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& Decentralization in Developing Countries: Key
Issues for an Understudied Area**

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Educational Infrastructure, School Construction, & Decentralization in Developing Countries: Key Issues for an Understudied Area

Alec Ian Gershberg
The New School

Abstract

Poor and insufficient school infrastructure negatively impacts student learning and schooling outcomes. Myriad factors have contributed to an infrastructure gap in the education sector in many countries – rapid increases in enrolments, poor maintenance and aging capital stocks, rural to urban migration, and inefficient government planning and school construction to name a few. Various forms of decentralization are likely to be involved both to improve governance and accountability and to foster innovation and cost saving in the school construction industry and investment and project cycle.

This paper first discusses why the topic is interesting and worth considering; next we lay out the issues and considerations specific to educational infrastructure decentralization; we then connect the discussion to the broader infrastructure discussions in the other papers as well as to the education decentralization literature. We examine an illustrative case study in Egypt exemplifying both the typical centralization of a national school construction authority, and the reasons for countries to consider certain kinds of decentralization. The case also highlights that school construction reforms involving potential decentralization are a long slog dominated and driven by politics. We provide a framework for un-packaging and considering key components of the processes involved in service provision and some promising strategies relating to decentralization. We conclude with some insights for practitioners and others interested in advancing knowledge of the topic.

Introduction: The Potential Importance of Decentralization, Accountability and Educational Infrastructure

Poor and insufficient school infrastructure negatively impact student learning and schooling outcomes. Myriad factors have contributed to an infrastructure gap in the education sector in many countries – rapid increases in enrolments, poor maintenance and aging capital stocks, rural to urban migration, and inefficient government planning and school construction to name a few. By some estimates, as many as 10 million classrooms and \$100 billion in infrastructure investment are needed just to support the achievement of the Millennium Development Goals (MDGs);¹ which means, the overall global challenges are far bigger.² Meeting the challenges may require increased funding, but it will also require improved efficiency of infrastructure provision. Various forms of decentralization are likely to be involved both to improve governance and accountability and to foster innovation and cost saving in the school construction industry and investment and project cycle.

Over the past three decades plus, a great deal has been written about infrastructure decentralization, and nearly as much about educational decentralization. Very little, however, has been written on decentralization issues pertaining specifically to educational infrastructure and school construction – and even less in developing country contexts. This paper first discusses why the topic is interesting and worth considering; next we lay out the issues and considerations specific to educational infrastructure decentralization; we then connect the discussion to the broader infrastructure discussions in the other papers as well as to the education decentralization literature. We examine an illustrative case study in Egypt exemplifying both the typical centralization of a national school construction authority, and the reasons for countries to consider certain kinds of decentralization. The case also highlights that school construction reforms involving potential decentralization are a long slog dominated and driven by politics. We review and highlight the results of a rare, detailed study in Sub-Saharan Africa. We conclude with some insights for practitioners and others interested in advancing knowledge of the topic.

We are not able to conclude under what circumstances and conditions infrastructure responsibilities should be assigned to different levels of governance. We argue that this critical question should be on the research agenda of the development community and we discuss how educational infrastructure decentralization might be different from recurrent expenditures. In addition, the

¹ Source: TI-UP.org *Delivering Cost Effective and Sustainable School Infrastructure*. (Bonner et al, n.d.)

² And the infrastructure issues extend well beyond classroom construction. In fact, classroom construction may only be about 60% of investment costs; the non-classroom infrastructure associated with school construction include water and sanitation, furniture, ICT, and office space for administration. Theunynck (2009).

very significant role of education (and school construction specifically) in sub-national budgets in the U.S. and Europe suggests considerable scope for expansion in developing world. We suggest some key areas where the interactions between recurrent and capital expenditures are likely to be important. Most infrastructure decisions are a mix of central, regional, local, community, and/or private actors. That makes any categorization even more complicated, and one objective of the paper is to provide a framework for un-packaging and considering key components of the processes involved in service provision and some promising strategies relating to decentralization.

The sparse literature on educational infrastructure decentralization is surprising given the magnitude of the needs, the clearly distinctive issues involved in educational infrastructure compared to other sectors, and the extent of centralization found in many countries. The financial scope is bigger than implied by capital expenditure figures because, like much “point” infrastructure associated with service provision, there is strong interplay between current service provision, on the one hand, and capital investment and school construction, on the other. As but one example, once built, schools must have teachers whose salaries are the most significant recurrent expenditures in many government budgets.

In addition, while it may seem obvious, it is worth stating explicitly that there are many reasons why, and modes through which, school infrastructure is related to student outcomes and performance. To highlight just a few:

- ◆ School proximity to home impacts attendance—travel and safety;
- ◆ The quality of infrastructure impacts enrolment and completion rates, learning outcomes as well as teacher absenteeism (This is particularly true for water and sanitation facilities).
- ◆ It is also very important to parental perception and satisfaction with school quality, and therefore is (or should be) an important feature of politicians’ calculus.

In addition, while investment expenditures represent a small share of the total (for instance when compared to health sector expenditures), there are several factors that compound the fiscal impact of educational infrastructure investments. Perhaps the most important factor is that infrastructure investments have an impact over teacher and payroll costs, which make up by far the lion’s share of education expenditures. In addition to the impact on teacher effectiveness mentioned above, every school construction project implies an allocation of teachers to school buildings.

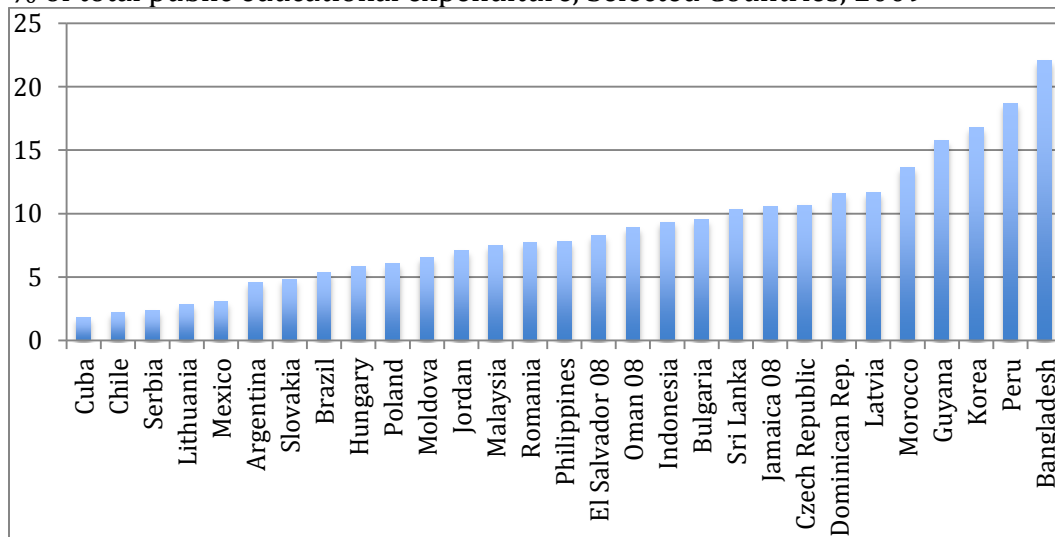
Thus, the topic of educational infrastructure and decentralization is an important one to the extent there is promise for cost reduction and other improvements in efficiency. In addition, during the so called “massification” of educational access—periods in which a country is pushing to vastly expand enrolment quickly,

centralization may indeed be successful. As reforms become more complicated, more about effectiveness, efficiency and quality, the need to decentralize is likely to increase. Urbanization has also contributed to these needs. Indeed, many if not most countries now find and least part of their education system at such stages of development, making the topic even more timely.

Educational Capital Investment, Sources & Uses of Funds & Locus of Decision-making

Before developing and then applying a decentralization typology specifically to school construction issues and the stakeholders most often connected to it, it is instructive to consider the level of capital spending in the education sector across and within countries. There are wide variations between countries in capital expenditure. Figure 1 shows capital expenditures in basic education as a proportion of the total education budget for a selection of countries for 2009. Clearly the expenditure effort is greatly varied across countries. The OECD average (not shown) is approximately 9%.

FIGURE 1 : Primary and Secondary Educational Capital expenditure, % of total public educational expenditure, Selected Countries, 2009



Source: Author's calculations from EdStats (2009, except where indicated by 08). ISCED 1,2,3, & 4

There are no clearly discernable patterns, and an additional analysis that ordered the countries by various broad measures of decentralization, yielded no relationship.³ One surprising observation is the rather low level of educational

³ We used data on subnational government expenditures as a proportion of total government expenditures for 2009 or the most recent year available (cash or accrual basis) as an index for fiscal decentralization. We lose five countries from the sample in the figure, and we observe no pattern. There are very few countries reporting subnational educational expenditure as a proportion of total educational expenditure so we are unable to use an education-specific fiscal decentralization index.

capital investment from the large federal states in Latin America: Brazil, Mexico, and Argentina. Where as some of the more recently decentralized countries like Peru are quite high, perhaps because of new investments being channeled through subnational governments, which often happens during early stages of decentralization.

Figure 2 shows that in some cases expenditures vary a great deal from year to year. But appear steady over time in others, and that this is true both in countries where spending is high and those where it is lower. ⁴

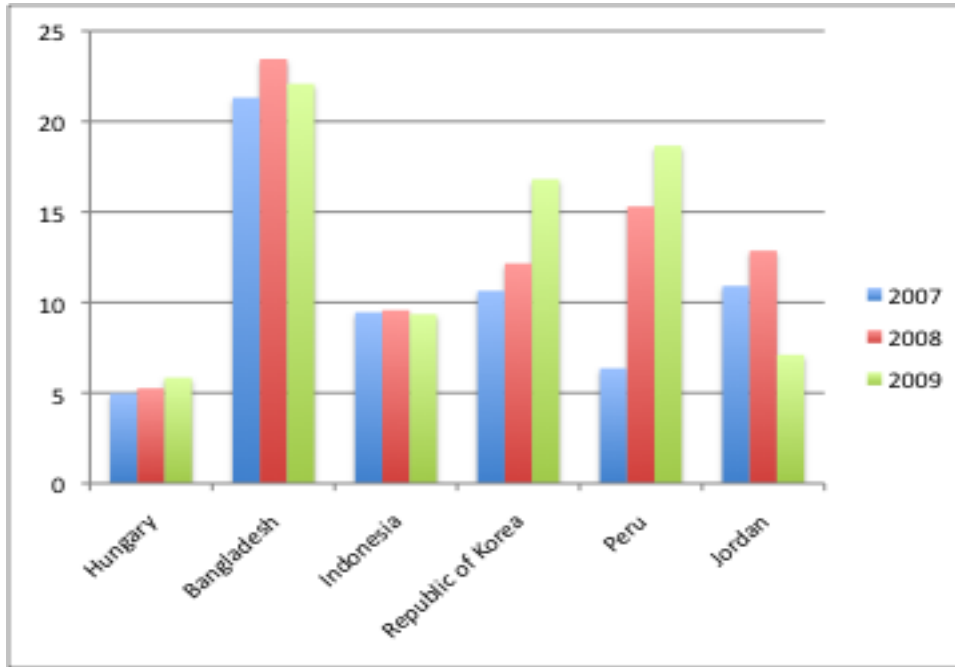
Of course, these figures tell us nothing about the level of government (or school) responsible for which components of the capital investment. Very little information exists to allow legitimate comparisons across countries. However, we were able to use the locus of decision-making framework in OECD's *Education at a Glance* to examine the range of centralization and decentralization in a sample of countries—some of which are considered emerging or developing—albeit that the survey only covers a small part of the universe of decisions relevant to educational capital investment (See Annex 1).

Mexico, for example, appears highly centralized with respect to capital expenditures, despite significant decentralization in the provision of education services over the past three decades. The central government alone allocated school-level capital expenditures and decides how they are spent. On the other hand, Mexican states do have autonomy over the decision to create or close a school. The high level of decentralization regarding these three decisions in Chile is consistent with the educational reforms there over the past three decades. With the exception of the Slovak Republic, the ECA countries all appear decentralized with some like Hungary even requiring school-level consultation on capital spending decisions.

The results are available upon request from the author. The data for the index was take from the World Bank's fiscal decentralization web page: www.worldbank.org/publicfinance/decentralization

⁴ One reviewer questioned the credibility of the data on Bangladesh, given that the capital expenditure appears so high. Given that these data come directly from EdStats, and that it is beyond the scope of this study to verify the accuracy of such broadly-used data sources, it will suffice to note that spending levels in Bangladesh are likely high and steady, even if the precise numbers must be used with caution.

FIGURE 2 : Primary and Secondary Educational Capital expenditure, % of total public educational expenditure, Selected Countries, 2007-2009



Source: Author's calculations from EdStats. ISCED 1,2,3, & 4

Connecting Educational Infrastructure and School Construction to the Decentralization and Accountability Literature

While the traditional education decentralization literature focuses, almost exclusively on service provision (recurrent expenditure), the typologies of decentralization and accountability developed in this literature are largely relevant to the discussion of infrastructure provision. For instance, we should distinguish between “Decentralization to Sub-national Governments” and “Decentralization to Schools” (most commonly School Based Management (SBM), school autonomy, community and parental involvement, school choice, client power, etc).

While distinct, the two forms of educational decentralization are not mutually exclusive and are often intertwined in reform processes. Rondinelli's classic framework is clearly relevant regarding Deconcentration, Delegation, Devolution, Privatization.⁵

⁵ Rondinelli (1981, 1986, & 1989) created the original basic vocabulary for describing the various ways in which governments may be expected to pursue administrative decentralization. It is important to note that very rarely can any given reform be given one single label. That is, any reform is likely to be a complex combination of each of these sets of arrangements. Accountability for the results of decisions remains largely bureaucratic, vertical, and internal to the executive branch, but sub-national entities can make decisions and report ex-post on the decision or the results of the decisions. 1) *Deconcentration* involves the central or federal government granting greater authority to its own sub-national authorities

Table 1: Education Infrastructure Decentralization Matrix

| Education | Administrative | Fiscal | Political |
|--|---|---|---|
| Deconcentration to Regional Government Offices and Regional MOE Offices | Move managerial decisions and managerial accountability to regional offices of central government and MOE. | Give regional managers greater authority to allocate and reallocate budgets. | Create regional, elected bodies to advise regional managers. |
| Devolution to regional or local governments | Education sector managers are appointed by elected officials at local or regional level. | Give subnational governments power to allocate education spending and, in some cases, to determine spending levels (i.e., through raising revenues). | Elected regional or local officials of general purpose governments are ultimately accountable both to voters and to sources of finance for the delivery of schooling. |
| Delegation (and/or Devolution) to schools and/or school councils | School principals and/or school councils empowered to make personnel, curriculum, and some spending decisions. | School principals and/or school councils receive government funding and can allocate spending and raise revenues. | School councils are elected or appointed, often with power to name school principals. |
| Delegation to NGOs, Contract Management Agencies (CMAs) and/or Social Funds | Government responsible for provision, but delegates operational autonomy to implement large-scale small construction programs, to be carried out by small contractors with local labor. | Funds provided by government (central, regional local, perhaps with community input) but handles largely by delegated agencies. Cost savings in some cases. | Elected officials of general purpose governments are, ideally, ultimately accountable to voters and to sources of finance for the delivery of schooling. How this works in practice is key. Agencies may buffer officials |
| Implicit delegation to community schools and community based approaches | School principals and/or community school councils make key decisions. | Some self-financing or local inputs with some government subsidies, especially in remote areas where public schools are not present. | School councils are often popularly elected. Government is still usually responsible for service provision, though not the direct provider. |

under its direct control. It is the weakest form of decentralization for it does not transfer any significant authority to sub-national governments. 2) *Delegation* involves creating semi-autonomous agencies, such as state-owned enterprises or public corporations. 3) *Devolution* entails the transfer of service delivery responsibility to independent sub-national levels of government, regions, provinces, municipalities, etc.; Accountability is now horizontal and takes place, to some degree, between the local executive and the local representative branches of government 4) *Privatization* is often considered the most far-reaching form of decentralization. Early studies focused on *fiscal decentralization*; that is, the decentralization of functions related to public finance and public financial management. Fiscal decentralization can be further divided into two broad categories: 1) revenue-side fiscal decentralization, which involves granting sub-national levels of government greater control over tax and other revenue sources, and 2) expenditure-side fiscal decentralization, which involves greater expenditure responsibility on the part of sub-national governments. Revenue-side fiscal decentralization almost always includes expenditure-side fiscal decentralization; however, the latter may take place without the former, with the central government usually transferring financial resources to sub-national governments via grants or revenue sharing schemes. Again, nearly all reforms exhibits aspects of several of these trends.

Gershberg and Winkler (2004) adapted this typology to education, and we present it here in Table 1, with slight adaptations to highlight the relevance for infrastructure provision. Naturally, this is a gross oversimplification. For instance, each “cell” of the table could be further subdivided into at least four cells to delineate school design, school location, school construction, and school maintenance, as we discuss later.⁶ In addition, it is not particularly useful (or even correct) to try to attach any one of these decentralization “types” to any given reform. Rather, it is important to understand how performance accountability works, or is intended to work, and these concepts are likely to be useful in identifying how accountability flows through the system. Any given reform will indeed be a complex combination of each of these “types.”

Of course, the regulations and laws relating to any particular aspect usually differ in important ways from the rules of the game in practice. For instance, with administrative deconcentration, while there may be some managerial decision making transferred to local offices of central agencies, this is often coupled with ex-post accountability upwards, at least for results.⁷

Before proceeding to consider capital expenditures and school construction explicitly, it is worth reviewing the potential (theoretical) gains and drawbacks of decentralization, as well as what Gershberg and Jacobs (1998) aptly called *recentralization* because of the need to consider the interplay and changing nature of the role of the center during so-called decentralization:

“[D]isaggregating the different aspects of accountability ... makes clear that, in many respects, the expected improvement [from decentralization] requires both greater autonomy for the local service provider, and also strengthened performance of some central functions. We refer to this necessary strengthening of central functions as *recentralization*.” Gershberg & Jacobs (1998)

Table 2 summarizes the arguments for and the attributes of decentralization and recentralization.

⁶ Policy makers involved in such reform processes would benefit from such an efforts specific to their country and regional contexts.

⁷ An example might be when a district manager can decide what type of automobiles to buy for the district office, but if he is found to have broken rules, or the cars turn out to be poor quality or poor choices, the district managers are accountable upwards back to the home office. Another way to categorize reforms within this typology is the extent to which different components of decentralization may be conceived as horizontal or vertical. In the case of administrative devolution or the political aspects of delegation to schools, the accountability becomes horizontal. To me this is the key issue: whether accountability becomes more horizontal (devolution) or stays vertical (deconcentration).

Table 2: Arguments for and against decentralization and recentralization

| <i>Efficiency & Fiscal Resources Arguments for Decentralization & Recentralization</i> | | |
|--|---|---|
| | Decentralization | Recentralization |
| <u>Production Efficiency</u> | <p>1. Sub-national governments may choose input mixes and/or develop programs and policies more effectively than national governments.</p> <p>2. Sub-national governments may manage resources more efficiently than national governments by: a) Reducing bureaucratic red tape; b) Implementing more appropriate/effective personnel management; c) Accounting more to stakeholders regarding how funds are spent</p> | <p>3. National governments must account for externalities and spillovers related to national goals.</p> <p>4. National governments may have more expertise, particularly for evaluation and institution building in weak sub-national jurisdictions, and greater capacity for disseminating good practice. In addition, evaluation mechanisms must be comparable across jurisdictions and the national government must rely on comprehensive evaluation measures both for national planning and to hold sub-national jurisdictions accountable for use of national funds.</p> |
| <u>Allocative Efficiency</u> | <p>5. Sub-national governments know their constituents better than national governments and therefore provide services that more closely match citizen preferences. There may also be improved equity through more effective targeting of the poor populations.</p> <p>6. If reforms improve services for disadvantaged groups, equity may improve despite regional disparities.</p> | <p>7. Central government has greatest capacity for inter-regional and inter-personal redistributive policies.</p> <p>8. Centralized allocation may be less vulnerable to capture by local elites and interest groups.</p> |
| <u>Fiscal Efficiency and Fiscal Resources</u> | <p>9. National governments can use leverage from fiscal transfers to stimulate economically efficient and/or socially beneficial behavior by sub-national governments.</p> <p>10. As with #5 above, sub-national governments can set some limited number of taxes and/or user fees in a more efficient and responsive manner with respect to the regional/local economy, households and other stakeholders. This <i>may</i> augment the public resource base.</p> | <p>11. Many important taxes (e.g., consumption [value added] taxes and income taxes) may be handled most efficiently and equitably at the national level.</p> <p>12. Sub-national governments can run deficits that in extreme cases can threaten macro stability.</p> <p>11. Importantly, greater sub-national fiscal responsibility may throw regions more to the mercy of their own endowments, thus increasing inequity nationally.</p> |
| <i>Democracy/Power Sharing Arguments for Decentralization & Recentralization</i> | | |
| | Decentralization | Recentralization |
| | <p>12. If reforms allow true power sharing, then democratic political participation and/or political stability could be improved. Political equity may also improve.</p> | <p>13. Improved power sharing assumes functioning sub-national democratic institutions, which are notoriously weak in many countries in the region. (See #8 above).</p> |

Adapted from Gershberg and Jacobs (1998)

Key Stakeholders and Institutional Actors in School Construction

Many, and probably most developing countries, have a central School Construction Authority (SCA) of some kind. In developed countries, each local school district (especially in large cities) may have it's own local SCA. The other stakeholders and institutional actors are similar to those of interest in any discussion of decentralization of service provision.

- ◆ Central School Construction Authority (SCA)
 - The SCA May or may not be part of MOE (e.g. may be located in the Ministry of Planning or Public Works)
 - The SCA May or may not be semi-autonomous even within MOE (i.e., it may have its own administrative structure and the Minister may not have full authority over it.

- ◆ Other ministries (planning, local development, finance, transport/roads, etc): for instance, in many countries the ministry responsible for civil works takes on the actual construction of schools.
- ◆ Sub-national governments
- ◆ Quasi-public authorities, Social Funds, Contract Management Agencies, etc.
- ◆ Community and School level stakeholders
- ◆ Intermediary and other NGOs
- ◆ Private Sector (construction companies, Public Private Partnerships (PPPs), bond and other capital markets)

Each of these stakeholders will be discussed in the following sections about phases and taxonomies for educational infrastructure. It is instructive to note that there are many potential institutions and stakeholders (most likely well over 10 in any given country context) and that sub-national governments—often the focus of decentralization reforms—are only one among many others.

Components of Educational Infrastructure Provision That May Be Decentralized, or Not

While there is considerable heterogeneity, school construction generally has key components, each of which may or may not be undertaken or managed in a centralized or decentralized manner. Note that while these components are in some sense sequential “phases” conceptually, there is often considerable overlap and iteration between them in practice.

1. School Design. Usually at the very least, there are minimum design and construction standards that are set at the central government level.⁸ These involve a range of issues of central concern: safety, equity, efficiency and may also be connected to pedagogy (for instance if the MOE is transitioning to an open classroom setting for constructivist teaching methods). However, it is not uncommon for many if not most aspects of school design to be controlled centrally—including building and floor plans, construction methods and materials. It is, thus, not uncommon to find school design nearly uniform throughout even very geographically diverse countries.⁹
2. School Location. Whatever level of government is responsible for access to schooling is likely to play a strong role in the decision about where new schools will be located or existing schools expanded. This is true even if that

⁸ There are examples where such standards are set at the local or regional level, but in the developing world they appear to be rare. In addition, donor projects may be exempt from these standards and have their own.

⁹ This author first experienced the homogeneity of rural school design resulting from centralization, despite tremendous geographic heterogeneity in Mexico in the early 1990s—where school materials and design were the same whether in the high sierra or the coastal plains.

level of government does not actually provides schooling services. Thus, school location, school expansion, school creation, and school closure decisions tend to me more centralized than other aspects of a system. Where increasing enrolment is a chief concern (e.g., in countries seeking to achieve the education MDGs), the central government has an interest in how to maximize national enrollments (often resulting in a rural bias). Equity is also key concern as are efficiency, scale economies, and cost containment—all of which, at least in theory, have aspects that benefit from centralized provision. On the other hand, these valid concerns for some degree of centralism could also be addressed in a more decentralized system via funding formulas and grants, thus leave more of the key decisions to the more local body.¹⁰ Namely, weighting central funding formula, regional targeting policy and priorities to provinces or regions with significant disadvantaged populations (e.g., out of school children, or over-crowding, etc.).

Land acquisition is also a major issue, since the “ideal” location for a school from a planning perspective may not contain land owned by the government for the purpose. Land acquisition issues are particularly challenging in urban areas where vacant land is scarce and it is difficult to procure plots large enough to fulfill centralized design and construction standards. Governments are often reticent, or bureaucratically challenged, to make heavy use of rental and other non-traditional space in urban areas. In fact, increased urbanization has likely enhanced the need to explore and achieve various kinds of decentralization. Finally, school consolidation is a major concern in the ECA countries, thus involving school closure more than school construction.

School Staffing, Student Allocation, and Opening the School are also important considerations. It may seem almost tautological, but at some point, the school needs to open and teachers, administrators, and other non-teaching staff will need to be assigned to the new school; students need to be assigned to the school, and the school has to function. While this may not typically be considered a phase of school construction per se, it is clear that the capital investments and recurrent costs mutually affect each other. Thus, infrastructure investments must be coordinated with personnel policies and vice versa, and capital investments directly impact the recurrent budget going forward. In practice, the decision to approve a major school infrastructure project is usually preconditioned on the determination of need based on how many students will be served. This student count determines staffing, and thus the overall level of personnel costs would be built into the recurrent budget in the either before or while the project is being proposed and appraised. Finally, the deployment of teachers and other staff would follow normal personnel

¹⁰ Below we discuss the connection of infrastructure provision with school staffing. Here, it is worth noting that any compensatory funding formula policy is likely to have some impact on teacher-student ratios—either indirectly or even directly if class size is used as a weight or criteria for funding allocation..

procedures and needs to be timed so that they are in place when the school opens.

3. School Construction (including new schools and expansions of existing schools). The entity that actually takes on the school construction project and oversees construction can range from the central SCA to the local school district. And as discussed later, the various components of the process can be broken down and taken on by different levels of government. There may be some economies of scale from centralization (e.g., in the purchase of inputs like cement), but there is also plenty of experience to indicate that centralized procurement may foster corruption (Theunynck 2002, 2009; DfID 2012)). Nor, has prefabricated construction has not generally succeeded. There may be advantages to leveraging local labor, knowledge, materials, and other inputs. Therefore, a priori, it is not possible to determine the “correct” level of government for each component of school construction.
4. Provision of Non-Infrastructure durable goods. These include furniture, equipment and other capital costs associated with school construction. In addition, school staffing formulas and other standardized costs have significant recurrent cost implications for the education system, and because it is highly likely that different levels of government will be responsible for each, this highly complicates any decentralization reform efforts compared to network infrastructure (such as roads, water, etc). And, even if these costs are, like staffing costs, determined according to norms or formulas, the provision of these goods need not be done by the same level of government as the construction project. For instance, a municipality could build a school but furniture could be central procured for cost savings.
5. Maintenance (both routine and major rehabilitation): All infrastructure and school construction has associated implications for on-going maintenance. Maintenance costs and expenditures are often more decentralized than construction. For instance, Local Governments may be charged with paying for and carrying out maintenance; school grants may be used to allow school-level maintenance, and contributions may be sought or required from community members and/or parents. Unfortunately, it is common practice to decentralize responsibility for maintenance to local governments without the corresponding funds or potential sources of local revenue. This is of course true for other types of expenditure, but maintenance is the one that most impacts the value of school construction and the accumulated capital assets. In addition, maintenance falls under both recurrent and capital expenditure. Major maintenance is a capital expenditure while minor maintenance is a recurrent expense with direct impact on the capital asset.
6. Ex-Post Evaluation: This would include both a variety of audits to verify fiscal comity and structural integrity, as well as evaluations that determine if schools are properly designed to support educational goals, construction is of high

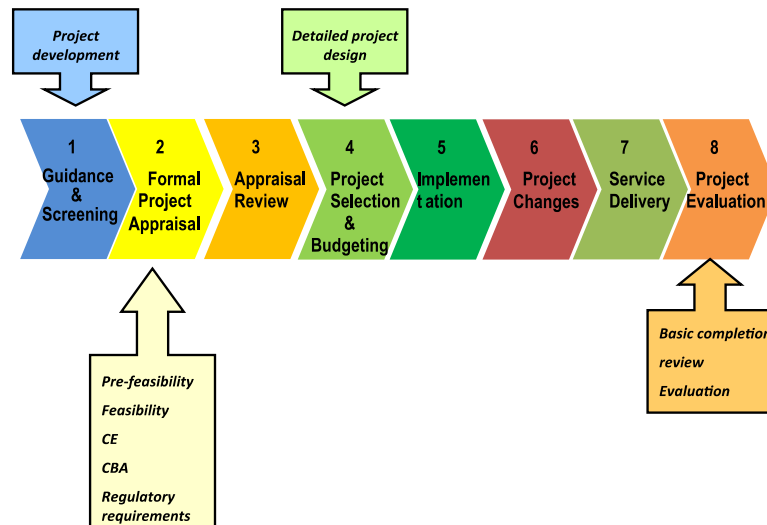
quality and standing the test of time, and school location procedures accurately reflect actual demand for schools.

Appendix 3 provides a worksheet for planners and policy analysts to consider how the components of education infrastructure investment and provision are and could be allocated across different levels of government

It is instructive to consider how one might relate the above six “phases” with the “usual” 8 steps of any investment cycle developed considerably throughout this book (Figure 3). The clearest conclusion is that they do not “align” in any straight-forward manner. For instance school location decisions are made to a varying degree across the first 4 cycle steps. In fact, even maintenance, which is primarily performed as part of the Service Delivery, must be factored in during the first four steps of project development and design. This means that planners and policymakers must consider the relationship of each phase with each cycle step. One could imagine, for instance, a 6 x 8 matrix with 48 cells each detailing the role of a particular educational infrastructure phase to a key cycle step, and that there could be considerable variation across countries and individual project. (See Appendix 4 for a “worksheet” for planners to consider Add to this the need to consider the nature and extent of decentralization for each phase and cycle step, and this underscores the complexity of the decision-making process and the different entities involved!

As we discuss further below, it is particularly in the 2nd, 3rd, and 4th steps where many governments exhibit high degrees of centralization and where consideration of some additional form of decentralization is likely warranted. There are multiple agencies involved in a complex investment cycle—this complicates considerably fostering accountability. The next section explores some of the main organizational arrangements for infrastructure provision under a range of different kinds of decentralized governance and accountability arrangements.

Figure 3: Public investment cycle: 8 key steps



Reference: Rajaram et.al., World Bank, 2010

A taxonomy of school construction and decentralization¹¹

As discussed above, historically in most countries the central government controlled and implemented virtually the entire school design, location, construction, and provision of non-infrastructure durable goods processes—particularly during periods of rapid expansion—and there is considerable international evidence that this resulted in poor quality and high costs. (Regional government provision fared little better.) In particular, the problems were: “(i) inadequate classroom allocation, (ii) weak monitoring capacity of the implementation agency, and (iii) low construction quality.” More decentralized arrangements (especially with municipalities) have been more common for routine maintenance and less often for major rehabilitation. The past two decades have seen considerable experimentation with various forms of decentralization in the school infrastructure sector beyond basic maintenance, with some positive results. The most common decentralization experiences have experimented with various forms of institutional arrangements – both devolution and delegation from both the central and sub-national governments to various quasi-governmental and non-governmental organization (as detailed

¹¹ This section draws heavily upon Serge Theunynck (2002), “School Construction in Developing Countries: What do we know?” Washington, DC: World Bank. Unless otherwise indicated, all citations in this section are to this source. Readers interested in project by project detail will benefit greatly from this paper.

below). Of course, delegation in and of itself will only have positive impacts if there is accountability; that is, that the principal-agent relationships are built upon proper incentives, good information and transparency (among other key factors).¹² Here we outline the most common and/or promising institutional relationships associated with education infrastructure decentralization.¹³

- ◆ *Devolution to local governments*, which was expected to improve “site monitoring by local government engineers” as well as “(i) closer monitoring leading to better work quality, (ii) local bidding, with increased use of local labor, lower costs and heightened community ownership leading to a greater commitment to maintenance, (iii) better integration of municipal investment between sectors.” Little cost savings or other gains were realized in Africa, Asia and Latin America—with the exception of Mexico’s 1994 major decentralization effort where substantial unit costs savings came rapidly.

- ◆ *Community-based approaches* have also taken many different forms and so it is not possible to say that they have worked or not without contextualizing the particular reform approach for any given country in any given time period. For instance, when coupled with centralized procurement—justified because of economies of scale and/or prefabricated design—results have been poor due to the complexity of supply chain and construction arrangements, failure to make best use of local knowledge and labor, etc. More positive results accrued to demand-driven approaches in Mauritania, Mali, Malawi, Uganda,¹⁴ India, and Mexico. These successful community-based construction strategies shared key characteristics: “(i) only locally available materials are used, (ii) only construction techniques familiar to villagers and local craftsmen and contractors are used, (iii) design improvements are limited to those necessary to ensure standard durability and safety, (iv) duties and responsibilities of partners are well defined. Regular technical supervision will help in ensuring that quality standards of construction are met, but does not substitute to close monitoring by communities.... Community pride in ownership of a well-built school, combined with appropriate technical advice to local builder is the main factor of quality

¹² There is a large literature on accountability, in particular stemming from the WDR 2004. See Gershberg, Gonzalez, and Meade (2012) for a detailed exploration of the myriad potential relationships between principals, agents, and clients.

¹³ We cannot provide details on the specific accountability relationships in the many projects considered in the development of this taxonomy, but it stands to reason that the instances that were successful effectively created incentives by which the “delegates” were answerable to the stakeholders responsible for service provision. While beyond the scope of this discussion, see Appendix for a detailed summary of all potential elements.

¹⁴ Theunynck (2009) calls Uganda’s community driven development (CDD) approach “the most important single construction program ever executed in an African country for primary classroom and sanitation in schools,” having built in 4 years 21,000 classrooms, 20,000 latrines, 325,000 desks, and 556 teacher houses.

construction.”¹⁵

- ◆ *Delegation to NGOs* has sought to leverage the closer connections and trust some organizations have developed with disadvantaged populations. It has taken many forms and yielded some positive, if mixed, results. Some build their own schools, which are often lower cost—in some cases because they have fewer requirements for non-classroom facilities than government schools, or they may have looser construction standards or more flexibility in bidding out to contractors. It may also be that the schools are lower quality in some cases, but there is not systematic evidence to that effect. (See example of CARE schools in the Egypt case study). The challenge has generally been scalability.
- ◆ *Delegation to Contract Management Agencies (CMAs)* has proven successful both in terms of unit costs and project completion, particularly in Africa. CMAs are “given operation autonomy to implement large-scale small construction programs, to be carried out by small contractors with local labor. They are staffed with skilled professionals recruited from the private sector. They select, pay and supervise contractors and architectural/ engineering services for site supervision. Their mandate is to promote small and medium enterprises (SME) by allowing them to bid for contracts. These agencies have changed the ‘rules of the game’ and have contributed to the growth of the construction industry.” The initial experiments with CMAs focused on urban areas, spreading to rural areas after they had established their value. Nevertheless, there are to date still more successful urban examples.¹⁶

The use of *Public Private Partnerships (PPP)* for school construction is an analogous policy to the delegations to CMAs.

- ◆ *Social Funds* have played an important role in decentralized school construction often delivering lower unit costs and higher rates of project completion. Originally a strategy for short term employment in times of crises, social investment funds have gradually become more permanent fixtures, often acting as CMAs for their own school construction projects. While most are not community-based they do always call for some significant level of community participation and/or involvement of sub-national governments.

Figures 4 and 5 show the relationships between two spectrums of centralized and decentralized actors as well as public and private actors for two of these categories

¹⁵ In our Egypt case study below we will also explore the potential for community-based approaches in school design and location.

¹⁶ And delegation to CMAs is fraught with challenges of its own. If they are, for instance, under-capitalized when given contracts, without sufficient allowance for advances and cash flow management (partly out of fear for providing too many advances ahead of results), then there is a danger that they could fail and abandon the projects anyway. Balancing the need for cash-flow advances with the need for payment-for-results, with under-capitalized builders, is a factor not sufficiently considered in many cases.

of institutional arrangements a typical local government delegation and social fund or CMA arrangement, respectively.

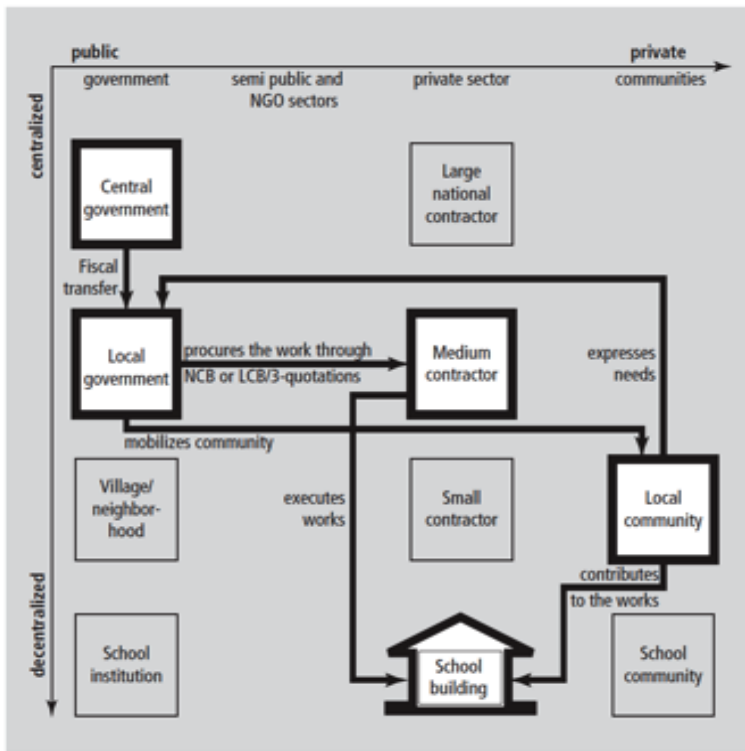


Figure 4: Devolution to local government
 Source, Theunynck (2009)

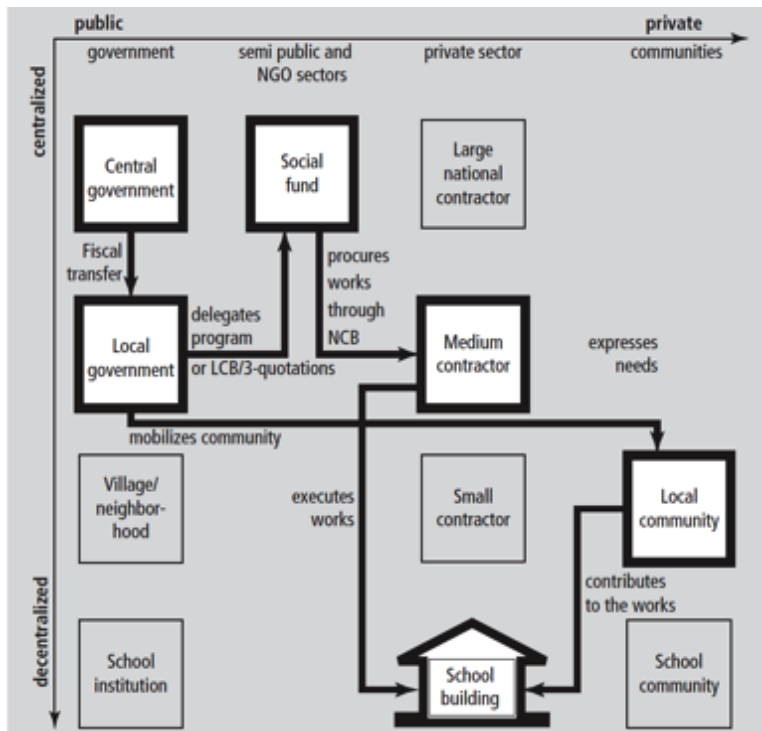


Figure 5: Delegation to CMA using a Social fund, after delegation to local government

It is important to emphasize that these figures only highlight one of many potential examples of the institutional arrangements for only two of the categories in the taxonomy above. The possible combinations are myriad and many more are explored in greater detail in Theunynck (2009). In addition, Appendix 2 provides a summary of implementation schemes that allows analysts to construct similar flowcharts for any given set of arrangements either existing or proposed.

Table 3 provides some comparisons of cost differences of the different approaches from Sub-Saharan Africa. Though care should be taken in the comparisons given the caveat that quality cannot be compared or assumed constant, the various delegation models from the above taxonomy do appear to provide significant cost savings.

Table 3

Table B1 – Average Unit Costs per Procurement Method

| Type of Procurement Method | Average Unit Cost (US\$/m ²) | Average Cost per Classroom (US\$) |
|--|--|-----------------------------------|
| Central Ministry International Competitive Bidding | 269 | 17,485 |
| Central Ministry National Competitive Bidding | 189 | 12,285 |
| Delegation to Project Implementation Unit/Contract Management Agency | 190 | 12,350 |
| Delegation to NGOs acting as Contractors | 180 | 11,700 |
| Ministry Decentralised Office National or Local Competitive Bidding | 180 | 11,700 |
| Local Government National or Local Competitive Bidding | 172 | 11,180 |
| Delegation to Communities from Ministry | 103 | 6,695 |
| Delegation to Communities from Local Government | 95 | 6,175 |
| Delegation to Communities from NGOs | 80 | 5,200 |

Notes: [1] All costs in this Table are taken from Theunynck (2009) and are based on a comparative study of 215 projects in Sub-Saharan Africa [2] All costs adjusted to 2006 prices [3] Average cost per classroom assumes a 65m² gross classroom area in all cases.

*Case Study of a Large, Centralized School Construction Operation: Egypt's General Authority for Educational Buildings (GAEB)*¹⁷

Few would deny that Egypt's achievements in school construction have been impressive, even historic. Between 1992 and 2006 the Government built about 14,000 schools, most by the General Authority for Educational Buildings (GAEB), thus greatly expanding access to and enrolment in basic education especially for the poorest half of the income distribution. By some accounts, more schools were built

¹⁷ This case study is based upon a study the author did for the Population Council and USAID (Gershberg and Gohary, 2007). This study used qualitative interview and focus group methods to gather the interview data presented here.

in this period than in the preceding 110 years.¹⁸ Thus, the centralized approach made sense at these earlier stages of educational development, especially after a severe earthquake required swift rebuilding of infrastructure and inspired highly restrictive building codes.

Yet there is a wide-spread impression that school construction in Egypt is also too expensive for the quality of service provided—inefficient both in the cost of construction and in the match between the structures built and the needs of stakeholders—and that these inefficiencies are in no small part due to centralization of the design, planning and construction processes in GAEB. In particular, this case sheds light on the issue of school location, community involvement and decentralization.

There are lower cost models of school construction, most interestingly from the arm of the government providing religious schools (Al-Azhar), which are about 33% less expensive on a per classroom basis.¹⁹ While officially part of the central government, these schools are not run by the Ministry of Education nor are the schools built by GAEB. For its part, GAEB claims that the Al-Azhar schools are of lower quality, particularly with respect to earthquake risk, an assertion that is hard to refute in the absence of major earthquakes.

The NGO-built CARE schools also have lower unit costs (about 22% less costly), in part through focusing more tightly on classroom rather than on non-class room construction. Additional inefficiencies stem from several pervasive problems with the incentive environment for educational infrastructure provision:

The agency in charge of school construction and contracting (GAEB) also plans, proposes, and decides the type and quantity of schools needed.

- ◆ This creates a conflict of interest—the larger the investment amount, the greater the contracting function).
- ◆ Despite claims of high-tech mapping and school location and demand models, GAEB has shown poor population forecasting, in part because
 - The agency in charge of school construction & contracting also forecasts population growth to determine needs
 - The same agency decides the type, quantity and locations of schools required.
 - This creates a conflict of interest—the greater the estimated needs, the larger the contracting function.

¹⁸MOE, National Strategic Education Plan 2007/08 – 2011/12. This figure may also include schools built by donors and NGOs whose construction was overseen by and coordinated with the MOE and GAEB.

¹⁹ These figures come of the World Bank Public Expenditure Review (World Bank, 2005).

While never a singular solution, decentralization of some form would likely mitigate some of GAEB's biggest challenges. For instance, one of the major issues included building schools where they were not needed but where the price of land was low (or could be acquired for free), which led to providing schools where existing crowding did not demand it, and leaving crowded schools just as crowded. This is a function of an accountability that emphasizes the number of schools built, and not the satisfaction of parents and communities with the schools. Historically this might have not been so problematic, as low-population-density areas tended to be those with lower enrollment rates. But as enrollment became nearly universal, the problems of overcrowding became more significant than the problems of non-coverage, and the areas with over-crowding tended to be those with the more expensive land. Almost by definition, jurisdictions with cheaper land tended to be those that where schools were less over-crowded.

So not only was the system centralized, but it did not allocate resources in a rational way. If the system was somewhat decentralized, and had to allocate construction according to some transparent criteria, the strangeness of allocating funding to areas with cheap land would become clearer, and the system would find itself pressured to allocate more money to areas with overcrowding.

In part driven by the exposure of inefficiencies in GAEB, the Egyptian Government undertook a highly public program to bring the private sector into the school construction game through Public Private Partnerships (PPP). In theory PPPs can leverage private sector access to capital markets where bond markets are less robust. Unfortunately PPP has not been successful in Egypt for several reasons, chief among them that the private sector needs even larger scale contracts to make bids worthwhile, and these have proven untenable given the risk involved with have to trust in 10-15 year relationship with Egyptian Government. The events of the Arab Spring have perhaps born out those risks. The end result is that GAEB ended up being the contractor for most of the PPP bidders!

Still, decentralizing GAEB in other ways has been part of the government's reform rhetoric for nearly a decade. Yet progress has been very slow. In part, the lack of reform stems from a political economy that generates strong incentives to remain centralized. . GAEB has operated as a nearly autonomous unit run by military generals allocating vast sums of resources. Decentralization signifies a major loss of power for these stakeholders. On the other hand, the case shows that under most conditions educational infrastructure decentralization is likely to be a long, complex, hard slog. A few capital investment and maintenance responsibilities have indeed been transferred to the regional (governorate) level of the MOE and/or GAEB—known as the “muderiyas.” A couple of examples are the purchase and installation of educational technology in new buildings along with major maintenance funding at technical schools. While schools now receive control over some minor maintenance funds. Whether such developments are stepping stones towards more significant reform is hard to tell. Since the transition to the government lead by Mohammed Morsi after the fall of Hosni Mubarek, the GAEB has its first civilian director.

IN 2010, a major consultancy through USAID argued to the Egyptian government that national conditions...

...call for a system where infrastructural needs are identified locally at the Idara [district] level, vetted and approved for funding at the Markaz [regional] level by Local Popular Councils (LPCs) via ear-marked decentralized fiscal transfers, and coordinated sub-nationally at the governorate level as part of the governor's portfolio where he ensures that MoE's strategy and directions are followed and implemented, and where tradeoffs between idaras are assessed and decided (following nationally-set criteria). To induce local entities to choose efficiently within the construction envelope, the Idara must keep its own formula-given money if it can carry out savings. The idara (perhaps as mediated by the mudiriya) should also act as a client and commission the services of the local GAEB governorate office to act as a project manager for the Idara as a client. Distribution of funds may, at least in the beginning, be based on a formula or formula-like mechanism that takes specific local access needs into account, perhaps along with the human development index (HDI) of an Idara. This combination may allow for the use of valid indicators that can be specific enough for MoE to gauge infrastructure earmarking.²⁰

This is similar to proposals in a 2007 strategic plan and a 2005 World Bank Public Expenditure Review. The point is not that there is not change, but that it is slow and highly political.

Table 4 revisits the decentralization matrix presented above (Table 1) and explores the potential application to our Egyptian school construction case study. We explain the manner in which each aspect of decentralization is (*or more importantly could or should be*) present in reform efforts.²¹

Perhaps the most important point to highlight is that most of the aspects are present *de facto* to some extent and all are relevant. That is, *it is not fruitful to provide a single label for the decentralization reforms of Egyptian school construction and the reality is that it is a complex mix of many components*—some weakly decentralized and other less so. The analysis also indicates the absence of the “stronger,” more “bottom up,” more “local” decentralization that many analysts have hypothesized are more likely to improve accountability. Below we present briefly the results of qualitative analysis with local stakeholders that puts some meat on the bone of this framework and the inefficiencies that remain, at least in part, due to the continued strong centralization of the institutions and the fact that the most prominent decentralization components are what we labeled “vertical,” which we argued are less likely to yield positive outcomes and foster accountability than more “horizontal” decentralization.

²⁰ RTI, Planning the Decentralization of School Infrastructure, Discussion Document 9-2-2010

²¹ Note that we do not attempt to disentangle the *de facto* reality of actual practice, which is quite often weaker than *de jure*. *De facto* practice is, of course, more important with respect to fostering the actual accountability gains reforms hope to accrue from decentralization, but uncovering that is beyond the scope of this case study

Table 4: Potential application of Decentralization Matrix to Egyptian School Construction Case

| Decentralization Component | Issues and likely application to GAEB and Egyptian Case |
|--|--|
| Deconcentration to Regional Government Offices and Regional MOE Offices | At the governorate level, GAEB has offices that have traditionally been involved as implementers of central plans under tight control. Some increase in autonomy has been announced by GAEB and will certainly be needed |
| Devolution to regional or local governments | Governorates are supposed to provide input into plans, fiscal allocations, and project implementation. Pilot projects have shown promise (especially regarding maintenance, ICT and some vocational classrooms) but also the difficulty of GAEB ceding real control. Recognition of need to involve local governments but very little (and/or very problematic) in practice |
| Delegation (and/or Devolution) to schools and/or school councils | School councils (Boards of Trustees) established at many schools officially, many do not operate in practice or have significant power. In any case, even in de jure terms, the powers and duties of the Boards of Trustees were not always clear (they were not fully specified and yet non-overlapping with the powers and duties of other bodies) though the regulations on this aspect did improve in the late 2000s. Some control over some maintenance projects, none over major renovation. |
| Delegation to NGOs, Contract Management Agencies (CMAs) and/or Social Funds | In theory, this practice could prove fruitful, but has not been tried in a strict sense. Public Private Partnership (PPP) garnered much attention in the early 2000s but was largely unsuccessful for many reasons. |
| Implicit delegation to community schools and community based approaches | Virtually no input from communities on crucial issue of new school location and construction. Very much needed in future. |

In addition to high unit costs for school construction, there are several other “typical” inefficiencies evident in the Egyptian case study of GAEB relating to school design and school location that appear to imply potential reasons for some decentralization. For instance,

BOX: Stakeholder Insights on School Location in Egypt

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(Gershberg and Gohary, 2007) examined issues with school location for the Population Council and USAID. They used qualitative interview and focus group methods to gather the impressions and insights of local actors (parents, school directors, and teachers) regarding school location. Here is a selection of direct quotations from the interview and focus group data. Allowing the voices of the stakeholders to emerge lends power and substance to many of the key arguments developed through our case study..

"If the land is government-owned, they build wherever they like; if the inhabitants donated the land, they build on it".

"No-one consulted us. The land is owned by the government, and they decided to build a school there".

"They don't ask anyone's opinion. If the Ministry cared enough to ask, some problems would be avoided, such as the unsavory social environment around the school"

"The students come a long way, and they have to walk on the main road, where there are vehicles driven by young kids, many of whom don't have a driver's license. The girls leave school in the evening shift at 5 or 6 p.m., and they walk a long way in the fields alone."

"Some students walk five or six kilometers to get to school."

"It's completely inappropriate that we're directly on the road; it's the Agricultural Highway. Most of the kids come from the same three or four villages, which causes a drop out problem because the school is far away from where the kids live"

"There are three or four road accidents annually... In the fields there are kidnapers, because the school is far away from the pupils' homes. Last year a student was kidnapped... The kids also walk across the canals by balancing on drainage pipes, so naturally there's a risk of falling in".

- ◆ There is often no differentiation in design between urban and rural areas, high population density or remote areas, between high-risk earthquake zones and lower risk etc.

Not surprisingly, thus, many schools have inappropriate designs for local conditions and local people

In short, there is simply no way that a central bureaucracy—even armed with remote sensing, GIS, and the best population projections available—can collect, in a cost effective manner, the data necessary to make the best decisions regarding school location to avoid such hazards. A few excerpts from interviews of stakeholders exemplify the concerns of school administrators and community members alike (See Box). Clearly local knowledge of parents and school staff should be solicited and given serious consideration in school location decisions. The same is likely true for other aspects of school construction.

Concluding remarks

Perhaps the simplest but very important point is that while a typology of school construction decentralization is useful for identifying the components of a reform and exploring which components are more (or less) likely to enhance accountability, classifying or labeling a complex decentralization reform into a “type” is not particularly fruitful. In fact most country contexts will exhibit some degree of decentralization along most if not all of the potential components of a reform.

One important point to take from the Egypt case, that we argue may generalize to other cases, is that when the main issue is massive out-of-school numbers, governments can put a school anywhere, even with overly-centralized and standard design, and, assuming that out-of-school problems are mostly supply-side issues, then students will fill the new schools. But as countries have progressed, at least three things have happened.

- i. First, in some areas schools are over-crowded, and then the decision to add more spaces by adding to schools, by buying expensive but close-by land to build new ones, etc requires more subtle, localized information and interaction; therefore such progress appears to strengthen the case for some decentralization.
- ii. Second, as countries put most of the children into school, the ones that remain out of school are increasingly special, harder to reach and serve populations—the extreme poor and disenfranchised, the disabled, nomadic families, populations with different cultures (ethnic or linguistic minorities)—whose needs are often best met with special-purpose infrastructure.
- iii. Third, the more infrastructure has been built in the past, the more there is a need for the recurrent cost of maintenance, by definition, and maintenance is often best done locally, since a central location has a hard time deciding in which local school to fix broken windows and in which local schools to paint the walls, or fix the bathrooms. This is to argue that, as countries have advanced, the arguments favoring some form of decentralization, as outlined in Table 2 above, increase. However, this leaves each country with a very important and very difficult set of institutional incentives and arrangements to ensure accountability: namely, when school construction is centralized and school operations and maintenance decentralized, what are the right institutional arrangements for giving decentralized governments the right incentives to keep building maintenance at the right level?

In addition, our discussion highlights important factors for policymakers to consider when contemplating decentralization and intergovernmental relations in educational infrastructure provision

- ◆ While Sub-national governments are often the focus of infrastructure decentralization reforms, they are only one among a long list of other entities and stakeholders involved. On the one hand, this means at least very carefully thinking through the inter-institutional relationships and environment within which sub-national governments operate. On the other hand, it could mean that under some conditions sub-national government need not be the central focus of any given reform in any given country context.
- ◆ Our discussion also illustrates clearly how imperative it is to consider and explore how conditions and opportunities change over time, and that it is a very different task to provide for infrastructure where the out-of-school population is 30% versus 3%--the latter case often favoring decentralization for various reasons explored above. The mix of conditions and effective components of a school infrastructure decentralization strategy is obviously quite different in Egypt compared to Niger, and in Egypt in 1990 compared to Egypt in 2010. This latter evolution presents a challenge for decentralization policies in that institutions (especially strong centralized, school construction authorities) almost by definition resist change and are slow to decentralize (at best).
- ◆ Planning and Appraisal, especially location and design features are two areas where the role of local government and communities may be particularly important and particularly difficult to achieve
- ◆ Financing and Procurement: while there is no generalizable formula for successful improvement, it is clear that
 - this area offers big potential costs and cost savings: various decentralized strategies appear to lower costs and foster accountability, efficiency and effectiveness (and provide likely political gains, too)
 - “earmarking” and other fixed or formula-driven costs (recurrent and capital) associated with construction are strategies worth considering
 - equalization transfers or other redistributive fiscal transfers are key to enhancing equity. And, it is important to consider how to include maintenance and infrastructure expenditures into these transfers
- ◆ Community-based approaches, Intermediary NGOs, Social Funds, and Contract Management Agencies (CMAs) all hold promise for accountability and performance enhancement across many of the key phases of the infrastructure planning and school construction—as does the use of medium and sometimes small scale contractors.

- ◆ There is likely a need for a continued strong role at the central level in school design and standards, even while there are many reasons why in reality this may foster inefficiencies. As in any decentralization effort, it's crucial that the center set the "rules of the game" clearly and enforce them consistently and transparently
- ◆ There is not nearly enough attention to evaluating the potential and actual impact of decentralization reforms on cost and other key aspects of construction programs. And there is hardly any ex-post evaluation of the actual performance of school buildings as an input to either attendance or learning.

We believe the discussion in this paper has made clear that various fiscal levers and institutional arrangements can often be applied to achieve better implementation. However, without equal attention to the critical issues of school design and location also highlighted in this paper, the dilemma is the risk that a country better implements poorly designed schools. To avoid this paradox some parallel application of organizational models we have explored are justified and are warranted. This type of organizational asymmetry holds promise for improved efficiency for decentralized education infrastructure.

References

Bonner, R., Das, P. K., Kalra, R., Leathes, B., & Wakeham, N. (n.d.) Delivering Cost Effective and Sustainable School Infrastructure. TI-UP.org

A. Gershberg and H. Gohary, "Building the Schools Egyptians Need and Want: A Qualitative Evaluation of the Policy and Practice of School Location, Design, Construction and Maintenance, The Population Council, May 2007.

A. Gershberg, P. Gonzalez and B. Meade, "Understanding and Improving Accountability in Education: A Conceptual Framework and Guideposts from Three Decentralization Reform Experiences in Latin America," *World Development*, Vol. 40, No. 5, 2012: 1024–1041

A. Gershberg and M. Jacobs (1998). "Decentralization and Recentralization: Lessons from the Social Sectors in Mexico and Nicaragua", OCE Working Paper Series, WP-379. Washington, DC: Inter-American Development Bank. August 1998.

A. Gershberg and D. Winkler, "Education Decentralization in Africa," in Brian Levy and Sahr Kpundeh (editors), *Building State Capacity in Africa: New Approaches, Emerging Lessons* (Washington DC: World Bank, World Bank Institute, 2004).

Ministry of Education (MOE), National Strategic Education Plan 2007/08 – 2011/12.
Cairo: Egypt

Rondinelli, Dennis A. (1981). Government decentralization in comparative theory and practice in developing countries. *International Review of Administrative Science*, 47 (2), 133-147.

Rondinelli, Dennis A. and John R. Nellis.(1986). *Assessing decentralization policies in developing countries: The case for cautious optimism*. *Development Policy Review* 4: 3.23.

Rondinelli, D. (1989). "Decentralizing Public Services in Developing Countries: Issues and Opportunities." *Journal of Social, Political and Economic Studies* 14(1):77-98.

RTI, Planning the Decentralization of School Infrastructure, Discussion Document 9-2-2010

Theunynck, S (2002) *School Construction in Developing Countries - What Do We Know?* World Bank, Washington DC

Theunynck, S (2009). *School Construction Strategies for Universal Primary Education in Africa: Should Communities be Empowered to Build their own Schools?* World Bank, Washington DC

Annex 1: Application of OECD's locus of decision-making framework to examine the range of centralization and decentralization in a sample of countries

Table A1 shows the level of governmental authority responsible for three relevant decisions: 1) the allocation of capital expenditure resources to schools, 2) the decision over how schools use those resources, and 3) the decision to create or close a school, which impacts school construction and location.²² The table also shows the relative autonomy that governmental authority has over the decision (in full autonomy versus being required to consult with another governmental level to make the decision²³).

Table A1. source: Author adaptation of OECD *Education at a Glance 2012*.

Level of gov't at which decisions are taken, public lower secondary education (20

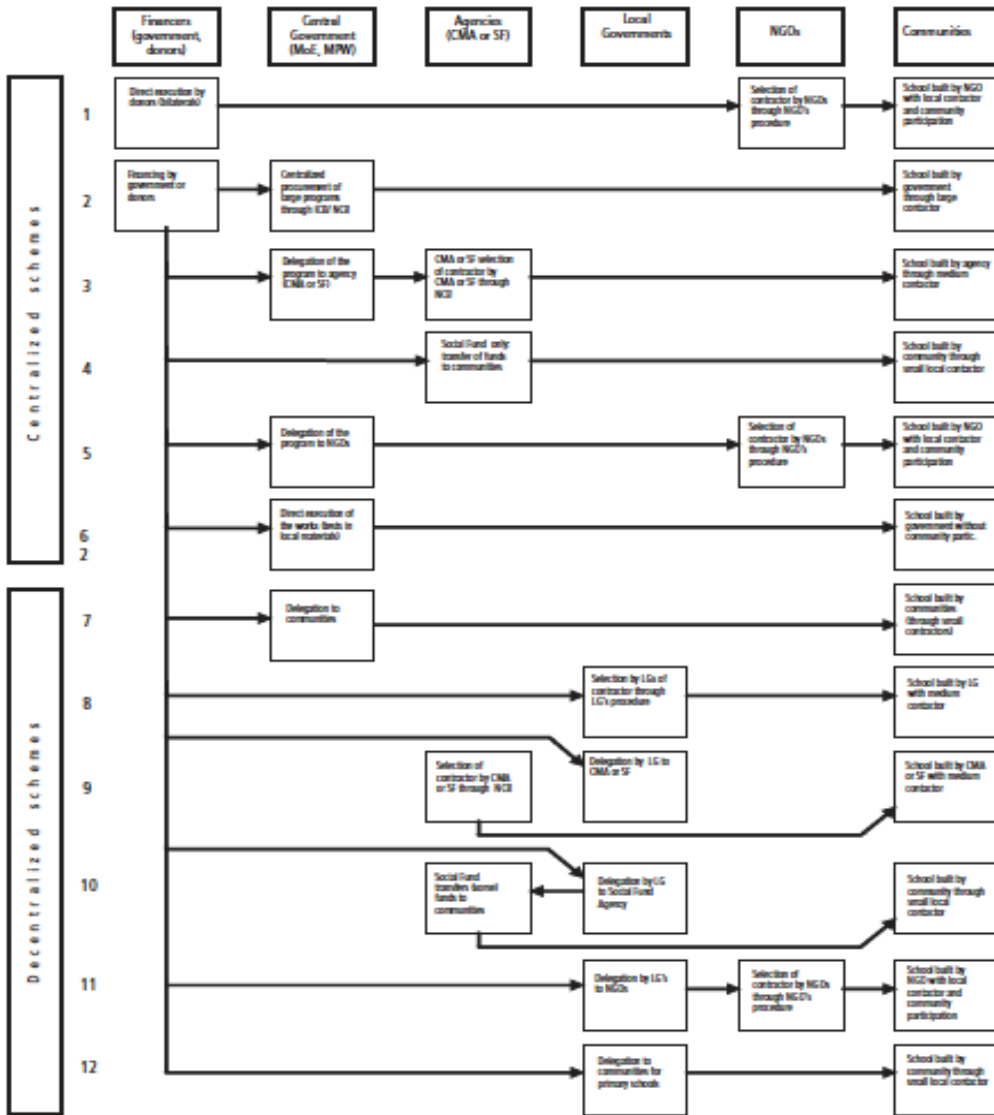
| | Capital expenditure, Allocation of resources to the school | Capital expenditure, Use of resources in the school | Creation or closure of school |
|------------------|--|--|--|
| OECD | | | |
| Australia | State In full autonomy | State After consultation with school level | State After consultation w/state & local level |
| Canada | State After consultation with local level | Local Within framework set by state level | State In full autonomy |
| Canada | | | |
| Canada | | | |
| Chile | Local Within framework set by central level | Local In full autonomy | Local Within framework set by central level |
| Czech Republic | Local In full autonomy | Local In full autonomy | Local Within framework set by regional level |
| England | Local In full autonomy | School In full autonomy | Local In full autonomy |
| Estonia | Local In full autonomy | Local In full autonomy | Local Within framework set by central level |
| Estonia | | | |
| Estonia | | | |
| Finland | Local In full autonomy | Local After consultation with school level | Local In full autonomy |
| Finland | | | |
| Finland | | | |
| France | Sub-regional Other | Sub-regional In full autonomy | Sub-regional Other |
| Germany | Local Within framework set by state level | Local In full autonomy | Local After consultation with state level |
| Germany | | | |
| Germany | | | |
| Greece | Central Other | Central Other | Central After consultation with regional level |
| Hungary | Local Within framework set by central level | Local After consultation with school level | Local After consultation w/sub-regional level |
| Ireland | Central In full autonomy | School Within framework set by central level | Central After consultation with school level |
| Japan | Local In full autonomy | Local In full autonomy | Local In full autonomy |
| Korea | Regional In full autonomy | Regional In full autonomy | Regional In full autonomy |
| Mexico | Central In full autonomy | Central In full autonomy | State In full autonomy |
| Netherlands | School In full autonomy | School In full autonomy | Central In full autonomy |
| Netherlands | | | |
| Poland | Local In full autonomy | Local In full autonomy | Local Within framework |
| Slovak Republic | Central After consultation with local level | School After consultation with local level | Central After consultation with local level |
| Slovenia | Local After consultation with school level | Local After consultation with school level | Local Within framework set by central level |
| Turkey | Central In full autonomy | Regional Within framework set by central level | Regional Within framework set by central level |
| Turkey | | | |
| Turkey | | | |
| United States | Local In full autonomy | Local After consultation with school level | Local Within framework set by state level |
| Other G20 | | | |
| Indonesia | Sub-regional Other | School In full autonomy | Sub-regional After consultation with central level |

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Annex 2 from Theunyck (2009)

Summary of the Various Implementation Schemes

Schemes to implement school construction programs



Appendix 3: Worksheet for Educational Infrastructure Provision and Reform

| | Central | | | Regional | | Local | | |
|---|------------------|-----------------------------|-------------------------------|---|---------------------|----------------------|------------------------|---------------------|
| | Central Ministry | Central Construction Agency | Other Central Ministries, etc | Regional deconcentrated units of central ministries | Regional government | Municipal Government | Community Stakeholders | School-level Actors |
| School Design | | | | | | | | |
| School Location | | | | | | | | |
| School Construction, new school | | | | | | | | |
| School Construction, expansion of existing school | | | | | | | | |
| Provision of Non-infrastructure durables | | | | | | | | |
| Maintenance, major rehabilitation | | | | | | | | |
| Maintenance, routine | | | | | | | | |
| Ex-Post Evaluation | | | | | | | | |

