



BRAZILIAN COURT OF AUDIT
External Control Secretariat
Government Programs Control and Evaluation Secretariat

Executive Summaries

TCU Evaluation of the Irrigation and Drainage Program

Rapporteur
Minister Iram Saraiva

Brasília
2003

© Copyright 2003, Tribunal de Contas da União
Impresso no Brasil / Printed in Brazil

www.tcu.gov.br

To read the full Report, Vote, and Decision # 614/2002-TCU-Plenary,
access the TCU page on the INTERNET, at the following address:
www.tcu.gov.br/avaliacaodeprogramasdegoverno

Brazil. Brazilian Court of Audit.

TCU Evaluation of the Irrigation and Drainage Program / Brazilian
Court of Audit. - Brasília : TCU, Government Programs Control and
Evaluation Secretariat, 2003.

14p.- (Executives Summaries/TCU-SEPROG ; 4)

Original title: Avaliação do TCU sobre o Programa Irrigação e
Drenagem.

1. Irrigation - Brazil. 2. Drainage. I. Title. II. Series

Catalogued by Biblioteca Ministro Ruben Rosa



Brazilian Court of Audit

Ministers

Valmir Campelo, President
Adylson Motta, Vice President
Marcos Vilaça
Humberto Guimarães Souto
Walton Alencar Rodrigues
Guilherme Palmeira
Ubiratan Aguiar
Benjamin Zymler

Substitute Ministers

Lincoln Magalhães da Rocha
Augusto Sherman Cavalcanti
Marcos Bemquerer Costa

TCU Public Prosecutor's Office

Lucas Rocha Furtado, Prosecutor General
Jatir Batista da Cunha, Under Prosecutor General
Paulo Soares Bugarin, Under Prosecutor General
Ubaldo Alves Caldas, Under Prosecutor General
Maria Alzira Ferreira, Prosecutor
Marinus Eduardo de Vries Marsico, Prosecutor
Cristina Machado da Costa e Silva, Prosecutor

EDITORIAL RESPONSIBILITY

External Control Secretary General

Luciano Carlos Batista

Secretary of Government Programs Control and Evaluation

Marília Zinn Salvucci

Director of the 1st Technical Unit of SEPROG

Selma Maria Hayakawa Cunha Serpa

Manager of the External Control Improvement Project Focused on Reducing Social Inequality

Glória Maria Merola da Costa Barros

EDITING

General Director of the Serzedello Corrêa Institute

Paulo Roberto Wiechers Martins

Technical Director of the Documentation Center

Evelise Quadrado de Moraes

Head of the Editing and Publications Service - Sedip/ISC

Marcello Augusto Cardoso dos Santos

Layout and Electronic Editing

Ismael Soares Miguel

Cover Photo

Edison Watanabe

ENGLISH VERSION

Office of International Relations - ARINT

Sergio Freitas de Almeida

Proofreading

Liana Mattos de Mello

CONTACT

BRAZILIAN COURT OF AUDIT
Government Programs Control and
Evaluation Secretariat – SEPROG
SAFS Quadra 4 Lote 1
Edifício Anexo I, Sala 436
70.420-900 – Brasília-DF BRAZIL
seprog@tcu.gov.br

ORDERING INFORMATION

BRAZILIAN COURT OF AUDIT
Serzedello Corrêa Institute
Documentation Center
SAFS Quadra 4 Lote 1
Edifício Sede, Sala 056
70.420-900 – Brasília-DF BRAZIL
biblioteca@tcu.gov.br

Contents

Foreword to the English edition	7
Evaluation of the Irrigation and Drainage Program	8
What was evaluated?	9
Why was it evaluated?	9
How was the work developed?	9
What TCU found	10
Good practices	13
What can be done to improve the performance of the Irrigation and Drainage Program	14

FOREWORD TO THE ENGLISH EDITION

This series of publications contains the main information on the result of audits of social programs carried out by the TCU for the purpose of evaluating the performance of the Federal Government in areas that are strategic for Brazilian society. The activities were developed within the scope of the Brazil/UK Technical Cooperation Agreement, in force since 1998.

The aim of this document is to disseminate information about the action of the TCU, reporting the development of the audited programs and their main characteristics to the Supreme Audit Institutions and other pertinent international organizations.

This issue presents information on the TCU audit aimed at evaluating the performance of the Program Irrigation and Drainage, managed by the Water Infrastructure Secretariat of the Ministry of National Integration, by the Company for Development of the São Francisco and Parnaíba Valley – Codevasf and by the National Department of Works Against Droughts – DNOCS.

Valmir Campelo
Minister-President

Evaluation of the Irrigation and Drainage Program

The Brazilian Court of Audit carried out an audit from August to October of 2001 aimed at evaluating the performance of the Irrigation and Drainage Program, included in the 2000-2003 Pluriannual Plan. The Irrigation and Drainage Program is managed by the Water Infrastructure Secretariat of the Ministry of National Integration, by the Company for Development of the São Francisco and Parnaíba Valley - Codevasf and by the National Department of Works Against Droughts – DNOCS.

The objectives of the Irrigation and Drainage Program are:

- a) contribute to the sustained development of irrigated agriculture, privileging the interventions aimed at increasing job opportunities;
- b) contribute to the increase of income;
- c) reduce regional inequalities; and
- d) ensure competitiveness of the products, reducing external dependence and increasing their participation in increasingly competitive markets.

Two different situations were identified regarding the administration of the common use infrastructure (irrigation channels, hydraulic pumps, and others) of the irrigation perimeters implanted by the federal government: emancipated perimeters, that is, projects in which maintenance of infrastructure is the responsibility of the irrigators, and non-emancipated perimeters, where there is still transfer of public resources for maintenance and administration of the common use infrastructure. The administration of the non-emancipated perimeters is carried out by Codevasf, DNOCS and competent state bodies (in the case of the perimeters executed by the states through contracts with the Federal Government). This administration is carried out, in many of the irrigation perimeters, jointly with the Irrigation Districts or Associations of Irrigators - entities that represent the irrigators.

What was evaluated?

The irrigation perimeters supervised by Codevasf and DNOCS were evaluated in order to identify the factors responsible for their greater or lesser success, that is, their ability to fulfill the objectives of the Program; to detect good managerial practices, and to find appropriate means to disseminate them to the other irrigation perimeters.

Why was it evaluated?

Recognizing the importance of the Program for the development of the Brazilian semi-arid regions, in recent years the Court has been auditing irrigation projects implemented by the Federal Government through DNOCS, Codevasf or through the decentralization of resources by means of contracts with States and Municipalities. In these audits it was observed that the agencies involved act in an uncoordinated manner and that there are no performance evaluations that allow measurement of the results achieved.

How was the work developed?

The audit work was developed in three distinct stages. In the first one, the irrigation perimeters were classified according to success criteria such as: self-sustainability, income and employment generation, agricultural production, and others. Later a methodology for measuring efficiency called Analysis of Data Enclosure – DEA was applied¹, and the irrigation perimeters were classified again according to the efficiency rates obtained. When the two perimeter classifications were compared in order to validate them, a high correlation was found, allowing greater confidence as to the adequacy of the classification established by means of the initial criteria.

In the second stage, factors considered important for the success of an irrigation perimeter were investigated in more detail. To this end, a

¹ Efficiency meaning the greater capacity to generate products with the least amount of inputs.

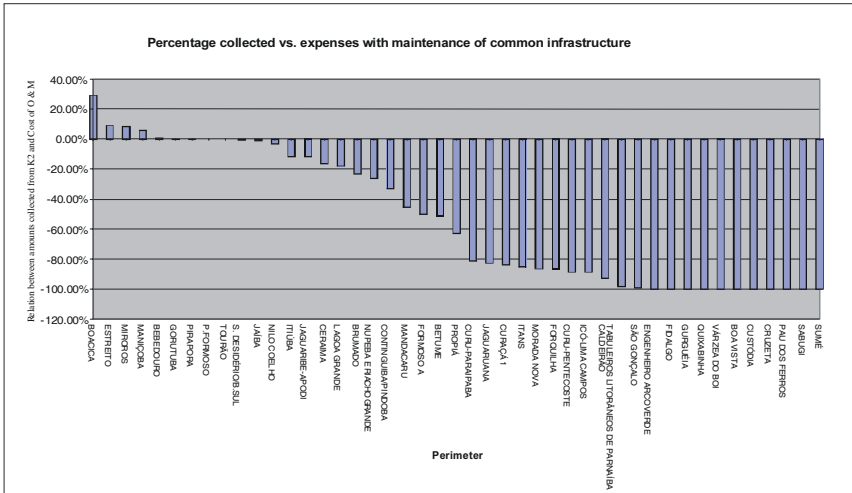
total of twelve irrigation perimeters, located in the States of Alagoas, Ceará, Pernambuco, Sergipe, Bahia, and Minas Gerais, were visited. They were selected according to their greater or lesser success. In these perimeters, family and enterprise irrigators, administrators and other parties involved were interviewed, as were the managers of local agencies of the Banks of Brazil and of the Northeast.

In the third stage, we analyzed ways to disseminate the best managerial practices observed in the case studies throughout the irrigation perimeters. Finally, recommendations were made. If they are implemented they will contribute to better performance of the Program.

What TCU found

The work revealed the existence of factors that hinder improvement of the performance of the irrigation perimeters. The following should be highlighted:

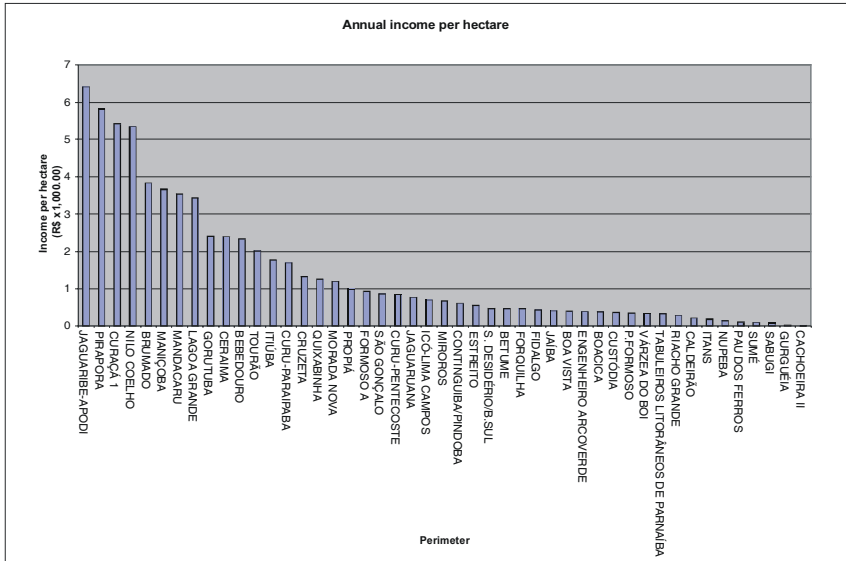
- a) insolvency of the irrigators regarding the investment amortization tariffs (K1) and maintenance of the common use infrastructure (K2);
- b) little integration between agencies responsible for irrigation-related actions;
- c) existence of large idle irrigable areas in the irrigation perimeters;
- d) little organization on the part of the irrigators for commercialization of their production;
- e) management deficiency of the Program;
- f) low level of self-sustainability of the perimeters (see graph below).



The graph above shows the percentile difference between the amounts collected from the tariff for common use infrastructure maintenance (K2) and maintenance and operation expenditures - M&O of the perimeter. Most of the perimeters register deficit in this ratio, demonstrating their low level of self-sustainability and dependence on public resources for their maintenance. The main reason for the constant need for transfers of public resources is the significant insolvency of the irrigators regarding the K1 and K2 tariffs owed to Codevasf and DNOCS. Some of these perimeters do not produce enough for their maintenance; however, some of them are great income generators (as can be seen in the graph below), which does not justify their dependence on public resources.

It was also important to verify the disparity of annual income between the various irrigation perimeters per irrigable hectare (graph presented below). This demonstrates the great differences in results achieved and the potential for improvement of the worse classified perimeters. The main causes identified for small income generation are: low production caused by lack of water in some perimeters, the presence of idle areas, low qualification and lack of organization of the irrigators and the plantation of subsistence cultures with low commercialization value. On the other hand, the main factors identified for the achievement of high income are: production aimed at exportation - mainly fruits, existence of enterprise

batches, good general infrastructure (transportation, electrification and others) and processing companies.



The graph above presents the income earned by the perimeters per irrigable hectare in the year of 2000. Idle areas have a strong negative impact on the result, since an area whose common use infrastructure is at least partially constructed is computed even though it is not producing. Thus, the idle irrigable areas identified in the irrigation perimeters of Codevasf and DNOCS add up to about 52,025 hectares, corresponding to an investment of approximately R\$1,352,650,000.00 already made in unproductive infrastructure.

The audit also questioned the insistence, mainly on the part of DNOCS, on maintenance of perimeters that are economically unfeasible. Analysis of the two graphs presented above shows several perimeters that do not manage to generate income and, as a result, cannot sustain themselves. It is necessary to study the extinction of some of these perimeters as well as payment of less costly compensatory actions to their irrigators. R\$ 75,176,236.00 are needed just for the repair of the

infrastructure of the problematic perimeters of DNOCS, without any perspective of improvement in their performances.

The work evidenced lack of integration between the actions of the Ministry of National Integration, DNOCS and Codevasf - both subordinated to the Ministry - and the actions taken by the state and municipal governments. This is reflected in the different actions of the bodies and in the lack of transportation and electrification infrastructure and lack of other local services in some cases. Moreover, some agencies that are important for the Program such as the Ministry of Agriculture and Supply, Bank of Brazil S/A and Bank of the Northeast of Brazil, do not work in an integrated manner with the executors of the irrigation policy.

Good practices

The work revealed the existence of positive practices in some perimeters, which contribute to the good results. We would like to highlight some of them: constitution of an endorsement fund (reserve that guarantees part of financing carried out) as a tool to facilitate access of the irrigator to bank credit; the selection of family and enterprise irrigators for the same perimeter as a way to improve culture techniques and to facilitate commercialization for the small producers; the construction of distribution centers for agricultural products close to the perimeters as a way to improve commercialization of those products for the irrigator; the selection of the irrigators according to criteria that favor their success such as previous irrigation experience, educational level and entrepreneurial ability; and the promotion of squads of irrigators to work on the maintenance of the drainage and irrigation channels. The TCU recommended that the executors of the Program disseminate such practices throughout the perimeters.

What can be done to improve the performance of the Irrigation and Drainage Program

The importance attributed to the Irrigation and Drainage Program in the development of the Brazilian semi-arid can be estimated by the volume of resources allocated to the Program in the General Federal Budget: R\$ 457,369,797.00, just in the year 2001. The huge amount of public resources already invested in this Program in the last three decades must also be considered. Finally, in face of the need to ensure the success of the irrigation perimeters, the Court made the following recommendations to the Ministry of National Integration, to Codevasf and to DNOCS, among others:

- a) adoption of measures aimed at strengthening management by means of systematic and objective overseeing of the results achieved by the irrigation perimeters that have received federal resources;
- b) incentive to the creation of associations of family irrigators in order to improve their financial results;
- c) adoption of measures to allow greater accessibility to credit;
- d) increase the use of idle irrigable areas;
- e) decrease the need for public transfers, by means of effective collection of the water tax and the emancipation of the perimeters that already have the means for self-sustainability;
- f) reduction of the time needed for the economic emancipation of the perimeters;
- g) dissemination of the good practices detected.

The Brazilian Court of Audit will monitor the implementation of the recommendations in order to ensure that the problems raised by the audit will be addressed effectively.