Learning in 21st Century Schools

Comparative analysis of school infrastructure planning and management systems in 12 countries in Latin America and the Caribbean

Executive Summary

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October 2015

Context of the study

In the past 20 years, the countries in Latin America and the Caribbean have taken very important steps to guarantee the effective enforcement of the right to education. During this period in particular, the enrollment of preschool education in the region increased from 36% to 61%, and almost all children attend primary school. The enrollment at the secondary level increased from 69% to 80%. However, there are still significant challenges that require the construction of more school spaces, like the need for universal access to preschool and secondary school education, and to accommodate for the expansion of the school day (currently, many schools have double or triple shifts). Also, not all the installed capacity adequately responds to the current educational needs, and there is infrastructure that does not comply with the minimal structural or accessibility regulations, or is precariously maintained. [1]

Within this context, the Inter-American Development Bank launched the project "Learning in Twenty-First Century Schools", a technical cooperation (TC) between Latin American and Caribbean countries that focuses on analyzing the situation and the challenges of school infrastructure in the region, and also promotes solutions to move forward in the creation of sub-regional building standards.[2] The following study, which was implemented as part of the second phase of the TC, aims to diagnose and compare the school infrastructure management processes of the different countries in the region in order to identify common challenges. It also focuses on identifying areas of improvement of each country and better practices that could be replicated in other parts of the region.

The study was mainly based on the review of public information and in-depth interviews with those responsible of public school infrastructure management processes of 12 Latin American and Caribbean countries that currently participate in the technical cooperation led by the IDB. This study offers a detailed and comparative perspective of the processes applied in each country.

[1] IDB, Technical Cooperation Document, Learning in Twenty-First Century Schools-Second Phase, 2014.
[2] Carlos Gargiulo, IDB, Learning in Twenty-First Century Schools, Note1. Series Introduction. December 2014.

It is important to point out that the comparison of the management processes does not pretend or can be used to classify the different countries as “best” or “worse”. The countries’ differences regarding size, population and social, economic and environmental conditions result in different needs and priorities that require different kinds of solutions. However, it is expected that this comparative study will highlight the relevant ideas and findings that can be developed to improve the conditions of school infrastructure in the region.

Main Findings

In most countries in the region, the population growth has reached a turning point, reducing the pressure to build new schools. However, this is taking into account the need for universal enrollment, particularly at the preschool and secondary levels, and the introduction of full-time schooling. **The expansion needs of the existing school infrastructure are generally recognized and explicitly prioritized in the policies of each country.**

On the other hand, **all the countries analyzed report that the majority of the existing schools need considerable investment in maintenance.** In many of these countries, schools were built decades ago, and in many cases using criteria that is currently considered insufficient or without following structural regulations. Also, the maintenance work carried out during this period has been low, resulting in the progressive deterioration of the infrastructure. However, **with the exception of Uruguay, the countries do not report having complete, developed or institutionalized processes for preventive or corrective maintenance of the infrastructure. The maintenance is usually the responsibility of the schools. As a result, there is a perception that the need for maintenance does not receive the level of attention and priority it deserves from the political authorities of each country.**

Regarding the planning of works, it highlights how the majority of the countries in this study have national policies that focus on school infrastructure, and that are set through clear strategies to identify and prioritize the needs and, therefore, the investments. However, **many countries do not have an information system with current data on school infrastructure (ideally georeferenced) to support the implementation of these strategies, and/or the**

processes to regularly update this information. In this regard, Honduras, Mexico and Uruguay stand out as best practices.

In order to ensure the quality of the infrastructure, it is necessary to have specific regulations and criteria for designing schools, and most of the countries have them. In addition, some of them have designed prototypes that facilitate compliance with these regulations, but also speed up and reduce the cost of the design development and calculate the budget for the implementation of these projects. In this regard, **the development of prototypes and cost outlines can be considered a good practice;** however, some interviewees highlighted the contradictions of excessively rigid or generalized prototypes that cannot be adapted to the environment and the specific context of each school, as well as the development of the educational needs through time. In other words, different prototypes should be used in different conditions, and they should be **flexible enough to be adapted according to the context and passage of time.**

Even though all countries in this study have detailed institutionalized processes for the construction of new infrastructure, **the time needed for the approval of a school infrastructure project varies significantly, either between countries or within them. A bottleneck that has been highlighted by the majority of the countries is the acquisition and/or legal land ownership.** In some regions, there is legal uncertainty regarding the land ownership, a consequence of many factors (outdated legislation, civil wars, farmer's movements, among others), that result in a high percentage of schools that lack documentation to prove legal ownership of the land; for example, it is estimated that in Honduras 87% of the school grounds do not legally belong to the government. The fact that it is extremely difficult to obtain legal ownership of the grounds on which it plans to build new schools is another challenge faced by these nations. This generates a state of uncertainty, in which it is possible for an entity or an individual outside the school system to claim ownership of the land and demand it be returned. It also creates significant delays – which can last up to several years – in the processes that require legal land clearing as a prerequisite for the works. **It was noted that Mexico and Honduras have certain legal measures to facilitate land ownership– for**

example, the schools that can prove a number of years of operation can be legally recognized as owning the land they occupy, even in the absence of the original title.

At the same time, the process of acquiring new land in certain countries require **the intervention of one or more government entities external to the education system**, and that generally **implies cumbersome and time-consuming processes**, resulting in further work delays.

The frequency of budget approval and allocation of resources is also a topic of interest. Many countries have annual budget approval cycles, where new projects often have to wait until the next fiscal year for approval. In many cases, the approved budget (needed to finish construction) has to be spent within that year. On the one hand, this situation encourages the needs to be met within a specific time period; however, if the works require more than one year to be executed, the administrative and bureaucratic processes needed for the reallocation of budget tend to generate an unnecessary workload as well as subsequent delays. At the other end, Uruguay has a five-year budgeting period: this is also not completely effective due to the fact that it leaves a limited period for adapting to the emerging and changing needs in a rather extended period. Some countries have portfolios of multi-year projects (two to four years), which are considered adequate time to plan and implement the projects more efficiently.

It is important to mention that many countries **have funds that are well below what is necessary to address the needs of school infrastructure management**, depending largely or entirely on contributions, investments and loans from international agencies. Therefore, their planning strategies have to be adapted to the conditions of the interested donors – even though this is not generally perceived as a significant obstacle.

Regarding the hiring of suppliers for the implementation of works, **most countries have clearly defined processes for their selection. However, these tend to be considered extremely long and cumbersome, particularly the case of bidding processes.** In some cases, this is also due to the intervention of a high number of agents and public entities in the decision making process. In Argentina, the use of an online project management system seems to have resulted in a significant speeding-up of these processes. This because you can immediately find

out the status of the project and use the same criteria for each one, thus saving time in the decision-making and administrative processes.

Contracting works (as well as its supervision) can be complicated in remote regions due to the lack of technical expertise of the local professionals and teams, and the limited appeal to other contractors. **Chile found a solution to this problem by bidding "packages" of works that include a range of more or less attractive projects, instead of individual works.**

In several countries, the works are delayed for several months due to natural phenomena like torrential rains (especially in tropical regions), or extreme cold conditions (for example, in the Andean and Patagonian regions). There are also seasonal factors that lengthen the construction time; for example, in Honduras the labor is taken almost entirely during the coffee harvesting season. These situations are usually well known in the respective countries and they should be taken into account when calculating construction time.

Two items are considered regarding the analysis of the school maintenance processes: the first one is the routine maintenance processes that involve minor interventions (both corrective and preventive) that facilitate the extension of the useful life of the school infrastructure and that, due to its low complexity and need for budget, can and are often implemented directly by the school community; and the second one is the extraordinary maintenance processes that involve major maintenance that usually require external intervention. It is important to note that **sometimes** (although not always) **the needs for extraordinary maintenance arise due to the lack of adequate routine maintenance.**

As mentioned previously, there is a perception in most countries that the maintenance (especially routine) is an issue forgotten by the national policies, even though it deserves to be prioritized along with the construction of new infrastructure. This is because adequate maintenance extends the life of buildings and therefore reduces the need for major investments in the medium term.

The lack of an adequate budget for routine maintenance is one of the most commonly perceived challenges. Some countries do not specifically allocate resources to this area, while others

(more than half of the countries analyzed) do have budgets directly allocated to schools for this purpose, but in some cases these are insufficient. In this instance, there are two specific cases: Honduras only allocates resources to 10% of the schools that request it, while in Trinidad and Tobago only some secondary schools receive budget for routine maintenance at the request of its principals.

Other perceived challenges of routine maintenance are the lack of supervision of the works and the use of resources – which can lead to poor management and even corruption –, **and the lack of effective leadership training for school communities for identifying the needs, and in hiring and supervising the execution minor maintenance works.**

The extraordinary maintenance is generally conducted following the same processes used in the construction of new infrastructure, and therefore faces similar challenges. However, **some countries have easier processes for minor maintenance[3] works, which greatly reduces the administrative complexity** (especially, the processes of allocation of budget and hiring of suppliers), **and therefore the time required to execute each work.**

Innovative Practices

Through this study, it was found that some countries have practices that are significantly different from the usual, and that were considered important to note because they could be of interest or applicable in other countries, once the appropriate adjustments are made. These are briefly described below:

- **Integration of School Networks (Honduras)**

  It is the integration of Networks of 5 to 10 schools located no more than 3km away from the "central" school. This "central school" is equipped with more infrastructure, for example, science laboratories, sports facilities, computer rooms, etc., and becomes available for the use of other schools, with allocated days and times for each one. In order to allow other schools to effectively use the resources of the "central" school, there

[3] The definition of maximum budget for works that can be implemented using these processes varies between countries, but none of them are above $75,000 USD.

is also investment to ensure transportation between the "central" and the peripheral schools. In addition to the infrastructure, the Networks can share other resources, like specialized teachers (for example, English teachers) that may reside in the central school or move between schools. This system allows for greater educational opportunities for the students while minimizing the infrastructure investment.

- **Works for taxes (Peru)**

  This mechanism helps expedite the capital planning processes in public works and finance them without paying interest on them. It allows for the implementation of public investment projects by private companies that can choose to pay up to 50% of their income tax through the implementation of a public interest project (defined and approved by government entities) instead of paying that tax in the following year.

  Note: this is only an example of the several financing mechanisms for schools (Public-Private Associations, Bond emissions, etc.) that are still in the experimental stage in the region.

- **Project Management System (Argentina)**

  It is an online platform where the authorities can check the real status of the project. The projects that are approved for implementation are "uploaded" to the System. The authorities can verify how many projects are in the process of bidding, which ones are at the stage of implementation and which ones are being finalized. It is also used for controlling and monitoring the monthly payments to the contracting companies.

  This System has proved highly effective because it shows the projects that are in the planning stage, as well as those in progress, so you can know the status of each project in real time and save time when making decisions. In this way, the management processes are sped up, because it facilitates the use of the same selection and monitoring criteria for each project.

- **Projects Implemented by the Community (Honduras)**

  This is an alternate method for managing the implementation of infrastructure works. The works are managed directly by the communities (either through direct provision of labor or by contracting suppliers), under the supervision of the municipalities. A requirement to

enter this project is that the community and the benefiting municipality contribute 10% each of the total investment required (the contribution can be made in cash or in-kind).

Among the advantages of this system are: the possibility to train the communities in the construction and subsequent maintenance of the buildings, saving bidding time and resources that would have been charged by contractors, the ability to hire labor in inaccessible areas, and the creation of jobs in these areas.

However, it has been shown that this method is not ideal for works with a high level of complexity, because the poor training of the labor force can make it difficult to ensure safety and structural standards. Also, it emphasizes the importance to plan for adequate training mechanisms and technical supervision.

- **0800 System (Uruguay)**

  It is a telephone service administered through a computer system that registers the applications from the schools' principals in relation to the emerging maintenance needs of the infrastructure. The applications are automatically sent to the relevant authorities (among them the Resident Architect in each school district, which is responsible for meeting those needs). Also, it is used as an input for a wider "ranking" system that facilitates the prioritization among the identified maintenance needs. The system is complemented with a training and incentive system for principals under which they are trained in identifying the maintenance needs and are encouraged to report them when they are detected.