Current situation: everyone agrees on

- the fact that agricultural inputs should be intensified > efficiency of resources use in agriculture is needed!
- crop yields are already being affected by water shortages > need to ensure availability for agriculture but also less water requiring crops!
- dams are already multipurpose > it is a matter of agreeing on operation
- the environment should receive more attention from the government
- there are many socio-economic challenges that the population living in the basin is facing/will face
- Energy security is a concern
- energy related activities affect the basin, both in terms of quality of water and water flow alteration

(from the questionnaire)
2 big issues

• Water quantity: seasonal need and availability different for different sectors – availability for downstream ecosystems

• Water quality: all economic sectors contribute to pollution
Power production regime of dams

Energy in upstream countries

Energy security

Less water available for environmental needs

Needs of water in growing season

Impact on agricultural needs downstream

Water needs for agriculture

CLIMATE and ENVIRONMENT

ECOSYSTEM SERVICES

WATER

LAND USE
CLIMATE and ENVIRONMENT

ENERGY

ECOSYSTEM SERVICES

WATER

LAND USE

Water efficiency for all other users

Water reuse and efficiency in agriculture

REDUCES PRESSURE ON HYDROPOWER

MORE ENERGY AVAILABLE TO TRADE

Alternatives in the energy sectors of upstream countries

Improve energy efficiency / optimize demand

MORE WATER AVAILABLE DOWNSTREAM

MORE ENERGY AVAILABLE TO TRADE

Improve trade within CAPS

HIGHER PRODUCTION PER UNIT OF WATER

Water enriched with nutrients

Improve trade within CAPS

Improve energy efficiency / optimize demand

MORE WATER AVAILABLE TO TRADE

Reduced pressure on hydropower

More energy available to trade
Unsustainable practices in energy sector e.g. coal mining

Lack of wastewater treatment (Sanitation) causes risks downstream

Risks for direct uses downstream

Negative impact on soil/water

Negative impact on land/soil and water quality

Unsustainable practices in agriculture
Ensure environmental responsibility in the energy sector (e.g. polluter pays and user pays)

**CLIMATE and ENVIRONMENT**

- LESS SALINIZATION
- LESS MINERALIZATION

Improve wastewater treatment

**ECOSYSTEM SERVICES**

- BETTER SOIL AND WATER QUALITY
- MORE NATURAL INFRASTRUCTURE TO PROTECT FROM NATURAL RISKS

**WATER**

- BETTER QUALITY FOR DIRECT USES DOWNSTREAM

Improve drainage, reduce water logging

**LAND USE**
How will these interlinkages evolve in the future according to commonly agreed trends?
Trends that everyone agrees on

• agriculture is vulnerable to natural extreme events > it is important to improve resilience / capacity to cope with extreme events!
• energy demand will increase significantly > demand needs to be better managed and trade should be improved (review inter-state agreements)

(from the questionnaire)
Power production regime of dams

Energy security in upstream countries

Energy

CLIMATE and ENVIRONMENT

ECOSYSTEM SERVICES

WATER

Needs of water in growing season

Less water available for environmental needs

LAND USE

Impact on agricultural needs downstream

Water needs for agriculture
Energy security in upstream countries

Higher impact on the environment

Higher water needs for agriculture
Potential solutions/measures to limit trade-offs associated with the interlinkages
Farmers

Water Use Efficiency

• Support/incentives for the use of water-saving technologies
  – Tax exemption
  – Free provision of technology/ training
  – Investment in research and development
• Promotion of wastewater reuse in agriculture*
  – Infrastructure investments
  – Training/ capacity building
• Tariffs and pricing of water
• Metering of water consumption
• Crop substitution (less water-intensive crops)

*provides farmer with nutrient-rich water as well as the opportunity to produce bioenergy; requires rigorous quality control
Energy Use Efficiency

- Support/incentives for the use of energy-saving technologies
  - Tax exemption
  - Free provision of technology/ training
  - Investment in research and development
- Update machinery with high fuel consumption
- Promotion and training on the optimisation of fertilizer use
- Energy audits
Farmers

Soil and Water Quality Improvements

• Change of agricultural practices
  – Improve drainage, reduce water logging
  – Crop rotation and diversification to build up soil matter
  – Conservation tillage
  – Contour farming

• Capture and treat wastewater
• Reduce fertilizer and pesticide input and hence, agricultural run-off
Industry, Commercial Users and Households

Water Use Efficiency
• Support/incentives for the use of water-efficient technologies
  – Tax exemption
  – Free provision of technology/ training
  – Investment in research and development
• Support wastewater treatment and reuse in industries
• Phased water pricing (according to income groups)
• Volumetric tariffs
• Awareness raising for behavioural change
Industry, Commercial Users and Households

Energy Use Efficiency

• Support/incentives for the use of energy-saving technologies
  – Tax exemption
  – Free provision of technology/ training
  – Investment in research and development

• Review subsidies for energy
• Different tariffs for different users; all contribute towards costs
• Incentivize energy consumption at non-peak times
• Awareness raising for behavioural change
Energy sector

• Incentives to invest in improving infrastructure
  – Tariff reforms to make energy production more profitable
  – Long term tax exemption
• Incentives to invest in off grid solutions / renewables
  – Feed-in tariffs
• Improve trade of electricity and fossil fuels
  – Invest in better connections / reducing losses in the grid
  – New Cooperation Agreement
Intersectoral

- Strengthening the legal basis for cooperation
- Investments into modernising infrastructure
- Facilitating resource trade and exchange
- Sustainable financing for operating and financing multi-purpose water systems/infrastructure
- Improving planning processes and monitoring
- Strengthening intersectoral coordination e.g. through existing national strategies on green economy, sustainable development etc.; promoting multi sector participation in regional bodies
- Awareness-raising and capacity building
- Promoting SEA & EIA
Questions to the plenary

• What is already in place?
• Does it work? What good and bad experiences to share?
• Who can do what?