

**A STRATEGY FOR KNOWLEDGE-BASED
DEVELOPMENT:
COMMUNITY-BASED INFORMATION LENDING (CIL)**

by

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Abstract

Investing in the public information sector is arguably the most fundamental strategy for knowledge-based development that can be imagined. Without adequate capability to gather and use data about themselves, many countries are locked into what David Ellerman calls “the passivity of tutelage.” The World Bank Group, as a key user and publisher of data for development analysis, and as the world’s largest investor in the public infrastructure of development programs in developing countries, has been justly accused of not doing enough to help its client countries to create or improve their capability to gather, validate, and analyze socio-economic data. The Bank is responding to this criticism, in part, by promoting lending programs for statistical modernization with a strong capacity-building focus, encouraging countries to integrate statistical capacity into their national strategies for capacity building. This paper presents the general case for what might be called a “bottom-up” strategy to this integrated approach to capacity building. The paper identifies the main concepts in this strategy and relates them in a coherent framework (system) of principles and methods. It then discusses in some detail how the strategy could be tested, taking a statistical modernization project currently being planned in India as an example.

1. INTRODUCTION

In May of 1992 Yale University with the Ford Foundation held a seminal conference on Data Base for Development Analysis. According to the conference papers, which were published with an overview by T.N. Srinivasan in a special issue of the *Journal of Development Economics* (Vol. 44 (1994), "...the situation with respect to coverage, reliability, intertemporal and international comparability of even the most basic data series such as national income and foreign trade, let alone social indicators such as life expectancy and infant mortality, is extremely serious....The need for strengthening the data gathering and analysis capability of developing countries was repeatedly emphasized by the participants. Indeed, this was the consensus at the conference and its primary recommendation: greater resources have to be provided internationally and nationally for improving data gathering and analytical capability of most developing countries" (quoted from Srinivasan's Introduction to the Volume).

In concluding his own "Overview" paper, Professor Srinivasan gave even sharper advice to international agencies who are gathering and publishing data for development analysis. His *first* (of three) recommendations: "The resources spent by international agencies in putting together and publishing economic and social data should be largely diverted to, creating where none exists and improving where one exists, the capability in developing countries to gather, validate and analyze socio-economic data. ...until such time as national capabilities for data gathering and analysis are greatly improved, providing additional resources at "headquarters" of international agencies for data would be wasteful."

In the same year that this advice was published (1994), Professor Srinivasan participated in an external review, by a panel headed by Mr. Vinod Dubey, of the Bank's work on socio-economic data, as part of the "renewal" strategy of the Bank's International Economics Department. The Report of this external review panel recommended a leading role for the future Bank in rectifying the poor state of the data base for development analysis--a role focused on using the instruments of the Bank to help client countries build up their statistical capacities in ways relevant to their own development agendas.

Subsequently, with the reorganization of the Bank and the advent of the Bankwide networks, the Development Data Group emerged as a semi-autonomous department with a Bank-wide orientation. Its Statistical Advisory Services team has a mandate to help lead statistical capacity building in the client countries. However, the scale of resources

presently dedicated to this assistance is small, compared with the need identified either in the Dubey Report or in the Conference at Yale. How the Bank Group will organize itself to meet this need thus remains an open question. It is clear that this work must be strongly supported by the client countries, must be supportive of what other international agencies are able to bring to the table, and must be integrated with the Country Assistance Strategies and with the operational work of the Bank Group. The Statistical Modernization Project proposed by the Government of India now provides an excellent opportunity to address these issues in a creative manner.

Community-based Information Lending (CIL) is a strategic response to this unfinished business. On the one hand, CIL defines an integrated approach to capacity building (the sustainable accumulation of “social capital”) from the “ground” level of development upwards. On the other hand, the CIL strategy also defines the top-down process of leadership and management that will maximize the power of this bottom-up process. This leadership should be provided by the central statistical system of the country or state. CIL is an action program in the developing countries that the World Bank can and should support. The India Statistical Modernization Project provides a present opportunity to demonstrate CIL. There are other opportunities as well, e.g., in a similar project that is starting in Russia, and in programs under way in Africa. For example, the TELISA (Technology Enhanced Learning Initiative in Southern Africa) project, a largely private initiative based in South Africa, needs to receive enlarged public support in order to achieve sustained development impact in poorer areas of Southern Africa and to propel this progress northward.

The purpose of this paper is to lay out the basic concept of this new approach to community-based development through statistical capacity building.

2. CONCEPTUAL ELEMENTS OF CIL

In reviewing the Statistical Modernization Project being proposed by the Government of India, Bank staff developed the rationale for community-based statistical modernization and made a case that such a bottom-up approach would be a vital complement to the usual, top-down strategy typically pursued by central governments. While this two-pronged strategy is particularly pertinent for countries where the traditional prerogatives of central direction may tend to forestall local initiatives, the arguments apply to many countries and areas where modern information systems could help to build community identity and trust in government at its local level of functioning. In Africa also, where government leaders tend to focus on taking initiative from the top, a community-based approach makes a lot of sense, particularly in areas where destruction or corruption has temporarily incapacitated the center.

In the terms of economics, what is involved here is building the “social capital” of trusting relationships between the residents and the authorities of a local area. The idea is to use the information-gathering capabilities of modern information technology (IT) to strengthen social organizations (as opposed to predatory governmental structures) and simultaneously to increase the ability of local government to provide worthwhile “public” goods and services.

The “social capital” and “trust” literature comprises a rapidly-expanding field, which keeps rediscovering--always using a new vocabulary--much older insights. As an early contribution, Robert Nisbet’s *The Quest for Community* is a good entry point to the associationist school in sociology. In 1974 Alan Fox published *Beyond Contract: Work, Power, and Trust Relations* (London, Faber & Faber), which engendered much subsequent work on relational contracting, e.g., Victor Goldberg, *Relational Exchange: Economics and Complex Contracts* (American Behavioral Scientist, 23/3, 1980, pp. 337-352). An anthology on trust oriented to economists is Diego Gambetta, Ed., *Trust: Making and Breaking Cooperative Relations* (1988, New York, Basil Blackwell). More recently, Fukayama has published a new book titled simply *Trust*. Another relevant literature is about the psychology of altruism, e.g., Alfie Kohn, *The Brighter Side of Human Nature: Altruism and Empathy in Everyday Life* (1990, New York, Basic Books).

“Modern information technology (IT)” in this context broadly means networked personal computers with multi-purpose, highly-accessible software such as are now being used for teaching children basic literacy and numeracy (as well as for distance learning and other less elementary functions). The technology combines audio and visual aids,

can be programmed in any local language, and can be used as terminals for the gathering, processing, and transmission of systematic information such as is needed for the compilation of the district, state, and national income accounts of a country.

Low income does not preclude use of such systems, even though the organization of demand in poor areas (to make this demand effective and sustainable) is a challenging task. It may be true that only twenty per cent of Africa's people have ever placed a telephone call, but, counter-intuitive as it may seem, this fact is not relevant to the issue of whether Africa can join the global "technology revolution." Precisely because power grids are not available or give unreliable service in many places, generators are increasingly in use in the offices and in the organizations of poor rural communities. And because POTS (Plain Old Telephone Systems) often do not provide cheap and efficient service, PANS (Pretty Amazing New Stuff, such as suitcase-style satellite phones for batch data transfers) are becoming economical as the unit cost of basic operations falls along the technical frontier. Experiments with distance learning, such as the TELISA (Technology Enhanced Learning Initiative in Southern Africa) project, are showing what can be accomplished through setting up low-cost "Community Teli-Info Centers" even in remote rural areas.

The real constraints on such progress are not technical, nor even economical, but instead social. So it is important to visualize in human terms the functionality of such modern systems, as they would operate at the grass-roots level of learning and work. At the level of community organization, this functionality is necessarily multi-purpose, and the sharing of overheads (for both physical and social capital) is the critical factor for efficiency and sustainability.

A computer installed in an Indian village for purposes of tabulating basic data about the community (vital statistics, census records, standard surveys) will also maintain health records, voting registers, provide higher-level educational opportunities, access regional libraries, teach reading and writing to the illiterate women and girls, monitor poverty statistics, count crops, file standard reports up an administrative line, and record the weather. The same system of hardware and connectivity carries the visualization of these processes as well as the Discovery Channel, CNN, singing at the local primary school, village festivals, and local news about agricultural extension, natural resource management, and preventive health care.

The village chief does not care what sort of supplier put the computer there, provided the multi-purpose software, and the training to go with it. The rationale of the originating initiative could have been narrow (e.g., education) or broad (e.g., strategic information). But, either way, the long-run public interest is only efficiently served if the information-sharing capacities of the technology are exploited. Only then will this capital accumulate along a steady and sustainable path, as the economic depreciation rate will be high with the continuing revolution in information technology.

This technical and economic imperative of sharing information and the associated system overheads creates an *opportunity* for integrated development that can hardly be ignored. Partly *because of* the power of modern IT, information is the leading *integrating* function of development activity. This is especially true on the ground, at the community level, where the scope for specialization and differentiation of function is naturally small. On the other hand, enthusiastic suppliers and donors can't just parachute an IT network into district health clinics or education centers in traditional societies and expect thereby to create lasting capacity or a sustainable process of development. The focus of attention has to be on the fundamentals of institution-building, and in particular on building the leadership function in society, founded on a mutuality of trust--perhaps the central feature of "social capital" in a society that is progressing.

In short, the "energy" of information, with the catalyst of trust, must be transformed into the "mass" of social capital. This transformation can be accelerated through the power of modern IT to facilitate a participatory process of gathering local development data, and of using it (with feedback on external conditions) for local purposes. This is the core "engine" that drives the creation of capacity for economic growth. Accordingly, Community-based Information Lending (CIL) can be conceived as the "intervention" that sets up this engine and starts it running.

What do we mean by local data for local purposes? Operationalizing CIL requires clarity about the concepts of "local public goods." Public information about local public goods is an important part of the engine of progress, and it underpins what is called good governance. Such "strategic data" include information about the production, cost, and distribution of local public goods, about accountability for their quality and access to them, about the management and control processes involved, about the financing of their costs, and about the maintenance of democratic responsibility for the power that is exercised in and through these functions.

"Local public goods" are conceived here as goods and services that are available to local residents either without payment or on preferential terms (relative to the costs of access by non-residents). These may include locally-standard health and education services, utilities for local households and businesses, local transport and communications, local recreation and environmental services, favorable public policies toward local farming, business and worker interests, and civic/civil services (for handling family relations, ownership and property, law and order, voting and political affairs, and public finance). For the most part, "local public goods" are the sorts of things that the community does not want to exclude (or for practical reasons, including logistical reasons, *cannot* exclude) from its members by attaching prices to particular transactions, as with privately-sold goods and services.

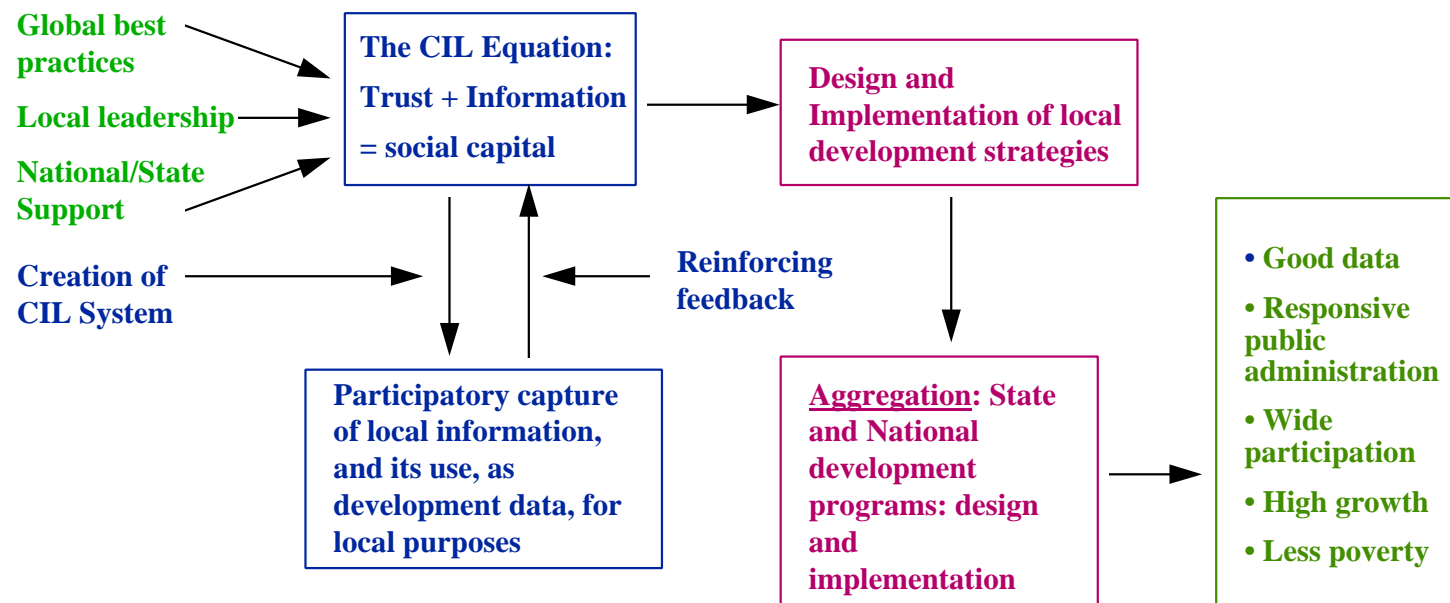
This concept of local public goods applies to a wide range of societal conditions. In relatively primitive, poor, rural areas, the community may be a small, spatially-disbursed collection of families that are chiefly concerned with effective access to a local clinic and perhaps with improvement of the local primary school.

COMMUNITY-BASED INFORMATION LENDING (CIL)

The basic argument of CIL: Good development data are a bi-product of a bottom-up approach to integrated capacity building in a country. Moreover, good development data are necessary for this approach to succeed in reducing poverty. The surest way for the Bank to reduce poverty in poor areas is to focus its grant-making and lending on community-based information.

THE CIL STRATEGY

Change Agents → Local Capacity Building → Development Proceeding on a Firm Foundation of Capacities on the Ground → National Outcomes



At the other extreme will be the neighborhoods and wards of dense metropolitan areas, dealing with much more varied menus of public functions. Along this dimension of rising complexity, the *informational underpinnings* of good governance are similar, both in general method and in the tools/technologies that will be chosen. Of course, the remote rural village will choose to stand on a lower rung of the IT ladder than will the capital city, but these should both be rational choices from the product line of present-vintage (and relatively cheap) technology. These choices all integrate, when it comes to looking at the aggregate effects on a country's development.

3. THE TOOLS OF CIL

What are these informational underpinnings of good governance--the tools or levers of information that *do* make a strategic difference in a country's economic development?

Since all good governance starts with the idea of a clientele of residents, there must be information defining "local" as a geographic area. Then there must be an operational definition of (primary) residency and, on this basis, working registers of residents. "Working" is functionally defined in terms of accuracy, completeness, and up-to-dateness that are sufficient for determining access to local public goods. The registers will comprise both individuals and legally-constituted groups (which typically are further classified for purposes of describing their rights and obligations, e.g., business corporations, non-profit organizations, and so on). The registers must, at a minimum, contain information that is necessary to establish the right of access of any individual or group to local public goods. Information about residence will always be needed, of course. Further, registers of persons typically require age, among other "vital statistics." Registers of businesses typically require some measure of scale (employment, sales).

The modalities, regulations, and technologies of modern "population registers" are well known and thoroughly researched in leading countries (most notably in Scandinavia, but also in a few "developing" countries). Herein lies a tremendous, unexploited potential for governance in areas with fragile socio-political systems.. Modern IT makes population registers a feasible and cost-effective way of maintaining continuous census of personal and business demographics, even in poor countries. What limits the spread of population registers today is not income, but the lack of trust in government. Trust is a variable: it can be built. In a progressing society, it accumulates inside the generator of social capital, as described in the previous section.

Beyond "vital statistics" and other standard demographic variables, good governance requires information about what the clientele wants. At a high level of abstraction, such information may be divided into two parts: a) *ex post* data, i.e., records of the use actually made of local public goods, and b) *ex ante* indicators of demand, particularly, formal voting results, surveys of preferences, "town meetings" and spontaneous demonstrations. Under democratic systems of control, registers of residents may be easily adapted for voter registration, although of course all variables that represent qualifications for voting must be added to the information file.

Giving individuals the power to control local authority through the vote (suffrage) helps to build their trust in government's faithful attention to their needs, which in turn makes them more willing to provide information to the government about their relevant actual activities--the *ex post* data (a). Thus, the most effective and efficient information systems presently in use in the world feature a balance between monitoring the provision of local public goods (through data on access to them) and monitoring the accountability of local government (through the democratic vote and other expressions of public opinion).

The use of "swipe facilities," "smart cards," and electronic tagging technologies, for both aspects of this information capture and management, is just beginning to take off in some leading developing countries. Again, these technologies represent a tremendous, unexploited potential for governance in poor areas. For example, at the level of service delivery to an individual resident, a "Public Access Card" bearing the individual's Personal Identification Number (PIN) may be used for automatic, free (or lower-rate) access to any local public good, and the network automatically tabulates this information for reports to the service providers and, if desired, updates information electronically on the card itself (as, for example, in the recording of an individual's cumulative health treatment history). The same system also accommodates non-residents, presumably at higher charges. The resulting revenues can be used to finance the IT system. The difference between resident and non-resident charges reflects residential rights that normally are tied to corresponding obligations to the local community, including local taxation.

Financing the provision of local public goods, under this sort of democratic system of residential rights and obligations, requires fairness, transparency, and sustainability in the shouldering of the costs of these public goods and services. This requires (leaving subsidies aside) that residents vote to tax themselves (or their progeny, if tax payments are deferred through borrowing). If a tax system more complicated than the head tax is chosen, information on additional variables regarding property, expenditure, and/or income will to be needed. The more social value is attached to demonstrating fairness and transparency, the more such information will be needed from each household and other group with tax liability. When a community realizes that it has to pay for what it gets, and succeeds in doing so by providing deliberately the necessary information and cash, this is the start of true independence.

Whatever tax system is used--a property or other wealth tax, a VAT or sales tax, or some form of income tax--the information requirements for tight administration of it are significant. The same IT system that is used for access to local public goods can be used for this purpose, with whatever legal safeguards the community decides to impose on itself regarding the sharing of information about the tax base. The protection of anonymity for this sort of information is typically a major concern of the taxpayers, and an important purpose of the available software (as well as of disclosure law) is to give users the freedom to choose the degree of protection that they want.

For their own information, residents will want to combine the information on their liabilities toward local government (taxes) and their corresponding claims on local government (including the suffrage and rights of access to local public goods). The combination of the asset and liability accounts provides information about the incentives to be residents of this community--information that is relevant in principle to their choice of location. While few individuals in poor countries (unlike, for example, the United States of America) may be responsive to such incentives (short of war or natural disasters), the choice of location is of rising importance to "footloose" small businesses, e.g., in southern Africa today.

Comparative data across communities, pertinent to locational choices, will be a result of CIL. This sort of information underpins competition through migration, especially of businesses. (The academic literature on local public goods sometimes calls this "competition for tax dollars." Much of this literature comes out of the IRIS Center, at the University of Maryland. Its founder, Mancur Olsen, died earlier this year.) This competition will be a force of growing importance in developing countries, promoting the quality of local governments over time as local authorities feel the pressure to improve their performance.

Business information facilities specifically aimed at improving the competitive situation of export-oriented firms are spreading in the fastest-growing areas of the world. These facilities focus on what it takes to help progressive firms to optimize continuously their position in the value-added chain of their industry, viewed internationally. The initiative typically comes from clusters of related industries in an area, and the informational facilities may be effectively owned and managed by partnerships of business organizations and local governments. This is an important part of the potential for modern information systems in poor countries that are opening up to external stimulus.

Whether the residents of a community will vote to allow their government to merge tax records and records pertaining to benefits (so that all the data associated with a given PIN, for instance, exists in one place) will depend on the level of trust in government achieved over time. This, in turn, will depend on the quality of governance achieved, on the extent of democratic control by residents, and on the legal protection of anonymity when information files are shared or merged. In most developed countries, such explicit merging of files is not legally possible within governments. As a result, for analytical purposes, such matching is conventionally done on a purely statistical (stochastic) basis.

4. PRINCIPLES OF THE CIL STRATEGY

Community-based Information Lending (CIL) is a *process* that uses modern technologies to build these informational underpinnings of good governance at the local level. The *principles* of the CIL *strategy* for inducing change, with particular reference to relatively poor areas, are as follows:

- 1) Today's powerful tools of information management are acquired by local government only as the capacity to control them democratically is achieved by the community. This of course requires that the political identity of the community, including the concepts of local area and of residency and the rights and obligations that go with them, begin to take shape early in the process. In turn, these are necessary conditions for the CIL strategy to be locally owned and motivated, based on mutual trust between government and residents, and therefore sustainable. (Incidentally, this scenario is the antithesis of the way many people in backward areas now perceive the global "information revolution," namely, as a new form of colonial threat, armed with a technology that they can never control.)
- 2) The CIL strategy builds upon the pre-existing ethnic, social and cultural assets of the communities. Traditional social relations are overlaid with an internationally-standard concept of residency (and its attendant rights and obligations of a carefully limited nature). The process does not destroy or displace the pre-existing social order or create a "dual" system. However, it is likely to create constructive tensions in the old ways of working, notably by replacing rent-seeking behavior of office-holders with more automatic access to local public goods, by making it harder for residents to cheat their government by withholding or falsifying information, and by reducing the incentives to exploit and to bribe.
- 3) The CIL strategy builds upon and complements existing community-based development programs, which tend to have a particular "sectoral" focus (such as, for example, agriculture or distance learning). It does so by identifying and empowering governmental leadership, putting at its disposal modern ideas and tools of information management, so that different parts of a local development strategy can be integrated and complement each other. Moreover, CIL uses the information-gathering capabilities of IT to beef up social organizations so that they can hold government accountable. These tools also facilitate the common functions of performance monitoring and evaluation of program effectiveness. The synergies between CIL and the Bank's present community-based development programs (e.g., Community Based Land management in West Africa)

arise from the basic idea that information is the main integrating function of economic development at the local level.

4) The CIL strategy incorporates a strong, top-down training component. It builds leadership through hands-on management training for local community leaders, as well as technical and professional training in the key sustaining areas such as statistics. Training focuses on special courses with sufficient flexibility to meet varying initial conditions as well as state and local needs. Each step covers a distinct phase of building the informational underpinnings of good governance at the local level, including guidance regarding IT choices and the problems of organizational and human-resource development that are likely to be encountered as the modern technologies are put in place. Leadership training mobilizes, by self-selection, the motivation of progressive present leaders of local government as well as administrators holding development responsibilities. Training is designed to appeal to those ambitious leaders who buy into the concepts and principles of CIL.

5) The CIL strategy uses strongly-motivated champions at the level of central government, wherever feasible. The central government (e.g., in African countries, through the focal point of the national capacity building program) provides general encouragement up front to interested local leaders, offers political protection for their initiatives within the guidelines of CIL, and sets up channels for listening and responding to requests from the local leaders for technical, administrative, or legal assistance. In Africa CIL is expected to benefit in major ways from programs for the modernization of information infrastructure to be undertaken at the national level through central-government programs and regional cooperation. Central-government champions of CIL could be individual agencies or coalitions (e.g., ministries for education and telecom). From a purely functional point of view, the most logical national champion is the central statistical office (as discussed further in the last section).

6) Grant finance is used sparingly and only for start-up of the CIL process. A variety of public, business, and NGO donors are interested in this sort of project, and supply of grant financing is not likely to be a binding constraint. Local capacities for organization are the constraint. Training courses for local leadership of CIL could be organized by the Bank's Economic Development Institute (EDI) and largely financed by external technical assistance during the initial years. In Africa, for example, this training could be an activity of the proposed Trust Fund of the Partnership for Capacity Building in Africa. Such external help should eventually become unnecessary as competition and demonstration effects among local governments take over and replicate the CIL System (described in the next section). Of course, the extra income generated must be mobilized to re-finance the ongoing modernization process. The costs of organizational and human-resource development within the communities should be financed largely by local resources, with minimal impact on budgets at the central level of government. The long-run, indirect effects on these central budgets of successfully implementing CIL should be revenue-enhancing.

7) Provision of imported equipment (IT hardware and software) and the associated training of local operators should be contracted by the local community leaders to leading companies on a competitive basis (rather than through a supply-driven process that local leaders are not able to manage). Financing could come partly from private capital (possibly with external guarantees). Private investors might negotiate rights to levy fees for services of the IT system to be put in place. The financing of information infrastructure and other big-ticket items that are largely external to local communities should be provided by umbrella projects, e.g., by the Bank/IDA loan that underwrites the (national) capacity building program of an African country. This program should be fundamental to, and integrated through, the Country Assistance Strategy (CAS).

5. THE CIL SYSTEM

How do these concepts, tools, and principles come together in the implementation of a *system* ? From an engineering or structural point of view, what is its *design* ? Is this something that can be replicated?

The CIL *system* is a community-based information network that empowers residents of the community, through the existing leadership structure, to pursue a progressive course of economic and social development. The design of this network may be conceived as a loaf of sliced bread, each slice of which represents a set of relationships that perform a certain function.

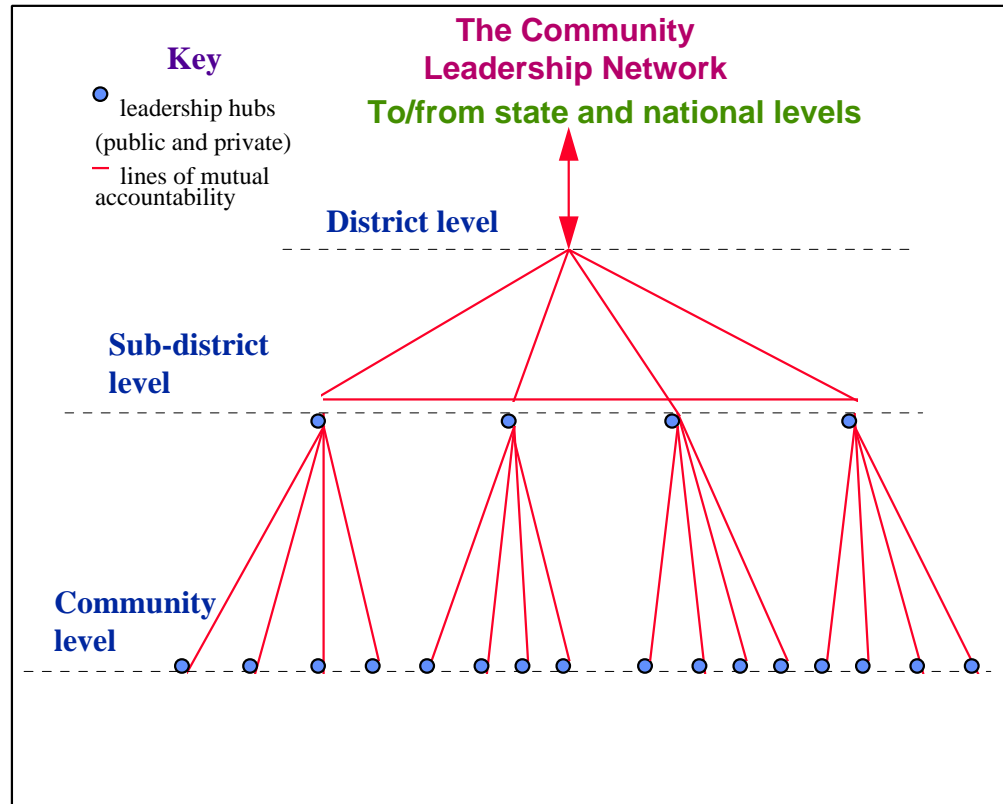
The first slice is the leadership function. It could be represented as a conventional hierarchy of public leaders--the focal points of responsibility for public administration in each residential domain--from the district level of governance on down to the most local levels at which such responsibility for leadership outside the household exists. For example, in the design of Uganda's decentralization plan, this hierarchy would encompass the RC3, RC4, and RC5 levels. In a country like India, block and panchayat levels would connect village leaders with district governments. The leadership function could be illustrated through vertical lines of reciprocal accountability, connecting the leadership hubs on the different levels.

The second slice is the connectivity function. Connectivity encompasses communications, data sharing, and all the aspects of a modern information system, suitable to the local needs and resources. It can be represented by connecting lines that extend both vertically (colinear with the lines of accountability in the leadership function) and horizontally (across to the other units on the same level of the leadership hierarchy, as well as "outward" through all the other slices in the bread-loaf). The CIL system requires each district to choose a local area network whose features are suitable to its particular conditions, and which are compatible with the state-level and national-level infrastructure for connectivity and reporting.

The third slice might be called the Culture, Library, and Information Centers (CLICs). Corresponding to each hub of the connectivity function in the leadership slice is a center that encompasses library, culture, information, entertainment and education facilities for the residents. "For the residents" means that access by residents is free or at a

CREATION OF THE CIL SYSTEM

1. Identify progressive leadership of local governance (initially a sampling process, emphasizing self-selection).
2. Empower leadership “hubs” with modern system of technology for library, cultural and information functions within the community.
3. Link system with congruent leadership functions in key “sectors”: eg., security, health, education, civic-legal-administrative services, other services to households and local business and agriculture, subsidy/tax functions, media, business organizations, labor and cooperatives, cultural institutions.
4. Refine system for aggregation and sharing of information at district (and sub-district) level and for reporting information upwards and downwards from that level.



What would an initial “innovation” grant pay for? Seed money for start-up of pilot tests of the CIL system in selected countries (leading to loan-financed programs in these and other countries). Start-up costs include components of management, research, and advice provided by Bank staff.

preferential price, upon showing an appropriate pass (a transaction that the system should record as evidence of services rendered). The “Centers” might not be single locations, but rather virtual centers, as in a distributed library system. As these services become more specialized, differentiated, and disbursed, the connectivity of the functions must be maintained. The CLICs are critical for building incentives in support of the CIL system, both among leaders and in the society at large. Some other functions of the system will tend to be more controversial at first. Thus, the CLICs should be put in place early in the process of implementing CIL.

The fourth slice of the loaf is the security function. As the system acquires valuable assets, it will need protecting. More importantly, to build consistent incentives and trust, the residents must see early evidence that the power of the system works to protect them and to build up the peace and security of the local area. The evidence must be that it is definitely not used as a tool of repression by the leadership hierarchy. This slice of the loaf thus represents the linkage to the system of the offices of the law: viz, the courts and the police.

Closely related to security (in a strategic sense) are the informational functions of democratic control over the offices of the law. So the fifth slice (or next set of slices) brings into the network linkages with groups representing civic interests, such as voters and political groups, taxpayers, business and farm interests, the media and academia. These elements of the informational network provide the basis for mutually productive exchange of information with local government, including the promotion of local, outward-oriented businesses.

Next in the loaf come a set of functions that deliver local public goods and services, notably health, education, and training. The design of each of these slices shows the organization of delivery agencies within the district in each of these sectors. The system captures longitudinal data on the use of these public goods and services and deploys it for the continuous improvement of the design and delivery of these public welfare facilities. These slices of the loaf consolidate ground-level support for the system, because residents see concretely how it improves their lives and improves governance right around them. An important externality is an improved flow of information through the leadership hierarchy to agencies of state and national government, centrally including the national statistical office. This information is essential for effective formulation and monitoring of development policies, including the effective use of foreign aid. This externality consolidates top-down political support for the system, for the CIL strategy more generally, and for its application throughout the country. In short, what sustains the system is *two-way flows*: not just information (e.g., learning) coming into the community, but strategic data about community development, flowing up and out.

Last but not least is the fiscal slice of the loaf, which links into the network the revenue and transfer functions of local government. Clearly, one of the most important outcomes of the system is an improved capacity for mobilizing local tax revenue and for

running the transfer system in a more transparent, fraud-free way. In this way the country as a whole builds financial independence from the ground upward, permitting reductions in inefficient taxes collected at the national level, such as those on international trade and investment. However, this slice of the loaf should be one of the last to be eaten, after a high degree of trust in the CIL system has been established among the residents and civil society at large.

Slicing and eating the loaf in this way and in this sequence represents an integrated approach to capacity building for development at the local level(s) of government. It is useful for tying together more specialized or fragmentary efforts at institutional development at the local level. It supports and underpins initiatives for capacity building at the state/province and national levels. Because the social capital built in this process takes time to realize its impact on income and wealth, financing is normally required, which in turn engages the resources of the World Bank. The corresponding debt is held by central or state governments.

6. LAUNCHING CIL: GENERAL CONSIDERATIONS

Starting up a CIL strategy in a pilot country is essentially a matter of discovering where the *local* conditions are favorable for that first slice of the loaf, the leadership function. What is needed for this discovery is a systematic search process that leads to the self-selection of interested local leaders, followed by a training process that fully justifies their interest. This section discusses how the process of launching CIL might be handled.

Launching CIL in a country should *not* require, as a pre-condition, favorable readings on the Bank's standard barometers of performance at the national level. Indeed, the worse are the initial conditions in the central government and in the country viewed as a whole, the stronger may be the case for launching CIL in this country (provided there is a modicum of peace and that particular local communities have enough scope to protect themselves from the national malaise). While it will take longer in this case for local reforms to show results at the national level of aggregation, this bottom-up approach to capacity building may be "the only game in town." And progress in this game will surely raise the standards that the people will insist upon at the national level. In short, CIL greatly enhances the Bank's ability to initiate fundamental reforms when its traditional channels of access are blocked.

The natural "speed limits" to the spread of CIL within a country and across the region are not likely to be set by financial constraints (limited supplies of loans or grants). In the first place, these speed limits will be intellectual. The CIL strategy is a complex idea (the idea that the accumulation of social capital can be accelerated by harnessing the data-gathering power of modern IT). This intellectual problem will only vanish once there are a number of concrete examples applied across a range of environments. When the perceived problems are simple and obvious--not enough food on the table, nor medicines in the clinic, nor books in the school--people do not naturally focus on the less obvious constraints, even if they are the fundamental ones.

Beyond the problem of understanding, the rate of CIL's progress will be limited by social and political factors in poor communities themselves: the absence of the social and political pre-conditions for effective government at the level of a "community," the absence of any germ of the idea of good governance (or the absence of trust in such abstractions if they do exist), the credence in traditional power structures (even if widely disliked), and the fear and resistance toward any agent of change.

Why believe that these barriers can be overcome over the next few years? Here are two reasons. First, the revolution in the perception of many national leaders about the potential for speedier development through a focus on an integrated approach to capacity building, involving all sectors of society and a decentralization of initiative and responsibility. Second, the global revolution in information technology itself, which is constantly increasing the cost-effectiveness of development strategies founded on the "intangible capital" of information. The Bank Group needs to show how to bring together this optimism in leadership and this power of technology, to achieve a bottom-up process of community-based development.

7. CIL AS THE GROUND LEVEL OF STATISTICAL MODERNIZATION IN INDIA

Community-based Information Lending and a thorough-going program of statistical modernization in a country are likely to be complementary ideas. CIL finds in the country's central statistical office a champion that has a cross-sectoral interest in the quality of development data and that is in a good position to coordinate training and technical help as well as financial support from the lenders and taxpayers. The central statistical office, in turn, finds in CIL an opportunity to establish the relevance of statistics to the country's progress in development, and hence to define its role within the top priorities of the nation. A leading example of this synergy at present is the proposed Statistical Modernization Project in India. As presently conceived, CIL can be viewed as the "ground" level of the proposed statistical modernization. Much work remains to be done to verify the modalities and feasibility of this part of the envisaged Project.

The results of the India Statistical Modernization Project, measured in terms of the quality (that is, relevance, accuracy, and timeliness) of statistical outputs at all levels of government, will depend on upgrading ("modernizing") the way basic facts are gathered at the "ground" level of the economic and social system of India. By "ground" level is meant the Indian village or cluster of neighboring villages (which may be, but is not necessarily, the village cluster defined by the panchayat). The India Department of Statistics (DS) has emphasized that better "small area" data are needed both for the standard macroeconomic accounts (especially consumption and investment) and for the socio-economic indicators upon which intelligent development planning at the district and state levels relies. As decentralization of development planning and implementation proceeds apace in India, the needs for reliable and timely development data from ground level will multiply.

The need for a test

How best to carry out this upgrading of fact-gathering on the ground is presently not clear. We know that the modern systems of office technology, linked by local area networks, linked further by wireless telecom to district nodes, and powered by local (and possibly mobile) generators, have greatly expanded the *technical* opportunities for village-level information gathering (even in very remote and primitive areas). Indeed, the National Informatics Council has already gone a long way to demonstrate these technical opportunities. What we *don't* know (regarding traditional societies that have been socially and technically stationary for centuries) is how to build and sustain the

social capital (that is, the trust, cohesion, leadership, participation, motivation, incentives, and related social structures) that is required to use, manage, and maintain these modern systems effectively. Moreover, this social capital must continue to accumulate over future time in flexible response to changing needs, because these modern technical systems themselves must keep changing rapidly to keep pace with global technical progress, which keeps reducing the costs and increasing the productivity of these systems.

It is not difficult to conceptualize scenarios about how this social capital might be formed in a village or village cluster. However, such scenarios have not been tested. So their feasibility is presently a matter of speculation. All we know from the Indian experience so far is that the presence of the technology itself does not produce successful upgrading in statistics within a reasonable time frame.

Therefore, while the Statistical Modernization Project should definitely include a strategy for capitalizing on the power of modern IT to gather more and better data faster at the ground level of the national statistical system, some preliminary testing is now required in order to formulate this component of the Project in a clear and cogent way. Much would be learned, at comparatively little cost, from a single pilot test. As learning from this test accrues, other tests, complementing the first one, might be designed in order to test the robustness of the preliminary results.

What is the test “intervention”?

Viewed from the *technical* point of view, this test “intervention” would consist of installing one or more personal computers in the village community center--hereafter called the Culture, Library, and Information Center (CLIC). These computers would have reliable electronic connections for data transfer to/from the district statistical office. Block (or panchayat) development offices and other interested organizations, e.g., local NGOs, should also be networked in due course. Looking forward, the IT design should flexibly accommodate an organic style of growth of a local area network (LAN) of PCs and of appropriate support systems within the village or village cluster. The focus of the pilot test would be on the hub of this LAN, which is the CLIC. An important part of the test would be to go through a rational process of choosing the best technologies (for power, telecom, and office hardware and software) to fit the circumstances, as well as the corresponding technical support functions (maintenance and so on).

On the other hand, viewed as an investment in the *social capital* of the village, this “intervention” would consist of testing the feasibility of proposals for motivating the types of social action within the village (or village cluster) that are essential for sustained results. These include:

1) Leadership and vision: respected leaders or elders of the village see the CLIC as an asset to the village, and take pride in it, because it supports their vision of the development of the local area.

2) A “champion” of the CLIC emerges, having sufficient interest as a user of it to take responsibility for managing its operations. This is likely to be part-time work initially, say, supplementing a teacher’s salary. The funding sources for this pay should be local.

3) Local people are willing to be trained (at some cost to themselves) in the various support functions of the CLIC, which include: user (“client”) support of the equipment, maintenance and repair, management of user access to the facilities, planning and implementation of expansion or upgrading of the system, library management skills, and statistical operations *per se* (data gathering, ongoing or occasional local surveys, compiling, checking, storing, and transmission of data).

4) People of position and influence in the village take the lead in using the LAN facilities for purposes of improving their business (livelihood) decisions and outcomes, or for increasing their effectiveness in delivering public services (e.g., in health, education, agricultural advice, various local “public” and administrative services), or for increasing their influence in the civic life of the community (advocacy by individual leaders and interest groups).

5) The people of the village in general, including children (the most adaptable and fastest-learning end of the demographic spectrum), respond to the new opportunities for a) exciting and informative interactions with the world at large, b) guided and self-driven educational programs, c) heightened consciousness of what is going on locally and of local opportunities, and, last but not least from the motivational standpoint, d) entertainment.

Will CLICs provide better data?

The relationship between a successfully-established, self-sustaining, and self-managed CLIC, and the activity of gathering data that are useful for India’s statistical system, needs to be explored in this pilot test. As the hub of a LAN that integrates essentially all of the information flows of the local area, the CLIC can (as regards technical feasibility) serve as the primary coordinator of data gathering for this local area. Whether this will happen, though, depends on whether the people of the village become motivated to collect information about the development of their village because it is in *their* interest to do so. The motivation cannot be expected to come *solely* (or even mainly) from the district level.

A *prima facie* case can be made that this motivation would tend to develop. The CLIC would provide a unique opportunity for participatory development. Using the

CLIC as the center for a continuous process of surveys about the progress of local business, income, and wealth, as well as about effective access to and use of public facilities, is likely to happen if local pride and a cohesive sense of community are built. Local NGOs, who should be important stakeholders in this process, should see this data gathering activity as crucial for improving local governance and for fighting corruption. As an educational asset, statistical activities centered on the CLIC should become a living laboratory for practical use of math and should stimulate relevant courses in the local schools. Teachers and graduates of such courses, armed with training in the block, district, or state capitals, should supply the talent that would man these data operations in the villages. (This potentially-large market for training would be factored into the training component of the Project.) In sum, there would seem to be a potential for motivating substantial and improved data gathering, as one of many inter-related activities of CLICs.

An example of a survey that could usefully be managed and run by a CLIC is the World Bank's Core Welfare Indicators Questionnaire ("CWIQ").

The place of CLICs in the larger strategy for modernization

Of course, district statistical offices would need to make their data needs clear to CLICs. They could contract to have the villages supply these needs as part of the *quid pro quo* for ongoing support through provision of training and equipment. The district statistical office should aim to delegate responsibility for conducting ground-level surveys to the CLICs. But the CLICs would be autonomous and self-governing, with local stakeholders and users determining the local development agenda and its informational needs.

As CLICs mature, most of the data in local demand would not be needed up the line of geopolitical aggregation. On the other hand, what villages discover to be useful information for their own purposes may itself change and improve the agenda for development data in the central statistical system and in the development policy functions of government. This is true because, in the final analysis, all development (being about people) is local.

The long-term carrying costs to India (as a whole) of an ever-renewed and modern IT system extending into the village level of social organization would of course be immense. This cost would have to be justified by the overall impact, in the long run, of these technical facilities, and of the associated social capital, on the level and trend of income and wealth of the Indian people. The consensus of observers in many countries (and at the World Bank) is that such "knowledge capital" is now, and will remain, the backbone of economic growth in the world economy at large. Thus, the risk to India itself of "buying in" to this vision should not be an impediment to committing large resources. In making such a commitment to "modernization," with a strategic focus on linking information and development at the local level, the democratic Government of

India *as a whole* would be the financier of these large, long-term costs. It is for this reason, broadly speaking, that a Project of Statistical Modernization in India must truly be “owned” by all segments of Indian society.

Building on Present Assets: the Need for Collective Action

From the standpoint of IT systems design, the LAN would normally serve the panchayat. Each LAN would be managed by at least one CLIC, depending on the density of interest: the elements of “social capital” already discussed. An important leading indicator of this interest would be the number and enrollment of educational institutions in the panchayat above primary level that offer relevant courses (data that are readily available). There might be as many as five CLICs in a panchayat, with facilities integrated through the LAN.

The governance and financing of each LAN would build upon the progress already made (in parts of India) to install panchayat administrators holding budget for development-related activities. Such activities would naturally provide a hub and anchor for the demand side of locally-gathered development data. Such data would be needed to support this office’s requests for future assistance from block and district levels, and to report on the results of past assistance from them.

In every field of interest for local-area development (agriculture, health, education, utilities, transport, and taxation being the core interests), information systems are already in place in the panchayats. These systems are changing very slowly, both in their social and technical attributes. A process of social (and sometimes legal) change needs to be visualized that transforms all these systems by integrating them into the panchayat CLICs and the supporting LAN.

For example, local educators are now feeding a national data gathering system in education that takes some seven years to produce a report. If these same educators (some of whom would be running the CLICs) used the CLICs instead, that report might be done in seven months, provided also that the information flows to the top of the statistical system in an unimpeded way.

The harmonizing and streamlining of processes that results from sharing a common IT system (at ground level and at all upper levels) in no way dilutes the responsibility of educators (or any other professional or sectoral group) to control and ensure the quality of “their data”. Quite the contrary: the shared IT system greatly empowers them to assume this responsibility for quality, in part by making the data timely enough to be of use to everyone in the field, including the original providers.

Feedback of information to its original providers at ground level, from higher levels of aggregation and analysis, would motivate the provision of information from the ground and sustain the local support for the CLICs. In effect, this feedback “in kind” would avoid the need for cash transfers from above, thus making the system budget-neutral on current account, and thus capable of expanding to meet whatever the demand for information may be in a growing economy.

Of course, the timeliness, of this feedback is absolutely critical to its effectiveness in providing such a quid pro quo. For example, farm data are only useful to farmers (for decisions on planting, harvesting and selling) if the feedback of aggregate information about quantities and prices is current. In a “modern” system this promptness of reporting, aggregation, analysis, and feedback of information would be achieved.

The Ministry of Agriculture have people in place in the panchayats who are collecting such information in their local areas, but their tools and capacities permit neither an active engagement by farmers in feeding data into the system nor feedback of information to farmers that they can use. Thus, the present system is neither modern nor incentive-consistent, and therefore, it is both slow and expensive, for what is achieved from it. The CLIC would provide a low-cost means of modernizing agricultural data because the system costs (of the IT and the associated social capital) would be shared among all “sectors”.

India’s present processes for census (of housing and population) and for household surveys are major social assets, being the foundation of the statistical system. Yet these processes are slow. Little local use is made of the information collected, and the processes themselves contribute little to local development. Most of the detailed records of censuses are not used at higher levels of government, either. By “contracting out” such regular statistical work to the CLICs, the regular census and survey work of India would become tools of local empowerment, while the quality of the data transmitted up the line would be improved. An early step in moving to this new system of census and survey would be to allow panchayat-level administrators immediate access to the records from their own local areas, so that they can check them, learn from them, and use them for their own purposes.

Devolution to CLICs of responsibility for routine and repetitive statistical work at ground level would greatly upgrade and empower statistical work of a more sophisticated kind at district, state, and federal levels. Special surveys of all kinds (e.g., levels and determinants of innovation and investment in local business establishments, or value added in retail distribution, or employment in the informal sector), designed and managed by professional statisticians in government offices, would be implemented more faithfully in the field with the cooperation of the CLICs, and the results would be quickly available because the LANs would be used for systems support. The CLICs would benefit through the infusion of knowledge and specialized equipment/software that would tend to be externalities of their cooperation with these special surveys.

In short, statisticians would benefit from CLICs in much the same way as educators, health specialists, and agricultural experts. The challenge we face is the familiar one of securing collective action, in the interest of all, to provide an essential “public good” - in this case, better strategic information. What is now needed is a step-by-step, innovative approach to this goal of securing collective action in India.