

Integrated water resources management



The CACG has developed conceptual and operational approaches to implement balanced and integrated water resources management on basins. Our teams can provide the methods and tools needed to satisfy the water requirements within the available resources in the catchment area where you operate, as well as institutional services to promote participatory approach and build common decisions.

» THE CHALLENGES

As a public or private operator, you are involved in water management and you would like to...

-Know more about the quantities of water transiting through your area,
-List the water users so as to define current and future requirements (drinking water supply, industrial, irrigation or leisure uses, hydroelectricity...),
-Have a global vision of the water balance and the evolution in water resources and requirements,
-Anticipate risks of drought or flood, limit crisis situations, anticipate climate change
-Mediate between users to share resources as best as possible, implement control measures...,
-Define the organisation of water management operators,
-Establish your water management operational strategy.
-Perform real-time water management

...The CACG provides answers based on dialogue, using its extensive scientific expertise and recognised experience in studies and operational water management.



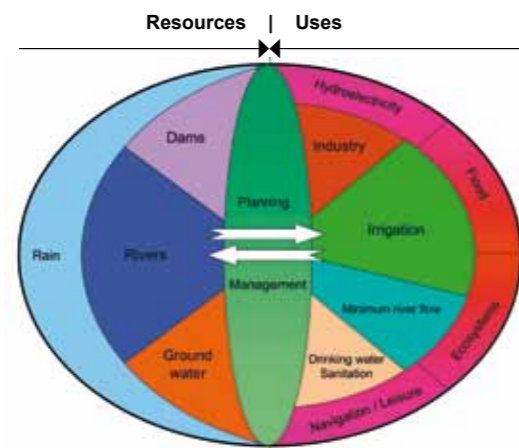
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With its exhaustive knowledge of water resources and requirements, the CACG can help you to draw up development plans and management scenarios guaranteeing a sustainable balance between water demand and availability.

» THE CACG PROVIDES

- **Targeted studies** on requirements and surface or groundwater resources ;
- **Modelling tools** to study the water balances on a catchment area and to simulate integrated water management resulting from selected scenarios;
- **Pinpoint evaluations** of your resources management strategy, of your monitoring system;
- **Advice for hydraulic works planning** : design and planning of new works, changes to water consumption practices
- **Water Management advice** : improvement in management practices, dialogue development, legislation expertise.



» OUR ADDED VALUE

Fifty years of operational management experience

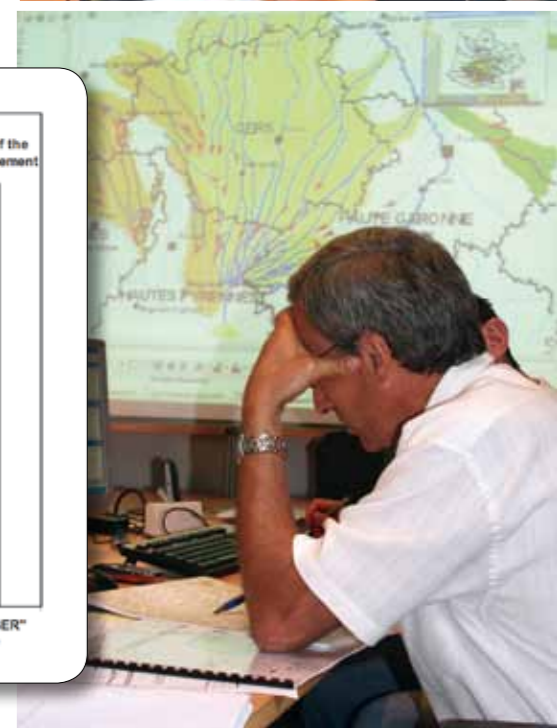
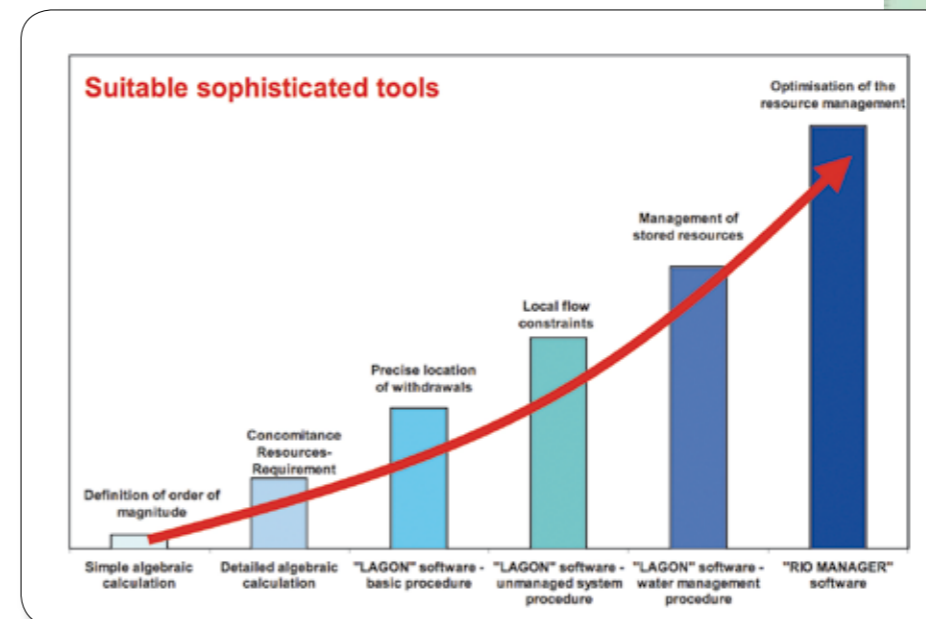
- The CACG manages dams and canals with an average water supply representing 500 millions of m³ per year.
- Management tools are developed and run every year on real catchment areas ; methods and softwares are regularly adjusted and implemented taking into account the feed-back of on-field experience.
- Steering committees, set up by basins, allow discussions and decision making among all stakeholders.
- Water contracts, between CACG and users allow accurate water management by setting up commonly accepted rules.

» A RANGE OF PRODUCTS TO MEET YOUR EXPECTATIONS

We adapt our services to meet your specific expectation : we adjust the geographical or temporal scale of our models with a reliable result so as to regard your deadline and price. In every case, we guarantee a global and integrated approach to suit the catchment area.

We can:

- Draw up an annual water resource-requirement balance for a large catchment area;
- Produce detailed analysis of such a balance with daily calculations and taking into account the exact locations of the withdrawals and supplies ;
- Simulate the management of stored resources to highlight any water deficit;
- Evaluate the economic and environmental benefits of planned hydraulic works and the relevance of their management strategy...
- Provide visual results using GIS softwares (mapping, dashboards, websites...);
- Design real-time decision-making tools: softwares for supply and requirements forecasting, hydraulic regulation and automation, monitoring of the hydrographic system...



» OUR PARTNERS

- The CACG frequently works with public authorities such as water basin authorities, with water operators, water basin managers, river unions...
- It also works as a consultant with regional public authorities helping to develop strategic actions plans.
- The CACG provides its support to project managers, water operators, utility managers and water consumers (irrigators) to help define and implement the best operational strategy.
- These skills are also regularly used by similar international organisations in Morocco and Senegal, for example.

» TEAM AND SKILLS

CACG's expertise on integrated water management is gathering:

- Hydrologic, hydrogeologic, hydraulic modeling expertise.
- Environmental expertise (impact assessment, water quality).
- Strong IT capabilities (software development, GIS, database management).
- Institutional expertise (participatory approach, water users associations, management agencies set up and capacity building).
- Operations and maintenance (real time water management, hydraulic infrastructures operations and maintenance).
- When additional expertise or local know how is needed, CACG can mobilize its strong network of French and international partners.

Our core skills help us to:

- Perform real time water management: CACG manages, on a day to day basis, an annual volume of 500 Mm³ water. To supply this water to users, 60 dams, 120 km of canals and over 450 probes (water level, water quality, rain meters), spread on 373 sites, are real-time monitored.
- 15 steering committees, gathering all stakeholders by basin, are the place where information provided by CACG and checked by administration is shared and decisions (pricing, water allocation) are made.
- Rio© software is used to acquire and reconcile data, then to model abstraction trends and finally suggest or directly command water release downstream dams, to balance water abstraction and maintain environmental flows along rivers courses.



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