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ACRONYMS AND ABBREVIATIONS

ANP	Asir National Park
CBD	Convention on Biological Diversity
DWRI	Department of Water Resources and Irrigation
DPSIR	Driving forces - Pressures - State - Impact - Response
EFP	Ecological footprint
ERSAP	Economic Reform and Structural Adjustment Programme
FAO	Food and Agriculture Organization
FRA	Forest Resource Assessment
GIS	Geographic Information System
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GPI	Gender Parity Index
GEF	Global Environment Facility
IPCC	Intergovernmental Panel on Climate Change
KACST	King Abdulaziz City for Science and Technology
MA	The Millennium Ecosystem Assessment
MDG	Millennium Development Goal
MATEE	Ministry of Land Use, Water and Environment
NCWCD	National Commission of Wildlife Conservation and Development
NFS	National Forest Strategy
NFP	National Forest Programme

NIHD	National Initiative for Human Development
ONEM	The Moroccan National Observatory of the Environment
PME	Presidency of Meteorology and Environment
PSR	Pressure - State - Response
RS	Remote Sensing
RAMSAR	The RAMSAR Convention on Wetlands
TDS	Total Dissolved Solids
UNCCD	United Nations Convention to Combat Desertification
WSSD	World Summit for Sustainable Development

GLOSSARY

- **Afforestation:** Planting of forests on land that has historically not contained forests.
- **Agrobiodiversity:** The diversity of plants, insects, and soil biota found in cultivated systems.
- **Alien species:** Species introduced outside its normal distribution.
- **Aquaculture:** Breeding and rearing of fish, shellfish, or plants in ponds, enclosures, or other forms of confinement in fresh or marine waters for the direct harvest of the product.
- **Aquifer:** An underground geological formation or group of formations, containing usable amounts of groundwater that can supply wells and springs.
- **Arable land:** Land under temporary crops (double-cropped areas are counted only once), temporary meadows for meadows for mowing or pasture, land under market and kitchen gardens, and land temporarily fallow (less than five years).The Abandoned land resulting from shifting cultivation is not included in the category.
- **Baseline:** A set of reference data sets or analysis used for comparative purposes, it can be based on a reference year or a reference set of (standard) conditions.
- **Biodiversity:** The variability among living organisms from all sources including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part. This includes diversity within and among species and diversity within and among ecosystems.
- **Biome:** The largest unit of ecological classification that is convenient to recognize below the entire globe. Terrestrial biomes are typically based on dominant vegetation structure (e.g., forest, grassland). Ecosystems within a biome function in a broadly similar way, although they may have very different species composition. For example, all forests share certain properties regarding nutrient cycling, disturbance, and biomass that are different from the properties of grasslands. Marine biomes are typically based on biogeochemical properties. The WWF biome classification is used in the MA.
- **Biotechnology:** Any technological application that uses biological systems, living organisms, or derivatives thereof to make or modify products or processes for specific use.
- **Capacity building:** A process of strengthening or developing human resources, institutions, organizations, or networks. Also referred to as capacity development or capacity enhancement.
- **Catch:** The number or weight of all fish caught by fishing operations, whether the fish are landed or not.

- **Climate change:** Any change in climate over time, whether due to natural variability or as a result of human activity. (The UN Framework Convention on Climate Change defines climate change as "a change of climate which attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods").
- **Coastal system:** Systems containing terrestrial areas dominated by ocean influences of tides and marine aerosols, plus near shore marine areas. The inland extent of coastal ecosystems is the line where land based influences dominate, up to a maximum of 100 kilometres from the coastline or 100 metre elevation (whichever is closer to the sea), and the outward extent is the 50-meter-depth contour.
- **Constituents of well-being:** The experiential aspects of well-being, such as health, happiness, and freedom to be and do, and, more broadly, basic liberties.
- **Cultivated system:** Areas of landscape or seascape actively managed for the production of food, feed, fiber, or biofuels.
- **Cultural services:** the fibre non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experience, including, for example, knowledge systems, social relations, and aesthetic views.
- **Decision-maker:** A person whose decision and actions can influence a condition, process, or issue under consideration.
- **Deforestation:** Conversion of forest to non-forest.
- **Degradation of ecosystems:** A persistent reduction in the capacity to provide ecosystem services.
- **Driver:** Any natural or human-induced factor that directly or indirectly causes changes in the ecosystem.
- **Desertification:** This is land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. It involves crossing thresholds beyond which the underpinning ecosystem cannot restore itself, but requires ever-greater resources of recovery.
- **Drylands:** Areas characterized by lack of water, which constrain two major, interlinked ecosystem services: primary production and nutrient recycling. Four dryland sub-types are widely recognized: Dry sub-humid, semi-arid, arid and hyper-arid, showing an increasing level of aridity or moisture deficit. Formally, this definition includes all land where the aridity index value is less than 0.65.
- **Driver, direct:** A driver that unequivocally influences ecosystem process and can therefore be identified and measured to differing degrees of accuracy.

- **Driver, indirect:** A driver that operates by altering the level or rate of change of one or more direct driver.
- **Ecosystem:** A dynamic complex of plant, animal and microorganism communities and their nonliving environment interacting as a functional unit.
- **Ecosystem approach:** A strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use. An ecosystem approach is based on the application of appropriate scientific methods focused on levels of biological organization, which encompass the essential structure, processes, functions, and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems.
- **Ecosystem assessment:** A social process through which the findings of science concerning the causes of ecosystem change, their consequences for human well-being, and management and policy options are brought to bear on the needs of decision makers.
- **Ecosystem change:** Any variation in the state, outputs, or structure of an ecosystem.
- **Ecosystem function:** An intrinsic ecosystem characteristic related to the set of conditions and processes whereby an ecosystem maintains its integrity (such as primary productivity, food chain, biogeochemical cycles). Ecosystem functions include such processes as decomposition, production, nutrient cycling, and fluxes of nutrients and energy.
- **Ecosystem management:** An approach to maintaining or restoring the composition, structure, function, and delivery of services of natural and modified ecosystems for the goal of achieving sustainability. It is based on an adaptive, collaboratively developed vision of desired future conditions that integrates ecological, socioeconomic, and institutional perspectives, applied within a geographic framework, and defined primarily by natural ecological boundaries.
- **Ecosystem services:** The benefits people obtain from ecosystems. These includes provisioning services such as food and water, regulating services such as flood and disease control, cultural services such as spiritual, recreational, and cultural benefits, and supporting services such as nutrient cycling that maintain the conditions for life on Earth.
- **Endangered species:** Species that face a very high risk of extinction in the wild.
- **Endemic species:** species native to, a particular problems geographical region.
- **Environmental impact assessment:** An environmental impact assessment (EIA) is an analytical process or procedure that systematically examines the possible environmental consequences of the implementation of a given activity (project). The aim is to ensure that the environmental implications of decisions related to a given

activity are taken into account before the decisions are made.

- **Environmental policy:** A policy initiative aimed at addressing environmental problems and challenges.
- **Geographic Information System (GIS):** A computerized system organizing data sets through a geographical referencing of all data included in its collections. A GIS allows the spatial display and analysis of information.
- **Global scale:** The geographical realm encompassing all of Earth.
- **Globalization:** The increasing integration of economies and societies around the world, particularly through trade and financial flows, and the transfer of culture and technology.
- **Governance:** The manner in which society exercises control over resources. It denotes the mechanisms through which control over resources is defined and access is regulated. For example, there is governance through the state, the market, or through civil society groups and local organizations. Governance is exercised through institutions: laws, property rights systems and forms of social organization.
- **Groundwater:** Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper surface of the saturate zone is called the water table.
- **Habitat:** Area occupied by and supporting living organisms. Also used to mean the environmental attributes required by a particular species or its ecological niche.
- **Hazardous waste:** Products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Substances classified as hazardous wastes possess at least one of four characteristics: ignitability, corrosivity, reactivity or toxicity, or appear on special lists.
- **Health:** Strength, feeling well, and having a good functional capacity. Health, in a popular idiom, also connotes an absence of disease. The health of a whole community or population is reflected in measurements of disease incidence and prevalence, age-specific death rates, and life expectancy.
- **High seas:** The area outside of national jurisdiction, i.e., beyond each nation's Exclusive Economic Zone or other territorial waters.
- **Heavy metals:** A group name for metals and semimetals (metalloids), such as arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc, that have been associated with contamination and potential toxicity.
- **Institutions:** The rules that guide how people within societies live, work, and interact with each other. Formal institutions are written or codified rules. Examples of formal institutions would be the constitution, the judiciary laws, the

organized market, and property rights. Informal institutions are rules governed by social and behavioural norms of the society, family, or community.

- **Indicator:** Information based on measured data used to represent a particular attribute, characteristic, or property of a system.
- **Indigenous knowledge** (or local knowledge)**:** The knowledge that is unique to a given culture or society.
- **Integrated responses:** Responses that address degradation of ecosystem services across a number of systems simultaneously or that also explicitly include objectives to enhance human well-being.
- **Keystone species:** A species whose impact on the community is disproportionately large relative to its abundance. The effects can be produced by consumption (trophic interactions), competition, mutualism, dispersal, pollination, disease, or habitat modification (nontrophic interactions).
- **Land cover:** The physical coverage of land, usually expressed in terms of vegetation cover or lack of it. Influenced by but not synonymous with *land use*.
- **Land degradation:** The loss of biological or economic productivity and complexity in croplands, pastures and woodlands. It is due mainly to climate variability and unsustainable human activity.
- **Landscape**: An area of land that contains a mosaic of ecosystems, including human dominated ecosystems. The term cultural landscape is often used when referring to landscapes containing significant human populations.
- **Level:** The discrete levels of social organization, such as individuals, households, communities, and nations.
- **Mainstreaming:** Mainstreaming the environment into development policy making means that environmental considerations are considered in the design of policies for development.
- **Malnutrition:** A state of bad nourishment. Malnutrition refers both to undernutrition and overnutrition, as well as to conditions arising from dietary imbalances leading to diet-related non-communicable diseases.
- **Mitigation:** Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.
- **Nutrient cycling:** The processes by which elements are extracted from their mineral, aquatic, or atmospheric sources or recycled from their organic forms, converting them to the ionic form in which biotic uptake occurs and ultimately returning them to the atmosphere, water, or soil.
- **Participatory approach:** Securing an adequate and equal opportunity for people to place questions on the agenda and to express their preferences about the final outcome during decision making to all group members. Participation can occur directly or through legitimate

representatives. Participation may range from consultation to the obligation of achieving a consensus.

- **Policy:** Any form of intervention or societal response. This includes not only statements of intent, such as a water policy or forest policy, but also other forms of intervention, such as the use of economic instruments, market creation, subsidies, institutional reform, legal reform, decentralization and institutional development. Policy can be seen as a tool for the exercise of governance. When such an intervention is enforced by the state, it is called public policy.
- **Policy-maker:** A person with power to influence or determine policies and practices at an international, national, regional, or local level.
- **Pollination:** A process in the sexual phase of reproduction in some plants caused by the transportation of pollen. In the context of ecosystem services, pollination generally refers to animal-assisted pollination, such as that done by bees, rather than wind pollination.
- **Pollutant:** Any substance that causes harm to the environment when it mixes with soil, water or air.
- **Pollution:** The presence of minerals, chemicals or physical properties at levels that exceed the values deemed to define a boundary between "good or acceptable" and "poor or unacceptable" quality, which is a function of the specific pollutant.
- **Poverty:** The pronounced deprivation of well-being.
- **Projection:** A potential future evolution of a quantity or set of quantities, often computed with the aid of a model. Projections are distinguished from "predictions" in order to emphasize that projections involve assumptions concerning, for example, future socioeconomic and technological developments that may or may not be realized; they are therefore subject to substantial uncertainty.
- **Property rights:** The right to specific uses, perhaps including exchange in a market, of ecosystems and their services.
- **Provisioning services:** The products obtained from ecosystems, including, for example, genetic resources, food and fibre, and fresh water.
- **Prediction** (or forecast)**:** The result of an attempt to produce a most likely description or estimate of the actual evolution of a variable or system in the future.
- **Rangeland:** An area where the main land use is related to the support of grazing or browsing mammals, such as cattle, sheep, goats, camels, or antelope.
- **Regulating services:** The benefits obtained from the regulation of ecosystem processes, including, for example, the regulation of climate, water, and some human diseases.
- **Resilience:** The capacity of a system to tolerate impacts of drivers without irreversible change in its outputs or structure.

- **Responses:** Human actions, including policies, strategies, and interventions, to address specific issues, needs, opportunities, or problems. In the context of ecosystem management, responses may be of legal, technical, institutional, economic, and behavioural nature and may operate at local or micro, regional, national, or international level and at various time scales.
- **Risk:** The probability or probability distribution of an event or the product of the magnitude of an event and the probability of its occurrence.
- **Runoff:** A portion of rainfall, melted snow or irrigation water that flows across the ground's surface and is eventually returned to streams. Run-off can pick up pollutants from air or land and carry them to receiving waters.
- **Salinization:** The buildup of salts in soils.
- **Scale:** The physical dimensions, in either space or time, of phenomena or observations.
- **Scenario:** A plausible and often simplified description of how the future may develop, based on a coherent and internally consistent set of assumptions about key driving forces (e.g., rate of technology change, prices) and relationships. Scenarios are neither predictions nor projections and sometimes may be based on a "narrative storyline." Scenarios may be derived from projections but are often based on additional information from other sources.
- **Security:** Access to resources, safety, and the ability to live in a predictable and controllable environment.
- **Sediment:** Solid material that originates mostly from disintegrated rocks and is transported by, suspended in or deposited from water.
- **Soil fertility:** The potential of the soil to supply nutrient elements in the quantity, form, and proportion required to support optimum plant growth.
- **Species:** An interbreeding group of organisms that is reproductively isolated from all other organisms, although there are many partial exceptions to this rule in particular taxa. Operationally, the term species is a generally agreed fundamental taxonomic unit, based on morphological or genetic similarity that once described and accepted is associated with a unique scientific name.
- **Species diversity:** Biodiversity at the species level, often combining aspects of species richness, their relative abundance and their dissimilarity.
- **Stakeholder:** An actor having a stake or interest in a physical resource, ecosystem service, institution, or social system, or someone who is or may be affected by a public policy.
- **Storyline:** A narrative description of a scenario, which highlights its main features and the relationships between the scenario's driving forces and its main features.
- **Supporting services:** Ecosystem services that are necessary for the production of all other ecosystem services. Some examples

include biomass production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provisioning of habitat.

- **Subsistence:** An activity in which the output is mostly for the use of the individual person doing it, or their family, and which is a significant component of their livelihood.
- **Surface water:** All water naturally open to the atmosphere, including rivers, lakes, reservoirs, streams, impoundments, seas and estuaries. The term also covers springs, wells or other collectors of water that are directly influenced by surface waters.
- **Sustainability:** A characteristic or state whereby the needs of the present and local population can be met without compromising the ability of future generations or populations in other locations to meet their needs.
- **Synergy:** When the combined effect of several forces operating is greater than the sum of the separate effects of the forces.
- **Trade-off:** Management choices that intentionally or otherwise change the type, magnitude, and relative mix of services provided by ecosystems.
- **Tenure:** Although also sometimes used more specifically in reference to the temporal dimensions and security of property rights.
- **Threshold:** A point or level at which new properties emerge in an ecological, economic, or other system, invalidating predictions based on mathematical relationships that apply at lower levels. For example, species diversity of a landscape may decline steadily with increasing habitat degradation to a certain point, then fall sharply after a critical threshold of degradation is reached. Human behaviour, especially at group levels, sometimes exhibits threshold effects. Thresholds at which irreversible changes occur are especially of concern to decision-makers.
- **Uncertainty:** An expression of the degree to which a future condition (e.g., of an ecosystem) is unknown. Uncertainty can result from lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from quantifiable errors in the data to ambiguously defined terminology or uncertain projections of human behavior.
- **Urbanization:** An increase in the proportion of the population living in urban areas.
- **Urban systems:** Built environments with a high human population density. Operationally defined as human settlements with a minimum population density commonly in the range of 400 to 1 000 persons per square kilometre, minimum size of typically between 1 000 and 5 000 people, and maximum agricultural employment usually in the vicinity of 50-75%.
- **Utility:** In economics, the measure of the degree of satisfaction or happiness of a person.

- **Vulnerability:** An intrinsic feature of people at risk. It is a function of exposure, sensitivity to impacts of the specific unit exposed (such as a watershed, island, household, village, city or country), and the ability or inability to cope or adapt. It is multidimensional, multidisciplinary, multisectoral and dynamic. The exposure is to hazards such as drought, conflict or extreme price fluctuations, and also to underlying socio-economic, institutional and environmental conditions.
- **Water treatment:** Any of the mechanical, biological or chemical processes used to modify the quality of wastewater in order to reduce pollution levels.
- **Water quality:** The chemical, physical and biological characteristics of water, usually in respect to its suitability for a particular purpose. Occurs when annual water supplies drop below 1 000 m per person, or when more than 40 per cent of available water is used.
- **Water scarcity:** Occurs when low water supplies limit food production and economic development, and affect human health.
- **Water stress:** An area is experiencing water stress when annual water supplies drop below 1 700 m per person.
- **Watershed** (also catchment basin)**:** The land area that drains into a particular watercourse or body of water. Sometimes used to describe the dividing line of high ground between two catchment basins.
- **Well-being:** A context and situation dependent state, comprising basic material for a good life, freedom and choice, health, good social relations, and security.
- **Wetlands:** Areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters. May incorporate riparian and coastal zones adjacent to the wetlands and islands or bodies of marine water deeper than six meters at low tide laying within the wetlands.

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