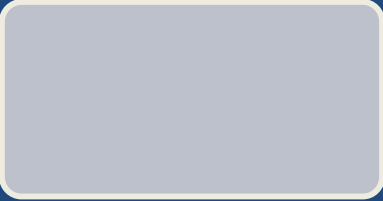
Ekosistem pesisir tropis terdiri dari mangrove, padang lamun, dan terumbu karang.

Ketiganya saling terhubung secara ekologis.

Memiliki fungsi ekologis, ekonomis, dan sosial bagi manusia.



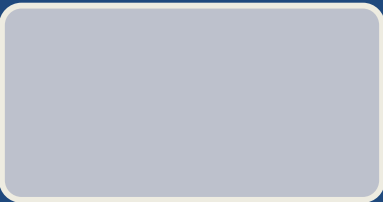
Ekosistem Mangrove (Karakteristik)



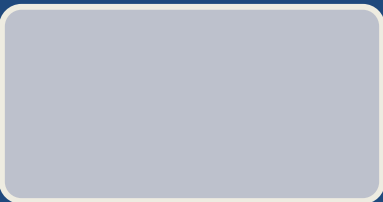
Tumbuh di wilayah pasang surut.



Didominasi pohon: *Rhizophora*,
Avicennia, *Sonneratia*.



Substrat berlumpur/berpasir halus, kaya bahan organik.



Toleran salinitas tinggi.

Unique physical features of mangroves



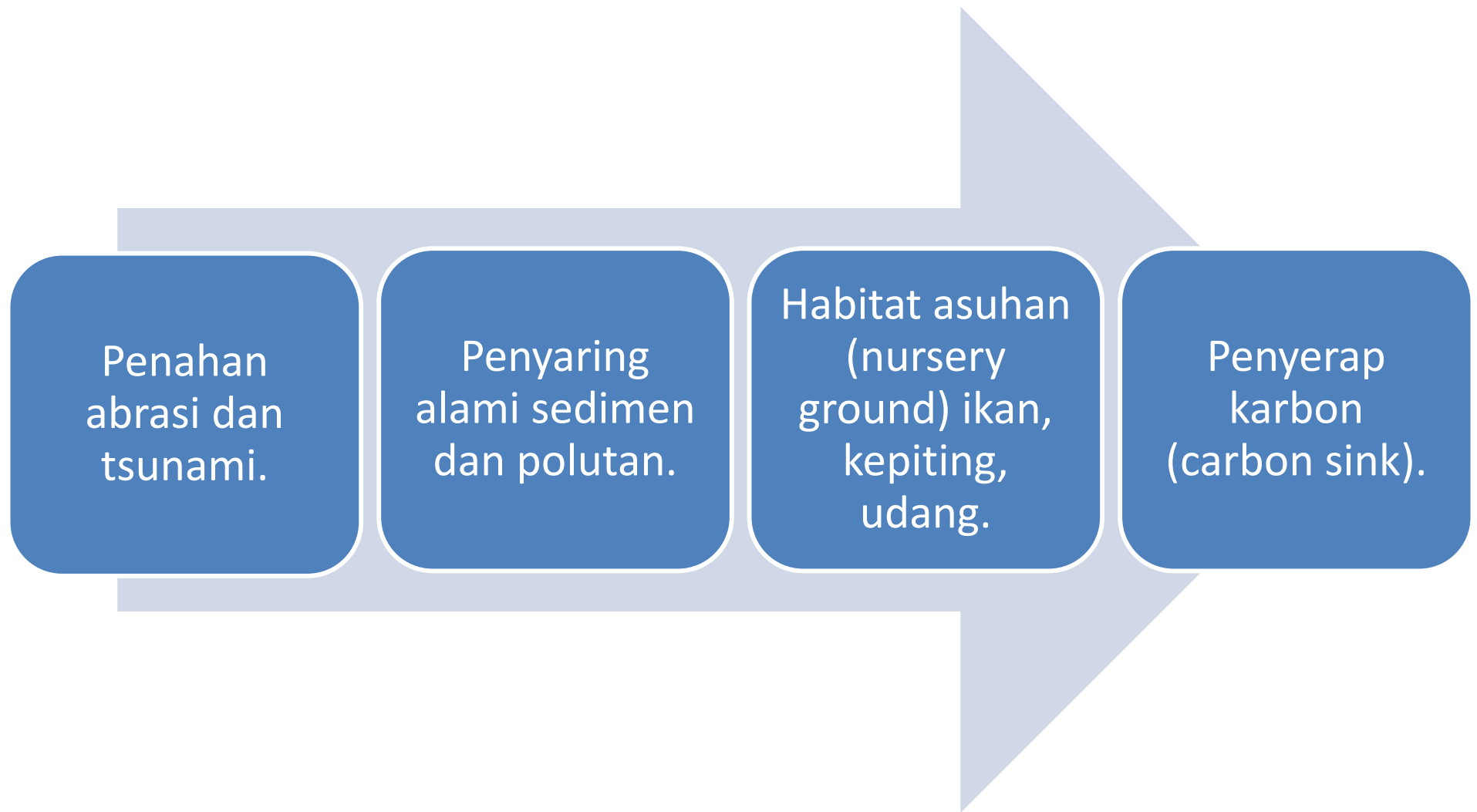
Stilt roots of mangroves (*Rhizophora* sp.) at low tide, in the delta of the Volta River, east of Accra, Ghana



Mangrove (*Sonneratia alba*) with pneumatophores at low tide, north of Mangily, southwest Madagascar.

- * Some species have stilt roots, to help withstand powerful tidal currents.
- * Other mangroves have upward-growing roots called pneumatophores, to enable them to breathe in the thick, viscous mud where they grow.
- * Some species excrete salt through their leaves, to prevent the accumulation of too much salt in their tissues.

Peran Ekologis Mangrove



Mangroves support a wealth of wildlife



Great white egret (*Casmerodius albus*) and stilt-rooted mangroves (*Rhizophora mangle*), La Toyara wetland, Nayarit, México



Giant mudskipper (*Periophthalmodon schlosseri*) on the stilt root of a mangrove (*Rhizophora sp.*), Ao Phang-Nga National Park, Thailand.

- * Mangrove forests are an important nursery area for many species of fish and other marine life.
- * Specialised species such as mudskippers and fiddler crabs thrive there.
- * These in turn attract predators such as piscivorous birds.

Threats to mangroves



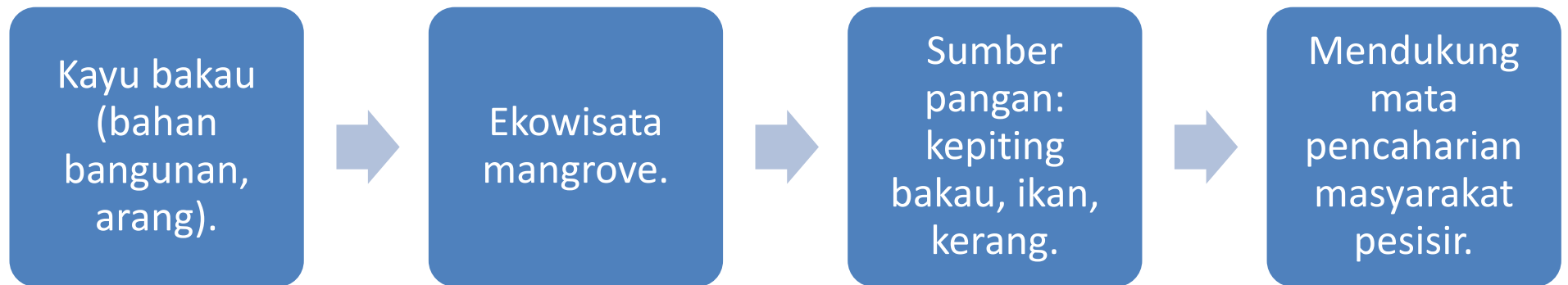
Mangrove (*Sonneratia alba*) cut for firewood, between Toliara and Ifaty, southwest Madagascar.



Goats amongst degraded mangroves (*Sonneratia alba*), north of Mangily, southwest Madagascar.

- * **Mangroves are cut for firewood in many countries.**
- * **Mangrove forests are cleared to make shrimp farms, especially in SE Asia.**
- * **Mangroves are threatened by climate change, through rising sea levels & more powerful storms, and changes to local weather patterns.**

Manfaat Ekonomi & Sosial Mangrove



Ekosistem Lamun (Karakteristik)

- Tumbuhan berbunga (angiosperma) yang hidup di laut dangkal.
- Tumbuh pada substrat pasir, lumpur, atau campuran.
- Jenis umum: *Enhalus acoroides*, *Thalassia hemprichii*, *Halophila ovalis*.
- Membentuk padang lamun luas.

SEAGRASS

SEAGRASS BEDS SUPPORT THOUSANDS OF MARINE SPECIES, STORE CARBON, IMPROVE WATER QUALITY, PROTECT COASTLINES, CYCLE NUTRIENTS AND CREATE HABITAT CORRIDORS BETWEEN CORAL REEFS AND MANGROVES.

BIODIVERSITY

Thousands of species rely on seagrass, including fish, marine mammals, birds and invertebrates. Several of these are endangered species such as dugongs and sea turtles.

FOOD

Seagrasses support a diverse food web from herbivores that eat grass and algae to carnivores that prey on them and decomposers that consume dead organic matter.

OXYGEN

Seagrass produce oxygen through photosynthesis, which marine species need to breathe.

WATER QUALITY

Seagrass roots trap and stabilise sediment, helping improving water quality and reduce coastal erosion.

NUTRIENT CYCLING

Seagrasses support a diverse food web from herbivores that eat grass and algae to carnivores that prey on them and decomposers that consume dead organic matter.

HABITAT CORRIDORS

Seagrass beds create ecological connections between different habitats allowing species to move between them.

CLIMATE RESILIENCE

Seagrass can survive warmer waters and continue to provide habitat as sea temperatures rise due to climate change. Fisheries will become increasingly reliant on seagrass making it crucial to strengthen their protection now.

CARBON STORAGE

Seagrasses remove carbon from sea water to photosynthesize and grow. This helps reduce the impacts of climate change.

LIVELIHOODS

Seagrasses are hugely important for humans in supporting fisheries and tourism, yet they are being destroyed all over the world. They urgently need better protection.

SHELTER

Many species rely on seagrass as nursery areas to shelter their young while they mature.

Peran Ekologis Lamun

- Menstabilkan sedimen dasar laut.
- Produsen primer (fotosintesis tinggi).
- Habitat bagi ikan kecil, moluska, penyu hijau, dan dugong.
- Menjaga kualitas perairan (menyerap nutrisi).

Manfaat Ekonomi & Sosial Lamun

- Mendukung perikanan tangkap (ikan, rajungan).
- Penyu dan dugong sebagai daya tarik wisata bahari.
- Penyimpan karbon biru (blue carbon).
- Menjadi indikator kesehatan ekosistem pesisir.

Ekosistem Terumbu Karang (Karakteristik)

- Dibentuk oleh karang keras (ordo Scleractinia).
- Tumbuh optimal di perairan dangkal, jernih, dan hangat (20–30°C).
- Simbiosis dengan zooxanthellae (alga mikroskopis).
- Bentuk: fringing reef, barrier reef, atoll.

CHARACTERISTICS OF A CORAL REEF

- Found in clear tropical oceans
- Coral reefs need sunlight to survive
- They need temperatures between 20°-28°C
- Reefs usually grow in places with lots of waves
- Coral eat algae

Peran Ekologis Terumbu Karang

- Habitat dengan keanekaragaman hayati tinggi.
- Daerah pemijahan, asuhan, dan mencari makan ikan.
- Melindungi pantai dari gelombang.
- Produsen kalsium karbonat (CaCO_3).

Terumbu Karang

Coral Reef Health Results

Healthy Reef Sites:

- More coral bleaching resistance
- More herbivorous fish
- New baby and juvenile corals
- Less coral disease



Unhealthy Reef Sites:

- Less coral bleaching resistance
- Less herbivorous fish
- Less new baby and juvenile corals



Manfaat Ekonomi & Sosial Terumbu Karang

- Sumber perikanan karang (ikan konsumsi & hias).
- Pariwisata bahari: snorkeling, diving.
- Potensi biofarmaka dari organisme karang.
- Kontribusi pada ekonomi lokal dan nasional.

Hubungan Ekosistem Mangrove, Lamun, Karang

- Mangrove menyuplai nutrisi ke perairan.
- Lamun menjebak sedimen, menjaga kejernihan air.
- Terumbu karang melindungi pesisir dari ombak besar.
- Bersama membentuk sistem pesisir terintegrasi.

Upaya Konservasi



Klasifikasi Sumber Daya

1) Hayati: ikan, krustasea, moluska, rumput laut, mikroalga, biota karang

2) Non-hayati: minyak & gas, pasir/kerikil, mineral, energi laut

3) Jasa ekosistem: wisata bahari, karbon biru, perlindungan pantai



Potensi Sumberdaya Laut

Potensi Industri Galangan Kapal



Potensi Industri Transportasi Indonesia



Potensi Wisata Bahari Indonesia



Potensi Hayati: Perikanan Tangkap

Kelompok: pelagis besar/kecil, demersal, krustasea, moluska

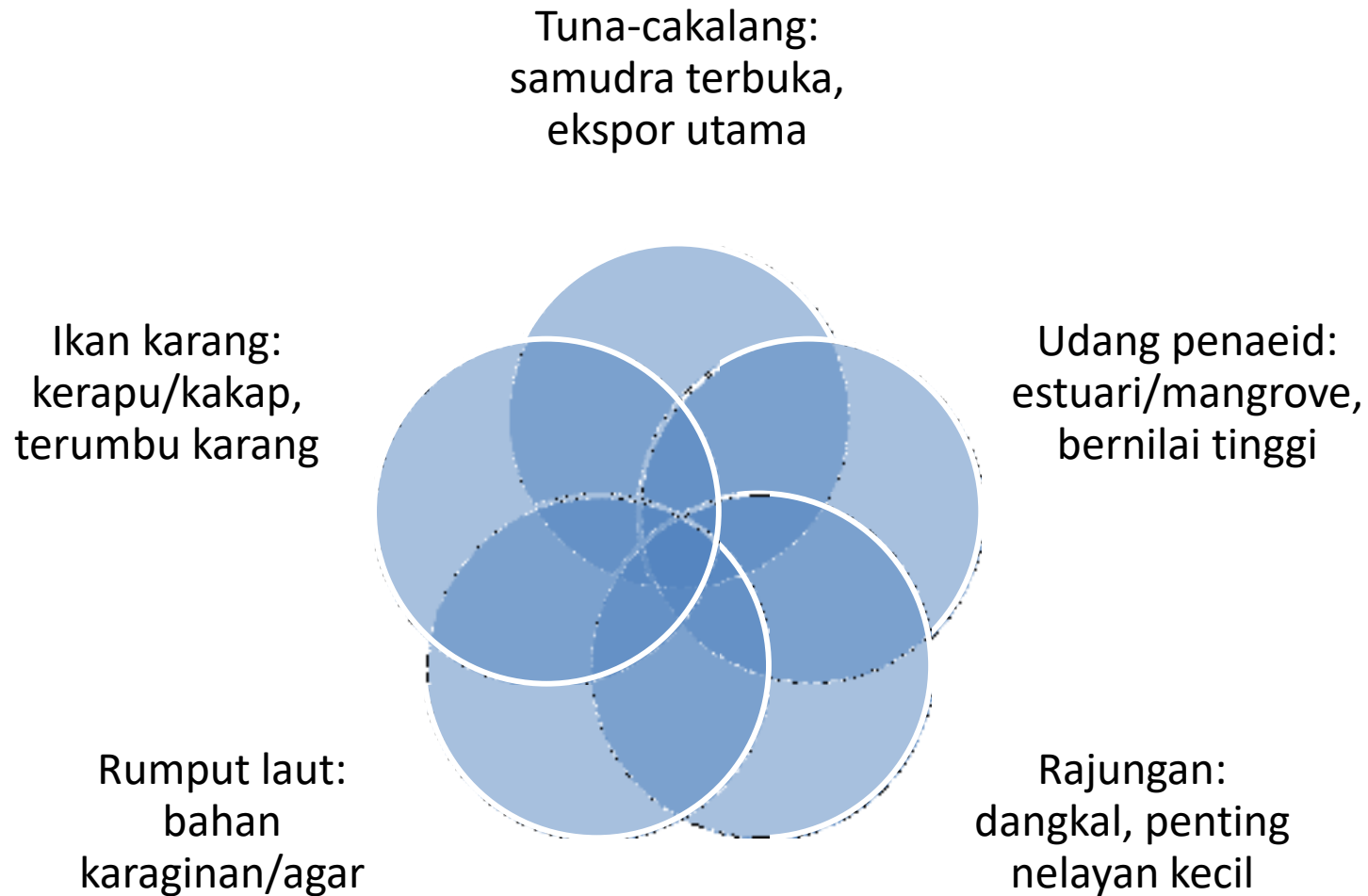
Indikator: CPUE (Catch Per Unit Effort)

Dinamika stok: rekrutmen, pertumbuhan, mortalitas

MSY: hasil tangkapan maksimum berkelanjutan



Komoditas Kunci & Distribusi



Potensi Hayati: Akuakultur



Air payau: udang vaname,
bandeng

Laut: rumput laut,
kerapu/kakap, kerang

Tren: intensifikasi teknologi,
biosekuriti, sertifikasi

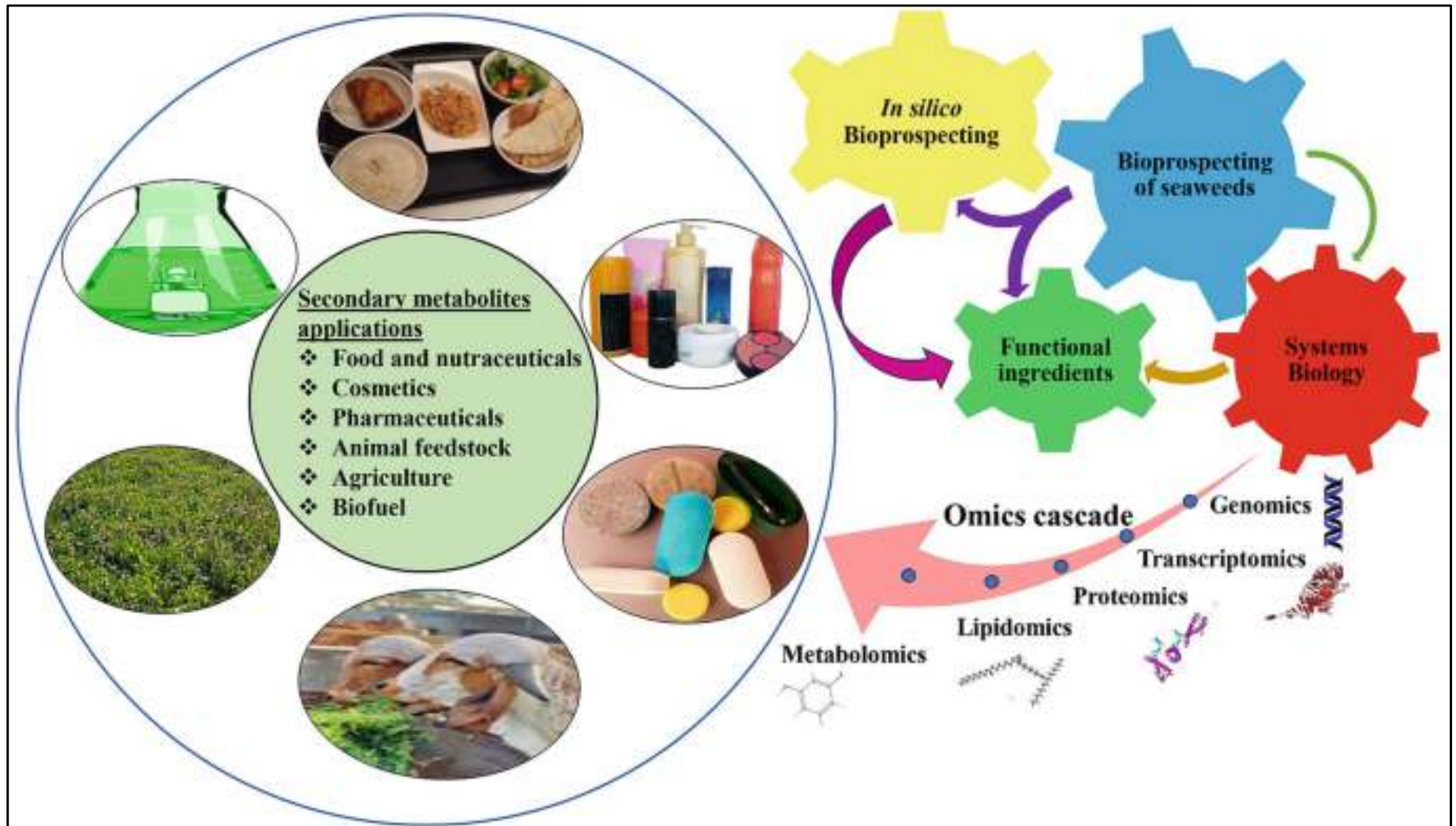
Bioteknologi & Bio-prospek Laut

Senyawa bioaktif: spons, mikroalga, bakteri

Nutraseutikal: omega-3 (EPA/DHA)

Bioplastik & enzim: mikroba laut

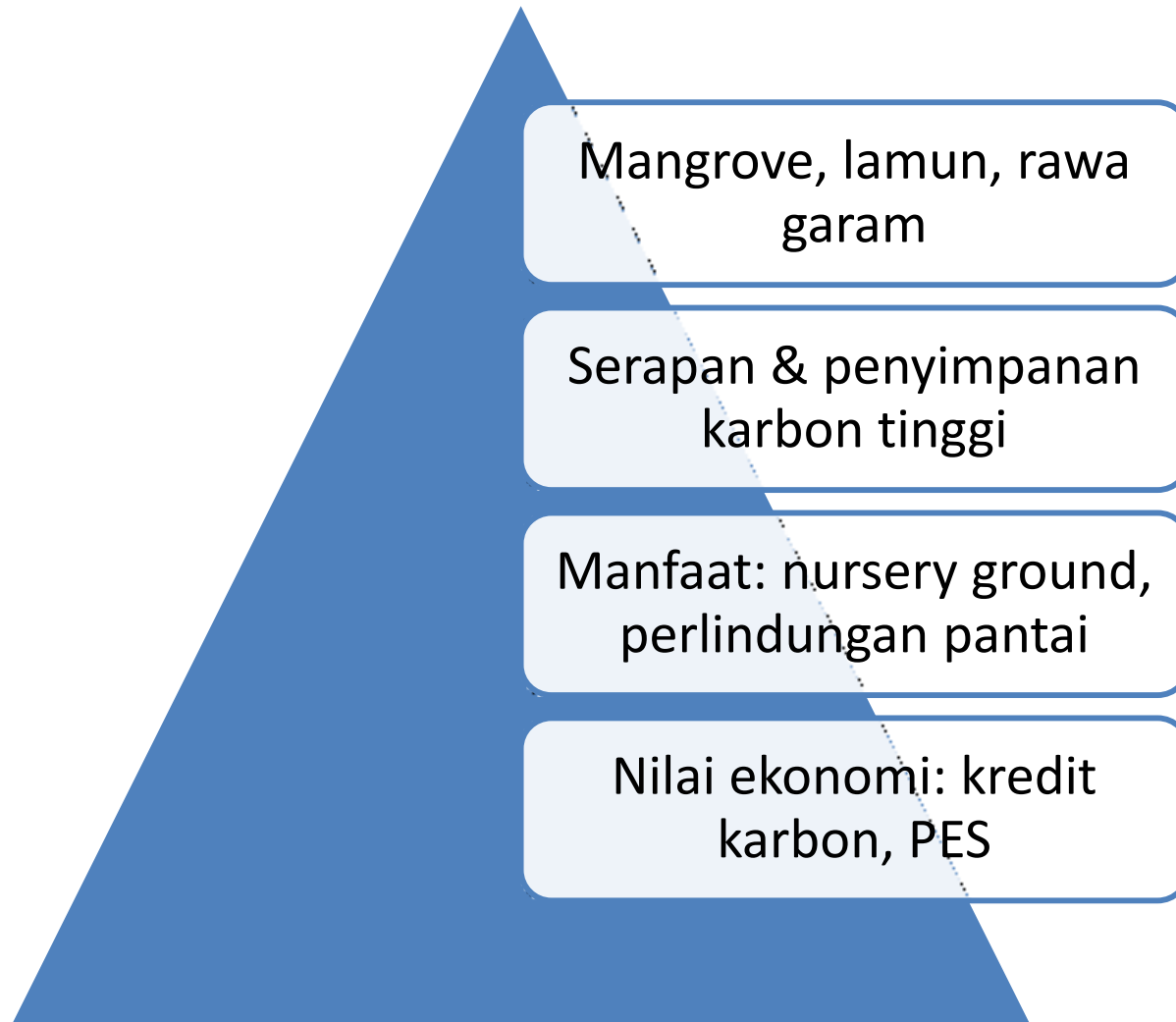
Bioprospeksi Metabolit Sekunder Rumput Laut sebagai Bahan Fungsional yang Berkembang



Potensi Non-Hayati: Minerba & Energi



Jasa Ekosistem: Karbon Biru



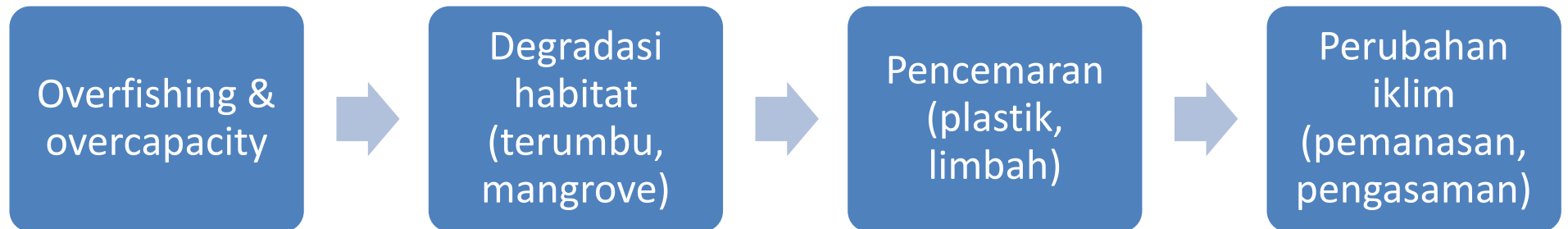
Prinsip dasar yang harus dipahami

- CPUE: hasil tangkap per unit upaya
- MSY: hasil tangkap berkelanjutan maksimum
- MEY: hasil ekonomi maksimum
- Recruitment vs growth overfishing

Pengelolaan Berbasis Ekosistem (EAFM)

- Prinsip: keseimbangan ekologi, ekonomi, sosial
- Instrumen: kuota, musim larang tangkap, MPA
- Co-management: pemerintah, masyarakat, industri
- Monitoring: logbook, VMS, observer

Tantangan Utama



Overfishing



Degradasi Mangrove



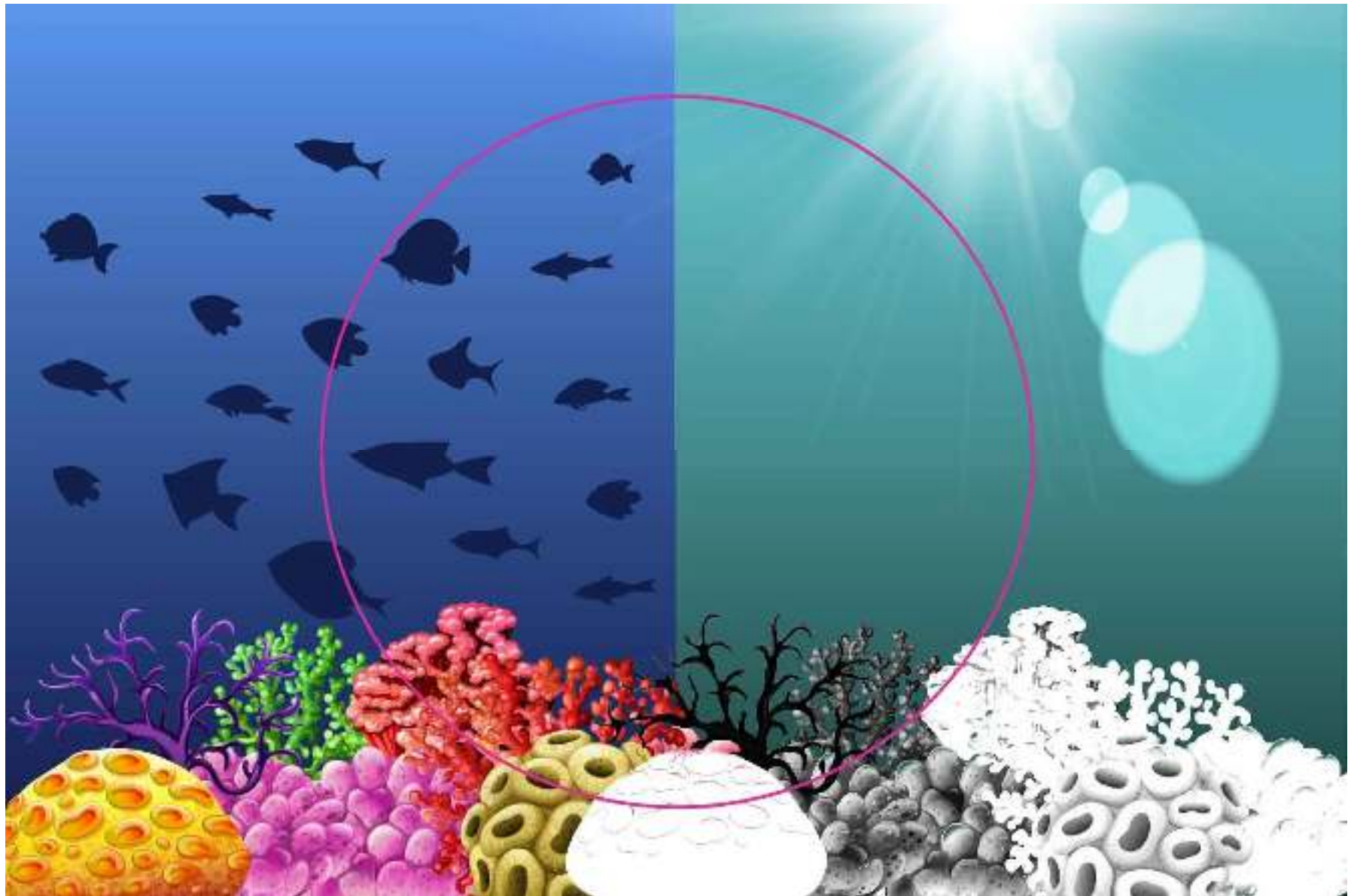
Degradasi Teumbu Karang



Limbah Plastik



Perubahan Iklim (Pemanasan dan Pengasaman Laut)



Strategi Ekonomi Biru

Produktivitas berkelanjutan

Konservasi & restorasi ekosistem

Ketahanan iklim & diversifikasi usaha

Inklusi sosial & peran lokal

BLUE ECONOMY

The Blue Economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The Blue Economy encompasses many activities...

RENEWABLE ENERGY

Sustainable marine energy can play a vital role in social and economic development.

FISHERIES

Marine fisheries contribute more than **US\$270 billion** annually to global GDP. More sustainable fisheries can generate more revenue, more fish and help restore fish stocks.

MARITIME TRANSPORT

Over **80% of international goods** traded are transported by sea, and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050.

TOURISM

Ocean and coastal tourism can bring jobs and economic growth. Coastal Least Developed Countries and Small Island Developing States receive more than **41 million visitors** per year.

CLIMATE CHANGE

The impacts of climate change on oceans—rising sea levels, coastal erosion, changing ocean current patterns, and acidification—are staggering. At the same time, **oceans are an important carbon sink** and help mitigate climate change.

WASTE MANAGEMENT

80% of litter in the ocean is from land-based sources. Better waste management on land can help oceans recover.

To learn about other aspects of the blue economy, visit www.worldbank.org/oceans