Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

POLICY NOTES

ISSN 2508-0865 (electronic)

No. 2020-05 (March 2020)

Irrigation investments: Some recurrent and emerging issues

Arlene B. Inocencio and Roehlano M. Briones

Irrigation development is a key policy instrument used in achieving food self-sufficiency in the country. This heavy bias toward irrigation investment has prevailed for decades, even before the establishment of the National Irrigation Administration (NIA). Recently, there have even been massive increases in funding for irrigation, ballooning from mere PHP 8 million in 2008 to PHP 41.7 million in 2018. For 2018 alone, such appropriation accounted for over 40 percent of the total allocation for the agriculture sector.

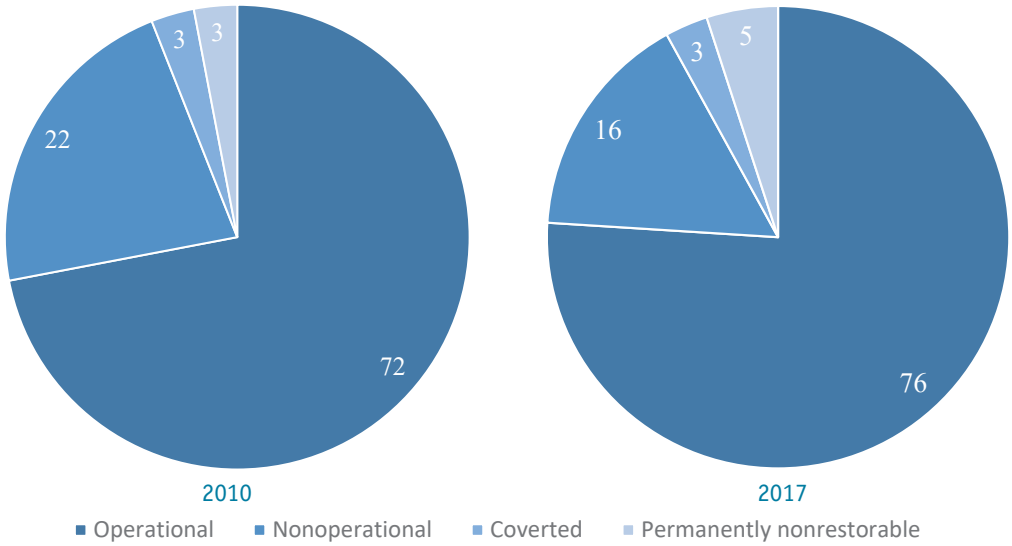
This *Policy Note* looks at some recurrent and emerging concerns on how to improve irrigation investments in the country. It discusses issues related to setting of physical targets versus actual accomplishments, conversion of irrigated lands, size of nonoperational areas, and irrigating nonrice crops.

Target setting and achievement

The *Philippine Development Plan* (PDP) 2017–2022 articulates the country's vision for inclusive growth and a globally competitive economy by 2040. Part of this plan is the expansion of irrigated area by 7.74 percent by 2022. With the expansion in irrigated area, production and farm incomes will increase. Given this target, the cropping intensity, or the ratio of total irrigated areas in two seasons to that of the dry sesason, is expected to increase from 144 percent to 157 percent by the end of the period. To achieve this, the budgetary allocations to NIA have been correspondingly increased in the annual General Appropriations Act (GAA).

Under PDP, NIA is to invest a total of PHP 71.8 billion for the construction of small reservoir irrigation projects and PHP 31.3 billion for the repair and rehabilitation of existing communal irrigation systems. Several multipurpose irrigation projects will be implemented, including the construction of storage and diversion dams, transbasin tunnel, power plant, and irrigation and drainage facilities. Specifically, the government will spearhead a number of multipurpose projects that will provide irrigation, mitigate flooding, and generate hydroelectric power. These include the Gregorio Del Pilar Impounding Project (Ilocos Sur), Tumauini River Multipurpose Project (Isabela), Panay River Basin Integrated Development Project (Capiz and Iloilo), Bohol Northeast Basin Multipurpose Project (Bohol), and Ilocos Norte Irrigation Project Stage 2 (Ilocos Norte) (NEDA 2019).

Figure 1. Distribution of irrigation services areas in the Philippines (in %): Operational, nonoperational, converted, and permanently nonrestorable, 2010 and 2017



Sources: NIA (2010, 2017)

However, GAA allocation alone does not guarantee achievements of these targets. Despite the increase in allocation, NIA has hardly met its annual physical targets for new area development. Among the reasons cited are institutional, physical, and operational constraints.

Among the institutional factors is the decline in capacities of the various units of NIA due to the agency's rationalization plan. For the physical factor, the typhoons and rainy season limit the window for project implementation. In terms of operational factor, the reality on the ground is that repairs and rehabilitation cannot be done in-between seasons, reducing the period for project implementation.

The trends in actual versus target irrigated area have been generally below 100 percent. This means that NIA never got to realize its new target area, except in 1997. In fact, its accomplishment was even 50 percent or less in 16 years of the 29 year-period data. The same situation is true in restoration. While restored areas do not contribute to increasing the cumulative total irrigated areas, they improve cropping intensity.[1]

[1] New irrigated areas are raw land or raindfed areas provided with irrigation facilities. On the other hand, restored areas are those already part of developed areas but not yet irrigated due to incomplete facilities and nonavailability of water.

Converted irrigation areas

Among the concerns of NIA is the rapid conversion of irrigated lands into nonagricultural uses, putting to waste irrigation investments poured into these lands (Figure 1).

Across the country, the Central Luzon region has the largest converted irrigated area of about 12,000 hectares in 2017 (NIA 2017). In relative terms, however, the conversions in CALABARZON[2] and Zamboanga Peninsula regions surpassed that of Central Luzon (NIA 2017). This means more irrigated areas in these two regions are convered to other uses. Meanwhile, only the MIMAROPA[3] region saw a decline from 5,000 hectares in 2010 to 2,000 hectares of land coverted in 2017 (NIA 2010).

In terms of provinces, the top six provinces where land coversion occurred in 2010 were Bulacan, Isabela, Palawan, Iloilo, Nueva Ecija, and Pampanga (NIA 2010)). Specifically, the total converted areas in Bulacan reached 6,721 hectares, while Isabela converted a total of 5,839 hectares in 2017 (NIA 2017). In Mindanao, land conversion has already spread in Bukidnon, Zamboanga del Sur, South Cotabato, and Sultan Kudarat, each with over 2000 hectares already converted (NIA 2017).

[2] Cavite, Laguna, Batangas, Rizal, and Quezon
[3] Mindoro, Marinduque, Palawan, and Romblon

Despite these coversions, official figures from NIA (2010, 2017) itself show that the converted lands have remained at 3 percent of total service area since 2010. Nonetheless, such conversion must still have cost the government about PHP 14 billion, assuming a modest average investment cost per hectare of PHP 300,000. With this conversion, the public investment is effectively wasted.

Nonoperational areas

Nonoperational areas refer to areas where irrigation system is no longer functional because the facilities are either damaged or destroyed, such that irrigation water cannot flow to the said area. If not restored, these areas would not receive irrigation water and farmers may only be able to plant on them for one season.

Between 2010 and 2017, the nonoperational areas have been substantially reduced to about 297,000 hectares from 366,000 hectares (NIA 2010, 2017). This means an annual reduction of 8,600 hectares. Despite said reduction, the ratios of nonoperational have remained above 20 percent, except in Ilocos, Cagayan Valley, MIMAROPA, Western Visayas, Centras Visayas, and SOCCSKSARGEN[4] regions (NIA 2017).

Five provinces have historically over 10,000 hectares of nonoperational areas, namely, Cagayan, Camarines Sur, Tarlac, Pangasinan, and Pampanga (NIA 2010, 2017). Except in 2017, Isabela, too, generally had over 10,000 hectares (NIA 2017). Meanwhile, 10 provinces have historically over 5,000 hectares of nonoperational areas, namely, Iloilo, Davao del Norte, Northern Leyte, Zambales, Agusan del Sur, Ilocos Norte, Lanao del Sur, Maguindanao, Bukidnon, and Palawan (NIA 2010, 2017). Nonetheless, Isabela and Nueva Ecija already managed to reduce their nonoperational areas to 1 percent (NIA 2017).

These observations have serious implications. When the per-hectare restoration costs less than the generation of new irrigated areas, despite rendering the same effect, the government may opt to proceed with the restoration first.

Crop diversification

With lower domestic rice prices brought by the Rice Liberalization Act, the *Rice Roadmap 2030* projects that more farms will no longer be viable and will be getting out of rice production. In this scenario, investing in nonrice irrigation will likely to rise with the law reviving the crop diversification program.

Trends show that irrigation has largely served rice and a few rice-other crop combinations, largely occurring in four NIA operational regions, namely, Cordillera Administrative Region, as well as Ilocos, Central Luzon, and Davao regions (NIA 2010, 2017). Four regions have had only rice, namely, Cagayan Valley, Bicol, Western Visayas, and Caraga regions(NIA 2010, 2017).

The annual increases in crop diversification had also been more pronounced for irrigation systems with rice and banana, vegetables, and diversified crops (NIA 2010, 2017). For the few systems with fishpond and corn, the areas for these commodities have even declined starting 2015 (NIA 2015, 2017).

Overall, the irrigation for nonrice areas hardly changed between 2014 and 2017 and remained negligible relative to total irrigated rice area. This observation implies that if the new irrigation masterplan and rice roadmaps are serious in their intent to increase irrigation of diversified areas, the government has to take more drastic actions. These actions can include research on areas more suitable for nonrice crops and sustained provision of support services to attract more farmers to crop diversification.

Conclusions

This study highlights a few key issues that affect irrigation investment in the country.

[4] South Cotabato, Cotabato, Sultan Kudarat, Sarangani, and General Santos City

The targeting system appears to be weak and this may have affected the growth of irrigation development in the country. While funding may be available, these resources came when NIA was supposed to be downsizing and retiring most of its senior staff, who had the expertise and experience. Thus, NIA was in a situation where the capacities in critical functions could not match the requirements needed to meet the targets. Looking at the performance, assuming the same skills and capacities within NIA, it had to double these capacities just to meet the targets. Thus, a clear understanding of the bottlenecks or limiting factors in achieving the target new areas is critical to arresting the slow annual growth in irrigation development.

While the rate of conversion seems relatively small, the growing concern among the farmers and NIA is valid. First, the fast conversions of land demand for an account for these potential nonagricultural uses of land in project identification. Second, these conversions render the irrigation investment useless. If these conversions can be anticipated, perhaps investments in such areas will have to be more carefully assessed and appropriate sensitivity analyses be carried out in the event of much reduced irrigated areas.

The high levels of nonoperational areas every year make a case for increasing investments for restoration projects even before investing in new areas. It appears that the current rate of restoration while reducing the nonoperational areas is simply not enough with more substantial areas still to be restored.

With the rice tariffication and the increasing nonviability of rice areas, irrigation in nonrice will likely be pushed further forward. Current estimates of irrigation on nonrice commodities indicate negligible growth. If investment in this area will be expanded, there is a need to explore the various technologies and options that would best complement this diversification program of government given many past failed efforts. There may be potential for irrigation investment to support this program. However, it is important to assess where and how.

References

Inocencio, A. and R. Briones. 2019. Irrigation and Agricultural Development. Final Report submitted to the Philippine Institute for Development Studies (PIDS), Quezon City, Philippines: PIDS.

National Economic and Development Authority (NEDA). 2019. Philippine Development Plan 2017-2022. Pasig City, Philippines: NEDA. http://www.neda.gov.ph/wp-content/uploads/2018/10/PIP-2017-2022-19.pdf (accessed on June 1, 2019).

National Irrigation Administration (NIA). 2010. Inventory of irrigation systems. Quezon City. Philippines: NIA.

---. 2015. Inventory of irrigation systems. Quezon City, Philippines: NIA.

---. 2017. Inventory of irrigation systems. Quezon City, Philippines: NIA.

Department of Agriculture (DA). n.d. Philippine Rice Industry Roadmap 2030. Quezon City, Philippines: DA. https://asiarice.org/assets/uploads/Philippine_Rice_Industry_Roadmap_2030_v2_std.pdf.

Contact us

Address: **Research Information Department**
Philippine Institute for Development Studies
18/F Three Cyberpod Centris - North Tower
EDSA corner Quezon Avenue, Quezon City
Telephone: (+63-2) 8877-4000
Email: publications@mail.pids.gov.ph
Website: www.pids.gov.ph

PIDS Policy Notes are analyses written by PIDS researchers on certain policy issues. The treatise is holistic in approach and aims to provide useful inputs for decisionmaking.

Inocencio and Briones are consultant and senior research fellow, respectively, at PIDS. The views expressed here are the authors' own. The views expressed are those of the author and do not necessarily reflect those of the PIDS or any of the study's sponsors.