Searching for new financing alternatives: The Chilean case.

Humberto Peña T (Chile)
Irrigation is relevant for the economic development of Chile, especially for its capacity to export. According to this, irrigation policy has undertaken the creation of new financial instruments, with the following objectives:

To assure the beneficiaries' financial copartnership.
To promote water efficiency and the use of the water resources in high profitable products.
To share the risks between private sector and the State.
To incorporate private financing.
To promote an efficient administration of water projects.
NEW FINANCIAL INSTRUMENTS

SMALL WATER WORKS:

- LAW ON DEVELOPMENT OF PRIVATE INVESTMENT IN IRRIGATION WORKS.

LARGE WATER WORKS:

- APPLICATION OF THE CONCESSION OF PUBLIC INFRAESTRUCTURE LAW
LAW ON DEVELOPMENT IN IRRIGATION WORKS. (SMALL WATER WORKS )

MAXIMUM COST OF PROJECTS: US$ 265,000 (SINGLE FARM)/ US$ 530,000 (GROUP OF FARMS)

- COSTS OF CONSTRUCTION ARE SHARED BY PRIVATE AND PUBLIC FUNDS.
- PUBLIC SUBSIDIES ARE ASSIGNED THROUGH AN OPEN, TRANSPARENT AND COMPETITIVE PROCEDURE.
- SUBSIDIES ARE GIVEN TO THE BENEFICIARY ONLY WHEN WORK IS OPERATIONAL.
- PRIVATE ENTERPRISES AND POOR FARMERS COMPETE SEPARATELY.
APPLICATION OF LAW ON DEVELOPMENT IN IRRIGATION WORKS.
(1993-2002)

- NUMBER OF APPROVED PROJECTS: 5,500 (40% OF THE APPLICATIONS)
- NUMBER OF BENEFICIARIES: 127,000
- TOTAL COSTS OF THE PROJECTS: US$ 307 MILLIONS
- PUBLIC SUBSIDY: US$ 179 MILLIONS
IMPACT OF LAW ON DEVELOPMENT IN IRRIGATION WORKS.

I. NEW SURFACES WITH ADVANCED IRRIGATION TECHNOLOGIES AND IRRIGATION AND DRAINAGE SYSTEMS

![Graph showing the impact of law on development in irrigation works over the years.]
II. INCREASE OF PRODUCTIVITY IN INFLUENCED AREAS.

- INCREASE OF PRODUCTIVITY: 94%
- INCREASE OF PROFITS: 303%

Agriculture restructuring
III. INCENTIVES TO INVESTMENT IN COMPLEMENTARY WORKS

- 34.0% Government Contributions
- 33.3% Farmers contributions to irrigation works
- 31.3% Farmers complementary investments
- 1.4% Operational expenses
  Law Nº 18.450

Following....
IV. CREATION OF NEW EMPLOYMENT

- INCREASE OF PERMANENT EMPLOYMENT: 108%
- INCREASE OF SEASONAL EMPLOYMENT: 182%

Following...
V. INVESTMENTS RENT

ECONOMIC EVALUATION IN MARKET PRICES.

- INTERN RETURN RATE (IRR): 33%
APPLICATION OF CONCESSION OF PUBLIC INFRASTRUCTURE LAW TO LARGE WATER WORKS.

- IT IS A BOT (BUILD-OPERATE AND TRANSFER) CONCESSION
- THE STATE PREPARES THE DESIGN OF WATER STRUCTURES.
- THE CONCESSIONAIRE MUST FINANCE, EXECUTE AND EXPLOIT THE WATER WORKS.
- DURING THE CONCESSION PERIOD (25 YEARS), THE CONCESSIONAIRE MUST:
  - BUILD THE PROJECT,
  - PROVIDE THE MAINTENANCE AND
  - DELIVER THE WATER SERVICES (CHARGING A RATE TO THE USERS).
- IT RECEIVES A SUBSIDY FROM THE STATE.
CONCESSION SERVICES

1. REQUIREMENTS

- Water storage and regulation from existing users
- Water storage, regulation and supply from new sources.
- Information to the water users (hydrological data, agriculture, new techniques)

2. OPTIONS

- Tourism and entertainment services
- Sales of agricultural supplies
- Hydroelectricity production and sale.

Regulated (maximum charge)
Regulated (maximum charge)
Non-regulated
Non-regulated
Non-regulated
Non-regulated
DETERMINING THE MAXIMUM WATER CHARGE ($ /m³ - year)

1. NEW AGRICULTURAL SCENARIOS

Forrajeras 19%
Cereales 23%
Chacras 4%
Hortalizas 8%
Viñas 20%
Frutales 26%

2. WILLINGNESS TO PAY

Real value of water transactions
Capacity of payment
Cost of other alternatives
BUSINESS DESIGN: ESTABLISHING THE SUBSIDIES

Resources financed by the concessionaire

Exploitation cost

Initial investment

Public subsidies

Business income

Min. IRR = 11%
RISKS ASSIGNMENT

DURING THE CONSTRUCTION:

- BUILDING OVER COST → CONCESSIONNAIRE
- EXPROPRIATION → STATE
- ENVIRONMENTAL OVER COST → CONCESSIONNAIRE

DURING THE EXPLOITATION:

- RISKS ON DEMANDS → CONCESSIONNAIRE
- RISKS ON RELATIONSHIP WITH USERS → CONCESSIONNAIRE
- RIKS ON EXTREME DROUGH → STATE
BIDDING AND SUBSIDIES

TWO TYPES OF SUBSIDIES ARE GIVEN:

- A FIXED BUILDING SUBSIDY (SFC)
- A VARIABLE SUBSIDY (SV), RELATED TO AGRICULTURAL SURFACE THAT IS DEVELOPED THROUGH WATER WORKS.

THE CONCESSION IS ASSIGNED TO THE OFFER WITH THE SMALLEST TOTAL SUBSIDY, IN PRESENT VALUE.
| **Objective** | 36,000 ha under 85% irrigation security |
| **Location** | VI Region, Colchagua Province |
| **Storage capacity** | 237 million m³ |
| **Estimated cost** | US$ 105 millions 75% approximated subsidy |

**Description of the project**

- Reservoir with a capacity of 237 million m³.
- Improvement of the main network of canals and construction of the network of canals.

**Beneficiary municipalities**

Chimbarongo, Chépica, Palmilla, Sta. Cruz, Nancagua, Pumanque and Lolol.

**Total beneficiary surface**

Improvement of 19,000 ha (Chimbarongo Valley) 17,000 ha new irrigation (Nilahue Valley)

**Economic indicators**

NPV (Social) MM US$ 85  
IRR(Social) 16%

**Situación Actual**

- Currently the concesión is under execution.
- Construction timeframe of 2 years.
- Initiation of the operation in 2008.