

Water Security and Resources Management

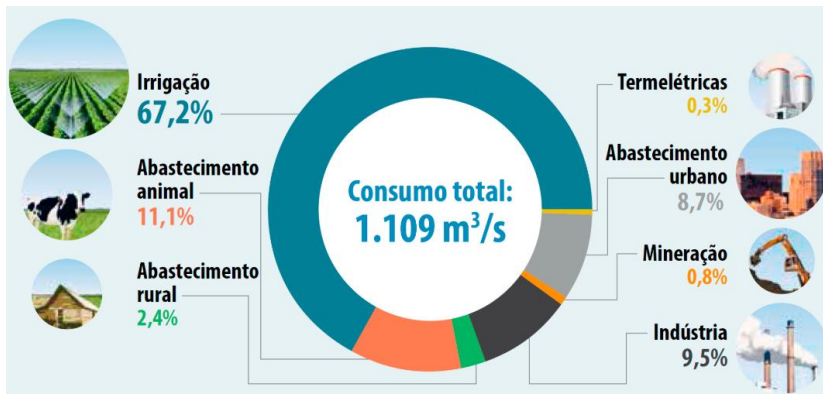
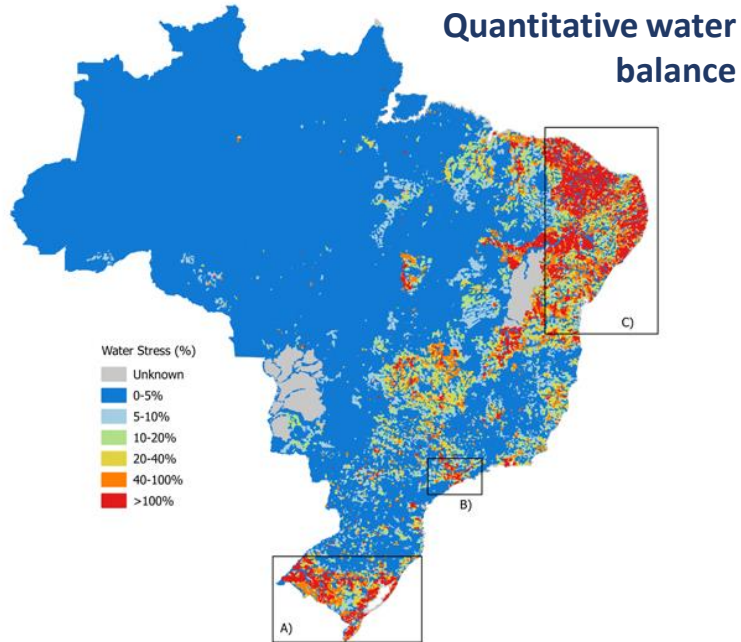


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I. Key Sectoral Challenges

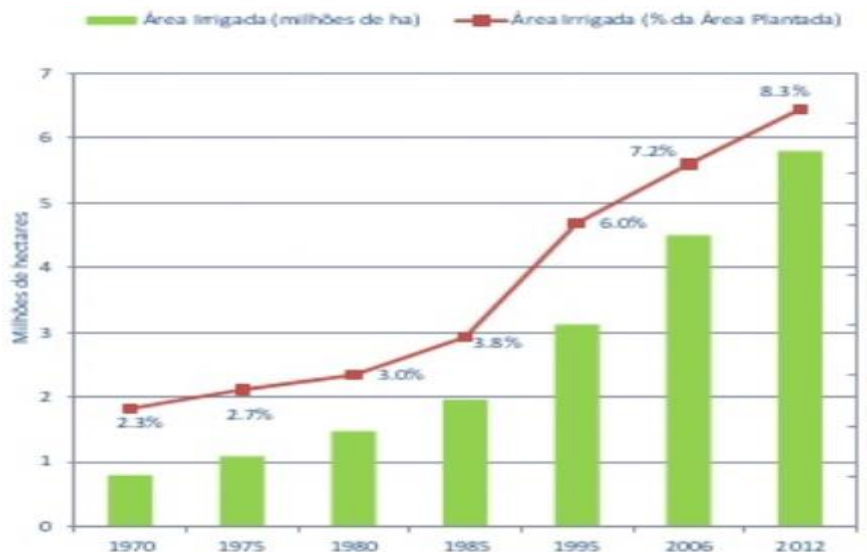
Water scarcity and floods: an increasing problem in Brazil



- Brazil has 12% of world's water resources, but 70% in Amazon Basin
 - Large spatial and temporal variability in availability
 - Northeast: 1.460 m³ per person/year
 - Amazon Basin: 634.887 m³ per person/year
- **Water scarcity is an increasing problem:**
 - Northeast: Low hydrological availability (historic)
 - Southeast & center-west: agriculture expansion and irrigation
 - Metropolises: high demand and depletion (SP, RJ & DF)
- Together with droughts, floods account for 84% of all natural disasters, about US\$2.4 billion in losses each year (1995-2014)
- Water losses are high (40%) and only about 57% of population is connected to sewage
- Water is an increasing constraint for growth and poverty reduction
- About 67% of water is consumed by agriculture and this percentage is increasing rapidly

I. Key Sectoral Challenges

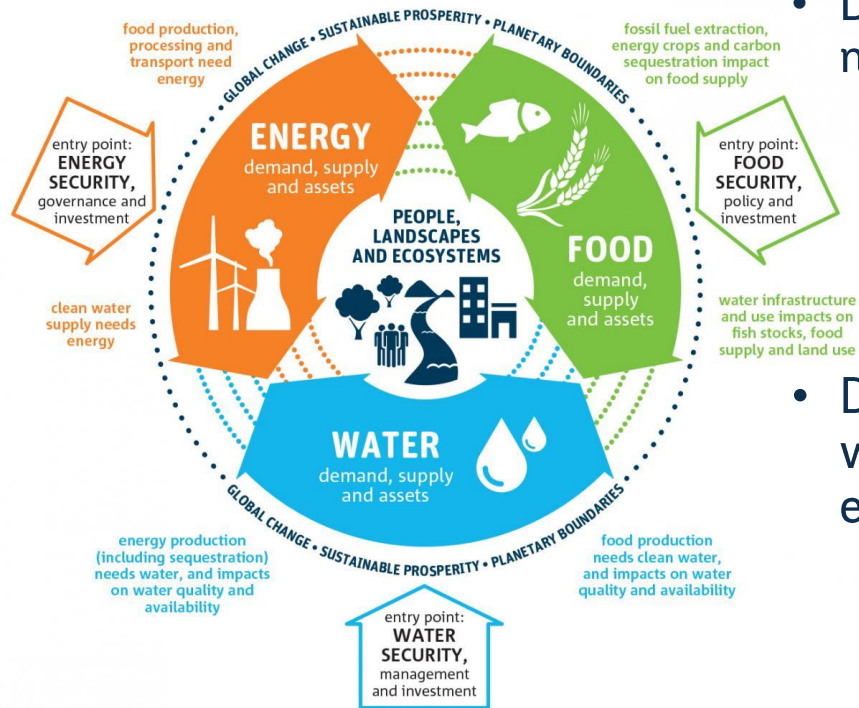
Despite progress, critical challenges remain...



- The scarcity of water is insufficiently recognized in regional development and economic policies
 - e.g., rapid agricultural expansion in semi-arid regions)
 - Lack of strategic planning
- Institutional framework is not effective and flexible in managing water resources in different realities in Brazil
 - Robust water management system in place, but...
 - Lack of coordination and overlapping responsibilities
 - Weak enforcement capacity and instruments
- Economic instruments and pricing mechanisms are difficult to implement affecting sustainability of use and services
 - Bulk water fees, especially for agriculture
 - Tariffs for water services that (at least) cover full O&M costs
- Lack of modern and complete water resources information system
 - Comprehensive database on water availability, allocation and use
 - Georeferenced monitoring systems to support decision making

II. Policy Recommendations

Improve Planning and Information Systems



- **Develop a comprehensive database and information systems for water resource management**
 - Understand risks droughts, scarcity and floods
 - Monitor availability and use of water in different basin
 - Start with most critical river basins (e.g. São Francisco,
 - Basis for planning and allocation process
- **Develop comprehensive water resource management plans in coordination with relevant stakeholders and based on availability of water, including ecological flows**
 - Energy, agriculture, livestock, industries, utilities, government, NGOs and community, etc.
 - Macro-allocation of water in normal and scarcity situations and conflict mediation mechanisms
 - Inputs for regional development and sectoral strategies (especially agriculture in semi-arid regions)
 - Agreements between institutions involved in implementation: monitoring and enforcement mechanisms, compensation, sanction and indemnities

II. Policy Recommendations

Strengthen Institutional Capacity and Coordination

- Bring WRM to a higher level in the national political agenda, clearly communicating information, results and benefits to society and to decision-makers
- Clarify the roles and responsibilities at the federal, state and municipal levels to allow for the required coordination in the context of joint responsibility under water resources management
 - Complementary Law to regulate competences of the union, states and municipalities.
- Consolidate the CNRH and the role of the Secretariat of Water Resources and Environmental Quality (SRHQ) of the Ministry of Environment
 - Council's Executive Secretariat and formulation of Water Resources Policy.
- Develop the state management agencies capacity with focus on improved human and financial resources and reduction of the political interference to ensure
 - State-wide monitoring of water use and quality
 - Detailed information on water demand and availability
 - Monitor and enforcement of water use allocation and rights
- Strengthen the role of river basin committees
 - Higher-level and more effective participation of relevant government representatives
 - Effective platform for dialogue between government, private sector and NGOs/community

II. Policy Recommendations

More efficient allocation and pricing mechanisms



- Establish water rights and charges methodologies to induce increased rational and efficient water use by sector and implement water efficiency programs
- Improve the implementation of bulk water charges at river basin level, ensuring both improved quality and expansion of charges implementation.
- Expand introduction of bulk water fees to signal water scarcity to users and motivate more rational use
 - Complement with water trading schemes
 - Provide funding for river basin and government organizations
- **Improve structure of water and sanitation tariffs to cover at least O&M costs and provide targeted social subsidies**
 - Reduce losses and improve efficiency of water use
 - Expand and improve quality of water and sanitation services
 - Sustainability of utilities and companies

II. Policy Recommendations

Summary of key messages



- **Brazil has abundant water resources but they are unequally distributed and poorly managed, increasing the risk of water stress in many regions of the country**
- **Improved water resource management requires policy action of four key fronts:**
 - Improved institutional coordination among agencies responsible for water management and users; allocation and strengthened capacity of water management institutions
 - Improved planning and information frameworks to understand water related risks, and ensure consistency with sectoral planning
 - Water Resource Management needs to become a national policy priority with high level inter-agency coordination
 - Greater use of water charges and water user rights in the allocation of scarce water resources to encourage rational use and ensure sustainability, as well as generate resources for investment in water management infrastructure and water saving technologies



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