OVERVIEW OF SUSTAINABLE DEVELOPMENT IN THE MEKONG RIVER BASIN

Definitions of Sustainable Development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs

(Brundland Commission - Our Common Future, 1987)

A sustainable society enables its members to achieve a high quality of life in ways that are ecologically sustainable

(United Nations)

A Goal for Sustainable Development

To enable each individual to live life to their full potential physical, mental, and spiritual development

(1992 Earth Summit - Agenda 21)

Some Core Themes of Sustainable Development

- We do not inherit the earth from our ancestors, we are borrowing it from our children
- Awareness leads to appropriate action
- Prevention of pollution
- Conservation of natural resources (i.e., preserving natural capital)
- Systems thinking - interdependence of all life

More Core Themes of Sustainable Development

- Those who reap the benefits of development must bear the costs
- Those who bear the costs of development should share in the benefits
- Those affected by development must participate in decision making
- Engineering ‘fixes’ alone do not constitute sustainable development
- Precautionary principle

Precautionary Principle

Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation

(Agenda 21)

1992 Earth Summit
Agenda 21 Themes

- Economic, social, and ecological factors must be integrated in political and business decision making - they are surely integrated in workings of the natural world
- Institutions must move out of their narrow, specialised ‘niches’ to integrate and interact with one another
- Decentralise management of resources; empower local communities

Areas of Concern in Agenda 21 and the MRB

- Poverty alleviation; arguably most important
- Human consumption patterns
- Demographics and human settlements (e.g., population growth)
- Human health
- Biodiversity
- Freshwater and coastal resources
- Land resources, especially forests

More Areas of Concern in Agenda 21 and the MRB

- Mountainous areas
- Agriculture and rural development
- Toxic chemicals and hazardous wastes
- Solid wastes
- Protecting the atmosphere
- Women, children, youth, indigenous people
- Institutional and legal frameworks

Development, Poverty and Hunger

- Poverty and ecosystem degradation result from externalised environmental and social costs of market transactions
- Some groups are enriched at the expense of the environment
- Key criterion for sustainable development is whether the needs of the least advantaged, most vulnerable members of society are met

(United Nations Environment Program, 1995)

Development, Poverty and Hunger (Cont'd)

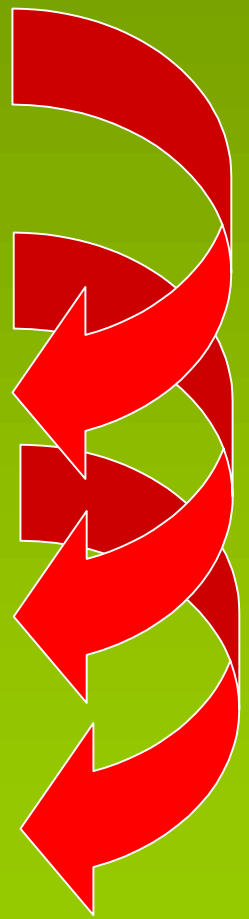
Poor people have limited access to resources

Preoccupied with immediate survival, not long-term conservation

Increased pressure to exploit marginal environments

More environmental degradation

More poverty



Development, Poverty and Hunger (Cont'd)

- Environmental conservation policies must not aggravate poverty and hunger
- Any development which significantly impacts natural resources can create poverty
- Excessive and wasteful use of resources leads to poverty and hunger
- Human population numbers, their distribution, and their consumption of resources create poverty and hunger

What do we Mean by ‘The Environment’?

Air

Water

Land

Minerals

Solar Energy

Plants

Animals

Organisms

Humans

What is an Ecosystem?

Interactions between biological (living) organisms in a defined area, and with their physical environment (air, water, land), and the associated flow and transformation of energy

Ecosystem Characteristics

- Mutual interdependence of all components
- Survival of each type of plant and organism requires specific habitats and physical conditions
- Strive to achieve equilibrium or stasis
- In practice they are in dynamic equilibrium
- Maximize entropy (as in biodiversity)
- When disturbed by an external force, they may adapt or break down
- Fragile and resilient

Ecosystem Sustainability

- Healthy ecosystems are sustainable
- Unhealthy ecosystems will eventually perish
- Sustainable ecosystems are vital to the quality of human life and well-being
- Biodiversity = Resilience and Adaptability

Some Uses of MRB Water Resources

- Water supply and sanitation
- Agriculture
- Urban development
- Hydropower generation
- Fisheries
- Transportation
- Industry
- Recreation
- Low and flatlands management

Harmful Human Activities

- Reduction of forest cover
- Conversion of wetlands to agriculture and aquaculture
- Slash and burn agriculture
- Overuse of pesticides and fertilizer
- Some reservoirs and irrigation projects
- Removal of coastal mangrove forests
- Destructive fishing methods, overfishing
- Expansion of urban populations

Human Impacts on Forests

- MRB forest cover reduced from 50% to 27% of land area in 15 years from 1970 to 1985
- Unsustainable legal and illegal logging
- Collection of firewood - primary energy source for most people
- Clearing of forests for agriculture
- Road building ➜ increased access to remote forest areas

Unsustainable Effects of Forest Loss

- Loss of habitat for plants and animals ➜ lower biodiversity
- Loss of soil fertility from trading short-term agriculture gains for valuable forest species
- Loss of soil due to erosion, landslides
- Higher turbidity and siltation in Mekong River, its tributaries, Tonle Sap, and reservoirs
- Loss of fish spawning and rearing habitat in Great Lake flooded forest
- Global warming

Unsustainability of Plantation Forests

- Species often have high nutrient demands
- Leaf litter damages soil quality
- Low biodiversity - loss of wildlife, increased risk of disease
- Supply little firewood, no medicines, food
- Not labour intensive
- Subject to land speculation, corrupt practices
- Loss of local community rights

Unsustainable Effects of Mangrove Forest Removal

- ➔ Reduced protection from coastal erosion
- ➔ Loss of habitat for breeding and feeding coastal marine species ➜ lower biodiversity, loss of traditional fisheries
- ➔ Pollution from aquaculture wastes and chemicals

Unsustainable Effects of Wetland Loss

- Reduction in biodiversity
- Loss of habitat for:
  - fish spawning and rearing
  - birds
  - microfauna on which fish and birds feed
- Reduction of water storage, flood control
- Increased soil salinity and saltwater intrusion

Unsustainable Fisheries

- Too many people chasing too few fish
- Destruction of fish habitat
- Blockage of fish migration routes by dams
- Increased sedimentation, water turbidity hinders fish feeding and spawning
- Changes in water chemistry unsuitable for fish
- Illegal methods such as dynamite fishing
- Introduction of exotic species

Unsustainable Effects of Dams

- Forced resettlement of communities often results in their impoverishment
- Loss of downstream river flow volumes and natural fluctuations
- Undesirable changes in water chemistry
- Loss of traditional fisheries
- Flooding of uncleared forested areas causes greenhouse gas emissions, navigation and fishing hazards in reservoirs
- Increased risk of saltwater intrusion in Delta

Unsustainable Effects of Irrigation

- High loss of water to evaporation
- Increased salinization of soils
- Inequitable allocation of water - upstream users benefit at expense of downstream
- Reduction in downstream water flow
- Increased agro-chemical run-off to river
- Soil erosion and siltation from run-off
- Landslides in hilly areas

Unsustainable Effects of Urbanization

- Increase in urban poverty
- Overcrowding, overloaded infrastructure
- Lowering of well-being in cities: health, pollution, waste, crime, social tensions, family and community breakdown
- Loss of cultural traditions
- Diminished productive human resources
- Cut off from natural ecosystems

Unsustainable Legal and Bureaucratic Systems

- Countries regulate and manage environment in compartments - water resources, fish, forests, agriculture, industry, mining, tourism
- Generates competition and jurisdictional disputes within and between government departments
- Disconnects political and administrative activities from the 'real world'
- Land is owned by few, worked on by many

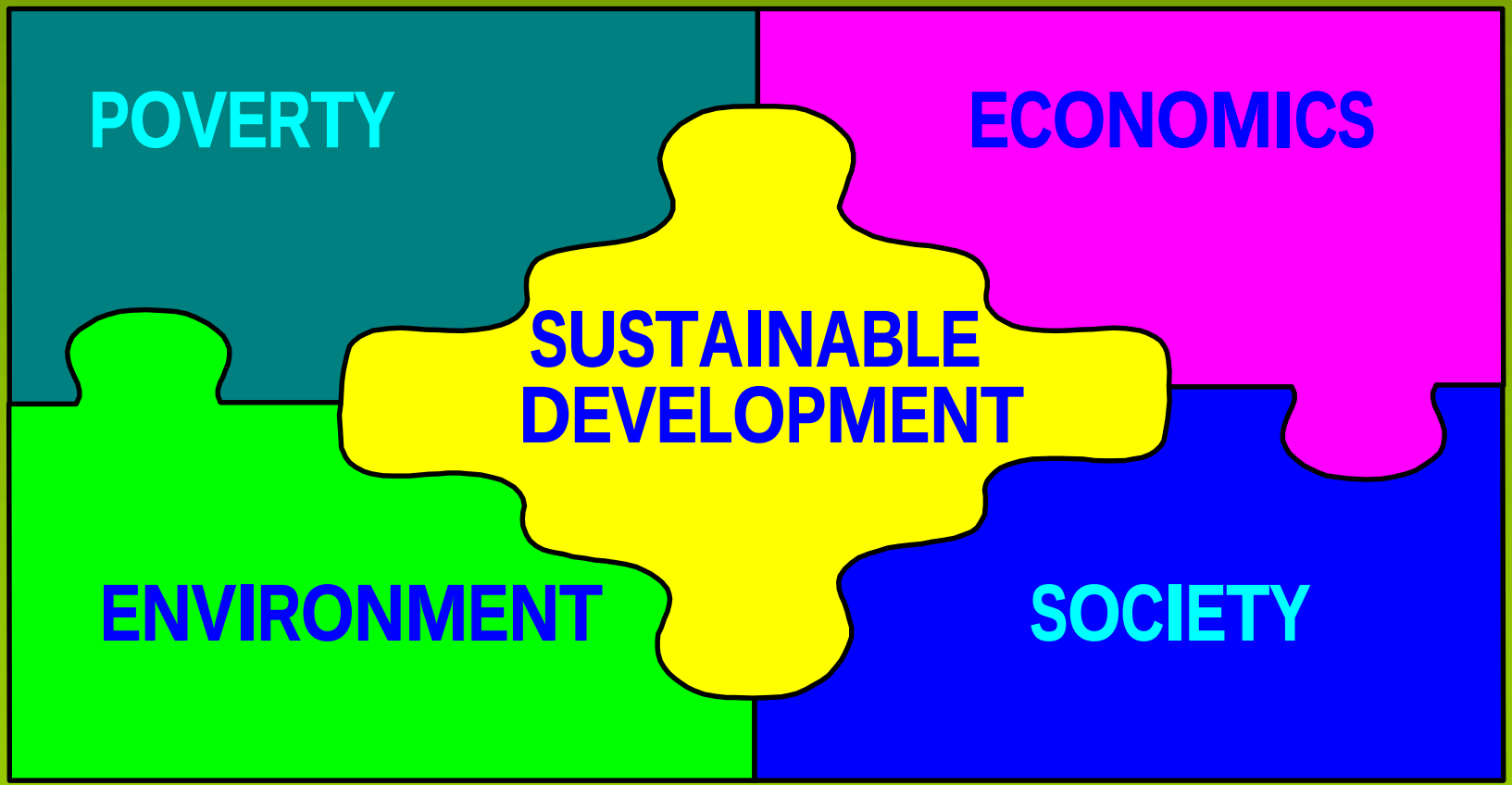
Unsustainable Attitudes and Beliefs

- When humans forget we are children of nature and instead believe we can dominate nature
- Taking from nature without caring for and replenishing it
- Caring for the environment is someone else's responsibility

A Cynic's Viewpoint

Sustainable development is an oxymoron, a contradiction, a justification for 'business as usual'

Pieces of the Puzzle



Conventional Economics

- Definition: Economics is the science of the production and distribution of wealth
- Economics is about making money by minimizing costs and maximizing benefits (to investors)

The world has enough for everyone's need, but not enough for everyone's greed

(Mahatma Ghandi)

An Economics Perspective

- Economics analyses the most efficient allocation of resources given the current distribution of assets among people
- Not concerned with value judgements, fairness
- Demand and availability determine price
- New reserves of raw materials or substitutes will become available when the price is right
- Known reserves of ‘non-renewables’ continue to grow despite gloomy predictions

Economics Fundamentals

- Natural and social environments have no intrinsic economic value
- Externalise as much cost as possible
- Use high discount rates (short return on investment time) so long-term costs and damages are discounted away

More Economics Logic

- Why should this generation suffer to increase prospects for future generations?
- Only improved economic status and security will free people to improve environment
- Precautionary principle is too conservative - requires costly action now; why not wait until technology has been developed to solve a more clearly defined problem (if any) later, e.g., global warming

Internalities and Externalities

- Economics usually treats the environment and natural resources as ‘free goods’
- Fails to adequately value natural capital
- Ecosystems subsidize the economy
- Costs are passed to society, other countries, or future generations
- Full cost accounting includes all internal and external costs associated with development - total value of a resource

Examples of Externalities

- Overuse of pesticides and fertilizers in agriculture externalises costs for contamination of food, surface and ground-water, and for soil depletion, loss of pollinators, human health
- Resettlement of residents for reservoir flooding externalises costs of their impoverishment due to loss of fishery, agriculture, fuelwood availability, traditional means of existence

More Externalities

- An industrial plant discharges untreated wastewater to a river upstream of a local fishery, a resort hotel, and drinking water intake. Costs of waste disposal are externalised
- A logging company clearcuts forest but removes only the best logs and burns the residues. Costs of lost forest values - food, medicines, shelter, biodiversity - passed on to society

Consequences of Conventional Economics

Why development has not been sustainable to date:

- Depletion of non-renewable resources
- Drawing down natural capital
- Focus on present least cost, highest price regardless of long-term costs
- Enriches a few at the expense of many
- Human nature and needs

Alternatives to Conventional Economics

- Development starts with people, education, organization, self-discipline, not with goods
- Use appropriate technology; “technology with a human face” - dignified, fulfilling work
- Recognise that nature conducts its own economic activity - produces and converts resources; purifies air and water; influences climate; provides tourist destinations

More Alternative Economics

- Focus on village development
- Ensure local resource management rights are not usurped (i.e., either ignored or effectively taken away) by local elites or powerful external interests
- Introduce rental, lease, or harvesting rights for local people
- Life-cycle costing for resource use and manufactured goods

Buddhist Principles of Sustainability

- Rhythms of nature, human intervention, and society should flow together in harmony
- Wholeness of all things in inter-relationship - One exists in the All, and All exists in the One
- Non-violence, gratitude to all living things
- Natural resources are life-support systems
- Wisdom must dominate desire (which always runs faster)
- Care and nurture rather than domination and exploitation

Buddhist Economics

- Value growth to the point of sufficiency
- Aim for optimal consumption (not maximum as in conventional economics)
- Do not violate nature
- Waste nothing
- Strive for a ‘right livelihood’

The Sustainable Development Journey

Sustainable development is a journey, not a destination… and there are no short cuts

Vehicles for the Sustainable Development Journey

- Visionary policies
- Cross-sectoral legislation and institutions
- Integrated Resource and Environmental Management (IREM)
- Cumulative Effects Assessment (CEA)
- Strategic Environmental Assessment (SEA)
- Environmental awareness and public participation in decisions

Questions

How do we:

- Prepare for the journey towards sustainable development?
- Decide what are the important issues?
- Know when we're going in the right direction, moving towards sustainable development?
- Measure progress towards sustainable development?

Preparing for the Journey Towards Sustainable Development

- Policy Setting
- Enabling Legislation
- Institutional Reform

Some Policy Remedies

- Set prices consistent with sustainability, e.g., for energy, transportation, forests, water use, fisheries, land use, waste discharges
- Offer incentives for sustainable development
- Rearrange societal priorities - focus primarily on poverty
- Adjust discount rate to properly value long-term environmental costs
- Engage public (stakeholder) participation in policy and decision making

Policies Specific to Poverty

- Protect current access by poor people to natural resources
- Protect the environment on which the poor depend from pollution by industry
- Develop emergency response programs for the poor during natural disasters
- Transfer ownership of natural assets to the poor and confer property rights in law

Polices Specific to Poverty (Cont'd)

- Co-invest in, and co-manage, natural resources with the poor
- Emphasise small-scale (appropriate) technology for rural development
- Engage the poor in resource development planning: decentralised, people-focussed partnerships
- Implement policies with accountability, responsibility, transparency, gender equality

Legal and Institutional Remedies

- Build legislation and organizational structures on sound principles and policies
- Integrate and harmonise environmental and development laws, policies, strategies, plans, and the institutions administering them
- Ensure those affected by development have influence on decisions, and an equitable share in the rewards

Other Legal and Institutional Remedies

- Emphasise long-term perspectives and cross-sector integration at ecosystem and watershed levels and across national boundaries
- Strengthen enforcement of environmental laws
- Apply the principle that:
  - Polluter pays
  - Resource user pays
- Eliminate administrative fragmentation, duplication, and competition

How to Decide What is Important?

- Cumulative Effects Assessment (CEA)
- Strategic Environmental Assessment (SEA)

Cumulative Effects Assessment

Definitions:

Cumulative = Accumulation = Add Together

➔ CEA is a process for identifying and evaluating the additive and interactive effects of human activities on complete ecosystems over time

The Importance of CEA in the Mekong River Basin

- Guide Mekong River Commission (MRC) in fulfilling its mission to coordinate sustainable development in the MRB
- Raise awareness of the interdependence of each riparian country's development plans
- Promote responsive, responsible, and mutually beneficial development in the MRB

Examples of Possible CEA

Cumulative effects on MRB ecosystems of:

- Logging in Lao PDR
- A dam on a Mekong tributary in Lao PDR
- Removal of flooded forest trees in Cambodia
- Illegal fishing and logging in Cambodia
- Removal of mangrove forests in Vietnam
- Overuse of pesticides in Mekong Delta
- Mekong tributary diversion in Thailand
- Industrial discharges in Northeast Thailand

Strategic Environmental Assessment

- SEA is the systematic evaluation of the environmental consequences of proposed policy, legislation, or program plans
- SEA is designed to guide or correct policy, legislative and planning decisions to ensure overall ecosystem health

Looking at the Big Picture

- SEA takes a ‘satellite level’ overview of the potential effects of policies and legislation
- Allows riparian countries and the MRC to assess the long-term consequences of proposed courses of action to ensure they will be mutually beneficial
- Provides early warning of potential problems or conflicts
- Focus is on prevention

Advantages of SEA

- Transcends traditional levels of government, sector boundaries, and individual country frontiers for the greater good of all
- Permits riparian countries to harmonize development policies and legislative plans to promote overall sustainability in the MRB
- Assists in setting sustainable development priorities and limits

How Do We Know When We're on the Right Track?

- Integrated Resource and Environmental Management (IREM)

Integrated Resource and Environmental Management

- IREM takes a holistic view of managing natural resources by integrating ecological, social, and economic criteria
- Takes account of interdependencies
- Emphasis is to protect and, where possible, enhance ecosystems, and to prevent their degradation
- Purpose is long-term viability of ecosystems for well-being of future generations

Integrated Resource and Environmental Management (Cont'd)

- Geographic scope covers entire MRB watershed; extends across country boundaries
- Engages cross-sector teams:
  - stakeholders, the public
  - environmental and natural scientists
  - economists, agronomists, foresters
  - engineers, fisheries specialists
  - social scientists, anthropoligists
  - policy makers, legislators, and managers

Some Measures of Sustainable Development

- UNDP Human Development Index (HDI)
- IUCN Barometer of Sustainability

UNDP Human Development Index

- Emphasis is on human well-being as the goal of development
- Contrasts with conventional target of material wealth as the measure of progress
- Places people at the centre of economic and political change

UNDP Human Development Index (Cont'd)

Attempts to measure whether the combined natural, social, physical, human, financial environment is conducive to people, collectively and individually, developing to their full potential, and leading productive and creative lives in accordance with their needs, talents, and interests

Criteria for Human Development Index

- Life expectancy
  - a measure of overall health, nutrition, and opportunity to develop talents and achieve life goals
- Education and knowledge measured by adult literacy and years of schooling
  - enables people to realise their potential
- Income, measured as per capita GDP adjusted for purchasing power and exchange rate distortions (real GDP)

MRB Riparian Country Human Development Index Rankings

THAILAND 74

VIETNAM 115

LAO PDR 141

CAMBODIA 148

out of 174 countries

IUCN Barometer of Sustainability

- Developed by International Union for the Conservation of Nature and Natural Resources (IUCN)
- Tool to measure a society's well-being and progress towards sustainability
- Combines ratings for diverse indicators of ecosystem and human well-being

Examples of Indicators

Ecosystem:

- Water supply, water quality
- Forested area, pressure on forests
- Species diversity, endangered species

People:

- Health, personal security
- Literacy, education, gender equity
- Income, property ownership

MRC Raison D'Être

The Mekong River Basin and the related natural resources and environment are natural assets of immense value to all the riparian countries for the economic and social well-being and living standards of their peoples

From 1995 Cooperation Agreement on Sustainable Development of the MRB

Mekong River Basin Vision

AN ECONOMICALLY PROSPEROUS,
SOCIALLY JUST, AND
ENVIRONMENTALLY SOUND
MEKONG RIVER BASIN

MRC Mission Statement

To promote and coordinate sustainable management and development of water and related resources for the countries' mutual benefit and the peoples' well-being by implementing strategic programmes and activities and providing scientific information and policy advice

MRC Programmes for Sustainable Development

- CORE PROGRAMMES
  - Basin Development Plan
  - Water Utilization Programme
  - Environment Programme
- SECTOR PROGRAMMES
  - Fisheries
  - Agriculture, Irrigation, and Forestry
  - Water Resources and Hydrology
  - Navigation
  - Tourism
  - Human Resources Development

Basin Development Plan

- Institutionalise planning for responsible management and sustainable development of MRB resources
- Balance socio-economic development and environmental concerns
- Create development framework based on technical knowledge and input from ‘concerned parties’
- Foster cooperation between stakeholders

Water Utilization Programme

- Support sustainable management of water resources in lower MRB
- Ensure mutually beneficial water utilization
- Maintain ecological balance
- Develop integrated knowledge base and hydrological modelling
- Create rules governing water use in MRB
- Enhance institutional capacity of MRC and National Mekong Committees (NMC)

Environment Programme

- Focus on people in the MRB
- Balance economic development with environmental conservation for the benefit of MRB inhabitants
- Establish systems to:
  - monitor environmental health of MRB
  - improve policy and legislation
  - improve riparian country cooperation
  - increase public environmental awareness

Concluding Thoughts

Important points to remember are:

- Human activities are creating unsustainable impacts on the ecology of the MRB in forests, fisheries, agriculture, river impoundments, wetlands, urban expansion
- Depletion of natural resources in the MRB threatens the livelihood of millions of people
- Sustainable development depends on preserving healthy land and water resources

Concluding Thoughts (Cont'd)

Additional points to remember are:

- The need to re-think freshwater resources management is one of the greatest challenges facing the world in the new century
- 'Business as usual' is neither feasible nor desirable
- Must find ways to share water resources equitably and sustainably, meeting the needs of people, the environment, and economic development

Concluding Thoughts (Cont'd)

More points to remember are:

- Sustainable development is founded on sound policies concerning the economy, natural resource use, pricing, incentives, poverty relief, environment, technology, individual and community rights
- Enabling legislation will be based on these principles and will focus on integrating enviromental and development laws, and on a just distribution of costs and benefits

Concluding Thoughts (Cont'd)

Yet more points to remember are:

- CEA and SEA are tools to identify and evaluate regional key indicators of sustainable development
- IREM integrates many disciplines to provide holistic ecosystem management
- Indexes of sustainable development incorporating ecosystem and human measures help to monitor progress and rate countries' performance

Concluding Thoughts (Cont'd)

Final points to remember are:

- The MRC has defined its role in promoting sustainable development in the MRB through core and sector programme objectives
- Programmes emphasise people-focussed development through cooperative planning of river basin activities, environmental awareness, and recognition of the interdependence of all sectors in the MRB
- Goals are to balance socio-economic and environmental concerns, and achieve mutually sustainable benefits for riparian countries