

Irrigation Investment and Management Transfer in Colombia

by Jorge Ramirez¹

ABSTRACT

AFTER WORKING AS Chief of Agricultural Planning for the Colombian Government, and having the opportunity to write the new irrigation policy, I became the new Director General of the National Irrigation Institute (HIMAT) in charge of its implementation. The following discussion paper describes my own experience as the leader of the new irrigation law, and the implementation of the new irrigation policy of President Gaviria.

Unlike some Asian and African countries where irrigation has a long history and has proven to be a necessary input in agricultural production, investment in irrigation in Colombia has had only a comparatively short period, and only recently has its importance had been highlighted. Although there is evidence that some native Indians have used some type of simple irrigation structures, the oldest large district in Colombia was built at the end of the nineteenth century, by an American trading company, the United Fruit Company.

This discussion paper, besides showing the recent history of irrigation investment in the country, describes the new irrigation policy and its effect on current management of the existing irrigation schemes. In addition to this, it presents some of the constraints found in transferring the management of these systems to the users, and some considerations on the role of irrigation investment in the development of the agricultural sector of Colombia.

INTRODUCTION

Unlike some Asian and African countries where irrigation has had a long history and has proven to be a necessary input in agricultural production, investment in irrigation in Colombia has had only a comparatively short period, and only recently has its importance been highlighted. Although there is evidence that some native Indians have used some type of simple irrigation structures, the oldest irrigation district in Colombia was built at the end of the nineteenth century, by an American trading company, the United Fruit Company.

The process of "apertura,"² or liberalization started in 1990 and has begun to influence agricultural production. Dismantling of the price support structure, exposure of Colombian farmers to competition from imports, and declining international prices, have together resulted in negative growth in the crop sector. Annual crop areas remained at low levels caused by the 1992 drought. Irrigation has been considered, during the period of President Gaviria in the early 1990s, as a strategic instrument not only to increase the welfare conditions of some rural people of the country, but also to give more possibilities to commercial agriculture in local and international markets.

Besides showing the recent history of irrigation investment in the country, this discussion paper describes the new irrigation policy and its effect on current management of the existing irrigation schemes. It also attempts to explain the lack of interest in new irrigation investment during the seventies and eighties. And in addition to this, it presents some of the constraints found in transferring the management of these systems to the users, and some reflections on the role of irrigation investment in the development of the agriculture sector of Colombia.

PAST INVESTMENT IN IRRIGATION

Colombia has an estimated 18.3 million hectares of cultivated land of which 7.4 million hectares (ha) are either irrigable or would benefit from drainage. In 1990, only an estimated 2.9 million ha were used for arable crops and just over a further 0.9 million supported perennial or semi-permanent crops. Only about 750,000 hectares of cropland are equipped for irrigation and drainage.

¹President of FINDETER, Financiera de Desarrollo Territorial, and former Director General of HIMAT.

²Name given to the new economic model of opening the economy to international markets and removing most of the agricultural subsidies, tariffs and barriers.

Private Irrigation

Colombia's earliest modern irrigation was built privately, by the United Fruit Company in the 1980s. From then until the 1960s irrigation development continued to be largely private. Subsequently, private irrigation expanded at an average rate of around 10,000 ha/year, with an investment rate of US\$3 to US\$8 million/year.

The 463,000 ha in private irrigation currently occupy just over 60 percent of the total national irrigated area. Almost all the sugarcane, export bananas and flowers, and significant areas in rice, sorghum, soybeans, cotton and oil palm, are under private irrigation. The cost of developing one irrigated hectare ranges from US\$1,000 to US\$2,700 at present, depending on how sophisticated the systems are.

Public Irrigation

Public involvement in irrigation dates from around 1950, and was given a major stimulus by the Agrarian Reform Law of 1962. The land reform agency, INCORA, sought in irrigation and drainage projects a means of alleviating Colombia's massive and socially disruptive problems of rural poverty. Some marginal lands were expropriated from large landowners for irrigation and redistribution to the poor, and at the same time whole areas were also equipped by the government with primary irrigation or drainage infrastructure. This strategy made it possible to obtain external financing from the World Bank and elsewhere.

By 1976, land reform had assumed a lower political profile and the government sought to separate it from irrigation development. Administration of the public irrigation/drainage districts was transferred to HIMAT.³ The 22 districts at present under HIMAT sponsorship total about 337,000 ha with 62 percent of farms under 5 ha.

The land reform law of 1962 allowed the government to impose cropping plans with irrigators under threat of expropriation, as well as to provide all support and O&M services. By 1976, when HIMAT took over the INCORA districts, scheme deterioration and high costs, particularly of excessive staff, led irrigators in two districts to propose transferring O&M to themselves. Seven out of the 22 HIMAT districts are now run by users' associations under delegated authority agreements which, however, still leave HIMAT with the right to review major tariff, staffing and other decisions by the users. The other fifteen districts remain under direct HIMAT administration.

Some analysts have argued that in Colombia a paradox exists in irrigation investment. They say that alongside the deficient performance of public-sponsored irrigation schemes, a sizeable and efficient private irrigation sector has emerged. But this is clearly understood by looking carefully at the recent history of irrigation investment and by identifying the effects of implementing the old policy.

Most public schemes were developed by the land reform institute (INCORA) in the 1960s, a highly politicized institution, and by previously landless farmers with little experience and little interest in either agriculture or irrigated farming. INCORA's schemes were constructed in a great rush, and of the 260,000 ha developed, only 69 percent was fitted with on-farm infrastructure needed to take full advantage of the main works constructed. Twenty years after the construction of these districts, much of the tertiary infrastructure remains undeveloped. The supply-driven approach to developing these districts did not accomplish its objectives.

The very high subsidies given to basic agricultural products combined with the ones given to land reform beneficiaries for buying the land and for working capital, created what was obvious—no incentive for taking advantage of the irrigation districts given to them. Small farmers were assured of a stable and sufficient income level that, together with an inefficient technical transfer arrangement available to the government at that time, did not offer any incentive for developing tertiary infrastructure; paying for the cost of water, and for providing adequate operation and maintenance. This is why the current situation of these districts is one of poor operation and maintenance and one where farmers have been cultivating the same crops for years.

Another reason for the relatively poor productivity and returns of much publicly funded irrigation was that the schemes developed by INCORA did not initially give priority to economic objectives. Additionally, the crops that the farmers grew in the past were financially viable when large product subsidies existed. In the early 1990s, when the government of President Gaviria totally or partially removed agricultural subsidies, a number of crops became unprofitable. Farmers of old districts found themselves with a significant fall in their income levels and a great deal of uncertainty in terms of new market development under the new economic model of *apertura*. Adjusting cropping patterns and technologies to the new price structure is going to take some time.

Cost recovery on past investments in irrigation in Colombia has been based on the "Estatuto de Valorización," a tax on the difference in the historical values of land before and after the investment, plus a low interest rate charge. The amounts collected in the past have been very small. This mechanism has proven to be effective for developing

³Instituto Colombiano de Hidrología, Meteorología y Adecuación de Tierras, or the Colombian Institute for Hydrology Meteorology and Land Development. HIMAT administers the water resources of the country.

urban infrastructure but the experience in irrigation has been highly disappointing. This is why the new irrigation law develops an alternative cost recovery mechanism which ex-ante determines the amount the user has to pay, followed by an agreement between him and the developing agency on debt amortization scheduling and the collateral needed to guarantee his financial obligation.

THE SEVENTIES AND THE EIGHTIES: TWO LOST DECADES

The major puzzle in the history of irrigation investment in the country is why during the seventies and eighties almost nothing was done in terms of new irrigation investment and institutional strengthening. Most of the obvious deficiencies at that time were not dealt with or corrected. The main institutional effort was concentrated on rehabilitating existing systems with some doubtful results. In the next section of this discussion paper, an attempt is made to solve this puzzle.

Two major obstacles occurred, in my opinion, in both the demand and supply side of the irrigation investment equation during these decades that explain the negligence of the government in developing the irrigation sector efficiently. In the first place, the economic model that prevailed in the past and full or economic distortions within the agriculture sector, discouraged farmers from investing in irrigated agriculture, especially given the low profitability added by irrigation. This created no incentive whatsoever for the traditional pressure groups (i.e., Agricultural Producers Associations, SAC, and others) to have irrigation investment as part of their lobby agenda for the government.

From the supply side, the main agency responsible for the lack of irrigation capital in the country was the Multilateral Bank. In the past, most of the public investments in irrigation were developed with resources and the know-how brought to the country by the World Bank. During the seventies and eighties, the World Bank believed that Colombia should apply what was prescribed for other Asian and Latin American countries where their irrigation potential was mostly already developed. This was the recommendation to shift from building new irrigation systems to rehabilitating existing ones. Colombia at that time had more than 90 percent of its potential yet to be developed and at a lower cost compared to other countries (i.e., less than US\$2,000 per ha).

This decision to emphasize rehabilitating old systems was unproductive. For an irrigation district conceived under the old policy, with a high level of social and economic difficulties, it was unlikely to obtain an increase in the welfare conditions of the agricultural producers of these districts. Instead, new potential districts were not developed and had to wait until new policies and financial conditions arrived.

If one evaluates the success of the rehabilitation program launched by the government in the past and financed by the World Bank, just looking at the increase of welfare of the farmers living in the INCORA districts, one has to admit that the results of this program have been very far from expectations, despite the large amount of subsidies given to them. The poor results have been documented in different local studies,⁴ contrary to the favorable ex-post reviews given by the Project Completion Reports of the World Bank.

However, this program has achieved some degree of success in Coello and Saldana districts built in the 1950s, which had more production-oriented objectives than the traditional land distribution orientation that characterized INCORA's districts.

On the other hand, an important fact for the low level of private irrigation investment during these decades was a legal obstacle coming from the land reform law of 1962. This law established that any land that was developed under irrigation was potentially subject to government intervention for land reform. This meant that if a farmer wanted to develop irrigation on his land, he had to take the risk of having his land expropriated by the government for land redistribution purposes.

A NEW IRRIGATION POLICY IS BORN

The new irrigation policy recognizes that both private and public investment are necessary to engage in an ambitious development program. The complexity of some irrigation and drainage schemes provides a justification for state intervention and for subsidization of a part of investment costs. Without public intervention some relatively complex but economically worthwhile irrigation schemes would not be constructed for two main reasons. First, some developments require the construction of large intake works, with benefits and costs beyond those affecting the irrigation community. Second, the organizational and financial requirements of large water development schemes are often beyond the capability of private financial institutions.

The need to correct the mistakes made in the past gave birth to a long-awaited irrigation law—Ley de Adecuacion de Tierras No.41 of 1993 which has profoundly altered the nature of public involvement in irrigation in Colombia. Law

⁴See for example INCORA Evaluation Reports.

41 stipulates that public investments in irrigation and drainage can only be made in the future if there is demand on the part of the communities which will benefit by it. Potential beneficiaries are required to make prior commitments to form a users' association to take over public schemes once they are completed, to participate in planning, and to guarantee individually or via an association the commitment of their own complementary resources for minor and on-farm works. Public schemes should lie close to ports or other export routes, and to large consumption centers. These should show a rough balance among beneficiaries between small, medium and large landholdings, and bring social, economic and other types of benefits. Law 41 provides for the Ministry of Agriculture, as the national body responsible for public irrigation and drainage development, to be assisted by a coordinating and advisory board, CONSUAT, which includes five public-sector members from different ministries and public agencies. There are also four private sector CONSUAT members, representing commercial farmers, peasant farmers, irrigation users' associations and indigenous communities.

Public-sector works can be financed from national, regional or municipal resources, special development funds or loans. Law 41 requires CONSUAT to establish levels of cost recovery for publicly funded works, stipulating that small farmers should receive a 50 percent subsidy. It is intended that future capital cost recoveries should substantially exceed the 20 percent or less of real values customarily recovered by HIMAT in the past, while all O&M costs should ultimately be paid by users via associations.

In terms of cost recovery, a new approach has been introduced which envisions farmers playing a greater role in initiating irrigation investments and in financing their development. Two alternatives are presently under consideration. Both foresee a minimum level of cost recovery of 50 percent of total project costs. Option 1 would involve the recovery of 100 percent of on-farm costs, plus 50 percent recovery of all other investment costs. Option 2 differs from the first, only in that the amount in excess of the 50 percent minimum to be recovered would be apportioned amongst beneficiaries according to farm size, with larger farmers paying more per ha.

Although the new policy has been received with enthusiasm from farmers, large and small, and other political groups, there have been some crucial obstacles the country has encountered.

In the first place, for lack of interest in new investments, the feasibility and design studies were old and sometimes obsolete and, therefore, they had to be updated. It took time and financial resources to rebuild an investment portfolio of potential projects. This delayed the ambitious investment program that the government had planned in 1990.

Also the stock of human capital specialized in all stages of an irrigation project, such as local consultants, and social specialists, was depreciated, disseminated and in some cases lost after years of abandoning the irrigation sector. Building this local human capacity again has become one of the major objectives of the government.

In terms of institutional strengthening, HIMAT has been restructured and slimmed down in the last two years. By the end of 1993, HIMAT had placed a limit on the total number of positions of 1,426. This resulted in a net reduction in staff of 1,016 workers (the difference accounted for by vacancies). At the end of 1993, HIMAT had 1,565 positions, of which over 500 were vacant. There are currently 16 regional directorates, intended to promote projects among potential beneficiaries in their areas and to support users' associations.

COLOMBIAN EXPERIENCE WITH IRRIGATION MANAGEMENT TRANSFER (IMT)

When INCORA was in charge of the districts, all major decisions regarding the operation and maintenance of the hydraulic infrastructure were assigned to the government. INCORA staff were also given responsibility for the planning and allocation of credit for investment or working capital, and the provision of agricultural extension services. Such was the paternalistic attitude towards beneficiaries, that the Agrarian Reform Law of 1962 enabled the national government to formulate crop plans and required farmers to adhere to them, under the threat of expropriation for those who failed to comply.

By 1976, national support for agrarian reform had subsided and the government sought to separate land reform from irrigation and drainage development. It transferred the administration of irrigation and drainage districts over to HIMAT, a newly created institute charged to administer water resources and irrigation investment. By this time the poor quality of operation and maintenance under governmental administration resulted in a significant deterioration of the existing infrastructure and very high costs, mainly due to excess staff. The users of two districts, Ceollo and Saldana felt that they could improve the quality of services and signed a "delegated authority" agreement with the government. This enabled the users' associations to achieve a certain degree of financial autonomy, improve service for farmers, and substantially reduce staff and operating costs. Under these agreements the government retains fiscal review authority over users' associations.

The 22 districts presently under HIMAT sponsorship have a total surface area of 340,000 ha. In 19 of them the infrastructure provides irrigation and drainage and in the other 3, only drainage. Eleven of the irrigated districts derive water using gravity, the other 8 require pumping. Since 1990, an additional 5 districts have signed delegated authority agreements with HIMAT and are now administered by their respective users' associations. The remaining 15 are still

directly administered by HIMAT. Of the 7 districts being administered by the users, 6 obtain water at low cost using gravity and only 1 uses pumped water.

Taking advantage of the special powers given to the President by the Constitution of 1991, a new law was decreed in 1992⁵ which mandated the transfer (except in exceptional cases duly justified) of the administration, operation and maintenance of all irrigation districts from the state to the private sector, preferably users' associations. It also forbids the use of delegated authority agreements as a form of transfer to user groups and requires HIMAT to replace these with public service concession contracts which would give greater financial and operational autonomy to users' associations than they enjoy at present.

The new irrigation policy establishes that in those cases where some level of subsidy for O&M costs is needed, the operation and maintenance of a district could still be transferred to the users, with some guarantee from the government that the subsidy is transferred every year to compensate for the estimated deficit. Given that this deficit is not exogenous and depending on the performance of the users' association, a method to create incentives to save funds was identified. The incentive works as follows. The savings or the difference between the expected deficit estimated together between the government and the users, and the real or ex-post deficit after the operation for the fiscal year was done, is distributed partially among users via tariffs and the rest goes to the government via fewer future subsidy transfers.

The current policy on IMT is that for those districts where tariffs do not cover the O&M costs, and were built under INCORA's rule, the government should try different administration arrangements, depending on the particularities of the system. For some districts, a concession contract with some transfer of resources to cover an expected deficit would be sufficient. For others, given the weak capacity of some users' associations, HIMAT could let a private company run the district, totally or partially. Also, the combination of these two forms of administration could be implemented. In fact, the oldest district, Prado-Sevilla in the coastal region, is still administered directly by HIMAT, but the role of maintaining the system has been given to a private agricultural trading company. The results have been more than impressive; the maintenance cost has been reduced in half, and the quality of the works has improved significantly.

The new districts built under the current irrigation policy are expected to achieve financial self-sufficiency. The operation and maintenance costs should be financed fully through tariffs and Law 41 establishes that after one district is built its operation and maintenance have to pass on to the users' association.

The recent experience in Colombia with the small-scale irrigation program has shown that districts that were built under the new irrigation policy have a high probability of achieving success. Most of the recent schemes are managed and operated completely by farmers; farmers owned the infrastructure; and have even gone further in forming agricultural trading associations. The role of the government has concentrated on giving technical assistance in all different aspects of management and agricultural production.

CONSTRAINTS FOUND TO TRANSFER THE MANAGEMENT OF OLD IRRIGATION SYSTEMS TO USERS' ASSOCIATIONS

The success stories of IMT in Colombia are either for the oldest districts (i.e., Coello, Saldana and Prado-Savilla) or the newest (and most of these are small-scale). Because the government's initial aims for public irrigation after the sixties were as much social as economic, finding old districts that were financially self-sufficient has been difficult. This created the need for implementing different forms for administering these districts, as discussed above. It is too recent to judge the success of IMT in the system transferred to farmer management in the 1990s.

Although the more recent transfers are having some problems (e.g., lack of start-up capital, limited expertise to run the systems), the 7 districts run by users are now fully independent from the state. The principal feature which has allowed the transfer has been a high level of organization of users, coupled with the presence of well-trained professionals within their leadership. The remaining districts, on the other hand, are still highly dependent on governmental subsidies and have weaker users' organizations. In some cases, their O&M costs are so high in relation to farmer incomes that farmers are understandably reluctant to take over responsibility.

In Colombia, water rights are not well defined. This has created some difficulties in negotiating the terms of transferring some districts. Some users' associations have demanded that the legal situation be solved before any negotiation is completed. Unfortunately, this could not be done given the lack of legislation on this matter. Currently, the government is working on preparing a bill that tackles this problem.

When the government was working on the regulation of the law, an issue was raised that has not been decided on. The question is whether the government should allow a users' association to run other types of businesses such as trading agricultural products or selling production inputs. The National Federation of Irrigators (FEDERRIEOS), a newly

⁵Decreto Ley 2132.

created association, is in favor of this, arguing that this new dimension gives them more degrees of freedom in terms of generating additional monetary resources to manage the system, and also that through the generation of other activities, producers would have other incentives to work and stay together. The argument from the government side against this proposal is that the risk of the association getting distracted from its main function of administrating and operating the system is too high.

Another constraint that the government encountered in trying to transfer the old districts was what could be called the "vicious circle of irrigation demand." When agricultural prices are high (with the apertura model they became tied to international prices), together with high rainfall levels, the demand for good performance of irrigation systems is low. In this particular case, the willingness to pay for appropriate operation and maintenance is lower than when the situation is the opposite. With low prices and low rainfall, the financial condition of producers becomes weak, which makes them less willing to repay irrigation investments with the argument that the government built the districts for them without charging any fees, and therefore it is the government's responsibility to take care of them. This last scenario occurred during the last four years in Colombia. Combined with the strong political pressure that INCORA farmers still have, this makes it difficult to transfer some irrigation systems. For these districts, it became necessary to increase the O&M fee level as an ex-ante condition, but this could not be accomplished.

Law 41 established that once an irrigation system was built, the property of the civil works and machinery could be passed directly to the users' association. This has not been regulated yet and the government is waiting for more elaborate regulations from the Constitution. The possibility of transferring the property to users has some advantages and disadvantages. On the one hand, the fact that farmers can own the district gives them a sense of ownership that could also be used as collateral for future financial obligations. On the other hand, owning the irrigation infrastructure could create problems for them in terms of legal liabilities with potential damages to infrastructure in the future.

The fact that the possibility of infrastructure damage is contemplated in the law, combined with the fact that some old districts have incomplete works and old damaged infrastructure, has given INCORA farmers a sense of insecurity, and for this reason they are reluctant to take over the systems.

The largest constraint that existed in Colombia for transferring the systems was the legal ties to HIMAT of the O&M staff of INCORA districts. HIMAT had more than a thousand staff protected by law who could not be laid off. Additionally, two labor unions existed in HIMAT. In past delegation agreements, a special clause had to be included that made clear the rights of these workers, and the users' associations could not replace them even though the district had already been transferred. Under this situation, one might understand that farmers would not want to operate the systems by themselves. They wanted to have control over their employees. Fortunately, this major constraint was removed by the new Constitution which allowed a significant institutional reform in HIMAT, which permits the laying off of these workers with some financial compensation.

Finally, another problem that we found to be important was the difficulty of convincing irrigators of the importance and the need of generating an equipment replacement fund. This implied an increase of the O&M fees which they have generally not been willing to accept yet.

CONCLUSIONS AND RECOMMENDATIONS

"Apertura" represents a laudable commitment by Colombia to open its economy and to exploit its international comparative advantages. Benefits to some categories of agricultural producers have been less than anticipated however, in part due to declining world commodity prices and to continuing export subsidies by competitor countries. However, the next Colombian government has already decided to continue with the policy of the open economy. One of the strategic instruments that will continue to be implemented to achieve a comparative advantage of the agriculture sector, will be to invest in infrastructure for the agriculture sector.

The institutional and financial setting in Colombia has often constrained efficient investment in irrigation. In the case of public irrigation, the major problem was institutional, in which, the development of the supply-side schemes, without any farmer participation in any of the stages of the project cycle, has not allowed for good designs or achieving any cost recovery. On the other hand, for private irrigation, the basic bottleneck has been a lack of a clear financial policy. The credit lines were not adjusted to demand conditions for private sector projects. Also, the lack of clear regulations for private irrigation has brought on some environmental problems.

The new irrigation Law removes most of the past constraints in achieving an efficient and dynamic irrigation program. There now exists a new institutional framework and some fresh financial resources to implement the program. This is an excellent opportunity for the new government to restart irrigation investment in the country.

The Colombian experience with implementing IMT is already two decades old. The degree of success has been modest to date, depending on how the systems were conceived and the form of IMT which is being implemented. Currently, under the new Law, the country is committed to building demand-driven systems. Once constructed, their operation and maintenance will be the responsibility of users' associations. This should increase the probability of

success in future IMT programs. All this makes Colombia an interesting place to learn about which strategies of IMT are successful and the necessary conditions to accomplish the proposed goals of IMT.

Finally, a lesson was learned during these last four years; it takes more than a presidential period to reconstruct an irrigation program. Writing a new policy; redefining the legal framework; making the political will sustainable; strengthening the institutional capacity, and obtaining the necessary resources, constitute a long-term and difficult enterprise.

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